Connecticut Department of Energy & Environmental Protection

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, District 4 Construction**

Mailing Address: **359 South Main Street**

City/Town: **Thomaston** State: **CT** Zip Code: **06787**

Business Phone: **203 591-3540** ext.:

Contact Person: **Kenneth E. Fargnoli** Phone: **203 591-3540** ext.

E-Mail: **Kenneth.Fargnoli@ct.gov**

Applicant (check one): ☐ individual ☐ ***business entity** ☐ federal agency ☒ state agency ☐ municipality ☐ tribal

***If a business entity, list 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)*

Reconstruction of I-84, between Washington Street and Pierpont Road, State Project No. 151-273

Location (City/Town): **Waterbury, CT**

Other Project Related Permits (*not* included with this form):

Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
FMC	ConnDEEP	10/16/2013	3/14/2014	N/A	201304708-FM
Section 404	US ACOE	1/30/2014	9/24/2014	N/A	NAE-2012-1062

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 ☐ Revision ☐ minor mod	$940.00			1 + 0
	Title V Operating Permits ☐ Revision ☐ minor mod ☐ non-minor mod	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 + 1
	INLAND WATER RESOURCES-				
	Dam Safety	none			1 + 2
	Flood Management Certification	none			1 + 1
	Inland Wetlands and Watercourses	none			1 + 5
	Inland 401 Water Quality Certification	none			
	FERC- Hydropower Projects- 401 Water Quality Certification	none			1 +1
	Water Diversion	★			1 + 5
	OFFICE OF LONG ISLAND SOUND PROGRAMS				
	Certificate of Permission	$375.00			1 + 2
	Coastal 401 Water Quality Certification	none			1 + 2
	Structures and Dredging/and Fill/Tidal Wetlands	$660.00			1 + 2
	WASTE MANAGEMENT				
	Aerial Pesticide Application	★			1 + 2
	Aquatic Pesticide Application	$200.00			1 + 0
	CGS Section 22a-454 Waste Facilities	★			1 + 1
	Disruption of a Solid Waste Disposal Area	$0			1 + 1
	Hazardous Waste Treatment, Storage and Disposal Facilities	★			1 + 1
	Marine Terminal License	$375.00			1 + 0
	Stewardship	$4000.00			1 + 1
	Solid Waste Facilities	★			1 + 1
	Waste Transportation	★			1 + 0
		Subtotal ➡	0		
	GENERAL PERMITS and AUTHORIZATIONS	Subtotals Page 3 &4 ➡	1	$5,000.00	
	Enter subtotals from Part IV, pages 3 - 6 of this form	Subtotals Page 5 ➡	0		
		Subtotals Page 6 ➡	0		
		TOTAL ➡	1	$5,000.00	
	☐ Indicate whether municipal discount or state waiver applies.	Less Applicable Discount ➡			
		AMOUNT REMITTED ➡		$5,000.00	

Check # ➡ _____

Check or money order should be made payable to: "Department of Energy and Environmental Protection"

★ **See fee schedule on individual application.**

Part IV: General Permit Registrations and Requests for Other Authorizations Application and Fee Information

✓	General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
	AIR EMISSIONS				
☐	Limit Potential to Emit from Major Stationary Sources of Air Pollution	$2760.00			1 + 0
☐	Diagnostic and Therapeutic X-Ray Devices (Medical X-Ray) Registration	$190.00/Xray device			1 + 0
☐	Radioactive Materials and Industrial Device Registration (Ionizing Radiation)	$200.00			1 + 0
☐	Emergency/Temporary Authorization	★★			★★
☐	License Revocation Request	$0			★★
☐	Other, (please specify):				
	WATER DISCHARGES				
☐	Boiler Blowdown Wastewater	Expired- wastewater discharge authorized under MISC GP			
☐	Categorical Industry User to a POTW Discharges > 10,000 gpd Discharges < 10,0000 gpd	 $6250.00 $3125.00			1 + 0
☐	Domestic Sewage	$625.00			1 + 0
☐	Food Preparation Establishment Wastewater	No Registration			
☐	Food Processing Wastewater	$500.00			1 + 0
☐	Groundwater Remediation Wastewater to a Sanitary Sewer	$500.00			1 + 0
☐ ☐	Groundwater Remediation Wastewater to a Surface Water Registration Only Approval of Registration by DEEP	 $625.00 $1250.00			1 + 0
☐ ☐	Hydrostatic Pressure Testing Wastewater Registration Only Approval of Registration by DEEP (natural gas pipelines)	 $625.00 $1250.00			1 + 0
☐ ☐	Miscellaneous Discharges of Sewer Compatible Wastewater Registration Only Approval of Registration by DEEP	 $500.00 $1000.00			1 + 0
☐	Nitrogen Discharges	No Registration			
☐	Non-Contact Cooling and Heat Pump Water (Minor)	$625.00			1 + 0
☐	Photographic Processing Wastewater (Minor)	Expired- wastewater discharge authorized under MISC GP			
☐	Point Source Discharges from Application of Pesticides	$200.00			1 + 0
☐	Printing & Publishing Wastewater (Minor) Flow < 40 gpd	$500.00 $100.00			1 + 0
☐	Stormwater Associated with Commercial Activities	$300.00			1 + 0
☐	Stormwater Associated with Industrial Activities <50 employees–see general permit for additional requirements >50 employees–see general permit for additional requirements	 $500.00 $1000.00			1 + 0
☒	Stormwater & Dewatering Wastewaters-Construction Activities	★	1	$5,000.00	1 + 0
☐	Stormwater from Small Municipal Separate Storm Sewer Systems (MS4)	$250.00			1 + 0

★ See fee schedule on registration/application.

★★ 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)

WATER DISCHARGES (continued)				
☐ Subsurface Sewage Disposal Systems Serving Existing Facilities	★★			1 + 0
☐ Swimming Pool Wastewater - Public Pools and Contractors	$500.00			1 + 0
☐ Tumbling or Cleaning of Parts Wastewater (Minor)	Expired- wastewater discharge authorized under MISC GP			
Vehicle Maintenance Wastewater ☐ Registration Only ☐ Approval of Registration by DEEP	 $625.00 $1250.00			1 + 0
☐ Water Treatment Wastewater	$625.00			1 + 0
☐ Emergency/Temporary Authorization - Discharge to POTW	$1500.00			1 + 0
☐ Emergency/Temporary Authorization - Discharge to Surface Water	$1500.00			1 + 0
☐ Emergency/Temporary Authorization - Discharge to Groundwater	$1500.00			1 + 0
☐ Other, (please specify):				
Note: Carry subtotals over to Part III, page 2 of this form. Subtotal ➡		1	$5,000.00	

★ See fee schedule on registration/application.

★★ 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)

✓	General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
	AQUIFER PROTECTION PROGRAM				
☐	Registration for Regulated Activities	$625.00			1 + 0
☐	Permit Application to Add a Regulated Activity	$1250.00			1 + 0
☐	Exemption Application from Registration	$1250.00			1 + 0
	INLAND WATER RESOURCES				
☐	Diversion of Remediation Groundwater	No Registration			
☐	Diversion of Water for Consumptive Use: Reauthorization Categories	$1000.00			1 + 2
☐	Diversion of Water for Consumptive Use: Authorization Required	$2500.00			1 + 4
☐	Diversion of Water for Consumptive Use: Filing Only	$1500.00			1 + 4
☐	Programmatic General Permit	★			1 +3
☐	Water Resource Construction Activities	★			1 +0
☐	Emergency/Temporary Authorization	★★			★★
☐	Notice of High Hazard Dam or a Significant Hazard Dam	$0			1 +0
☐	Other, (please specify):				
	OFFICE OF LONG ISLAND SOUND PROGRAMS				
☐	4/40 Docks	$700.00			1 + 1
☐	Beach Grading	$100.00			1 + 1
☐	Buoys or Markers	No Registration			
☐	Coastal Remedial Activities Required by Order	$700.00			1 + 1
☐	Dock Reconstruction	$300.00			1 + 1
☐	Harbor Moorings	No Registration			
☐	Maintenance of Catch Basins and Tide Gates	No Registration			
☐	Marina and Mooring Field Reconfiguration	$700.00			1 + 1
☐	Minor Seawall Repair	No Registration			
☐	Non-harbor Moorings	$100.00			1 + 1
☐	Osprey Platforms and Perch Poles	none			1 + 1
☐	Pump-out Facilities (no fee for Clean Vessel Act grant recipients)	$100.00			1 + 1
☐	Programmatic General Permit	★			1 + 1
☐	Removal of Derelict Structures	$100.00			1 + 1
☐	Residential Flood Hazard Mitigation	$100.00			1 + 1
☐	Swim Floats	$100.00			1 + 1
☐	Emergency/Temporary Authorization	★★			★★
☐	Other, (please specify):				
	Note: Carry subtotals over to Part III, page 2 of this form.	Subtotal ➡	0		

★ See fee schedule on registration/application.

★★ 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)

✓	General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
	WASTE MANAGEMENT				
☐	Addition of Grass Clippings at Registered Leaf Composting Facilities	$500.00			1 + 0
☐	Beneficial Use Determination	★			
	Certain Recycling Facilities:				
☐	Drop-site Recycling Facility	$200.00			1 + 0
☐	Limited Processing Recycling Facility	$500.00			1 + 0
☐	Recyclables Transfer Facility	$500.00			1 + 0
☐	Single Item Recycling Facility	$500.00			1 + 0
$0 ☐	Collection and Storage of Post Consumer Paint	$0			
	Contaminated Soil and/or Staging Management (Staging/Transfer)				
☐	Registration Only	$250.00			1 + 0
☐	Approval of Registration by DEEP	$1500.00			1 + 0
☐	Renewals	$750.00			
☐	Connecticut Solid Waste Demonstration Project	$1000.00			1 + 0
☐	Disassembling Used Electronics	$2000.00			1 + 0
☐	Leaf Composting Facility	none			1 + 1
☐	Municipal Transfer Station	$800.00			1 + 1
☐	One Day Collection of Certain Wastes and Household Hazardous Waste	$1000.00			1 + 0
☐	Sheet leaf Composting Notification	$0			★★
	Special Waste Authorization				1 + 0
☐	Landfill or RRF Disposal	$660.00			
☐	Asbestos Disposal	$300.00			
☐	homeowner	$0			
☐	Storage and Processing of Asphalt Roofing Shingle Waste	$2500.00			1 + 0
☐	Storage and Processing of Scrap Tires for Beneficial Use	$1250.00			1 + 0
☐	Emergency/Temporary Authorization	★★			★★
☐	Other, (please specify):				
	REMEDIATION				
☐	In Situ Groundwater Remediation: Enhance Aerobic Biodegradation	★			1 + 2
☐	In Situ Groundwater Remediation: Chemical Oxidation	$500.00			1 + 0
☐	Emergency/Temporary Authorization	★			★★
	Note: Carry subtotals over to Part III, page 2 of this form.	Subtotal ➡	0		

★See fee schedule on registration/application.

★★Contact the specific permit program for this information. (Contact numbers are provided in the instructions)

Affirmative Action, Equal Employment Opportunity and Americans with Disabilities

The Connecticut Department of Energy and Environmental Protection is an Affirmative Action/Equal Opportunity Employer that is committed to complying with the requirements of the Americans with Disabilities Act (ADA). Please contact us at (860) 418-5910 or deep.accommodations@ct.gov if you: have a disability and need a communication aid or service; have limited proficiency in English and may need information in another language; or if you wish to file an ADA or Title VI discrimination complaint.

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

General Permit Registration Form for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, effective 10/1/13 (non-electronic form)

Prior to completing this form, you **must** read the instructions for the subject general permit available at **DEEP-WPED-INST-015**.
This form must be filled out electronically before being printed.
You must submit the registration fee along with this form.

The status of your registration can be checked on the DEEP's ezFile Portal. Please note that DEEP will no longer mail certificates of registration.

CPPU USE ONLY
App #:_____
Doc #:_____
Check #:_____
Program: Stormwater

Part I: Registration Type

Select the appropriate boxes identifying the registration type and registration deadline.

Registration Type			Registration Timeline	
☐	**Re-registration** **Existing Permit No. GSN _____**		**On or before February 1, 2014*** *Note: Failure to renew a permit by this date will require submission of new registration. Re-registrants must only complete Parts I, II, III (except Question 8), IV - Question 1, VII and submit Attachment A.	
☒	**New Registration** (Refer to Section 2 of the permit for definitions of Locally Exempt and Locally Approvable Projects)	☐ **Locally Approvable Projects** **Size of soil disturbance:**	**New registration - Sixty (60) days prior to the initiation of the construction activity for:** Sites with a total soil disturbance area of 5 or more acres	
		☒ **Locally Exempt Projects** **Size of soil disturbance:**	☐	**New registration - Sixty (60) days prior to the initiation of the construction activity for:** Sites with a total disturbance area of one (1) to twenty (20) acres except those with discharges to impaired waters or tidal wetlands
			☒	**New registration - Ninety (90) days prior to the initiation of the construction activity for:** (i) Sites with a total soil disturbance area greater than twenty (20) acres, or (ii) Sites discharging to a tidal wetland (that is not fresh-tidal and is located within 500 feet), or (iii) Sites discharging to an impaired water listed in the "Impaired Waters Table for Construction Stormwater Discharges"

Part II: Fee Information

1. New Registrations
   a. Locally approvable projects (registration only):
      ☐ $625 [#1855]
   b. Locally exempt projects (registration and Plan):
      ☐ $3,000 total soil disturbance area ≥ one (1) and < twenty (20) acres. [#1856]
      ☐ $4,000 total soil disturbance ≥ twenty (20) acres and < fifty (50) acres. [#1857]
      ☒ $5,000 total soil disturbance ≥ fifty (50) acres. [#1858]
2. Re-Registrations
   ☐ $625 (sites previously registered prior to September 1, 2012) [#1853]
   ☐ $0 (sites previously registered between September 1, 2012 and the issuance date of this permit) [#1854]

The fees for municipalities shall be half of those indicated in subsections 1.a., 1.b., and 2 above pursuant to section 22a-6(b) of the Connecticut General Statutes. State and Federal agencies shall pay the full fees specified in this subsection. 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 Energy and Environmental Protection.

Part III: Registrant Information

- If a registrant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of the State. If applicable, the registrant's name shall be stated **exactly** as it is registered with the Secretary of the State. This information can be accessed at **CONCORD.**
- If a registrant 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.).

1. Registrant /Client Name: **Connecticut Department of Transportation, District IV**

   Registrant Type ⬇

   Secretary of the State business ID #:

   Mailing Address: **359 South Main Street**

   City/Town: **Thomaston** State: **CT** Zip Code: **06787**

   Business Phone: **203 591-3540** ext.:

   Example:(xxx) xxx-xxxx

   Contact Person: **Kenneth E. Fargnoli, P.E.** Title: **District Engineer**

   E-Mail: **kenneth.fargnoli@ct.gov**

   Additional Phone Number (if applicable): ext.

2. List billing contact, if different than the registrant:

   Name:

   Mailing Address:

   City/Town: State: Zip Code:

   Business Phone: ext.:

   Contact Person: Title:

Part III: Registrant Information (continued)

3. List primary contact for departmental correspondence and inquiries, if different than the registrant:

   Name:

   Mailing Address:

   City/Town: State: Zip Code:

   Business Phone: ext.:

   Site Phone: Emergency Phone:

   Contact Person: Title:

   Association (e.g. developer, general or site contractor, etc.):

4. 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.:

   Contact Person:

5. List developer, if different from registrant or primary contact:

   Name:

   Mailing Address:

   City/Town: State: Zip Code:

   Business Phone: ext.:

   Contact Person: Title:

6. List general contractor, if different from registrant or primary contact:

   Name:

   Mailing Address:

   City/Town: State: Zip Code:

   Business Phone: ext.:

   Site Phone: Off Hours Phone:

   Contact Person: Title:

7. List any engineer(s) or other consultant(s) employed or retained to assist in preparing the registration and/or Stormwater Pollution Control Plan. ☐ Please select if additional sheets are necessary, and label and attach them to this sheet.

   Name: **Ammann & Whitney**

   Mailing Address: **2500 Westchester Ave., Suite 305**

   City/Town: **Purchase** State: **NY** Zip Code: **10577**

   Business Phone: **914 967-5800** ext.:

   Contact Person: **James A. Hund** Title: **Project Engineer**

   Service Provided: **Engineering, Registration & SPCP Preparation**

8. List Reviewing Qualified Professional (for locally approvable projects only):

   Name:

   Mailing Address:

   City/Town: State: Zip Code:

   Business Phone: ext.:

Part IV: Site Information

1. Site Name: **Reconstruction of I-84, Waterbury, CT Project No. 151-273**
   Street Address or Description of Location:
   City/Town: **Waterbury & Cheshire** State: CT Zip Code:
   Brief Description of construction activity: **Highway Reconstruction**
   Project Start Date: **04** / **15** Anticipated Completion Date: **04** / **20**
   (month/ yr) *(month/ yr)*
   Normal working hours: **8am** to **4pm**

2. MINING: Is the activity on the site in question part of mining operations (i.e. sand and gravel)? ☐ Yes ☒ No

   If yes, mining is not authorized by this general permit. You must submit the Registration Form for the General Permit for the Discharge of Stormwater Associated with Industrial Activity.

3. COMBINED OR SANITARY SEWER: Does all of the stormwater from the proposed activity discharge to a combined or sanitary sewer (i.e. a sewage treatment plant)? ☐ Yes ☒ No

   If yes, this activity is not regulated by this permit. Contact the Water Permitting & Enforcement Division at 860-424-3018.

4. INDIAN LANDS: Is or will the facility be located on federally recognized Indian lands ☐ Yes ☒ No

5. COASTAL BOUNDARY: Is the activity which is the subject of this registration located within the coastal boundary as delineated on DEEP approved coastal boundary maps ☐ Yes ☒ No

   The coastal boundaries fall within the following towns: Branford, Bridgeport, Chester, Clinton, Darien, Deep River, East Haven, East Lyme, Essex, Fairfield, Greenwich, Groton (City and Town), Old Lyme, Guilford, Hamden, Ledyard, Lyme, Madison, Milford, Montville, New London, New Haven, North Haven, Norwalk, Norwich, Old Saybrook, Orange, Preston, Shelton, Stamford, Stonington (Borough and Town), Stratford, Waterford, West Haven, Westbrook and Westport.

   If "yes", and this registration is for a new authorization or a modification of an existing authorization where the physical footprint of the subject activity is modified, you must provide documentation the DEEP Office of Long Island Sound Programs or the local governing authority has issued a coastal site plan approval or determined the project is exempt from coastal site plan review. Provide this documentation with your registration as Attachment B. See guidance in Appendix D of the general permit. Information on the coastal boundary is available at the local town hall or at www.cteco.uconn.edu/map_catalog.asp. Additional DEEP Maps and Publications are available by contacting DEEP staff at 860-424-3555.

Part IV: Site Information (continued)

6. ENDANGERED OR THREATENED SPECIES:

In order to be eligible to register for this General Permit, each registrant must perform a self-assessment, obtain a limited one-year determination, or obtain a safe-harbor determination regarding threatened and endangered species. This may include the need to develop and implement a mitigation plan. While each alternative has different limitations, the alternatives are not mutually exclusive; a registrant may register for this General Permit using more than one alternative. See Appendix A of the General Permit. Each registrant must complete this section AND Attachment C to this Registration form and a registrant who does not or cannot do so is not eligible to register under this General Permit.

Each registrant must perform a review of the Department's Natural Diversity Database maps to determine if the site of the construction activity is located within or in proximity (within ¼ mile) to a shaded area.

a. Provide the date the NDDB maps were reviewed: **December 2014** (Print a copy of the NDDB map you viewed since it must be submitted with this registration as part of Attacment C.)

b. For a registrant using a limited one-year determination or safe harbor determination to register for this General Permit, provide the Department's Wildlife Divison NDDB identification number for any such determination: _____ (The number is on the determination issued by the Department's Wildlife Divison).

c. verify that I have completed Attachment C to this Registration Form. ☒ Yes

For more information on threatened and endangered species requirements, refer to Appendix A and Section 3(b)(2) of this General Permit, visit the DEEP website at www.ct.gov/deep/nddbrequest or call the NDDB at 860-424-3011.

7. WILD AND SCENIC RIVERS: Is the proposed project within the watershed of a designated Wild and Scenic River? (See Appendix H for guidance) ☐ Yes ☒ No

8. AQUIFER PROTECTION AREAS: Is the site located within a mapped aquifer protection area www.ct.gov/deep/aquiferprotection as defined in section 22a-354h of the CT General Statutes? ☐ Yes ☒ No
(For additional guidance, please refer to Appendix C of the General Permit)

9. CT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL: Is the activity in accordance with CT Guidelines for Erosion and Sediment Control and local erosion & sediment control ordinances, where applicable? ☒ Yes ☐ No

10. HISTORIC AND/OR ARCHAEOLOGICAL RESOURCES:
Has the site of the proposed activity been reviewed (using the process outlined in Appendix G of this permit) for historic and/or archaeological resources? ☒ Yes ☐ No

a. The review indicates the proposed site does not have the potential for historic/ archaeological resources, OR ☒ Yes ☐ No

b. The review indicated historic and/ or archaeological resource potential exists and the proposed activity is being or has been reviewed by the Offices of Culture and Tourism, OR ☐ Yes ☒ No

c. The proposed activity has been reviewed and authorized under an Army Corps of Engineers Section 404 wetland permit. ☒ Yes ☐ No

11. CONSERVATION OR PRESERVATION RESTRICTION:
Is the property subject to a conservation or preservation restriction? ☐ Yes ☒ No

If Yes, proof of written notice of this registration to the holder of such restriction or a letter from the holder of such restriction verifying that this registration is in compliance with the terms of the restriction, must be submitted as Attachment D.

Part V: Stormwater Discharge Information

Table 1 *(SEE THE FOLLOWING PAGES)*						
Outfall #	a) Type	b) Pipe Material	c) Pipe Size	d) Note: To find lat/long, go to: CT ECO. A decimal format is required here. Directions on how to use CT ECO to find lat./long. and conversions can be found in Part V, Section d of the DEEP-WPED-INST-015 .		e) What method was used to obtain your latitude/longitude information?
				Longitude	Latitude	
	Select One:	Select One:	Select One:	-_ _._ _ _ _ _	_ _._ _ _ _ _	Select One:
	Select One:	Select One:	Select One:	-_ _._ _ _ _ _	_ _._ _ _ _ _	Select One:
	Select One:	Select One:	Select One:	-_ _._ _ _ _ _	_ _._ _ _ _ _	Select One:
	Select One:	Select One:	Select One:	-_ _._ _ _ _ _	_ _._ _ _ _ _	Select One:
	Select One:	Select One:	Select One:	-_ _._ _ _ _ _	_ _._ _ _ _ _	Select One:

Table 2 *(SEE THE FOLLOWING PAGES)*						
Outfall #	a) For temporary and permanent outfalls, provide a start date. For temporary discharges, also provide a date the discharge will cease.	b) For the drainage area associated with each outfall: Effective Impervious Area Before Construction	c) For the drainage area associated with each outfall: Effective Impervious Area After Construction	d) To what system or receiving water does your stormwater runoff discharge? either "storm sewer" or "wetlands/waterbody" (If you select "storm sewer" proceed to Part VI of the form. If you select "wetlands/waterbody" proceed to next question)	e) For each outfall, does it discharge to any of the following towns: *Branford, Kent, Manchester, Meriden, North Branford, Norwalk, or Wilton?* (If no, proceed to Part VI of the form. If yes, proceed to next question.)	f) For each outfall, does it discharge to a "freshwater" or "salt water" ? (If you select "freshwater" proceed to Table 3. If you selected "salt water", proceed to Part VI of the form.)
	- mm/dd-mm/dd	sq feet	sq feet	Select one:	☐ Yes ☐ No	Select one:
	- mm/dd-mm/dd	sq feet	sq feet	Select one:	☐ Yes ☐ No	Select one:
	- mm/dd-mm/dd	sq feet	sq feet	Select one:	☐ Yes ☐ No	Select one:
	- mm/dd-mm/dd	sq feet	sq feet	Select one:	☐ Yes ☐ No	Select one:
	- mm/dd-mm/dd	sq feet	sq feet	Select one:	☐ Yes ☐ No	Select one:
		total sq feet	**total sq feet**			

Part V: Stormwater Discharge Information

Table 1

Outfall # E - Existing P - Proposed T - Temporary	a) Type	b) Pipe Material	c) Pipe Size (mm)	c) Pipe Size (in)	d) Note: To find lat/long, go to: CT ECO. A decimal format is required here. Directions on how to use CT ECO to find lat/long. and conversions can be found in Part V, Section d of the DEEP-WPED-INST-015.		e) What method was used to obtain your latitude/longitude information?
					Longitude	Latitude	
O-100E	pipe	concrete	600	24	-73.00825	41.53956	Other
O-102E	pipe	concrete	450	18	-73.00782	41.53881	Other
O-103E	pipe	concrete	450	18	-73.00696	41.53854	Other
O-104E	pipe	concrete	450	18	-73.00702	41.53842	Other
O-105E	pipe	metal	1,500	60	-73.00679	41.53832	Other
O-106E	pipe	concrete	450	18	-73.00644	41.53813	Other
O-107E	pipe	metal	450	18	-73.00626	41.53821	Other
O-108E	pipe	metal	450	18	-73.00410	41.53776	Other
O-115E	pipe	metal	375	15	-72.99625	41.54048	Other
O-116E	pipe	concrete	600	24	-72.99541	41.54084	Other
O-117E	pipe	concrete	375	15	72.99545	41.54098	Other
O-118E	pipe	concrete	375	15	-72.99524	41.54090	Other
O-119E	pipe	concrete	375	15	-72.99496	41.54140	Other
O-11E	pipe	concrete	450	18	-73.00748	41.53919	Other
O-120E	pipe	concrete	450	18	-72.99342	41.54143	Other
O-121E	pipe	concrete	375	15	-72.99275	41.54181	Other
O-122E	pipe	concrete	375	15	-72.99261	41.54173	Other
O-123E	pipe	concrete	375	15	-72.99183	41.54213	Other
O-127E	pipe	concrete	450	18	-72.98765	41.54353	Other
O-129EP	pipe	concrete	375	15	-72.98200	41.54309	Other
O-12E	pipe	concrete	375	15	-73.00525	41.53789	Other
O-131EP	pipe	concrete	375	15	-72.98039	41.54318	Other
O-133E	culvert	concrete	375	15	-73.01354	41.53972	Other
O-134E	pipe	concrete	375	15	-73.01720	41.53973	Other
O-135EP	pipe	concrete	375	15	-73.02469	41.54438	Other

Part V: Stormwater Discharge Information

Table 1

Outfall # E - Existing P - Proposed T - Temporary	a) Type	b) Pipe Material	c) Pipe Size (mm)	c) Pipe Size (in)	d) Note: To find lat/long, go to: CT ECO. A decimal format is required here. Directions on how to use CT ECO to find lat/long. and conversions can be found in Part V, Section d of the DEEP-WPED-INST-015.		e) What method was used to obtain your latitude/longitude information?
					Longitude	Latitude	
O-136EP	pipe	concrete	750	30	-73.02725	41.54545	Other
O-13E	pipe	concrete	450	18	-73.00314	41.53780	Other
O-14E	pipe	concrete	375	15	-73.00213	41.53799	Other
O-15EP	pipe	concrete	375	15	-73.00146	41.53819	Other
O-16E	pipe	concrete	375	15	-73.00068	41.53849	Other
O-17E	pipe	concrete	450	18	-72.99918	41.53941	Other
O-18E	pipe	concrete	450	18	-72.99839	41.53967	Other
O-24E	pipe	concrete	375	15	-72.98967	41.54285	Other
O-25E	pipe	concrete	375	15	-72.98865	41.54318	Other
O-27E	pipe	metal	450	18	-72.98200	41.54370	Other
O-28EP	pipe	metal	375	15	-72.98097	41.54345	Other
O-29E	pipe	concrete	375	15	-72.99061	41.54252	Other
O-2EP	pipe	metal	375	15	-73.02067	41.54134	Other
O-30E	pipe	concrete	375	15	-73.00000	41.53875	Other
O-31E	pipe	metal	450	18	-72.99723	41.54013	Other
O-3E	pipe	metal	450	18	-73.01999	41.54110	Other
O-55EP	pipe	concrete	375	15	-72.99595	41.54002	Other
O-5EP	pipe	concrete	375	15	-73.01830	41.54043	Other
O-60E	pipe	metal	900	36	-73.02074	41.54150	Other
O-62EP	culvert	metal	375	15	-72.98135	41.54356	Other
O-63EP	culvert	metal	1,200	48	-72.98075	41.54337	Other
O-66EP	pipe	concrete	375	15	-72.99978	41.53870	Other
O-67EP	pipe	concrete	375	15	-72.99897	41.53900	Other
O-68EP	pipe	concrete	450	18	-72.99864	41.53972	Other
O-69EP	pipe	concrete	300	12	-72.99978	41.53870	Other

Part V: Stormwater Discharge Information

Table 1

Outfall # E - Existing P - Proposed T - Temporary	a) Type	b) Pipe Material	c) Pipe Size (mm)	c) Pipe Size (in)	d) Note: To find lat/long, go to: CT ECO. A decimal format is required here. Directions on how to use CT ECO to find lat/long. and conversions can be found in Part V, Section d of the DEEP-WPED-INST-015.		e) What method was used to obtain your latitude/longitude information?
					Longitude	Latitude	
O-70EP	pipe	concrete	375	15	-73.00583	41.53794	Other
O-72EP	pipe	concrete	375	15	-73.00470	41.53771	Other
O-73EP	pipe	concrete	600	24	-73.00367	41.53765	Other
O-74EP	pipe	concrete	600	24	-73.00237	41.53780	Other
O-75EP	pipe	concrete	375	15	-73.00141	41.53807	Other
O-76EP	pipe	concrete	1,500	60	-73.00060	41.53835	Other
O-77EP	pipe	metal	375	15	-72.99671	41.53983	Other
O-78E	pipe	concrete	600	24	-73.01000	41.54099	Other
O-79EP	pipe	concrete	600	24	-73.02702	41.54430	Other
O-80E	pipe	concrete	600	24	-73.02064	41.54142	Other
O-82E	pipe	metal	375	15	-73.01912	41.54067	Other
O-83E	pipe	concrete	450	18	-73.01765	41.54026	Other
O-84E	pipe	concrete	375	15	-73.01712	41.54023	Other
O-85E	pipe	concrete	375	15	-73.01644	41.53971	Other
O-86EP	pipe	concrete	1,200	48	-73.01761	41.53847	Other
O-87EP	pipe	concrete	900	36	-73.01875	41.53771	Other
O-88EP	pipe	concrete	600	24	-73.01570	41.53825	Other
O-89E	pipe	metal	300	12	-73.01297	41.53966	Other
O-90E	pipe	metal	300	12	-73.01263	41.53964	Other
O-91E	pipe	concrete	450	18	-73.01101	41.53953	Other
O-92E	pipe	metal	300	12	-73.01092	41.53925	Other
O-93E	pipe	metal	600	24	-73.01049	41.53933	Other
O-94E	pipe	concrete	375	15	-73.01045	41.53977	Other
O-95E	pipe	concrete	375	15	-73.00929	41.54010	Other
O-96E	pipe	concrete	300	12	-73.00888	41.54058	Other

Part V: Stormwater Discharge Information

Table 1

Outfall # E - Existing P - Proposed T - Temporary	a) Type	b) Pipe Material	c) Pipe Size (mm)	c) Pipe Size (in)	d) Note: To find lat/long, go to: CT ECO. A decimal format is required here. Directions on how to use CT ECO to find lat/long. and conversions can be found in Part V, Section d of the DEEP-WPED-INST-015.		e) What method was used to obtain your latitude/longitude information?
					Longitude	Latitude	
O-97E	pipe	concrete	600	24	-73.00901	41.54066	Other
O-98E	pipe	concrete	450	18	-73.00879	41.54080	Other
O-99E	pipe	concrete	375	15	-73.00901	41.53984	Other

Notes: All Lat/Long coordinates were identified using GIS with imported Microstation base mapping for outfalls.

Part V: Stormwater Discharge Information

Table 2						
Outfall # E - Existing P - Proposed T - Temporary	a) For temporary and permanent outfalls, provide a start date. For temporary discharges, also provide a date the discharge will cease.	b) For the drainage area associated with each outfall: Effective Impervious Area Before Construction (SQ. FT.)	c) For the drainage area associated with each outfall: Effective Impervious Area After Construction (SQ. FT.)	d) To what system or receiving water does your stormwater runoff discharge? either "storm sewer" or "wetlands/waterbody" (If you select "storm sewer" proceed to Part VI of the form. If you select "wetlands/waterbody" proceed to next question)	e) For each outfall, does it discharge to any of the following towns: *Branford, Kent, Manchester, Meriden, North Branford, Norwalk, or Wilton?* (If no, proceed to Part VI of the form. If yes, proceed to next question.)	f) For each outfall, does it discharge to a "freshwater" or "salt water" ? (If you select "freshwater" proceed to Table 3. If you selected "salt water", proceed to Part VI of the form.)
O-1	04/01/15	127,599	153,649	wetlands/waterbody	No	--
O-10	04/01/15	10,627	0	wetlands/waterbody	No	--
O-129EP	04/01/15	6,339	71	wetlands/waterbody	No	--
O-131EP	04/01/15	2,310	3,860	wetlands/waterbody	No	--
O-135EP	04/01/15	167,388	180,247	wetlands/waterbody	No	--
O-136EP	04/01/15	71,331	70,586	wetlands/waterbody	No	--
O-15EP	04/01/15	15,414	28,337	wetlands/waterbody	No	--
O-19	04/01/15	135,550	251,441	wetlands/waterbody	No	--
O-20	04/01/15	0	640	wetlands/waterbody	No	--
O-21	04/01/15	84,652	132,143	wetlands/waterbody	No	--
O-22	04/01/15	11,216	21,409	wetlands/waterbody	No	--
O-26	04/01/15	0	18,589	wetlands/waterbody	No	--
O-27	04/01/15	3,291	12,426	wetlands/waterbody	No	--
O-28EP	04/01/15	3,255	10,327	wetlands/waterbody	No	--
O-2EP	04/01/15	56,388	62,283	wetlands/waterbody	No	--
O-33	04/01/15	30,230	141,902	wetlands/waterbody	No	--
O-34	04/01/15	17,414	20,932	wetlands/waterbody	No	--
O-36	04/01/15	22,386	39,667	wetlands/waterbody	No	--

Part V: Stormwater Discharge Information

Table 2						
Outfall # E - Existing P - Proposed T - Temporary	a) For temporary and permanent outfalls, provide a start date. For temporary discharges, also provide a date the discharge will cease.	b) For the drainage area associated with each outfall: Effective Impervious Area Before Construction (SQ. FT.)	c) For the drainage area associated with each outfall: Effective Impervious Area After Construction (SQ. FT.)	d) To what system or receiving water does your stormwater runoff discharge? either "storm sewer" or "wetlands/waterbody" (If you select "storm sewer" proceed to Part VI of the form. If you select "wetlands/waterbody" proceed to next question)	e) For each outfall, does it discharge to any of the following towns: *Branford, Kent, Manchester, Meriden, North Branford, Norwalk, or Wilton?* (If no, proceed to Part VI of the form. If yes, proceed to next question.)	f) For each outfall, does it discharge to a "freshwater" or "salt water" ? (If you select "freshwater" proceed to Table 3. If you selected "salt water", proceed to Part VI of the form.)
O-37	04/01/15	4,346	5,055	wetlands/waterbody	No	--
O-42	04/01/15	10,127	24,116	wetlands/waterbody	No	--
O-43	04/01/15	67,497	76,850	wetlands/waterbody	No	--
O-47	04/01/15	82,019	94,300	wetlands/waterbody	No	--
O-49	04/01/15	37,120	83,682	wetlands/waterbody	No	--
O-5EP	04/01/15	106,194	140,866	wetlands/waterbody	No	--
O-50	04/01/15	30,756	69,095	wetlands/waterbody	No	--
O-50A	04/01/15	132,817	201,108	wetlands/waterbody	No	--
O-51	04/01/15	2,144	3,207	wetlands/waterbody	No	--
O-52	04/01/15	22,102	35,568	wetlands/waterbody	No	--
O-55EP	04/01/15	23,679	18,846	wetlands/waterbody	No	--
O-57	04/01/15	19,048	236,359	wetlands/waterbody	No	--
O-59	04/01/15	4,072	7,966	wetlands/waterbody	No	--
O-60	04/01/15	83,276	83,397	wetlands/waterbody	No	--
O-61	04/01/15	22	922	wetlands/waterbody	No	--
O-62EP	04/01/15	1,652	0	wetlands/waterbody	No	--
O-63EP	04/01/15	12	0	wetlands/waterbody	No	--
O-65	04/01/15	0	16,184	wetlands/waterbody	No	--

Part V: Stormwater Discharge Information

Table 2						
Outfall # E - Existing P - Proposed T - Temporary	a) For temporary and permanent outfalls, provide a start date. For temporary discharges, also provide a date the discharge will cease.	b) For the drainage area associated with each outfall: Effective Impervious Area Before Construction (SQ. FT.)	c) For the drainage area associated with each outfall: Effective Impervious Area After Construction (SQ. FT.)	d) To what system or receiving water does your stormwater runoff discharge? either "storm sewer" or "wetlands/waterbody" (If you select "storm sewer" proceed to Part VI of the form. If you select "wetlands/waterbody" proceed to next question)	e) For each outfall, does it discharge to any of the following towns: *Branford, Kent, Manchester, Meriden, North Branford, Norwalk, or Wilton?* (If no, proceed to Part VI of the form. If yes, proceed to next question.)	f) For each outfall, does it discharge to a "freshwater" or "salt water" ? (If you select "freshwater" proceed to Table 3. If you selected "salt water", proceed to Part VI of the form.)
O-66EP	04/01/15	7,403	5,615	wetlands/waterbody	No	--
O-67EP	04/01/15	8,436	7,365	wetlands/waterbody	No	--
O-68EP	04/01/15	57,935	37,831	wetlands/waterbody	No	--
O69EP	04/01/15	11,353	11,777	wetlands/waterbody	No	--
O-7	04/01/15	100,473	13,388	wetlands/waterbody	No	--
O-70EP	04/01/15	6,785	4,342	wetlands/waterbody	No	--
O-71	04/01/15	91,121	140,142	wetlands/waterbody	No	--
O-72EP	04/01/15	3,167	2,943	wetlands/waterbody	No	--
O-73EP	04/01/15	4,723	4,708	wetlands/waterbody	No	--
O-74EP	04/01/15	18,243	17,688	wetlands/waterbody	No	--
O-75EP	04/01/15	3,728	3,424	wetlands/waterbody	No	--
O-76EP	04/01/15	9,086	8,927	wetlands/waterbody	No	--
O-77EP	04/01/15	5,779	6,482	wetlands/waterbody	No	--
O-79EP	04/01/15	39,133	38,115	wetlands/waterbody	No	--
O-8	04/01/15	573	95,798	wetlands/waterbody	No	--
O-8A	04/01/15	0	39,253	wetlands/waterbody	No	--
O-8C	04/01/15	37,955	116,588	wetlands/waterbody	No	--
O-86EP	04/01/15	0	0	wetlands/waterbody	No	--

Part V: Stormwater Discharge Information

Table 2						
Outfall # E - Existing P - Proposed T - Temporary	a) For temporary and permanent outfalls, provide a start date. For temporary discharges, also provide a date the discharge will cease.	b) For the drainage area associated with each outfall: Effective Impervious Area Before Construction (SQ. FT.)	c) For the drainage area associated with each outfall: Effective Impervious Area After Construction (SQ. FT.)	d) To what system or receiving water does your stormwater runoff discharge? either "storm sewer" or "wetlands/waterbody" (If you select "storm sewer" proceed to Part VI of the form. If you select "wetlands/waterbody" proceed to next question)	e) For each outfall, does it discharge to any of the following towns: *Branford, Kent, Manchester, Meriden, North Branford, Norwalk, or Wilton?* (If no, proceed to Part VI of the form. If yes, proceed to next question.)	f) For each outfall, does it discharge to a "freshwater" or "salt water" ? (If you select "freshwater" proceed to Table 3. If you selected "salt water", proceed to Part VI of the form.)
O-87EP	04/01/15	0	0	wetlands/waterbody	No	--
O-88EP	04/01/15	10,268	10,050	wetlands/waterbody	No	--
O-9	04/01/15	9,569	36,383	wetlands/waterbody	No	--
O-9A	04/01/15	8,984	33,805	wetlands/waterbody	No	--
O-9B	04/01/15	23,732	50,233	wetlands/waterbody	No	--
SWALE 2	04/01/15	70,225	61,632	wetlands/waterbody	No	--
SWALE 15	04/01/15	10,155	36,775	wetlands/waterbody	No	--
MUNICIPAL	04/01/15	21,382	18,921	wetlands/waterbody	No	--
T-100	10/30/15 - 06/07/18	255,105	0	wetlands/waterbody	No	--
T-400	11/18/15 - 03/17/18	55,972	0	wetlands/waterbody	No	--
T-102	08/15/16 - 03/17/18	41,979	0	wetlands/waterbody	No	--
T-300	08/12/16 - 06/07/18	30,139	0	wetlands/waterbody	No	--
T-200	03/01/16 - 03/17/18	13,993	0	wetlands/waterbody	No	--
T-604	08/31/15 - 03/17/18	50,590	0	wetlands/waterbody	No	--
T-650	11/03/16 - 06/07/18	177,605	0	wetlands/waterbody	No	--
T-635	04/19/16 - 06/05/19	119,479	0	wetlands/waterbody	No	--
T-20A	09/07/16 - 06/05/19	48,438	0	wetlands/waterbody	No	--
T-21A	09/07/16 - 06/05/19	27,986	0	wetlands/waterbody	No	--

Part V: Stormwater Discharge Information

Table 2						
Outfall # E - Existing P - Proposed T - Temporary	a) For temporary and permanent outfalls, provide a start date. For temporary discharges, also provide a date the discharge will cease.	b) For the drainage area associated with each outfall: Effective Impervious Area Before Construction (SQ. FT.)	c) For the drainage area associated with each outfall: Effective Impervious Area After Construction (SQ. FT.)	d) To what system or receiving water does your stormwater runoff discharge? either "storm sewer" or "wetlands/waterbody" (If you select "storm sewer" proceed to Part VI of the form. If you select "wetlands/waterbody" proceed to next question)	e) For each outfall, does it discharge to any of the following towns: *Branford, Kent, Manchester, Meriden, North Branford, Norwalk, or Wilton?* (If no, proceed to Part VI of the form. If yes, proceed to next question.)	f) For each outfall, does it discharge to a "freshwater" or "salt water" ? (If you select "freshwater" proceed to Table 3. If you selected "salt water", proceed to Part VI of the form.)
T-24	09/07/16 - 03/16/20	75,347	0	wetlands/waterbody	No	--
T-101	10/24/16 - 06/07/18	17,222	0	wetlands/waterbody	No	--
T-107	09/09/18 - 03/16/20	6,458	0	wetlands/waterbody	No	--
T-647	09/24/18 - 03/16/20	75,347	0	wetlands/waterbody	No	--
		2,948,141	**3,048,214**			
		Total sq. feet	**Total sq. feet**			

Part V: Stormwater Discharge Information (continued)

Table 3 Provide the following information about the receiving water(s)/wetland(s) that receive stormwater runoff from your site:			
Outfall #	a) What is your 305b ID # (water body ID #)? (Section 3.b, of the DEEP-WPED-INST-015, explains how to find this information)	b) Is your receiving water identified as a impaired water in the "Impaired Waters Table for Construction Stormwater Discharges"? If yes, proceed to next question. If no, proceed to Part VI: Pollution Control Plan.	c) Has any Total Maximum Daily Load (TMDL) been approved for the impaired water?
		☐ Y ☐ N	☐ Y ☐ N
		☐ Y ☐ N	☐ Y ☐ N
		☐ Y ☐ N	☐ Y ☐ N
		☐ Y ☐ N	☐ Y ☐ N
		☐ Y ☐ N	☐ Y ☐ N

Part V: Stormwater Discharge Information (continued)

Impaired waters: If you answered "yes" to Table 3, question b.,**verify** that the project's Pollution Control Plan (Plan) addresses the control measures below in Question 1 or 2, as appropriate.

1. If the impaired water does not have a TMDL, confirm compliance by selecting 1.a. or 1.b. below:

a. No more than 3 acres is disturbed at any time; ☐ Yes

OR

b. Stormwater runoff from a 2 yr, 24 rain event is **retained.** ☐ Yes

2. If the impaired water has a TMDL, confirm compliance by selecting 2.a. and 2.b. below and either question 2.c.1. or 2.c.2. below:

a. The Plan documents there is sufficient remaining Waste Load Allocations (WLA)in the TMDL for the proposed discharge, ☐ Yes

AND

b. Control measures shall be implemented to assure the WLA will not be exceeded, ☐ Yes

AND

c. 1. Stormwater discharges will be monitored for the indicator pollutant identified in theTMDL, ☐ Yes

OR

2. The Plan documents specific requirements for stormwater discharges specified in the TMDL. ☐ Yes

Part VI: Pollution Control Plan (select one of the following four categories)

☒ I am registering a Locally Exempt project and submitting the required electronic Plan (in Adobe™ PDF or similar publically available format) pursuant to Section 3(*c*)(2)(E) of this permit.

☒ Plan is attached to this registration form

☒ Plan is available at the following Internet Address (URL):

☐ I am registering a Locally Approvable project and have chosen not to submit the Plan with this registration pursuant to Section 3(*c*)(1) of this permit.

☐ I am registering a Locally Approvable project and have chosen to make my Plan electronically available pursuant to Section 4(*c*)(2)(N) of this permit.

☐ Plan is attached to this registration form

☐ Plan is available at the following Internet Address (URL):

☐ I am registering a Locally Exempt project and do not have the capability to submit the Plan electronically. Therefore, I am submitting a paper copy with this registration as Attachment E.

Part VII: 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.

For New Registrants:

" I hereby certify that I am making this certification in connection with a registration under such general permit,

[INSERT NAME OF REGISTRANT BELOW]

submitted to the commissioner by **Kenneth E. Fargnoli, District 4 Engineer** for

[INSERT ADDRESS OF PROJECT OR ACTIVITY BELOW]

an activity located at **Reconstruction of I-84 Waterbury, Project # 151-273** and that all terms and conditions of the general permit are being met for all discharges which have been initiated and such activity is eligible for authorization under such permit. I further certify 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 certify that the registration filed pursuant to this general permit is on complete and accurate forms as prescribed by the commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(*b*) (8)(A) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 3(*b*)(8)(B) of this general permit. I understand that the registration filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Connecticut General Statutes. I also understand that knowingly making any false statement made in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

For Re-registrants:

" I hereby certify that I am making this certification in connection with a registration under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, submitted to the commissioner

[INSERT NAME OF REGISTRANT BELOW]

by for an activity located at

[INSERT ADDRESS OF PROJECT OR ACTIVITY BELOW]

and that all terms and conditions of the general permit are being met for all discharges which have been initiated and such activity is eligible for authorization under such permit. I further certify that all designs and plans for such activity meet the current terms and conditions of the general permit in accordance with Section 5(b)(5)(C) of such general permit 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 certify that the registration filed pursuant to this general permit is on complete and accurate forms as prescribed by the commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(*b*)(8)(A) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement made in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

K. E. Fargnoli	12/11/15
Signature of Registrant	Date
Kenneth E. Fargnoli	District 4 Engineer
Name of Registrant (print or type)	Title (if applicable)
James A. Hund	12/11/15
Signature of Preparer (if different than above)	Date
James A. Hund	Project Engineer
Name of Preparer (print or type)	Title (if applicable)

Part VIII: Professional Engineer (or Landscape Architect, where appropriate) Design Certification (for publically approvable and exempt projects)

The following certification must be signed by a Professional Engineer or Landscape Architect where appropriate.

"I hereby certify that I am a choose qualification licensed in the State of Connecticut. I am making this certification in connection with a registration under such general permit, submitted to the commissioner by

[INSERT NAME OF REGISTRANT BELOW]

Neal Weitman, P.E. for an activity located at

[INSERT ADDRESS OF PROJECT OR ACTIVITY BELOW]

Reconstruction of I-84 Waterbury, Project # 151-273

I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such Plan are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate, and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Neal W DeLeeuw	12/11/2014
Signature of Design Professional	Date
Neal Weitman, P.E.	**Senior Vice President**
Name of Professional (print or type)	Title
2500 Westchester Avenue	**Purchase, NY**
Mailing Address	City/Town
New York **10577**	**(914) 967-5800**
State Zip Code	Business Phone
STATE OF CONNECTICUT NEAL WEITMAN No. 19922 LICENSED PROFESSIONAL ENGINEER	**19922**
	License #
Affix P.E/L.A Stamp Here	

Part IX: Reviewing Qualified Professional Certification

The following certification must be signed by a) a Conservation District reviewer OR, b) a qualified soil erosion and sediment control and/or professional engineer

☐ **Review certification by Conservation District:**

1.) District: list of districts

Date of Affirmative Determination:

" I am making this certification in connection with a registration under General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, submitted to the commissioner

[INSERT NAME OF REGISTRANT BELOW]

by **N/A** for an activity located at

[INSERT ADDRESS OF PROJECT OR ACTIVITY BELOW]

.

I have personally examined and am familiar with the information that provides the basis for this certification, and I affirm, based on the review described in Section 3(*b*)(11)(C) of this general permit and on the standard of care for such projects, that the Stormwater Pollution Control Plan is adequate to assure that the activity authorized under this general permit will comply with the terms and conditions of such general permit and that all stormwater management systems: (i) have been designed to control pollution to the maximum extent achievable using measures that are technologically available and economically practicable and that conform to those in the Guidelines and the Stormwater Quality Manual; (ii) will function properly as designed; (iii) are adequate to ensure compliance with the terms and conditions of this general permit; and (iv) will protect the waters of the state from pollution."

_____

Signature of District Professional and Date

_____

Name of District Professional and License Number (if applicable)

Or

☐ **Review certification by Qualified Professional**

Company: _____

Name: _____

License # : _____

Level of independency of professional:

Required for all projects disturbing over 1 acre:

1. I verify I am not an employee of the registrant. ☐ Yes
2. I verify I have no ownership interest of any kind in the project for which the registration is being submitted. ☐ Yes

Required for projects with 15 or more acres of site disturbance (in addition to questions 1&2):

3. I verify I did not engage in any activities associated with the preparation, planning, designing or engineering of the soil erosion and sediment control plan or stormwater management systems plan for this registrant. ☐ Yes
4. I verify I am not under the same employ as any person associated with the preparation, planning, designing or engineering of the soil erosion and sediment control plan or stormwater management systems plan for this registrant. ☐ Yes

Part IX: Reviewing Qualified Professional Certification (continued)

"I hereby certify that I am a qualified professional engineer or qualified soil erosion and sediment control professional, or both, as defined in the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities and as further specified in Sections 3(*b*)(11)(A) and (B) of such general permit. I am making this certification in connection with a registration under such general permit,

[INSERT NAME OF REGISTRANT BELOW]

submitted to the commissioner by _____

[INSERT ADDRESS OF PROJECT OR ACTIVITY BELOW]

for an activity located at _____.

I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 3(*b*)(11)(C) of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I further certify that I have made the affirmative determination in accordance with Sections 3(*b*)(11)(D)(i) and (ii) of this general permit. I understand that this certification is part of a registration submitted in accordance with Section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

_____

Signature of Reviewing Qualified Professional Date: _____

_____

Name of Reviewing Qualified Professional License No.: _____

Affix P.E./L.A. Stamp Here

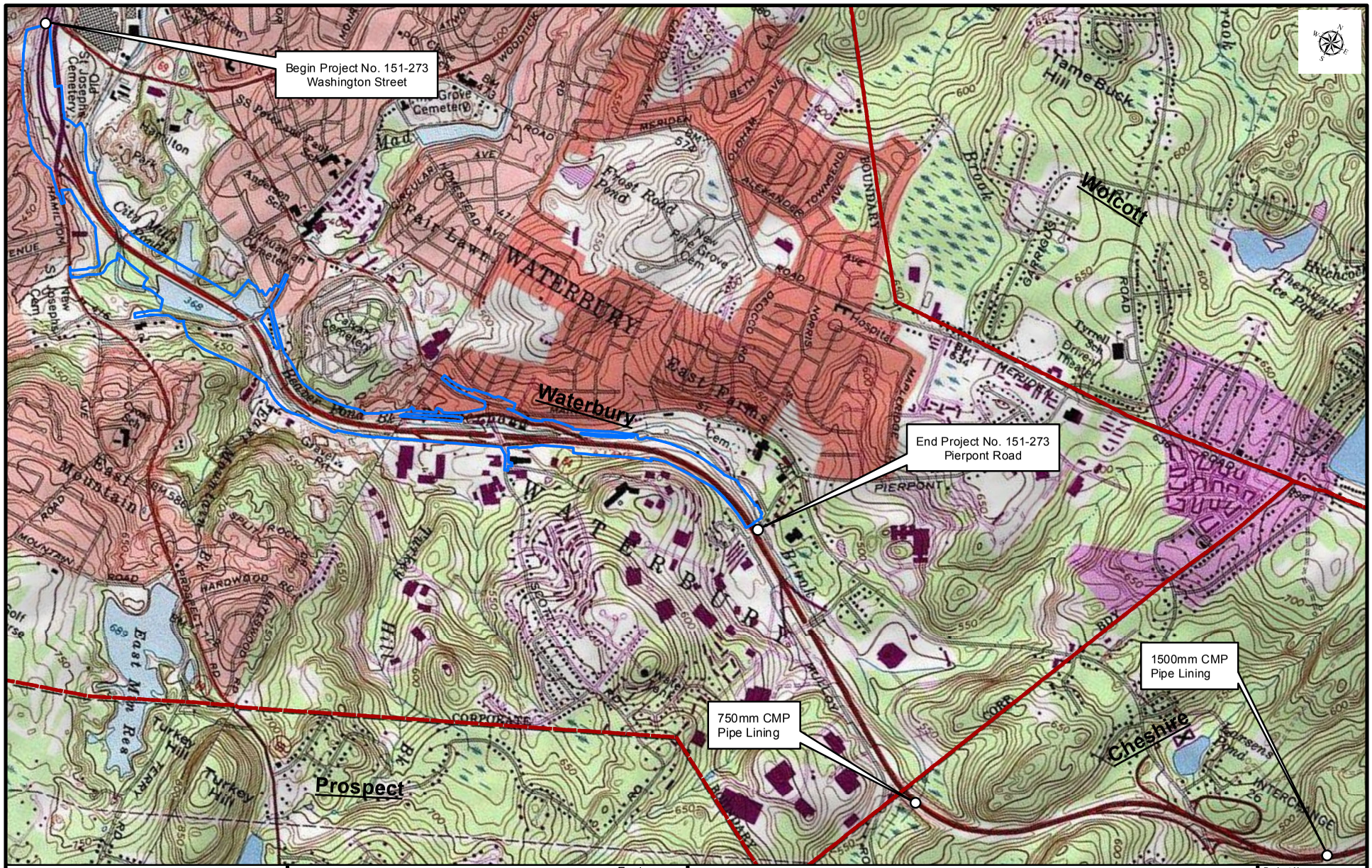
Part X: Supporting Documents

Select the applicable box below for each attachment being submitted with this registration form. When submitting any supporting documents, please label the documents as indicated below (e.g., Attachment A, etc.) and be sure to include the registrant's name as indicated on this certification form.

☒	**Attachment A:**	Select here as verification that an 8 ½" X 11" copy of the relevant portion of a USGS Quadrangle Map with a scale of 1:24,000, showing the exact location of the facility has been submitted with this registration. Indicate the quadrangle name on the map, and be sure to include the registrant's name. (To obtain a copy of the relevant USGS Quadrangle Map, call your town hall or DEEP Maps and Publications Sales at 860-424-3555)
☐	**Attachment B:**	Documentation related to *Coastal Consistency Review,* if applicable.
☒	**Attachment C:**	Threatened and Endangered Species Form and any additional information (such as a copy of a NDDB map)
☐	**Attachment D:**	Conservation or Preservation Restriction Information, if applicable.
☒	**Attachment E:**	Where applicable, non-electronic Pollution Control Plan.

Note: Please submit the fee along with a completed, printed and signed Registration Form and all additional supporting documents to:

CENTRAL PERMIT PROCESSING UNIT
DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127



1 inch = 2,000 feet

2,000 1,000 0 2,000 Feet

Legend

- Project Area Limits
- Town Boundaries

Locus Map

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury & Cheshire, Connecticut

BASE MAP: USGS Topo Quads: Southington, 1982; Waterbury, 1982

GIS data obtained from USA TOPO, National Geographic Society, i-Cubed; Highway realignment plan from Ammann & Whitney.

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Project No:	15.0166290.00
Drawn by:	KDC
Checked by:	JRB
Date:	12/01/2014
Figure No:	Attachment A

ATTACHMENT C: THREATENED AND ENDANGERED SPECIES

Information about compliance with the requirements of Section 3(b)(2) of this general permit, regarding threatened and endangered species, is in Appendix A of the general permit. Choose one or more (if applicable) of the following in order to be eligible to register for this General Permit. A registrant who does not or cannot do so is not eligible to register under this General Permit.

☒ Self Assessment using the NDDB maps – Select this only if:

a. The site of the construction activity is not entirely, partially or within a ¼ mile of a shaded area depicted on the Department's Natural Diversity Database maps and this determination was made not more than six months before the date of submitting this registration;

AND

b. The entity registering for this General Permit has no reasonably available verifiable scientific, or other credible information that the construction activity could reasonably be expected to have an adverse impact upon a federal or state species listed as threatened or endangered.

Attach a copy of the NDDB map used to conduct the self assessment used to register for this general permit.

Note: Both a and b as used in this section, must be true in order for a Registrant to register for this General Permit using the self-assessment option. If neither is true, a Registrant cannot use the self-assessment option to comply with Section 3(b)(2) and Appendix A of the General Permit.

☐ Limited One-Year Determination – Select this only if:

a. The entity registering for this General Permit has obtained a limited one-year determination from the Department's Wildlife Division regarding threatened and endangered species: i) within a year of the date of submitting this registration; or ii) more than 1 year before submitting this registration, but such determination has been extended by the Department within one year of the date of submitting this registration;

AND

b. The Registrant has provided to the Department's Wildlife Division any reasonably available verifiable scientific, or other credible information that the construction activity could reasonably be expected to have an adverse impact upon a federal or state species listed as threatened or endangered.

Provide the date the limited one-year determination was issued by the Department's Wildlife Division _____;

or

Provide the date that the most recent extension to a limited one year determination was issued by the Department's Wildlife Division _____.

Note: Both a and b as used in this section, must be true in order for a Registrant to register for this General Permit using the Limited One-Year Determination option. If a Limited One-Year Determination or extension to any such determination was issued by the Department's Wildlife Division more than one year before the submission of this registration, a Registrant cannot use any such determination or extension to comply with Section 3(b)(2) and Appendix A of the General Permit.

ATTACHMENT C: THREATENED AND ENDANGERED SPECIES (continued)

☐ **Select here if the Limited One-Year Determination issued by the Department includes a Mitigation Plan.**

Provide the date the Mitigation Plan was approved: _____

Governmental Entity Approving the Plan: _____

As of the date this Registration is submitted,

Has the Mitigation Plan been fully implemented? ☐ Yes ☐ No

Date commenced: _____ Date completed: _____

Is the Mitigation Plan partially implemented? ☐ Yes ☐ No

If yes, what actions have been taken? _____

And which actions are yet to be implemented and what is the timeframe for completion of such actions: _____

Is the Mitigation Plan yet to be implemented? ☐ Yes ☐ No

If yes, specify the timeframe for implementation: _____ to _____

And summarize actions to be implemented: _____

☐ Safe Harbor Determination - Select this only if:

a. The entity registering for this General Permit has obtained a Safe Harbor Determination from the Department's Wildlife Division regarding threatened and endangered species: i) within 3 years of the date of submitting this registration; or ii) more than 3 years before submitting this registration, but within one-year of a one-year extension issued by the Department's Wildlife Division to a safe harbor determination;

AND

b. The entity registering for this General Permit has provided to the Department's Wildlife Division any reasonably available verifiable scientific, or other credible information that the construction activity could reasonably be expected to have an adverse impact upon a federal or state species listed as threatened or endangered.

Provide the date the Department's Wildlife Division issued a Safe Harbor Determination: _____

If applicable, provide the date that any one-year extension to a Safe Harbor Determination was issued by the Department's Wildlife Division: _____.

Note: Both a and b as used in this section, must be true in order for a Registrant to register for this General Permit using the Safe Harbor Determination option. If a Safe Harbor Determination was issued by the Department's Wildlife Division more than three years before the submission of this registration, and has not been extended, a Registrant cannot use any such safe harbor to comply with section 3(b)(2) and Appendix A of this General Permit. If a Safe Harbor Determination was granted and extended for one-year, more than four years before the submission of this registration, a Registrant cannot use any such Safe Harbor Determination to comply with Section 3(b)(2) and Appendix A of the general permit.

ATTACHMENT C: THREATENED AND ENDANGERED SPECIES (continued)

☐ **Select here if the safe harbor noted above includes a Mitigation Plan.**

Provide the date the Mitigation Plan was approved: _____

Governmental Entity Approving the Plan: _____

As of the date this Registration is submitted,

Has the Mitigation Plan been fully implemented? ☐ Yes ☐ No

Date commenced: _____ Date completed: _____

Is the Mitigation Plan partially implemented? ☐ Yes ☐ No

If yes, what actions have been taken? _____

And which actions are yet to be implemented and what is the timeframe for completion of such actions: _____

Is the Mitigation Plan yet to be implemented? ☐ Yes ☐ No

If yes, specify the timeframe for implementation: _____ to _____

And summarize actions to be implemented: _____

Natural Diversity Data Base Areas

WATERBURY, CT

December 2014

State and Federal Listed Species & Significant Natural Communities

Town Boundary

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

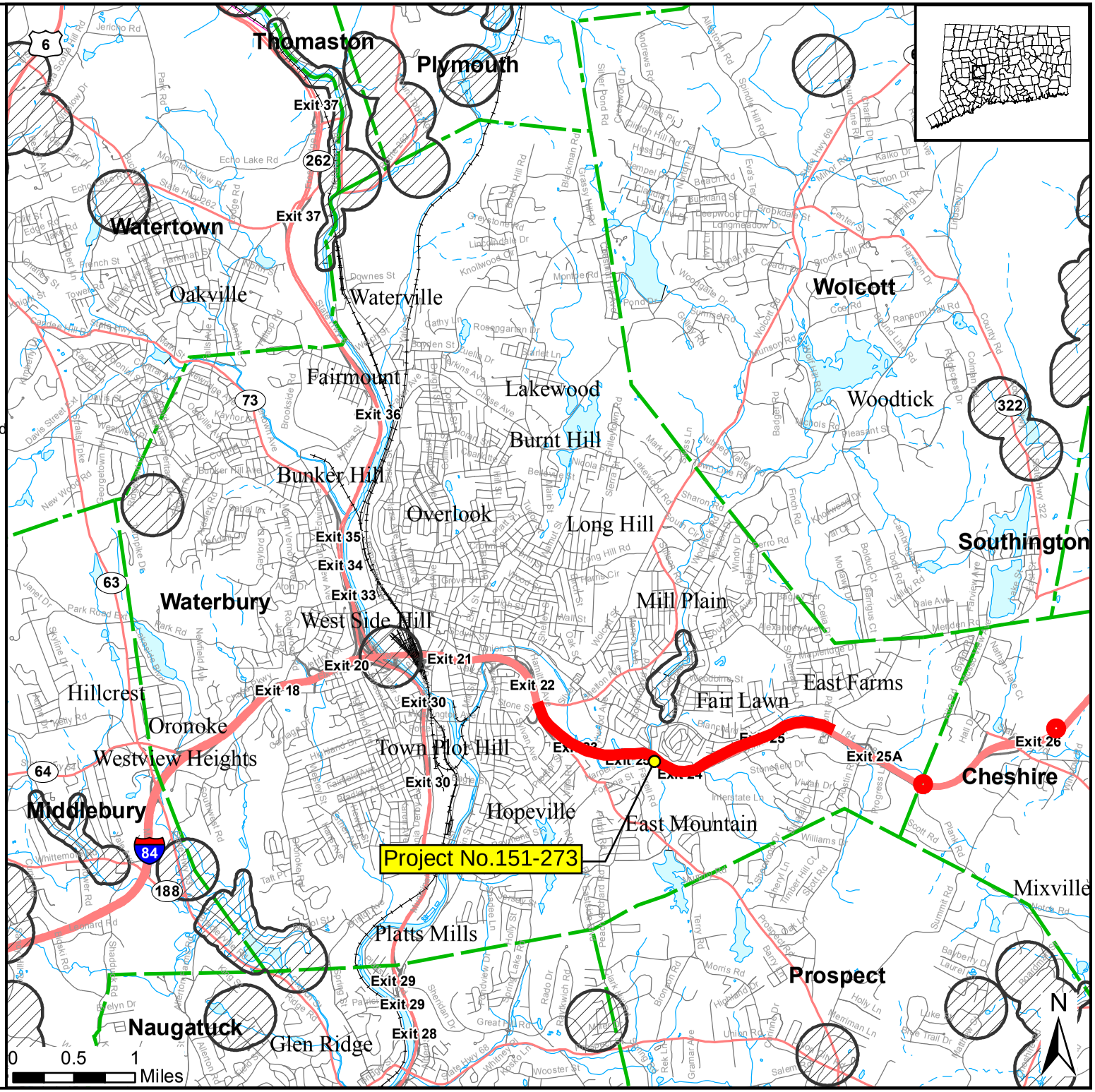
This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a shaded area there may be a potential conflict with a listed species. For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

www.ct.gov/deep/nddbrequest

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

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

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



Natural Diversity Data Base Areas

CHESHIRE, CT

December 2014

State and Federal Listed Species & Significant Natural Communities

Town Boundary

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

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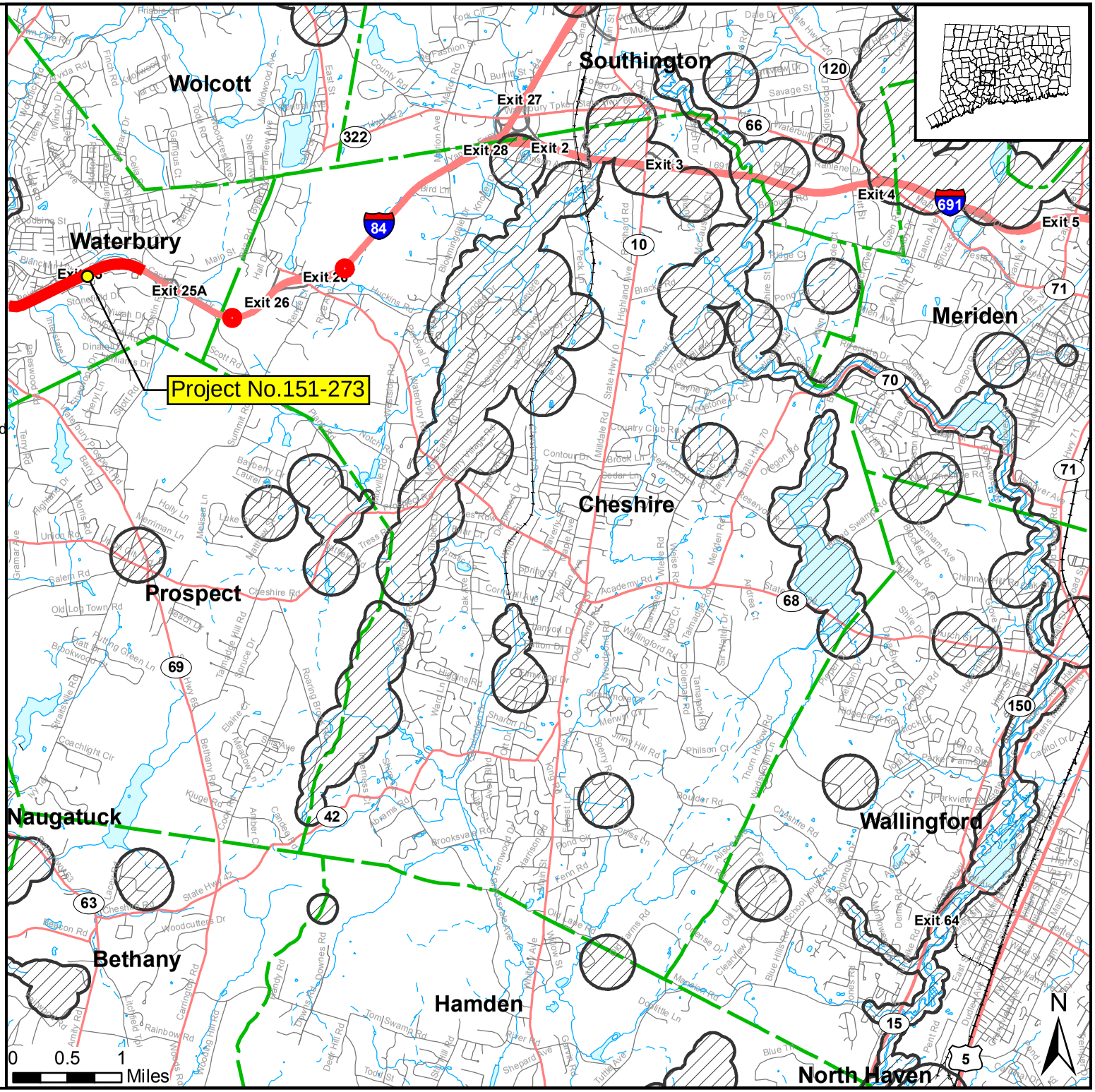
Bureau of Natural Resources
Wildlife Division



AQUIFER PROTECTION AREAS

Cheshire, CT

July 31, 2014

- Level A APA (Final Adopted)
- Level A APA (Final)
- Level B APA (Preliminary)
- Town Boundary

NOTE: This map shows Connecticut's Aquifer Protection Areas, as delineated through the Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it will replace the Level B Mapping. Towns that have adopted the Aquifer Protection Areas at the local level and for which landuse regulations are now in place are designated by the solid pink/red shading.

QUESTIONS:
Bureau of Water Protection and Land Reuse
Planning and Standards Division
Phone: (860) 424-3020
www.ct.gov/deep/aquiferprotection

STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127

Project No.151-273

Southington
Berlin
Meriden
Cheshire
Prospect
Naugatuck
Bethany
Hamden
Wallingford
North Haven

A 126 Well 7, 8 12/17/2009
A 125 Well 2
A 125 Well 2 10/23/2009
A 119 North Cheshire 6/11/2008
A 119 North Cheshire 4/1/2009
A 119 North Cheshire 7/9/2008
A 95 Columbus Park 3/16/2010
A 94 Mule 3/16/2010
A 96 Lincoln-Platt 3/16/2010
A 97 Evansville 3/16/2010
A 139 Oak Street 4/1/2009
A 139 Oak Street 9/13/2005
A 140 North Turnpike 9/13/2005
A 120 South Cheshire 7/9/2008
A 121 North Sleeping Giant 7/9/2008
A 121 North Sleeping Giant 9/17/2008
A 122 South Sleeping Giant 9/17/2008
A 123 Mount Carmel 9/17/2008
A 36 Indian Field (Spring Road) 10/1/2009
A 35 Marks Brook 2/23/2006
A 35 Marks Brook 10/1/2006

Exit 25
Exit 25A
Exit 26
Exit 27
Exit 28
Exit 28
Exit 2
Exit 3
Exit 3
Exit 4
Exit 4
Exit 64
Exit 64
Exit 65

84
691
322
120
71
68
10
70
150
69
42
63
15
5

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

STORMWATER POLLUTION CONTROL PLAN

Reconstruction of I-84 Waterbury, CT

State Project No.: 151-273

Connecticut Department of Transportation

December 2014

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

Table of Contents

1. Project Description 1
Site Description 1
Waterbodies 2
Areas of Environmental Concern 3
Project Purpose 3
Estimated Disturbed Area 4
Estimated Runoff Coefficient 4
Stormwater Quantity 5
Stormwater Quality 5
Receiving Waters 6
Extent of Wetlands on Site 6

2. Construction Sequencing 7

3. Control Measures 28
Erosion and Sedimentation Controls 28
Temporary and Permanent Soil Stabilization and Protection Practices and Structural Measures 28
Maintenance 34

4 Dewatering Wastewaters 35
Dewatering Guidelines 35

5. Post-Construction Stormwater Management 36
Post-construction Guidelines 36
Post Construction Performance Standards 36
Low Impact Development (LID) Techniques 38

6. Other Controls 43
Waste Disposal 43
Washout Areas 43
Anti-tracking Pads and Dust Control 43
Maintaining and Storing Vehicles and Equipment 44
Post-Construction 44
Good Housekeeping 45
Product Specific Practices 45
Spill Control Practices 46

7. Inspections 47
Inspection Guidelines 47

8. Keeping Plans Current 49
Revisions to Stormwater Pollution Control Plans: 49

9. Monitoring Requirements 50

10. Contractors 51
General 51
Certification Statement 51

List of applicable Figures / Plans / Specifications / Forms: 53

Appendix A - Figures ..... A

Appendix B - Drainage Calculations ..... B

Appendix C - Pertinent Contract Plan Sheets C

Appendix D - Stormwater Management Report - Study of Pre- and Post-construction Conditions ..... D

Appendix E - Stormwater Monitoring Report Form ..... E

Appendix F - Notice of Termination Form ..... F

1. Project Description

Site Description

The central part of Project No. 151-273 is located in a densely developed urban area of the City of Waterbury and involves widening, to add a third travel lane and full width shoulders in each direction, as well as safety improvements to a 4,300 meter section (14,110± feet) of Interstate 84 from Washington Street, east to Pierpont Road. Included in this project is the realignment of the highway in the vicinity of Harpers Ferry Road (Interchange No. 24) to eliminate the existing sharp reverse curvature.

The reconfiguration of interchanges, within the project, consists of the elimination of two existing weave sections (EB 23 On-Ramp/EB 24 Off-Ramp and WB 25 On-Ramp/WB 24 Off-Ramp), providing a new WB 24 On-Ramp from Harpers Ferry Road and relocation of the WB 25 Off-Ramp to Scott Road.

An operational lane is being provided for Westbound I-84 between Harpers Ferry Road (Interchange No. 24 Westbound On-Ramp) and Hamilton Avenue (Interchange No. 23 Westbound Off-Ramp) to improve flow of traffic.

As a result of the realignment of I-84 and reconfiguration of the ramps, portions of the following State and local roads with intersections will be reconstructed:

- Hamilton Avenue;
- Harpers Ferry Road;
- Scott Road;
- Plank Road;
- Reidville Drive;
- Plank Road East;
- and East Main Street.

The project includes the construction/replacement of eight highway bridges (four over watercourses), one pedestrian crossing over the Mad River, seven culverts (five within the Beaver Pond Brook, one within East Mountain Brook and one within the Mad River), and twenty retaining walls.

Additionally, the project involves sanitary sewer and water line reconstruction, general drainage improvements, noise abatement, and new highway signing and pavement markings.

Included in the project is rehabilitation of five existing culverts corrugated metal pipe (CMP) culverts. Noteworthy is the use of innovative technology in lining of the existing deteriorated

CMP cross culverts located under high highway embankments. Among them are 750mm (30 inch) and 1,500mm (60 inch) CMP culverts located outside of the above identified project limits in the Town of Cheshire approximately 1,400 meters (4,600± feet) and 3,300 meters (10,800± feet) east of Pierpont Road respectively.

Waterbodies

Several watercourses and waterbodies, which are identified as receiving waters for this project, are located along this section of the highway, including the Mad River, Beaver Pond Brook, and several named and unnamed tributaries.

The headwaters of the Mad River are located at Cedar Lake in the City of Bristol. From the outlet of Cedar Lake, the Mad River flows southward through multiple impoundments and the Town of Wolcott before reaching the northeast boundary of the City of Waterbury. The river continues to flow southward through the City before it approaches the project site and I-84 corridor. At the northerly limit of the project site, flows between Brookdale Lane and Harpers Ferry Road before reaching the confluence with Beaver Pond Brook, a tributary which inflows from the east along I-84. After this confluence, the Mad River flows southward under I-84. The Mad River parallels then crosses back under I-84 to the north. It flows westerly through Hamilton Park, where it is joined by an unnamed tributary and continues through an urbanized corridor to reach its confluence with the Naugatuck River.

The Mad River is identified as a 303(d) listed impaired waterbody. Reach 2 (CT6914-00_02) is within the project area and includes the confluence with Beaver Pond Brook. This segment of the Mad River is impaired for Habitat for Fish, Other Aquatic Life and Wildlife, and Recreation. Probable sources of impairment were listed as channelization, industrial point sources, sanitary sewer overflows and system failures, and urban stormwater.

A Total Maximum Daily Load (TMDL) was issued on April 17, 2008 for E. coli which primarily addresses concerns with sanitary sources of impairment, rather than stormwater.

The headwaters of Beaver Pond Brook, a tributary to the Mad River, are located along the eastern border of the City of Waterbury and are composed of wetlands and an unnamed stream. From there, Beaver Pond Brook flows westward and parallels the north side of I-84. The brook crosses under I-84 to the south near Interstate Lane and continues westward, receiving inputs from two named tributaries: Turkey Hill Brook near Interstate Lane, and East Mountain Brook near Kukas Lane. Beaver Pond Brook continues westward, after again crossing under the I-84 and Harpers Ferry Road, to its confluence with the Mad River, as discussed above.

The project requires the relocation/reestablishment of portions of heavily impacted Mad River (555 meters, 1,820± feet) and Beaver Pond Brook (840 meters, 2,755± feet). Additionally, an intermittent stream from Hamilton Avenue to Mad River (135 meters, 445± feet) will be relocated to its historical location in the Mountain Village Road area.

In order to confirm the project viability in respect to floodplain management, a CLOMR has been

obtained from FEMA.

The design of these relocations has incorporated habitat enhancements measures intended to improve habitat and fish passage potential, integrated with channel structural grade stabilization element.

The project site is located outside of any registered Aquifer Protection Areas or Public Water Supply watersheds areas, however the nature and the setting of the project, such as its linear character being contiguous to the watercourses, limited available rights-of-way, underlying soils, soils and ground water contamination along with high density development of the surroundings, significantly limits infiltration opportunities.

Areas of Environmental Concern

As part of the design efforts of the project, soil, sediment and groundwater samples were collected and analyzed for the contaminants.

Based on the findings of the investigations, the entire project corridor has been designated as an Area of Environmental Concern (AOEC) for soil. Two (2) Hazardous Areas of Environmental Concern (HAZ-AOECs) for soil were designated within the project corridor. In addition, twenty (20) Areas of Restricted Reuse (AORRs) for soil were designated within the project limits.

Sediment areas of environmental concern (SED-AOECs) were also designated and a Groundwater Area of Environmental Concern (GW-AOEC) was designated within the project corridor. Dewatering fluids generated within the portion of the project bounded by Interstate-84 (I-84) Eastbound Stations EB 1+400 to EB 2+600 and Harpers Ferry Road Stations HFR 60+200 and HFR 60+700 is contaminated and will require controlled handling and disposal.

The limits of the HAZ-AOECs, AORRs, SED-AOECs, CMA, and GW-AOEC are shown on the environmental plans included in the Contract Documents

Project Purpose

The purpose of this project is to improve safety, operation and highway capacity on Interstate 84 (I-84) in the City of Waterbury.

Currently, the section of I-84 through the project limits experiences traffic congestion as indicated by unacceptable levels of service in freeway segments, ramp junction areas, and weaving areas. Contributing factors to the congestion include high traffic volumes, steep topography, general lack of roadway capacity, and design deficiencies in ramps and weave areas.

If no improvements other than routine maintenance and currently programmed projects occur within the I-84 study area, peak hour traffic volumes projected for the design year (2040) will

exceed capacity along most of the highway. Capacity is described in terms of level of service (LOS), which indicates the quality of operation of a roadway segment or intersection. The LOS ranges from A to F, with A being the best operating condition (free flowing traffic) and F being the worst (forced traffic flow and congestion). LOS D is Connecticut Department of Transportation's minimum acceptable condition. The majority of freeway segments of Westbound I-84 and nearly half of the Eastbound segments will operate at level of service E or F during peak hours. The resulting congestion throughout the project area will have adverse air quality, noise, aesthetic, and quality of life impacts. Neighborhoods within the community of Waterbury would be disrupted by the congestion on I-84, the interchanges, and local roads. The No-Build condition also contributes to high accident rates throughout the study area.

The implementation of the proposed project will increase traffic flow along I-84 and local nearby streets and reduce current and future traffic congestion along the mainline and the connection streets, ramps weaves, and accident rates. These traffic enhancements will result in improvements to air quality, noise, aesthetics, and the quality of life.

Estimated Disturbed Area

The total area for the project site, as defined within the existing or acquired easements and rights-of-ways for the purpose of the project, is approximately 65.05 hectares (160.75± acres). Of this area, approximately 58.3 hectares (119.4 ±acres) will be disturbed by construction activities.

Estimated Runoff Coefficient

The runoff coefficient assumed for pavement is 0.9. For the pervious areas, a coefficient of 0.3 was assumed. For watercourses and adjacent wetland areas, a coefficient of 1.0 was assumed.

Pre Construction:

$$\frac{(36.1 \text{ ha.} \times 0.3)+(22.8 \text{ ha.} \times 0.9)+(6.1 \text{ ha.} \times 1.0)}{36.1 \text{ ha.} + 22.8 \text{ ha.} + 6.1 \text{ ha.}} = 0.58$$

Post-Construction:

$$\frac{(29.6 \text{ ha.} \times 0.3)+(30.1 \text{ ha.} \times 0.9)+(5.0 \text{ ha.} \times 1.0)}{29.6 \text{ ha.} + 30.1 \text{ ha.} + 5.0 \text{ ha.}} = 0.63$$

The estimated runoff coefficients, with the corresponding contributing areas, are shown on Figures 3 and 4 provided in Appendix A.

Stormwater Quantity

For detail evaluation of the quantity of storm water runoff for the pre- construction and post-construction conditions and their impact on the watersheds of the receiving waters refer to: *"Stormwater Management Report, Study of Pre- and Post-construction Conditions, prepared by: Connecticut Department of Transportation, Hydraulics & Drainage Section, 2800 Berlin Turnpike Newington, CT 06131-7546"*.

Due to the linear nature and complexity, the project contains numerous outfalls along the Mad River and Beaver Pond Brook, which generally follow existing drainage patterns. In order to simplify the analysis, the outlets were not analyzed separately for pre- and post-construction conditions, but a series of outlets were consolidated to eight study points. Study points were selected at significant locations or points of interest within the project limits. The watershed areas of the Mad River and Beaver Pond Brook were subdivided based on the study point locations and other off-site features in the watershed, such as at reservoirs and at the confluence of stream networks.

The sub-areas adjacent the project were further subdivided in terms of highway pavement (drainage systems conveying primarily paved areas) and off-site flow. Time of concentration for the pavement sub-areas were determined using the drainage system with the longest time plus the travel time from the system outlet to the study point location.

The results of the analysis using this approach show that the project will not increase peak discharge at the study points on the Mad River and Beaver Pond Brook for the 10-year storm event. The study confirms what was expected; that the difference in magnitude of the drainage areas and times of concentration results in the flow from the storm drainage systems peaking much faster and not coincident with peak stream flow. Any increase in runoff or peak flow from the additional pavement does not increase peak stream flow.

The additional pavement will result in a slight increase in the volume of runoff at the study points. The increase in the volume of runoff varied from 0.01 to 0.14 percent, which is considered to be insignificant.

The results show peak discharges for post-construction less than pre-construction. The performed study does not suggest that additional pavement and associated storm drainage systems will actually lower peak discharge. What is derived from this study is that the paved areas associated with the project are still minute in relation to the overall watershed and will not increase peak discharge on the receiving streams. Computational tolerances in the computer software may introduce slight error in the results when analyzing these areas. It is anticipated that an analysis for a 2- and 100-year storm event would yield similar results.

Stormwater Quality

The project includes provisions to treat pavement runoff prior to discharging to the receiving waters. It is anticipated that the construction of the water quality swales, grass lined swales, permanent sedimentation basins, adequate outlet protection, deep catch basin sumps and hydrodynamic

separators will significantly improve the sedimentation and erosion concerns and the stormwater quality that are introduced by runoff from paved areas. Specific plans for erosion and sedimentation control and storm water treatment are addressed in the project.

Receiving Waters

The names of the receiving waters are the Mad River, Beaver Pond Brook and their named and unnamed tributaries which ultimately drain to the Naugatuck River.

Extent of Wetlands on Site

The total area of regulated wetlands and watercourses within the project site is approximately 6.98 hectares (17.26 ± acres).

Approximately 3.80 hectares (9.38± acres) of the Mad River and Beaver Pond Brook floodplains will be affected by the project resulting in significant reduction in flooding areas currently affecting the roadways; structures and properties.

2. Construction Sequencing

The contractor will be given approximately sixty (60) months for the construction of all phases of the project.

The suggested sequence of project, beginning on December 31, 2014, is as follows:

1. Following the initial Notice to Proceed conduct a preconstruction meeting.
2. Perform mobilization for the project.

The suggested sequence of construction, beginning on April 1, 2015, is as follows:

3. Following the second Notice to Proceed install erosion controls at the effected inlets and at limits of disturbed slopes.
4. Perform clearing and grubbing activities.
5. The construction activities are proposed to be carried out in five (5) main stages in sequence as follows:

PRE-STAGE 1

- **I-84:**
  Install temporary pavement within the existing left shoulder of the east and westbound roadways from west of the Hamilton Avenue Bridge (Bridge No. 04321) at the locations specified below:
- WB Roadway Station WB 0+625± to WB 1+350± and the EB Roadway Station EB 0+635± to EB 1+380±;
- EB Roadway Station EB 1+750± to EB 1+850 (the bridge over the Mad River (Bridge No. 01224));
- WB Roadway Station WB 3+140± to Station WB 3+360±.
  Shift the east and westbound traffic lanes toward the median after completing the temporary left side pavement construction between Stations WB 0+625± and WB 1+350± and Stations EB 0+635± and EB 1+380±.
  Remove the westerly portion of the existing superstructure and abutments/footings of Bridge No. 04321.
  Install temporary pavement within the existing right shoulder of the east and westbound roadways from west of Bridge No. 04321 at the location specified below:
- WB Roadway Station WB 1+250± to WB 1+500± and the EB Roadway Station EB 1+250± to EB 1+770±
- WB Roadway Station WB 3+240± to Station WB 4+545± and the EB Roadway Station EB 3+300± to EB 4+585±. Regrade, to an approximate final grade, a band width of approximately 20m abutting the southerly edge of the existing right shoulder

of the EB roadway between the southeasterly bank of Beaver Pond Brook and Station EB 3+800±.

Shift the east and westbound traffic lanes to the outside after completing the temporary right side pavement construction between Stations WB 1+250± and WB 1+500± and Stations EB 1+250± and EB 1+770±.

Remove the westerly portion of the existing center pier of Bridge No. 04321 and construct the westerly portion of the new center pier.

STAGE 1 **Duration approximately 2 years, 11 months**

- **I-84:**

Begin construction with filling the preload area for the embankment of the relocated I-84 mainline between Station WB 2 + 060± and Station WB 2 + 320±, Station EB 2 + 085± and Station EB 2 +322± and Station E24 11+110± and Station E24 11+295±. The material for fill shall be taken from the side hill excavation for the EB 23 On – Ramp, the EB 24 Off – Ramp and relocated Reidville Drive.

Reconstruct the outside pavement section west of Bridge No. 04321. Install permanent pavement (excluding final wearing course) east of the bridge to Station EB 1+400±.

Construct the EB 25 Off-Ramp west of Bridge No. 04321.

Extend the existing sanitary sewer at Station E25 10+169± to San. MH-30.

Construct the southerly half of the EB 23 Off-Ramp and adjacent Retaining Wall 112. Maintain two lanes on the north side of the existing ramp to accommodate off-ramp traffic.

Relocate the existing sanitary sewer beginning on the north side of I-84 at San. MH-8 to San MH-6. Maintain flow in the existing sewer.

Construct the WB 23 Off-Ramp, the adjacent access road to Sedimentation Basin No. 2, restore Sedimentation Basin No. 2 and commence construction of Retaining Wall 101 west of Station WB 1+670± and adjacent roadway embankment supported section. Maintain the existing westbound single lane exit ramp with turn lanes to Hamilton Avenue.

Excavate the side hill within the area to be occupied by the EB 23 On-Ramp, the EB 24 Off-Ramp and Retaining Wall 104. Construct Retaining Wall 104.

Commence with the relocation of the existing sanitary sewer from San. MH-6 to San. MH-2, 30 meters north of Hamilton Avenue. Maintain flow in the existing sewer.

Install temporary sheeting along the eastbound roadway between Station EB 1+825± and the west end of Bridge No. 01224 and from the east end of the Bridge to Station EB 1+910± to maintain stability of the approach/exit roadway during the removal/construction of the south side of Bridge No. 01224.

Demolish and remove the existing pedestrian bridge and the southerly portion of Bridge No. 01224(i.e., superstructure, abutments and center pier) and construct the new pedestrian bridge, a portion of the pedestrian walkway, the southerly portion of Bridge No. 01224, and a portion of the I-84 embankment supported section from 80± meters west of the Mad River (Station EB 1+780±) to the west side of the former Scovill Pond (Station EB 2+085±) and the EB 25 Off-Ramp from Station EB25 10+880± to Station

EB 25 11+110±. The demolition/removal and the construction of the abutments, pier and superstructure shall be staged in accordance with the sequence of construction in the Water Handling Plans for the pedestrian bridge and Bridge No. 01224.
Construct Sedimentation Basin No. 3.
Preload the embankment for the I-84 EB and WB roadways and the EB 25 Off-Ramp (I-84 Station WB 2+060± to Station WB 2+320±, Station EB 2+085± to Station EB 2+322± and Station E25 11+110± to Station E24 11+295±).
Reshape the preload embankment as required at the end of the settlement period and commence with the construction of the embankment supported pavement sections on the approach/exit side of the bridge.
Install temporary sheeting along the southerly edge of existing EB 25 Off-Ramp to Harpers Ferry Road (Stations WB 2+345± to WB 2+420±) to maintain stability of the existing ramp during Mad River construction adjacent to the existing ramp prior to opening the new EB 25 Off-Ramp.
Construct a temporary eastbound crossover segment connecting the completed pavement and the existing pavement east of the completed section of Bridge No. 01224 with the installation of a full depth temporary pavement to accommodate Stage 1A traffic. The existing EB 25 Off-Ramp to Harpers Ferry Road must be maintained.
Construct Bridge No. 06284 (EB 25 Off-Ramp Bridge over the Mad River), the adjacent Retaining Walls 113 and 114, Retaining Wall 116 and commence with the ramp approach pavement to Harpers Ferry Road and a temporary ramp connection between the eastbound roadway and the new ramp at Station EB 1+700±. The construction of the bridge abutments and superstructure shall be staged in accordance with the Mad River Relocation Water Handling Plans.
Construct Bridge No. 05774 (easterly mainline bridge over the Mad River) abutments. The construction shall be staged in accordance with the Mad River Relocation Water Handling Plans.
Construct a temporary on-ramp from Plank Road East to WB I-84 in the vicinity of WB Station 3+300±. Maintain On-Ramp traffic on the existing I-84 on-ramp.
Reconstruct the median area along I-84 from Station WB 3+360± to the Station WB 4+420±.
Install temporary pavement in the median between Stations WB 4+440± and WB 4+580± and between Stations WB 4+930± to WB 5+110± to accommodate eastbound traffic in Stage 2B.
Construct the relocated sanitary sewer from San. MH-18 (manhole on the north side of I-84 near Station WB 2 + 725±) to San. MH-19 to the north side of Beaver Pond Brook. Maintain flow in the existing sewer. (See Beaver Pond Brook for the relocation adjacent to and across the Brook)

- **Mad River:**

Maintain flow in the channel (See Stages A, B, A-1, A-2, B-1 and B-2 of Mad River Relocation Water Handling Plans for details and the permit application for the detailed staging sequence).

Relocate the water main along Brookdale Lane and the water main loop crossing the Mad River (Phases 2 and 3. For Phase 1, see Plank Road). Maintain the existing water main flow across the river at all times.

Relocate the sanitary sewer (San. MH-16 to 15 to Junction Chamber No. 1) and install the temporary sanitary sewer (San. MH-15 to Temp. San. MH-17C). Maintain the existing sanitary sewer flow at all times (Phases 2 and 3).

Construct, in two phases, the relocation of the Mad River from Station MR 2+030± to Station MR 2+180 beginning with the west side construction. Note, construction operations cannot commence until the water main and sanitary sewer installations across the Mad River are completed and operational.

Construct the rock ramp fishway at existing Century Dam.

Construct the wing deflector at Station MR 1+630±.

Commence with the relocation of the Mad River from Station MR 1+660± to Station MR 1+930±. The relocation of the river from Station MR 1+660± cannot commence until the upstream relocation (Stations MR 2+030± to MR 2+180±) is completed and operational and the relocation of the river between Station MR 1+885± and Station MR 1+930± cannot be constructed until the new EB 25 Off-Ramp is opened to traffic and the existing ramp bridge removed.

- **Unnamed Stream:**

Divert the flow of the stream from the open channel to the existing piped network by making temporary modifications at the diversion manhole in Hamilton Avenue.

Reconstruct, during the Phase of the pedestrian bridge construction, the unnamed stream along it's original alignment between the Mad River and the intersection of Hamilton Avenue and Mountain Village Road.

- **Beaver Pond Brook/East Mountain Brook:**

Maintain flow in the East Mountain and Beaver Pond Brook channels. (See Beaver Pond Brook Relocation Water Handling Plans).

Construct Culvert No. 003 from the upstream limit on the south to EMB Station 1+018±. (Phase 1).

Complete the construction of Culvert No. 003 (see Reidville Drive construction sequence) and construct a temporary channel connection between Culvert No. 003 and existing Beaver Pond Brook (Phase 2).

Relocate the sanitary sewer (San. MH-21 to San. MH-20), construct the temporary connection between San. MH-20 and San. MH-20A and the southerly portion of the sewer across Beaver Pond Brook. Maintain sewer flow at all times.

Construct the southerly portion of Beaver Pond Brook (Stations BPB 5+365± to BPB 5+440±); construct a section of the westerly barrel/portal structure including Wingwall 2A of Culvert No. 01227 (Station BPB 5+348± to the upstream inlet).

Construct the northerly half of Beaver Pond Brook between the upstream face of the existing Culvert No. 03727 under Harpers Ferry Road (Station BPB 5+066±) and Station BPB 5+100.

- **Brookdale Lane**

Permanently close Brookdale Lane to through traffic south of Sycamore Lane to Plank Road to accommodate the new Plank Road Bridge (Bridge No. 05668) and the realigned

Mad River channel. Provide temporary and permanent traffic routing devices to accommodate local and through traffic via detours around the closed section of Brookdale Lane.

Relocate the water main on Brookdale Lane south of Sycamore Lane per the Mad River relocation construction sequence.

Reconstruct Brookdale Lane just north of Plank Road to reflect the permanently closed street condition.

Plank Road Bridge (Bridge No. 05668) and Approaches

Close Plank Road between Harpers Ferry Road and Station 70+060 to accommodate the removal/replacement of existing Bridge No. 05668 over the Mad River. Detour traffic to the detour roadway system.

Remove the superstructure of existing Plank Road Bridge (Bridge No. 05568) over the Mad River. Note, the removal is Phase 1 of the Mad River relocation sequence at Plank Road. For Phases 2 and 3 see Mad River construction sequence.

Relocate, via a loop alignment across the Mad River, the existing water main along Plank Road and the sanitary sewer (San MH-16 to MH-15 across the Mad River to Junction Chamber No. 1) and construct the temporary sanitary sewer (San MH-15C to MH-17C). Maintain existing water main and sanitary sewer flows at all times. See the Mad River relocation detailed construction sequence.

Remove the existing bridge abutments/footings and construct a replacement structure (Bridge No. 05668) to accommodate the realignment of the Mad River per the Mad River relocation construction sequence. Note that wingwalls 2A and 2B cannot be constructed until after the existing bridge substructure elements are removed.

- **Hamilton Avenue Bridge (Bridge No. 04321) and Approach Roadways:**

Install temporary pavement at locations on the east side of Hamilton Avenue to accommodate the lane requirements on the east side of the roadway. The temporary pavement installation shall be performed in accordance with the Traffic Control Plans in the MPT specifications.

Reconstruct the westerly third of the bridge and approach roadways. Note, the removal of the westerly third of the existing superstructure, abutments and footings, the removal of the existing westerly third of the center pier and the construction of the westerly third of the new center pier were completed in Pre-Stage 1.

Relocate the water main to the west side of the bridge.

- **Reidville Drive:**

Construct relocated Reidville Drive (including water main installation) from Station RD 10+005± to RD 10+440±.

Install temporary sheeting to maintain stability of Reidville Drive during Phase 1 and Phase 2 construction of Culvert No. 3.

Construct temporary roadway and temporary water main connections to accommodate Culvert No. 003 construction in Phase 2.

Construct temporary roadway to accommodate Reidville Drive construction in Phase 3.

Construct Reidville Drive from Station RD 10+440± to Station RD 10+500± (Phase 3) after completion of Culvert No. 003 in Phase 2. Complete the water main relocation.

Reconstruct existing Reidville Drive from Station RD 10+500± to RD 10+570± half at a time.
Remove existing Reidville Drive between Harpers Ferry Road and relocated Reidville Drive Station RD 10+500±.

- **Harpers Ferry Road:**

Construct Retaining Wall 105.
Construct the west side of Harpers Ferry Road north of Plank Road.
Construct the embankment to support the widening of Harpers Ferry Road between Beaver Pond Brook and Plank Road.
Construct the relocated sanitary sewer from the Junction Chamber No. 1 to San MH-13.
Construct the Haul Road off Harpers Ferry Road to provide access to the east side of the Mad River.
Construct the temporary roadway to accommodate Harpers Ferry Road traffic during the construction of the Harpers Ferry Bridge (Bridge No. 01226) in Stage 2.
Construct temporary pavement in the southwest quadrant of the Harpers Ferry Road/Plank Road intersection to accommodate the Harpers Ferry Road southbound traffic in Stage 2.
Construct Harpers Ferry Road south of the new intersection with Reidville Drive.

- **Plank Road East (Station PRE 50+420± to Station PRE 50+770±):**

Construct new Plank Road East and adjacent Retaining Walls 106 and 119 between Station PRE 50+420± and Station PRE 50+770±.

STAGE 1A

- **I-84**

Install temporary pavement within in the median between Stations WB 1+540± and 1+990± and a temporary overlay across the deck along the eastbound side of existing Bridge No. 01224 to accommodate westbound traffic in Stage 2 via a temporary roadway segment connecting the existing east and westbound lanes.
Complete the construction of the EB 25 Off- Ramp east of Station EB 25 10+820± and the temporary ramp connection between the eastbound roadway and the ramp at Station EB 1+730±.
Open the EB 25 Off-Ramp to Harpers Ferry Road via the temporary ramp connection. Close the existing off-ramp.
Remove the existing EB 25 Off-Ramp. The demolition/removal of the ramp bridge over the Mad River shall be staged in accordance with the Mad River Water Handling Plans.

PRE-STAGE 2

- **I-84:**

Install temporary pavement at the locations specified below:

- WB Roadway, right side Station WB 0+675± to Station WB 0+800±;
- EB Roadway, right side Station EB 0+680± to Station EB 0+815±.

Shift the east and westbound traffic lanes toward the median (temporary pavement in the left shoulder installed in Pre-Stage 1) under the Hamilton Avenue Bridge (Bridge No. 04321).

Remove the easterly two-thirds of the existing superstructure abutments/footings of Bridge No. 04321.

Repair the temporary pavement previously installed in Pre-Stage 1 on the outside of the roadway under Bridge 04321 after removal of the abutments/footings described and install temporary pavement in the areas where the abutments were removed.

Shift the east and westbound traffic lanes to the outside after completion of the temporary pavement installation under Bridge 04321.

Remove the easterly two-thirds of the existing center pier of Bridge No. 04321 and construct the easterly two-thirds of the new center pier.

- **Beaver Pond Brook:**

Maintain flow in the existing channel.

Excavate a shelf between the Brook and the WB 25 Off-Ramp between Stations WB 4+040± and WB 4+160± (See Beaver Pond Brook Water Handling Plans for Details.

STAGE 2 **Duration approximately 2 years 8 months (2 years, 7 months overlapping with Stage 1)**

- **I-84:**

Reconstruct the median and the inside pavement section west of Bridge No. 04321 beginning at Station WB 0+800±.
Complete the median work west of Station WB 0+800± per the Traffic Control Plans in the MPT specification.
Complete the median construction from Bridge No. 04321 to I-84 Station WB 1+540±.
Close the existing EB 23 On-Ramp. Detour on-ramp traffic to the existing on-ramp at Scott Road.
Construct the new EB 23 On-Ramp structure (Bridge 06590).
Construct Retaining Walls 102 and 103 and the embankment supported ramp section to Station E23 31+740±.
Construct the EB 25 Off-Ramp (Station E25 10+400± to Station E25 10+820±.).
Close the existing WB 23 Off-Ramp. Shift Off-Ramp traffic to the completed WB 23 Off-Ramp.
Remove the existing WB 23 Off-Ramp. Construct Sedimentation Basin No.1.
Complete the reconstruction of the north side of the EB 23 Off-Ramp.
Install temporary sheeting along the westbound roadway between Station WB 1+785± and the west end of Bridge No.01224 and from the east side of the bridge to Station WB 1+865± to maintain stability of the approach/exit roadways during the removal/construction of the north side of Bridge No. 01224.
Demolish and remove the northerly portion of Bridge No. 01224 (i.e., superstructure, abutments and center pier), construct the northerly portion of the bridge and the pedestrian walkway under the northerly portion of the bridge, construct a portion of the westbound roadway pavement and shoulder on both ends of the bridge and install temporary pavement linking the constructed portion of the new westbound roadway and the existing westbound lanes. The demolition/removal and/or construction of abutments, pier and superstructure shall be staged in accordance with the sequence of construction in the Water Handling Plans for Bridge No. 01224.
Complete the construction of Retaining Wall 101 east of Station WB 1+670 and the northerly portion of the mainline embankment supported section (Station WB 1+560± to WB 1+920±).
Complete the construction of Bridge No. 05774 and relocated I-84 eastbound and westbound embankment supported roadways from Station EB 2+160± (WB 2+135±) to Bridge No. 05774. Commence with the mainline construction between Harpers Ferry temporary road and Culvert No. 01227 and the terminal end of the W24 On-Ramp between Station W24 12+135± and Station W24 12+325±.
Incorporate the WB 24 Off-Ramp detour to Harpers Ferry Road and permanently close the WB 24 Off-Ramp to Harpers Ferry Road.
Construct Sedimentation Basin No. 4.

Construct the westbound roadway northerly pavement and shoulder between Station WB 2+780± and Station WB 3+255± and the temporary pavement transition to meet the existing pavement on both ends and to accommodate Stage 2A westbound traffic.
Commence with the construction of Retaining Wall 107 (Station EB 3+265± to the westerly wingwall for Culvert No. 02537).
Construct Retaining Wall 110.
Construct Retaining Wall 108. Closure with Wingwall 2B of Culvert No. 06622 cannot be constructed until Beaver Pond Brook is relocated in Stage 4.
Commence with the construction of Retaining Wall 109 from Station WB 4+280± to WB 4+420±.
Commence with the construction of the outside widening of the eastbound roadway from Station EB 3+265± to Station EB 4+460±.
Install temporary sheeting in back of the right shoulders in front of the Scott Road bridge south abutment to accommodate a partial mainline widening under the bridge such that the minimum vertical clearance would be maintained.
Commence with the construction of the outside widening of the westbound roadway from Station WB 3+360± to Station WB 4+155± and from Station WB 4+280± to Station WB 4+420±.
Install temporary sheeting in front of the Scott Road bridge north abutment to accommodate a partial widening under the bridge such that the minimum vertical clearance would be maintained. Install temporary sheeting between Stations WB 3+360± and WB 4+280± to prevent the embankment fill from encroaching into Beaver Pond Brook.

- **Mad River:**

Maintain flow in the channel as provided at the end of Stage 1 (See Mad River Relocation Water Handling Plans Stage A in the vicinity of Plank Road).

- **Beaver Pond Brook:**

Maintain flow in the channel (See Beaver Pond Brook Relocation Water Handling Plans and the sequence of construction for Culvert No. 02537).
Construct the westerly barrel of Culvert No. 01227 between Station BPB 5+278± and Station BPB 5+348±.
Construct the easterly barrel of the northerly and southerly extensions of Culvert No. 02537 and reconstruct the southerly half of the adjacent upstream and downstream segments of the channel.

- **Hamilton Avenue Bridge (Bridge No. 04321) and Approach Roadways:**

Reconstruct the easterly two-thirds of Bridge No. 04321. Note, the removal of the easterly two-thirds of the existing abutments and footings, the removal of the easterly two-thirds of the existing center pier and the construction of new easterly portion of the pier were completed in Pre-Stage 2.
Reconstruct the easterly side of the approach roadways and complete the installation of the sanitary sewer relocation (i.e., San MH-1 to San. MH-2). Maintain sewer flow at all times.

- **Harpers Ferry Road Bridge (Bridge No. 01226):**

Open the completed section of Harpers Ferry Road west of the new intersection with relocated Reidville Drive.
Reconstruct the easterly side of Harpers Ferry Road and relocate the water main north of Plank Road.
Close existing Harpers Ferry Road on the east side of the new intersection with relocated Reidville Drive. Shift Harpers Ferry Road traffic to the temporary roadway.
Excavate and complete rock blasting operations in the vicinity of Bridge No. 01226 and Harpers Ferry Road detour roadway. Rock blasting will not be allowed when the new substructure for Bridge No. 01226 is in place.
Commence with the construction of the Harpers Ferry Road Bridge (Bridge 01226) over relocated I-84.

STAGE 2A

- **I-84:**

Continue construction of the westbound roadway pavement between Station WB 2+765± and Station WB 2+910±, between WB Station 3+130± and Station WB 4+155± and from Station WB 4+280± to Station WB 4+420±.
Install temporary pavement in the existing median between Stations WB 2+640± and WB 2+790± to accommodate eastbound traffic in Stage 3.
Complete the outside widening of the eastbound roadway between Stations EB 3+320± and EB 4+460±.
Complete the construction of Retaining Wall 109 east of Station WB 4+420±.
Construct Retaining Wall 111 and the roadway parapet wall between Retaining Walls 109 and 111.
Construct the northerly two-thirds of the westbound roadway between Station WB 4+420± and the easterly project limit.
Complete the construction of Retaining Wall 107 from Station EB 3+265± to the wingwall for Culvert No. 02537.
Open the EB 25 Off-Ramp west of Bridge No. 04321 (Hamilton Avenue Bridge) after completion of Bridge No. 06590 (EB 23 On-Ramp Bridge).
Remove the temporary EB 245Off-Ramp connection and complete the construction of the EB 23 On-Ramp.

- **Beaver Pond Brook:**

Maintain flow in the channel (See the Beaver Pond Brook Relocation Water Handling Plans and the construction sequence from Culvert No. 02537).
Continue construction of westerly barrel of Culvert No. 01227 between Station BPB 5+278± and Station BPB 5+348±.
Construct the westerly extensions of Culvert No. 02537 and reconstruct the river channel at the inlet and outlet face of the Culvert.

STAGE 2B

- **I-84:**

Complete the Stage 2 outside widening of the westbound roadway east of Station WB 4+420±.
Construct the southerly two-thirds of the eastbound roadway between EB Station 4+460± and the easterly project limit.

STAGE 3 **Duration approximately 2 years (1 year, 9 months overlapping with Stage 1)**

- **I-84:**

Open the EB 23 On-Ramp from Hamilton Avenue.
Install temporary sheeting along Bridge No. 01224 approach/exit roadways (Station WB 1+770± to the west end of the bridge and from the east end of the bridge to Station WB 1+870± and Station EB 1+834± to the west end of the bridge and from the east end of the bridge to Station EB 1+915±) to maintain stability of the east and westbound roadways to facilitate construction operations during removal/construction of the center portion of Bridge No. 01224.
Demolish and remove the center portion of existing Bridge No. 01224 (i.e., superstructure, abutments and center pier) and construct the center portion of new Bridge No. 01224 in accordance with the sequence of construction in the Water Handling Plans for Bridge No. 01224.
Complete the construction of the pedestrian walkway under the center portion of Bridge No. 01224.
Complete the construction of the inside lanes of the westbound roadway and the outside lanes of the eastbound roadway east of Bridge No. 04321 to Station WB 1+960± and Station EB 1+760± respectively. The median between Station WB 1+560± and Bridge No. 01224 shall be completed in Stage 3A.
Commence with the construction of relocated I-84 between the east side of Bridge No. 05774 and Harpers Ferry temporary roadway.
Complete the construction of relocated I-84 between the east side of Harpers Ferry temporary roadway and Culvert No. 01227.
Construct Retaining Wall 118. Note that this work shall be done during the construction of the northerly half of Beaver Pond Brook between Stations BPB 5+351± and BPB 5+440±.
Complete the construction of Retaining wall 107.
Construct the southerly two-thirds of relocated/existing I-84 from the east side of Culvert No. 01227 to Station WB 3+200±, the right side of the eastbound roadway between Stations EB 3+235± and EB 3+310±, and the left side of the westbound roadway and median, except for the area of the temporary eastbound crossover lanes, between Stations WB 3+230± and WB 3+360±.
Complete the reconstruction of the inside lanes and median of I-84 from Station WB 3+360± to Station WB 3+797± and from Station WB 3+860± to the easterly project limit.

- **Mad River:**

Maintain flow in the channel (See Water Handling Plans for Bridge No. 01224). Flow in the channel in the vicinity of Plank Road shall be as provided at the end of Stage 1.

- **Beaver Pond Brook:**

Maintain flow in the channel (See Beaver Pond Brook Relocation Water Handling Plans).
Construct the easterly barrel of Culvert No. 01227 from Station BPB 5+281± to the upstream inlet face. Note the wingwall cannot be constructed until the relocated sanitary sewer across the north side of Beaver Pond Brook is completed.

Construct the northerly portion of relocated Beaver Pond Brook from Station BPB 5+440± to the inlet face of Culvert No. 01227 (Station BPB 5+351±) and complete the relocated sanitary sewer connection across the northerly half of Beaver Pond Brook. Maintain sewer flow at all times.

- **Hamilton Avenue Bridge (Bridge No. 04321) and Approach Roadways:**

Open and maintain traffic on the reconstructed bridge and approach roadways utilizing the final roadway lane configuration.

- **Harpers Ferry Road Bridge (Bridge No. 01226) and Approach Roadways:**

Complete the construction of Bridge No.01226.
Relocate the existing water main between the existing intersection and new intersection with Reidville Drive.
Commence with the construction of the embankment supported section on the west side of Harpers Ferry Road between the north end of Bridge No. 01226 and existing I-84.

STAGE 3A

- **I-84:**

Construct the relocated I-84 segment at the Harpers Ferry Road crossing after the new Harpers Ferry Road bridge is completed and the temporary roadway removed.

- **Harpers Ferry Road Bridge (Bridge No.01226) and Approach Roadway:**

Open Bridge No. 01226 to traffic. Provide one lane in each direction and a left turn lane at the new intersection with the EB 25 Off-Ramp and relocated Reidville Drive.
Remove the temporary Harpers Ferry Road. Continue the construction of the west side of Harpers Ferry Road between Bridge No. 01226 and existing I-84.

STAGE 3B

- **I-84:**

Open the relocated eastbound roadway.
Remove the temporary eastbound traffic crossover and complete the construction of the median and the inside lanes.

STAGE 3C

- **I-84:**

Open the relocated westbound roadway.
Complete the outside lanes of the eastbound roadway formerly occupied by the lanes for Stage 3B westbound traffic.

STAGE 4 **Duration approximately 12 months**

- **I-84:**

Install temporary sheeting to maintain the stability of westbound roadway at the crossing of Beaver Pond Brook during staged construction of Culvert No. 01227.

Remove the existing I-84 roadway (including the mainline bridge over the Mad River) between Station WB 2+000± and the westerly barrel of Culvert No. 01227. Regrade the area. Removal of the bridge shall be staged in accordance with the Mad River Relocation Water Handling Plans.

Complete the construction of the WB 24 On-Ramp. Construct Retaining Wall 115 and Bridge No. 06591 (WB 24 On-Ramp over relocated Mad River). Bridge No. 06591 shall be staged in accordance with the Mad River Relocation Water Handling Plans.

Complete the construction of the median area between Station WB 3+180± and Station WB 3+300±.

- **Mad River:**

Maintain flow in the channel (See Stages C, D and E of Mad River Relocation Water Handling Plans).

Complete the upstream relocation of the Mad River beginning at Station MR 1+900± .

- **Beaver Pond Brook:**

Maintain flow in the channel (See the Beaver Pond Brook Sanitary Sewer Crossing and Culvert No. 03727 construction sequence, the Water Handling Plans for the Mad River Stages C, D and E, and Beaver Pond Brook Relocation Water Handling Plans for Culvert No. 01227).

Complete the installation of the temporary sanitary sewer across the southerly side of Beaver Pond Brook and connect to existing San. MH-134. Divert the northerly sewer system flow through the temporary connection. Maintain flow in both existing northerly and southerly sanitary sewer pipes.

Construct the relocated (permanent) sanitary sewer across the southerly half of Beaver Pond Brook after the temporary connection described is completed and operational. Maintain existing sewer flow. (See Harpers Ferry Road construction sequence).

Extend the relocated (permanent) sanitary sewer across the northerly half of Beaver Pond Brook and to a point just downstream of the temporary pipe.

Construct the westerly portion of the southerly and northerly barrels of Culvert No. 03727 in two phases. The construction of either barrel cannot commence until after the sanitary sewer is relocated and operational. (See Harpers Ferry Road Staging notes).

Construct the westerly barrel of Culvert No. 01227 from the downstream outlet to Station BPB 5+278±.

Construct the southerly portion of the relocated brook from the outlet of Culvert No. 01227 to Station BPB 5+190±.

- **Harpers Ferry Road:**

Complete the relocation of the sanitary sewer from San. MH-9 to the section across Beaver Pond Brook then to San. MH-13. Construct the connection between San. MH-13 and San. MH-13A. After completion, divert the sewer flow to the relocated system. Maintain sewer flow at all times.

Commence with the construction of the west side of Harpers Ferry Road from Plank Road south towards Bridge No. 01226. Install temporary sheeting to maintain the stability of Harpers Ferry Road at the Beaver Pond Brook crossing during the Phases 3 and 4 construction of Culvert No. 03727. The construction of the pavement over Culvert

No.03727 cannot occur until the westerly portion of the southerly and northerly barrels of the culvert is completed (See Beaver Pond Brook Staging sequence notes).
Relocate the water main between the existing Reidville Drive intersection and Plank Road.

- **Relocated Plank Road East (Harpers Ferry Road to Station PRE 50+420±):**

Complete the construction of Retaining Wall 119.
Commence with the construction of relocated Plank Road East from Station PRE 50+020± at Harpers Ferry Road to Station PRE 50+420±. The roadway over Culvert No. 01227 (Station PRE 50+190± to Station PRE 50+210± cannot be constructed until after the culvert is completed.

- **Plank Road East (Existing- Station PRE 50+770± to Scott Road):**

Commence with the reconstruction of existing Plank Road East (Station PRE 50+770± to Station PRE 51+140±) and construct Bryan Street half at a time.
Close the Fairbanks Street/Plank Road East intersection. Reroute Fairbanks Street traffic to/from Plank Road East through completed Bryan Street.
Construct Retaining Wall 120.
Reconstruct the Fairbanks Street/driveway intersection while maintaining driveway traffic at all times.

- **Reidville Drive (Station RD 10+570± to Scott Road):**

Commence with the reconstruction of Reidville Drive half at a time.

STAGE 4A

- **I-84:**

Install temporary sheeting along the south side of the existing WB 25 Off-Ramp to maintain stability of the ramp during the construction of relocated Beaver Pond Brook.
Construct the new EB 25 On-Ramp.

- **Beaver Pond Brook:**

Reconstruct the northerly portion of existing Beaver Pond Brook between Station BPB 6+266± and Station BPB 6+290±.
Commence with the construction of relocated Beaver Pond Brook between Stations BPB 6+290± and BPB 6+450± including Culvert No. 06622 and between Stations BPB 6+442± and BPB 6+800± including the easterly half of Culvert No. 014. Note that Culvert No. 06622 wingwall across the existing brook cannot be constructed until relocated Beaver Pond Brook is operational.
Commence with the construction of the temporary channel downstream and adjacent to the existing WB 25 Off-Ramp in the vicinity of Station BPB 6+800±.
Relocate the sanitary sewer from Station W25 13+868± to Station W25 14+136± (San. MH-24 to San. MH-26A and from 6 meters east of San MH-26A to 15± meters north of San. MH-27). Connect San. MH-26A to the existing sewer to maintain flow.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Install temporary sheeting on the east side of Scott Road at the relocated crossing of Beaver Pond Brook to maintain the stability of Scott Road during construction of the easterly half of Culvert No.014.

Install temporary pavement on the west side of south of the bridge.
Commence with the construction of the easterly half of Bridge No. 01228. South of Reidville Drive, reconstruct the north side of Scott Road and the west side of Schraft Drive.
Relocate the water main across the bridge and along the approach roadway.
Install temporary pavement on the east side of Scott Road between the bridge and East Main Street to accommodate Stage 4B traffic operation.

- **East Main Street:**

Construct Retaining Wall 121.
Reconstruct East Main Street half at a time during allowable hours. At the end of a workday, a minimum of one lane in each direction plus the westbound left turn lane must be open to traffic.

- **Plank Road East (Existing - Station PRE 50+770± to Scott Road):**

Install temporary sheeting in the southeast quadrant of the Plank Road East/Scott Road intersection to maintain the stability of both roadways during the construction of relocated Beaver Pond Brook.
Continue constructing Plank Road East half at time between Stations PRE 50+770± and PRE 51+140±.

- **Reidville Drive (Station RD 10+570± to Scott Road):**

Continue the reconstruction of Reidville Drive half at a time.

STAGE 4B

- **I-84:**

Shift the eastbound On-Ramp traffic to the new EB 25 On-Ramp. Remove the existing ramp and regrade the area.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Install temporary sheeting on the east side of Scott Road at the relocated crossing of Beaver Pond Brook to maintain the stability of Scott Road during construction of the westerly half of Culvert No. 014.
Continue construction of the easterly half of the bridge.
Relocate the sanitary sewer from San MH-32 to San MH-35. Maintain existing sewer flow at all times.
Complete Scott Road and Schraft Drive reconstruction south of Reidville Drive.

- **Beaver Pond Brook:**

Maintain flow in the existing channel, adjacent to the westbound lanes of I-84.
Complete the relocation of Beaver Pond Brook between the downstream end of Culvert No. 06622 and Station BPB 6+800± which includes the construction of the westerly half of Culvert No. 014 and the temporary channel downstream and adjacent to the existing culvert under the existing WB 25 Off-Ramp.
Culvert No. 06622 Wingwall 2B across the existing brook cannot be constructed until the relocated brook is operational.

- **Reidville Drive (Station RD 10+570± to Scott Road):**

Complete the reconstruction of Reidville Drive.

- **Plank Road East (Existing - Station PRE 50+770± to Scott Road):**

Complete the reconstruction of existing Plank Road East between Stations PRE 50+835± and PRE 51+140±.
Commence with the construction of relocated Plank Road East between Station PRE 51+140± and Culvert No. 06622.

- **East Main Street:**

Complete the reconstruction of East Main Street.

STAGE 4C

- **I-84:**

Construct the relocated WB 25 Off-Ramp from Scott Road to Station W25 14+090± and the south half from Station W25 14+090± to I-84 after Beaver Pond Brook flow is diverted to the relocated channel. The north half cannot be constructed until the Beaver Pond Brook culvert under the existing off-ramp is removed.
Install temporary sheeting along the north side of the westbound roadway (Stations WB 4+100± to WB 4+200± to prevent embankment fill from entering the temporary channel/relocated Brook).
Continue with the outside construction of the westbound roadway between Stations WB 3+670± and WB 4+150± after Beaver Pond Brook flow is diverted to the relocated channel.

- **Beaver Pond Brook:**

Divert the river flow to the relocated channel via the temporary channel constructed in Stages 4A and 4B. (See Stage B of Beaver Pond Brook Relocation Water Handling Plans).
Reconstruct the southerly portion of Beaver Pond Brook between Station BPB 6+266± and Station BPB 6+290±.
Construct the southerly portion of the floodplain along Beaver Pond Brook between Station BPB 6+470± and Station BPB 6+760±.
Construct Culvert No. 06622 Wingwall 2B across the existing brook and connect the wingwall to Retaining Wall 108.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Complete the construction of the easterly half of Bridge No.01228 and construct 50± meters of the approach roadway north of the bridge.
Install temporary pavement on the easterly half of the approach roadway to transition from the surface elevation of the completed 50± meter section and the existing roadway surface.

- **Relocated Plank Road East (Station PRE 51+140± to Scott Road):**

Continue the construction of relocated Plank Road East between Station PRE 51+140± and Station PRE 51+280±.

STAGE 5 **Duration approximately 1 year, 10 months (11 months overlapping with Stage 4)**

- **I-84:**

Open the new WB 24 On-Ramp to traffic.
Close the existing W25 Off-Ramp and open the new ramp to traffic.
Complete the construction of Retaining Wall 109(Station W25 14+090± to Station WB 4+280±) and continue construction of westbound (Station WB 3+660± to WB 3+780±, WB 3+860± to WB 4+060±, and WB 4+160± to WB 4+280±) I-84 and the WB 25 Off-Ramp. (See Beaver Pond Brook Relocation Water Handling Plans Stages C and D).

- **Beaver Pond Brook:**

Maintain flow in the relocated channel and the existing channel to remain (See Beaver Pond Brook Relocation Water Handling Plans for Culvert No. 01227 and Stages C and D and Beaver Pond Brook Culvert No. 03727 Construction Sequence).
Construct the easterly portion of southerly and northerly barrels of Culvert No. 03727 in two phases. (See Harpers Ferry Road staging sequence notes).
Construct the easterly barrel of Culvert No. 01227 from Station BPB 5+281± to the downstream outlet and reconstruct the northerly portion of Beaver Pond Brook from the culvert outlet to Station BPB 5+190±.
Excavate a shelf with a base elevation 137.5 on the northerly side of the brook between Stations BPB 6+850± and BPB 6+970± before removing the culvert under the existing WB 25 Off-Ramp.
Remove the northerly culvert barrel and construct the northerly portion of Beaver Pond Brook and floodplain from Station BPB 6+780± to Station BPB 6+890±.
Complete the relocation of the sanitary sewer (the 6± meter section east and adjacent to San MH-26A and the section from 15± meters north of San. MH-27 to San MH-29). Maintain sewer flow at all times.
Remove the existing southerly culvert barrel and construct the southerly portion of Beaver Pond Brook between Station BPB 6+780± and Station BPB 6+890±.
Complete the construction of the southerly half of relocated Beaver Pond Brook between Station BPB BPB 6+890± and BPB 6+970.
Complete the construction of the northerly half of relocated Beaver Pond Brook between Stations BPB 6+880± and BPB 6+970.

- **Harpers Ferry Road:**

Remove the existing bridge over the existing I-84 roadway.
Install temporary sheeting to maintain the stability of Harpers Ferry Road at the Beaver Pond Brook crossing during the Phases 1 and 2 construction of Culvert No. 03727.
Reconstruct the east side of Harpers Ferry Road north of new Bridge No. 01226. Note the section over Beaver Pond Brook cannot be constructed until Culvert No. 03727 is completed.

- **Plank Road (East of Harpers Ferry Road):**

Reconstruct Plank Road half at a time.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Commence with the reconstruction of the westerly half of the bridge and construct 50± meters of the approach roadway north of the bridge.

- **Relocated Plank Road East at Scott Road**

Complete the construction of relocated Plank Road East.

STAGE 5A

- **I-84:**

Complete the construction of I-84 along the westbound roadway (WB 3+660± to WB 3+780±, WB 3+860± to WB 4+060± and WB 4+160± to WB 4+280±). The section under the Scott Road Bridge cannot be constructed until the west half of the northerly abutment is completed.

- **Relocated Plank Road East and Existing Plank Road East:**

Reconstruct existing Plank Road East from 40± meters west of Scott Road to Scott Road. At the end of a work day, one lane in each direction must be open to accommodate driveway traffic.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Complete construction of the westerly half of the bridge and the westerly side of the approach roadway between Reidville Drive and East Main Street.

STAGE 5B

- **I-84:**

Complete the median construction in Phase 1.
Shift eastbound and westbound traffic to the inside lanes at the end of Phase 1.
Complete the outside construction along the eastbound and westbound roadways in Phase 2.

- **Scott Road Bridge (Bridge No. 01228) and Approach Roadways:**

Complete construction of the east side of Scott Road between East Main Street and the WB 25 Off-Ramp.

STAGE 5C **Duration approximately 1 month**

- **I-84 and Local Streets:**

At the end of Stage 5B and utilizing the Traffic Control Plans in the MPT specifications, install final pavement top course, final pavement markings and signing.

6. Establish turf, per detail Turfing Plans, on all remaining disturbed areas.
7. Remove erosion controls when it is determined that disturbed areas have been stabilized. (This determination will be made by the Engineer).
8. All post-construction stormwater structures shall be cleaned of construction sediment and any remaining silt fence shall be removed prior to the filing of the "Notice of Termination Form".
9. Perform project cleanup.

A detailed suggested sequence of construction of the drainage components of the project is provided to the Contractor in form of a Notice to Contractor.

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 immediately 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 between (2) acres and (5) acres per discharge point**, the Contactor must submit to the Engineer a revised SWPCP for review and approval. The SWPCP must include locations of the temporary sedimentation trap per discharge point with a capacity to contain 134 cubic yards per acre of material in accordance with the 2002 Connecticut Guidelines for Erosion and Sediment Control (Guidelines). The Contractor shall provide an inspection and maintenance plan for the temporary sedimentation trap as part of the amended SWPCP.

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

The Contractor shall provide an inspection and maintenance plan for the temporary sedimentation traps and temporary sedimentation basins as part of the SWPCP.

3. Control Measures

Erosion and Sedimentation Controls

CT DOT will have construction inspection personnel assigned to the project in order to oversee the Contractor's operations to ensure compliance with the provisions of the Standard Specifications. Further CT DOT oversight is provided by the **District 4 Environmental Coordinator** (DEC) and the Office of Environmental Planning.

The use of sediment traps and sediment basins for construction-phase treatment was reviewed for applicability and feasibility to this project. Due to the limited land available for use (limited linear right-of-way, adjacent to and paralleling watercourses) and large amount of imperviousness within project boundaries, and the topography of the terrain the locations where sediment basins could be installed were limited. Even in locations where basins were able to be installed, the basin's dimensions were often limited due to land constraints.

Similarly, sediment traps were not deemed feasible everywhere due to space limitations and the degree of imperviousness of the site. Finally, other natural or manmade features such as wetlands, watercourses, steep slopes, and the presence of bedrock also precluded the use of these treatment techniques across the site.

The following temporary and permanent erosion and sedimentation control measures, utilized in accordance with the 2002 E & S Guidelines (2002 E&S), are implemented in the contract documents:

Temporary and Permanent Soil Stabilization and Protection Practices and Structural Measures

The following stabilization measures, to be utilized in accordance with the 2002 E & S Guidelines, are implemented in the contract documents.

Preserve and Conserve Soil *(2002 E&SG, Ch. 5-2)*

- Topsoiling - Shall be performed in the areas free of invasive species present and includes the stripping and (re)application of topsoil to improve soil fertility and enhance vegetative growth. In order to avoid spreading or propagation of invasive species present within the project limits the first 12 inches (300mm) of the topsoil collected from the on-site sources shall not be allowed to be applied within the project for the purpose of topsoiling.
- Land Grading - Involves reshaping of the ground surface by excavation or filling or both, to obtain planned grades. Where feasible the proposed graded slopes are flatter than 2:1. No vegetated slopes are steeper than 2:1. For slopes steeper than 2:1, or when slopes are

steeper than 3:1 and the change in elevation exceeds 4.7 meters (15 feet) without a cross slope bench, engineered structural design features have be incorporated.

- Surface Roughening - A rough soil surface with horizontal depressions created by the Contractor by operating tracked machinery on the contour, or by leaving slopes in a roughened condition by not fine-grading them to reduce storm water runoff velocity and increase infiltration and to reduce sheet erosion and provide for sediment trapping.
- Dust Control - Use of mechanical sweeping will be performed on paved areas where dust and fine materials accumulate as a result of truck traffic, pavement saw cutting spillage, and wind or water deposition from adjacent disturbed areas. In heavily trafficked areas sweeping shall be performed daily. Routine sweeping and application of dust suppression agents, including water and calcium chloride, over exposed subbase shall be performed for dust control.

Vegetative Soil Cover *(2002 E&SG, Ch. 5-3)*

- Temporary Seeding - Stabilization of exposed soil to reduce damage from wind and/or water erosion and sedimentation until permanent stabilization is accomplished. Disturbed, erodible soils which are expected to be exposed for 1 to 12 months shall receive temporary seeding. Such areas include soil stockpiles, borrow pits, road banks and other disturbed or unstable areas.
- Permanent Seeding - On disturbed or erodible soils that have been brought to final grade or where the suspension of work is expected to exceed 1 year and where slopes gradients are no steeper than 2:1. For slopes steeper than 2:1, slope structural stabilization measures shall be used.
- Sodding - Stabilization of graded disturbed areas with the use of cut pieces of turf are specified in the contract documents in the areas where establishing turf grass and lawn is needed in the shortest time possible.

Short-Term Soil Protection *(2002 E&SG, Ch. 5-4)*

- Temporary Soil Protection - Materials include but are not limited to mulches, tackifiers, and nettings to prevent erosion by dissipating the erosive energy of raindrops and encouraging sheet flow over the protected soil surface. These measures are to be used by the Contractor on the as needed basis and compensated for under Section 2.10 Water Pollution Control (Soil Erosion).
- Temporary Erosion Control Blankets - Used on newly seeded and/or disturbed soils to absorb rain drop impact and to reduce sheet and rill erosion and to enhance the establishment of vegetation. These measures are to be used by the Contractor on the as needed basis and compensated for under Section 2.10 Water Pollution Control (Soil Erosion).
- Permanent Turf Reinforcement Mat - Used in channels where design velocities exceed the stability limits of the soil and/or vegetation such as roadside swales, and on unstable soils where intermittent flow exists.

- Stone Slope Protection - In areas where permanent reduction of runoff and erosion is required and to prevent soil compaction and prevent shallow surface slope failures by providing a non-vegetative stone cover over the soil surface and in unfavorable conditions for plant establishment and growth.

Stabilization Structural Measures *(2002 E&SG, Ch. 5-5)*

- Temporary Sediment Traps - For points of discharge from disturbed sites with a drainage area of 2 to 5 acres, a temporary sediment trap shall provided, as indicated on the plans, and maintained until final stabilization of the contributing area.
- Temporary Sediment Basins - For points of discharge from disturbed sites with a drainage area of greater than 5 acres, a temporary sediment basin shall be provided and maintained until final stabilization of the contributing area.
- Off-site flows should be diverted around construction areas (keep clean water clean).
- Retaining Walls - In all areas where site constraints, such as proximity to wetlands, watercourses or property boundaries did not allow for slope stabilization by flattening and seeding. An extensive use of retaining walls (20) of different type and configuration is required due to the site restrictions.
- Riprap - In areas where protection of the soil surface from the erosive forces of concentrated runoff such as drainage system outlet protection, high velocity stream flows in relocated sections of the Mad River, Beaver pond Brook and their tributaries. To slow the velocities, enhance the potential for infiltration, and provide habitat diversity. To stabilize slopes with seepage problems.
- Gabions - Flexible wire mesh baskets composed of rectangular cells filled with riprap are used to slow the velocity of concentrated runoff and delineate forebay storage within the permanent sedimentation basins.
- Channel Grade Stabilization Structure - Permanent open drop structures, used in series within the limits of re-establishment of the Unnamed tributary to the Mad River, to control the grade, eliminate the ongoing gully erosion and head cutting in natural channel.

Drainageways and Watercourses *(2002 E&SG, Ch. 5-6)*

- Permanent Lined Waterway - Providing for the safe non-erosive conveyance of concentrated surface water runoff to an appropriate receiving channel, without damage by erosion or flooding. In natural channels of relocated and reestablished , watercourses of the project (Mad River, Beaver Pond Brook, etc.), drainageways, roadside ditches and other man-made channels that are modified or constructed and where vegetation alone will not prevent erosion.

Diversions *(2002 E&SG, Ch. 5-7)*

- Temporary Fill Berm - Utilized on active earth fill slopes where the drainage area at the top of fill drains toward the exposed slope and to divert runoff from unprotected fill slopes during construction to a stabilized outlet or sediment-trapping facility.
- Temporary Diversion - To be used by the contractor to divert sediment-laden runoff from a disturbed area to a sediment-trapping facility such as a temporary sediment trap, sediment basin or vegetative filter or to direct water originating from undisturbed areas away from areas where construction activities are taking place and fragment disturbed areas thereby reducing the velocity and concentration of runoff.

Energy Dissipators *(2002 E&SG, Ch. 5-10)*

- Level Spreaders - Used at the outfalls of storm drain as outlet protection, identified in the Contract documents as Riprap Apron.
- Outlet Protection - At the outfall of storm drain outlets, road culverts, paved channel outlets, new channels constructed as outlets for culverts and conduits, etc. discharging into natural or constructed channels, which in turn discharge into existing streams or drainage systems, identified in the Contract documents as Preformed Scour Hole.
- Stone Check Dam - Used to reduce the velocity of concentrated storm water flows, thereby reducing erosion potential or temporarily pond storm water runoff to allow sediments to settle out and to promote infiltration.

Sediment Impoundments, Barriers, and Filters *(2002 E&SG, Ch. 5-11)*

- Temporary Sediment Trap - Temporary sediment traps will be installed prior to conducting any grading activities in the contributing watershed of 2 hectares (5 acres) or less. The traps were proposed at locations to obtain maximum storage benefit from the terrain subject to potential erosion, for ease of clean out and disposal of the trapped sediment. Their initial storage volume, as indicated in the Contract Documents, corresponds to approximately 134 cubic yards per acre of drainage area.
- Hay Bale Barrier - A temporary sediment barrier consisting of a row of entrenched and anchored bales of hay or straw, used to intercept and detain small amounts of sediment from small disturbed areas.
- Geotextile Silt Fence - Utilized as a temporary sediment barrier consisting of a geotextile fabric pulled taut and attached to supporting posts and entrenched to intercept and retain sediment from disturbed areas.

Tire Tracked Soils *(2002 E&SG, Ch. 5-12)*

- Construction Entrance - A stone stabilized pad located at points of vehicular ingress and egress on a construction site used to reduce the tracking of sediment off site onto paved surfaces.

Dewatering *(2002 E&SG, Ch. 5-13)*

- Pump Intake and Outlet Protection - To be utilized to reduce the amount of sediments taken up by a pump during dewatering operations or to prevent soil erosion due to scouring and the resuspension of detained sediments at the point of pump discharge placed during and at locations of pumping operations.
- Pumping Settling Basin - An enclosed sediment barrier or excavated pit constructed with a stable inlet and outlet such that sediment laden water from pumping operations is de-energized and temporarily stored, allowing sediments to be settled and/or filtered out before being released from the construction site. To allow for the settlement of sediment from pumping operations prior to the water being discharged.
- Dewatering of Earth Materials - A procedure that uses a perimeter earthen berm and excavation to create a containment area where excessively wet soil is placed to allow for the draining of water or evaporation of excessive moisture. To dry soil sufficiently so that it may be regraded or transported.

The Contractor may use other temporary and permanent stabilization practices approved by the Engineer and conforming to the 2002 E & S Guidelines.

In summary the following stabilization measures are implemented:

Temporary Measures:

- Temporary Topsoiling
- Temporary Land Grading
- Surface Roughening
- Dust Control
- Temporary Seeding
- Temporary Stone Slope Protection
- Temporary Soil Protection
- Temporary Erosion Control Blankets
- Off-Site Flow Diversions
- Temporary Fill Berms
- Temporary Diversions
- Level Spreaders
- Outlet Protection
- Temporary Stone Check Dam s
- Hay Bale Barrier
- Geotextile Silt Fence
- Construction Entrance
- Dewatering of Earth Materials
- Pumping Settling Basin
- Pump Intake and Outlet Protection

Permanent Measures:

- Permanent Topsoiling

- Permanent Land Grading
- Permanent Seeding
- Sodding
- Permanent Turf Reinforcement Mat s
- Permanent Stone Slope Protection
- Permanent Lined Waterways
- Level Spreaders
- Outlet Protection
- Permanent Stone Check Dams

Temporary & Permanent Structural Measures:

- Temporary Sediment Traps
- Temporary Sediment Basins
- Permanent Sediment Basins
- Culvert Internal Roughness Elements
- Channel Grade Stabilization Structure
- Riprap
- Gabions
- Retaining Walls
- Hydrodynamic Separators

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

- If construction activities are complete or have been temporarily halted for more than seven (7) days, stabilization activities will be implemented within three (3) days per Chapter 5 of the 2002 E & S Guidelines.
- When final grades are completed in any part of the site, stabilization activities will be implemented within three (3) days.
- Areas that remain disturbed but inactive for at least 30 days shall receive temporary seeding or soil protection within seven (7) days.
- Disturbed areas that do not establish a vegetative cover within 30 days of seeding shall have erosion control blankets installed. Prior to the erosion control blanket installation, the soil would be prepared with the application of lime, fertilizer, and seed.
- Areas that will be disturbed beyond the planting season will be covered with a long-term, non-vegetative stabilization method that will provide protection through the winter. The Contractor must provide an Erosion and Sedimentation Control plan for each winter season during construction operations.
- Stabilization practices will be implemented as quickly as possible in accordance with the 2002 E & S Guidelines.
- The Contractor shall stabilize disturbed areas with temporary or permanent measures as quickly as possible after the land is disturbed. Requirements for soil stabilization are detailed in Form 816 Section 1.10.03, Best Management Practices.
- The Contractor may use other controls in the project as necessary if they conform to the

2002 Connecticut Erosion and Sedimentation Guidelines and are approved by the Engineer. The contractor will be required to provide the necessary details for any erosion controls not specifically called for on the project plans.

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

Maintenance

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

4 Dewatering Wastewaters

Dewatering Guidelines

The following construction activities require dewatering as part of the project:

- Removal, reconstruction of the existing and construction of the proposed bridges and culverts involving construction within the proximity of the wetlands and watercourses;
- Construction of new Retaining Walls adjacent to the wetlands and watercourses;
- Relocations and/or channel stabilizations of sections of the Mad River, Beaver Pond Brook and their tributaries;
- Sanitary Sewer and Water Main watercourse crossing installations;
- Fisheries habitat enhancements at the Century Dam and within the Mad River and Beaver Pond Brook Reaches.

The E&S details provided in the Contract Documents include the typical Pump Intake Protection details. Detail Sedimentation & Erosion Control - Stage Plans and detail Water Handling Plans, included in the Contract documents, identify locations of the temporary dewatering measures such as Temporary Dewatering (Settling) Basins coordinated with the staging of operations. The treated discharge from those measures shall be infiltrated into the groundwater where feasible or discharged overland, through a temporary outfall protection, to the receiving waters unless otherwise directed by the Engineer.

When dewatering is necessary outside of the areas identified on the plans, pumps used shall not be allowed to discharge directly into a wetland or watercourse. Prior to any dewatering, the Contractor must submit to the Engineer a written proposal for specific methods and devices to be used, and must obtain the Engineer's written approval of such methods and devices, including, but not limited to, the pumping of water into a temporary sedimentation basin, providing surge protection at the inlet or outlet of pumps, floating the intake of a pump, or any other method for minimizing and retaining the suspended solids.

If the Engineer determines that a pumping operation is causing turbidity problems, the Contractor shall halt said operation until a means of controlling the turbidity is submitted by the Contractor in writing to the Engineer, approved in writing by the Engineer and implemented by the Contractor. No discharge of dewatering wastewater shall contain or cause a visible oil sheen, floating solids or foaming in the receiving water. All activities are to be performed in compliance with ConnDOT Form 816.

5. Post-Construction Stormwater Management

Post-construction Guidelines

After the project is complete, the Department will perform the following maintenance and restorative measures to maintain the installed control measures and stormwater system associated with the project:

- Litter/debris will be removed from the site regularly.
- Mowing and maintenance of the turf areas and vegetated areas will occur as needed during the growing season.
- Drainage structure sumps and hydrodynamic separators will be inspected regularly and sediment will be removed when sumps reach ½ of their capacity.
- Riprap outlet protection for outfalls and basins will be inspected and repaired annually or as needed.
- Stone check dams and sediment forebays will be inspected and repaired annually or as needed. Sediment will be removed when it reaches one half the height of the check dam or forebay unit.
- Stormwater basins will be inspected and repaired annually or as needed. Sediment will be removed when it interferes with the detention capacity of the basin or blocks outlet structure orifices. Outlets will be reviewed for excessive scour and repaired as needed.

Post Construction Performance Standards

Consideration of Post-Construction Stormwater Treatment Methods/Site Constraints

The project is a linear roadway project, with existing development throughout and a limited right-of-way in which to conduct improvements. The project includes increasing the number of travel lanes from two to three in each direction, upgrading on/off ramp systems to improve vehicular movements, improving the horizontal roadway alignment, increasing shoulders to standard widths, increasing the vertical clearance of highway structures, and includes numerous improvements to the existing roadway drainage system, as discussed herein and as presented in the Project Plans.

Several types of treatment practices were considered for this project. However, there are several project constraints which limit the types, extents, and locations of treatment practices within the project area, including:

- Linear nature of the project – highway corridor with limited right-of way widths where much of site dedicated to existing and proposed pavements for highway facilities;

- Environmental Site Conditions / Presence of Area of Environmental Concern (AOEC) - The entire project corridor has been designated as an AOEC and two Hazardous Areas of Environmental Concern (HAZ-AOEC) were also designated within the project corridor as were twenty (20) Areas of Restricted Reuse (AORRs). Sediment Areas of Environmental Concern (SED-AOECs) were also designated, as was a Groundwater Area of Environmental Concern (GW-AEOC). The limits of these areas within the project site were identified on the Contract Documents for the project and discussed in the Project Specifications;
- Presence of bedrock/ledge - in multiple areas across the site, which limits ability to install belowground structures, Low Impact Development (LID) or other practices to promote infiltration;
- Proximity to wetlands/watercourses – Wetlands/watercourses are located within the project area. Treatment practices and outfalls were located in upland areas to the extent practical and environmental permitting for stream relocations and other impacts were permitted through the appropriate state and federal agencies.

Due to the complexity of the project, its size, and linear nature, it is impractical to layout a plan for the entire project limits. A generalized discussion of why certain practices were not included in the design is included below.

Primary treatment practices which were considered but dismissed were Stormwater Ponds, Stormwater Wetlands, Infiltration, and Filtering techniques. These practices were not considered to be feasible due to the space they require, the presence of environmental concerns on the site, and the presence of rock in certain areas. Water quality swales were utilized throughout the project, as discussed herein.

Secondary treatment practices fall into two categories: conventional and innovative/emerging technologies. Conventional practices include dry detention ponds, deep sump catch basins, oil/particle separators, underground detention structures, permeable pavements, dry wells, vegetated filter strips/level spreaders and grass drainage channels. Practices related to innovative/emerging technologies include catch basin inserts, hydrodynamic separators, media filters, underground infiltration systems and alum injections. Of these secondary treatment practices, oil/particle separators were not utilized, as hydrodynamic separators provide better treatment options. Underground detention was not considered due to space limitations, the presence of rock, the lack of treatment provided, and environmental concerns. Permeable pavements were not deemed feasible due to traffic expectations on the highway system, and dry wells were not applicable as there are no buildings involved in the project. Similarly, vegetated filter strips were not determined to be appropriate for this project due to space requirements. Other innovative practices such as filters and underground infiltration were not considered due to environmental concerns and space requirements. Catch basin inserts are prone to clogging and require frequent maintenance, which could be safety concerns on a highway system. Finally, alum injection was not determined to be appropriate for this type of project. Secondary treatment practices were utilized in the form of dry detention ponds, deep sump catch basins, grass drainage channels, and hydrodynamic separators.

Low Impact Development (LID) Techniques

Low Impact Development (LID) Techniques were considered for the project, however many of the techniques cited in Appendix B of the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* are not suitable to linear highway reconstruction projects:

- pavers/permeable pavements
- rainwater harvesting system
- residential rain gardens
- green roofs
- minimizing road widths and parking areas
- dry wells
- tree box filters
- operational controls for waste management,

since these options are attached more to commercial and residential construction with parking areas and structures.

To the extent possible, LID techniques were provided in the form of pollution prevention measures and vegetated swales throughout the project.

Post-Construction Performance Standards

Redevelopment/Other Development Classification

The project limits contain an area of approximately 65.0 hectares (ha) (160.6 ±acres). The impervious areas for the existing and proposed conditions within the project area are listed below:

Existing Impervious Area within Project Area: approximately 22.7 ha (56.1 ±acres)

Proposed Impervious Area within Project Area: approximately 30.1 ha (74.4 ±acres)

Based on these values, the existing project area is approximately 35% impervious. Subjected to the criteria for imperviousness set forth in the *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities,* this project would be classified as "Other Development" since the defined project area is currently developed with less than 40% impervious cover. As such, the project has been designed to retain the full water quality volume to the extent practical, given the above mentioned constraints.

Post-Construction Control Measures

Based on the above considerations/constraints, the following treatment practices were

incorporated in the project and designed to the maximum extent practical to be in accordance with the *CT 2004 Stormwater Quality Manual* and conditions referenced in the current *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities*:

Primary Treatment Practices:

- Water Quality Swales (also LID technique)

Secondary Treatment Practices (Conventional):

- Dry Detention Ponds
- Deep Sump Catch Basins
- Grass Drainage Channels

Secondary Treatment Practices (Innovative/Emerging Technologies)

- Hydrodynamic Separators

Runoff Reduction and LID Practices

Water Quality Swales:

Four (4) water quality swales will be constructed as part of the project. Swales 3, 7, 15, and 16 have been designed in accordance with the CT 2004 Stormwater Quality Manual. In addition, the project has been designed such that most of runoff received in Swale 6 (a Grass Drainage Channel, as discussed herein) will be directed to Swale 7 for treatment. Cross sections, details, layouts, dimensions, and other relevant information regarding these swales are shown on the Contract Drawings. Stone check dams will be constructed in the channels to provide for capture and treatment of the WQV. In total, approximately 20.0 hectares (49.4 acres) of contributing watershed (including areas beyond project boundaries) will be treated by the four water quality swales.

Dry Detention Ponds:

Basins (Sedimentation) No. 1, 3, and 4 were designed with the intent of being able to capture the WQV in dead storage below the lowest outlet elevation and have forebays which were designed to hold approximately 10% of the WQV. Calculations and modeling are provided to estimate what percentage of the WQV is captured in each of these basins (see the 1-inch storm models). Basins were designed based on the area available within the right-of-way, the area to be treated, and other constraints. In total, approximately 17.0 hectares (42.0 acres) of contributing watershed (including areas beyond project boundaries) will be treated by the three basins.

Existing Basin 2 was installed as part of the original Interstate System project in the 1950's. This

basin, although of limited storage volume, will be restored as part of the project and has been included with the intent of providing for some flow attenuation, sediment capture, and treatment, but not to the level of the other basins incorporated in the project.

Grass Drainage Channels:

Some swales associated with the project were not designed as water quality swales, for various reasons, including that they are upgradient from basins or hydrodynamic separators, rights-of-way restrictions, site conditions, or safety concerns, as discussed below. To the extent possible, these channels were designed as grass drainage channels. In some areas, the grass channels will be constructed with a more durable channel section, including the use of crushed stone or riprap due to velocity concerns, the presence of outfalls, or to address site specific concerns. Details are provided in the Drainage Swale Treatments Table in the Contract Documents.

Swale 1 is a grassed channel which is tributary to Basins 1 and 3 for treatment. Some sections of the channel will be reinforced with stone or riprap.

Swales 2, 4, 10, and 11 are a combination of grass and riprap sections and are located in areas with rock present and as such could not be designed as water quality swales.

Swale 5 is a channel which is a combination of grass and crushed stone in a few areas and is located in a gore area of the highway. As such, it could not be designed as a water quality swale due to safety concerns. The discharge from Swale 5 will ultimately be treated in Basins and 3.

Swale 6 is a grassed swale which, in part, discharges flows to Swale 7, a water quality swale.

Swale 8 is a grassed swale which discharges to Sedimentation Basin 4

Swale 9 is a grassed channel capturing an unpolluted runoff in an area above a retaining wall.

Swale 12 is primarily a grassed channel with a section of crushed stone and is treated by a hydrodynamic separator unit.

Swale 13 is a grassed channel at the right-of-way limit, such that space limited the ability to construct a water quality swale.

<u>Treatment Practices Not Aimed at Runoff Reduction</u>

Deep Sump Catch Basins:

Where practical, catch basins will be constructed with deep sumps. For catch basins constructed in association with the project, the following criteria apply:

- For catch basins with the deepest invert greater than 3m (10 ft) below the top of frame, no sumps will be installed due to the depth of the structure for maintenance considerations.
- For catch basins with the deepest invert greater than 1.8m (6 ft) below the top of frame and less than 3m (10 ft), the sump is equal to 3m (10ft) minus the deepest invert, again for maintenance considerations.
- For catch basins with an inlet pipe greater than 900mm (3 ft), no sump is included.
- For all other catch basins, the sump is equal to 1.2m (4 ft).

Summary information is provided in the Drainage Tables in the Contract Plans.

Hydrodynamic Separators:

Eight (8) hydrodynamic separators (HDS) will be constructed as part of the project to provide water quality treatment. The hydrodynamic separator units shall be selected from a CT DOT approved list of units and shall be designed to treat the entire Water Quality Flow (WQF) without bypass. The units will also be designed such that they convey the drainage design flow (DDF) without surcharge to the upstream storm drainage system and resuspending previously trapped sediments and shall be subject to a hydraulic grade line (HGL) analysis consistent with the DOT Drainage Manual. The HDS units will be located prior to the outfalls along the stormwater drainage systems discharging to Outfalls 5, 19, 21, 43, 47, 49, 57, and 71. The specification for hydrodynamic separators and information on their location is appended to this Plan in Appendix D. The 8 HDS units will treat runoff from approximately 23.0 hectares (56.8 ± acres) of the project area.

Suspended Solids and Floatables Removal

Water quality swales provide for sediment removal, as well as uptake of nutrients and some dissolved pollutants. The swales have been sized and designed to treat the WQV. Details and tables showing swale designs and features are included in the Contract Plans.

Dry detention ponds will provide for sediment removal through the use of the sediment forebays designed for each of the structures. Design information/modeling is provided in the Contract Drawings (Appendix D) and Drainage Calculations (Appendix B).

Deep sump catch basins will provide for removal of sediment, as well as floatables and grease.

Grass drainage channels provide for limited removal of sediment, nutrients and dissolved pollutants by filtration and uptake by vegetation, biological activity, and potentially infiltration.

Hydrodynamic separators will reduce suspended solids, oils, grease, and floatables/trash, as well as other pollutants tied to particulates. The units have been sized to treat the full WQF.

The Contractor shall provide information relative to pollutant removal efficiencies for the selected units. This information shall be appended to the Plan when obtained.

Velocity Dissipation

Velocity dissipation devices will be constructed in conjunction with new outfalls, swales, and basins to provide for non-erosive velocities to the receiving watercourses, as per the permit. Details are provided within the Contract Documents in Appendix C.

6. Other Controls

Waste Disposal

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

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

Washout Areas

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

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

Anti-tracking Pads and Dust Control

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

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

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

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

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

Maintaining and Storing Vehicles and Equipment

The contractor shall take measures to prevent any contamination to wetlands and watercourses while maintaining and storing construction equipment on the site. All chemical and petroleum containers stored on site shall be provided with impermeable containment which will hold at least 110% of the volume of the largest container, or 10% of the total volume of all containers in the area, whichever is larger, without overflow from the containment area. All chemicals and their containers shall be stored under a roofed area except for those stored in containers of 100 gallon capacity or more, in which case double-walled tanks will suffice.

Post-Construction

Upon completion of construction activities and stabilization of the site, all post-construction stormwater structures and stormwater quality elements, including Sedimentation Basins, Hydrodynamic Separators, Catch Basins and Stone Check Dams, shall be cleaned of construction sediment and any remaining silt fence shall be removed prior to acceptance of the project by CTDOT. Sediment shall be properly disposed of in accordance with all applicable laws, regulations and guidelines.

Good Housekeeping

The following good housekeeping practices will be followed on-site during the project:

- An effort will be made to store only enough products required to perform the work.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or other enclosure.
- Products will be kept in their original containers with the original manufacturer's labels.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product will be used up before disposing of the container and opening a new container.
- Manufacturers recommendations for proper use and disposal will be followed.
- The Construction Manager and/or site superintendent will inspect daily to ensure proper use and disposal of materials on-site.
- Dumpsters will be kept covered and drain plugs will remain in place unless being cleaned.
- Products will be kept in original containers unless they are not re-sealable. Leftover products will be properly disposed of or placed in a sealable containers.
- Original labels and material safety data will be retained as they contain important product information.
- If surplus products must be disposed of, manufacturer's or local and State recommended methods for proper disposal will be followed.

Product Specific Practices

The following product specific practices will be followed on-site:

- Chemical and Petroleum Product Storage - All chemical and petroleum product containers stored on the site (excluding those contained within vehicles and equipment) will be stored in tightly sealed containers that are clearly labeled. All chemical and petroleum product containers will be provided with impermeable containment which will hold at least 110% of the volume of the largest container, or 10% of the total volume of all containers in the area, whichever is larger, without overflow from the containment area. All chemicals and their containers will be stored under a roofed area except for those chemicals stored in containers of 100 gallon capacity or more, in which case a roof is not required. Double-walled tanks satisfy this requirement.
- Petroleum Products - All on-site construction vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage. Any asphalt substances used on-site will be applied according to the manufacturer's recommendations. Spill kits will be included with any fueling sources and maintenance activities.
- Fertilizers - Fertilizers used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to stormwater. Fertilizer will not be stored on site.
- Paints - All containers will be tightly sealed and stored when not required for use. Excess

paint will not be discharged to the storm sewer system, but will be properly disposed of according to manufacturer's instructions or State and local regulations. Spray guns will be cleaned on a removable tarp.

Spill Control Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup:

- Manufacturer's recommended method for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information.
- Materials and equipment necessary for spill cleanup will be kept in the designated material storage areas on-site. Equipment and materials will include, but not be limited to, brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, Speedi-Dry and plastic and metal trash containers specifically made for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous materials will be reported to the appropriate State and/or local government agency, regardless of the size. The National Response Center number is 800-424-8802. The CT DEEP Emergency Reporting number is 800-424-3333.
- The site construction superintendent will be responsible for the day-to-day operations, and act as the person responsible for spill prevention and cleanup. The names of responsible construction spill containment and cleanup personnel will be posted in the material storage area and in the office trailer on-site.

7. Inspections

Inspection Guidelines

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

During construction, all areas disturbed by the construction activity that have not been stabilized, all erosion and sedimentation control measures, all structural control measures, soil stockpile areas, washout areas and locations where vehicles enter or exit the site shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and impacts to receiving waters at least once every seven calendar days and within 24 hours of the end of a storm that generates a discharge.

For storms that end on a weekend, holiday or other time in which working hours will not commence within 24 hours, an inspection is required within 24 hours only for storms that equal or exceed 12mm (0.5 inch). For lesser storms, inspection shall occur immediately upon the start of subsequent normal working hours.

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

Qualified personnel provided by the DOT District # 4 Office shall conduct Inspections.

The following items shall be inspected as described below:

Item	Procedure
General	Construction areas and the perimeter of the site shall be inspected for any evidence of debris that may blow or wash off site or that has blown or washed off site. Construction areas shall be inspected for any spills or unsafe storage of materials that could pollute off site waters.
Silt Fence	Silt fence shall be inspected to ensure that the fence line is intact with no breaks or tears. The fence shall be firmly anchored to the ground. Areas where the fence is excessively sagging or where support posts are broken or uprooted shall be noted. Depth of sediment behind the fence shall be noted.
Catch Basin Protection	Protective measures shall be inspected to ensure that sediment is not entering the catch basins. Catch basin sumps shall be

	monitored for sediment deposition. Hay bales shall be inspected to ensure they have not clogged.
Dewatering Settling Basin	Shall be inspected at least once a week and within 24 hours of the end of a storm with a rainfall amount of 12mm (0.5 inch) or greater. When sediment accumulation exceeds one half of the wet storage capacity of the basin or when the depth of available pool is reduced to 450mm (18 inches), whichever is achieved first the basin shall be cleaned. Sediment levels shall be marked within the sediment storage area by stakes or other means showing the threshold elevation for sediment cleanout. Prior to the removal of sediments, dewater the basin through pumping or other means to the expose previously submerged sediments.
Vehicle Entrances / Exits	Locations where vehicles enter or exit the site shall be inspected for evidence of off-site tracking.
Temporary Sediment Trap	Inspect the temporary sediment trap at least once a week and within 24 hours of the end of a storm with a rainfall amount of 12mm (0.5 inch) or greater. The outlet shall be structurally sound and not damaged by erosion or construction equipment. The height of the stone outlet should be maintained at least 300mm (1 foot) below the crest of the embankment. When sediments have accumulated to one half the minimum required volume of the wet storage, dewater the trap as needed, remove sediments and restore the trap to its original dimensions. The sediment removed from the basin shall be disposed in a suitable area and in such a manner that it will not erode and cause sedimentation problems.
Stone Check Dams	Shall be inspect at least once a week and within 24 hours of the end of a storm with a rainfall amount of 12mm (0.5 inch) or greater to determine maintenance needs. Remove the sediment deposits when deposits reach approximately half the height of the check dam. Replace or repair the check dam within 24 hours of observed failure.
Hydrodynamic Separators	Shall be inspected every 90 days from when they are put into service until final acceptance of the project. Include the cleaning of the hydrodynamic separator of all sediment and debris, or as needed.

8. Keeping Plans Current

Revisions to Stormwater Pollution Control Plans:

CTDOT shall amend the Plan if the actions required by the Plan fail to prevent pollution or otherwise comply with provisions of the General Permit.

The Plan shall also be amended whenever there is a change in contractors or sub-contractors at the site. If the results of the inspections require modifications to the Stormwater Pollution Control Plan, the plans shall be revised as soon as practicable after the inspection.

Such modifications shall provide for a timely implementation of any changes to non-engineered controls on the site within 24 hours and implementation of any changes to the plan within 3 (three) calendar days following the inspection.

For Engineered measures, corrective actions shall be implemented on site within 7 (seven) days and incorporated into a revised Plan within 10 (ten) days of the date of inspection

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

9. Monitoring Requirements

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

Sampling is required of all point source discharges of Stormwater from disturbed areas except for linear projects, 10 substantially identical outfalls may be identified for one representative discharge (discharge points in this case shall have similar soil type, type of stormwater control used, and slope). All sampling points must be identified on the Plan.

Turbidity monitoring shall be conducted at the 10 locations, depicted in the Plan on Figures No. 6, 6a, 6b, 6c and 6d, utilizing a procedure consistent with 40 CFR Part 136 http://www.epa.gov/region9/qa/pdfs/40cfr136_03.pdf) and may be taken manually or by an in-situ turbidity probe or other automatic sampling device equipped to take individual turbidity readings. The first sample shall be taken within the first hour of stormwater discharge from the site and at least three grab samples shall be taken during a storm event and shall be representative of the flow and characteristics of the discharge. Sampling shall be conducted at least monthly when there is a discharge of stormwater from the site while construction activity is ongoing, until final stabilization of the drainage area associated with each outfall is achieved.

Samples shall be taken during normal working hours, which for this project shall be defined as Enter Business hours – i.e. Monday through Friday, 8 am to 4 pm. If a storm continues past working hours, sampling shall resume the following morning or the morning of the next working day following a weekend or Holiday, as long as the discharge continues. Sampling may be temporarily suspended when conditions exist that may reasonably pose a threat to the safety of the person(s) taking the sample.

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

10. Contractors

General

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

Certification Statement

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

State Project No. 151-273

Reconstruction of I-84
Waterbury, CT

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

GENERAL CONTRACTOR

Signed:_____ Date:_____

Title:_____

Firm:_____ Telephone:_____

Address:_____

_____

_____

SUBCONTRACTOR

Signed:_____ Date:_____

Title:_____

Firm:_____ Telephone:_____

Address:_____

_____

_____

List of applicable Figures / Plans / Specifications / Forms:

Appendix A - Figures

USGS Quadrangle Locus Map	Figure No. 1
Aerial Photo Locus Map	Figure No. 2
Pre-Constructions AI Conditions-	Figure No. 3
Post-Constructions AI Conditions-	Figure No. 4
Soil Maps Disturbed/Erodible Areas-	Figure No. 5
Turbidity Monitoring Locations	Figure No. 6

Appendix B – Drainage Calculations

Drainage Watershed Maps
Outlet protection
Swale Treatment Design
Water Quality Swales
Sedimentation Basins No. 1 through 4
Basin Drainage Areas — Figure No. 7
Hydrodynamic Separators
CMP Pipe Lining

Appendix C – Pertinent Contract Plan Sheets

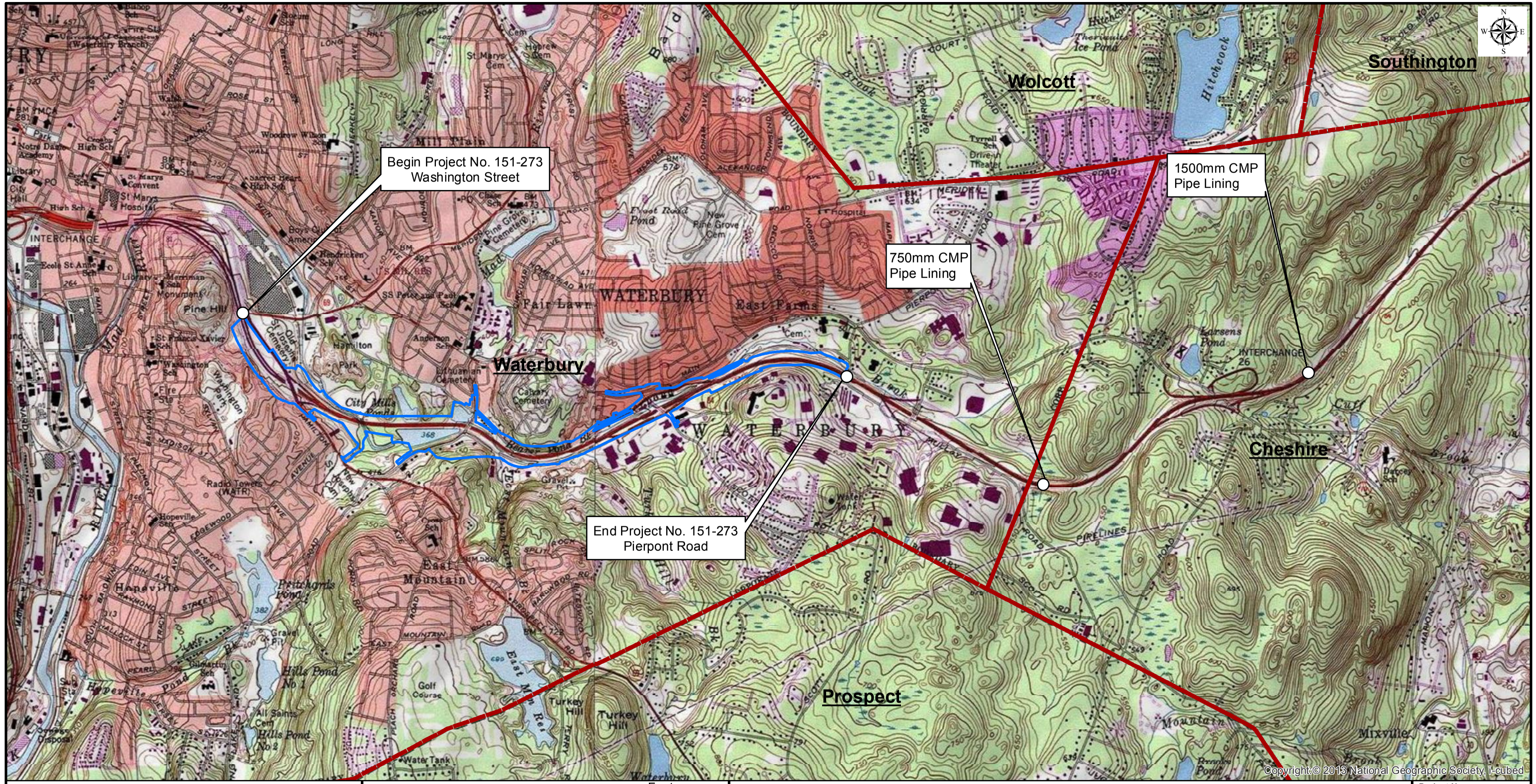
Miscellaneous Details
Sedimentation Basins
Drainage Plans
E&SC Details
Turfing Plans
Sedimentation & Erosion Control MP&T
River Relocation - Water Handling Plans
AOEC Plans

Appendix D – Stormwater Management Report - Study of Pre- and Post-construction Conditions

Appendix E – Stormwater Monitoring Report Form

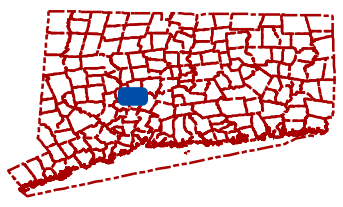
Appendix F – Notice of Termination Form

Appendix A - Figures



1 inch = 2,000 feet

2,000 1,000 0 2,000 Feet



Legend

Project Area Limits

Town Boundaries

Locus Map

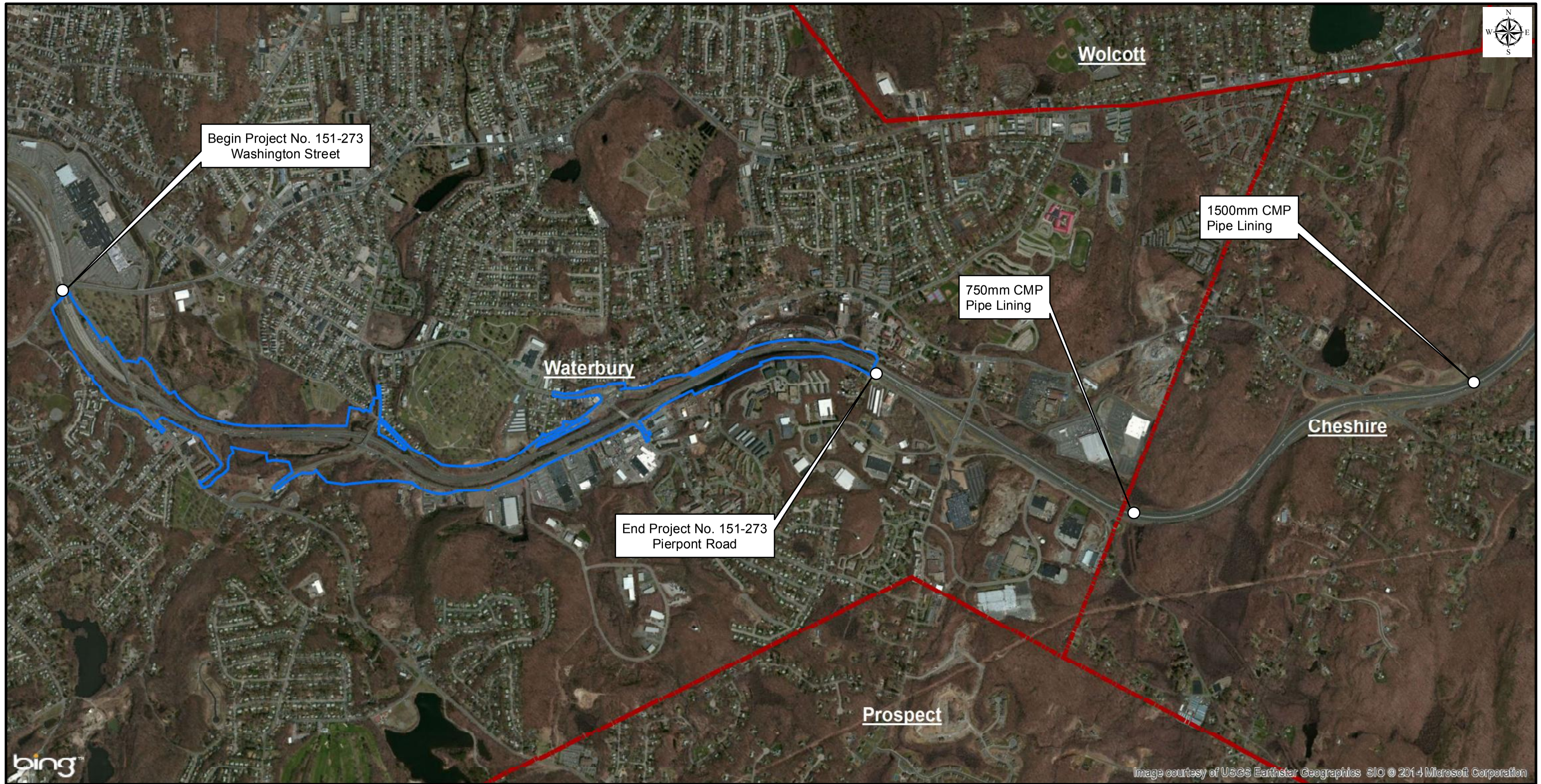
STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury & Cheshire, Connecticut

BASE MAP: USGS Topo Quads: Southington, 1982; Waterbury, 1982

GIS data obtained from USA TOPO, National Geographic Society, i-Cubed; Highway realignment plan from Ammann & Whitney.

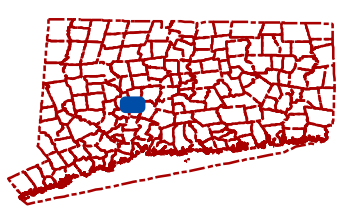
GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Project No:	15.0166290.00
Drawn by:	KDC
Checked by:	JRB
Date:	12/01/2014
Figure No:	1



1 inch = 1,500 feet

1,500 750 0 1,500 3,000 Feet



Legend

Project Area Limits

Town Boundaries

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Aerial Locus Map

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury & Cheshire, Connecticut

BASE MAP: 2014 BING MAPS

GIS data obtained from ESRI Online Map Service, Microsoft Corporation. Highway realignment plan from Ammann & Whitney.

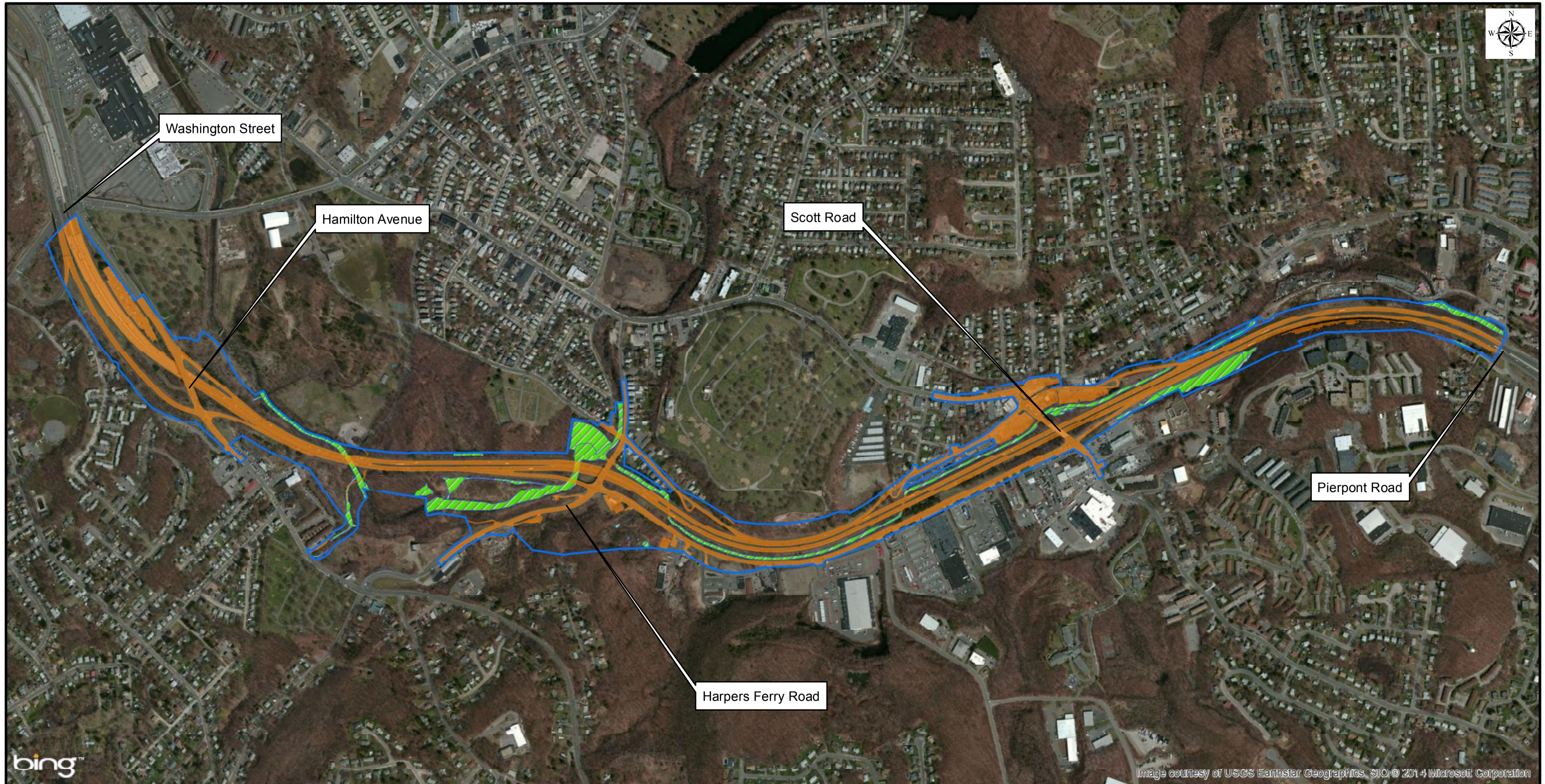
Project No: 15.0166290.00

Drawn by: KDC

Checked by: JRB

Date: 11/26/2014

Figure No. 2



1 inch = 850 feet

Feet
850 425 0 850 1,700

Legend

- Project Area Limits
- Existing Impervious Area
- Wetlands/Watercourse Pre-Construction

Pre-Construction Areas	sq. meters	sq. feet	assumed coefficient
Pervious Area:	361,435±	3,890,454±	0.3
Impervious Area:	228,466±	2,459,188±	0.9
Wetlands/Watercourse:	60,685±	653,208±	1.0

Composite Coefficient = 0.58

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Pre-Construction Runoff Coefficients

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Ammann & Whitney. Wetlands delineated by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 3

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Existing Impervious Area
- Wetlands/Watercourse Pre-Construction
- Project Area Limits

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

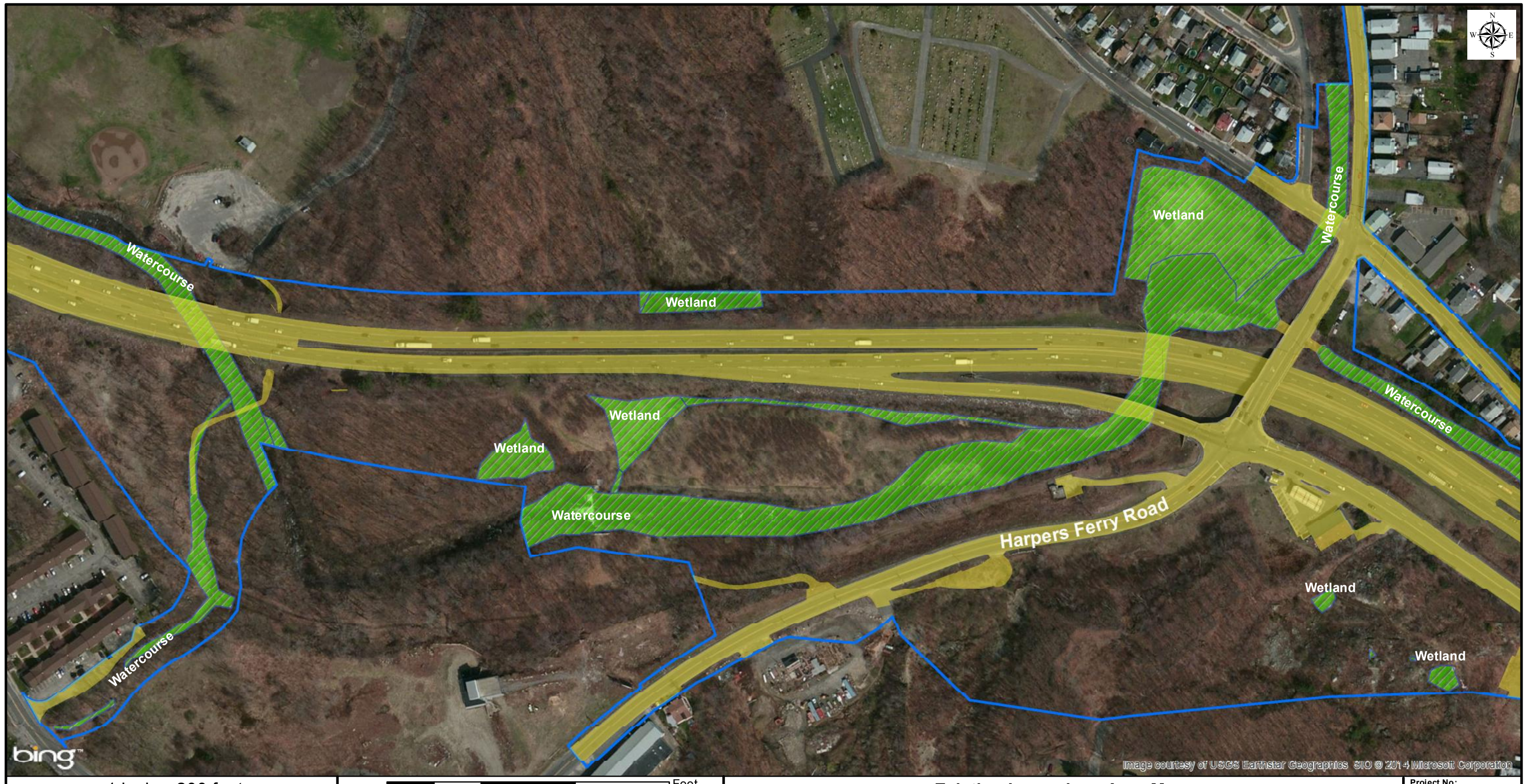
Existing Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 3a



1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Existing Impervious Area
- Wetlands/Watercourse Pre-Construction
- Project Area Limits

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

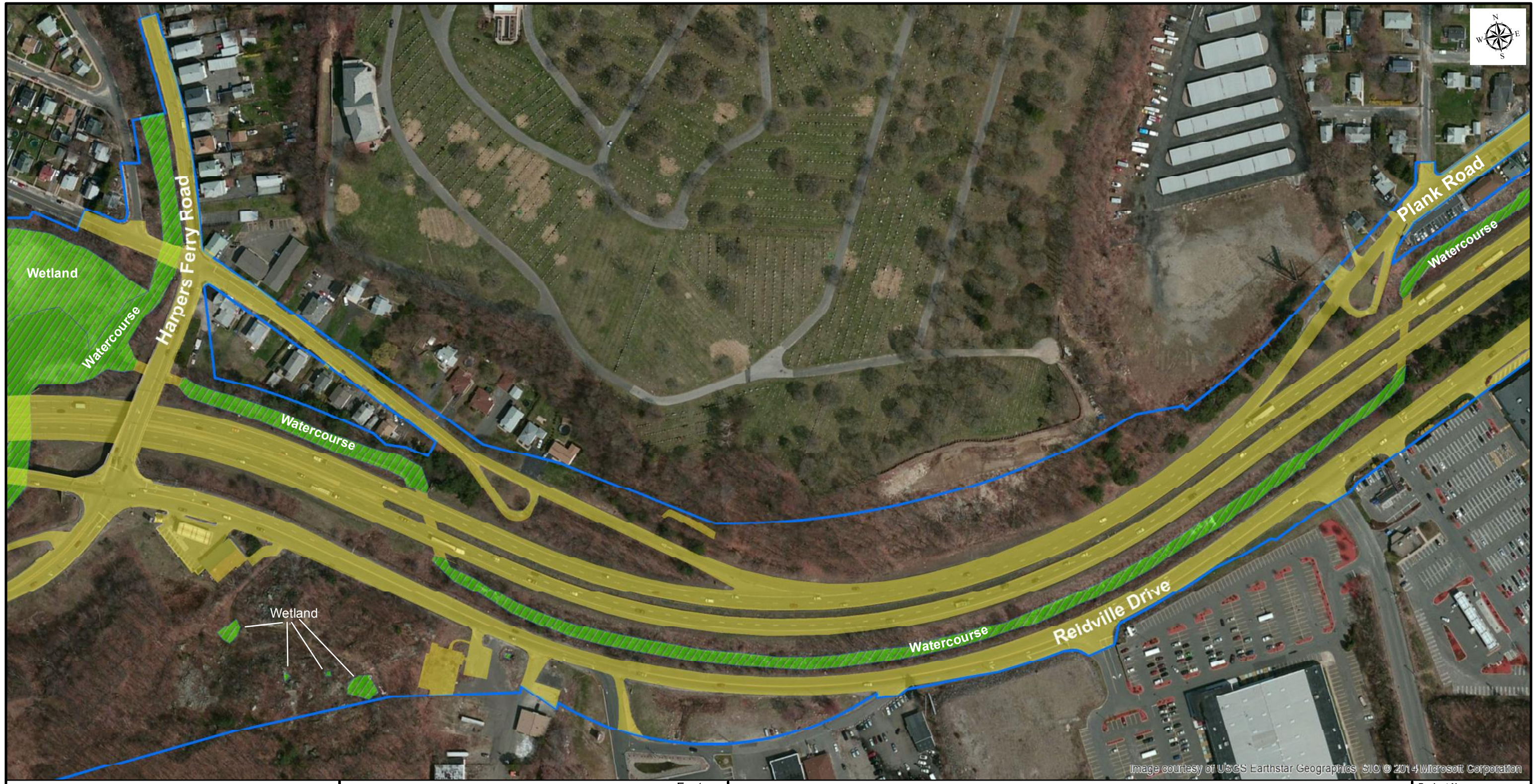
Existing Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

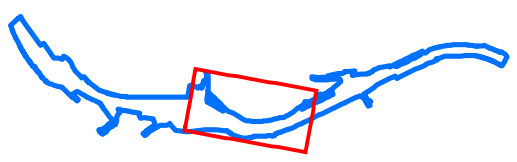
Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 3b



1 inch = 200 feet

200 100 0 200 400 Feet



Legend

- Existing Impervious Area
- Wetlands/Watercourse Pre-Construction
- Project Area Limits

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Existing Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 3c

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Existing Impervious Area
- Wetlands/Watercourse Pre-Construction
- Project Area Limits

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Existing Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 3d

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Existing Impervious Area
- Wetlands/Watercourse Pre-Construction
- Project Area Limits

Existing Impervious Area Maps

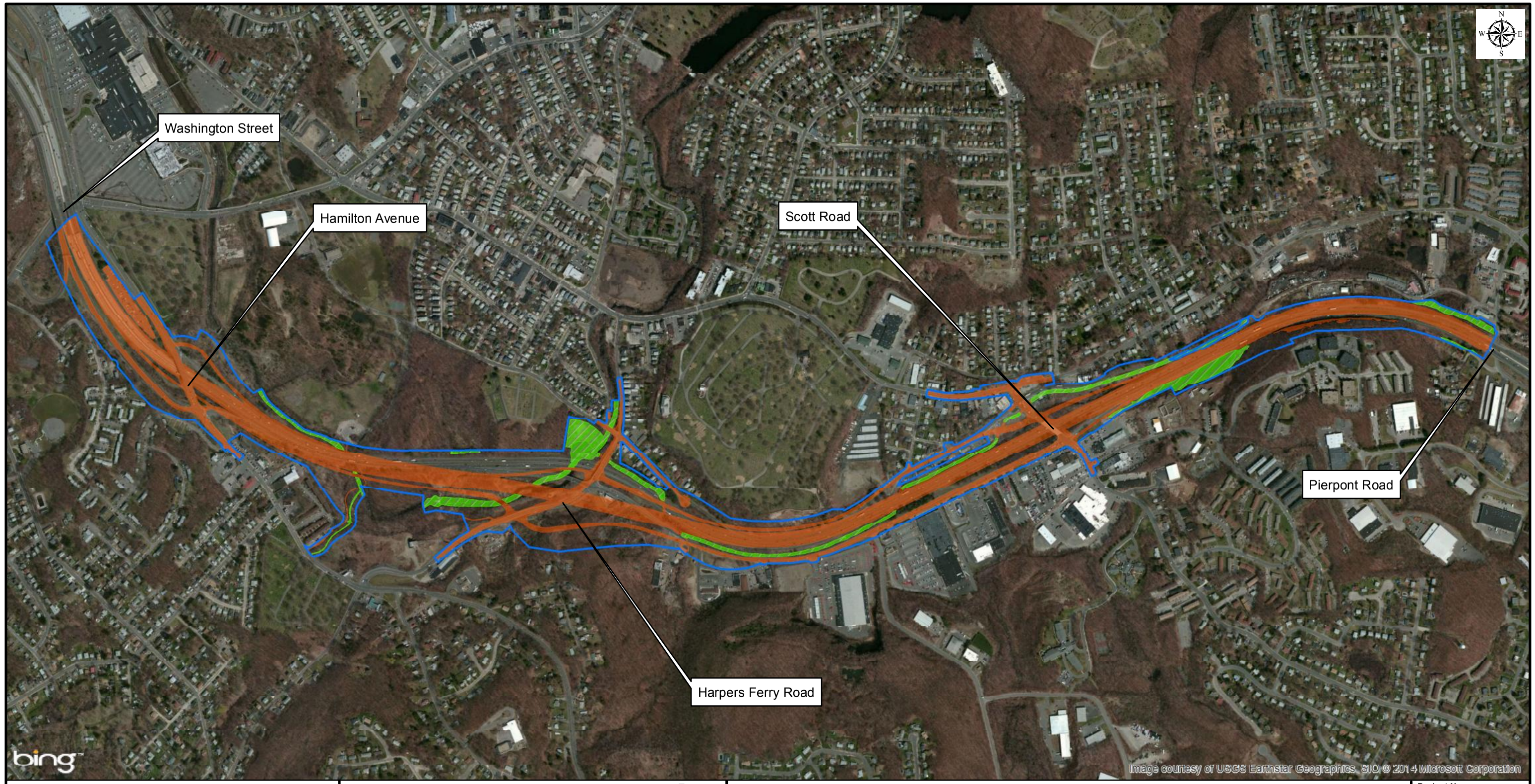
STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 3e



1 inch = 850 feet

Feet
850 425 0 850 1,700

Legend

- Project Area Limits
- Wetlands/Watercourse Post-Construction
- Proposed Impervious Area

Post-Construction Areas	sq. meters	sq. feet	assumed coefficient
Pervious Area:	296,355±	3,189,939±	0.3
Impervious Area:	301,228±	3,242,391±	0.9
Wetlands/Watercourse:	50,467±	543,222±	1.0

Composite Coefficient = 0.63

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Post-Construction Runoff Coefficients

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Ammann & Whitney. Wetlands delineated by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 4

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

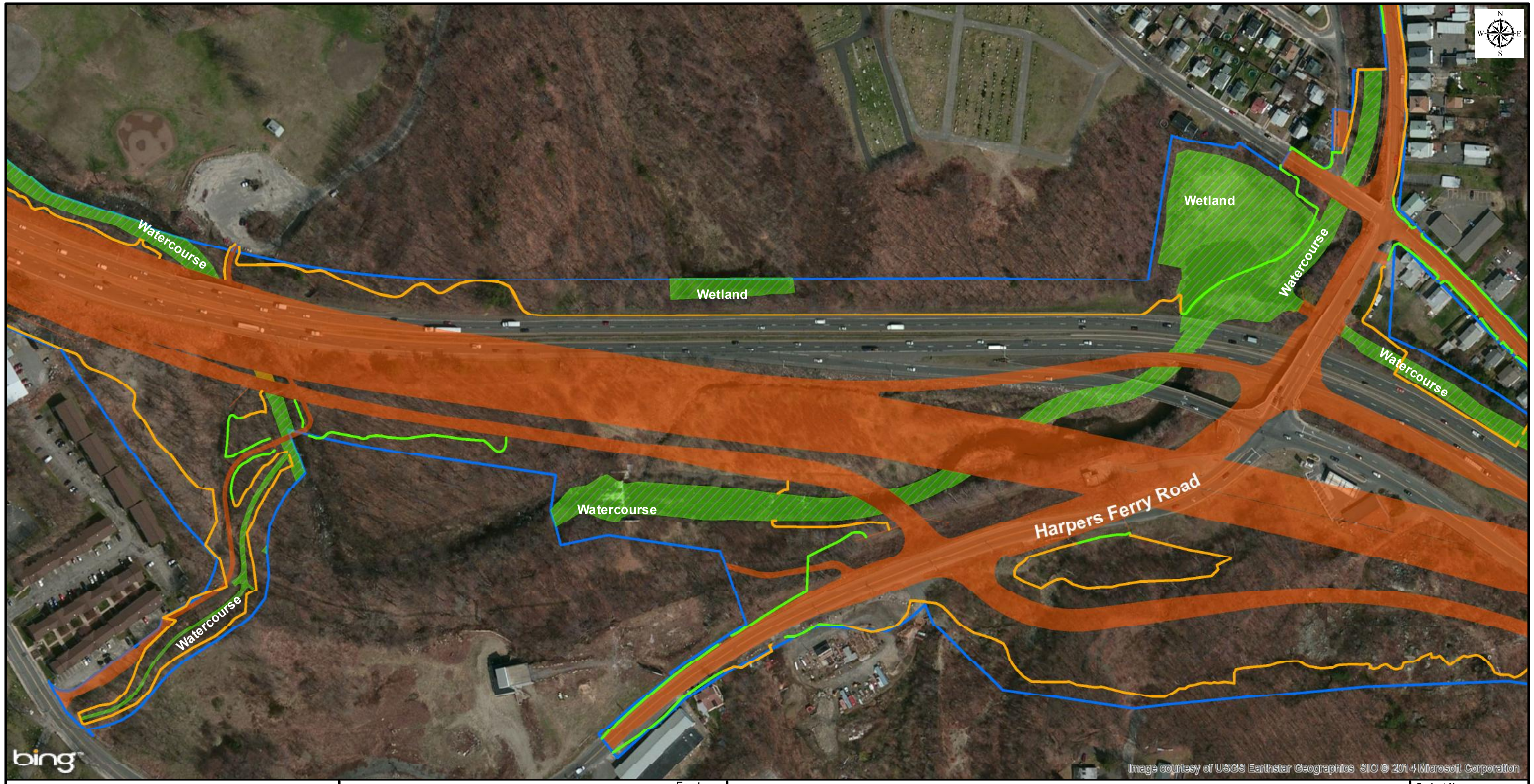
Proposed Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 4a



1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

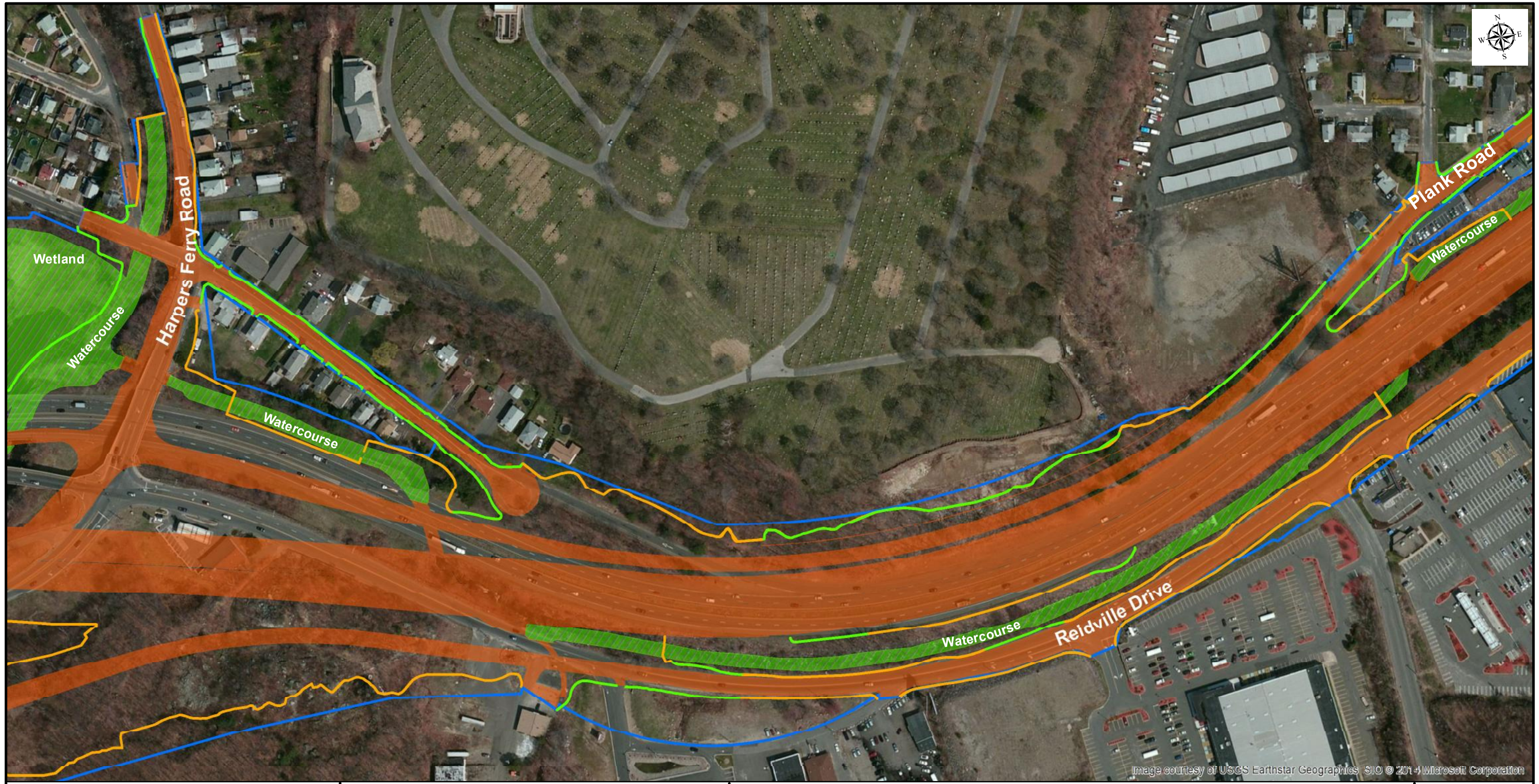
Proposed Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No:	15.0166290.00
Drawn by:	KDC
Checked by:	JRB
Date:	11/26/2014
Figure No:	4b



1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Proposed Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 4c

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit

Proposed Impervious Area Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 4d

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit

Proposed Impervious Area Maps

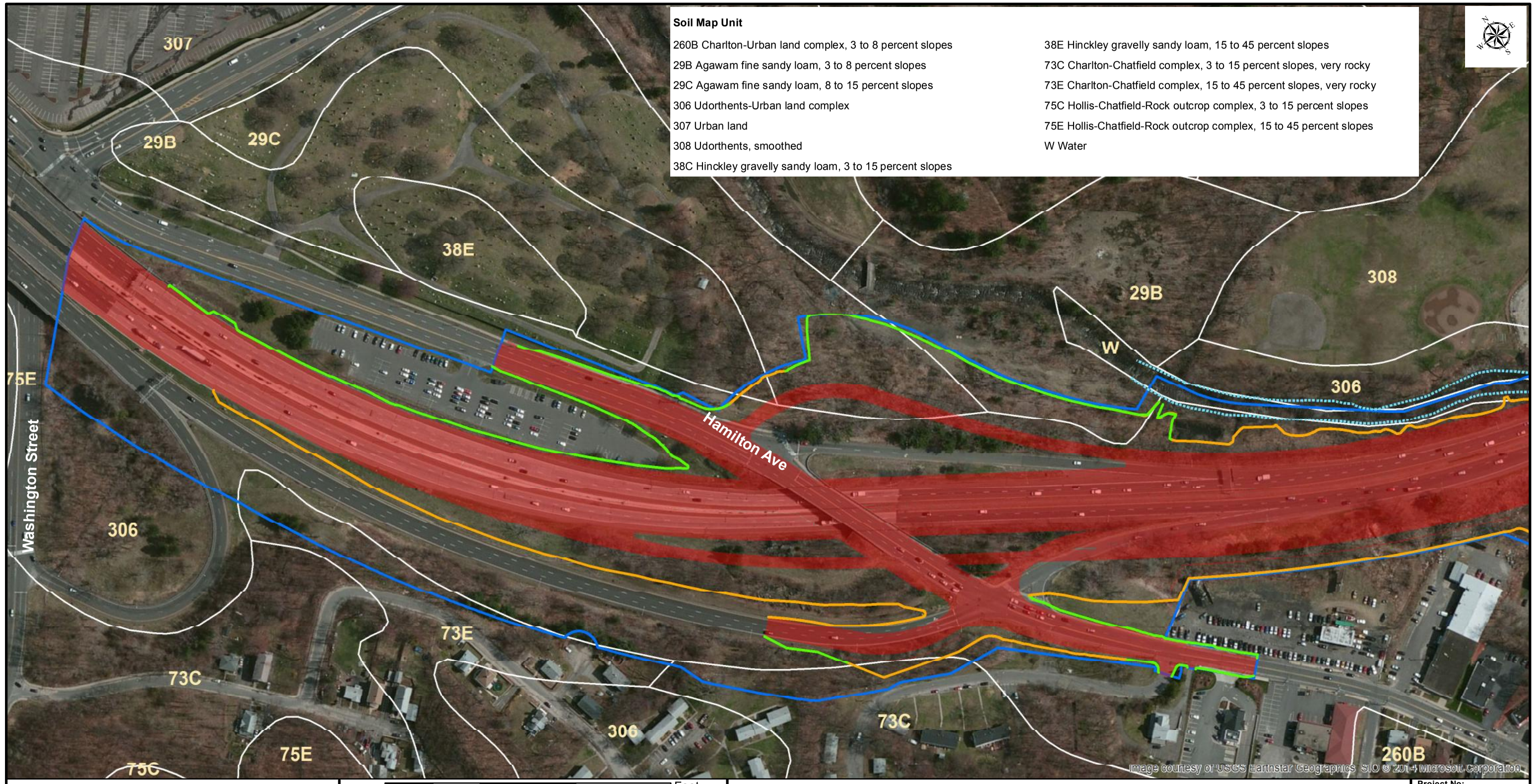
STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Project No:	15.0166290.00
Drawn by:	KDC
Checked by:	JRB
Date:	11/26/2014
Figure No:	4e



Soil Map Unit

260B Charlton-Urban land complex, 3 to 8 percent slopes	38E Hinckley gravelly sandy loam, 15 to 45 percent slopes
29B Agawam fine sandy loam, 3 to 8 percent slopes	73C Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky
29C Agawam fine sandy loam, 8 to 15 percent slopes	73E Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky
306 Udorthents-Urban land complex	75C Hollis-Chatfield-Rock outcrop complex, 3 to 15 percent slopes
307 Urban land	75E Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes
308 Udorthents, smoothed	W Water
38C Hinckley gravelly sandy loam, 3 to 15 percent slopes	

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Proposed Watercourse Alignment
- Fill Limit
- Highway Plan
- Cut Limit
- Project Area Limits

Soil Maps

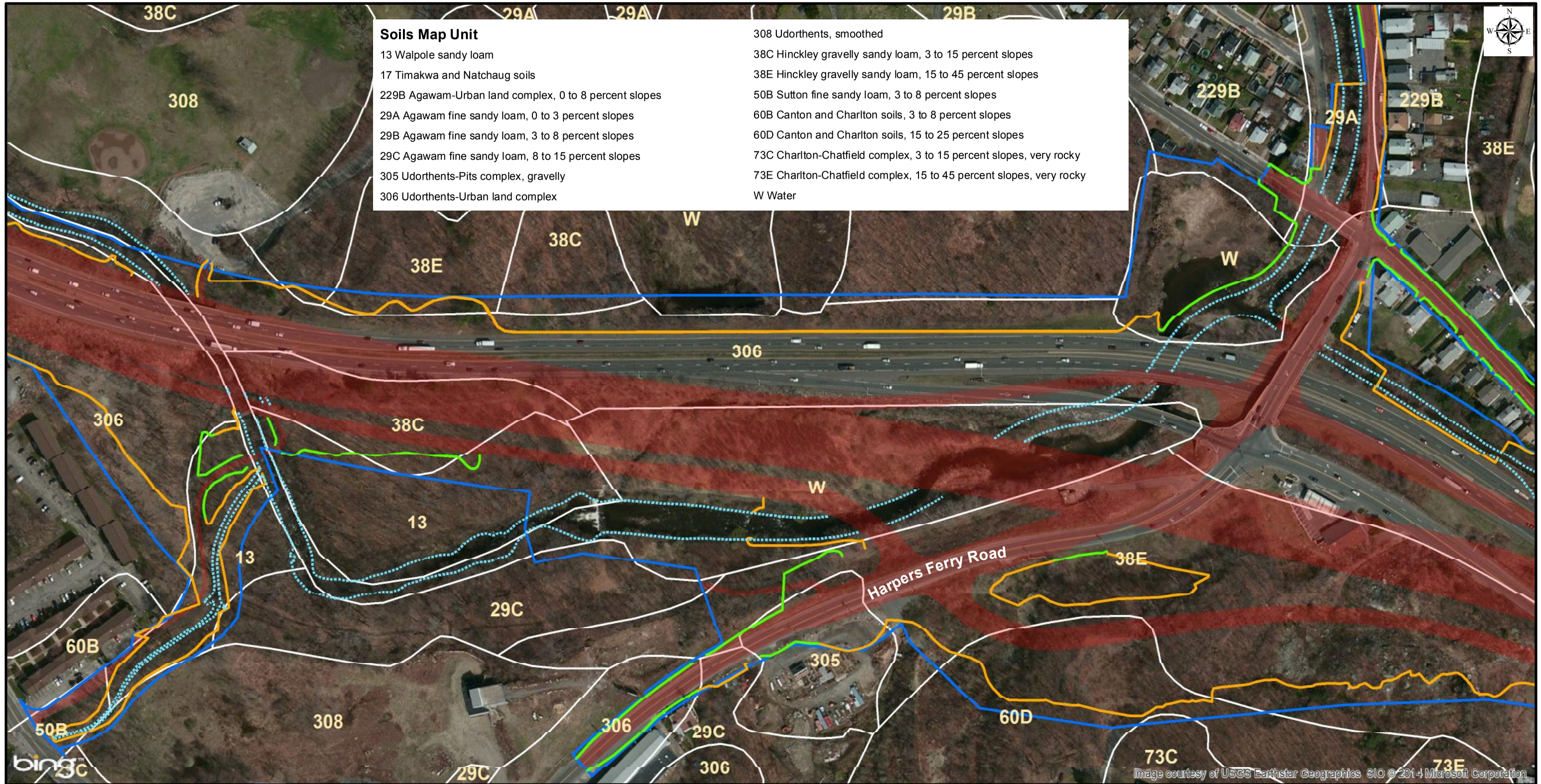
STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Soil Survey Geographic (SSUR GO) database for the State of Connecticut (USDA, NRCS, 2005). Highway realignment plan from Ammann & Whitney.

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Project No:	15.0166290.00
Drawn by:	KDC
Checked by:	JRB
Date:	11/26/2014
Figure No:	5



Soils Map Unit

13 Walpole sandy loam	308 Udorthents, smoothed
17 Timakwa and Natchaug soils	38C Hinckley gravelly sandy loam, 3 to 15 percent slopes
229B Agawam-Urban land complex, 0 to 8 percent slopes	38E Hinckley gravelly sandy loam, 15 to 45 percent slopes
29A Agawam fine sandy loam, 0 to 3 percent slopes	50B Sutton fine sandy loam, 3 to 8 percent slopes
29B Agawam fine sandy loam, 3 to 8 percent slopes	60B Canton and Charlton soils, 3 to 8 percent slopes
29C Agawam fine sandy loam, 8 to 15 percent slopes	60D Canton and Charlton soils, 15 to 25 percent slopes
305 Udorthents-Pits complex, gravelly	73C Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky
306 Udorthents-Urban land complex	73E Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky
	W Water

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Proposed Watercourse Alignment
- Highway Plan
- Project Area Limits
- Fill Limit
- Cut Limit

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

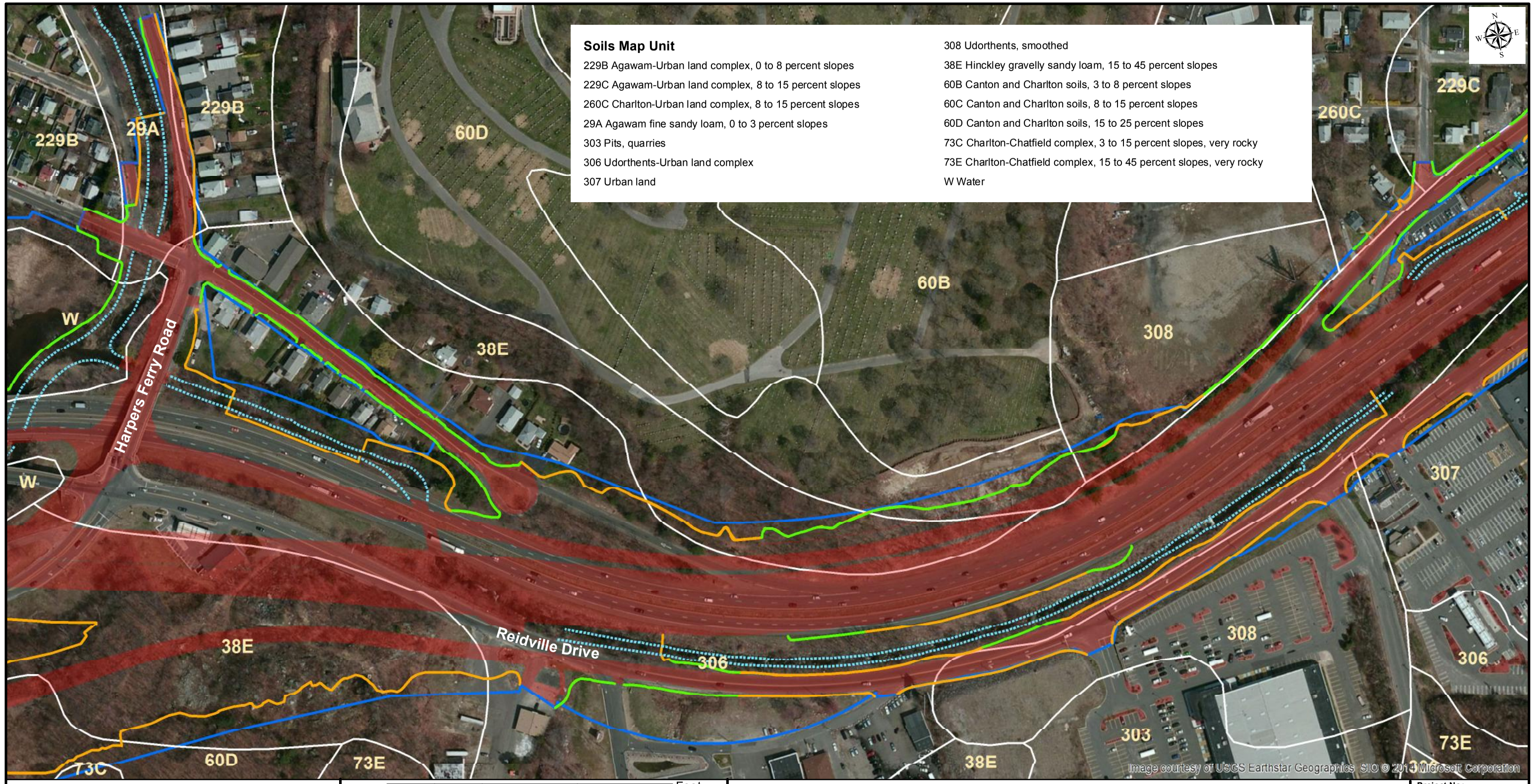
Soil Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Soil Survey Geographic (SSUR GO) database for the State of Connecticut (USDA, NRCS, 2005). Highway realignment plan from Ammann & Whitney.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 5a

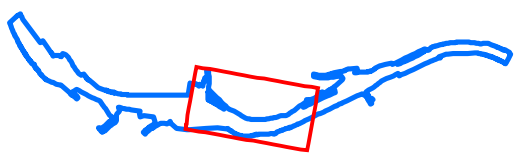


Soils Map Unit

229B Agawam-Urban land complex, 0 to 8 percent slopes
229C Agawam-Urban land complex, 8 to 15 percent slopes
260C Charlton-Urban land complex, 8 to 15 percent slopes
29A Agawam fine sandy loam, 0 to 3 percent slopes
303 Pits, quarries
306 Udorthents-Urban land complex
307 Urban land
308 Udorthents, smoothed
38E Hinckley gravelly sandy loam, 15 to 45 percent slopes
60B Canton and Charlton soils, 3 to 8 percent slopes
60C Canton and Charlton soils, 8 to 15 percent slopes
60D Canton and Charlton soils, 15 to 25 percent slopes
73C Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky
73E Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky
W Water

1 inch = 200 feet

200 100 0 200 400 Feet



Legend

Proposed Watercourse Alignment
Fill Limit
Highway Plan
Cut Limit
Project Area Limits

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

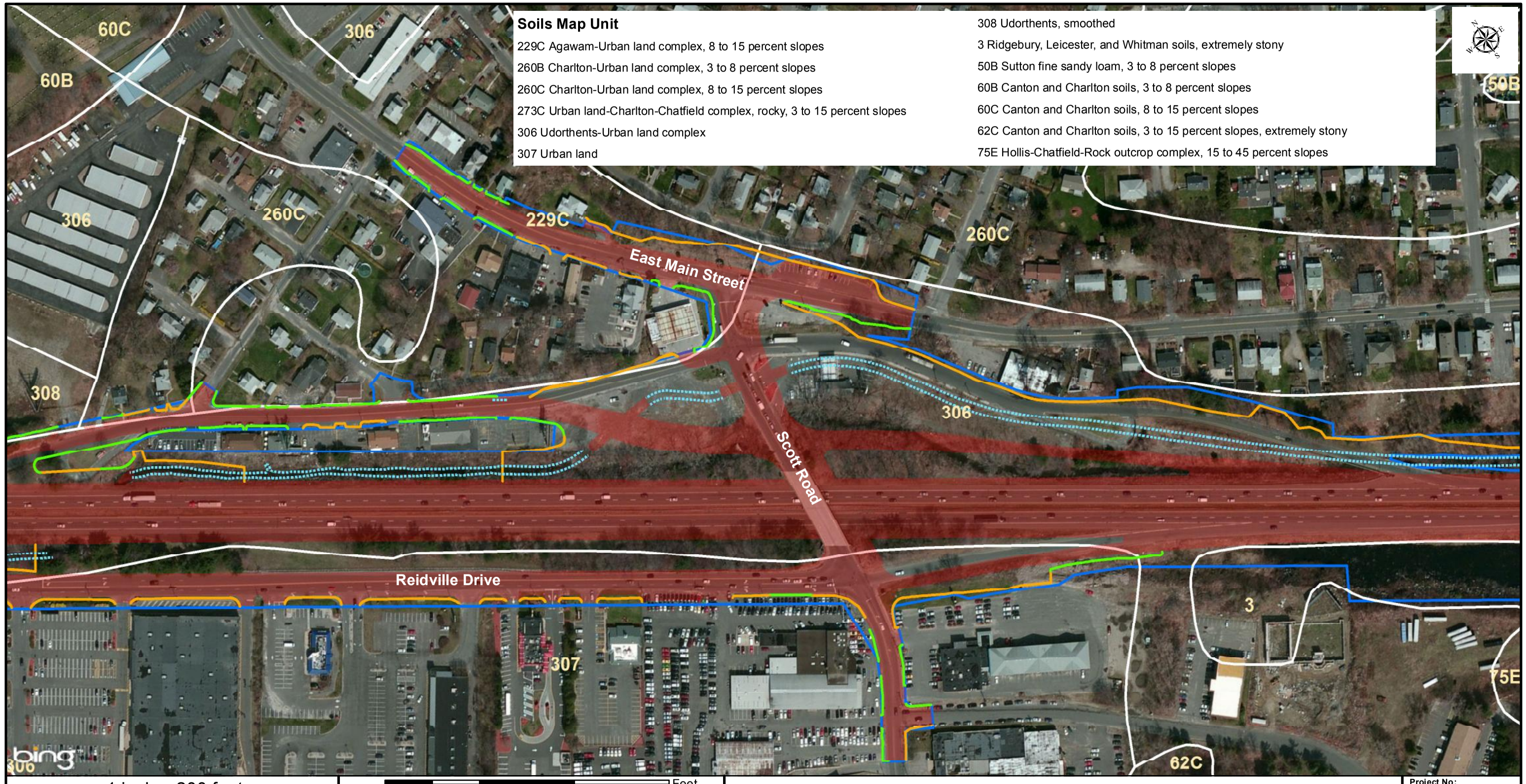
Soil Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Soil Survey Geographic (SSUR GO) database for the State of Connecticut (USDA, NRCS, 2005). Highway realignment plan from Ammann & Whitney.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 5b



Soils Map Unit

229C Agawam-Urban land complex, 8 to 15 percent slopes
260B Charlton-Urban land complex, 3 to 8 percent slopes
260C Charlton-Urban land complex, 8 to 15 percent slopes
273C Urban land-Charlton-Chatfield complex, rocky, 3 to 15 percent slopes
306 Udorthents-Urban land complex
307 Urban land
308 Udorthents, smoothed
3 Ridgebury, Leicester, and Whitman soils, extremely stony
50B Sutton fine sandy loam, 3 to 8 percent slopes
60B Canton and Charlton soils, 3 to 8 percent slopes
60C Canton and Charlton soils, 8 to 15 percent slopes
62C Canton and Charlton soils, 3 to 15 percent slopes, extremely stony
75E Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

Proposed Watercourse Alignment
Fill Limit
Highway Plan
Cut Limit
Project Area Limits

Soil Maps

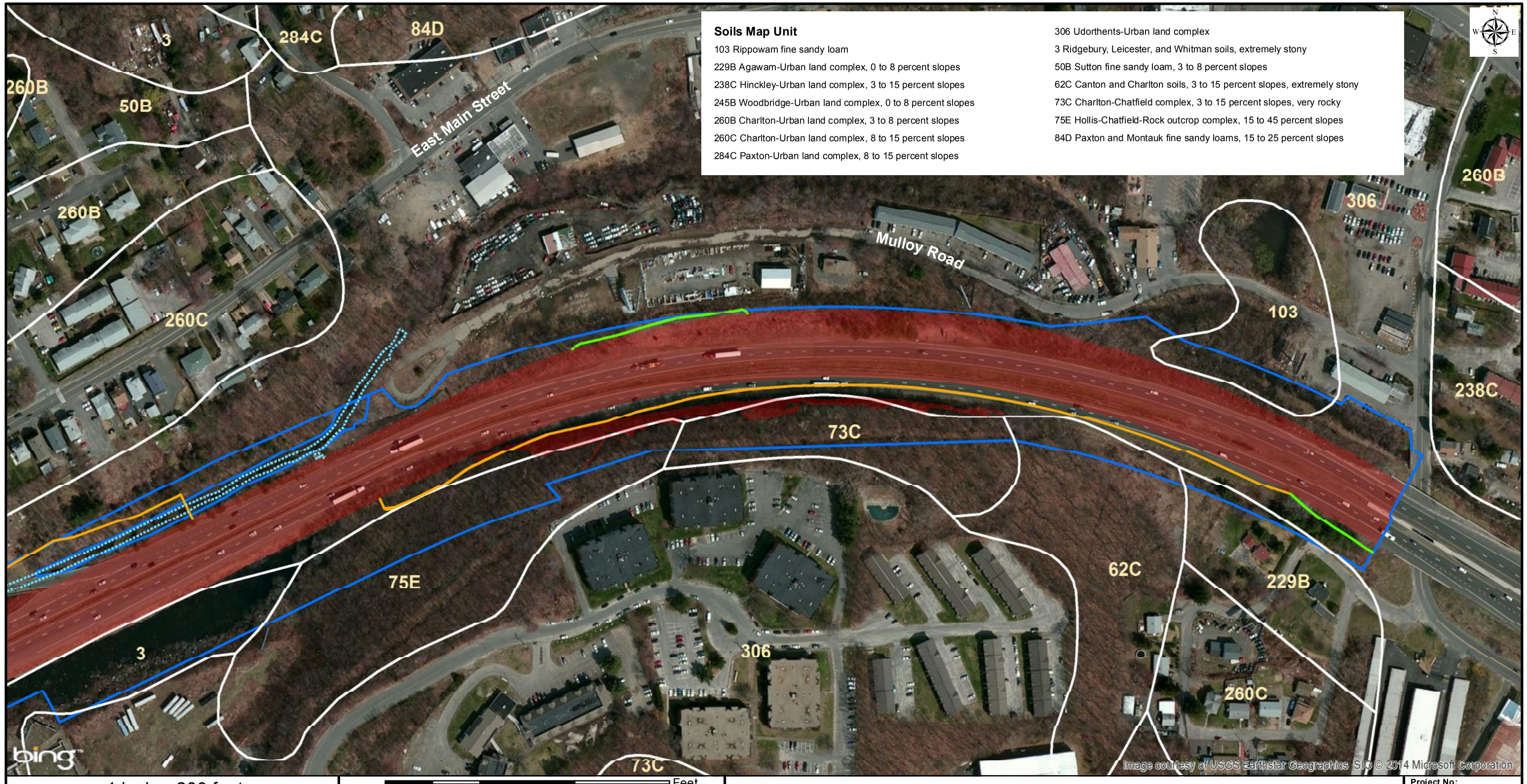
STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Soil Survey Geographic (SSUR GO) database for the State of Connecticut (USDA, NRCS, 2005). Highway realignment plan from Ammann & Whitney.

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 5c



Soils Map Unit

103 Rippowam fine sandy loam
229B Agawam-Urban land complex, 0 to 8 percent slopes
238C Hinckley-Urban land complex, 3 to 15 percent slopes
245B Woodbridge-Urban land complex, 0 to 8 percent slopes
260B Charlton-Urban land complex, 3 to 8 percent slopes
260C Charlton-Urban land complex, 8 to 15 percent slopes
284C Paxton-Urban land complex, 8 to 15 percent slopes
306 Udorthents-Urban land complex
3 Ridgebury, Leicester, and Whitman soils, extremely stony
50B Sutton fine sandy loam, 3 to 8 percent slopes
62C Canton and Charlton soils, 3 to 15 percent slopes, extremely stony
73C Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky
75E Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes
84D Paxton and Montauk fine sandy loams, 15 to 25 percent slopes

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

Proposed Watercourse Alignment
Highway Plan
Project Area Limits
Fill Limit
Cut Limit

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Soil Maps

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Soil Survey Geographic (SSUR GO) database for the State of Connecticut (USDA, NRCS, 2005). Highway realignment plan from Ammann & Whitney.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 11/26/2014
Figure No: 5d

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Highway Plan
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit
- Proposed Drainage

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

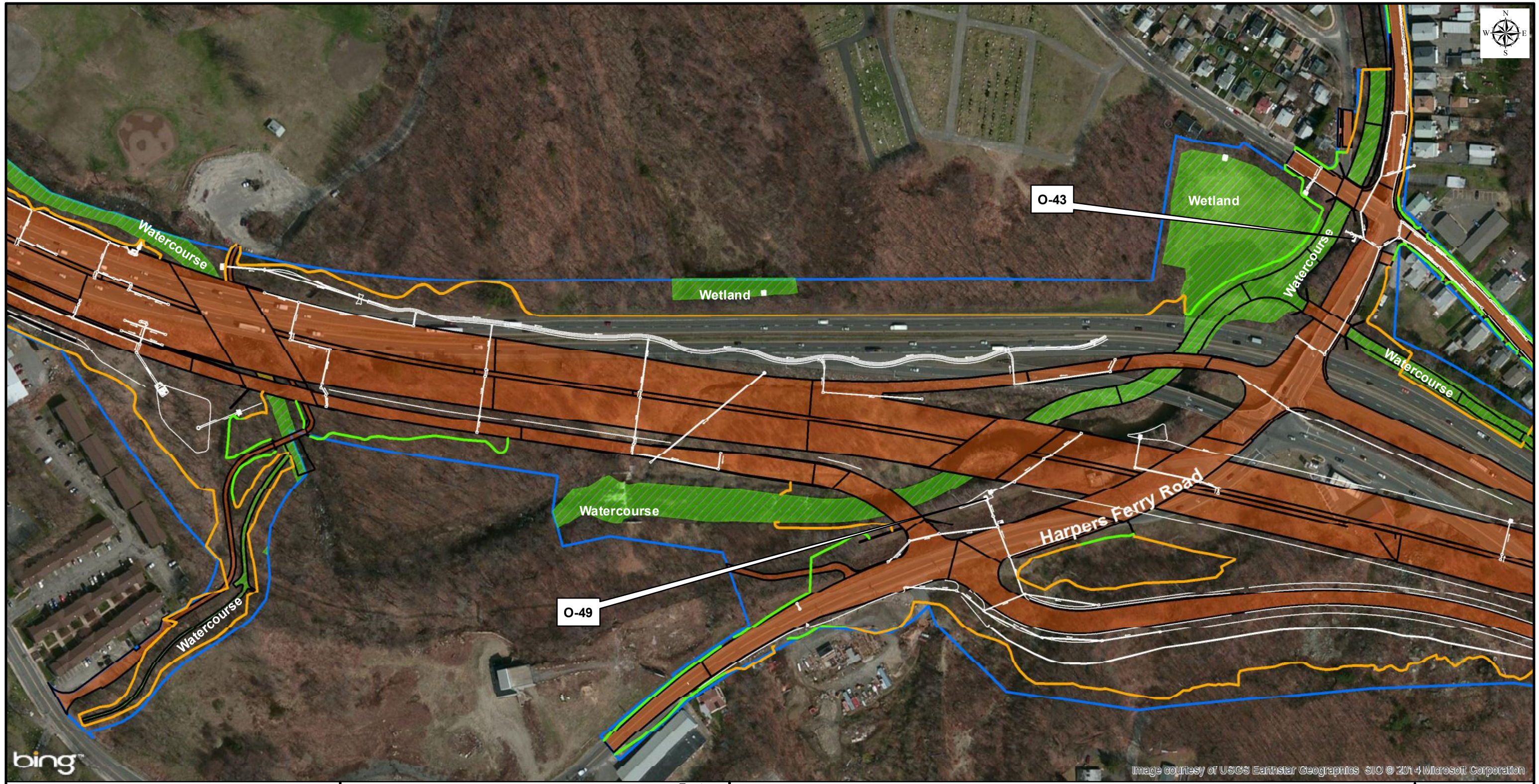
Turbidity Monitoring Locations

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 12/01/2014
Figure No: 6



1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Highway Plan
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit
- Proposed Drainage

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

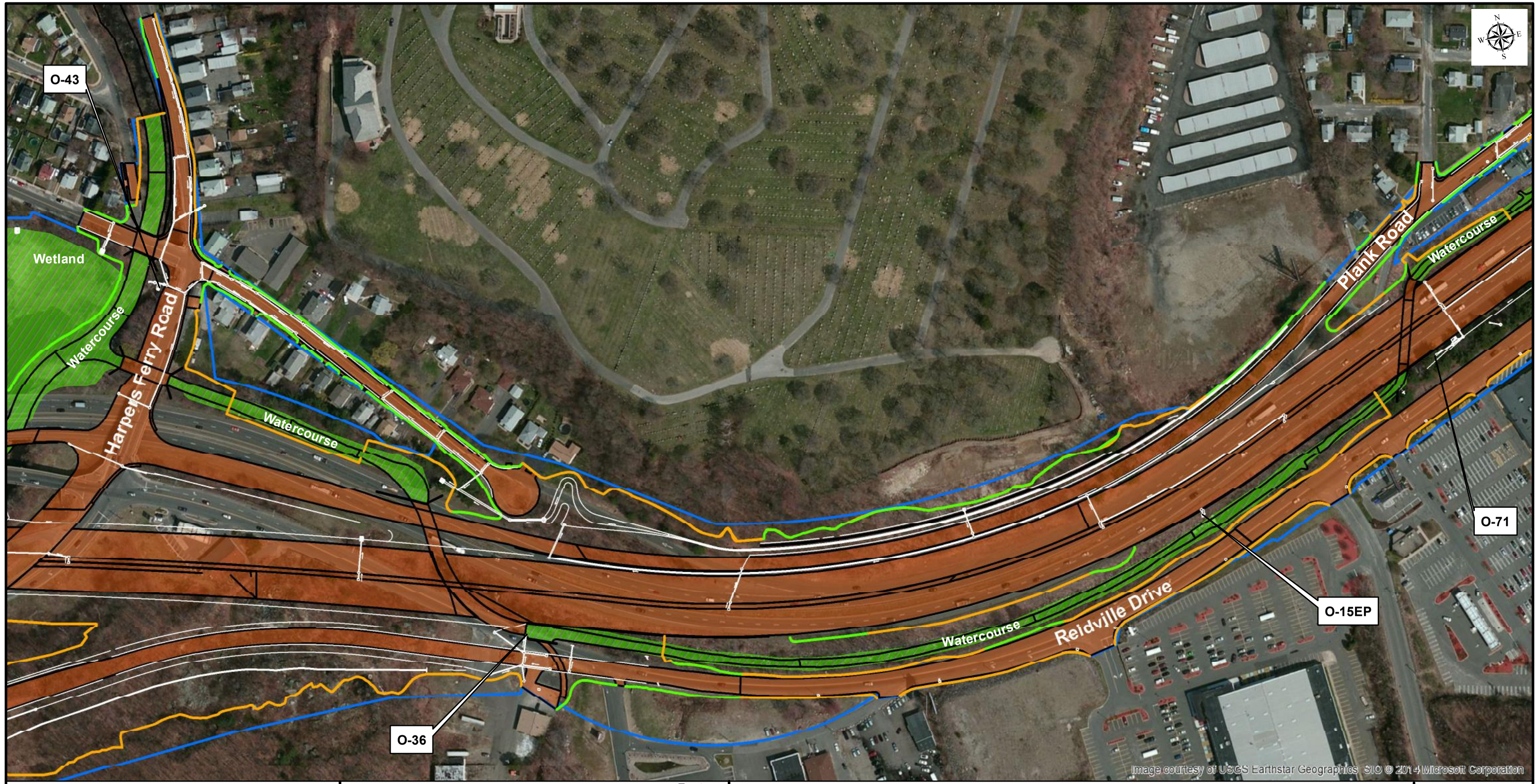
Turbidity Monitoring Locations

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 12/01/2014
Figure No: 6a



1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Highway Plan
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit
- Proposed Drainage

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Turbidity Monitoring Locations

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Amman & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 12/01/2014
Figure No: 6b

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Highway Plan
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit
- Proposed Drainage

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Turbidity Monitoring Locations

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 12/01/2014
Figure No: 6c

1 inch = 200 feet

200 100 0 200 400 Feet

Legend

- Project Area Limits
- Highway Plan
- Proposed Impervious Area
- Wetlands/Watercourse Post-Construction
- Fill Limit
- Cut Limit
- Proposed Drainage

GZA GeoEnvironmental, Inc.
Springfield, MA / Glastonbury, CT

Turbidity Monitoring Locations

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

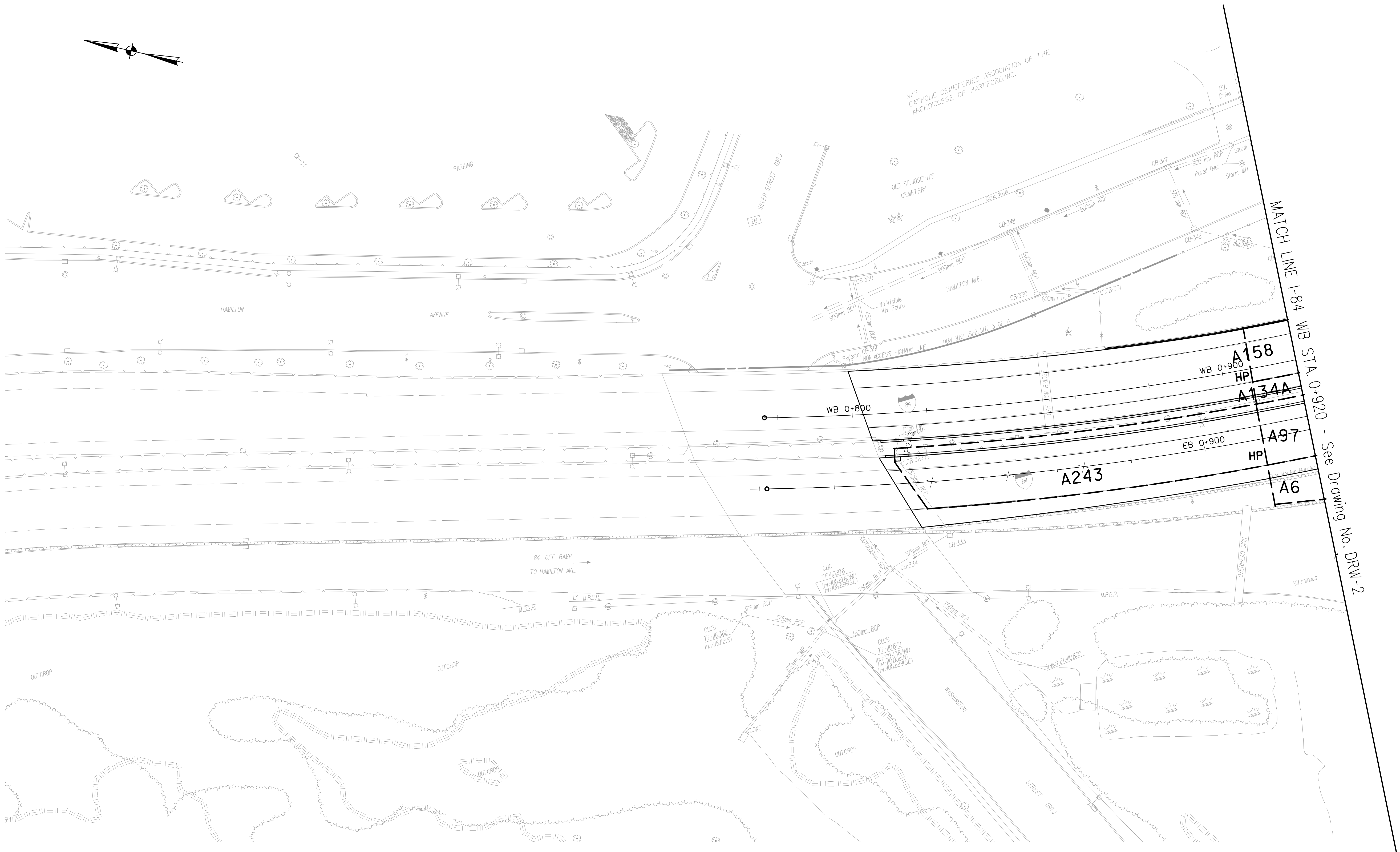
BASE MAP: 2014 BING MAPS

Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney. Wetland delineation by GZA GeoEnvironmental, Inc.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 12/01/2014
Figure No: 6d

Appendix B - Drainage Calculations

Appendix B - Drainage Calculations
Watershed Maps



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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

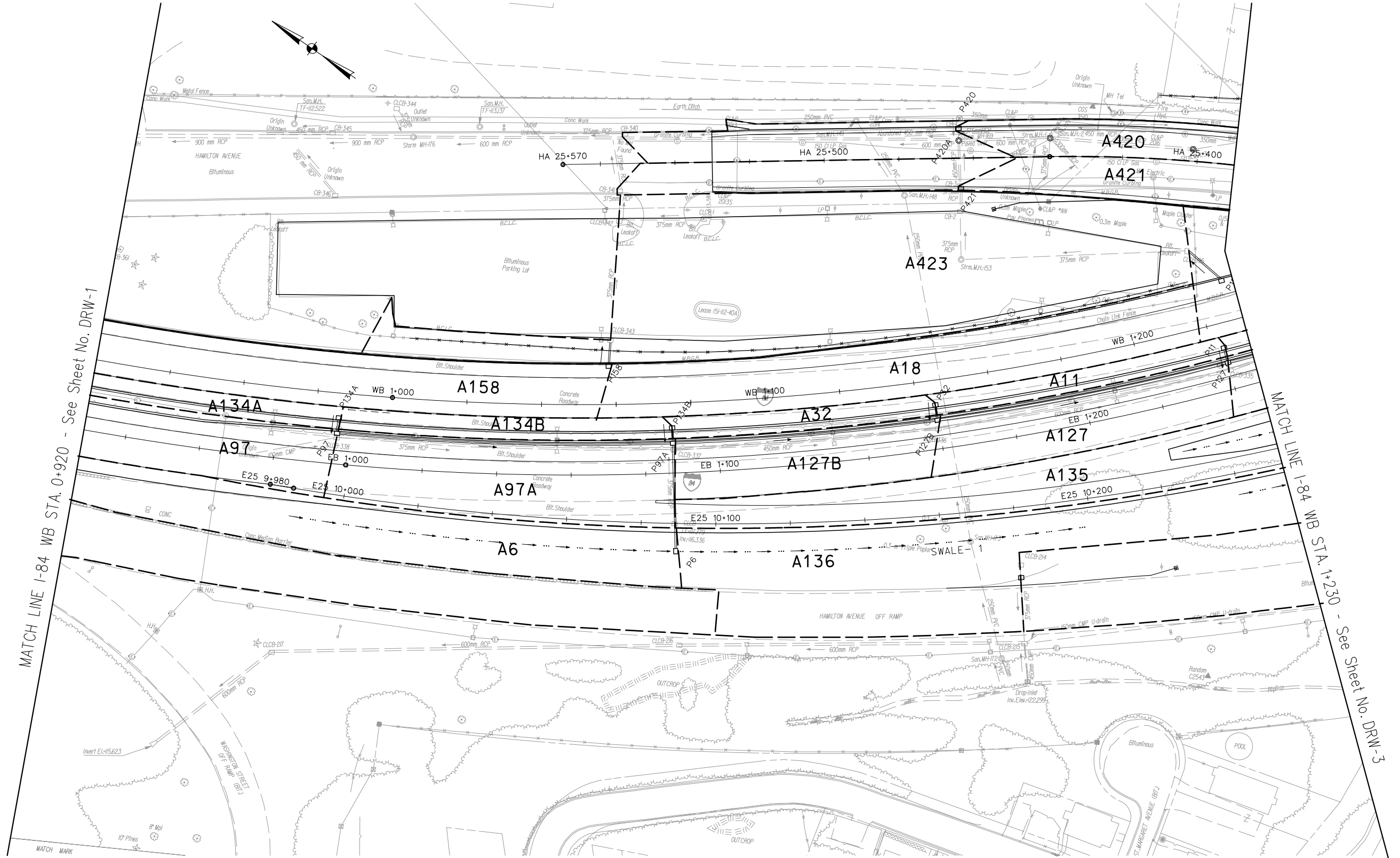
TOWN: WATERBURY

DRAWING TITLE: WATERSHED MAP PLAN - 1

PROJECT NO.: 151-273

DRAWING NO.: DRW-1

SHEET NO.: OF



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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WATERSHED PLAN
PLAN – 2

PROJECT NO.: 151-273
DRAWING NO.: DRW-2
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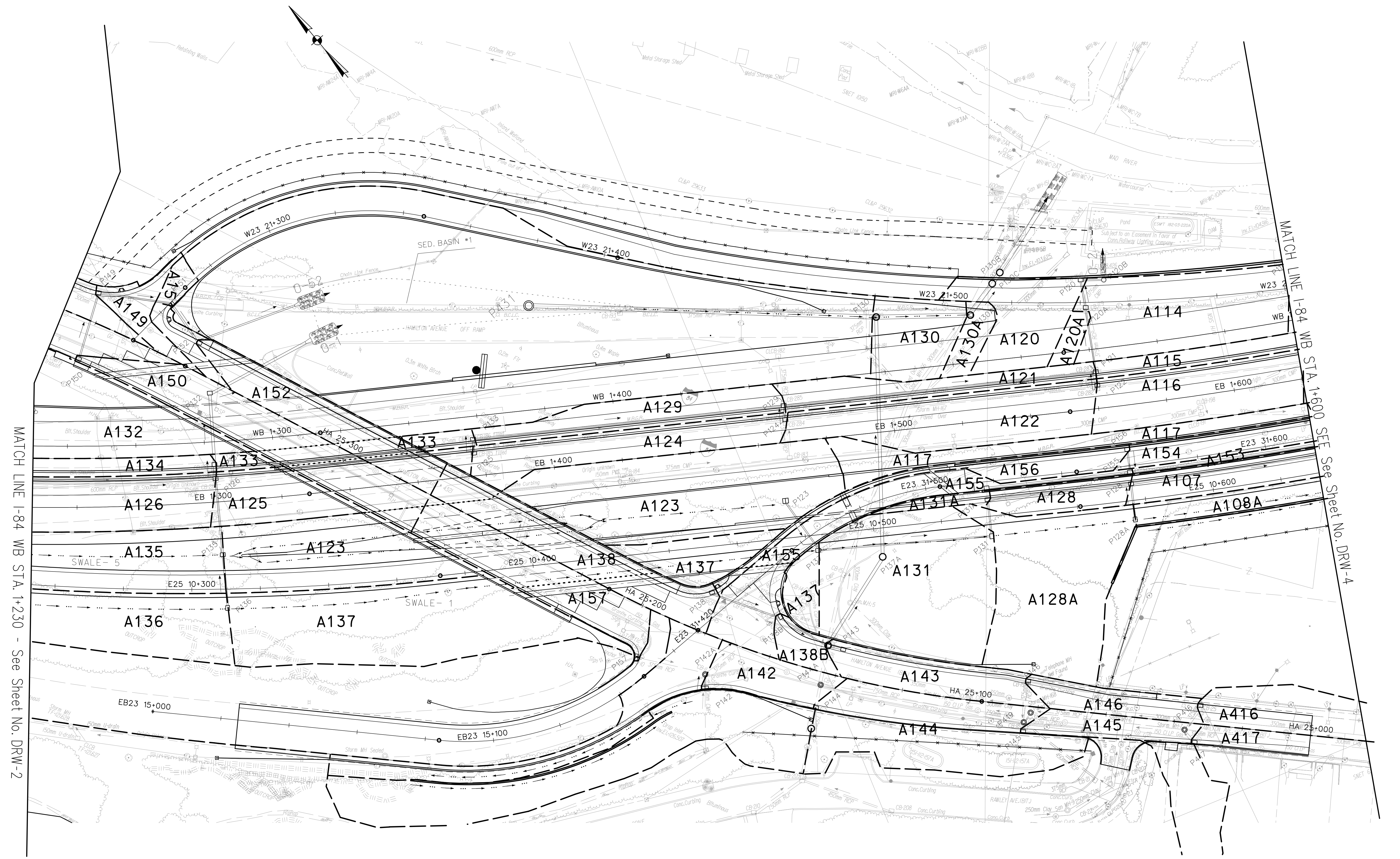

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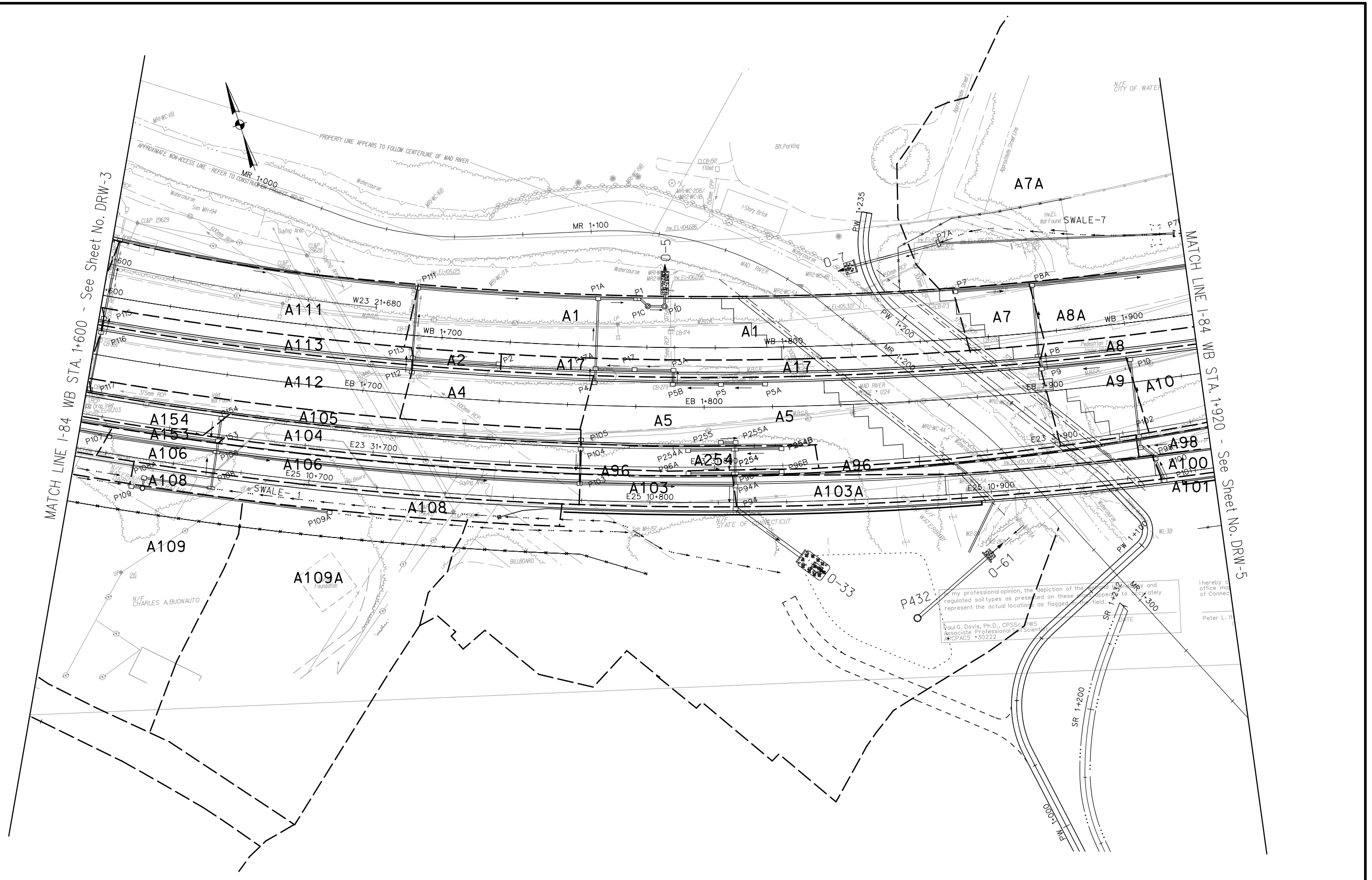
						PROJECT NO.: 151-273 DRAWING NO.: DRW-3 SHEET NO.: OF



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DATE CHECKED:	3 /29 /01

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3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATERSHED MAP PLAN - 4

PROJECT NO.: 151-273
DRAWING NO.: DRW-4
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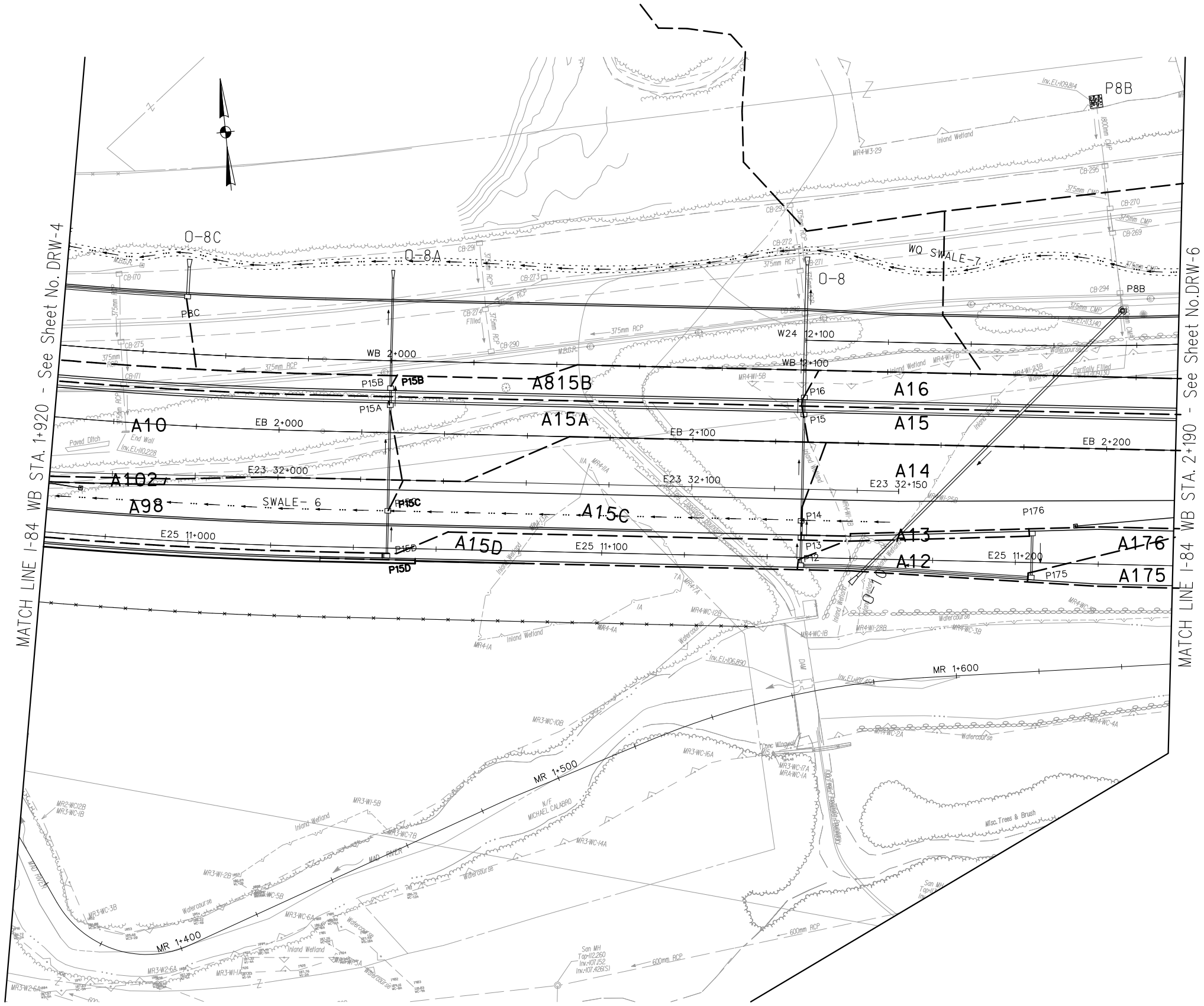

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HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WATERSHED PLAN
PLAN – 5

PROJECT NO.: 151-273
DRAWING NO.: DRW-5
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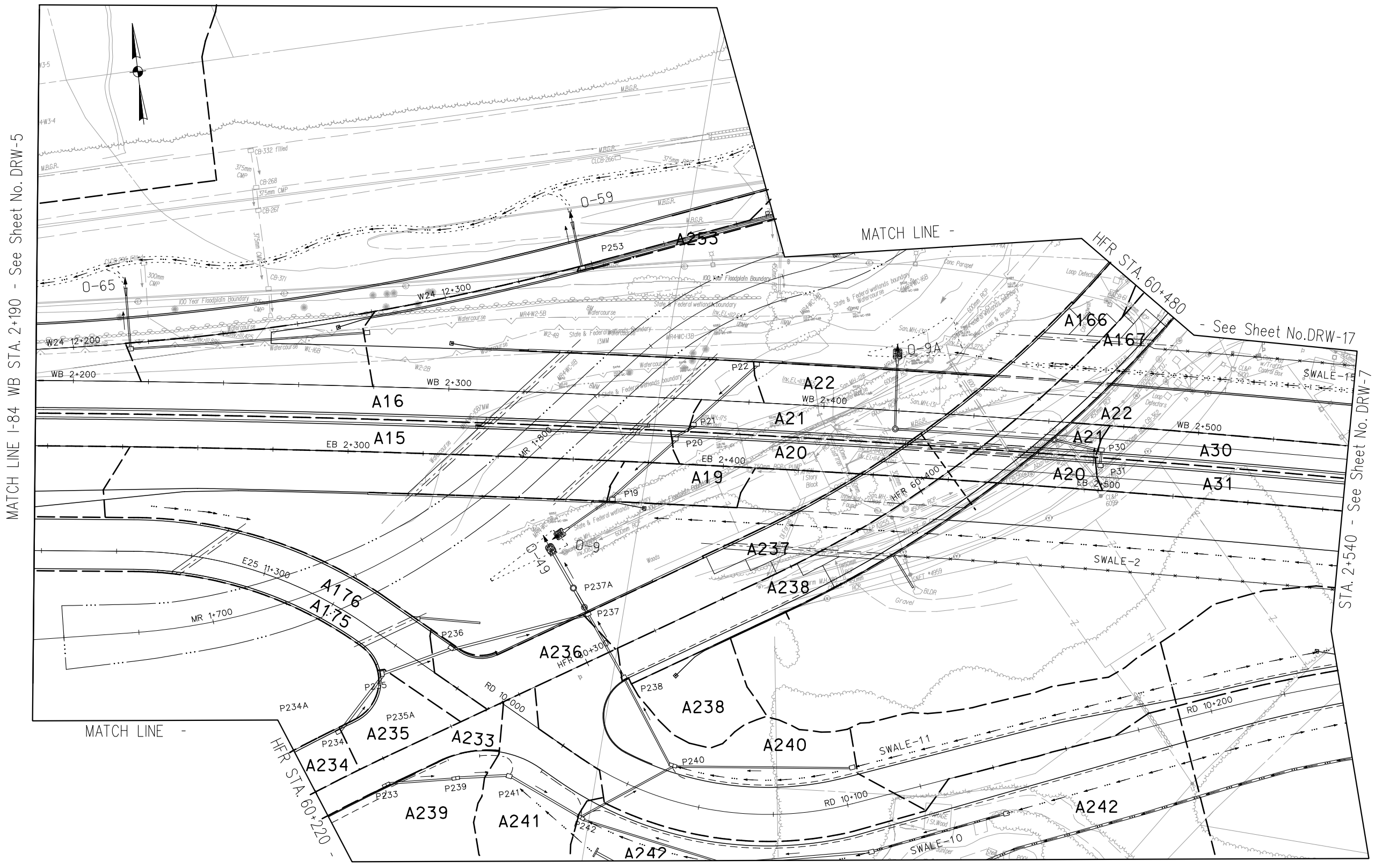

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HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATERSHED MAP
PLAN – 6

PROJECT NO.: 151-273
DRAWING NO.: DRW-6
SHEET NO.: OF

MATCH LINE - See Sheet No. DRW-17

MATCH LINE I-84 WB STA. 2+540 - See Sheet No. DRW-6

MATCH LINE I-84 WB STA. 2+880 - See Sheet No.DRW-8

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P140 P219 P218 P164A P164 P164B P26 P27 P185A P184A P183 P188 P187 P186

0-50 0-9B 0-36 0-37 0-70

BPB 5+200 PRE 50+200 PRE 70+400 PRE 50+300 WB 2+600 EB 2+600 WB 2+700 EB 2+700 BPB 5+300 WB 2+800 EB 2+800 EB 2+900 BPB 5+400 RD 10+300 RD 10+400 RD 10+500

SWALE-2 SWALE-1 SWALE-10

RVD-W2-1 RVD-W2-2 RVD-W2-3 RVD-W2-4 RVD-W3-1 RVD-W3-2 RVD-W3-3 RVD-WL7 RVD-WL8A RVD-WL8B

Inland Wetland

GRAVEL PIT BILLBOARD OUTCROP

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HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATERSHWD MAP
PLAN - 7

PROJECT NO.: 151-273
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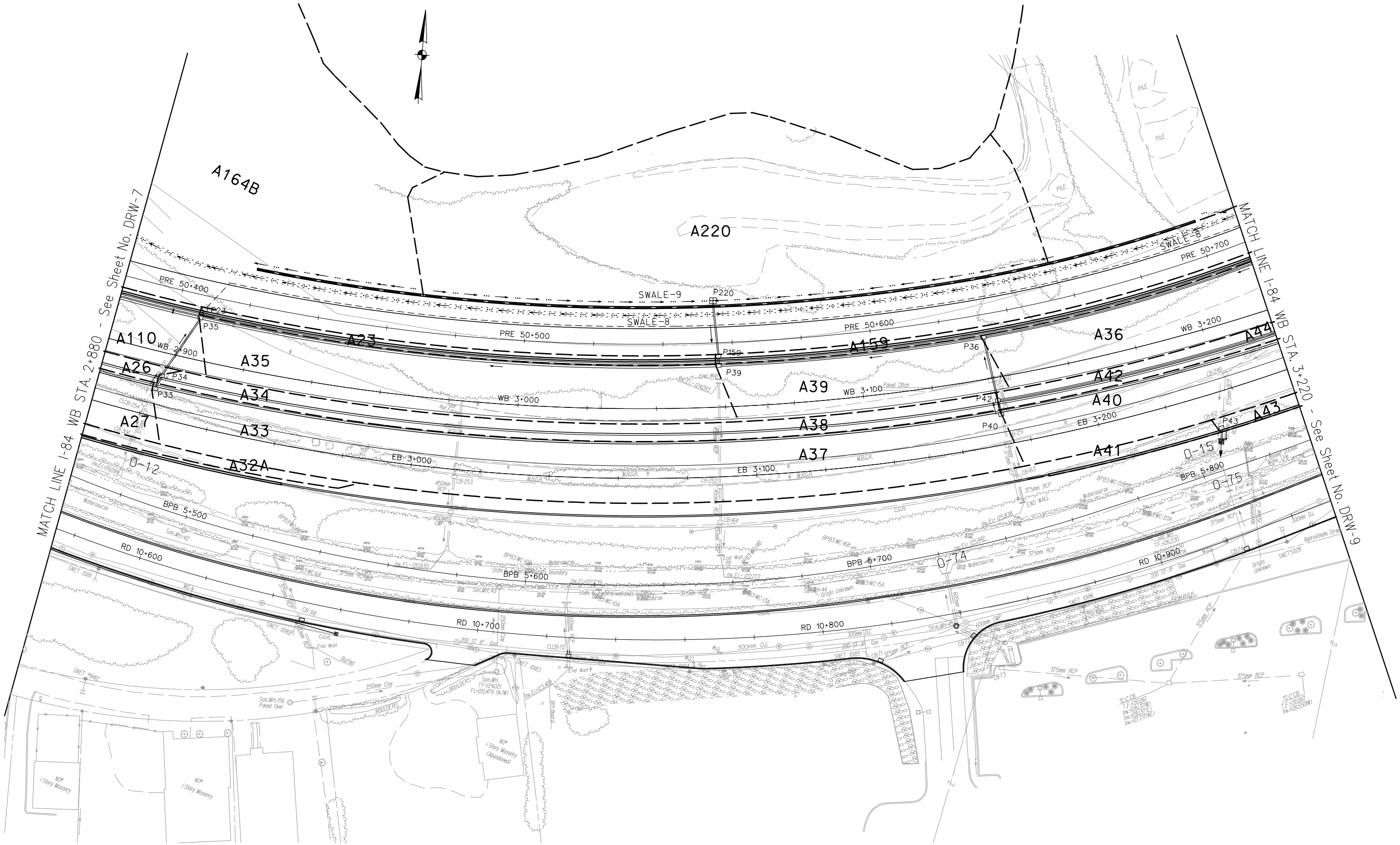

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PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATRSHED MAP
PLAN – 8

PROJECT NO.: 151-273
DRAWING NO.: DRW-8
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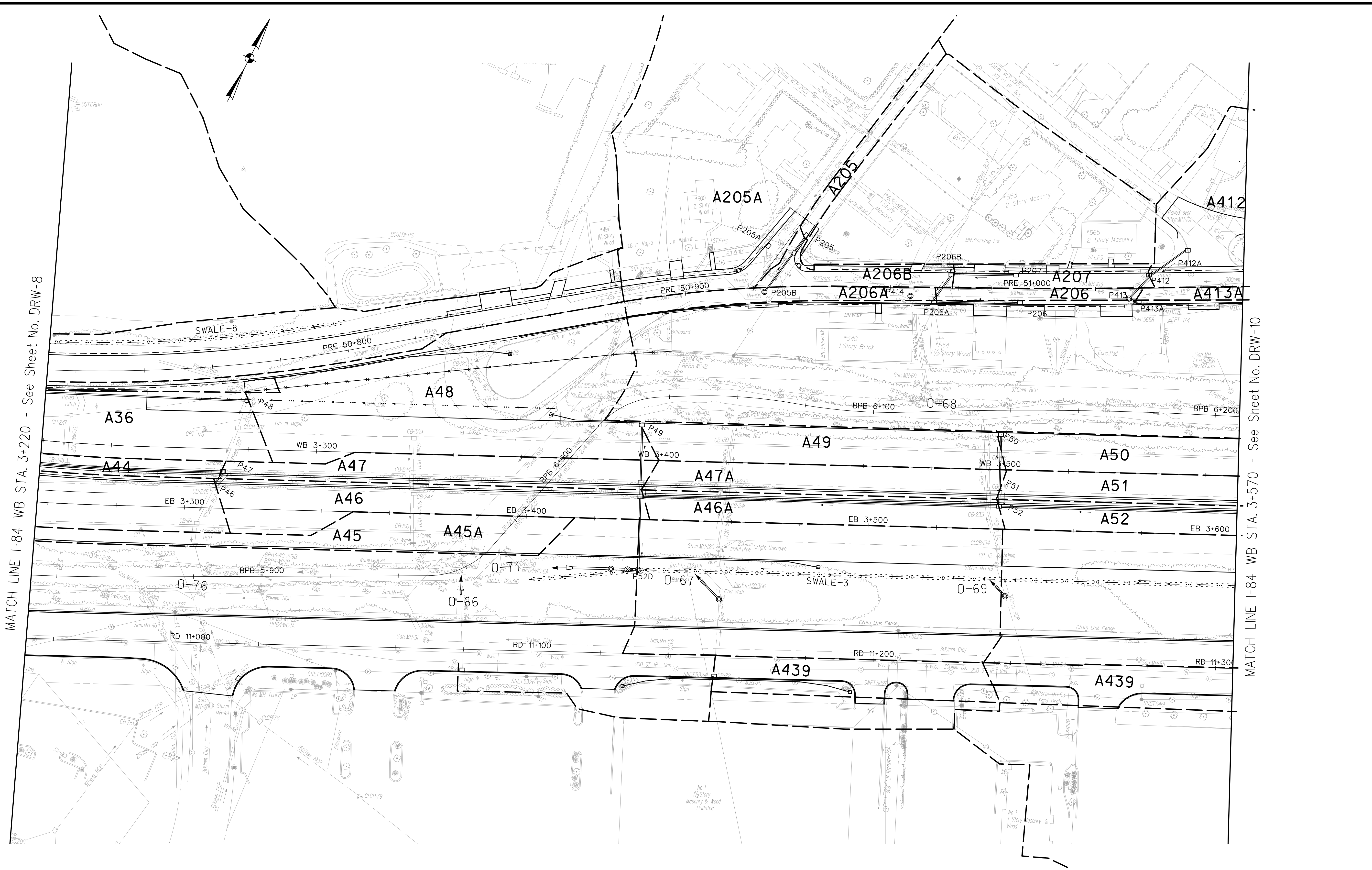

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STATE OF CONNECTICUT
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HARRISON, NY

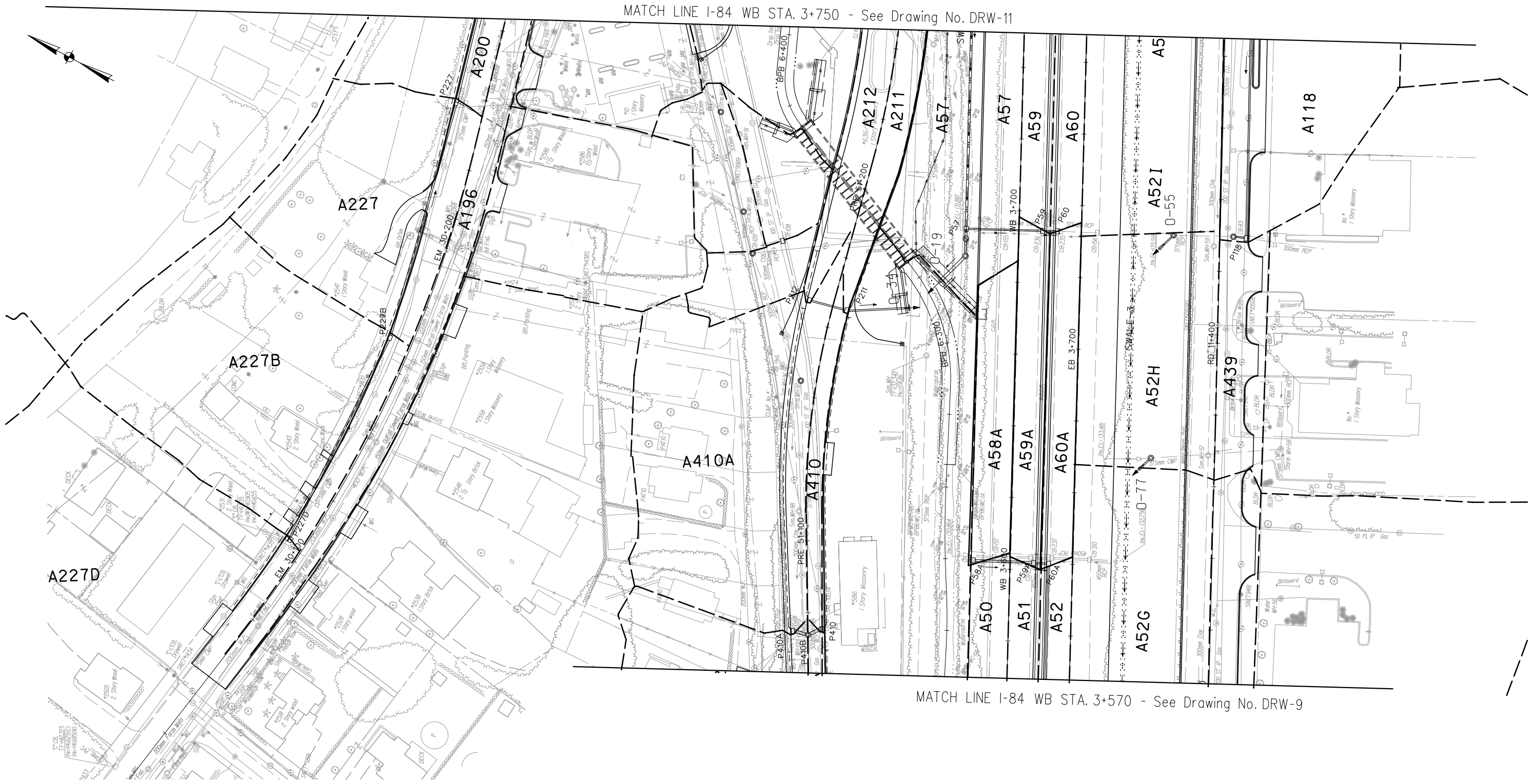
PROJECT TITLE: RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATERSHED MAP
PLAN - 9

PROJECT NO.: 151-273
DRAWING NO.: DRW-9
SHEET NO.: OF

MATCH LINE I-84 WB STA. 3+750 - See Drawing No. DRW-11



MATCH LINE I-84 WB STA. 3+570 - See Drawing No. DRW-9

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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATERSHED MAP
PLAN – 10

PROJECT NO.: 151-273
DRAWING NO.: DRW-10
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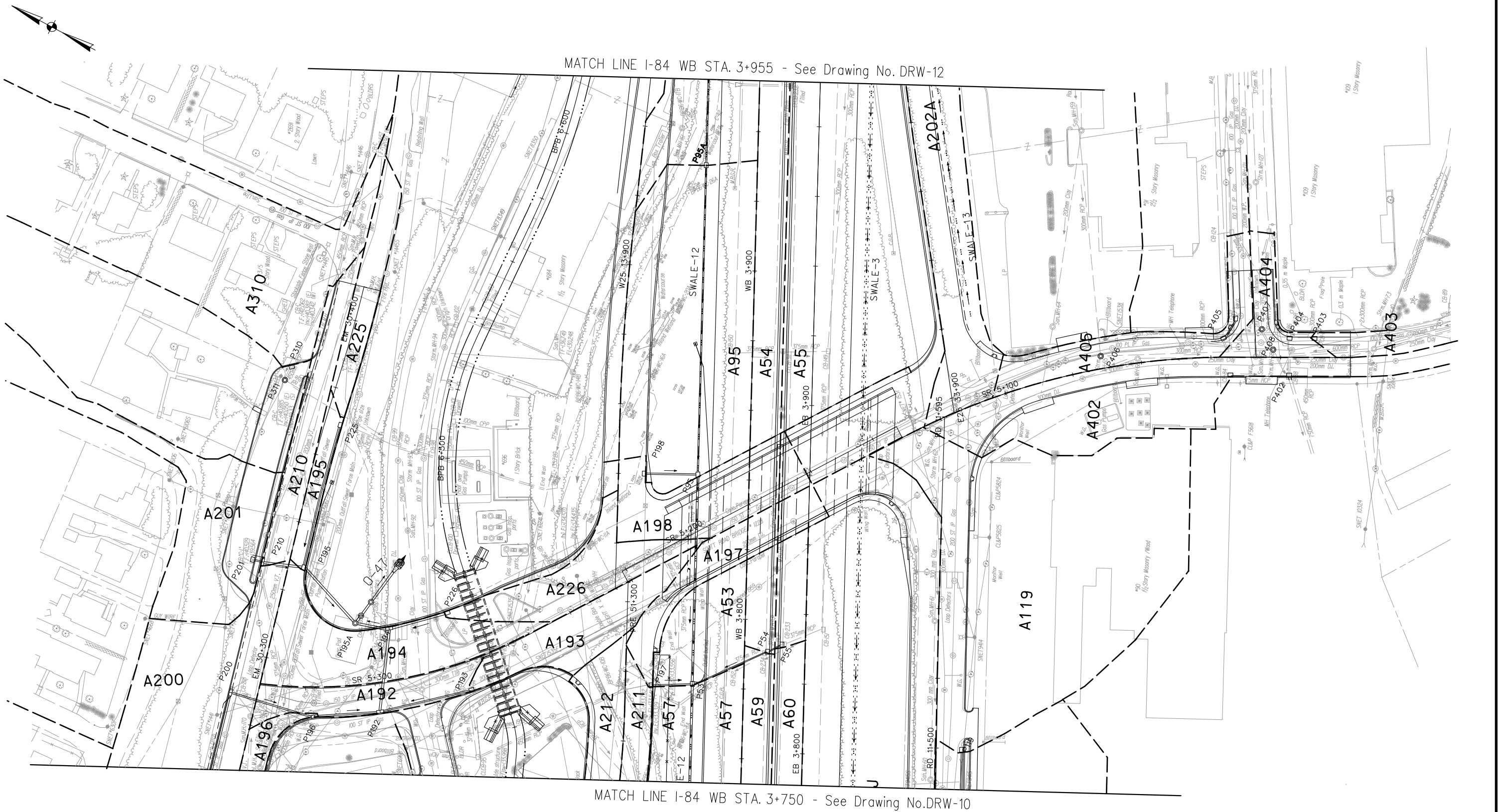

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DEPARTMENT OF TRANSPORTATION

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3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WATERSHED MAP
PLAN – 11

PROJECT NO.: 151-273
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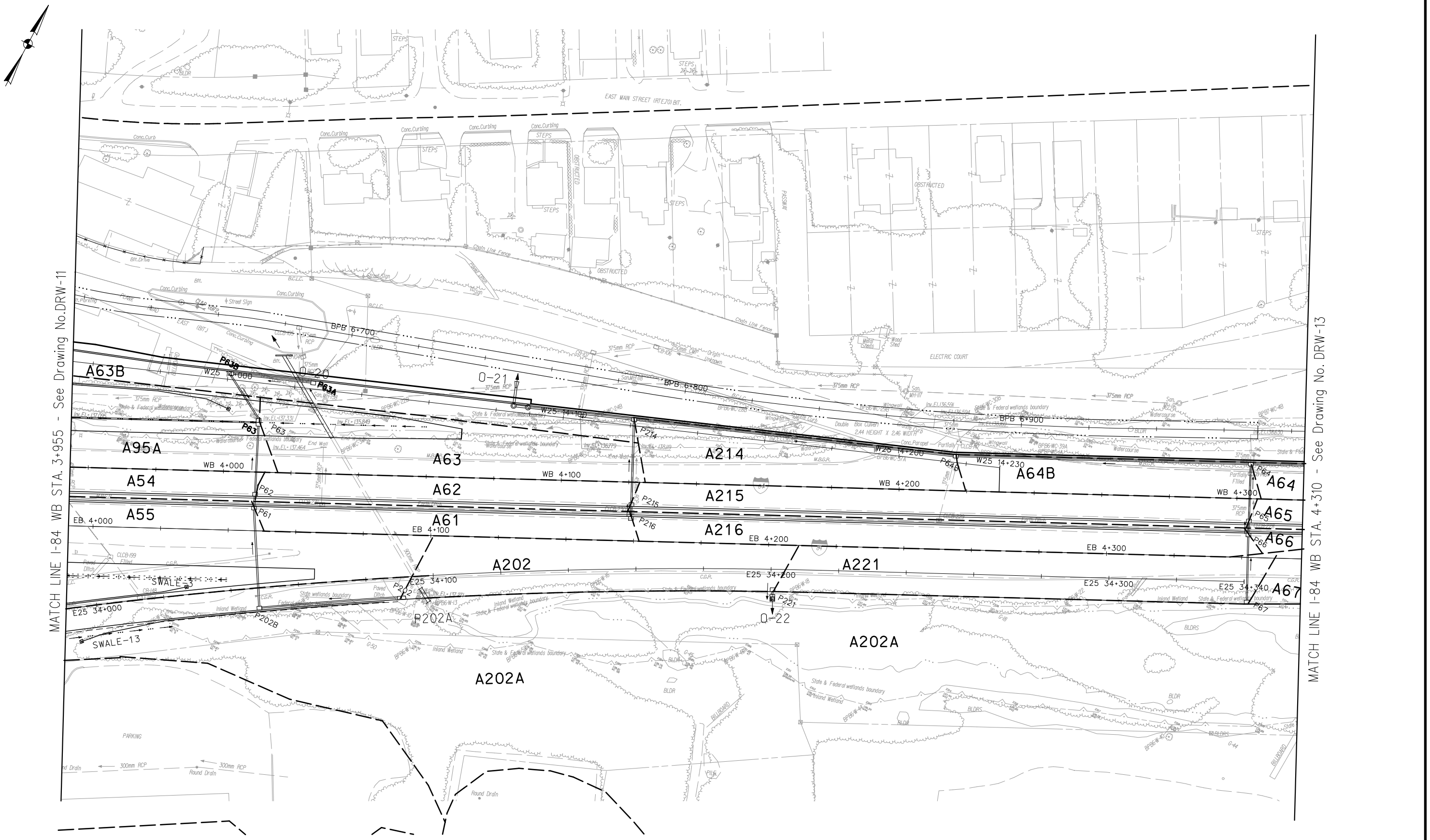

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SCALE IN METERS
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DESIGNER: K.K.
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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\drainage\report\plan-12.dgn | PLOTTED 12/2/2014

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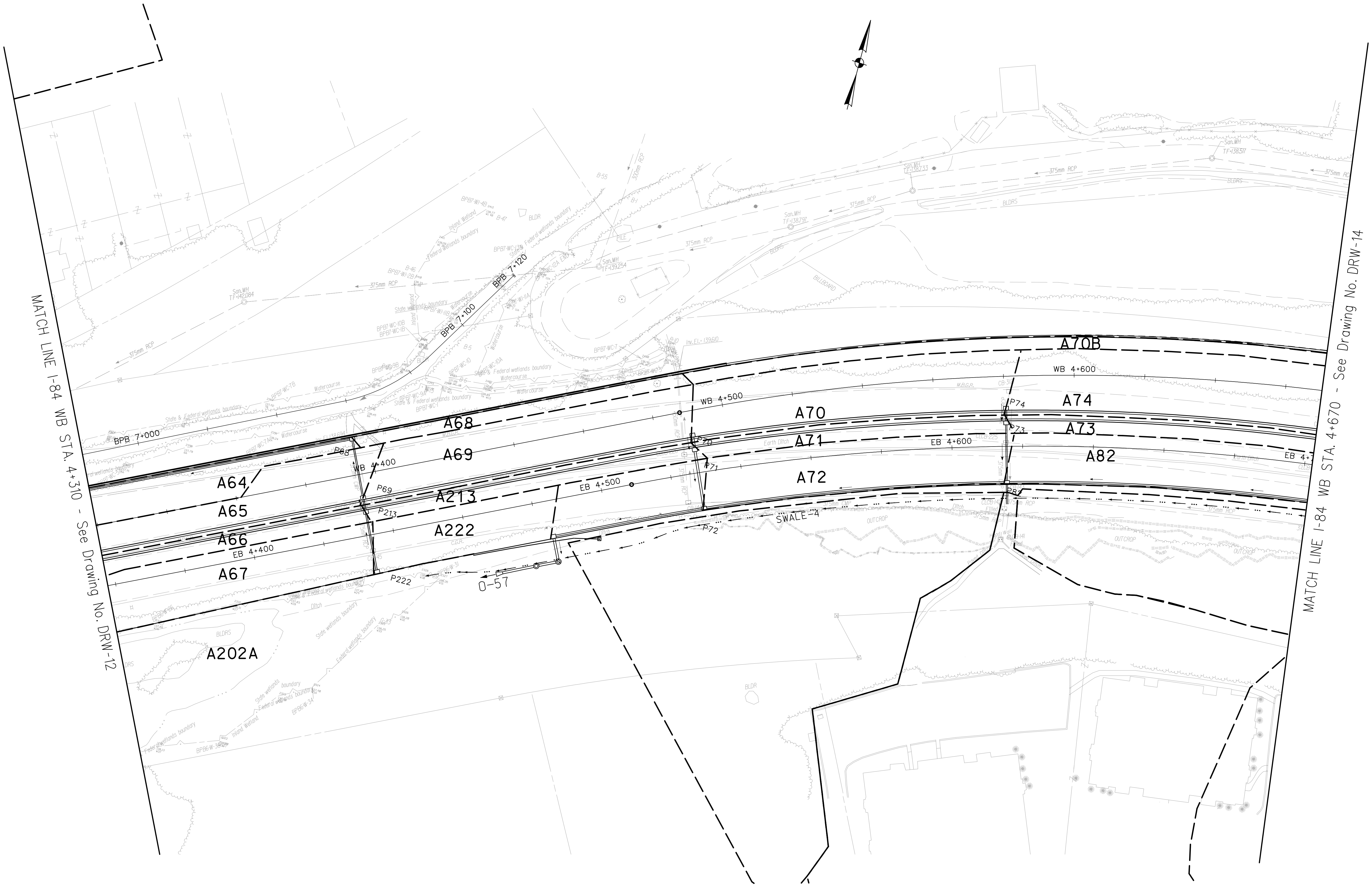
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WATERSHED MAP
PLAN – 12

PROJECT NO.: 151-273
DRAWING NO.: DRW-12
SHEET NO.: OF



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SCALE IN METERS
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DESIGNER:	K.K.
DRAFTER:	M.O.
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DATE CHECKED:	3 /29 /01

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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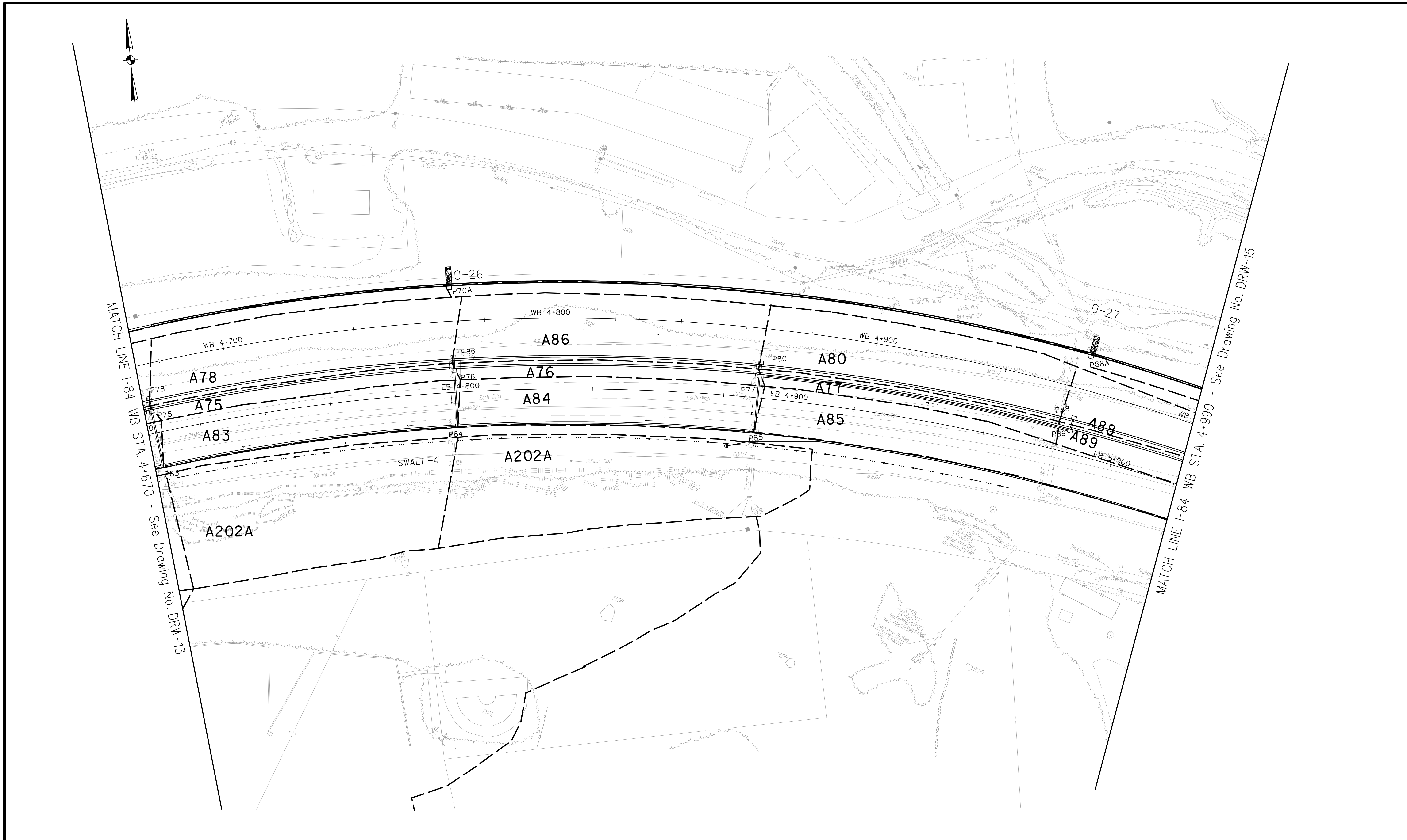
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
WATERSHED MAP
PLAN - 13

PROJECT NO.: 151-273
DRAWING NO.: DRW-13
SHEET NO.: OF



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SCALE IN METERS
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DESIGNER: K.K.
DRAFTER: M.O.
CHECKED BY: S.T.A.
DATE CHECKED: 3 /29 /01

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\drainage\report\plan-14.dgn
PLOTTED 12/2/2014

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2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATERSHED MAP PLAN - 14

PROJECT NO.: 151-273
DRAWING NO.: DRW-14
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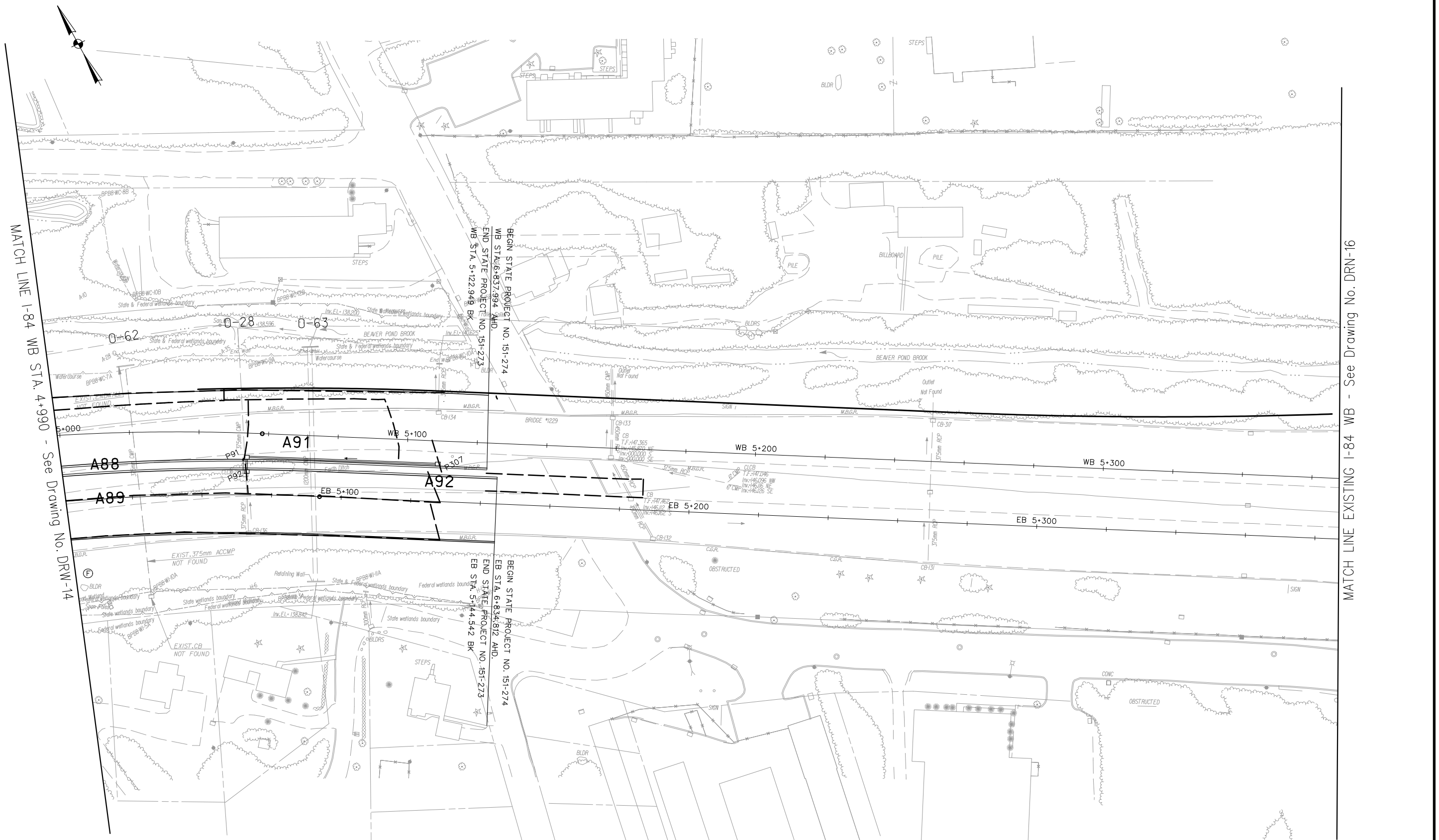

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3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WATERSHED MAP
PLAN – 15

PROJECT NO.:	151-273
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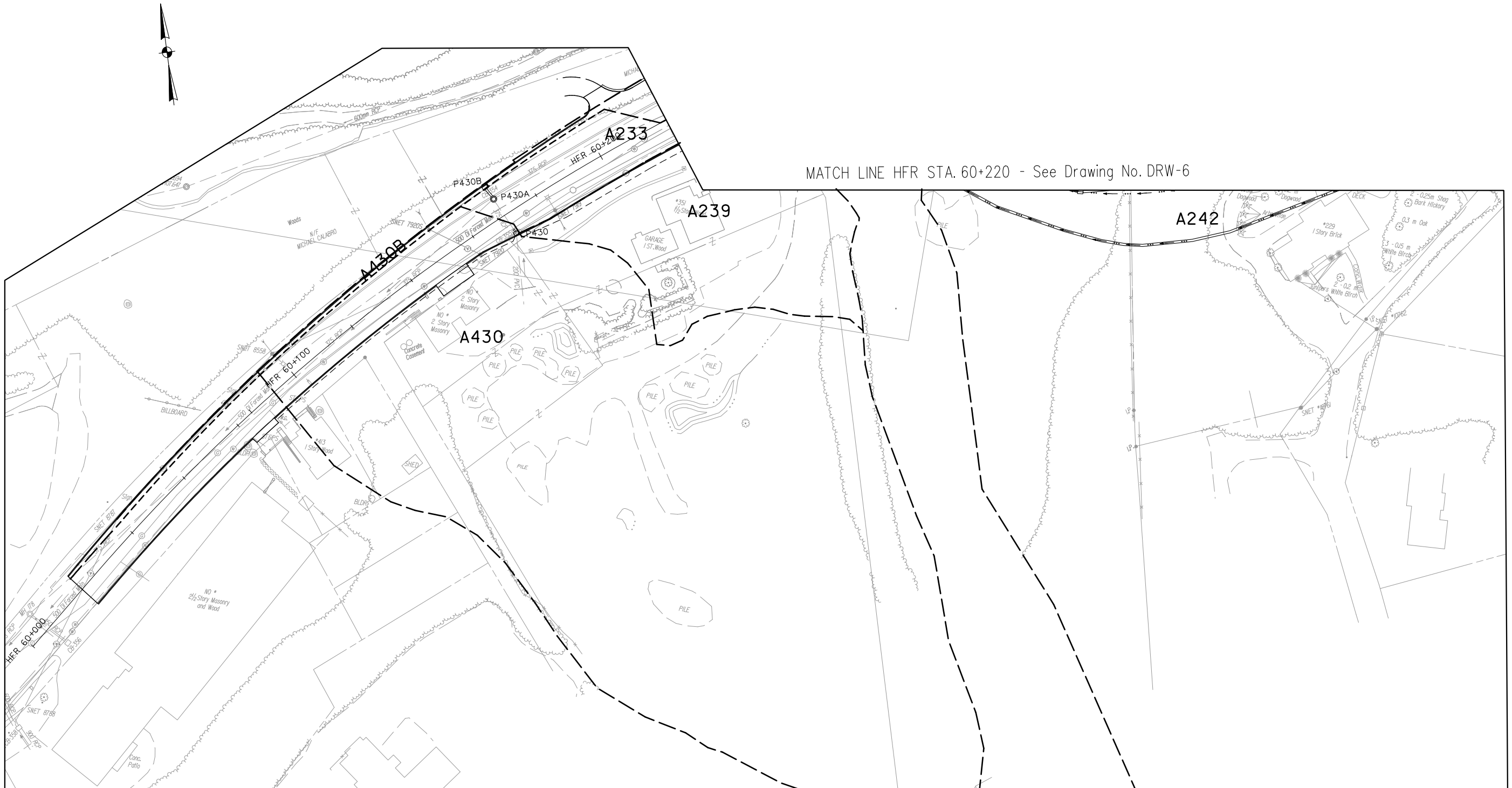

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DESIGNER: K.K.
DRAFTER: M.O.
CHECKED BY: S.T.A.
DATE CHECKED: 3 /29 /01

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\drainage\report\plan-16.dgn
PLOTTED 12/2/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WATERSHED MAP
PLAN – 16

PROJECT NO.: 151–273
DRAWING NO.: DRW–16
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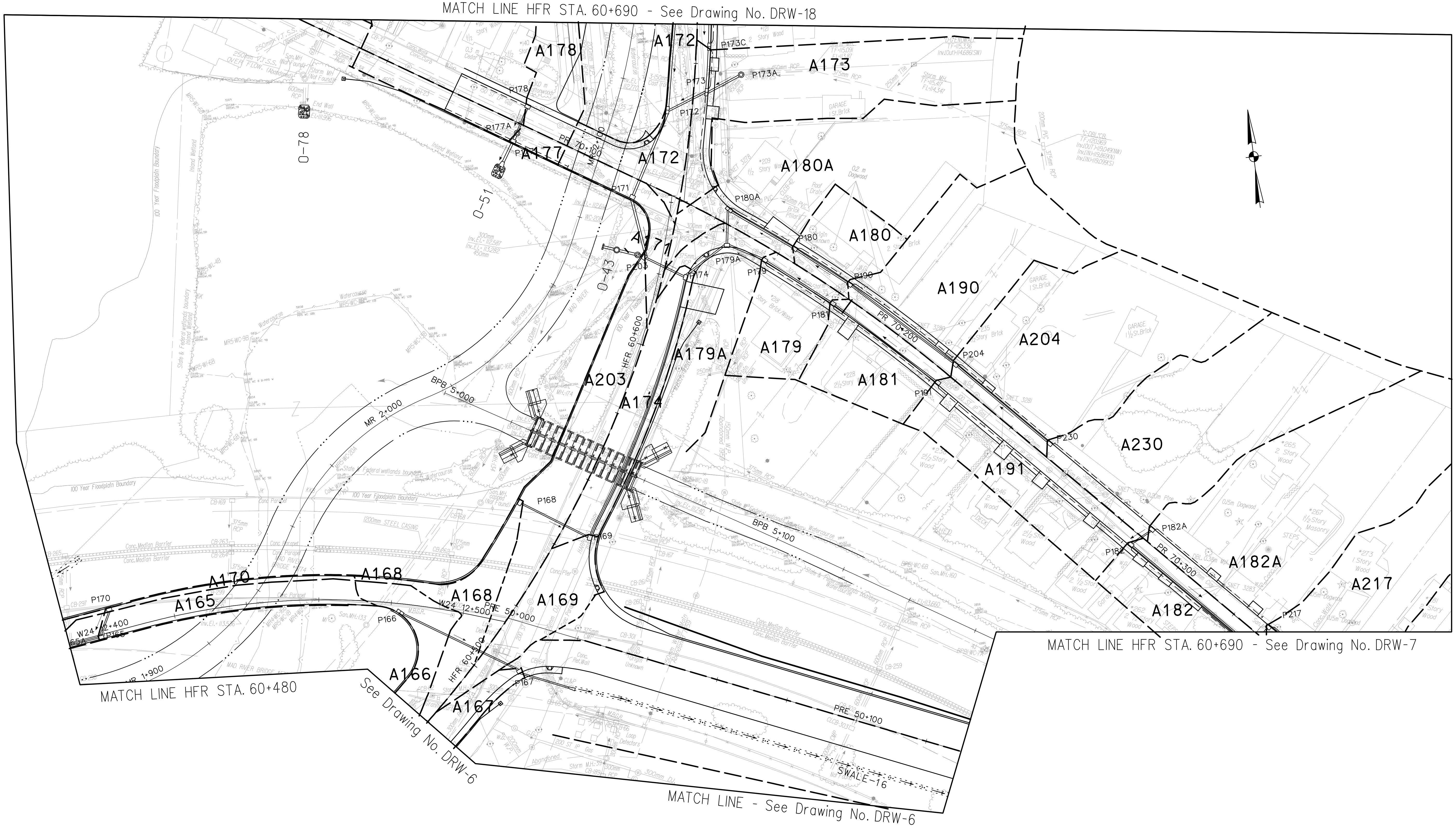

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SCALE IN METERS
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DRAFTER:
CHECKED BY:
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\drainage\report\plan-17.dgn
PLOTTED 12/2/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
WATERSHED MAP
PLAN - 17

PROJECT NO.: 151-273
DRAWING NO.: DRW-17
SHEET NO.: OF

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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DRAFTER:	M.O.
CHECKED BY:	S.T.A.
DATE CHECKED:	3 /29 /01

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\drainage\report\plan-18.dgn | PLOTTED 12/2/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATERSHED MAP
PLAN – 18

PROJECT NO.: 151-273
DRAWING NO.: DRW-18
SHEET NO.: OF

Appendix B - Drainage Calculations
Outfall Design Summary Table

DRAINAGE OUTFALL TABLE

				RIPRAP APRON				PREFORMED SCOUR HOLE					RIPRAP SWALE					
OUTFALL	ROADWAY STATION	END TYPE	RIPRAP TYPE	L (M)	W1 (M)	W2 (M)	X (M)	B (M)	C (M)	2Rp (M)	3Rp (M)	F (M)	L1 (M)	S1 (%)	L2 (M)	S2 (%)	3.8Rp (M)	0.7Rp (m)
1	WB 1+318.3	750mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.75	4.50	1.50	2.25	0.38	0.0	0	4.4	-50	2.85	0.53
2	W23 21+547	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	4.5	-36	1.43	0.26
5	WB 1+761.2	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.0	0	5.2	-33	2.28	0.42
7	WB 1+821.8	ENDWALL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.0	0	3.42	0.63
8	WB 2+100	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
8A	WB 1+200	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
8C	WB 1+950	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
9	EB 2+359.6	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
9A	WB 2+418.8	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
9B	WB 2+660.0	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
10	E24 11+162	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.8	-33	N/A	N/A
15	EB 3+233.0	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.5	-61	1.43	0.26
19	WB 3+679.6	PROJECTING BARREL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	W25 14+016	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
21	W25 14+085.0	750mm RCCE	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22	E25 34+201	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.0	-31	1.43	0.26
26	WB 4+490.0	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
27	WB 4+964	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.0	52	1.43	0.26
28	WB 5+042.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	9.4	0	1.43	0.26
33	E24 10+845.5	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	5.25	6.30	2.10	3.15	0.53	N/A	N/A	N/A	N/A	N/A	N/A
34	PRE 51+171.3	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	RD 10+460.3	1200mm RCCE	HEAVY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	RD 10+490.3	ENDWALL	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
42	HFR 60+510.0	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
43	HFR 60+624.4	ENDWALL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
47	SR 5+287.7	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	6.00	7.20	2.40	3.60	0.60	N/A	N/A	N/A	N/A	N/A	N/A
49	HFR 60+305	450mm MCE	MODIFIED	N/A	N/A	N/A	N/A	4.50	5.40	1.80	2.70	0.45	N/A	N/A	N/A	N/A	N/A	N/A
50	PRE 50+209.0	ENDWALL	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50A	PRE 50+293.8	1200mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
51	PR 70+080.7	600mm RCCE	STANDARD	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
52	HA 25+327.1	450mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	2.25	2.70	0.90	1.35	0.23	0.0	0	4.4	-50	1.71	0.32
55	EB 3+732.5	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	7.2	-2	1.43	0.26
57	EB 4+468.1	1050mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	6.00	7.20	2.40	3.60	0.60	N/A	N/A	N/A	N/A	N/A	N/A
59	W24 12+337	375mm MCE	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60	W23 21+526.5	ENDWALL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.0	0	4.56	0.84
61	E24 10+897.5	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.0	0	2.85	0.53
62	WB 5+012.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.0	0	1.43	0.26
63	WB 5+063.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
65	WB 2+324.6	375mm RCCE	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
66	RD 11+078.5	ENDWALL	HEAVY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
67	RD 11+154	450mm MCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	1.9	-18	1.71	0.32
68	PRE 50+970.7	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
69	RD 11+237.5	450mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.3	-50	1.71	0.32
70	RD 10+538.0	ENDWALL	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
71	EB 3+413.9	ENDWALL	HEAVY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
72	RD 10+637.5	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
73	RD 10+725.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
74	RD 10+838.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
75	RD 10+925.5	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
76	RD 11+000.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
77	RD 11+366.5	375mm RCCE	MODIFIED	3.00	1.13	3.23	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
78	PR 70+025.0	ENDWALL (a)	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A

NOTES:
1. RCCE=REINFORCED CONCRETE CULVERT END
2. MCE=METAL CULVERT END
3. (a) EXISTING TO REMAIN
4. ALL ELEVATIONS ARE GIVEN IN METERS. WHEN ELEVATIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T.BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\SHEETS\Miscdet\1510273006.dds
PLOTTED 12/1/2014

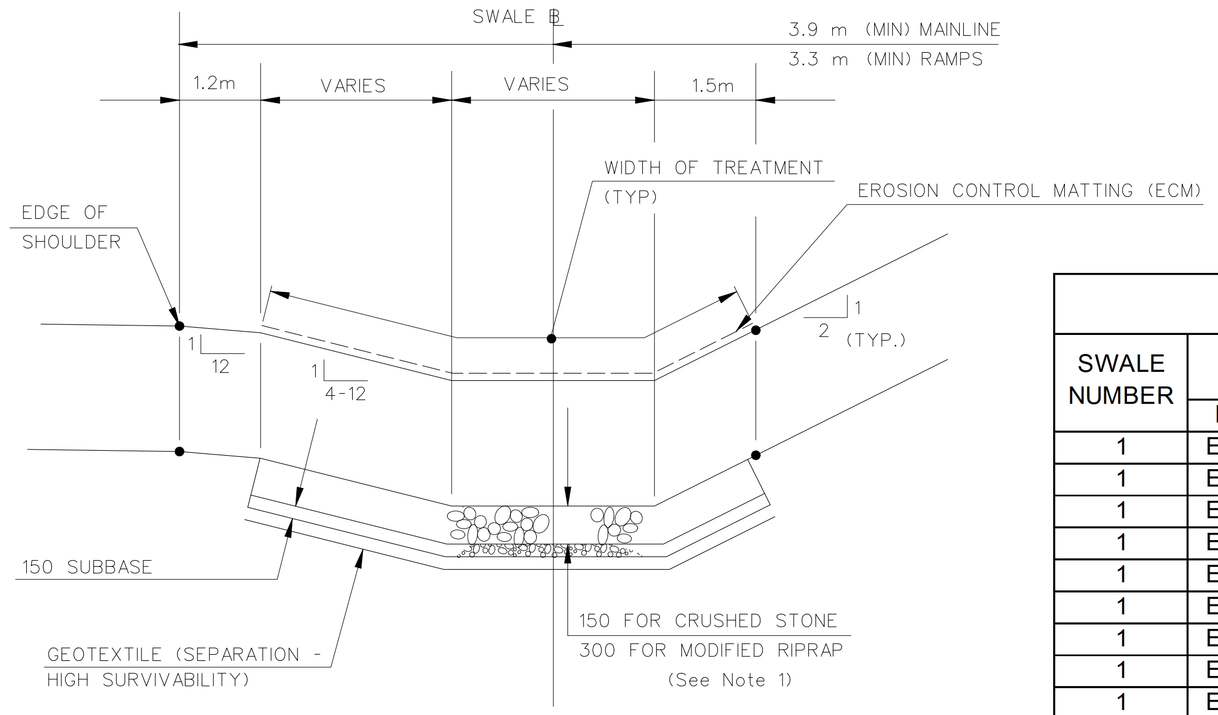
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

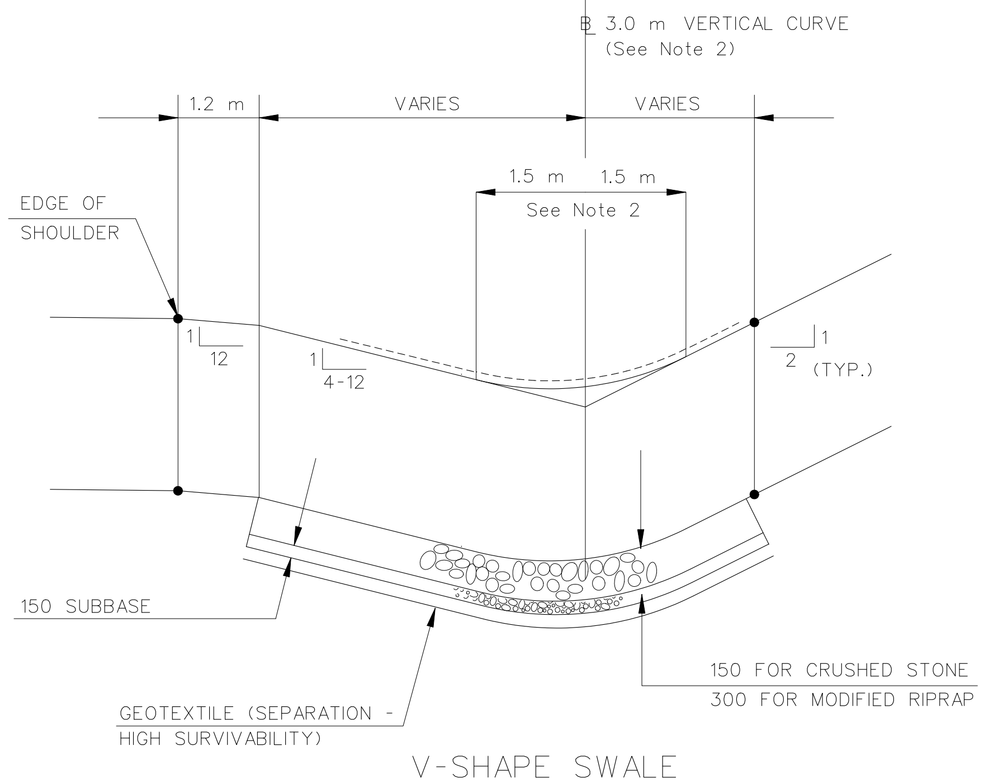
TOWN: WATERBURY
DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-6
SHEET NO.:

Appendix B - Drainage Calculations
Drainage Swales and Water Quality Swales



TRAPEZOID SWALE



V-SHAPE SWALE

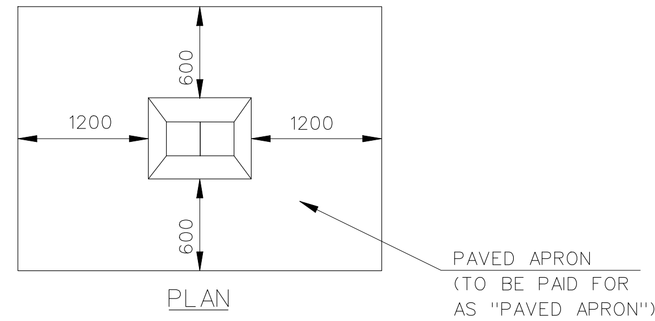
DRAINAGE SWALE

NOTES:
1. SUBBASE SHALL BE NO. 8 AGGREGATE FOR MODIFIED RIPRAP AND GRANULAR FILL GRADING "C" FOR CRUSHED STONE.
2. IN AREAS WHERE A 3.0 m ROUNDING CANNOT BE ATTAINED WITHOUT ENCROACHING ON THE ADJACENT SHOULDER, A MINIMUM 1.0 m ROUNDING SHALL BE PROVIDED UNLESS OTHERWISE DIRECTED BY THE EIC.

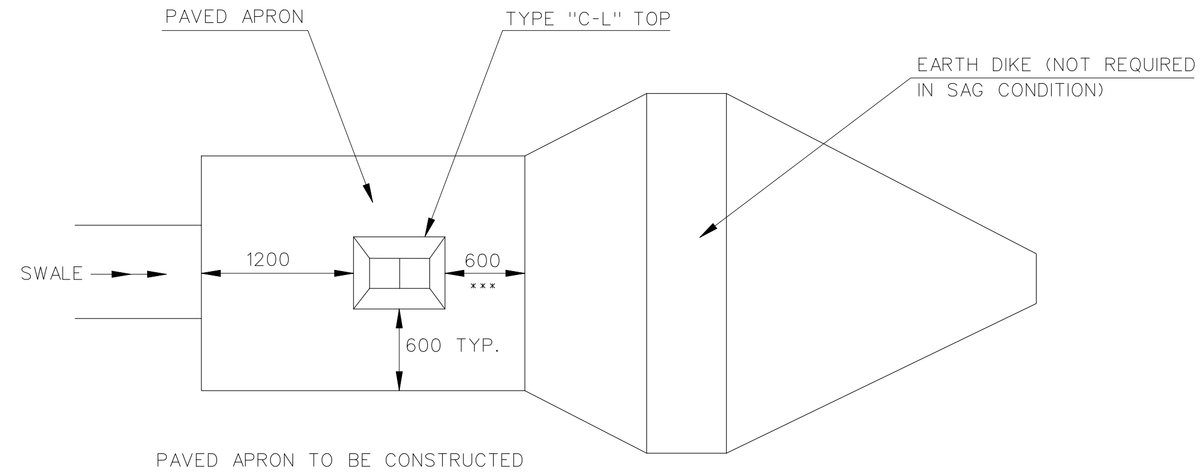
DRAINAGE SWALE TREATMENTS

SWALE NUMBER	STATIONING		WIDTH OF TREATMENT	TREATMENT	SHAPE
	BEGINNING	END	(m)		
1	E24 9+990	E24 10+090	4.9	TYPE E ECM	V
1	E24 10+090	E24 10+300	3.6	TYPE E ECM	V
1	E24 10+300	E24 10+380	3.2	TYPE E ECM	V
1	E24 10+380	E24 10+480	4.2	CRUSHED STONE	V
1	E24 10+480	E24 10+560	4.8	TYPE E ECM	V
1	E24 10+560	E24 10+640	3.9	TYPE E ECM	V
1	E24 10+640	E24 10+780	4.0	CRUSHED STONE	V
1	E24 10+780	E24 10+800	3.9	INTERMEDIATE RIPRAP	V
1	E24 10+800	E24 10+840	3.9	INTERMEDIATE RIPRAP	V
2	EB 2+380	EB 2+460	6.1	MODIFIED RIPRAP	V
2	EB 2+460	EB 2+770	5.3	TYPE E ECM	V
3	EB 3+420	EB 3+540	8.6	MODIFIED RIPRAP	T
3	EB 3+540	EB 3+660	8.6	GEOTEXTILE (DRAINAGE)	T
3	EB 3+660	EB 3+720	8.6	TYPE E ECM	T
3	EB 3+870	EB 3+900	4.5	CRUSHED STONE	V
3	EB 3+900	EB 4+040	4.5	TYPE E ECM	V
4	EB 4+480	EB 4+530	8.6	MODIFIED RIPRAP	V
4	EB 4+530	EB 4+905	8.6	GEOTEXTILE (DRAINAGE)	V
4	EB 4+905	EB 5+000	8.6	MODIFIED RIPRAP	V
5	EB 1+220	EB 1+355	12.0	TYPE E ECM	V
5, L Pier	EB 1+355	EB 1+400	5.7	CRUSHED STONE	V
5, R Pier	EB 1+355	EB 1+400	5.7	CRUSHED STONE	V
5	EB 1+400	EB 1+465	12.0	TYPE E ECM	V
6	EB 1+925	EB 2+025	3.7	TYPE E ECM	T
6	EB 2+025	EB 2+245	9.7	GEOTEXTILE (DRAINAGE)	V
6	EB 2+245	EB 2+270	8.9	MODIFIED RIPRAP	T
7	WB 1+845	WB 1+910	3.2	MODIFIED RIPRAP	V
7	WB 1+910	W24 12+300	10.6	TYPE E ECM	V
8	PRE 50+380	PRE 50+425	20.3	MODIFIED RIPRAP	T
8	PRE 50+425	PRE 50+700	11.9	TYPE E ECM	T
8	PRE 50+700	PRE 50+800	4.9	TYPE E ECM	V
9	PRE 50+420	PRE 50+710	11.2	GEOTEXTILE (DRAINAGE)	T
10	RD 10+010	RD 10+240	7.7	TYPE E ECM	V
10	RD 10+240	RD 10+440	7.0	MODIFIED RIPRAP	V
11	RD 10+050	RD 10+140	6.9	TYPE E ECM	V
11	RD 10+140	RD 10+180	7.3	TYPE E ECM	V
11	RD 10+180	RD 10+260	7.0	TYPE E ECM	V
11	RD 10+260	RD 10+340	7.0	TYPE F ECM	V
11	RD 10+340	RD 10+420	7.0	TYPE F ECM	V
12	WB 3+695	WB 3+810	11.5	TYPE E ECM	V
12	WB 3+810	WB 3+840	8.8	CRUSHED STONE	V
12	WB 3+840	WB 3+960	8.8	TYPE E ECM	V
12	WB 3+960	WB 4+020	8.8	TYPE E ECM	V
13	E25 33+920	E25 34+080	3.0	TYPE E ECM	V
15	WB 2+430	WB 2+485	11.7	CRUSHED STONE	T
15	WB 2+485	WB 2+660	11.7	TYPE E ECM	T
16	PRE 50+020	PRE 50+170	5.9	TYPE E ECM	T

V MEANS "V" SHAPE
T MEANS TRAPEZOID SHAPE



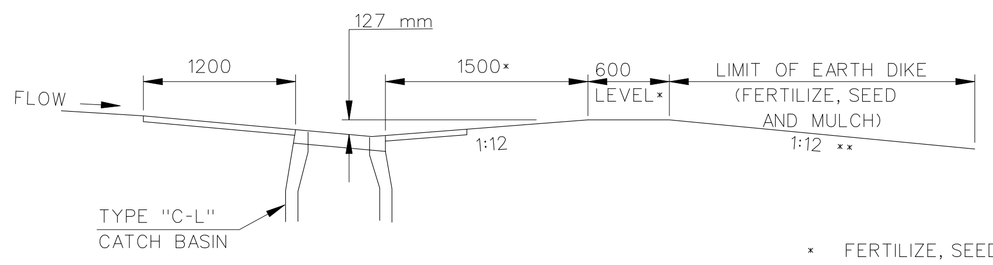
PAVED APRON DETAIL



PAVED APRON TO BE CONSTRUCTED AS "PAVED DITCH"

××× INCREASE TO 1200 IN SAG CONDITION

PLAN



LONGITUDINAL SECTION

× FERTILIZE, SEED AND MULCH

×× USE BERM SLOPES OF 1.5:12 WHEN S IS GREATER THAN 0.04 m/m

TREATMENT OF 'C-L' CATCH BASINS IN GRASS AREAS - WITH PAVED APRON

NOTE: ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\miscdet\1510273007.dds | PLOTTED 12/1/2014

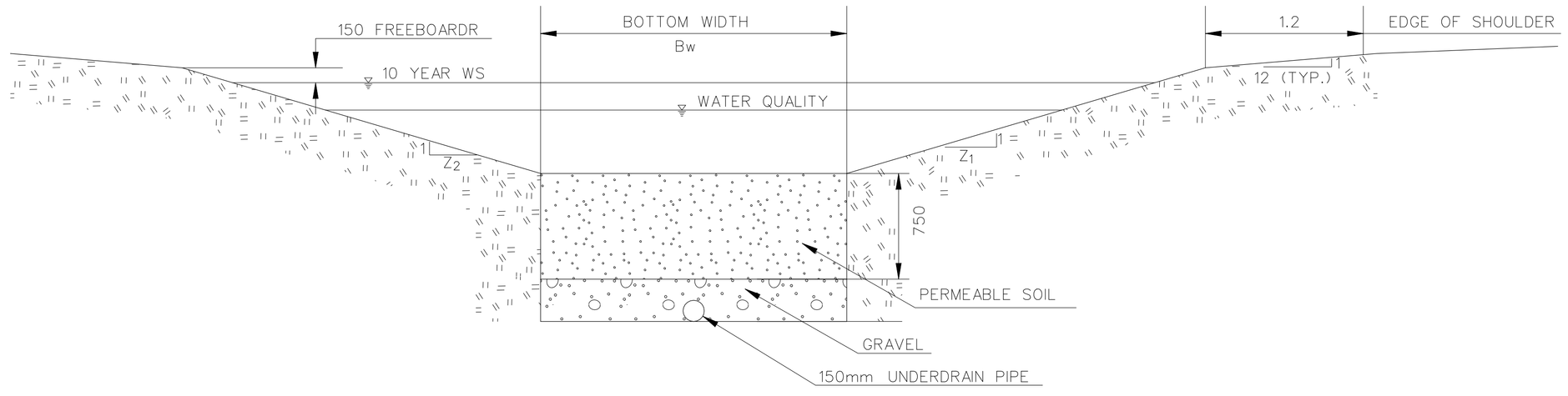
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-8
SHEET NO.:

WATER QUALITY SWALE DESIGN							
SWALE NUMBER	STATIONING BEGINNING	STATIONING END	Z_1	Z_2	Bw (m)	CHECK DAM HEIGHT (m)	CHACK DAM SPACING (m)
3	EB 3+420	EB 3+540	4.0	4.0	2.0	0.45	60
	EB 3+540	EB 3+660	4.0	4.0	2.0	0.45	40
	EB 3+660	EB 3+720	4.0	4.0	2.0	0.45	30
	EB 3+720	EB 4+040	4.0	4.0	2.0	0.45	160
7	SW7 10+070	SW7 10+104	2.0	2.0	2.0	0.45	17
	SW7 10+109	SW7 10+151	3.0	2.0	2.0	0.45	42
	SW7 10+151	SW7 10+251	3.0	2/3	2.0	0.45	33.33
	SW7 10+251	SW7 10+487	3.0	3.0	2.0	0.45	78
15	WB 2+440	WB 2+660	4.0	4.0	1.2	0.45	44
	WB 2+660	WB 2+740	4.0	4.0	1.2	0.45	27
16	PRE 50+020	PRE 50+120	4.0	4.0	1.2	0.45	50
	PRE 50+120	PRE 50+160	4.0	4.0	1.2	0.45	40



WATER QUALITY SWALE DETAIL
(NTS)

NOTE:

1. SEE DD-8 FOR SWALE TREATMENT

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\Swale table&details.dgn | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

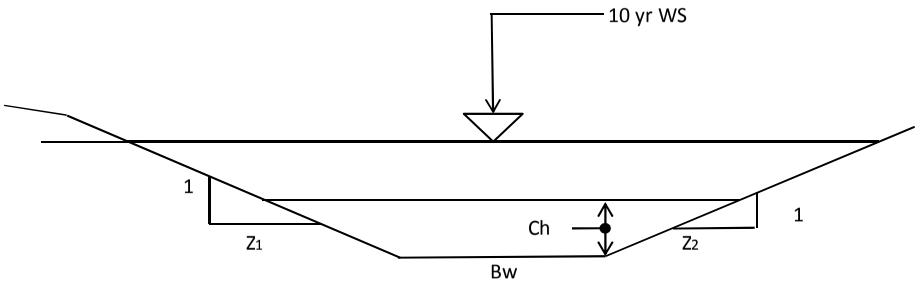
DRAWING TITLE: WATER QUALITY SWALE DETAIL

PROJECT NO.: 151-273
DRAWING NO.: DD-8A
SHEET NO.:

WATER QUALITY SWALE 3

Begin Station	End Station	Total Watershed Area [hectares]	Impervious Watershed Area [hectares]	Precipitation	For Slope (Z_1)	Back Slope (Z_2)	Check Dam Height (Ch)	Bottom Width (Bw)	Swale Slope
3+420	*3+540*	*0.918*	*0.200*	*25.44*	*4*	*4*	*0.45*	*2*	*1.21*
3+540	*3+660*	*0.795*	*0.236*	*25.44*	*4*	*4*	*0.45*	*2*	*1.21*
3+660	*3+720*	*0.656*	*0.119*	*25.44*	*4*	*4*	*0.45*	*2*	*1.21*
3+720	*4+040*	*0.464*	*0.247*	*25.44*	*4*	*4*	*0.45*	*2*	*1.21*

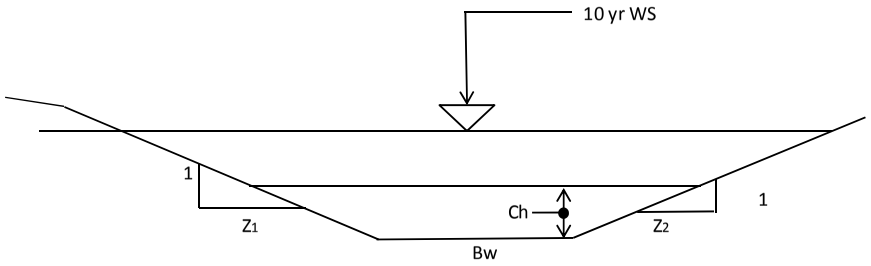
Impervious Cover "I" [%]	Volumetric Runoff Coefficient $R_v = 0.05 + 0.9\ (I)$	Water Quality Volume WQ_v [cm]	Length of Swale	Total Rise	Cross Sectional Area	Volume Retained/Check Dam	Minimum # Check Dams Required	Maximum Check Dam Spacing	Water Quality Volume Achieved
22%	0.25	**57.47**	120	1.45	1.71	32	2	60	63.60
30%	0.32	**64.15**	120	1.45	1.71	32	3	40	95.39
18%	0.21	**35.59**	60	0.73	1.71	32	2	30	63.60
53%	0.53	**62.46**	320	3.87	1.71	32	2	160	63.60



WATER QUALITY SWALE 7

Begin Station	End Station	Total Watershed Area [hectares]	Impervious Watershed Area [hectares]	Precipitation	For Slope (Z_1)	Back Slope (Z_2)	Check Dam Height (Ch)	Bottom Width (Bw)	Swale Slope
10+070	*10+104*	*1.175*	*0.437*	*25.44*	*2*	*2*	*0.45*	*2*	*0.5*
10+109	*10+151*	*0.656*	*0.386*	*25.44*	*3*	*2*	*0.45*	*2*	*0.29*
10+151	*10+251*	*1.927*	*0.891*	*25.44*	*3*	*2.5*	*0.45*	*2*	*0.29*
10+251	*10+487*	*1.848*	*0.171*	*25.44*	*3*	*3*	*0.45*	*2*	*1.59*

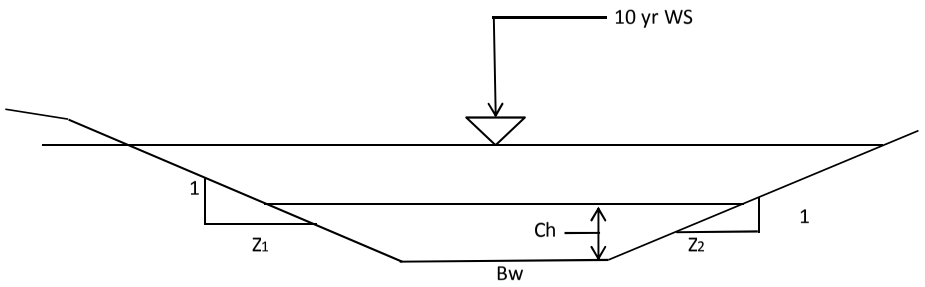
Impervious Cover "I" [%]	Volumetric Runoff Coefficient $R_v = 0.05 + 0.9\ (I)$	Water Quality Volume WQ_v [cm]	Length of Swale	Total Rise	Cross Sectional Area	Volume Retained/Check Dam	Minimum # Check Dams Required	Maximum Check Dam Spacing	Water Quality Volume Achieved
37%	0.38	**115.0**	34	0.17	1.31	59	2	17	117.5
59%	0.58	**96.7**	42	0.1218	1.41	109	1	42	109.1
46%	0.47	**228.5**	100	0.29	1.46	113	3	33	339.1
9%	0.13	**62.7**	236	3.7524	1.51	21	3	79	64.0



WATER QUALITY SWALE 15

Begin Station	End Station	Total Watershed Area [hectares]	Impervious Watershed Area [hectares]	Precipitation	For Slope (Z_1)	Back Slope (Z_2)	Check Dam Height (Ch)	Bottom Width (Bw)	Swale Slope
2+440	*2+660*	*1.0796*	*0.7062*	*25.44*	*4*	*4*	*0.45*	*1.2*	*0.838*
2+660	*2+740*	*0.3299*	*0.1970*	*25.44*	*4*	*4*	*0.45*	*1.2*	*1.289*

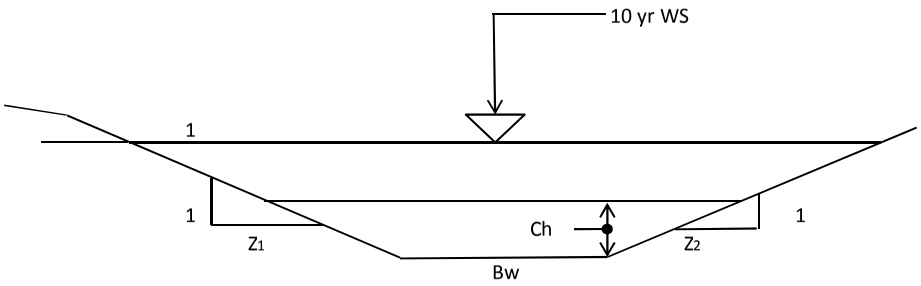
Impervious Cover "I" [%]	Volumetric Runoff Coefficient $R_v = 0.05 + 0.9\ (I)$	Water Quality Volume WQ_v [cm]	Length of Swale	Total Rise	Cross Sectional Area	Volume Retained/Check Dam	Minimum # Check Dams Required	Maximum Check Dam Spacing	Water Quality Volume Achieved
65%	0.64	**175.4**	220	1.8436	1.35	36	5	44	181.2
60%	0.59	**49.3**	80	1.0312	1.35	24	3	27	70.7



WATER QUALITY SWALE 16

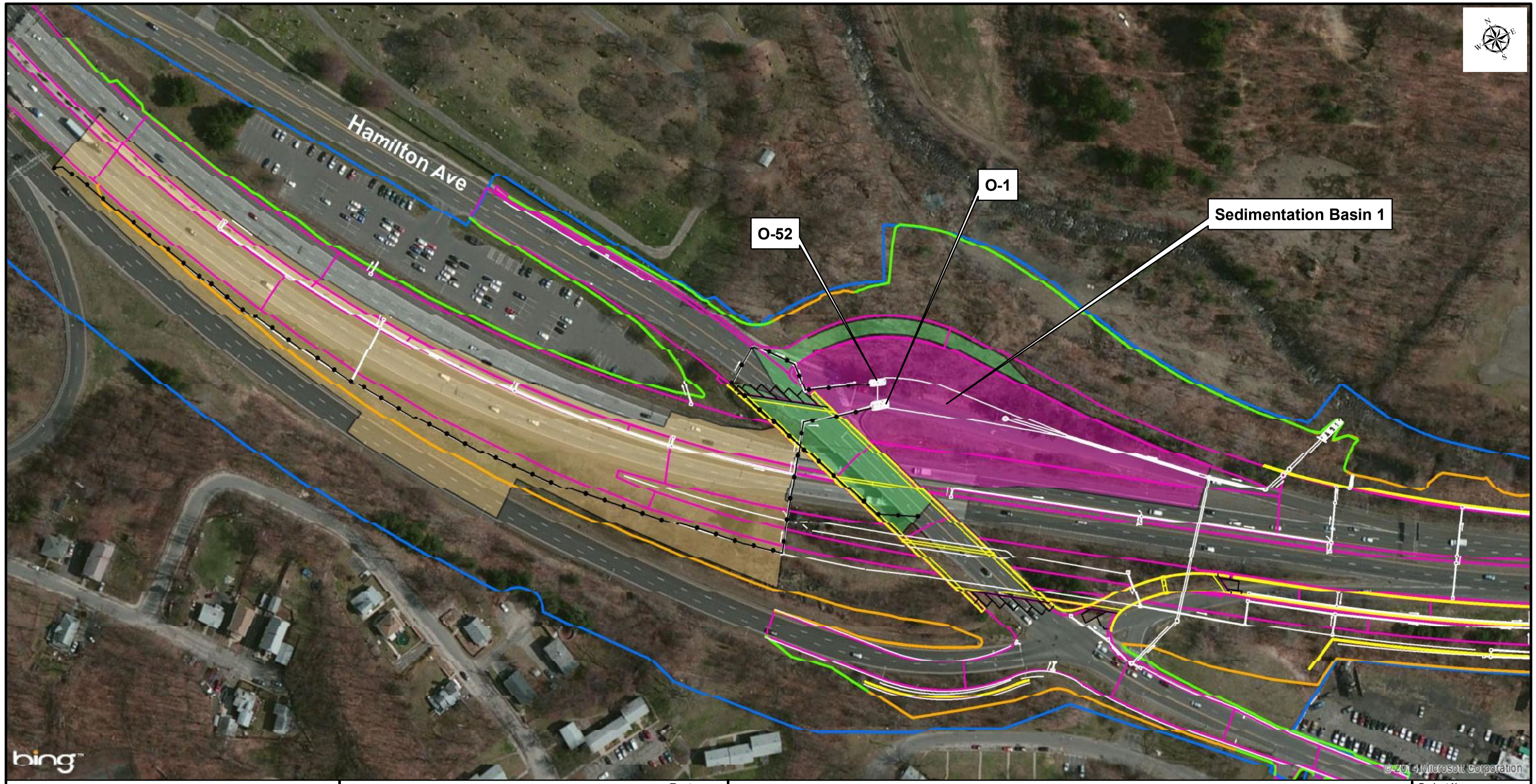
Begin Station	End Station	Total Watershed Area [hectares]	Impervious Watershed Area [hectares]	Precipitation	For Slope (Z_1)	Back Slope (Z_2)	Check Dam Height (Ch)	Bottom Width (Bw)	Swale Slope
50+020	*50+120*	*0.279*	*0.091*	*25.44*	*4*	*4*	*0.45*	*1.2*	*2.264*
50+120	*50+160*	*0.102*	*0.041*	*25.44*	*4*	*4*	*0.45*	*1.2*	*0.48*

Impervious Cover "I" [%]	Volumetric Runoff Coefficient $R_v = 0.05 + 0.9\ (I)$	Water Quality Volume WQ_v [cm]	Length of Swale	Total Rise	Cross Sectional Area	Volume Retained/Check Dam	Minimum # Check Dams Required	Maximum Check Dam Spacing	Water Quality Volume Achieved
33%	0.34	**24.3**	100	2.264	1.35	13	2	50	26.8
40%	0.41	**10.7**	40	0.192	1.35	63	1	40	63.3



Appendix B - Drainage Calculations
Sedimentation Basins No. 1 through 4

Appendix B - Drainage Calculations
Sedimentation Basins Drainage Areas



1 inch = 150 feet

150 75 0 150 300 Feet

Legend

- Highway Plan
- Project Area Limits
- O-1
- O-52
- Basin 1 Direct Inputs
- Proposed Drainage
- T_c O-1
- T_c O-52
- Proposed Structure Layout
- Fill Limit
- Cut Limit

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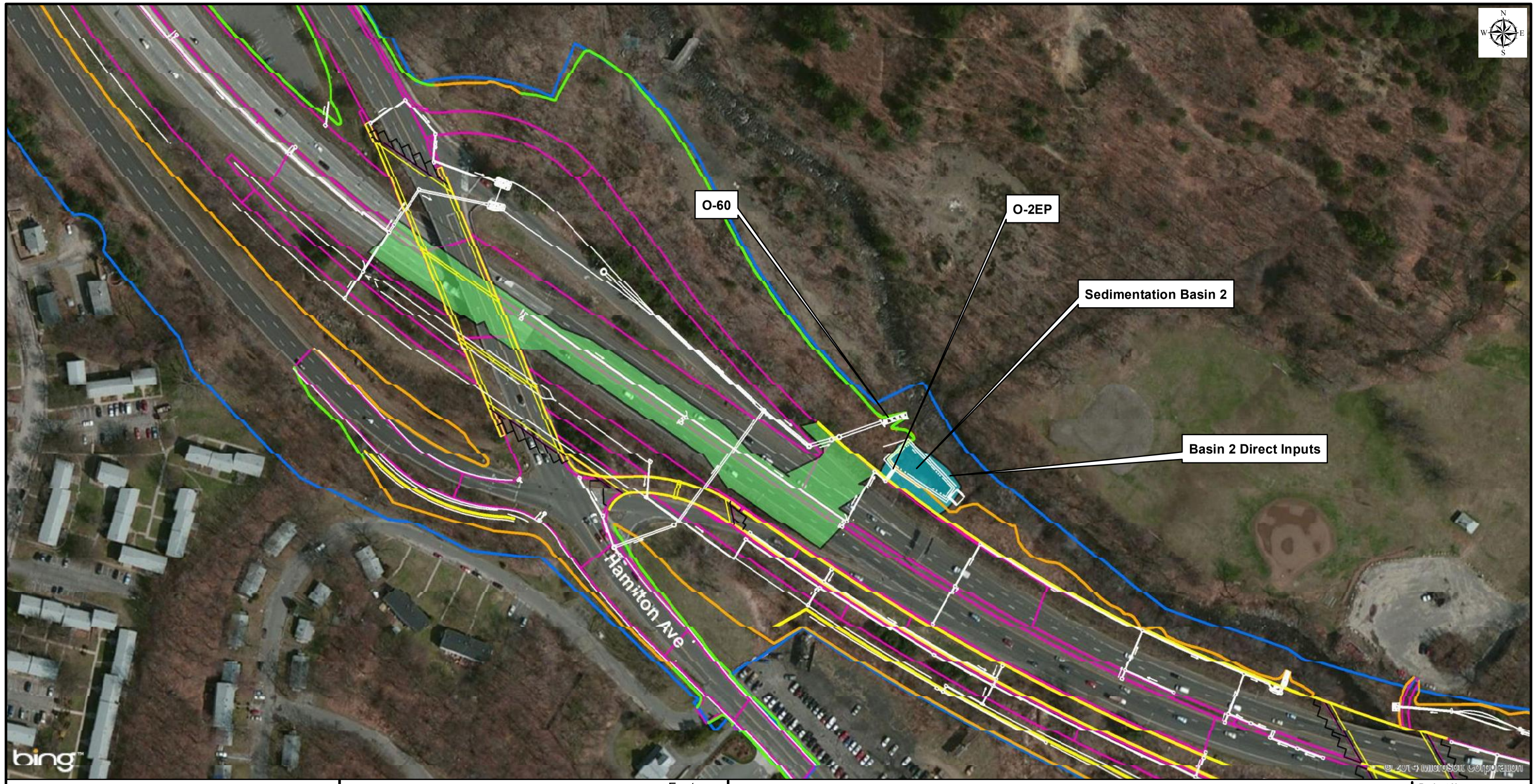
Basin 1 Catchment Map

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

GIS data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 12/01/2014
Figure No: 7



1 inch = 150 feet

150 75 0 150 300 Feet

Legend

- Highway Plan
- Project Area Limits
- O-2EP
- Basin 2 Direct Input
- Proposed Drainage
- Proposed Structure Layout
- Fill Limit
- Cut Limit

Basin 2 Catchment Map

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

GIS data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney.

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Project No: 15.0166290.00
Drawn by: KDC
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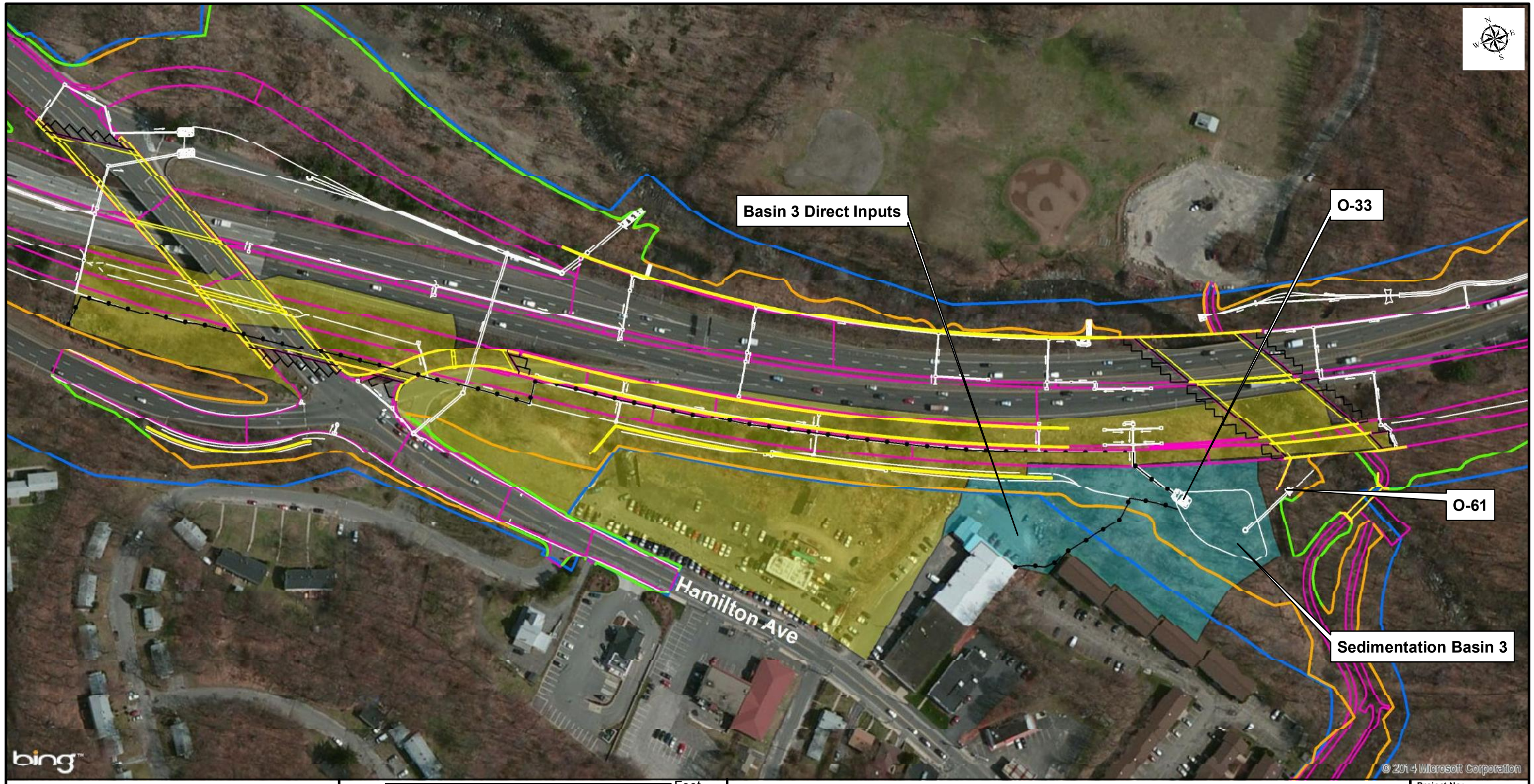
Date: 12/01/2014
Figure No: 7a



1 inch = 150 feet

150 75 0 150 300 Feet

Legend

- Highway Plan
- Project Area Limits
- Basin 3 Direct Inputs
- O-33
- Proposed Drainage
- T_c Basin 3 Direct
- T_c O-33
- Proposed Structure Layout
- Fill Limit
- Cut Limit

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Basin 3 Catchment Map

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

GIS Data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney.

Project No: 15.0166290.00
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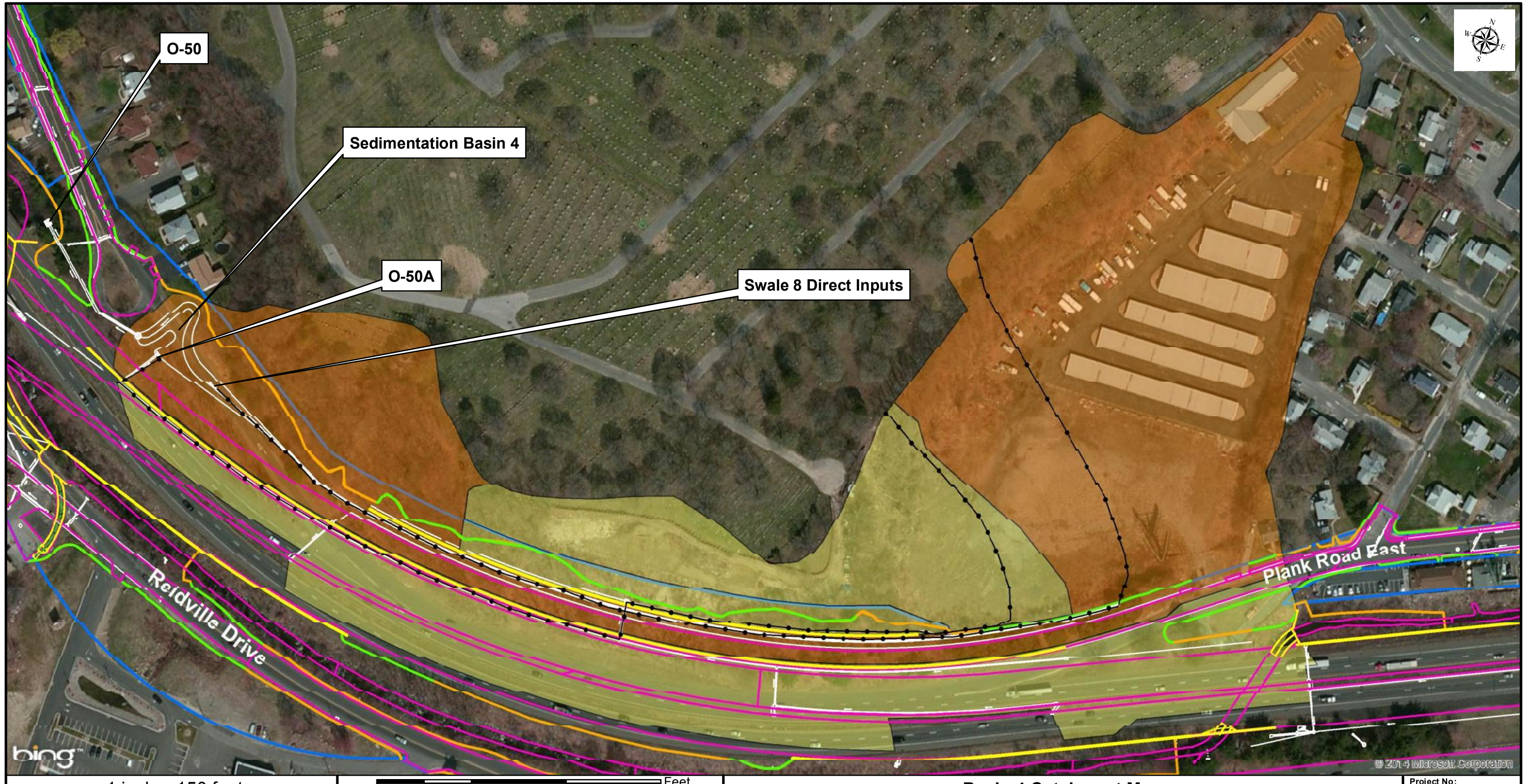
Checked by: JRB
Date: 12/01/2014
Figure No: 7b

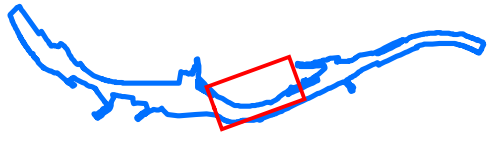


1 inch = 150 feet

Feet
150 75 0 150 300

Legend

- Highway Plan
- Project Area Limits
- Swale 8 Direct Input
- O-50A
- Proposed Drainage
- T_c O-50A
- T_c Swale 8 Direct
- Proposed Structure Layout
- Fill Limit
- Cut Limit



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Basin 4 Catchment Map

STORMWATER POLLUTION CONTROL PLAN
Reconstruction of I-84, Project No. 151-273
Waterbury, Connecticut

BASE MAP: 2014 BING MAPS

GIS data obtained from Connecticut Department of Energy and Environmental Protection. Highway realignment plans from Ammann & Whitney.

Project No: 15.0166290.00
Drawn by: KDC
Checked by: JRB
Date: 12/01/2014
Figure No: 7c

Appendix B - Drainage Calculations
Sedimentation Basins No. 1

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SHEET NO. 1 OF 2
CALCULATED BY JRB DATE 11/19/14
CHECKED BY RTS DATE 11/20/14
SCALE NTS

BASIN #1

BASIN #1

2 PIPED OUTFALLS (2 WATERSHEDS) + 1 OVERLAND DIRECT WATERSHED

AREAS/LAND USE:

OVERLAND FLOW DIRECT WATERSHED TO BASIN:
TOTAL AREA = 0.930 HA
IMPERVIOUS = 0.258 HA
PERVIOUS = 0.672 HA (GRASSED)
(HSG B ALL AREAS)

OUTFALL O-52: TOTAL AREA = 0.331 HA 100% PAVED (HSG B)

OUTFALL O-1: (ALL WITHIN PROJ LIMITS) TOTAL AREA = 2.06 HA (ALL HSG B)
IMPERVIOUS = 1.42 HA
PERVIOUS (GRASS) = 0.63 HA

Tc

DIRECT TO BASIN:
SHEET FLOW - DENSE GRASS 20 M (RTS) SLOPE = 0.25 M / 20 = 0.0125
SHALLOW CONC FLOW - UNPAVED 110 M SLOPE = 2.5/3 / 110 = 0.028 ✓

OUTFALL O-52: SHEET FLOW 20M ASSUME 2% CROSSPITCH (0.02)
SHALLOW CONC 93M ASSUME 3% SLOPE
DRAINAGE SYSTEM TO OUTFALL - ~~ASSUME 2 MIN Tc~~
RTS Assume 2 ft/s = 0.6 m/s
87 m x s/0.6m = 145 s = 2.4 min

OUTFALL O-1: (SWALE 1) USE INFO FROM A-6, A136 Tc CALCULATIONS
SHEET FLOW 5M DENSE GRASS @ S = 0.070
SHALLOW CONC 50M UNPAVED @ S = 0.005
CHANNEL TO P-6 INLET ⇒ A = 0.2 M² n = 0.030
P_W = 1.62 M L = 120 m
S = 0.015
CHANNEL TO P-136 ⇒ A = 0.23 m² S = 0.013 L = 225 m
P_W = 2.75 m n = 0.030

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SHEET NO. 2 OF 2
CALCULATED BY JRB DATE 11/19/14
CHECKED BY RTS DATE 11/20/14
SCALE NTS

BASIN 1

Tc 0-1 (CONT)

DRAINAGE SYSTEM ~~ASSUME 2 MIN~~ RTS (95M=L)

RTS: Assume 2 ft/s = 0.6 m/s

$$95\,m \times \frac{s}{0.6\,m} = 158\,s = 2.6\,min$$

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SHEET NO. 1 OF 3
CALCULATED BY RTS DATE 11/20/14
CHECKED BY _____ DATE _____
SCALE _____

Water Quality Volume (WQV)

Basin 1

Elev, bottom of basin 111.4 m
Invert, low level outlet 111.705 m

Depth of Storage in the basin = 111.705 − 111.4 = 0.305 m

From HydroCAD output - Storage @ 111.7 m = 269.6 m^3

WQV = 495 m^3 from calcs (JAH, 4/13/06)

269.6 / 495 = **54%** of WQV held in basin below low level outlet

From HydroCAD output: 1" Storm results in outflow = 0.000 m^3/s

BERGER, LEHMAN ASSOCIATES, P.C.

JOB 9912
SHEET NO. 1 OF 3
CALCULATED BY JAH DATE 4/13/06
CHECKED BY OB DATE 4/25/06
SCALE

Notes by Rosalie Starvish, GZA 11/7/14

FORBAY DESIGN - SED BASIN No. 1

TOTAL WATER QUALITY VOLUME = OUTFALL 1 & 52 + SHEET FLOW

TOTAL AREA TO SED 1
= 2.08 (OUTFALL 1)
0.27 (OUTFALL 2) 52?
0.76 (SHEET FLOW)
3.11 HA ✓

✓ ; Checked w/ math

TOTAL IMPERVIOUS AREA TO SED 1
= 19,900 m^2 = 1.99 HA ✓ (7.68 AC)

% IMPERVIOUS AREA
$I_\% = \frac{1.99\ HA}{3.11\ HA} = 64\%$ ✓

$$WQV = \frac{(25.44\ mm)(0.05 + 0.009(I_\%))(A)}{1000}$$

$$WQV = \frac{(25.44)(0.05 + 0.009(64))(3.11)}{1,000} = 0.0495\ HA\text{-}M$$
$$= 495\ m^3$$ ✓

FORBAY SIZE FOR WQV = $10\%\ WQV_{TOTAL}$
= $49.5\ m^3$
say $50\ m^3$ ✓

BERGER, LEHMAN ASSOCIATES, P.C.

JOB 9912
SHEET NO. 2 OF 3
CALCULATED BY JAH DATE 4/13/06
CHECKED BY OB DATE 4/25/06
SCALE

FORBAY DESIGN SED BASIN No. 1

TOTAL SEDIMENT STORAGE VOLUM

$$V = \frac{(DA)(A)(DR)(TE)(2000 LBS/TON)}{\gamma\ (43{,}560\ FT^2/AC)}$$

→ SEE CT GUIDELINES FOR E&S CONTROL Pg 5-11-6 & 5-11-7

DA = 7.68 AC (0.012 mi^2)
A = 1.0 TON/AC/YR
DR = 0.36 (FIGURE SB-12)
TE = 0.80
γ = SAY 90 (FIGURE SB-2)

$$V_{SED} = \frac{7.68 \times 1 \times 0.36 \times 0.8 \times 2000}{90 \times 43{,}560} = 0.0011\ AC\text{-}FT/YR$$ ✓

$V_{SED} = 1.4\ m^3/YR$ ✓

ASSUME 5YR MAINT. OF FORBAY

$V_{SED} = 1.4\ m^3 \times 5 = 7\ m^3$ ✓

SIZE OF FORBAY REQUIRED

$F_{BAY} = 10\%\ WQV + V_{SED} = 50 + 7 = 57\ m^3$

OK

Say $60\ m^3$

ACTUAL VOLUME = $190\ m^3 > 60\ m^3$ ∴ OK

E 3 OF 3

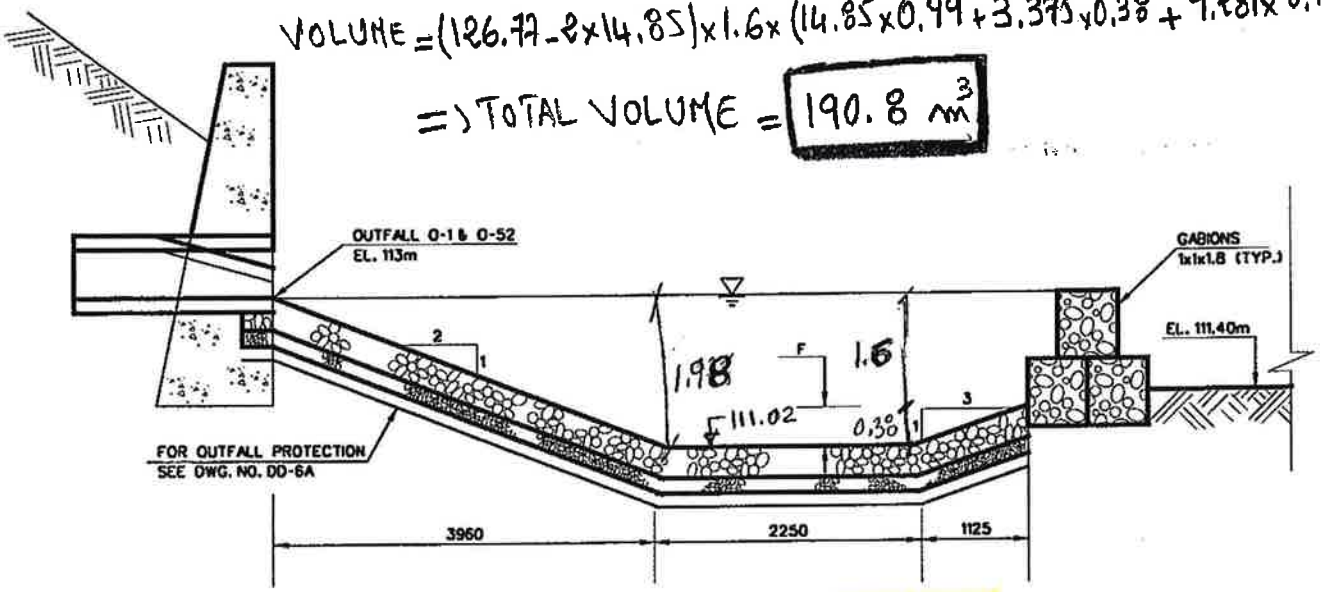
AREA OF 1:2 = 3.96 x 3.75 = 14.85 m² → DEPTH = 1.98/2 = 0.99 m

DEPRESSED AREA = 2.25 x 1.5 = 3.375 m² → DEPTH = 0.38 m

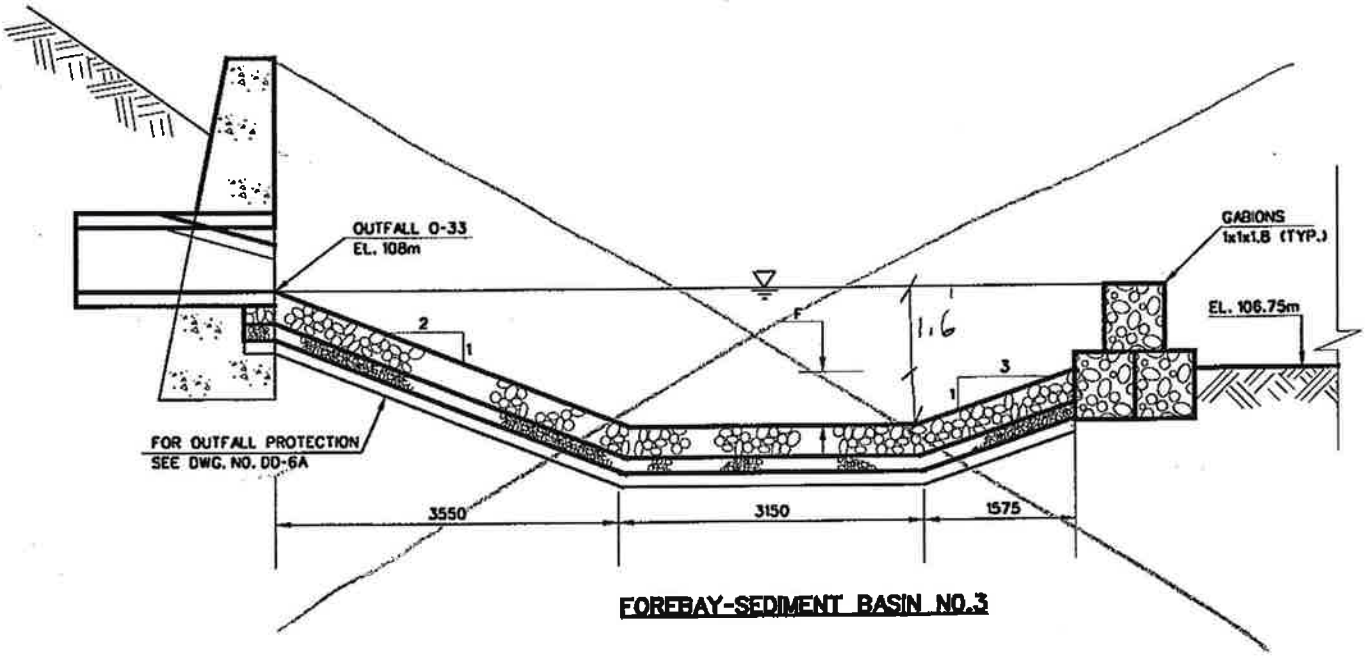
AREA OF 1:3 = 3.75 x 3.375 - 3.375 = 9.281 m² → DEPTH = 0.38/2 = 0.19 m

VOLUME = (126.77 - 8 x 14.85) x 1.6 x (14.85 x 0.99 + 3.375 x 0.38 + 9.281 x 0.19) X2

=> TOTAL VOLUME = 190.8 m³



FOREBAY-SEDIMENT BASIN NO.1



FOREBAY-SEDIMENT BASIN NO.3

NOTES:

1. SEE PROPOSED GRADING ON DRAWING NOS. SED-1 AND SED-3
2. SEE SPECIAL PROVISIONS

E OF CONNECTICUT IENT OF TRANSPORTATION OCIATES, P.C. DATE:	BERGER, LEHMAN ASSOCIATES, P.C.	PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY CADD FILE&REF# PLOTTED $DATE$	TOWN: WATERBURY DRAWING TITLE: SEDIMENTATION BASIN NO. 1 & 3	PROJECT NO.: 151-273 DRAWING NO.: SED-4 SHEET NO.:

Time of Concentration Worksheet

Project No.:	151-273, I-84, Waterbury	By:		Date:	
Location:	OUTFALL#1, A6	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: **metric units** ~~English units~~

	Sheet flow (Applicable to T_c only)		Segment ID					
			1-2					
1	Surface description (Table 6.C.1)		dense grasses					
2	Manning's roughness coeff., n (Table 6.C.1)		0.240	0.000				
3	Flow length, L (See Section 6.C.4)	m	5					
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	mm	83.8	83.8				
5	Land slope, s	m/m	0.070					
6	Travel Time, T_t (Equation 6.C.2)	h	0.03	+	0.00	=	0.03	

	Shallow concentrated flow		Segment ID					
			2-3					
7	Surface description (paved or unpaved)		unpaved					
8	Flow length, L	m	50					
9	Watercourse slope, s	m/m	0.005					
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	m/s	0.3	0.0				
11	Travel Time, T_t (Equation 6.C.3)	h	0.04	+	0.00	=	0.04	

	Channel flow		Segment ID					
			3-4					
12	Cross sectional flow area, a	m^2	0.2					
13	Wetted perimeter, p_w	m	1.62					
14	Hydraulic radius, $r=a/p_w$	m	0.12	0.00				
15	Channel slope, s	m/m	0.015					
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)		0.030					
17	Average velocity, v (Equation 6.C.6)	m/s	1.0	0.0				
18	Flow length, L	m	120					
19	Travel Time, T_t (Equation 6.C.3)	h	0.04	+	0.00	=	0.04	

Time of Concentration = 0.11 hours
= 7 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	151-273, I-84, Waterbury	By:		Date:	
Location:	OUTFALL#1,A136	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: **metric units** ~~English units~~

	Sheet flow (Applicable to T_c only)		Segment ID				
			1-2				
1	Surface description (Table 6.C.1)		smooth asphalt				
2	Manning's roughness coeff., n (Table 6.C.1)		0.011	0.000			
3	Flow length, L (See Section 6.C.4)	m	10				
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	mm	83.8	83.8			
5	Land slope, s	m/m	0.030				
6	Travel Time, T_t (Equation 6.C.2)	h	0.01	+ 0.00	=	0.01	

	Shallow concentrated flow		Segment ID				
			2-3				
7	Surface description (paved or unpaved)		unpaved				
8	Flow length, L	m	15				
9	Watercourse slope, s	m/m	0.150				
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	m/s	1.9	0.0			
11	Travel Time, T_t (Equation 6.C.3)	h	0.01	+ 0.00	=	0.01	

	Channel flow		Segment ID				
			3-4				
12	Cross sectional flow area, a	m^2	0.23				
13	Wetted perimeter, p_w	m	2.75				
14	Hydraulic radius, $r=a/p_w$	m	0.08	0.00			
15	Channel slope, s	m/m	0.013				
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)		0.030				
17	Average velocity, v (Equation 6.C.6)	m/s	0.7	0.0			
18	Flow length, L	m	120				
19	Travel Time, T_t (Equation 6.C.3)	h	0.05	+ 0.00	=	0.05	

Time of Concentration = 0.07 hours
= 4 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Appendix B - Drainage Calculations
Sedimentation Basins No. 3

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SHEET NO. 1 OF 2
CALCULATED BY JRB DATE 11/19/14
CHECKED BY RTS DATE 11/20/14
SCALE NTS

BASIN 3

BASIN 3:

2 INPUT WATERSHEDS:
1) VIA SWALE #1 AND OUTFALL O-33
2) OVERLAND DIRECT TO BASIN

→ WATERSHED 1 (O-33) - (WITHIN PROJ LIMITS)
TOTAL AREA = 23633.55 M² (2.363 HA)
IMPERVIOUS (PROP) = 13183.14 M² (1.318 HA)
PERVIOUS (PROP) = 10450.41 M² (1.045 HA)
↑ GRASSED

→ WATERSHED 1 (O-33) (OUTSIDE PROJ LIMITS)
TOTAL AREA = 0.974 HA
ALL COMMERCIAL LAND USE

→ OVERLAND WATERSHED (INSIDE PROJ LIMITS)
TOTAL AREA = 0.561 HA
BASIN AREA (TO DEAD STORAGE) APPROX 0.1036 HA
REMANDER (GRASS) = 0.4574 HA

→ OVERLAND WATERSHED (OUTSIDE PROJ LIMITS)
TOTAL AREA = 0.280 HA
0.130 HA WOODED/GRASS COMBO
0.150 HA COMMERCIAL

→ SOILS - ALL HSG B ACC TO WEB SOIL SURVEY

Tc CALCS - USED GIS TO SET PATH/MEASURE/VIEW LAND USE

FOR O-33, SHEET FLOW TO SWALE #1, FOLLOW SWALE #1 TO INLET P137, FOLLOW PIPED SYSTEM TO OUTFALL

SHEET FLOW 17 M SLOPE = 8.5 M / 17 M RUN = 0.5
SWALE FLOW - USED SWALE 1 INFO AREA (XSECT) = 0.21 M²
WETTED PERIM = 2.49 M
SLOPE = 0.012
MANNING = 0.03
LENGTH = 173 M
DRAINAGE SYSTEM ~~Tc = 5 MIN~~ DIRECT ENTRY (RTS)

[RTS Assume 0.6 m/s for ~380 m : t_c = 10.6 min]

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BASIN 3

TC CALCS -

FOR DIRECT FLOW TO BASIN:

SHEET FLOW: 20M @ 4/20 m/m SLOPE

SHALLOW CONC.: UNPAVED, 2 SEGMENTS

$L_1 = 23M$ $L_2 = 26M$

$S_1 = 6.4/23$ m/m $S_2 = 2/26$ m/m

CHANNEL FLOW: NO INFO ON DIM,

ASSUMED 2FPS (0.6M/S) VELOCITY

LENGTH = 25M

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JOB 15.0166290 I-84 Waterbury
SHEET NO. 2 OF 3
CALCULATED BY RTS DATE 11/20/14
CHECKED BY _____ DATE _____
SCALE _____

Basin 3

Elev, bottom of basin 106.75 m
Invert, low level outlet 107.05 m

Depth of Storage in the basin = 107.05 - 106.75 = 0.3 m

From HydroCAD output - Storage @ 107.05 = 305.2 m^3

305.2 / 336.7 = **91.%** of WQV held in basin below low level outlet

From HydroCAD output: 1" storm results in outflow = 0.000 m^3/s

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

A = Site area in acres = Drainage area inside project limits
= 2.363 HA + 0.561 HA = 2.924 HA = 7.2 ac

I = % Impervious Cover
I area = 1.318 HA

$I = \frac{1.318}{2.924} = 45\%$

$WQV = (1")(0.05 + 0.009 \times 45)(7.2)/12 = 0.273$ ac.ft
$= 336.7\ m^3$

reasonably similar to previous calc by JAH, 4/13/06

BERGER, LEHMAN ASSOCIATES, P.C.

Notes by Rosalie Starvish, GZA 1/20/14

JOB 9912

SHEET NO. 1 OF 3

CALCULATED BY JAH DATE 4/13/06

CHECKED BY OB DATE 4/25/06

SCALE

FORBAY DESIGN - SED BASIN No. 3

TOTAL WATER QUALITY VOLUME = OUTFALL 33 + SHEET FLOW + SEDIMENT LOADING

TOTAL AREA TO SED #3 A = 41,700 m^2
- 1,175 m^2 (STR 1)
- 230 m^2 (STR 2)

40,295 m^2 = 4.03 HA

TOTAL IMPERVIOUS AREA I_{TOTAL} = 11,775 m^2 = 1.18 HA

% IMPERVIOUS AREA $I_\%$ = $\frac{1.18\ HA}{4.03\ HA} \times 100 = 29.3$ = say 30%

$$WQV = \frac{(25.4\ mm)(0.05 + 0.009(I_\%))(A)}{1,000}$$

$$WQV = \frac{(25.4)(0.05 + 0.009(30))(4.03\ HA)}{1000} = 0.0328\ HA\text{-}M$$

= 328 m^3

say 330 m^3

FOREBAY SIZE FOR WQV = 10% WQV

= 33 m^3

say 35 m^3

BERGER, LEHMAN ASSOCIATES, P.C.

JOB 9912
SHEET NO. 2 OF 3
CALCULATED BY JAH DATE
CHECKED BY OB DATE 4/25/06
SCALE

FORBAY DESIGN SED BASIN No. 3

TOTAL SEDIMENT STORAGE VOLUME

$$V = \frac{(DA)(A)(DR)(TE)(2,000\ LBS/TON)}{\gamma\ (43,560\ FT^2/AC)}$$

- SEE CT GUIDELINES FOR EROSION & SED CONTROL PG 5-11-6 & 5-11-7

DA = 9.96 AC (0.015 mi^2)
A = 1.0 TON/AC/YR
DR = 0.35 (FIGURE SB-12)
TE = 0.80
γ = 94.90 (FIGURE SB-2)

$$V = \frac{9.96 \times 1.0 \times 0.35 \times 0.8 \times 2000}{90 \times 43,560} = 0.0014\ AC\text{-}FT/YR$$

$$= 1.8\ m^3/YR$$

ASSUME 5 YEAR MAINT. OF SED BASIN

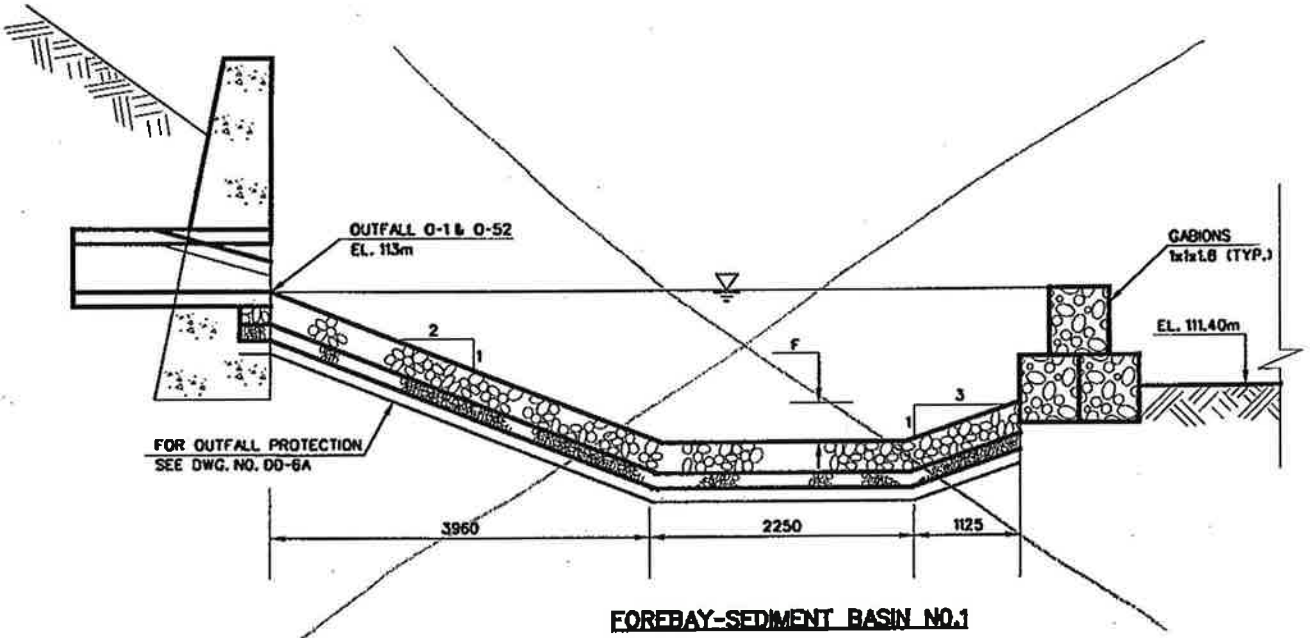
$$V_{TOTAL\ SED} = 1.8\ m^3/YR \times 5\ YRS = 9\ m^3$$

say $10\ m^3$

SIZE FORBAY = 10% WQV + V_{SED}

$= 35 m^3 + 10 m^3 = 45 m^3$

ACTUAL VOLUME = $147 m^3$ > $45 m^3$ ∴ OK



FOREBAY-SEDIMENT BASIN NO.1

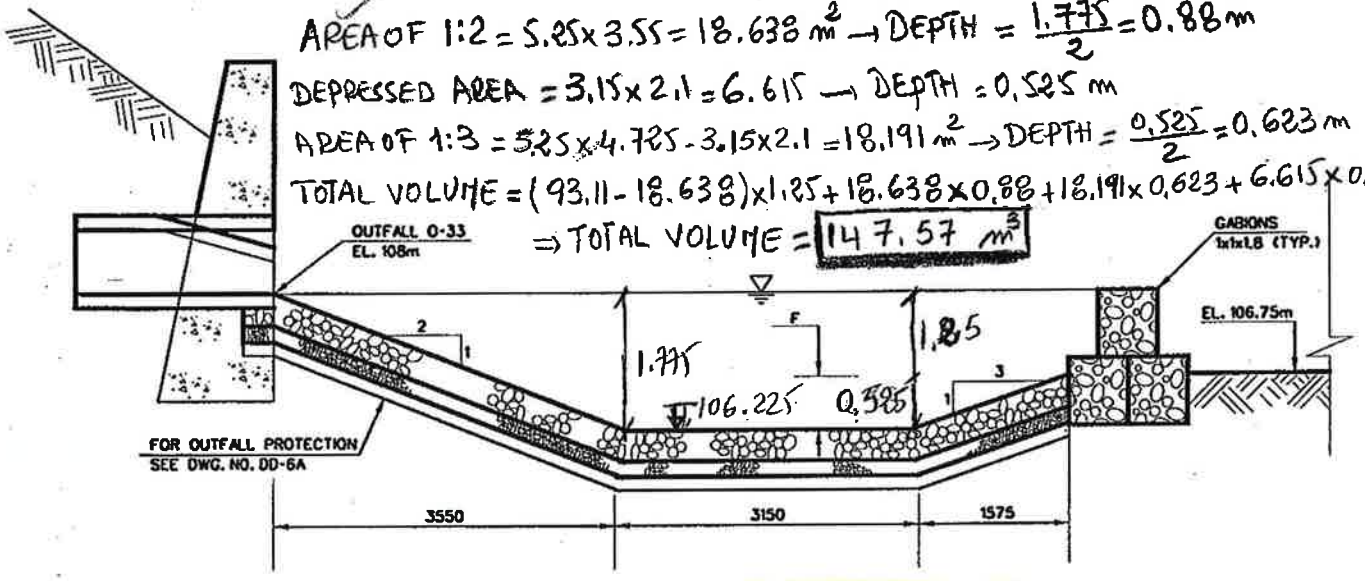
AREA OF 1:2 = 5.25 x 3.55 = 18.638 m² → DEPTH = $\frac{1.775}{2}$ = 0.88 m

DEPRESSED AREA = 3.15 x 2.1 = 6.615 → DEPTH = 0.525 m

AREA OF 1:3 = 5.25 x 4.725 - 3.15 x 2.1 = 18.191 m² → DEPTH = $\frac{0.525}{2}$ = 0.623 m

TOTAL VOLUME = (93.11 - 18.638) x 1.25 + 18.638 x 0.88 + 18.191 x 0.623 + 6.615 x 0.525

⇒ TOTAL VOLUME = 147.57 m³



FOREBAY-SEDIMENT BASIN NO.3

NOTES:

1. SEE PROPOSED GRADING ON DRAWING NOS. SED-1 AND SED-3
2. SEE SPECIAL PROVISIONS

E OF CONNECTICUT IENT OF TRANSPORTATION OCIATES, P.C. DATE:	BERGER LEHMAN ASSOCIATES, P.C.	PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY CADD $FILEASREV$ PLOTTED $DATE$	TOWN: WATERBURY DRAWING TITLE: SEDIMENTATION BASIN NO. 1 & 3	PROJECT NO.: 151-273 DRAWING NO.: SED-4 SHEET NO.:

Time of Concentration Worksheet

Project No.:	151-273, I-84, Waterbury	By:		Date:	
Location:	OUTFALL 33, A137	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: **metric units** ~~English units~~

Sheet flow (Applicable to T_c only)		Segment ID						
1	Surface description (Table 6.C.1)							
2	Manning's roughness coeff., n (Table 6.C.1)		0.000		0.000			
3	Flow length, L (See Section 6.C.4)	m						
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	mm	83.8		83.8			
5	Land slope, s	m/m						
6	Travel Time, T_t (Equation 6.C.2)	h	0.00	+	0.00	=	0.00	
Shallow concentrated flow		Segment ID						
7	Surface description (paved or unpaved)							
8	Flow length, L	m						
9	Watercourse slope, s	m/m						
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	m/s	0.0		0.0			
11	Travel Time, T_t (Equation 6.C.3)	h	0.00	+	0.00	=	0.00	
Channel flow		Segment ID	1-2					
12	Cross sectional flow area, a	m^2	0.21					
13	Wetted perimeter, p_w	m	2.49					
14	Hydraulic radius, $r=a/p_w$	m	0.08		0.00			
15	Channel slope, s	m/m	0.012					
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)		0.030					
17	Average velocity, v (Equation 6.C.6)	m/s	0.7		0.0			
18	Flow length, L	m	173					
19	Travel Time, T_t (Equation 6.C.3)	h	0.07	+	0.00	=	0.07	

Time of Concentration = 0.07 hours
= 4 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Appendix B - Drainage Calculations
Sedimentation Basins No. 4

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JOB 15.0166290 I-84 Waterbury
SHEET NO. 1 OF 2
CALCULATED BY JRB DATE 11/19/14
CHECKED BY RTS DATE 11/20/14
SCALE NTS

BASIN 4

BASIN 4 –

WATERSHED SOA WITHIN PROJ AREA:
TOTAL = 2.577 HA
IMPERVIOUS = 1.868 HA HSG B
PERVIOUS = 0.709 HA HSG B

WATERSHED SOA OUTSIDE PROJ AREA: 6.234 HA LAND USE – OPEN LAND HSG B

SWALE WATERSHED: TOTAL AREA = 5.731 HA
IMP AREA IN PROJ AREA = 0.453 HA HSG B
CEMETARY = 0.553 HA ↓ B
COMMERCIAL = 2.363 HA ↓ B
OPEN LAND = 1.092 HA HSG C
GRASSED/TURF = REMAINDER = 1.270 HA ↓ A
↑ assumes swale + basin are grassed

TC ESTIMATES
SOA: SHEET FLOW ~~30~~ 20 M ✓ OVER POORLY GRASSED AREA
SLOPE = ~~14~~ 11 M / 30 M = ~~0.47~~ 0.55 (20)

SHALLOW CONC FLOW ~~100~~ 110 M ✓ UNPAVED SLOPE = ~~3~~ 6 M / ~~100~~ 110 M = ~~0.03~~ 0.05

SWALE FLOW 180M

Irregular channel
USE SWALE INFO AVAIL. FROM A220 calcs.

Drainage System Approx. 315 m @ 0.6 m/s = 8.8 min

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JOB 15.0166290 I-84 Waterbury
SHEET NO. 2 OF 2
CALCULATED BY JRB DATE 11/19/14
CHECKED BY RTS DATE 11/20/14
SCALE NTS

BASIN 4
SWALE 8 TC

SHEET FLOW - 25 M WITH SLOPE = 4.25M/25M = 0.17

SHALLOW CONC. FLOW - 35 M S = 13M/35M = 0.37

SHALLOW CONC FLOW - 135M S = 4M/135M = 0.030

CHANNEL FLOW (SWALE 8) - 440M TOTAL
2 SEGMENTS PER PRIOR TC CALCS
AND SWALE INFO

DIRECTLY ENTERED DATA

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JOB 15.0166290 I-84 Waterbury
SHEET NO. 3 OF 3
CALCULATED BY RTS DATE 11/20/14
CHECKED BY _____ DATE _____
SCALE _____

Basin 4

Elev, bottom of basin 117.5 m
Invert, low level outlet 117.805 m

Depth of storage in the basin = 117.805 - 117.5 = 0.305 m

From HydroCAD output, storage @ 117.800 = 201.8 m^3

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

A = site area in acres = Drainage area inside project limits
= 2.577 HA + 1.36 HA = 3.937 HA = 9.73 ac

I = percent impervious cover

I. area = 1.868 HA + 0.453 HA = 2.321 HA

$I = \frac{2.321}{3.937} = 59\%$

WQV = (1") (0.05 + 0.009 × 59) 9.73/12 = 0.47 ac.ft
= 581 m^3

201.8 / 581 = **35%** of WQV held in basin below low level outlet

From HydroCAD output: 1" storm results in outflow = 0.0004 m^3/s

Avg. detention time
= 1697 min
= 28 hrs.

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JOB 15.0166290 1-84
SHEET NO. 1 OF 1
CALCULATED BY RTS DATE 11/14/14
CHECKED BY _____ DATE _____
SCALE _____

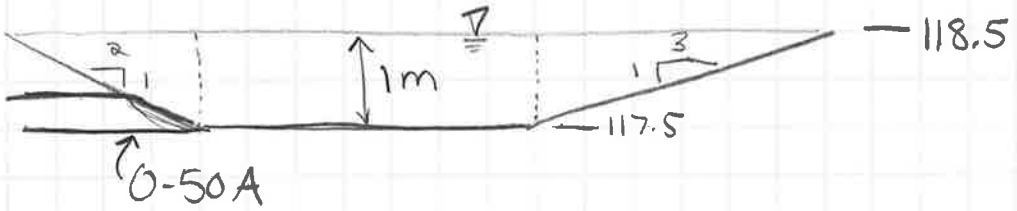
Sediment Basin No. 4 - Required Forebay Volume

WQV = 581 m^3 (see calculations RTS, 11/13/14)

Forebay size for WQV = 10% WQV_{TOTAL}

= 58.1 m^3

Depth of Forebay = 1 m



Conservative estimate: Floor Area of forebay = $\frac{58.1}{1}$

= 58.1 m^2

Time of Concentration Worksheet

Project No.:	151-273, I-84, Waterbury	By:		Date:	
Location:	OUTFALL#50A, A220.	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: **metric units** ~~English units~~

	Sheet flow (Applicable to T_c only)		Segment ID	1-2			
1	Surface description (Table 6.C.1)			light underbrush			
2	Manning's roughness coeff., n (Table 6.C.1)			0.400	0.000		
3	Flow length, L	m		15			
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	mm		83.8	83.8		
5	Land slope, s	m/m		0.080			
6	Travel Time, T_t (Equation 6.C.2)	h		0.11	+ 0.00	=	0.11

	Shallow concentrated flow		Segment ID	2-3	3-4		
7	Surface description (paved or unpaved)			unpaved	unpaved		
8	Flow length, L	m		45	15		
9	Watercourse slope, s	m/m		0.120	0.470		
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	m/s		1.7	3.4		
11	Travel Time, T_t (Equation 6.C.3)	h		0.01	+ 0.01	=	0.02

	Channel flow		Segment ID	4-5			
12	Cross sectional flow area, a	m^2		0.36			
13	Wetted perimeter, p_w	m		2.4			
14	Hydraulic radius, $r=a/p_w$	m		0.15	0.00		
15	Channel slope, s	m/m		0.070			
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)			0.030			
17	Average velocity, v (Equation 6.C.6)	m/s		2.5	0.0		
18	Flow length, L	m		53			
19	Travel Time, T_t (Equation 6.C.3)	h		0.01	+ 0.00	=	0.01

Time of Concentration = 0.14 hours
= 8 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Appendix B - Drainage Calculations
Hydrodynamic Separators

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 5

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS (FORM A - DESIGN) - Site No. 1 - Outfall No. 5

Project No	*151-273*	Route No.	*I-84 WB*	Prepared By:	*tjb*	Date:	*June 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 5*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*1.530*
Percent Impervious Area %	*100%*
Time of Concentration (min.)	*10*
Drainage Design Flow (**cms**)	*0.540*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.111*

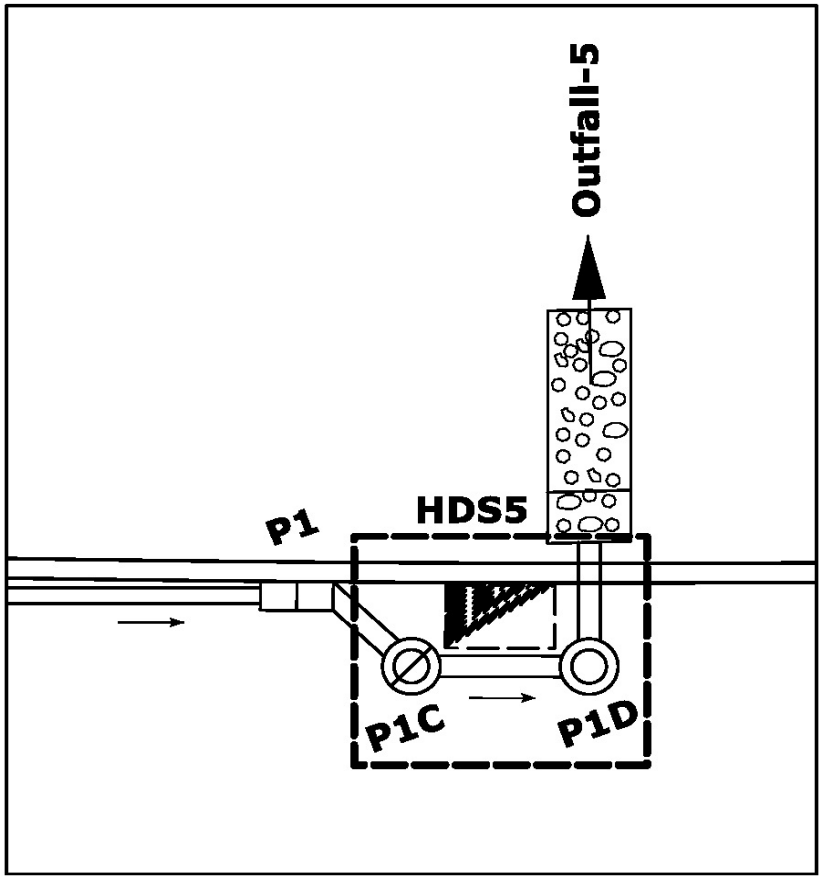
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*282,408.3*	Horiz.	*NAD 83*
Y:	*230,962.0*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*1.445*	@ WQF	*108.601*
		@ Design Q	*108.837*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.278*

Comments:

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,630*	*mm*
Weir and/or Bypass Elev.	*108.683*		
Weir Length **(m)**	*1.220*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*108.657*	To HS	*0.160*
@ Design Q	*108.980*	Bypassing HS	*0.380*



Sketch (NTS) - Indicate Pay limits

Comments:

Outfall No. 5 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 1 - Outfall No. 5

Project No:	*151-273*	**Location/Station:**	*Outfall No. 5 - I-84 WB 1+762 L*	**Date:**	*June 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT-P1D	Outfall	600	0.111	107.373	106.773	106.990	0.217	0.074	107.064	3.5	0.033	0.114	107.178	0.074	107.104	0.217	106.887	111.260	P1D	0.150	0.011
P1D-HDS5	P1D	300	0.111	111.260	108.031	108.288	0.257	0.151	108.439	2.8	0.018	0.049	108.488	0.151	108.338	0.258	108.080	111.203	HDS5	1.750	0.264
HDS5-P1C	HDS5	300	0.111	111.203	108.080	108.601	0.300	0.126	108.727	2.8	0.013	0.037	108.764	0.126	108.638	0.300	108.128	111.145	P1C	0.150	0.019
P1C-P1	P1C					108.657															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT-P1D	Outfall	600	0.540	107.373	106.773	107.252	0.479	0.254	107.506	3.5	0.033	0.114	107.620	0.254	107.366	0.479	106.887	111.260	P1D	0.150	0.038
P1D-HDS5	P1D	300	0.160	111.260	108.031	108.317	0.286	0.271	108.588	2.8	0.025	0.071	108.659	0.261	108.398	0.300	108.080	111.203	HDS5	1.750	0.457
HDS5-P1C	HDS5	300	0.160	111.203	108.080	108.855	0.300	0.262	109.117	2.8	0.027	0.077	109.194	0.261	108.932	0.300	108.128	111.145	P1C	0.150	0.039
P1C-P1	P1C	600	0.540	111.145	108.128	108.971	0.600	0.186	109.158	3.7	0.008	0.028	109.186	0.186	109.000	0.600	108.203	111.143	P1	0.150	0.028
P1-P1A	P1	600	0.440	111.143	108.203	109.028	0.600	0.124	109.152	11.4	0.005	0.058	109.210	0.124	109.087	0.600	108.317	111.150	P1A		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT-P1D	Outfall	600	0.540	107.373	106.773	107.252	0.479	0.254	107.506	3.5	0.033	0.114	107.620	0.254	107.366	0.479	106.887	111.260	P1D	0.150	0.038
P1D-P1C	P1D	600	0.380	111.260	108.031	108.310	0.279								108.719	0.591	108.128	111.145	P1C		

Outfall No. 5 Form A: Sheet 2 of 2

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 19

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS (FORM A - DESIGN) - Site No. 3 - Outfall No. 19

Project No	*151-273*	Route No.	*I-84 WB*	Prepared By:	*tjb*	Date:	*June 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 19*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*2.390*
Percent Impervious Area %	*77%*
Time of Concentration (min.)	*12.7*
Drainage Design Flow (**cms**)	*0.900*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.127*

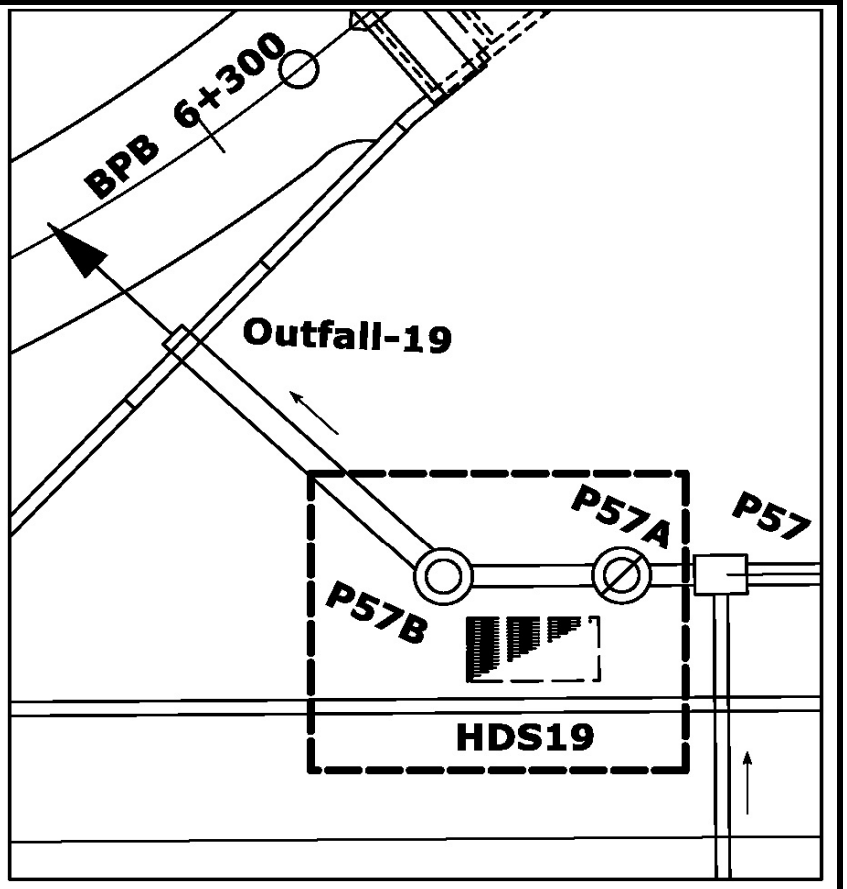
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*284,248.3*	Horiz.	*NAD 83*
Y:	*230,961.5*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*1.748*	@ WQF	*132.614*
		@ Design Q	*132.850*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.317*

Comments:

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,830*	*mm*
Weir and/or Bypass Elev.	*132.680*		
Weir Length **(m)**	*1.220*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*132.654*	To HS	*0.200*
@ Design Q	*133.115*	Bypassing HS	*0.700*



Sketch (NTS) - Indicate Pay limits

Comments:

Outfall No. 19 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 3 - Outfall No. 19

Project No:	*151-273*	**Location/Station:**	*Outfall No. 19 - I-84 WB 3+690 L*	**Date:**	*June 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT- P57B	Outfall	900	0.127	131.980	131.080	131.637	0.557	0.005	131.642	10.2	0.076	0.773	132.415	0.065	132.349	0.209**	132.140	134.800	P57B	0.750	0.049
P57B-HDS19	P57B	450	0.127	134.800	132.140	132.398	0.258	0.092	132.491	3.2	0.015	0.048	132.539	0.1	132.439	0.250**	132.189	134.825	HDS19	1.750	0.174
HDS19-P57A	HDS19	450	0.127	134.825	132.189	132.614	0.425	0.034	132.648	3.2	0.002	0.006	132.654	0.041	132.613	0.376	132.237	134.850	P57A	1.000	0.041
P57A-P57	P57A					132.654															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT- P57B	Outfall	900	0.900	131.980	131.080	131.637	0.557	0.242	131.879	10.2	0.104	1.060	132.939	0.242	132.697	0.557	132.140	134.800	P57B	0.750	0.182
P57B-HDS19	P57B	450	0.200	134.800	132.140	132.878	0.450	0.081	132.959	3.2	0.005	0.016	132.975	0.081	132.894	0.450	132.189	134.825	HDS19	1.750	0.141
HDS19-P57A	HDS19	450	0.200	134.825	132.189	133.035	0.450	0.081	133.116	3.2	0.005	0.016	133.132	0.081	133.051	0.450	132.237	134.850	P57A	1.000	0.081
P57A-P57	P57A	900	0.900	134.850	132.237	133.132	0.895	0.102	133.234	2.8	0.002	0.006	133.240	0.11	133.132	0.839	132.293	134.539	P57	1.000	0.108
P57-P53	P57	750	0.720	134.539	132.443	133.240	0.750	0.136	133.376	86.4	0.013	1.131	134.507	0.245	134.261	0.522	133.739	135.691	P53		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT- P57B	Outfall	900	0.900	131.980	131.080	131.637	0.557	0.242	131.879	10.2	0.104	1.060	132.939	0.242	132.697	0.557	132.140	134.800	P57B	0.750	0.182
P57B-P57A	P57B	900	0.700	134.800	132.140	132.878	0.738								132.850	0.613	132.237	134.850	P57A		

Outfall No. 19 Form A: Sheet 2 of 2

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 21

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS (FORM A - DESIGN) - Site No. 4 - Outfall No. 21

Project No	*151-273*	Route No.	*I-84 WB 25 Off*	Prepared By:	*tjb*	Date:	*June 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 21*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*1.150*
Percent Impervious Area %	*100%*
Time of Concentration (min.)	*11.4*
Drainage Design Flow (**cms**)	*0.420*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.084*

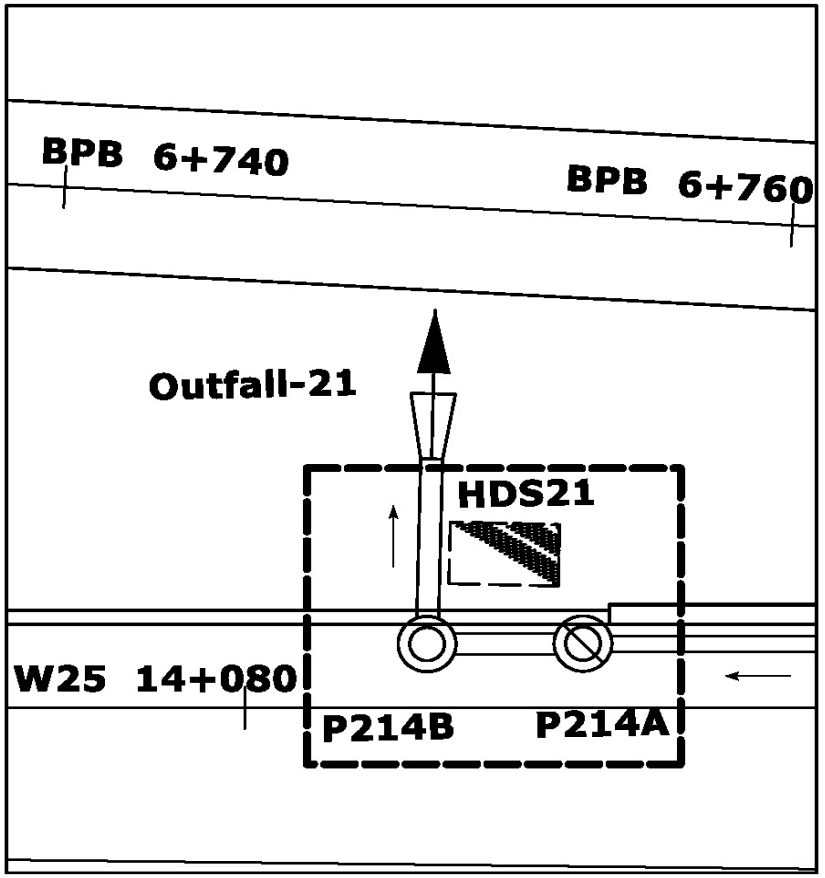
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*284,603.4*	Horiz.	*NAD 83*
Y:	*231,142.2*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*1.086*	@ WQF	*137.882*
		@ Design Q	*138.099*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.210*

Comments:

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,830*	*mm*
Weir and/or Bypass Elev.	*137.945*		
Weir Length **(m)**	*0.915*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*137.919*	To HS	*0.150*
@ Design Q	*138.240*	Bypassing HS	*0.270*



Sketch (NTS) - Dashed Line Indicates Pay limits

Comments:

Outfall No. 21 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 4 - Outfall No. 21

Project No:	*151-273*	**Location/Station:**	*Outfall No. 21 - WB 25 Off 14+087 L*	**Date:**	*June 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT-P214B	Outfall	750	0.084	138.090	137.340	137.817	0.477	0.004	137.821	5.3	0.000	0.001	137.822	0.005	137.818	0.451	137.367	139.200	P214B	1.000	0.005
P514B-HDS21	P214B	375	0.084	139.200	137.367	137.822	0.375	0.03	137.852	3.4	0.002	0.008	137.860	0.03	137.830	0.375	137.384	139.215	HDS21	1.750	0.052
HDS21-P214A	HDS21	375	0.084	139.215	137.384	137.882	0.375	0.03	137.911	3.4	0.002	0.008	137.919	0.03	137.890	0.375	137.400	139.229	P214A	1.000	0.030
P214A-P214	P214A					137.919															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT-P214B	Outfall	750	0.420	138.090	137.340	137.817	0.477	0.102	137.919	5.3	0.003	0.016	137.935	0.117	137.818	0.451	137.367	139.200	P214B	1.000	0.117
P514B-HDS21	P214B	375	0.150	139.200	137.367	137.935	0.375	0.094	138.029	3.4	0.007	0.025	138.054	0.094	137.960	0.375	137.384	139.215	HDS21	1.750	0.165
HDS21-P214A	HDS21	375	0.150	139.215	137.384	138.124	0.375	0.094	138.219	3.4	0.007	0.025	138.244	0.094	138.149	0.375	137.400	139.229	P214A	1.000	0.094
P214A-P214	P214A	750	0.420	139.229	137.500	138.244	0.743	0.046	138.290	31.7	0.001	0.047	138.337	0.07	138.267	0.567	137.700	139.410	P214	1.500	0.105
P214- P64B	P214	750	0.260	139.410	137.700	138.372	0.672	0.02	138.392	95.8	0.002	0.216	138.608	0.111	138.498	0.316	138.182	139.983	P64B		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT-P214B	Outfall	750	0.420	138.090	137.340	137.817	0.477	0.102	137.919	5.3	0.003	0.016	137.935	0.117	137.818	0.451	137.367	139.200	P214B	1.000	0.117
P214B-P214A	P214B	750	0.270	139.200	137.367	137.935	0.568								137.934	0.534	137.400	139.229	P214A		

Outfall No. 21 Form A: Sheet 2 of 2

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 43

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS (FORM A - DESIGN) - Site No. 5 - Outfall No. 43

Project No	*151-273*	Route No.	*I-84 HFR*	Prepared By:	*tjb*	Date:	*November 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 43*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*3.550*
Percent Impervious Area %	*21%*
Time of Concentration (min.)	*14.6*
Drainage Design Flow (**cms**)	*0.760*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.042*

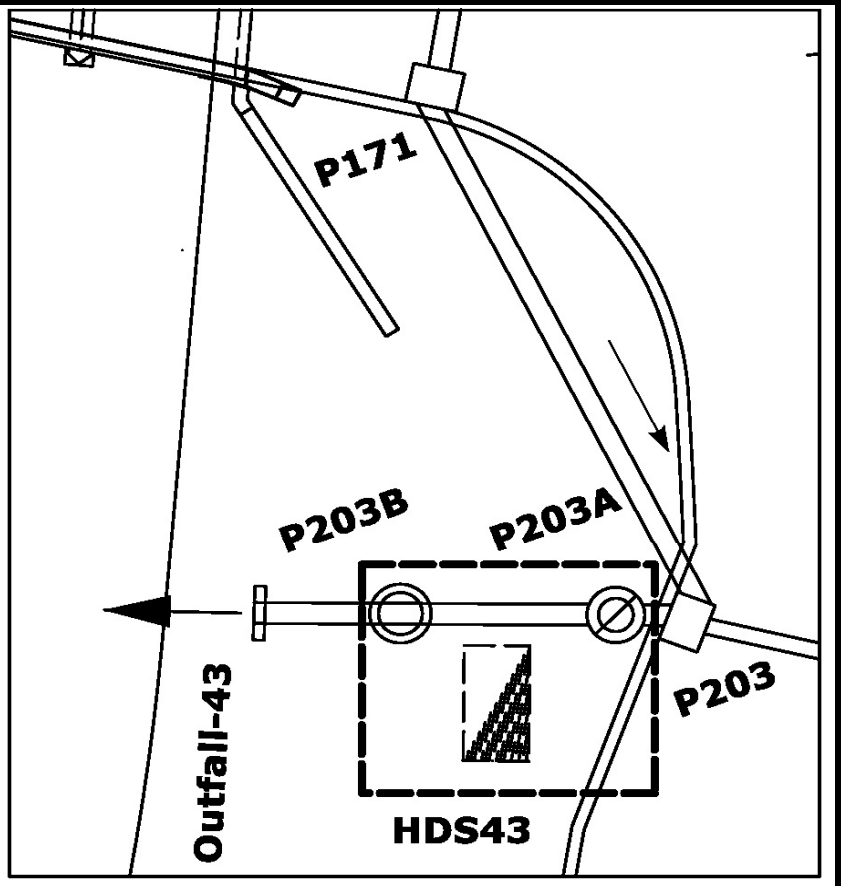
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*283,186.9*	Horiz.	*NAD 83*
Y:	*230,970.4*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*0.765*	@ WQF	*113.258*
		@ Design Q	*113.286*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.105*
Comments:			

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,830*	*mm*
Weir and/or Bypass Elev.	*113.341*		
Weir Length **(m)**	*1.220*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*113.315*	To HS	*0.080*
@ Design Q	*113.675*	Bypassing HS	*0.680*

Comments:



Sketch (NTS) - Dashed Line Indicates Pay limits

Outfall No. 43 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 5 - Outfall No. 43

Project No:	*151-273*	**Location/Station:**	*Outfall No. 43 - HFR 60+601 L*	**Date:**	*November 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT-P203B	Outfall	750	0.042	113.334	112.584	113.172	0.588	0.001	113.173	4.1	0.000	0.000	113.173	0.001	113.173	0.568	112.605	114.000	P203B	0.150	0.000
P203B-HDS43	P203B	250	0.042	114.000	112.605	113.173	0.250	0.037	113.210	4.0	0.005	0.020	113.230	0.037	113.193	0.250	112.617	115.000	HDS43	1.750	0.065
HDS43-P203A	HDS43	250	0.042	115.000	112.617	113.258	0.250	0.037	113.295	4.0	0.005	0.020	113.315	0.037	113.278	0.250	112.629	115.100	P203A	1.000	0.037
P203A-P203	P203A					113.315															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT-P203B	Outfall	750	0.760	113.334	112.584	113.172	0.588	0.213	113.385	4.1	0.005	0.022	113.407	0.213	113.193	0.588	112.605	114.000	P203B	0.150	0.032
P203B-HDS43	P203B	250	0.080	114.000	112.605	113.225	0.250	0.136	113.361	4.0	0.018	0.072	113.433	0.136	113.298	0.250	112.617	115.000	HDS43	1.750	0.237
HDS43-P203A	HDS43	250	0.080	115.000	112.617	113.535	0.250	0.136	113.671	4.0	0.018	0.072	113.743	0.136	113.608	0.250	112.629	115.100	P203A	1.000	0.136
P203A-P203	P203A	750	0.760	115.100	112.629	113.743	0.750	0.151	113.894	3.2	0.005	0.015	113.909	0.151	113.758	0.750	112.645	115.079	P203	1.500	0.226
P203-P174	P203	750	0.340	115.079	112.745	113.985	0.750	0.03	114.015	12.3	0.001	0.011	114.026	0.03	113.996	0.750	112.904	115.099	P174		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT-P203B	Outfall	750	0.760	113.334	112.584	113.172	0.588	0.213	113.385	4.1	0.005	0.022	113.407	0.213	113.193	0.588	112.605	114.000	P203B	0.150	0.032
P203B-P203A	P203B	750	0.680	114.000	112.605	113.225	0.620								113.239	0.609	112.629	115.100	P203A		

Outfall No. 43 Form A: Sheet 2 of 2

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 47

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS (FORM A - DESIGN) - Site No. 6 - Outfall No. 47

Project No	*151-273*	Route No.	*I-84 SR*	Prepared By:	*tjb*	Date:	*July 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 47*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*2.620*
Percent Impervious Area %	*40%*
Time of Concentration (min.)	*15.8*
Drainage Design Flow (**cms**)	*0.680*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.056*

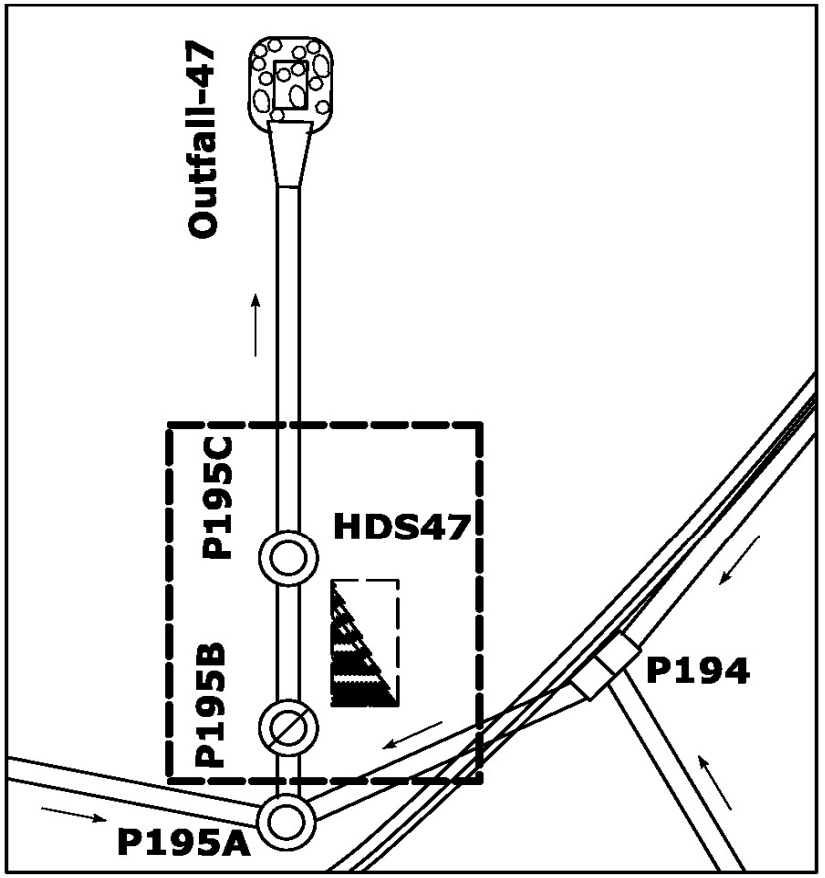
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*284,306.9*	Horiz.	*NAD 83*
Y:	*231,093.8*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*0.765*	@ WQF	*137.952*
		@ Design Q	*138.259*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.140*
Comments:			

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,830*	*mm*
Weir and/or Bypass Elev.	*138.005*		
Weir Length **(m)**	*1.830*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*137.979*	To HS	*0.125*
@ Design Q	*138.310*	Bypassing HS	*0.555*

Comments:



Sketch (NTS) - Indicate Pay limits

Outfall No. 47 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 6 - Outfall No. 47

Project No:	*151-273*	Location/Station:	*Outfall No. 47 - SR 5+298 R*	Date:	*July 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT-P195C	Outfall	1200	0.056	136.200	135.000	135.449	0.449	0.001	135.450	10.7	0.219	2.340	137.790	0.037	137.753	0.129	137.624	141.000	P195C	0.150	0.006
P159C-HDS47	P195C	375	0.056	141.000	137.624	137.759	0.134	0.126	137.885	3.3	0.009	0.029	137.914	0.051	137.862	0.189	137.673	141.000	HDS47	1.750	0.090
HDS47-P195B	HDS47	375	0.056	141.000	137.673	137.952	0.279	0.021	137.973	3.3	0.002	0.006	137.979	0.034	137.945	0.224	137.721	140.552	P195B	1.000	0.034
P195B-P195A	P195B					137.979															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT-P195C	Outfall	1200	0.680	136.200	135.000	135.449	0.449	0.158	135.607	10.7	0.245	2.624	138.231	0.158	138.073	0.449	137.624	141.000	P195C	0.150	0.024
P159C-HDS47	P195C	375	0.125	141.000	137.624	138.097	0.375	0.065	138.162	3.3	0.005	0.017	138.179	0.065	138.114	0.375	137.673	141.000	HDS47	1.750	0.114
HDS47-P195B	HDS47	375	0.125	141.000	137.673	138.228	0.375	0.065	138.293	3.3	0.005	0.017	138.310	0.065	138.245	0.375	137.721	140.552	P195B	1.000	0.065
P195B-P195A	P195B	900	0.680	140.552	137.721	138.310	0.589	0.121	138.431	2.7	0.008	0.022	138.453	0.192	138.261	0.486	137.775	140.023	P195A	1.000	0.192
P195A-P194	P195A	750	0.540	140.023	137.925	138.453	0.528	0.135	138.588	9.8	0.013	0.129	138.717	0.192	138.525	0.452	138.073	140.023	P194		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT-P195C	Outfall	1200	0.680	136.200	135.000	135.449	0.449	0.158	135.607	10.7	0.245	2.624	138.231	0.158	138.073	0.449	137.624	141.000	P195C	0.150	0.024
P195C-P195B	P195C	900	0.555	141.000	137.624	138.097	0.473								138.158	0.437	137.721	140.552	P195B		

Outfall No. 47 Form A: Sheet 2 of 2

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 49

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 2 - Outfall No. 49

Project No	*151-273*	Route No.	*I-84 HFR*	Prepared By:	*tjb*	Date:	*July 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 49*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*5.790*
Percent Impervious Area %	*14%*
Time of Concentration (min.)	*20.5*
Drainage Design Flow (**cms**)	*1.090*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.040*

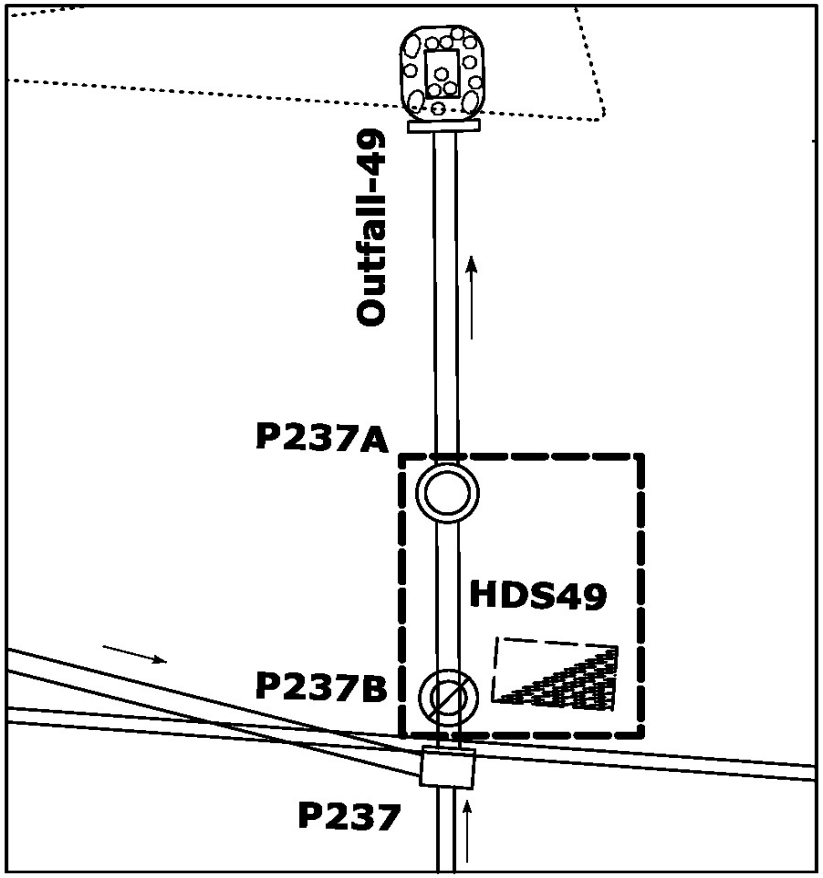
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*282,961.3*	Horiz.	*NAD 83*
Y:	*230,789.4*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*0.765*	@ WQF	*119.201*
		@ Design Q	*120.412*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.100*
Comments:			

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,830*	*mm*
Weir and/or Bypass Elev.	*119.274*		
Weir Length **(m)**	*1.830*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*119.248*	To HS	*0.090*
@ Design Q	*119.720*	Bypassing HS	*1.000*

Comments:



Sketch (NTS) - Indicate Pay limits

Outfall No. 47 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 2 - Outfall No. 49

Project No:	*151-273*	**Location/Station:**	*Outfall No. 49 - HFR 60+308 L*	**Date:**	*July 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT-P237A	Outfall	900	0.040	114.679	113.779	114.392	0.613	0	114.392	10.4	0.000	0.000	114.392	0.001	114.391	0.404	113.987	120.500	P237a	0.750	0.001
P237A-HDS49	P237a	250	0.040	120.500	118.750	118.861	0.111	0.183	119.045	6.0	0.017	0.104	119.149	0.069	119.080	0.165	118.915	124.000	HDS49	1.750	0.121
HDS49-P237B	HDS49	250	0.040	124.000	118.915	119.201	0.250	0.034	119.235	3.0	0.004	0.013	119.248	0.044	119.204	0.204	119.000	124.500	P237B	1.000	0.044
P237B-P237	P237B					119.248															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT-P237A	Outfall	900	1.090	114.679	113.779	114.392	0.613	0.285	114.677	10.4	0.020	0.208	114.885	0.285	114.600	0.613	113.987	120.500	P237A	0.750	0.214
P237A-HDS49	P237A	250	0.090	120.500	118.750	118.938	0.188	0.263	119.201	6.0	0.022	0.132	119.333	0.173	119.159	0.244	118.915	124.000	HDS49	1.750	0.304
HDS49-P237B	HDS49	250	0.090	124.000	118.915	119.463	0.250	0.172	119.635	3.0	0.023	0.068	119.703	0.172	119.532	0.250	119.000	124.500	P237B	1.000	0.172
P237B-P237	P237B	900	1.090	124.500	119.500	120.006	0.506	0.447	120.453	2.1	0.007	0.014	120.467	0.183	120.284	0.763	119.521	124.307	P237	0.150	0.027
P237-P238	P237	900	0.990	124.307	120.772	121.368	0.595	0.251	121.618	19.4	0.005	0.097	121.715	0.252	121.464	0.594	120.869	124.388	P238		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT-P237A	Outfall	900	1.090	114.679	113.779	114.392	0.613	0.285	114.677	10.4	0.020	0.208	114.885	0.285	114.600	0.613	113.987	120.500	P237A	0.150	0.043
P237A-P237B	P237A	900	1.000	120.500	118.750	119.069	0.319								120.330	0.900	119.000	124.500	P237B		

Outfall No. 49 Form A: Sheet 2 of 2

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 57

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS (FORM A - DESIGN) - Site No. 7 - Outfall No. 57

Project No	*151-273*	Route No.	*I-84 EB*	Prepared By:	*tjb*	Date:	*November 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 57*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*5.610*
Percent Impervious Area %	*26%*
Time of Concentration (min.)	*14.7*
Drainage Design Flow (**cms**)	*1.250*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.082*

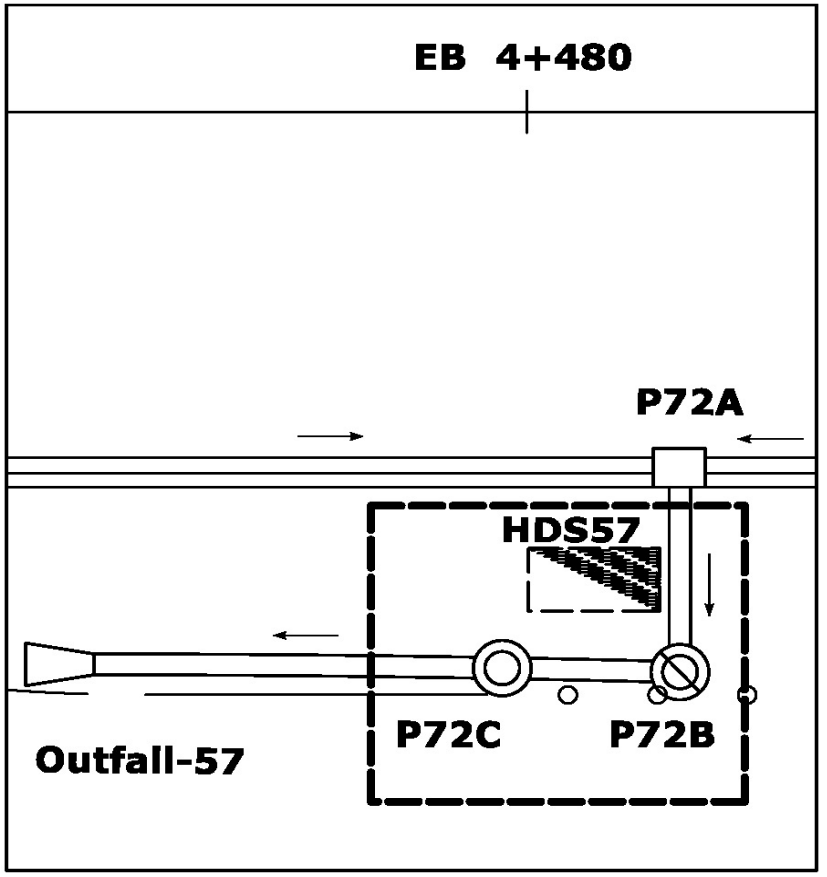
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*284,948.3*	Horiz.	*NAD 83*
Y:	*231,245.7*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*1.389*	@ WQF	*140.038*
		@ Design Q	*140.473*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.205*
Comments:			

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,830*	*mm*
Weir and/or Bypass Elev.	*140.099*		
Weir Length **(m)**	*1.220*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*140.073*	To HS	*0.185*
@ Design Q	*140.700*	Bypassing HS	*1.065*

Comments:



Sketch (NTS) - Dashed Line Indicates Pay limits

Outfall No. 57 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 7 - Outfall No. 57

Project No:	*151-273*	**Location/Station:**	*Outfall No. 57 - EB 4+482 R*	**Date:**	*November 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT-P72C	Outfall	1050	0.082	140.550	139.500	139.983	0.483	0.002	139.985	11.2	0.000	0.000	139.985	0.003	139.982	0.416	139.566	141.700	P72C	0.150	0.001
P72C-HDS57	P72C	375	0.082	141.700	139.566	139.982	0.375	0.028	140.010	3.2	0.002	0.007	140.017	0.028	139.989	0.375	139.578	141.700	HDS57	1.750	0.049
HDS57-P72B	HDS57	375	0.082	141.700	139.578	140.038	0.375	0.028	140.066	3.2	0.002	0.007	140.073	0.028	140.045	0.375	139.590	141.700	P72B	1.000	0.028
P72B-P72A	P72B					140.073															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT-P72C	Outfall	1050	1.250	140.550	139.500	140.130	0.630	0.271	140.401	11.2	0.006	0.066	140.467	0.268	140.199	0.633	139.566	141.700	P72C	0.150	0.040
P72C-HDS57	P72C	375	0.185	141.700	139.566	140.239	0.375	0.143	140.382	3.2	0.011	0.036	140.418	0.143	140.275	0.375	139.578	141.700	HDS57	1.750	0.251
HDS57-P72B	HDS57	375	0.185	141.700	139.578	140.525	0.375	0.143	140.668	3.2	0.011	0.036	140.704	0.143	140.561	0.375	139.590	141.700	P72B	1.000	0.143
P72B-P72A	P72B	1050	1.250	141.700	139.810	140.704	0.894	0.129	140.833	5.8	0.002	0.012	140.845	0.136	140.710	0.870	139.840	141.834	P72A	1.500	0.203
P72A-P72	P72A	1050	1.180	141.834	139.946	140.913	0.967	0.102	141.015	43.4	0.003	0.121	141.136	0.232	140.904	0.641	140.263	142.377	P72		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT-P72C	Outfall	1050	1.250	140.550	139.500	140.130	0.630	0.271	140.401	11.2	0.006	0.066	140.467	0.268	140.199	0.633	139.566	141.700	P72C	0.150	0.040
P72C-P72B	P72C	1050	1.065	141.700	139.566	140.239	0.673								140.236	0.646	139.590	141.700	P72B		

Outfall No. 57 Form A: Sheet 2 of 2

HYDRODYNAMIC SEPARATOR DESIGN SUMMARY

OUTFALL No. 71

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS (FORM A - DESIGN) - Site No. 8 - Outfall No. 71

Project No	*151-273*	Route No.	*I-84 EB*	Prepared By:	*tjb*	Date:	*July 2014*
Town	*Waterbury, CT*	Location/Station	*Outfall No. 71*	Checked By:		Date:	
				Company:	*Ammann & Whitney*		

HYDROLOGIC DATA

Drainage Area (**Hectares**)	*0.790*
Percent Impervious Area %	*100%*
Time of Concentration (min.)	*10*
Drainage Design Flow (**cms**)	*0.270*
Drainage Design Frequency (yr)	*10*
Water Quality Flow (**cms**)	*0.057*

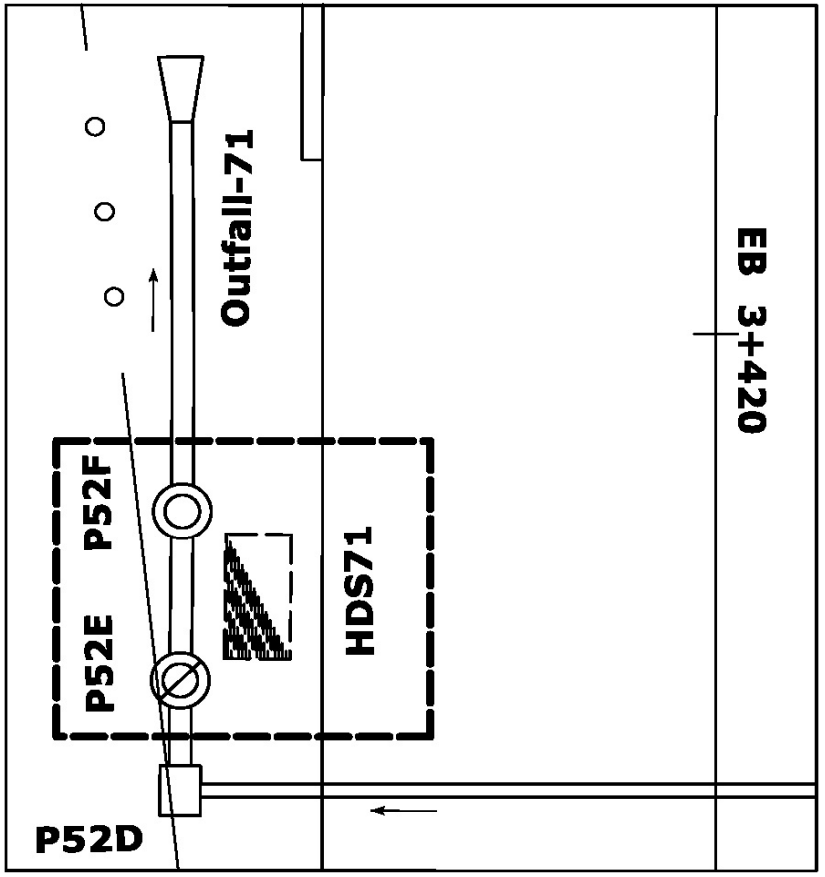
HYDRODYNAMIC SEPARATOR (HDS)

Coordinates:		Datum:	
X:	*283,995.4*	Horiz.	*NAD 83*
Y:	*230,794.8*	Vert.	*NGVD 1929*
Head loss coefficient		*1.75*	
Sediment Storage Capacity (**cu. m**):		HGL Elevation:	
Required	*0.765*	@ WQF	*129.663*
		@ Design Q	*129.967*
Maximum Flow to HS at Drainage Design Flow (**cms**)			*0.144*

Comments:

FLOW DIVERSION STRUCTURE

Type:	*MH Diameter:*	*1,830*	*mm*
Weir and/or Bypass Elev.	*129.990*		
Weir Length **(m)**	*0.915*	Weir Coeff. (C)	*1.830*
HGL Elevation:		Flow Split @ Drainage Design Flow	
@ WQF	*129.964*	To HS	*0.115*
@ Design Q	*130.200*	Bypassing HS	*0.155*



Sketch (NTS) - Indicate Pay limits

Comments:

Outfall No. 71 Form A: Sheet 1 of 2

CONNECTICUT DEPARTMENT OF TRANSPORTATION HYDRODYNAMIC SEPARATOR DESIGN DATA SHEETS
(FORM A - DESIGN) - Site No. 8 - Outfall No. 71

Project No:	*151-273*	**Location/Station:**	*Outfall No. 71 - EB 3+428 R*	**Date:**	*July 2014*

HYDRAULIC GRADE LINE ANALYSIS

Pipe	Downstream Str.	Pipe Size (mm)	Flow (cms)	Ground Elev. OUT (m)	Invert Elev. OUT (m)	HGL OUT (m)	Depth OUT (m)	Vel. Head OUT (m)	EGL OUT (m)	Length (m)	Friction Slope (m/m)	Friction Loss (m)	EGL IN (m)	Vel. Head IN (m)	HGL IN (m)	Depth IN (m)	Invert Elev. IN (m)	Ground Elev. IN (m)	Upstream Str.	Headloss Coeff.	Str. headloss (m)
WQF ANALYSIS																					
OUT-P52F	Outfall	600	0.057	129.600	129.000	129.156	0.156	0.049	129.205	11.2	0.026	0.291	129.496	0.049	129.447	0.156	129.291	130.920	P52F	0.750	0.037
P52F-HDS71	P52F	300	0.057	130.920	129.291	129.591	0.300	0.033	129.624	3.2	0.003	0.011	129.635	0.037	129.598	0.270	129.328	131.300	HDS71	1.750	0.065
HDS71-P52E	HDS71	300	0.057	131.300	129.328	129.663	0.300	0.033	129.696	3.2	0.000	0.001	129.697	0.033	129.664	0.300	129.364	130.966	P52E	1.000	0.033
P52E-P52D	P52E					129.964															
SYSTEM ANALYSIS with SPLIT FLOW to HDS																					
OUT-P52F	Outfall	600	0.270	129.600	129.000	129.600	0.600	0.047	129.647	11.2	0.011	0.120	129.767	0.137	129.630	0.339	129.291	130.920	P52F	0.750	0.103
P52F-HDS71	P52F	300	0.115	130.920	129.291	129.733	0.300	0.135	129.868	3.2	0.014	0.045	129.913	0.135	129.778	0.300	129.328	131.300	HDS71	1.750	0.236
HDS71-P52E	HDS71	300	0.115	131.300	129.328	130.015	0.300	0.135	130.150	3.2	0.014	0.045	130.195	0.135	130.060	0.300	129.364	130.966	P52E	1.000	0.135
P52E-P52D	P52E	600	0.270	130.966	129.364	130.195	0.600	0.047	130.242	3.1	0.002	0.006	130.248	0.047	130.201	0.600	129.411	131.050	P52D	1.000	0.047
P52D-P49B	P52D	600	0.270	131.050	129.411	130.248	0.600	0.047	130.294	21.4	0.006	0.127	130.421	0.137	130.284	0.339	129.945	131.725	P49B		
SYSTEM ANALYSIS with FLOW BYPASSING HDS																					
OUT-P52F	Outfall	600	0.270	129.600	129.000	129.600	0.600	0.047	129.647	11.2	0.011	0.120	129.767	0.137	129.630	0.339	129.291	130.920	P52F	0.150	0.021
P52F-P52E	P52F	600	0.155	130.920	129.291	129.891	0.600								129.891	0.527	129.364	130.966	P52E		

Outfall No. 71 Form A: Sheet 2 of 2

Appendix B - Drainage Calculations
CMP Pipe Lining

DRAINAGE ANALYSIS REPORTS

750mm CMP Culvert Lining - Sta. 8+285

1,500mm CMP Culvert Lining - Sta. 10+120

Culvert Lining
Sta. 8+285

HY-8 Culvert Analysis Report
Existing Conditions

Table 1 - Summary of Culvert Flows at Crossing: 8+285

Headwater Elevation (m)	Total Discharge (cms)	8+285 Existing Discharge (cms)	Roadway Discharge (cms)	Iterations
161.40	0.00	0.00	0.00	1
161.66	0.07	0.07	0.00	1
161.78	0.15	0.15	0.00	1
161.88	0.22	0.22	0.00	1
161.97	0.29	0.29	0.00	1
162.07	0.37	0.37	0.00	1
162.17	0.44	0.44	0.00	1
162.35	0.51	0.51	0.00	1
162.57	0.58	0.58	0.00	1
162.75	0.64	0.64	0.00	1
163.08	0.73	0.73	0.00	1
173.00	2.12	2.12	0.00	Overtopping

Table 2 - Culvert Summary Table: 8+285 Existing

Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
0.00	0.00	161.40	0.000	0.000	0-NF	0.000	0.000	0.000	0.270	0.000	0.000
0.07	0.07	161.66	0.220	0.263	3-M1t	0.233	0.159	0.270	0.270	0.505	0.000
0.15	0.15	161.78	0.315	0.381	3-M2t	0.338	0.228	0.270	0.270	1.009	0.000
0.22	0.22	161.88	0.391	0.481	2-M2c	0.431	0.280	0.282	0.270	1.430	0.000
0.29	0.29	161.97	0.462	0.574	2-M2c	0.524	0.326	0.327	0.270	1.561	0.000
0.37	0.37	162.07	0.527	0.667	2-M2c	0.647	0.367	0.368	0.270	1.675	0.000
0.44	0.44	162.17	0.589	0.767	2-M2c	0.762	0.403	0.404	0.270	1.782	0.000
0.51	0.51	162.35	0.651	0.948	7-M2c	0.762	0.437	0.438	0.270	1.881	0.000
0.58	0.58	162.57	0.712	1.166	7-M2c	0.762	0.469	0.470	0.270	1.978	0.000
0.64	0.64	162.75	0.760	1.353	7-M2c	0.762	0.491	0.493	0.270	2.051	0.000
0.73	0.73	163.08	0.841	1.683	7-M2c	0.762	0.527	0.527	0.270	2.168	0.000

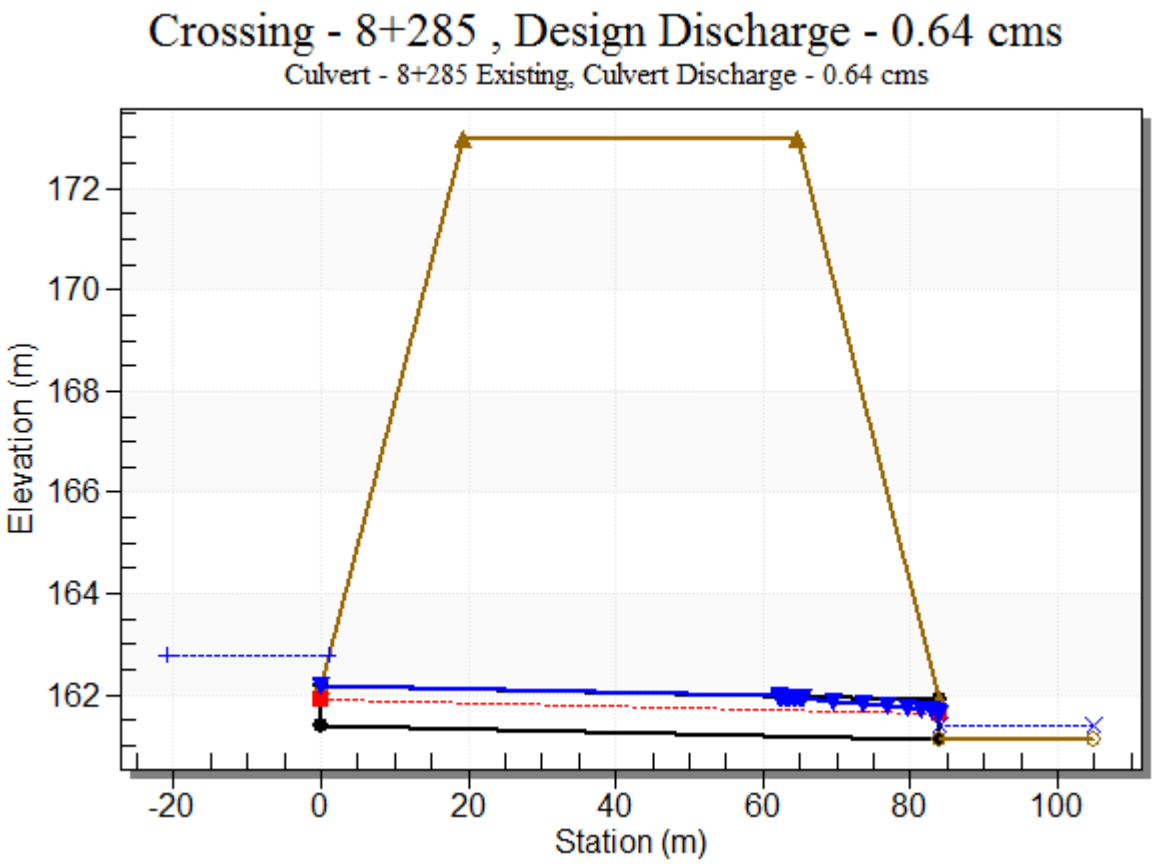
****

Inlet Elevation (invert): 161.40 m, Outlet Elevation (invert): 161.13 m

Culvert Length: 84.00 m, Culvert Slope: 0.0032

****

Water Surface Profile Plot for Culvert: 8+285 Existing



Site Data - 8+285 Existing

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 161.40 m

Outlet Station: 84.00 m

Outlet Elevation: 161.13 m

Number of Barrels: 1

Culvert Data Summary - 8+285 Existing

Barrel Shape: Circular

Barrel Diameter: 762.00 mm

Barrel Material: Corrugated Steel

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: 8+285)

Flow (cms)	Water Surface Elev (m)	Depth (m)
0.00	161.40	0.27
0.07	161.40	0.27
0.15	161.40	0.27
0.22	161.40	0.27
0.29	161.40	0.27
0.37	161.40	0.27
0.44	161.40	0.27
0.51	161.40	0.27
0.58	161.40	0.27
0.64	161.40	0.27
0.73	161.40	0.27

Tailwater Channel Data - 8+285

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 161.40 m

Roadway Data for Crossing: 8+285

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 10.00 m

Crest Elevation: 173.00 m

Roadway Surface: Paved

Roadway Top Width: 45.40 m

HY-8 Culvert Analysis Report
Proposed Conditions

Table 1 - Summary of Culvert Flows at Crossing: 8+285 SPR

Headwater Elevation (m)	Total Discharge (cms)	8+285 SPR Discharge (cms)	Roadway Discharge (cms)	Iterations
161.44	0.00	0.00	0.00	1
161.66	0.07	0.07	0.00	1
161.76	0.15	0.15	0.00	1
161.86	0.22	0.22	0.00	1
161.97	0.29	0.29	0.00	1
162.05	0.37	0.37	0.00	1
162.11	0.44	0.44	0.00	1
162.18	0.51	0.51	0.00	1
162.25	0.58	0.58	0.00	1
162.31	0.64	0.64	0.00	1
162.49	0.73	0.73	0.00	1
173.00	2.89	2.89	0.00	Overtopping

Table 2 - Culvert Summary Table: 8+285 SPR

Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
0.00	0.00	161.44	0.000	0.0*	0-NF	0.000	0.000	0.000	0.270	0.000	0.000
0.07	0.07	161.66	0.224	0.0*	1-S2n	0.160	0.162	0.161	0.270	1.090	0.000
0.15	0.15	161.76	0.325	0.0*	1-S2n	0.231	0.233	0.233	0.270	1.315	0.000
0.22	0.22	161.86	0.416	0.0*	1-S2n	0.289	0.289	0.289	0.270	1.483	0.000
0.29	0.29	161.97	0.496	0.534	2-M2c	0.341	0.337	0.338	0.270	1.611	0.000
0.37	0.37	162.05	0.569	0.606	2-M2c	0.391	0.378	0.380	0.270	1.738	0.000
0.44	0.44	162.11	0.640	0.673	2-M2c	0.441	0.417	0.418	0.270	1.859	0.000
0.51	0.51	162.18	0.711	0.739	2-M2c	0.495	0.451	0.452	0.270	1.976	0.000
0.58	0.58	162.25	0.788	0.808	2-M2c	0.559	0.484	0.484	0.270	2.093	0.000
0.64	0.64	162.31	0.852	0.871	2-M2c	0.686	0.505	0.507	0.270	2.185	0.000
0.73	0.73	162.49	0.966	1.046	7-M2c	0.686	0.539	0.541	0.270	2.337	0.000

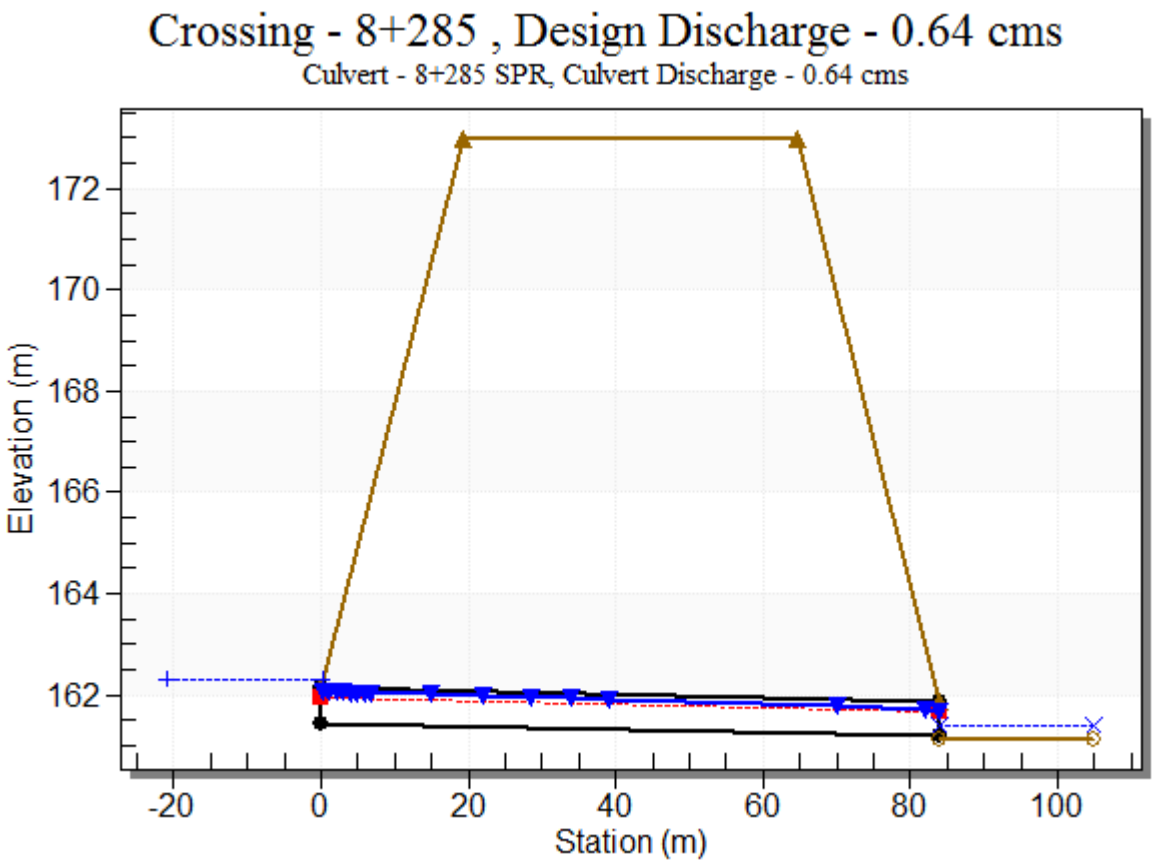
****

Inlet Elevation (invert): 161.44 m, Outlet Elevation (invert): 161.17 m

Culvert Length: 84.00 m, Culvert Slope: 0.0032

****

Water Surface Profile Plot for Culvert: 8+285 SPR



Site Data - 8+285 SPR

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 161.44 m

Outlet Station: 84.00 m

Outlet Elevation: 161.17 m

Number of Barrels: 1

Culvert Data Summary - 8+285 SPR

Barrel Shape: Circular

Barrel Diameter: 686.00 mm

Barrel Material: PVC

Embedment: 0.00 mm

Barrel Manning's n: 0.0110

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: 8+285)

Flow (cms)	Water Surface Elev (m)	Depth (m)
0.00	161.40	0.27
0.07	161.40	0.27
0.15	161.40	0.27
0.22	161.40	0.27
0.29	161.40	0.27
0.37	161.40	0.27
0.44	161.40	0.27
0.51	161.40	0.27
0.58	161.40	0.27
0.64	161.40	0.27
0.73	161.40	0.27

Tailwater Channel Data - 8+285

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 161.40 m

Roadway Data for Crossing: 8+285

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 10.00 m

Crest Elevation: 173.00 m

Roadway Surface: Paved

Roadway Top Width: 45.40 m

Culvert Lining
Sta. 10+120

1,500mm CMP EXISTING CULVERT

Design Storm	Q [m^3/s]	D [mm]	n	Inlet Elevation [m]	Outlet Elevation [m]	Culvert Length [m]	S [m/m]	V_n [m/s]	y_n [m]	Headwater Elevation
100-year	2.66	1,500	0.024	127.13	122.13	101.6	0.049	**4.25**	**0.57**	128.33
500-year	3.03	1,500	0.024	127.13	122.13	101.6	0.049	**4.40**	**0.61**	128.44

1,370mm PVC LINED CULVERT

Design Storm	Q [m^3/s]	D [mm]	n	Inlet Elevation [m]	Outlet Elevation [m]	Culvert Length [m]	S [m/m]	V_n [m/s]	y_n [m]	Headwater Elevation
100-year	2.66	1,370	0.011	127.13	122.16	101.6	0.049	**7.53**	**0.39**	128.52
500-year	3.03	1,370	0.011	127.13	122.16	101.6	0.049	**7.79**	**0.42**	128.65

Internal Resistance Elements - Roughness Design

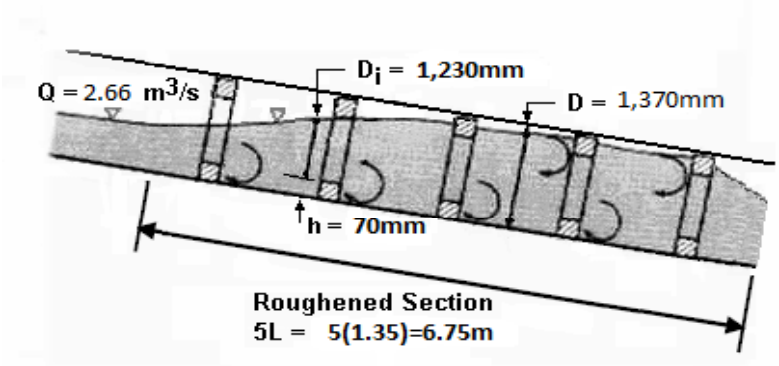
c = h/D	h =D/(2+1/c) [mm]	D_i = D-2h	r_i [mm]	D_i/D	L/D_i	L [mm]	L_r/P	n_{iR}	n_{HT}
0.057	70	1,230	615	0.90	1.1	1,353	1	**0.030**	**0.087**

1,370mm PVC LINED CULVERT with Internal Resistance Elements

Design Storm	Q [m^3/s]	D [mm]	n	Inlet Elevation [m]	Outlet Elevation [m]	Culvert Length [m]	S [m/m]	V_n [m/s]	y_n [m]	Headwater Elevation
100-year	2.66	1,370	0.087	127.13	122.16	101.6	0.049	**2.70**	**1.37**	128.52
500-year	3.03	1,370	0.087	127.13	122.16	101.6	0.049	**2.85**	**1.37**	128.65

Internal Resistance Elements - DESIGN SUMMARY

Roughness Element Height	**h =**	**70** mm
Length of Roughened Section	**L_r =**	**6.75** m
Roughened Element Spacing	**L =**	**1.35** m



EcoDesign, LLC
860 677-4555

HY-8 Culvert Analysis Report
Existing Conditions

Table 1 - Summary of Culvert Flows at Crossing: 10+120 Existing

Headwater Elevation (m)	Total Discharge (cms)	10+120 Existing Discharge (cms)	Roadway Discharge (cms)	Iterations
127.13	0.00	0.00	0.00	1
127.48	0.30	0.30	0.00	1
127.64	0.61	0.61	0.00	1
127.76	0.91	0.91	0.00	1
127.87	1.21	1.21	0.00	1
127.97	1.51	1.51	0.00	1
128.07	1.82	1.82	0.00	1
128.17	2.12	2.12	0.00	1
128.26	2.42	2.42	0.00	1
128.33	2.66	2.66	0.00	1
128.44	3.03	3.03	0.00	1
137.00	12.42	12.42	0.00	Overtopping

Table 2 - Culvert Summary Table: 10+120 Existing

Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
0.00	0.00	127.13	0.000	0.0*	0-NF	0.000	0.000	0.000	0.000	0.000	0.000
0.30	0.30	127.48	0.354	0.0*	1-S2n	0.183	0.265	0.186	0.098	2.308	0.943
0.61	0.61	127.64	0.510	0.0*	1-S2n	0.261	0.382	0.267	0.146	2.774	1.204
0.91	0.91	127.76	0.635	0.0*	1-S2n	0.326	0.477	0.328	0.185	3.136	1.382
1.21	1.21	127.87	0.739	0.0*	1-S2n	0.374	0.553	0.376	0.218	3.432	1.520
1.51	1.51	127.97	0.843	0.0*	1-S2n	0.422	0.624	0.423	0.248	3.649	1.635
1.82	1.82	128.07	0.942	0.0*	1-S2n	0.467	0.684	0.468	0.274	3.834	1.733
2.12	2.12	128.17	1.036	0.0*	1-S2n	0.504	0.744	0.507	0.299	3.988	1.819
2.42	2.42	128.26	1.128	0.0*	1-S2n	0.541	0.797	0.544	0.322	4.135	1.897
2.66	2.66	128.33	1.198	0.0*	1-S2n	0.570	0.836	0.571	0.339	4.252	1.952
3.03	3.03	128.44	1.308	0.0*	1-S2n	0.615	0.898	0.615	0.364	4.396	2.031

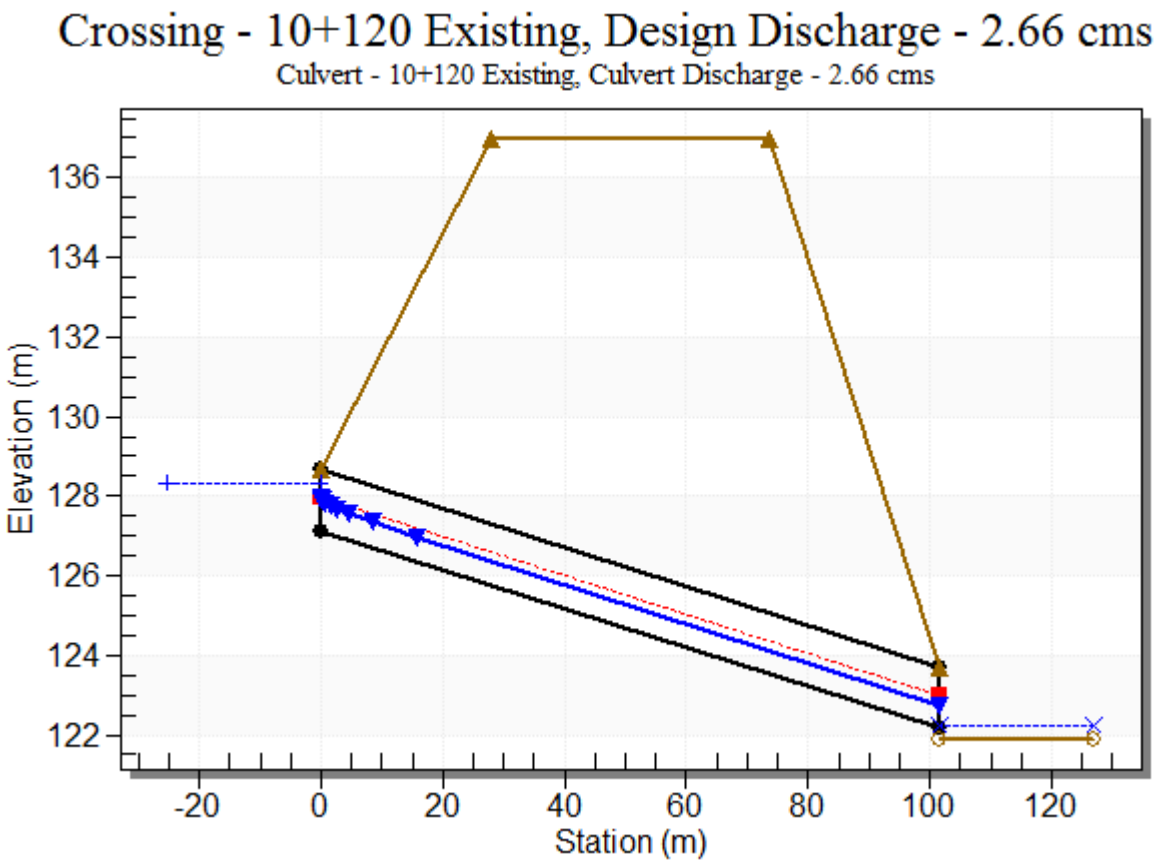
****

Inlet Elevation (invert): 127.13 m, Outlet Elevation (invert): 122.16 m

Culvert Length: 101.72 m, Culvert Slope: 0.0489

****

Water Surface Profile Plot for Culvert: 10+120 Existing



Site Data - 10+120 Existing

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 127.13 m

Outlet Station: 101.60 m

Outlet Elevation: 122.16 m

Number of Barrels: 1

Culvert Data Summary - 10+120 Existing

Barrel Shape: Circular

Barrel Diameter: 1524.00 mm

Barrel Material: Corrugated Steel

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: 10+120 Existing)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.00	121.90	0.00	0.00	0.00	0.00
0.30	122.00	0.10	0.94	53.58	1.00
0.61	122.05	0.15	1.20	80.36	1.07
0.91	122.09	0.19	1.38	101.57	1.10
1.21	122.12	0.22	1.52	119.75	1.13
1.51	122.15	0.25	1.63	135.91	1.15
1.82	122.17	0.27	1.73	150.62	1.16
2.12	122.20	0.30	1.82	164.20	1.18
2.42	122.22	0.32	1.90	176.85	1.19
2.66	122.24	0.34	1.95	186.19	1.20
3.03	122.26	0.36	2.03	200.03	1.21

Tailwater Channel Data - 10+120 Existing

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 3.00 m

Side Slope (H:V): 3.00 (_:1)

Channel Slope: 0.0560

Channel Manning's n: 0.0500

Channel Invert Elevation: 121.90 m

Roadway Data for Crossing: 10+120 Existing

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 10.00 m

Crest Elevation: 137.00 m

Roadway Surface: Paved

Roadway Top Width: 45.40 m

Table 7 - Summary of Culvert Flows at Crossing: 10+120 SPR with IR

Headwater Elevation (m)	Total Discharge (cms)	10+120 SPR with IR Discharge (cms)	Roadway Discharge (cms)	Iterations
127.21	0.00	0.00	0.00	1
127.58	0.30	0.30	0.00	1
127.74	0.61	0.61	0.00	1
127.87	0.91	0.91	0.00	1
128.00	1.21	1.21	0.00	1
128.12	1.51	1.51	0.00	1
128.23	1.82	1.82	0.00	1
128.34	2.12	2.12	0.00	1
128.44	2.42	2.42	0.00	1
128.52	2.66	2.66	0.00	1
128.65	3.03	3.03	0.00	1
137.00	7.99	7.99	0.00	Overtopping

Table 8 - Culvert Summary Table: 10+120 SPR with IR

Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
0.00	0.00	127.21	0.000	0.0*	0-NF	0.000	0.000	0.000	0.000	0.000	0.000
0.30	0.30	127.58	0.371	0.0*	1-S2n	0.211	0.280	0.216	0.098	1.974	0.943
0.61	0.61	127.74	0.531	0.0*	1-S2n	0.307	0.400	0.308	0.146	2.422	1.204
0.91	0.91	127.87	0.659	0.0*	1-S2n	0.379	0.491	0.381	0.185	2.702	1.382
1.21	1.21	128.00	0.790	0.0*	1-S2n	0.442	0.573	0.442	0.218	2.940	1.520
1.51	1.51	128.12	0.911	0.0*	1-S2n	0.497	0.643	0.497	0.248	3.128	1.635
1.82	1.82	128.23	1.022	0.0*	1-S2n	0.551	0.709	0.552	0.274	3.272	1.733
2.12	2.12	128.34	1.127	0.0*	1-S2n	0.599	0.768	0.600	0.299	3.411	1.819
2.42	2.42	128.44	1.231	0.0*	1-S2n	0.647	0.826	0.649	0.322	3.524	1.897
2.66	2.66	128.52	1.312	0.0*	1-S2n	0.684	0.865	0.685	0.339	3.612	1.952
3.03	3.03	128.65	1.444	0.0*	5-S2n	0.740	0.925	0.742	0.364	3.718	2.031

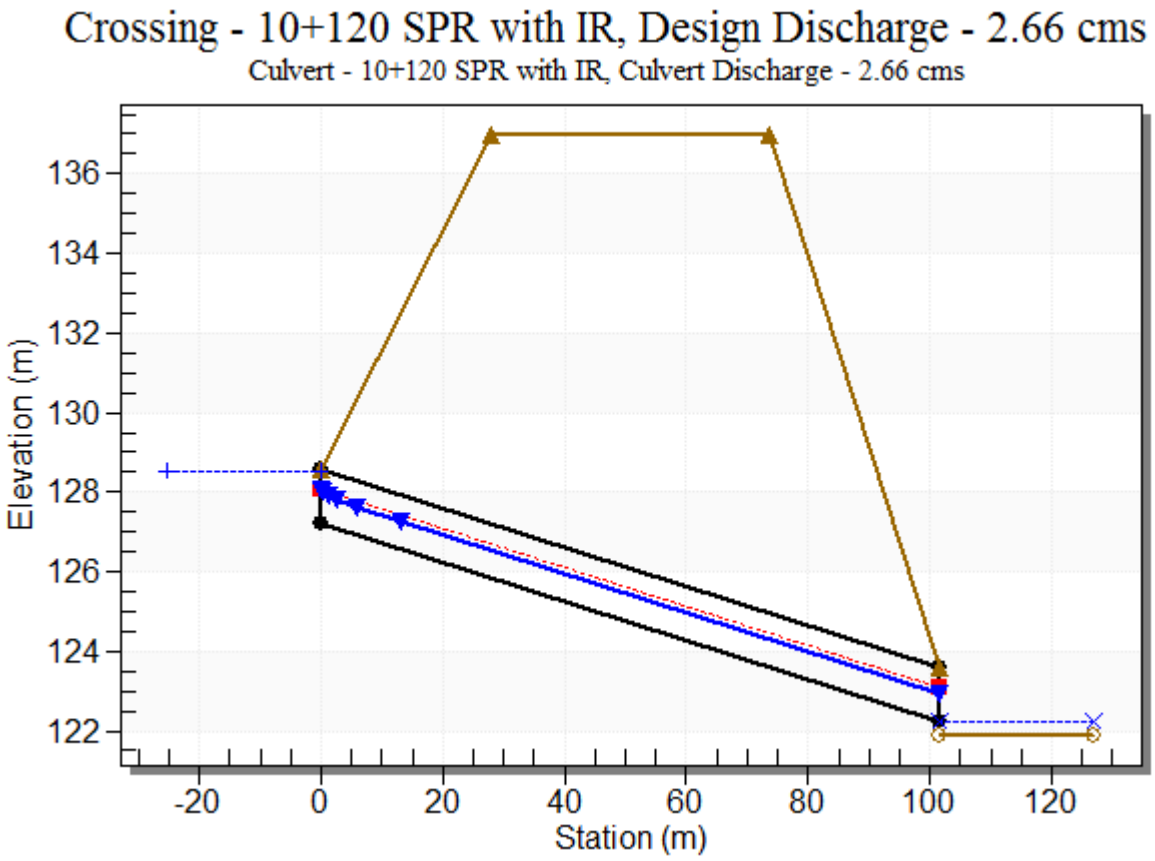
****

Inlet Elevation (invert): 127.21 m, Outlet Elevation (invert): 122.24 m

Culvert Length: 101.72 m, Culvert Slope: 0.0489

****

Water Surface Profile Plot for Culvert: 10+120 SPR with IR



Site Data - 10+120 SPR with IR

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 127.21 m

Outlet Station: 101.60 m

Outlet Elevation: 122.24 m

Number of Barrels: 1

Culvert Data Summary - 10+120 SPR with IR

Barrel Shape: Circular

Barrel Diameter: 1370.00 mm

Barrel Material: PVC

Embedment: 0.00 mm

Barrel Manning's n: 0.0300

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: NONE

Table 9 - Downstream Channel Rating Curve (Crossing: 10+120 SPR with IR)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.00	121.90	0.00	0.00	0.00	0.00
0.30	122.00	0.10	0.94	53.58	1.00
0.61	122.05	0.15	1.20	80.36	1.07
0.91	122.09	0.19	1.38	101.57	1.10
1.21	122.12	0.22	1.52	119.75	1.13
1.51	122.15	0.25	1.63	135.91	1.15
1.82	122.17	0.27	1.73	150.62	1.16
2.12	122.20	0.30	1.82	164.20	1.18
2.42	122.22	0.32	1.90	176.85	1.19
2.66	122.24	0.34	1.95	186.19	1.20
3.03	122.26	0.36	2.03	200.03	1.21

Tailwater Channel Data - 10+120 SPR with IR

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 3.00 m

Side Slope (H:V): 3.00 (_:1)

Channel Slope: 0.0560

Channel Manning's n: 0.0500

Channel Invert Elevation: 121.90 m

Roadway Data for Crossing: 10+120 SPR with IR

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 10.00 m

Crest Elevation: 137.00 m

Roadway Surface: Paved

Roadway Top Width: 45.40 m

Table 10 - Summary of Culvert Flows at Crossing: 10+120 SPR with HT

Headwater Elevation (m)	Total Discharge (cms)	10+120 SPR with HT Discharge (cms)	Roadway Discharge (cms)	Iterations
127.21	0.00	0.00	0.00	1
127.65	0.30	0.30	0.00	1
127.85	0.61	0.61	0.00	1
128.01	0.91	0.91	0.00	1
128.16	1.21	1.21	0.00	1
128.31	1.51	1.51	0.00	1
128.48	1.82	1.82	0.00	1
130.01	2.12	2.12	0.00	1
132.13	2.42	2.42	0.00	1
133.97	2.66	2.66	0.00	1
137.01	3.03	3.01	0.02	14
137.00	3.01	3.01	0.00	Overtopping

Table 11 - Culvert Summary Table: 10+120 SPR with HT

Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
0.00	0.00	127.21	0.000	0.0*	0-NF	0.000	0.000	0.000	0.000	0.000	0.000
0.30	0.30	127.65	0.371	0.440	2-M2c	0.372	0.280	0.281	0.098	1.390	0.943
0.61	0.61	127.85	0.531	0.643	2-M2c	0.541	0.400	0.401	0.146	1.683	1.204
0.91	0.91	128.01	0.659	0.799	2-M2c	0.680	0.491	0.495	0.185	1.893	1.382
1.21	1.21	128.16	0.790	0.950	2-M2c	0.812	0.573	0.575	0.218	2.064	1.520
1.51	1.51	128.31	0.911	1.097	2-M2c	0.948	0.643	0.646	0.248	2.215	1.635
1.82	1.82	128.48	1.022	1.269	2-M2c	1.114	0.709	0.711	0.274	2.354	1.733
2.12	2.12	130.01	1.127	2.798	7-M2c	1.370	0.768	0.771	0.299	2.483	1.819
2.42	2.42	132.13	1.231	4.922	7-M2c	1.370	0.826	0.826	0.322	2.609	1.897
2.66	2.66	133.97	1.312	6.757	7-M2c	1.370	0.865	0.867	0.339	2.704	1.952
3.03	3.01	137.01	1.437	9.801	7-M2c	1.370	0.922	0.925	0.364	2.845	2.031

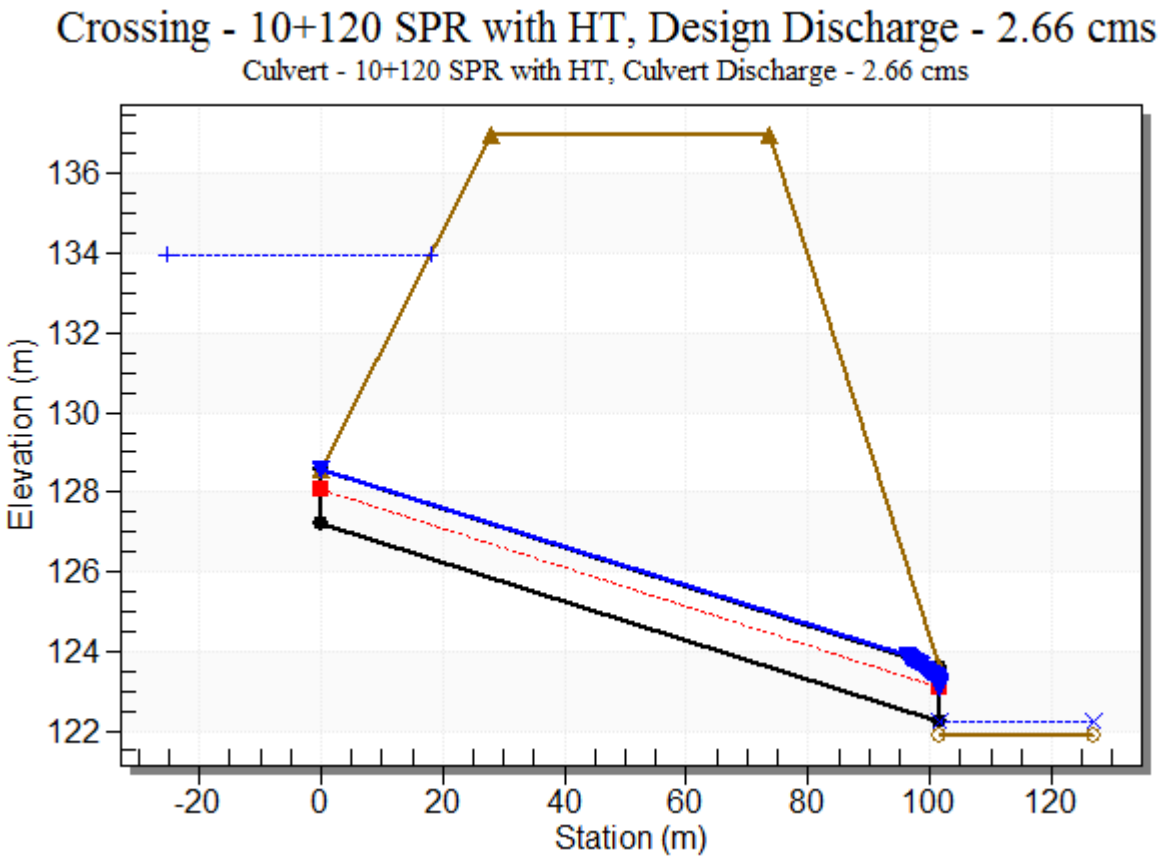
****

Inlet Elevation (invert): 127.21 m, Outlet Elevation (invert): 122.24 m

Culvert Length: 101.72 m, Culvert Slope: 0.0489

****

Water Surface Profile Plot for Culvert: 10+120 SPR with HT



Site Data - 10+120 SPR with HT

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 127.21 m

Outlet Station: 101.60 m

Outlet Elevation: 122.24 m

Number of Barrels: 1

Culvert Data Summary - 10+120 SPR with HT

Barrel Shape: Circular

Barrel Diameter: 1370.00 mm

Barrel Material: PVC

Embedment: 0.00 mm

Barrel Manning's n: 0.0870

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: NONE

Table 12 - Downstream Channel Rating Curve (Crossing: 10+120 SPR with HT)

Flow (cms)	Water Surface Elev (m)	Depth (m)	Velocity (m/s)	Shear (Pa)	Froude Number
0.00	121.90	0.00	0.00	0.00	0.00
0.30	122.00	0.10	0.94	53.58	1.00
0.61	122.05	0.15	1.20	80.36	1.07
0.91	122.09	0.19	1.38	101.57	1.10
1.21	122.12	0.22	1.52	119.75	1.13
1.51	122.15	0.25	1.63	135.91	1.15
1.82	122.17	0.27	1.73	150.62	1.16
2.12	122.20	0.30	1.82	164.20	1.18
2.42	122.22	0.32	1.90	176.85	1.19
2.66	122.24	0.34	1.95	186.19	1.20
3.03	122.26	0.36	2.03	200.03	1.21

Tailwater Channel Data - 10+120 SPR with HT

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 3.00 m

Side Slope (H:V): 3.00 (_:1)

Channel Slope: 0.0560

Channel Manning's n: 0.0500

Channel Invert Elevation: 121.90 m

Roadway Data for Crossing: 10+120 SPR with HT

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 10.00 m

Crest Elevation: 137.00 m

Roadway Surface: Paved

Roadway Top Width: 45.40 m

Appendix C - Pertinent Contract Plan Sheets

Bounded Separately

State Project No.: 151–273
Connecticut Department of Transportation
Stormwater Pollution Control Plan

APPENDIX C – PERTINENT CONTRACT DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
DD–1 TO DD–13	MISCELLANEOUS DETAILS		
SED–1 TO SED–5	SEDIMENTATION BASINS		
ESD–1 TO ESD–6	E&SC DETAILS		
IND TP–1 TO TP–18	TURFING PLANS		
ESDT–1 TO SEC–MPT 5–7	SEDIMENTATION & EROSION CONTROL MP&T		
RRD–2 TO BPW–12	RIVER RELOCATION – WATER HANDLING PLANS		
ENV–21 TO ENV–27	AOEC PLANS		

CONSULTANT PROJ. No.
CONSULTANT FILE NAME:

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER:
DRAFTER:
CHECKED BY:
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I–84
CITY OF WATERBURY

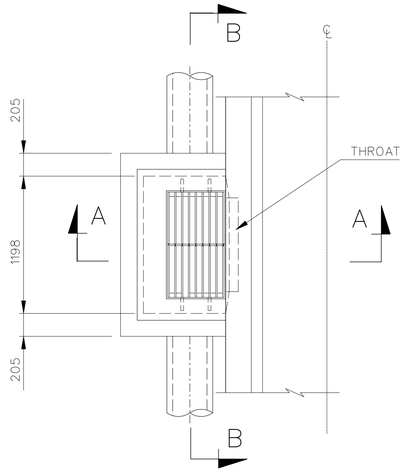
TOWN: WATERBURY

DRAWING TITLE: DRAWING INDEX

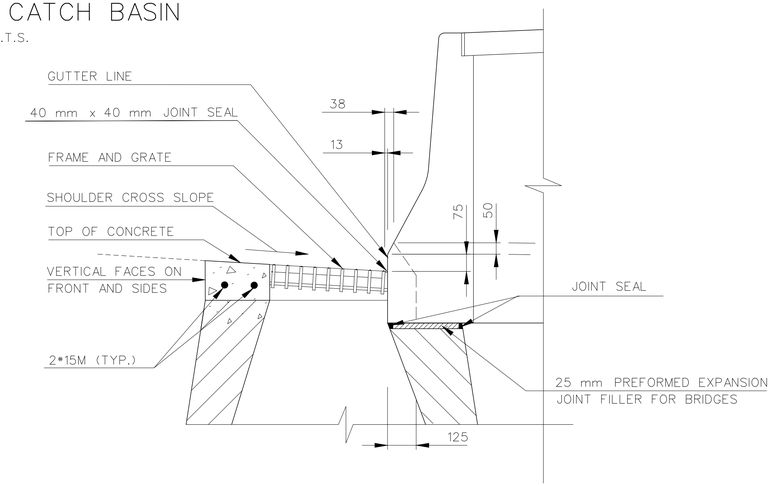
PROJECT NO.: 151–273
DRAWING NO.: IND–000
SHEET NO.:

TYPE "C-M" CATCH BASIN

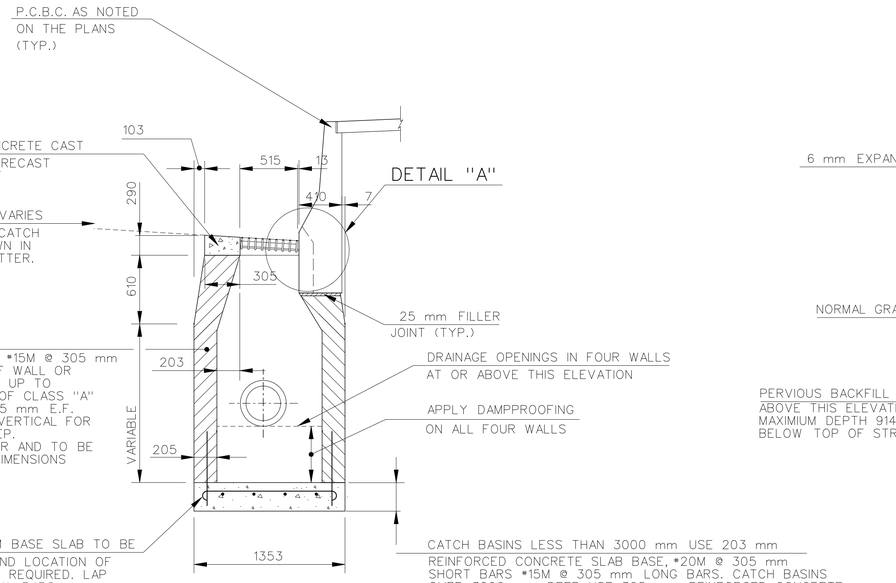
N.T.S.



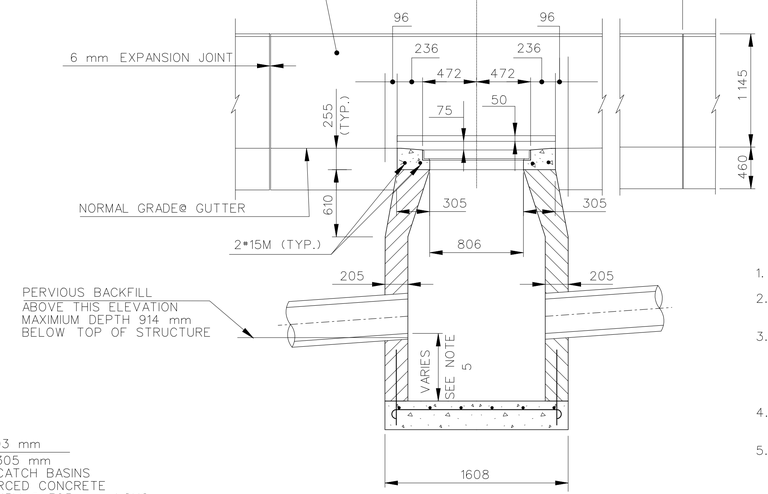
PLAN



DETAIL "A"



SECTION A-A



SECTION B-B

NOTES:

1. FOR DETAILS OF FRAME AND GRATE SEE STANDARD SHEET HWY-507_08.
2. WALL THICKNESS OF CATCH BASINS OVER 3 000 mm DEEP SHALL BE INCREASED TO 305 mm. INSIDE DIMENSIONS OF CATCH BASINS TO REMAIN THE SAME.
3. ALL CATCH BASINS OVER 3 000 mm DEEP SHALL BE CONSTRUCTED WITH STEPS FOR ACCESS. STEPS SHALL BE CAST, MORTARED, OR ATTACHED BY MECHANICAL MEANS INTO ONE WALL OF THE CATCH BASIN. STEPS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 199M, SECTIONS 13.3 THROUGH 13.6.
4. THE COST OF 25 mm PREFORMED EXPANSION JOINT FILLER FOR BRIDGES SHALL BE INCLUDED IN THE PRICE BID FOR CATCH BASIN.
5. SEE DRAINAGE TABLES, (DWG'S DD-9 THRU DD-12).

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Miscdet\1510273001.dds
PLOTTED 11/4/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

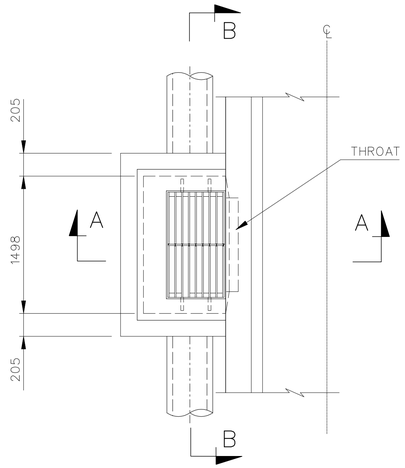
TOWN: WATERBURY

DRAWING TITLE: DRAINAGE DETAILS

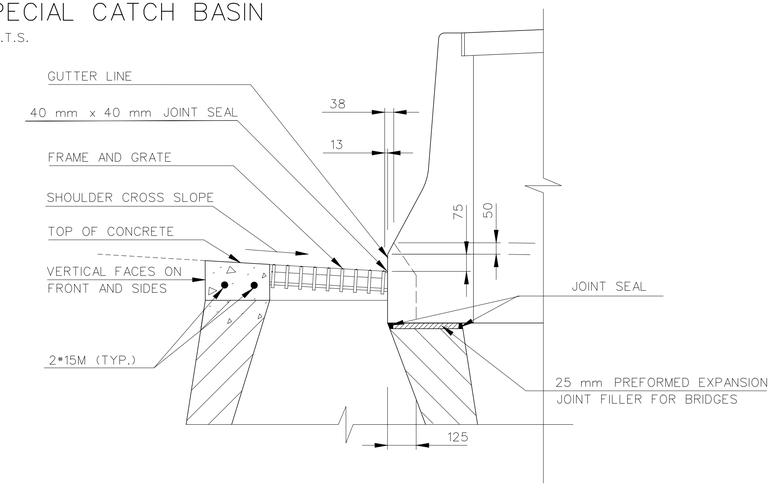
PROJECT NO.: 151-273
DRAWING NO.: DD-1
SHEET NO.:

TYPE "C-M" SPECIAL CATCH BASIN

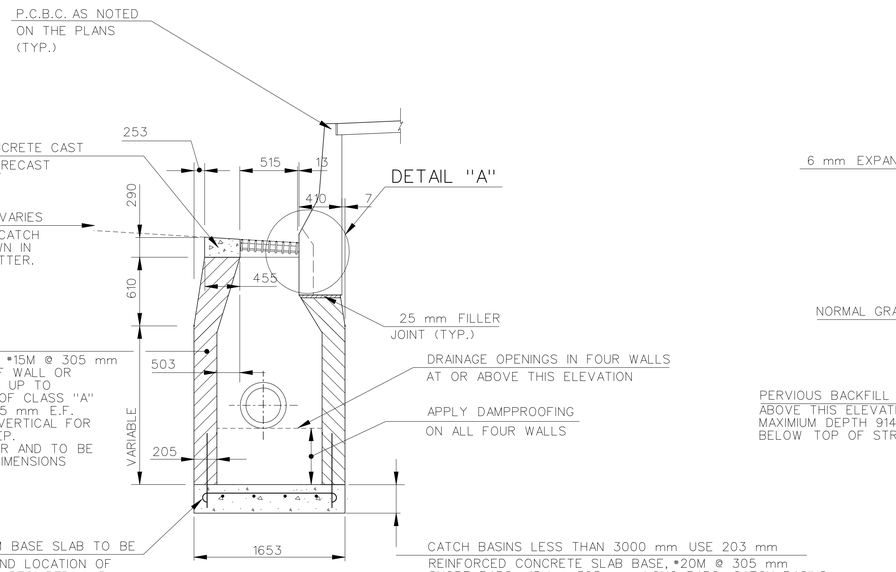
N.T.S.



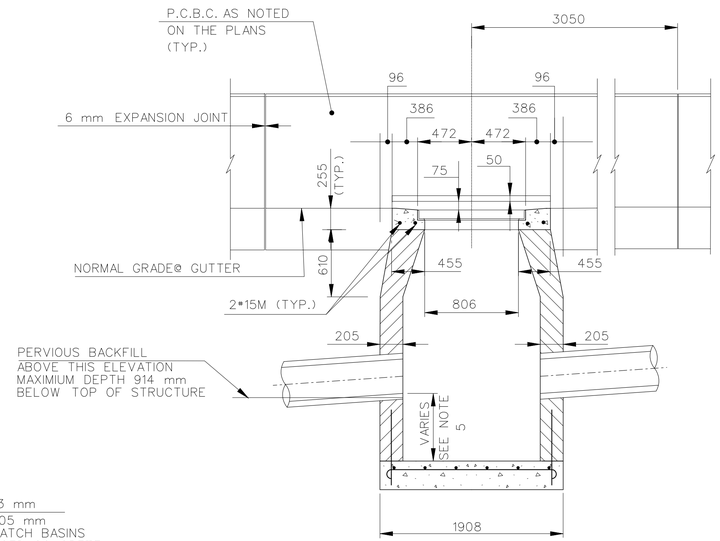
PLAN



DETAIL "A"



SECTION A-A



SECTION B-B

NOTES:

1. FOR DETAILS OF FRAME AND GRATE SEE STANDARD SHEET HWY-507_08.
2. WALL THICKNESS OF CATCH BASINS OVER 3 000 mm DEEP SHALL BE INCREASED TO 305 mm., INSIDE DIMENSIONS OF CATCH BASINS TO REMAIN THE SAME.
3. ALL CATCH BASINS OVER 3 000 mm DEEP SHALL BE CONSTRUCTED WITH STEPS FOR ACCESS. STEPS SHALL BE CAST, MORTARED, OR ATTACHED BY MECHANICAL MEANS INTO ONE WALL OF THE CATCH BASIN. STEPS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 199M, SECTIONS 13.3 THROUGH 13.6.
4. THE COST OF 25 mm PREFORMED EXPANSION JOINT FILLER FOR BRIDGES SHALL BE INCLUDED IN THE PRICE BID FOR CATCH BASIN.
5. SEE DRAINAGE TABLES (DWG'S. DD-9 THRU DD-12).

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Miscdet\1510273002.dds
PLOTTED 11/4/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

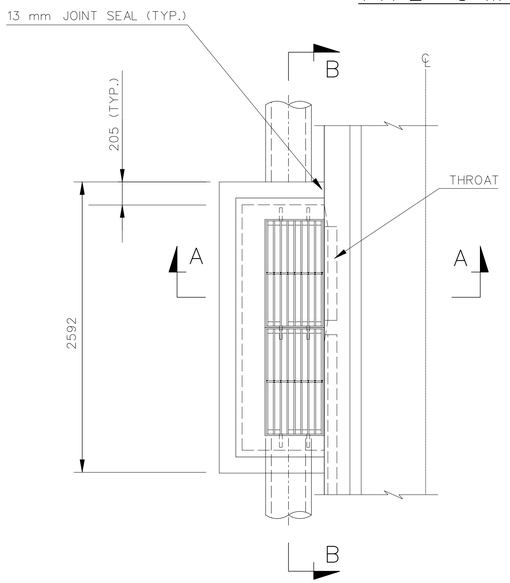
TOWN: WATERBURY

DRAWING TITLE: DRAINAGE DETAILS

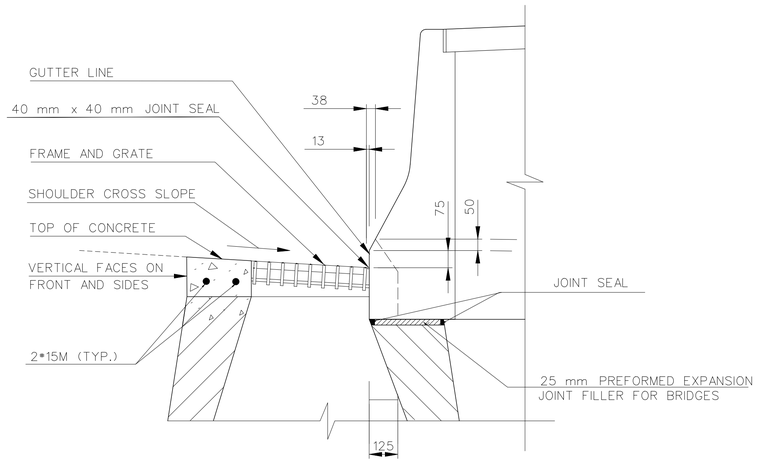
PROJECT NO.: 151-273
DRAWING NO.: DD-2
SHEET NO.:

TYPE "C-M" CATCH BASIN SPECIAL DOUBLE GRATE TYPE II

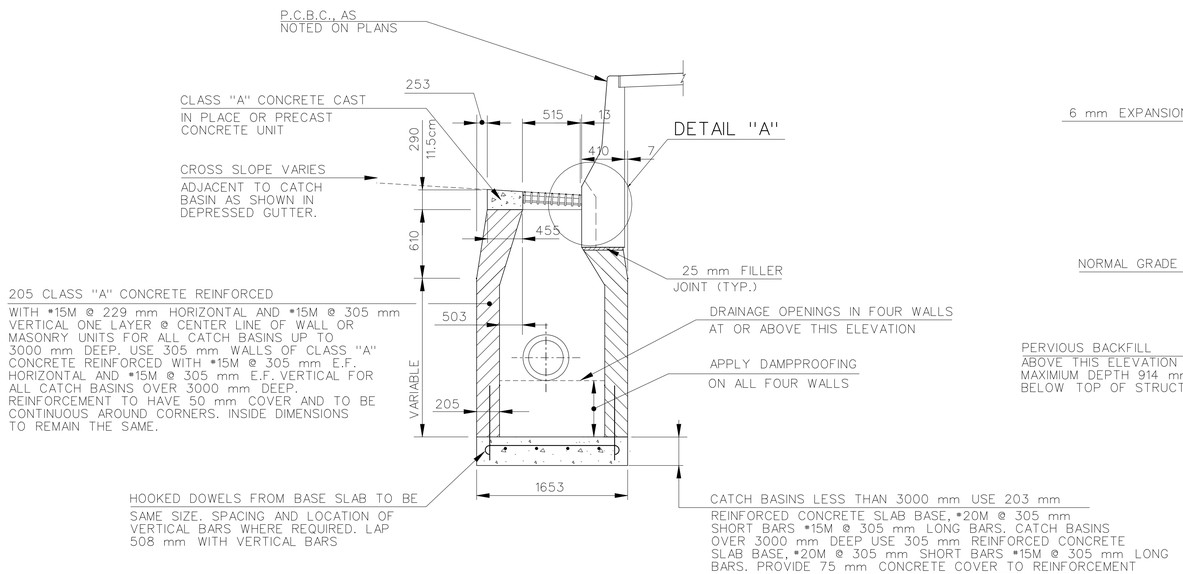
N.T.S.



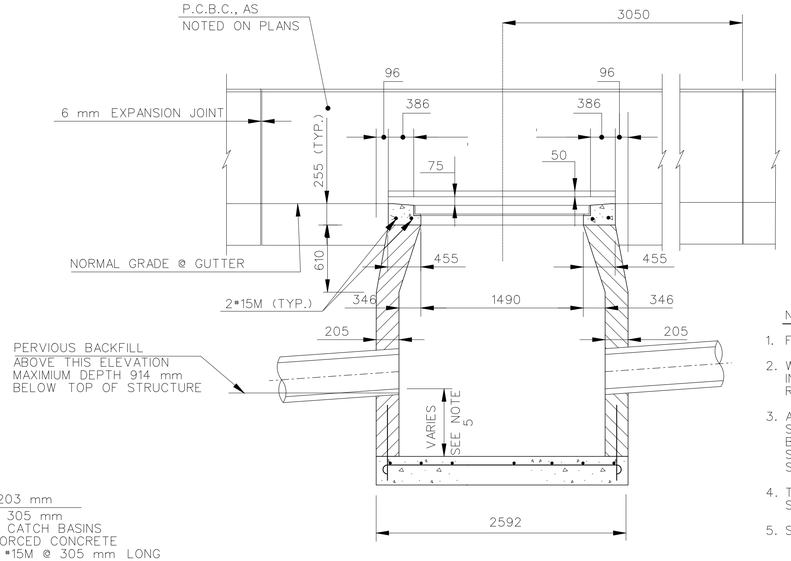
PLAN



DETAIL "A"



SECTION A-A



SECTION B-B

NOTES

1. FOR DETAILS OF FRAME AND GRATE STANDARD SHEETHWY-507_08.
2. WALL THICKNESS OF CATCH BASINS OVER 3 000 mm DEEP SHALL BE INCREASED TO 305 mm. INSIDE DIMENSIONS OF CATCH BASINS TO REMAIN THE SAME.
3. ALL CATCH BASINS OVER 3 000 mm DEEP SHALL BE CONSTRUCTED WITH STEPS FOR ACCESS. STEPS SHALL BE CAST, MORTARED, OR ATTACHED BY MECHANICAL MEANS INTO ONE WALL OF THE CATCH BASIN. STEPS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 199M, SECTIONS 13.3 THROUGH 13.6.
4. THE COST OF 25 mm PREFORMED EXPANSION JOINT FILLER FOR BRIDGES SHALL BE INCLUDED IN THE PRICE BID FOR CATCH BASIN.
5. SEE DRAINAGE TABLES (DWG'S DD-9 THRU DD-12).

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Miscdet\1510273003.dds | PLOTTED 11/4/2014

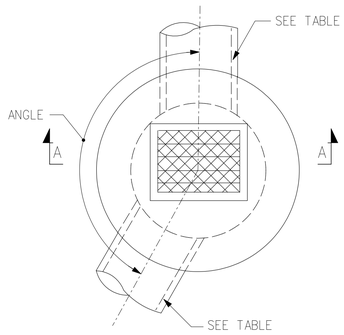
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

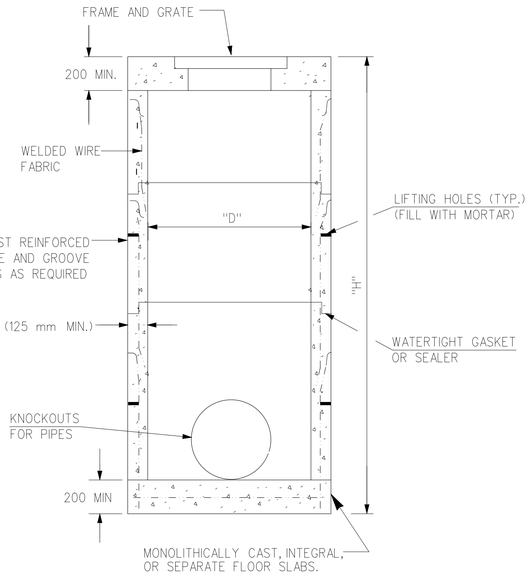
DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-3
SHEET NO.:



PLAN

TYPE C-L SPECIAL CATCH BASIN TABLE			
STR. NO.	"D"	"H"	ANGLE
P-130	1800mm	4.03m	180°
P-130A	1800mm	4.34m	125° ±
P-94	1500mm	4.29m	128° ±

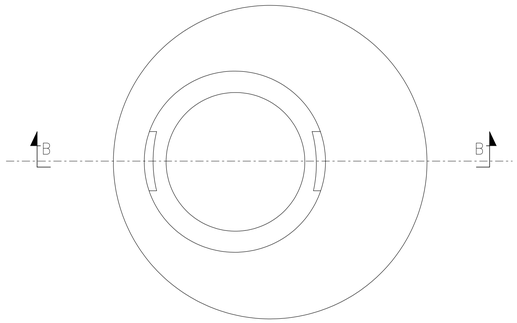


SECTION A-A

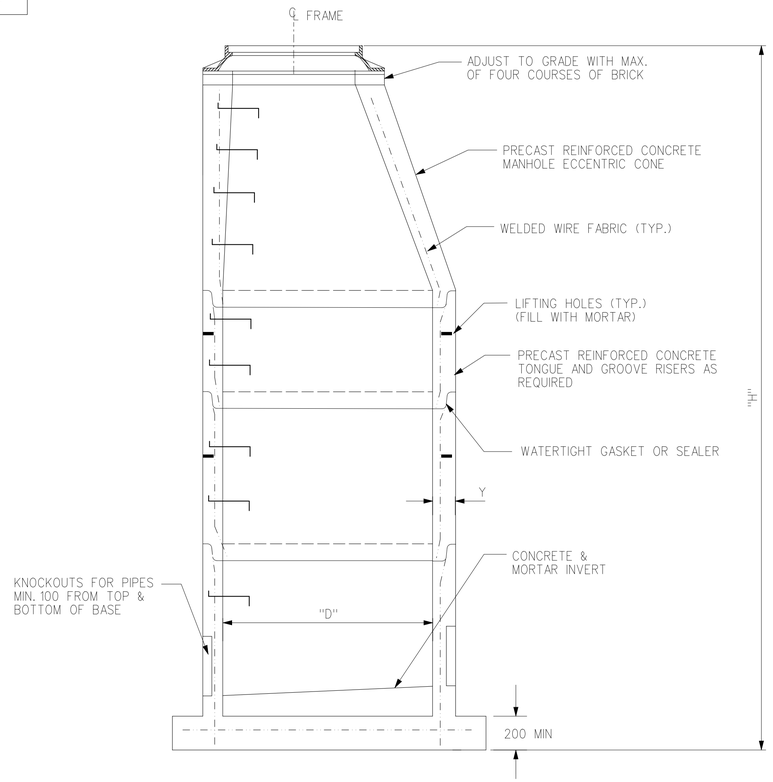
TYPE C-L SPECIAL CATCH BASIN

REINFORCED PRECAST CONCRETE UNIT

MANHOLE > 1200mm DIAMETER			
STR. NO.	"D"	"H"	ANGLE
P-130C	1500mm	4.58m	180°
P-130D	1500mm	7.21m	180°
P-137A	1500mm	2.80m	146° ±
P-143	1500mm	4.17m	150° ±
P-7B	1500mm	6.72m	113° +
P-12A	1500mm	5.44m	61° ±
P-164A	1500mm	3.08m	81° ±
P-8B	2200mm	5.04m	127° ±



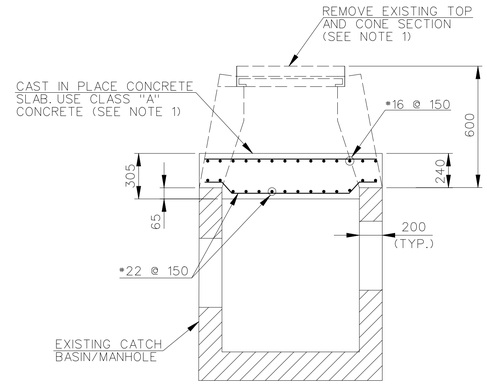
PLAN



SECTION B-B

MANHOLE

REINFORCED PRECAST CONCRETE UNIT



ABANDON CATCH BASIN/MANHOLE

NOTE:

1. REMOVAL OF THE UPPER CATCH BASIN OR MANHOLE SECTION AND THE CONSTRUCTION OF THE CONCRETE CAP INCLUDING REINFORCEMENT SHALL BE PAID FOR UNDER THE ITEM "ABANDON CATCH BASIN/MANHOLE".

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER:

DRAFTER: M. MOSLEY

CHECKED BY:

DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Miscdet\1510273004.dds

PLOTTED 11/4/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE DETAILS

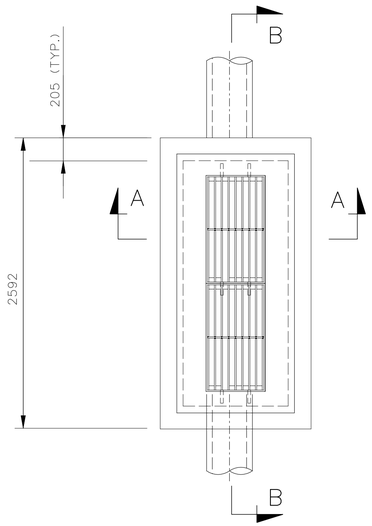
PROJECT NO.: 151-273

DRAWING NO.: DD-4

SHEET NO.:

TYPE "C-L" CATCH BASIN SPECIAL DOUBLE GRATE TYPE II

N.T.S.



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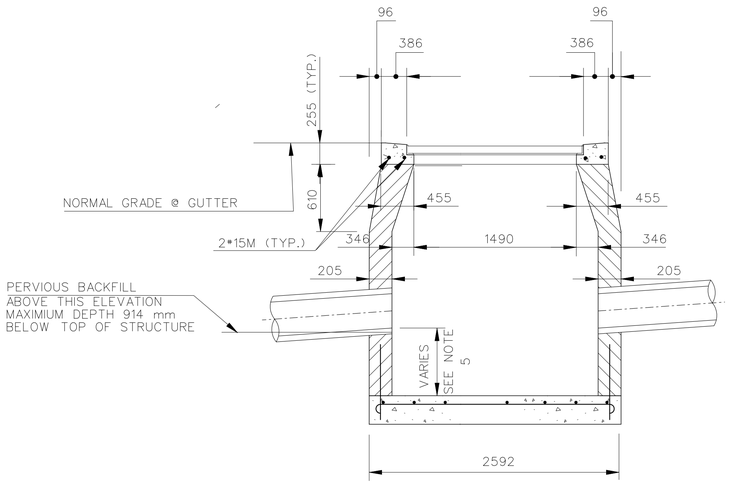
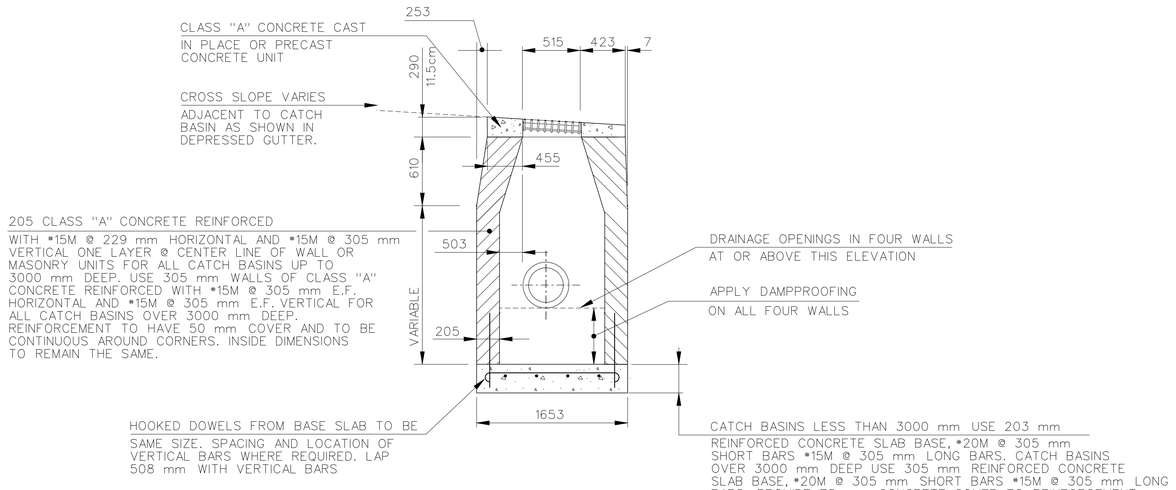


SECTION B-B



SECTION A-A

NOTES:

1. FOR DETAILS OF FRAME AND GRATE SEE STANDARD SHEET M507-K.
2. WALL THICKNESS OF CATCH BASINS OVER 3 000 mm DEEP SHALL BE INCREASED TO 305 mm. INSIDE DIMENSIONS OF CATCH BASINS TO REMAIN THE SAME.
3. ALL CATCH BASINS OVER 3 000 mm DEEP SHALL BE CONSTRUCTED WITH STEPS FOR ACCESS. STEPS SHALL BE CAST, MORTARED, OR ATTACHED BY MECHANICAL MEANS INTO ONE WALL OF THE CATCH BASIN. STEPS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 199M, SECTIONS 13.3 THROUGH 13.6.
4. THE COST OF 25 mm PREFORMED EXPANSION JOINT FILLER FOR BRIDGES SHALL BE INCLUDED IN THE PRICE BID FOR CATCH BASIN.
5. SEE DRAINAGE TABLES (DWG'S. DD-9 THRU DD-12).

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\Miscdet\1510273005NEW.dds | PLOTTED 11/4/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-5
SHEET NO.:

DRAINAGE OUTFALL TABLE

				RIPRAP APRON				PREFORMED SCOUR HOLE					RIPRAP SWALE					
OUTFALL	ROADWAY STATION	END TYPE	RIPRAP TYPE	L (M)	W1 (M)	W2 (M)	X	B (M)	C (M)	2Rp (M)	3Rp (M)	F (M)	L1 (M)	S1 (%)	L2 (M)	S2 (%)	3.8Rp (M)	0.7Rp (m)
1	WB 1+318.3	750mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.75	4.50	1.50	2.25	0.38	0.0	0	4.4	-50	2.85	0.53
2	W23 21+547	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	4.5	-36	1.43	0.26
5	WB 1+761.2	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-2.0	0	5.2	-33	2.28	0.42
7	WB 1+821.8	ENDWALL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.0	0	3.42	0.63
8	WB 2+100	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
8A	WB 1+200	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
8C	WB 1+950	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
9	EB 2+359.6	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
9A	WB 2+418.8	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
9B	WB 2+660.0	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
10	E24 11+162	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.8	-33	N/A	N/A
15	EB 3+233.0	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.5	-61	1.43	0.26
19	WB 3+679.6	PROJECTING BARREL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20	W25 14+016	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
21	W25 14+085.0	750mm RCCE	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
22	E25 34+201	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.0	-31	1.43	0.26
26	WB 4+490.0	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
27	WB 4+964	PROJECTING BARREL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.0	52	1.43	0.26
28	WB 5+042.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	9.4	0	1.43	0.26
33	E24 10+845.5	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	5.25	6.30	2.10	3.15	0.53	N/A	N/A	N/A	N/A	N/A	N/A
34	PRE 51+171.3	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
36	RD 10+460.3	1200mm RCCE	HEAVY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
37	RD 10+490.3	ENDWALL	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
42	HFR 60+510.0	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	1.88	2.25	0.75	1.13	0.19	N/A	N/A	N/A	N/A	N/A	N/A
43	HFR 60+624.4	ENDWALL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
47	SR 5+287.7	600mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	6.00	7.20	2.40	3.60	0.60	N/A	N/A	N/A	N/A	N/A	N/A
49	HFR 60+305	450mm MCE	MODIFIED	N/A	N/A	N/A	N/A	4.50	5.40	1.80	2.70	0.45	N/A	N/A	N/A	N/A	N/A	N/A
50	PRE 50+209.0	ENDWALL	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
50A	PRE 50+293.8	1200mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
51	PR 70+080.7	600mm RCCE	STANDARD	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A
52	HA 25+327.1	450mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	2.25	2.70	0.90	1.35	0.23	0.0	0	4.4	-50	1.71	0.32
55	EB 3+732.5	375mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	7.2	-2	1.43	0.26
57	EB 4+468.1	1050mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	6.00	7.20	2.40	3.60	0.60	N/A	N/A	N/A	N/A	N/A	N/A
59	W24 12+337	375mm MCE	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
60	W23 21+526.5	ENDWALL	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	0.0	0	4.56	0.84
61	E24 10+897.5	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.0	0	2.85	0.53
62	WB 5+012.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.0	0	1.43	0.26
63	WB 5+063.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
65	WB 2+324.6	375mm RCCE	STANDARD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
66	RD 11+078.5	ENDWALL	HEAVY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
67	RD 11+154	450mm MCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	1.9	-18	1.71	0.32
68	PRE 50+970.7	ENDWALL	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
69	RD 11+237.5	450mm RCCE	MODIFIED	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0	0	2.3	-50	1.71	0.32
70	RD 10+538.0	ENDWALL	INTERMEDIATE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
71	EB 3+413.9	ENDWALL	HEAVY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
72	RD 10+637.5	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
73	RD 10+725.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
74	RD 10+838.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
75	RD 10+925.5	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
76	RD 11+000.0	ENDWALL (a)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
77	RD 11+366.5	375mm RCCE	MODIFIED	3.00	1.13	3.23	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
78	PR 70+025.0	ENDWALL (a)	MODIFIED	N/A	N/A	N/A	N/A	3.00	3.60	1.20	1.80	0.30	N/A	N/A	N/A	N/A	N/A	N/A

NOTES:
1. RCCE=REINFORCED CONCRETE CULVERT END
2. MCE=METAL CULVERT END
3. (a) EXISTING TO REMAIN
4. ALL ELEVATIONS ARE GIVEN IN METERS. WHEN ELEVATIONS ARE GIVEN TO LESS THAN THREE DECIMAL PLACES, THE OMITTED DIGITS SHALL BE ASSUMED TO BE ZEROS.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T.BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\SHEETS\Miscdet\1510273006.dds
PLOTTED 12/1/2014

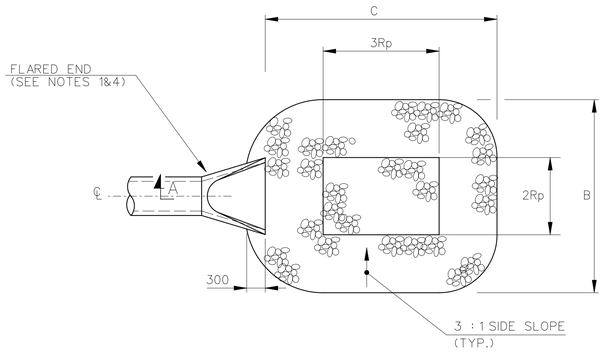
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

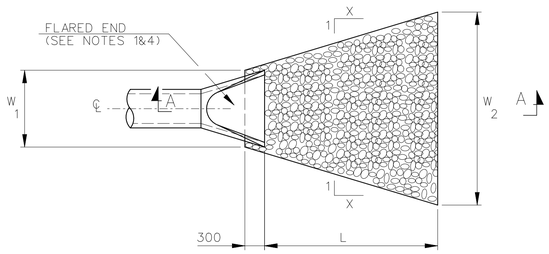
TOWN: WATERBURY
DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-6
SHEET NO.:

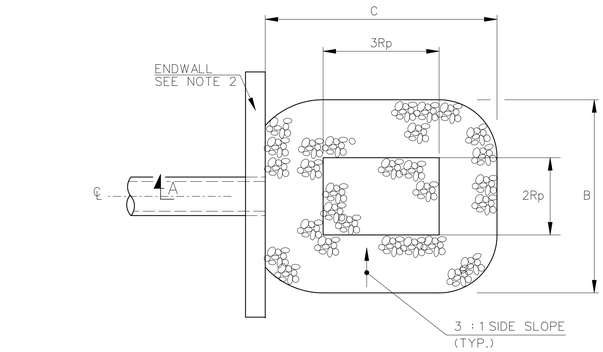
DRAINAGE OUTFALL TREATMENTS



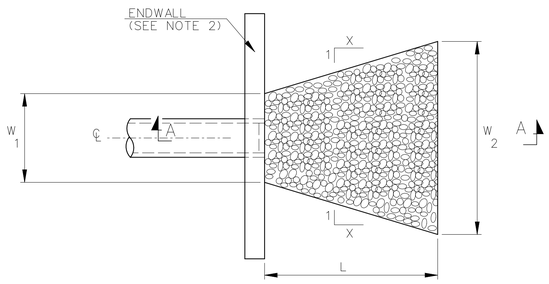
FLARED END PLAN VIEW



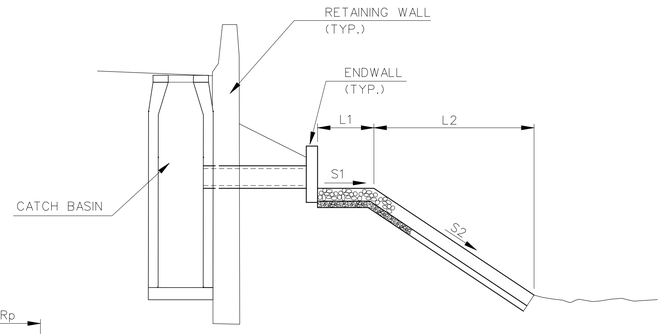
FLARED END PLAN VIEW



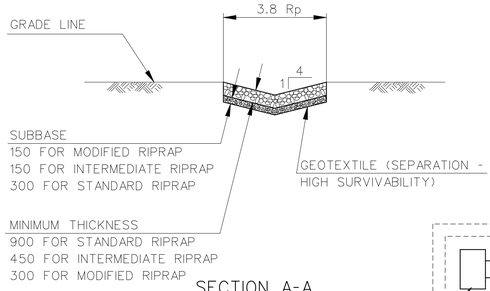
ENDWALL PLAN VIEW



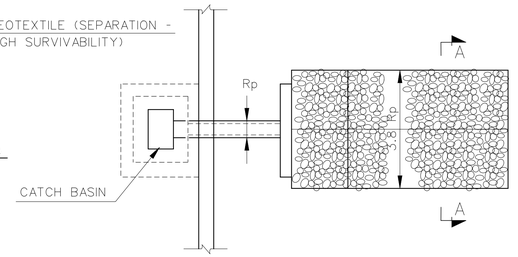
ENDWALL PLAN VIEW



ELEVATION

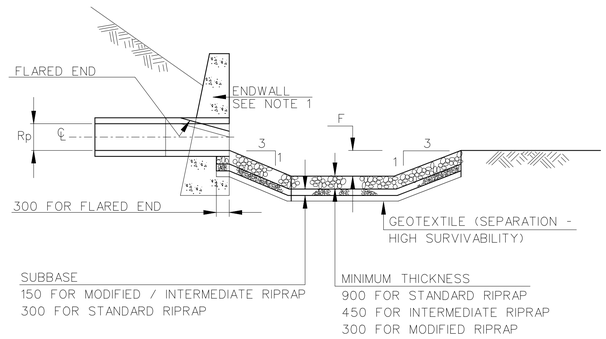


SECTION A-A



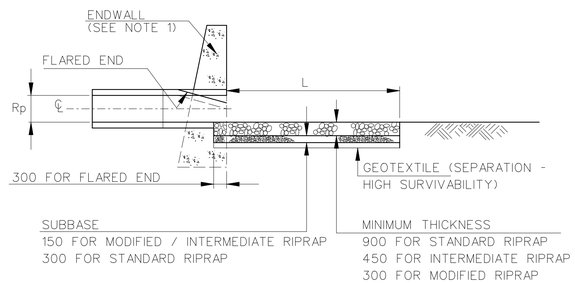
PLAN VIEW

RIPRAP SWALE



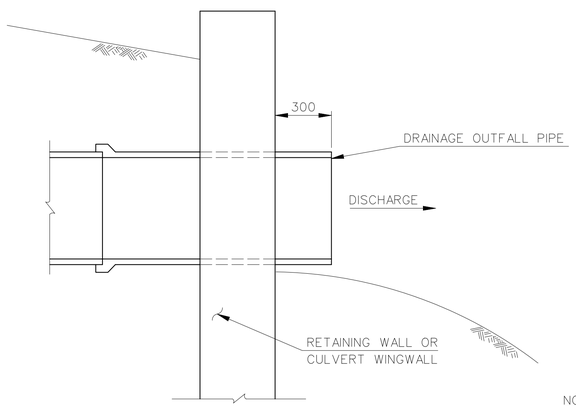
SECTION A-A
FLARED END OR ENDWALL

PREFORMED SCOUR HOLE



SECTION A-A
FLARED END OR ENDWALL

RIPRAP APRON



ELEVATION

PROJECTING BARREL

NOTES:

1. FOR SPECIFIC OUTFALL TREATMENTS, SEE DRAWING NO. DD-6.
2. SUBBASE SHALL BE NO. 8 AGGREGATE FOR MODIFIED RIPRAP AND NO. 6 AGGREGATE FOR INTERMEDIATE AND STANDARD RIPRAP.
3. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.
4. FLARED END REFERS TO REINFORCED CONCRETE CULVERT END (RCCE) AND METAL CULVERT END (MCE)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Misc\det\1510273006A.dds
PLOTTED 11/4/2014

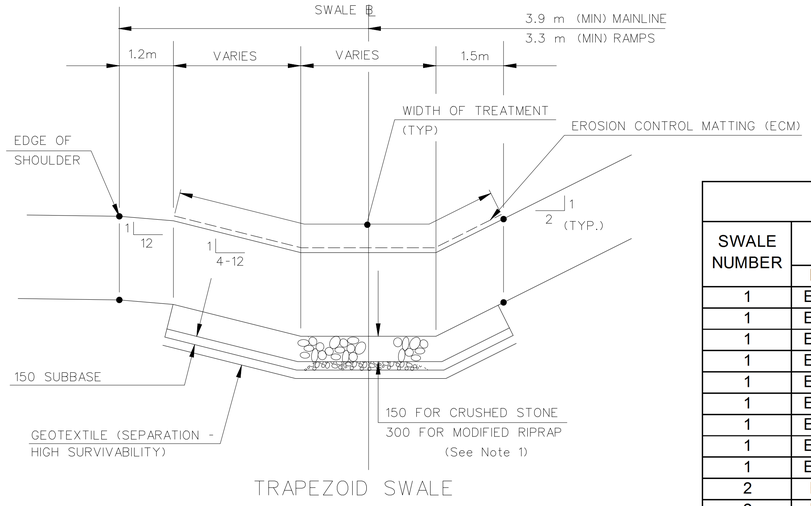
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

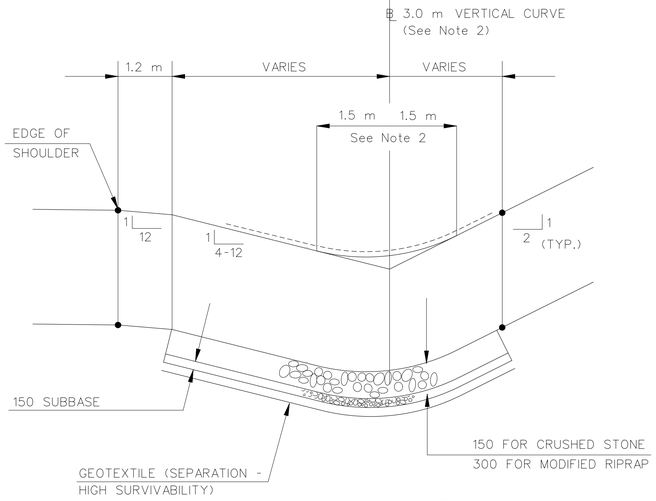
TOWN: WATERBURY

DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-7
SHEET NO.:



TRAPEZOID SWALE



V-SHAPE SWALE

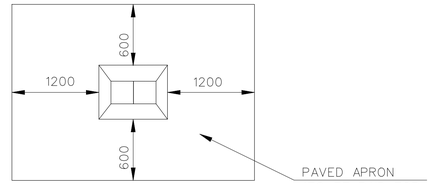
DRAINAGE SWALE

NOTES:
1. SUBBASE SHALL BE NO. 8 AGGREGATE FOR MODIFIED RIPRAP AND GRANULAR FILL GRADING "C" FOR CRUSHED STONE.
2. IN AREAS WHERE A 3.0 m ROUNDING CANNOT BE ATTAINED WITHOUT ENCROACHING ON THE ADJACENT SHOULDER, A MINIMUM 1.0 m ROUNDING SHALL BE PROVIDED UNLESS OTHERWISE DIRECTED BY THE EIC.

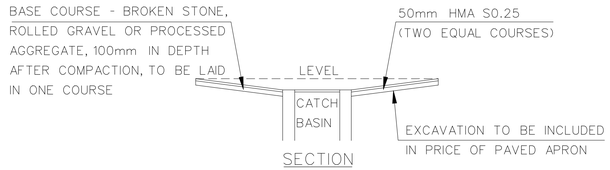
DRAINAGE SWALE TREATMENTS

SWALE NUMBER	STATIONING		WIDTH OF TREATMENT	TREATMENT	SHAPE
	BEGINNING	END	(m)		
1	E24 9+990	E24 10+090	4.9	TYPE E ECM	V
1	E24 10+090	E24 10+300	3.6	TYPE E ECM	V
1	E24 10+300	E24 10+380	3.2	TYPE E ECM	V
1	E24 10+380	E24 10+480	4.2	CRUSHED STONE	V
1	E24 10+480	E24 10+560	4.8	TYPE E ECM	V
1	E24 10+560	E24 10+640	3.9	TYPE E ECM	V
1	E24 10+640	E24 10+780	4.0	CRUSHED STONE	V
1	E24 10+780	E24 10+800	3.9	INTERMEDIATE RIPRAP	V
1	E24 10+800	E24 10+840	3.9	INTERMEDIATE RIPRAP	V
2	EB 2+380	EB 2+460	6.1	MODIFIED RIPRAP	V
2	EB 2+460	EB 2+770	5.3	TYPE E ECM	V
3	EB 3+420	EB 3+540	8.6	MODIFIED RIPRAP	T
3	EB 3+540	EB 3+660	8.6	GEOTEXTILE (DRAINAGE)	T
3	EB 3+660	EB 3+720	8.6	TYPE E ECM	T
3	EB 3+870	EB 3+900	4.5	CRUSHED STONE	V
3	EB 3+900	EB 4+040	4.5	TYPE E ECM	V
4	EB 4+480	EB 4+530	8.6	MODIFIED RIPRAP	V
4	EB 4+530	EB 4+905	8.6	GEOTEXTILE (DRAINAGE)	V
4	EB 4+905	EB 5+000	8.6	MODIFIED RIPRAP	V
5	EB 1+220	EB 1+355	12.0	TYPE E ECM	V
5, L Pier	EB 1+355	EB 1+400	5.7	CRUSHED STONE	V
5, R Pier	EB 1+355	EB 1+400	5.7	CRUSHED STONE	V
5	EB 1+400	EB 1+465	12.0	TYPE E ECM	V
6	EB 1+925	EB 2+025	3.7	TYPE E ECM	T
6	EB 2+025	EB 2+245	9.7	GEOTEXTILE (DRAINAGE)	V
6	EB 2+245	EB 2+270	8.9	MODIFIED RIPRAP	T
7	WB 1+845	WB 1+910	3.2	MODIFIED RIPRAP	V
7	WB 1+910	W24 12+300	10.6	TYPE E ECM	V
8	PRE 50+380	PRE 50+425	20.3	MODIFIED RIPRAP	T
8	PRE 50+425	PRE 50+700	11.9	TYPE E ECM	T
8	PRE 50+700	PRE 50+800	4.9	TYPE E ECM	V
9	PRE 50+420	PRE 50+710	11.2	GEOTEXTILE (DRAINAGE)	T
10	RD 10+010	RD 10+240	7.7	TYPE E ECM	V
10	RD 10+240	RD 10+440	7.0	MODIFIED RIPRAP	V
11	RD 10+050	RD 10+140	6.9	TYPE E ECM	V
11	RD 10+140	RD 10+180	7.3	TYPE E ECM	V
11	RD 10+180	RD 10+260	7.0	TYPE E ECM	V
11	RD 10+260	RD 10+340	7.0	TYPE F ECM	V
11	RD 10+340	RD 10+420	7.0	TYPE F ECM	V
12	WB 3+695	WB 3+810	11.5	TYPE E ECM	V
12	WB 3+810	WB 3+840	8.8	CRUSHED STONE	V
12	WB 3+840	WB 3+960	8.8	TYPE E ECM	V
12	WB 3+960	WB 4+020	8.8	TYPE E ECM	V
13	E25 33+920	E25 34+080	3.0	TYPE E ECM	V
15	WB 2+430	WB 2+485	11.7	CRUSHED STONE	T
15	WB 2+485	WB 2+660	11.7	TYPE E ECM	T
16	PRE 50+020	PRE 50+170	5.9	TYPE E ECM	T

V MEANS "V" SHAPE
T MEANS TRAPEZOID SHAPE

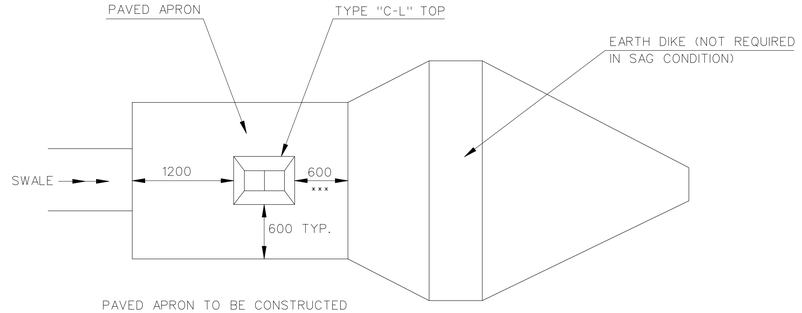


PLAN



SECTION

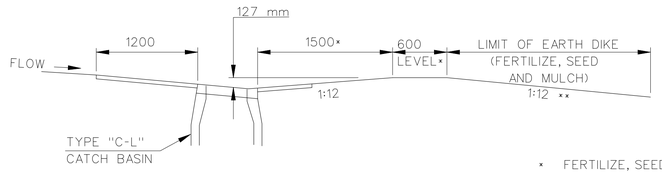
PAVED APRON DETAIL



PAVED APRON TO BE CONSTRUCTED
AS "PAVED DITCH"

××× INCREASE TO 1200 IN SAG CONDITION

PLAN



LONGITUDINAL SECTION

× FERTILIZE, SEED AND MULCH

×× USE BERM SLOPES OF 1.5:12 WHEN S IS GREATER THAN 0.04 m/m

TREATMENT OF 'C-L' CATCH BASINS IN GRASS AREAS - WITH PAVED APRON

NOTE: ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\miscdet\1510273007.dds | PLOTTED 12/1/2014

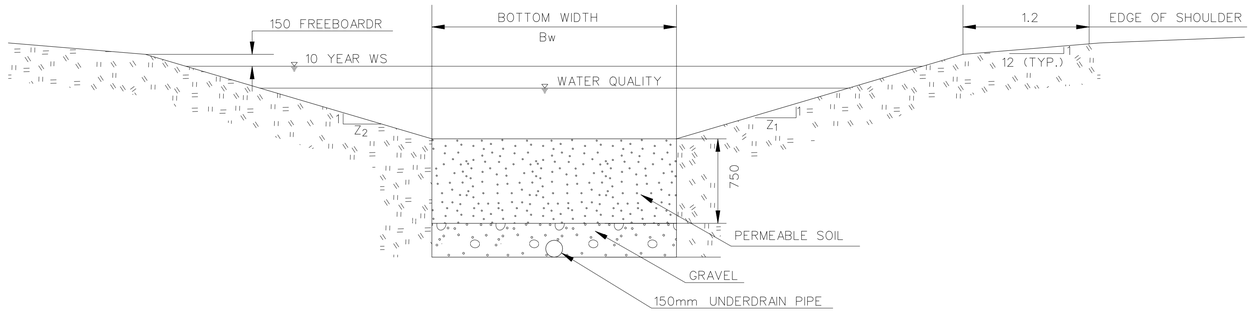
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-8
SHEET NO.:

WATER QUALITY SWALE DESIGN							
SWALE NUMBER	STATIONING BEGINNING	STATIONING END	Z_1	Z_2	Bw (m)	CHECK DAM HEIGHT (m)	CHACK DAM SPACING (m)
3	EB 3+420	EB 3+540	4.0	4.0	2.0	0.45	60
	EB 3+540	EB 3+660	4.0	4.0	2.0	0.45	40
	EB 3+660	EB 3+720	4.0	4.0	2.0	0.45	30
	EB 3+720	EB 4+040	4.0	4.0	2.0	0.45	160
7	SW7 10+070	SW7 10+104	2.0	2.0	2.0	0.45	17
	SW7 10+109	SW7 10+151	3.0	2.0	2.0	0.45	42
	SW7 10+151	SW7 10+251	3.0	2/3	2.0	0.45	33.33
	SW7 10+251	SW7 10+487	3.0	3.0	2.0	0.45	78
15	WB 2+440	WB 2+660	4.0	4.0	1.2	0.45	44
	WB 2+660	WB 2+740	4.0	4.0	1.2	0.45	27
16	PRE 50+020	PRE 50+120	4.0	4.0	1.2	0.45	50
	PRE 50+120	PRE 50+160	4.0	4.0	1.2	0.45	40



WATER QUALITY SWALE DETAIL
(NTS)

NOTE:

1. SEE DD-8 FOR SWALE TREATMENT

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\Swale table&details.dgn | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WATER QUALITY SWALE DETAIL

PROJECT NO.: 151-273
DRAWING NO.: DD-8A
SHEET NO.:

DRAINAGE TABLE

STRUCT. NO.	STATION	Offset		Type	PAVED APRON	TOP OF FRAME	INVERT(S) N	INVERT(S) S	INVERT(S) W	INVERT(S) E	> 3m?	SUMP DEPTH	FLOOR	SHEET	OUTFALL
P-6	E25 10+089.4	R	7.5	"C-L" C.B.	Yes	117.255	116.172				No	1.200	114.972	DRN-2	1
P-11	WB 1+223.1	R	7.2	"C-M" C.B.	No	115.975		114.120			No	1.145	112.975	DRN-2	1
P-32	WB 1+144.9	R	7.2	"C-M" C.B.	No	116.688		114.940			No	1.200	113.740	DRN-2	1
P-97	EB 0+966.5	L	7.2	"C-M" C.B.	No	118.265	116.810			116.699	No	1.200	115.499	DRN-2	1
P-97A	EB 1+087.7	L	7.2	"C-M" C.B.	No	117.372	115.780	115.932	115.997	115.398	No	1.026	114.372	DRN-2	1
P-127	EB 1+239.9	L	7.2	"C-M" C.B.	No	115.686	114.040		113.897	113.897	No	1.200	112.697	DRN-2	1
P-127B	EB 1+159.7	L	7.2	"C-M" C.B.	No	116.541	114.900		114.688	114.687	No	1.146	113.541	DRN-2	1
P-134A	WB 0+986.1	R	7.2	"C-M" C.B.	No	118.239		116.850			No	1.200	115.650	DRN-2	1
P-134B	WB 1+074.7	R	7.2	"C-M" C.B.	No	117.491		115.820			No	1.200	114.620	DRN-2	1
P-126	EB 1+301.0	L	7.2	"C-M" C.B.	No	115.204	113.292	113.439	113.292		No	1.088	112.204	DRN-3	1
P-132	WB 1+283.0	L	14.5	"C-L" C.B.	Yes	114.173		113.157		113.157	No	1.200	111.957	DRN-3	1
P-134	WB 1+282.6	R	7.2	"C-M" C.B.	No	115.615	113.257	113.257			No	0.642	112.615	DRN-3	1
P-135	EB 1+301.5	R	14.4	"C-L" C.B.	Yes	115.191	113.686	114.345			No	1.200	112.486	DRN-3	1
P-136	E25 10+310.4	R	5.2	"C-L" C.B.	Yes	115.258	114.500				No	1.200	113.300	DRN-3	1
P-120	W23 21+540.3	L	7.1	"C-L" C.B.	No	112.650		110.590		110.410	No	0.760	109.650	DRN-3	2
P-120A	WB 1+541.3	L	12.0	"C-L" C.B.	Yes	112.803	110.930	110.935			Yes	1.127	109.803	DRN-3	2
P-120B	W23 21+547.0	L	7.3	M.H. (1200mm Dia)	No	112.548	106.913		110.344		Yes	0.000	106.913	DRN-3	2
P-121	WB 1+541.2	R	7.2	"C-M" C.B.	No	113.375	111.655	111.700	112.086		No	1.200	110.455	DRN-3	2
P-122	EB 1+560.4	L	7.2	"C-M" C.B.	No	113.292	111.730				No	1.200	110.530	DRN-3	2
P-124	EB 1+468.6	L	7.2	"C-M" C.B.	No	114.088	113.025				No	1.200	111.825	DRN-3	2
P-125	EB 1+377.1	L	7.2	"C-M" C.B.	No	114.809	113.509				No	1.200	112.309	DRN-3	2
P-129	WB 1+449.5	R	7.2	"C-M" C.B.	No	114.029		112.995	112.996	112.995	No	1.200	111.795	DRN-3	2
P-133	WB 1+358.2	R	7.2	"C-M" C.B.	No	114.855		113.449		113.449	No	1.200	112.249	DRN-3	2
P-1	WB 1+756.6	L	14.4	"C-L" C.B., Double Grate, Type II	No	111.143			108.203	108.203	No	0.060	108.143	DRN-4	5
P-1A	WB 1+745.0	L	14.4	"C-L" C.B.	No	111.154		108.467	108.317	108.317	No	0.163	108.154	DRN-4	5
P-1C	WB 1+760.1	L	12.0	M.H.	No	111.145			108.128	108.128	Yes	0.000	108.128	DRN-4	5
P-1D	WB 1+765.0	L	12.0	M.H.	No	111.260	106.887		108.031	108.031	Yes	0.000	106.887	DRN-4	5
P-2	WB 1+717.1	R	7.2	"C-M" C.B.	No	111.983			110.608		No	1.200	109.408	DRN-4	5
P-3A	WB 1+767.2	R	7.2	"C-M" C.B.	No	111.916		109.839	109.839		No	0.923	108.916	DRN-4	5
P-4	EB 1+767.5	L	7.2	"C-M" C.B.	No	111.726	110.348				No	1.200	109.148	DRN-4	5
P-5	EB 1+804.9	L	7.2	"C-M" C.B.	No	111.657			109.950	110.025	No	1.200	108.750	DRN-4	5
P-5A	EB 1+818.0	L	7.2	"C-M" C.B.	No	111.660			110.285		No	1.200	109.085	DRN-4	5
P-5B	EB 1+790.4	L	7.2	"C-M" C.B.	No	111.667	109.880			109.880	No	1.200	108.680	DRN-4	5
P-17	WB 1+756.6	R	7.2	"C-M" C.B.	No	111.906			109.725	109.725	No	0.819	108.906	DRN-4	5
P-17A	WB 1+745.0	R	7.2	"C-M" C.B.	No	111.917	109.611	109.686		109.611	No	0.694	108.917	DRN-4	5
P-111	WB 1+691.7	L	14.4	"C-L" C.B.	No	111.350		109.975	108.731	108.581	No	0.231	108.350	DRN-4	5
P-112	EB 1+713.9	L	7.2	"C-M" C.B.	No	112.017	110.642				No	1.200	109.442	DRN-4	5
P-113	WB 1+691.9	R	7.2	"C-M" C.B.	No	112.112	110.103	110.103		110.103	No	0.991	109.112	DRN-4	5
P-114	W23 21+602.3	L	7.8	"C-L" C.B.	No	112.100		110.499		110.499	No	1.200	109.299	DRN-4	5
P-115	WB 1+601.3	R	7.2	"C-M" C.B.	No	112.899	110.967	110.967			No	1.068	109.899	DRN-4	5
P-116	EB 1+621.6	L	7.2	"C-M" C.B.	No	112.743	111.050	111.125			No	1.200	109.850	DRN-4	5
P-117	EB 1+621.2	R	10.8	"C-M" C.B.	No	113.341	111.966				No	1.200	110.766	DRN-4	5
P-7A	WB 1+847.0	L	27.8	"C-L" SPEC. DBLE GRATE, TYPE II	Yes	106.286		104.823	104.823	105.348	No	0.000	104.823	DRN-4	7
P-12	E25 11+148.2	R	2.4	"C-L" C.B.	No	115.953	114.089			114.589	No	1.136	112.953	DRN-5	8
P-13	E25 11+148.0	L	5.4	"C-L" C.B.	No	116.092	112.100	114.055			Yes	0.000	112.100	DRN-5	8
P-14	E23 32+126.6	R	4.6	"C-L" C.B.	Yes	113.280	112.005	112.105			No	1.200	110.805	DRN-5	8
P-15	EB 2+126.7	L	7.2	"C-M" C.B.	No	113.937	111.876	111.976			No	0.939	110.937	DRN-5	8
P-16	WB 2+100.0	R	7.2	"C-M" C.B.	No	114.036	111.756	111.856			No	0.720	111.036	DRN-5	8
P-16A	WB 2+100.0	L	14.4	"C-L" C.B.	No	113.880	111.644	111.653			No	0.764	110.880	DRN-5	8
P-175	E25 11+203.7	R	4.0	"C-L" C.B.	No	118.498	117.279		117.179		No	1.200	115.979	DRN-5	8
P-176	E25 11+203.9	L	8.0	"C-L" C.B.	No	118.667		117.492			No	1.200	116.292	DRN-5	8
P-15A	EB 2+026.7	L	7.2	"C-M" C.B.	No	113.395	111.904	111.904			No	1.200	110.704	DRN-5	8A
P-15B	WB 2+000.0	R	7.2	"C-M" C.B.	No	113.179	111.884	111.884			No	1.200	110.684	DRN-5	8A
P-15C	E23 32+026.7	R	7.5	"C-L" C.B.	No	113.215	112.032	112.032			No	1.200	110.832	DRN-5	8A
P-15D	E25 11+048.2	R	2.4	"C-L" C.B.	No	113.969	112.600				No	1.200	111.400	DRN-5	8A
P-7	WB 1+851.3	L	14.4	"C-L" C.B.	No	111.573				110.298	No	1.200	109.098	DRN-4	8C
P-8	WB 1+874.5	R	7.2	"C-M" C.B., Double Grate, Type II	No	112.420	110.379	110.379			No	0.959	109.420	DRN-4	8C
P-8A	WB 1+874.5	L	14.4	"C-L" C.B.	No	111.741		110.276	110.173	110.073	No	1.200	108.873	DRN-4	8C
P-8C	WB 1+950.0	L	14.4	"C-L" C.B.	No	112.370	109.698		109.898		No	0.328	109.370	DRN-4	8C
P-9	EB 1+899.7	L	7.2	"C-M" C.B.	No	111.940	110.400			110.525	No	1.200	109.200	DRN-4	8C
P-10	EB 1+926.0	L	7.2	"C-M" C.B.	No	112.300		110.976	110.876		No	1.200	109.676	DRN-4	8C
P-98	E23 31+924.5	R	5.0	"C-L" C.B.	Yes	112.316	111.461			111.461	No	1.200	110.261	DRN-4	8C
P-100	E25 10+948.7	L	5.4	"C-L" C.B.	No	113.270	111.737	111.737			No	1.200	110.537	DRN-4	8C
P-101	E25 10+950.6	R	2.4	"C-L" C.B.	No	113.454	112.079				No	1.200	110.879	DRN-4	8C
P-102	E23 31+924.5	R	2.4	"C-L" C.B.	No	113.168	111.445	111.445			No	1.200	110.245	DRN-4	8C
P-19	EB 2+371.0	R	10.8	"C-L" C.B.	No	115.813	113.942	113.942			No	1.129	112.813	DRN-6	9
P-20	EB 2+387.0	L	7.2	"C-M" C.B.	No	115.998	114.376	114.376			No	1.200	113.176	DRN-6	9
P-21	WB 2+365.5	R	7.2	"C-M" C.B.	No	116.140	114.437	114.437			No	1.200	113.237	DRN-6	9
P-22	WB 2+381.5	L	10.8	"C-L" C.B.	No	116.182		114.671			No	1.200	113.471	DRN-6	9
P-30	WB 2+473.0	R	7.2	"C-M" C.B.	No	117.036		115.808	115.807		No	1.200	114.607	DRN-6	9A
P-31	EB 2+500.0	L	7.2	"C-M" C.B.	No	116.925	115.850				No	1.200	114.650	DRN-6	9A
P-433	WB 2+419.3	R	4.9	M.H. (1200mm Dia)	No	116.683	114.937			115.031	No	0.000	114.937	DRN-6	9A
P-434	WB 2+461.8	R	4.9	M.H. (1200mm Dia)	No	117.024			115.643	115.643	No	0.000	115.643	DRN-6	9A
P-26	WB 2+660.0	R	7.2	"C-M" C.B.	No	118.600	117.353	117.353			No	1.200	116.153	DRN-7	9B
P-27	EB 2+684.7	L	7.2	"C-M" C.B.	No	118.500	117.395				No	1.200	116.195	DRN-7	9B
P-8B	W24 12+176.7	L	8.4	Special M.H.	No	114.250	109.208	109.208			Yes	0.000	109.208	DRN-5	10
P-43	EB 3+233.8	R	10.8	"C-M" C.B.	No	130.070		127.465			No	0.395	127.070	DRN-8	15
P-57	WB 3+695.0	L	17.0	"C-L" C.B.	Yes	134.920		132.818	132.293	132.443	No	0.000	132.293	DRN-10	19
P-57A	WB 3+691.9	L	17.0	M.H.	Yes	134.930			132.237	132.237	No	0.000	132.237	DRN-10	19
P-57B	WB 3+687.0	L	17.0	M.H.	Yes	134.930	132.140			132.140	No	0.000	132.140	DRN-10	19
P-59	WB 3+695.0	R	7.2	"C-M" C.B.	No	135.322	133.931	133.931			No	1.200	132.731	DRN-10	19
P-60	EB 3+732.5	L	7.2	"C-M" C.B.	No	135.347	133.972				No	1.200	132.772	DRN-10	19
P-53	WB 3+781.4	L	14.7	"C-L" C.B.	Yes	135.691	134.114	134.114	133.739	133.889	Yes	1.048	132.691	DRN-11	19
P-54	WB 3+791.0	R	7.2	"C-M" C.B.	No	136.474	135.029	135.029			No	1.200	133.829	DRN-11	19
P-55	EB 3+830.3	L	7.2	"C-M" C.B.	No	136.546	135.171				No	1.200	133.971	DRN-11	19
P-95	WB 3+841.4	L	14.7	"C-L" C.B.	Yes	136.506	134.715		134.490	134.490	Yes	0.984	133.506	DRN-11	19
P-95A	WB 3+930.0	L	14.7	"C-L" C.B.	Yes	137.683			135.822	135.822	Yes	1.139	134.683	DRN-11	19
P-197	PRE 51+276.7	R	7.8	"C" C.B.	No	141.275		139.275			Yes	1.000	138.275	DRN-11	19
P-198	W25 13+840.1	R	7.8	"C" C.B.	No	142.350		140.975			No	1.200	139.775	DRN-11	19
P-61	EB 4+047.5	L	7.2	"C-M" C.B.	No	139.050	136.998	137.073			No	0.948	136.050	DRN-12	19
P-62	WB 4+009.5	R	7.2	"C-M" C.B.	No	138.888	136.974	136.974			No	1.086	135.888	DRN-12	19
P-63	WB 4+009.5	L	14.7	"C-L" C.B., Double Grate, Type II	Yes	138.363	136.849	136.849	136.624		Yes	1.200	135.424	DRN-12	19
P-63A	W25 14+024.2	L	2.4	"C-L" C.B.	No	138.846			137.471		No	1.200	136.271	DRN-12	19
P-63B	W25 14+001.0	L	2.4	"C-L" C.B.	No	138.959		137.348		137.348	No	1.200	136.148	DRN-12	19
P-202	E25 34+090.5	R	6.6	"C-L" C.B., Double Grate, Type II	No	139.049			137.674		No	1.200	136.474	DRN-12	19
P-202B	E25 34+048.0	R	6.6	"C-L" C.B.	No	138.720	137.252			137.252	No	1.200	136.052	DRN-12	19
P-64	WB 4+304.2	L	10.8	"C-L" C.B.	No	140.628		138.918	138.818	139.218	No	1.190	137.628	DRN-12	21
P-64B	W25 14+216.6	L	2.4	"C-L" C.B.	No	139.983			138.182	138.282	No	1.199	136.983	DRN-12	21

1

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED: 11/09

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Drainage\d-19.dgn | PLOTTED 11/4/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE TABLE

PROJECT NO.: 151-273
DRAWING NO.: DD-9
SHEET NO.:

DRAINAGE TABLE

STRUCT. NO.	STATION	Offset	Type	PAVED APRON	TOP OF FRAME	INVERT(S) N	INVERT(S) S	INVERT(S) W	INVERT(S) E	> 3m?	SUMP DEPTH	FLOOR	SHEET	OUTFALL
P-65	WB 4+304.2	R 7.2	"C-M" C.B.	No	140.700	139.088	139.188			No	1.200	137.888	DRN-12	21
P-66	EB 4+341.5	L 7.2	"C-M" C.B.	No	140.551	139.230	139.230			No	1.200	138.030	DRN-12	21
P-67	EB 4+341.0	R 13.8	"C-L" C.B.	No	140.456	139.300				No	1.200	138.100	DRN-12	21
P-68	WB 4+395.7	L 10.8	"C-L" C.B.	No	142.124		139.849	139.849		No	0.725	139.124	DRN-13	21
P-69	WB 4+395.7	R 7.2	"C-M" C.B.	No	141.909	140.021	140.121			No	1.112	138.909	DRN-13	21
P-213	EB 4+433.4	L 7.2	"C-M" C.B.	No	141.470	140.163	140.163			No	1.200	138.963	DRN-13	21
P-214	W25 14+120.9	L 2.4	"C-L" C.B.	No	139.410		138.100	137.700	137.700	No	1.200	136.500	DRN-12	21
P-214A	W25 14+089.3	L 1.8	M.H.	No	139.229			137.400	137.500	No	0.000	137.400	DRN-12	21
P-214B	W25 14+085.0	L 1.8	M.H.	No	139.200	137.367			137.367	No	0.000	137.367	DRN-12	21
P-215	WB 4+121.3	R 7.2	"C-M" C.B.	No	139.590	138.268	138.268			No	1.200	137.068	DRN-12	21
P-216	EB 4+159.0	L 7.2	"C-M" C.B.	No	139.563	138.288				No	1.200	137.088	DRN-12	21
P-222	EB 4+433.4	R 10.8	"C-L" C.B.	No	141.400	140.338				No	1.200	139.138	DRN-13	21
P-221	E25 34+200.6	R 6.6	"C-L" C.B.	No	139.676		137.811			No	1.135	136.676	DRN-12	22
P-70A	WB 4+769.8	L 10.8	"C-M" C.B.	No	146.890	144.550				No	0.660	143.890	DRN-13	26
P-88A	WB 4+964.0	L 10.8	"C-L" C.B.	No	147.858	142.250				Yes	0.000	142.250	DRN-14	27
P-91	WB 5+052.0	R 7.3	"C-M" C.B.	No	147.695	145.003	145.200		145.200	No	0.308	144.695	DRN-15	28
P-92	EB 5+073.0	L 7.2	"C-M" C.B.	No	146.942	145.266				No	1.200	144.066	DRN-15	28
P-307	WB 5+108.0	R 7.2	"C-M" C.B.	No	147.715			145.884		No	1.169	144.715	DRN-15	28
P-123	E25 10+478.0	L 10.5	"C-L" C.B., Double Grate, Type II	Yes	113.158		112.150			No	1.200	110.950	DRN-3	33
P-128	E25 10+576.5	L 5.4	"C-M" SPECIAL C.B.	No	112.636		110.895	110.375	110.375	No	0.000	110.375	DRN-3	33
P-128A	E25 10+576.3	R 6.0	"C-L" C.B.	Yes	111.860	111.005				No	1.200	109.805	DRN-3	33
P-131	E25 10+534.0	R 5.0	"C-L" C.B.	Yes	112.578	110.625		110.625		Yes	1.047	109.578	DRN-3	33
P-131A	E25 10+534.0	L 5.4	"C-M" C.B.	No	113.158		110.578		110.578	No	0.420	110.158	DRN-3	33
P-137	E25 10+483.0	R 4.0	"C-L" C.B.	Yes	113.452	112.005			110.876	Yes	0.424	110.452	DRN-3	33
P-155	E23 31+559.9	R 2.4	"C-L" C.B.	No	120.322	118.450		118.070	118.070	Yes	0.748	117.322	DRN-3	33
P-155A	E23 31+518.0	R 2.4	"C-L" C.B.	No	121.380				118.280	Yes	0.000	118.280	DRN-3	33
P-156	E23 31+559.9	L 5.4	"C-L" C.B.	No	120.121		118.580			No	1.200	117.380	DRN-3	33
P-94	E25 10+825.2	R 2.4	"C-L" SPECIAL C.B.	No	112.871	108.900	108.900			Yes	0.000	108.900	DRN-4	33
P-94A	E25 10+825.2	L 5.4	"C-M" SPECIAL C.B.	No	112.755	110.640	108.940	108.940		Yes	0.000	108.940	DRN-4	33
P-96	E23 31+807.0	R 2.4	"C-M" C.B., Double Grate, Type II	No	112.657	110.660	110.660	110.880	110.880	Yes	1.003	109.657	DRN-4	33
P-96A	E23 31+792.0	R 2.4	"C-M" C.B.	No	112.687				111.015	No	1.200	109.815	DRN-4	33
P-96B	E23 31+820.0	R 2.4	"C-M" C.B.	No	112.768			111.015		No	1.200	109.815	DRN-4	33
P-103	E25 10+779.4	L 5.4	"C-M" SPECIAL C.B.	No	112.526	110.640		109.000	109.000	Yes	0.000	109.000	DRN-4	33
P-104	E23 31+760.7	L 5.4	"C-L" C.B.	No	112.796	111.000	110.800			No	1.004	109.796	DRN-4	33
P-105	EB 1+764.3	R 10.8	"C-M" C.B.	No	112.443		111.050			No	1.200	109.850	DRN-4	33
P-7F	WB 1+876.0	L 31.8	"C-L" C.B.	Yes	107.373			106.427	106.427	No	1.200	105.227	DRN-4	33
P-106	E25 10+672.1	L 5.4	"C-M" SPEC. C.B., Dble Grate, Type	No	112.103	110.440	109.829	109.540	109.340	No	0.000	109.340	DRN-4	33
P-107	E25 10+640.2	L 5.4	"C-M" SPECIAL C.B.	No	112.150			110.055	109.855	No	0.000	109.855	DRN-4	33
P-108	E25 10+671.9	R 5.8	"C-L" C.B., Double Grate, Type II	Yes	111.158	110.039		110.039		No	1.200	108.839	DRN-4	33
P-108A	E25 10+649.0	R 5.8	"C-L" C.B.	Yes	111.342		110.049		110.049	No	1.200	108.849	DRN-4	33
P-108B	E25 10+652.0	R 9.0	M.H. (1200mm Dia)	Yes	115.058	110.078		112.885	112.885	Yes	0.000	110.078	DRN-4	33
P-109	E25 10+649.0	R 9.0	"C-L" C.B.	Yes	114.761				112.985	No	1.200	111.785	DRN-4	33
P-109A	E25 10+707.0	R 9.0	"C-L" C.B.	Yes	114.300			113.158		No	1.200	111.958	DRN-4	33
P-153	E23 31+654.6	R 2.4	"C-L" C.B.	No	116.063	114.170	110.470	114.250		Yes	0.000	110.470	DRN-4	33
P-154	E23 31+654.7	L 5.4	"C-L" C.B.	No	115.862		114.300			No	1.200	113.100	DRN-4	33
P-254	E23 31+807.0	L 5.4	"C-M" C.B., Double Grate, Type II	No	112.435	110.696	110.696	110.696	110.696	No	1.200	109.496	DRN-4	33
P-254A	E23 31+792.0	L 5.4	"C-M" C.B.	No	112.464				110.760	No	1.200	109.560	DRN-4	33
P-254B	E23 31+820.0	L 5.4	"C-L" C.B.	No	112.545			110.760		No	1.200	109.560	DRN-4	33
P-255	EB 1+803.7	R 10.8	"C-M" C.B.	No	112.290				110.719	No	1.200	109.519	DRN-4	33

STRUCT. NO.	STATION	Offset	Type	PAVED APRON	TOP OF FRAME	INVERT(S) N	INVERT(S) S	INVERT(S) W	INVERT(S) E	> 3m?	SUMP DEPTH	FLOOR	SHEET	OUTFALL
P-255A	EB 1+808.0	R 10.8	"C-M" C.B.	No	112.291		110.703	110.703		No	1.200	109.503	DRN-4	33
P-211	PRE 51+166.7	R 4.5	"C" C.B.	No	136.425	134.800	133.300			Yes	0.000	133.300	DRN-10	34
P-212	PRE 51+166.6	L 7.5	"C" C.B.	No	136.377		134.920			No	1.200	133.720	DRN-10	34
P-183	RD 10+474.7	L 4.8	"C" C.B.	No	118.702			117.500		No	1.200	116.300	DRN-7	36
P-184	RD 10+460.3	L 4.8	"C" C.B.	No	118.754	115.504	115.804	117.000	117.220	No	0.000	115.504	DRN-7	36
P-184A	RD 10+440.0	L 13.8	"C-L" C.B., Double Grate, Type II	Yes	118.298				117.100	No	1.200	115.900	DRN-7	36
P-185	RD 10+460.4	R 4.8	"C" C.B.	No	118.725	115.884	116.500	117.000	117.220	Yes	0.159	115.725	DRN-7	36
P-186	RD 10+474.7	R 4.8	"C" C.B.	No	118.702			117.500		No	1.200	116.300	DRN-7	36
P-187A	RD 10+462.5	R 13.6	Reset Type "C" CB	No	119.155			116.595			0.440	116.155	DRN-7	36
P-187B	RD 10+472.5	R 17.7	Reset Type "C" CB	No	119.156						1.200	998.800	DRN-7	36
P-185A	RD 10+440.0	R 11.0			118.550				117.180		1.200	115.980		36
P-187	RD 10+490.4	R 4.8	"C" C.B.	No	118.750	117.064				No	1.200	115.864	DRN-7	37
P-188	RD 10+490.3	L 4.8	"C" C.B.	No	118.750	116.904	116.904			Yes	1.154	115.750	DRN-7	37
P-166	W24 12+482.5	R 2.4	"C" C.B., Double Grate, Type II	No	121.648				120.373	No	1.200	119.173	DRN-17	42
P-167	HFR 60+506.2	R 12.0	"C" C.B.	No	121.725			120.090	120.090	Yes	1.200	118.890	DRN-17	42
P-168	HFR 60+545.9	L 10.8	"C" C.B.	No	118.949				117.574	No	1.200	116.374	DRN-17	43
P-169	HFR 60+545.8	R 4.8	"C" C.B.	No	119.088	117.466		117.466		No	1.200	116.266	DRN-17	43
P-171	PR 70+116.4	R 5.6	"C" C.B.	No	114.600	112.830	112.730			Yes	1.130	111.600	DRN-17	43
P-172	HFR 60+665.6	L 7.2	"C" C.B., Double Grate, Type II	No	114.461	112.979	112.959		113.079	No	1.200	111.759	DRN-17	43
P-173	HFR 60+671.0	R 3.9	"C" C.B., Double Grate, Type II	No	114.526	113.138		113.138	113.138	No	1.200	111.938	DRN-17	43
P-173A	HFR 60+677.0	R 12.0	M.H. (1200mm Dia)	No	114.923			113.548		No	0.000	113.548	DRN-17	43
P-173B	HFR 60+695.0	R 3.0	"C" C.B., Double Grate, Type I	No	114.774		113.399			No	1.200	112.199	DRN-18	43
P-173C	HFR 60+684.0	R 3.5	"C" C.B., Double Grate, Type II	No	114.663	113.181	113.181			No	1.200	111.981	DRN-17	43
P-174	HFR 60+623.4	R 4.8	"C" C.B.	No	115.099	112.904	113.129	112.904		Yes	0.805	112.099	DRN-17	43
P-179	PR 70+157.6	R 3.9	"C" C.B.	No	114.720			113.305	113.305	No	1.200	112.105	DRN-17	43
P-179A	PR 70+145.0	R 4.1	"C" C.B.	No	114.658	113.025		112.975	113.149	No	1.200	111.775	DRN-17	43
P-180	PR 70+163.0	L 3.9	"C" C.B.	No	114.747			113.356	113.356	No	1.200	112.156	DRN-17	43
P-180A	PR 70+142.0	L 4.0	"C" C.B., Double Grate, Type II	No	114.654		113.174		113.149	No	1.200	111.949	DRN-17	43
P-181	PR 70+180.4	R 3.9	"C" C.B.	No	114.831			113.417	113.417	No	1.200	112.217	DRN-17	43
P-190	PR 70+180.9	L 3.9	"C" C.B.	No	114.831			113.546	113.546	No	1.200	112.346	DRN-17	43
P-191	PR 70+216.7	R 3.9	"C" C.B.	No	115.517			114.142		No	1.200	112.942	DRN-17	43
P-203	HFR 60+623.5	L 4.8	"C" C.B.	No	115.079	112.645		112.645	112.745	No	0.566	112.079	DRN-17	43
P-203A	HFR 60+624.0	L 6.8	M.H.	No	115.100			112.629	112.629	No	0.000	112.629	DRN-17	43
P-203B	HFR 60+624.3	L 12.7	M.H.	No	114.000			112.605	112.605	No	0.000	112.605	DRN-17	43
P-204	PR 70+217.2	L 3.9	"C" C.B.	No	115.517			114.140	114.140	No	1.200	112.940	DRN-17	43
P-228	HFR 60+707.8	R 3.9	"C" C.B.	No	114.850	113.393		113.393		No	1.200	112.193	DRN-18	43
P-228A	HFR 60+707.8	L 4.0	"C" C.B.	No	114.895		113.354		113.349	No	1.200	112.149	DRN-18	43
P-228B	HFR 60+724.0	R 3.6	"C" C.B.	No	115.146	113.687	113.687			No	1.200	112.487	DRN-18	43
P-228C	HFR 60+739.0	R 3.6	"C" C.B.	No	115.346	113.871	113.871			No	1.200	112.671	DRN-18	43
P-229	HFR 60+797.0	R 3.6	"C" C.B.	No	116.046		114.671			No	1.200	113.471	DRN-18	43
P-229A	HFR 60+780.0	R 3.6	"C" C.B.	No	115.846	114.458	114.458			No	1.200	113.258	DRN-18	43
P-229B	HFR 60+765.0	R 3.6	"C" C.B.	No	115.646	114.264	114.264			No	1.200	113.064	DRN-18	43
P-229C	HFR 60+755.0	R 3.6	"C" C.B.	No	115.516	114.063	114.063			No	1.200	112.863	DRN-18	43
P-230	PR 70+252.0	L 3.9	"C" C.B.	No	116.356			114.981		No	1.200	113.781	DRN-17	43
P-192	SR 5+300.0	L 8.4	"C" C.B., Double Grate, Type II	No	139.778	138.387	138.387		138.312	No	1.200	137.112	DRN-11	47
P-193	SR 5+272.0	L 8.4	"C" C.B.	No	140.114	138.739				No	1.200	137.539	DRN-11	47
P-194	SR 5+294.8	R 15.6	"C" C.B., Double Grate, Type II	No	139.780	138.073	138.173	138.073		Yes	1.200	136.873	DRN-11	47
P-195	EM 30+327.5	R 4.8	"C" C.B.	No	140.656	138.991	138.991		139.091	No	1.200	137.791	DRN-11	47
P-195A	SR 5+303.9	R 18.1	M.H. (1200mm Dia)	No	140.023	138.025	137.925		137.775	No	0.000	137.775	DRN-11	47

1

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED: 11/09

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Drainage\d-20.dgn
PLOTTED 11/4/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE TABLE

PROJECT NO.: 151-273
DRAWING NO.: DD-10
SHEET NO.:

DRAINAGE TABLE

STRUCT. NO.	STATION	Offset	Type	PAVED APRON	TOP OF FRAME	INVERT(S) N	INVERT(S) S	INVERT(S) W	INVERT(S) E	> 3m?	SUMP DEPTH	FLOOR	SHEET	OUTFALL
P-195B	SR 5+301.7	R 20.0	M.H.	No	140.552			137.721	137.721	No	0.000	137.721	DRN-11	47
P-195C	SR 5+297.6	R 23.5	M.H.	No	141.000			137.624	137.624	Yes	0.000	137.624	DRN-11	47
P-196	SR 5+317.5	L 8.4	"C" C.B., Double Grate, Type II	No	140.150	138.570	138.570			No	1.200	137.370	DRN-11	47
P-200	EM 30+287.7	L 7.8	"C" C.B., Double Grate, Type II	No	140.401		138.926	139.026		No	1.200	137.726	DRN-11	47
P-201	EM 30+326.5	L 9.0	"C" C.B.	No	140.515		139.140			No	1.200	137.940	DRN-11	47
P-210	EM 30+326.5	L 7.8	"C" C.B., Double Grate, Type II	No	140.586	139.110	139.110			No	1.200	137.910	DRN-11	47
P-225	EM 30+372.5	R 4.8	"C" C.B.	No	141.417			140.042		No	1.200	138.842	DRN-11	47
P-226	SR 5+273.0	R 15.6	"C" C.B.	No	139.969	138.594				No	1.200	137.394	DRN-11	47
P-227	EM 30+237.5	L 8.4	"C" C.B., Double Grate, Type II	No	140.694			139.620	139.580	No	1.200	138.380	DRN-10	47
P-227B	EM 30+168.4	L 6.8	"C" C.B.	No	141.271			140.160	140.060	No	1.200	138.860	DRN-10	47
P-227D	EM 30+104.4	L 5.6	"C" C.B., Double Grate, Type I	No	141.657				140.555	No	1.200	139.355	DRN-10	47
P-310	EM 30+382.5	L 14.0	"C" C.B.	No				140.082	140.089	No	1.200	138.882	DRN-11	47
P-311	EM 30+378.0	L 14.5	CONVERT CB to MH	No				139.330	140.050	No	0.000	139.330	DRN-11	47
P-233	HFR 60+237.7	R 12.0	"C" C.B., Double Grate, Type II	No	124.027				122.652	No	1.200	121.452	DRN-6	49
P-234	HFR 60+232.9	L 12.0	"C-M" C.B.	No	124.006				122.631	No	1.200	121.431	DRN-6	49
P-235	E25 11+341.3	R 8.0	"C-M" C.B.	No	123.795			122.243	122.243	No	1.200	121.043	DRN-6	49
P-236	E25 11+346.0	L 8.4	"C" C.B.	No	123.900			122.145	122.145	No	1.200	120.945	DRN-6	49
P-237	HFR 60+305.8	L 12.0	"C" C.B.	No	124.307	119.521	120.772	121.147		Yes	0.000	119.521	DRN-6	49
P-237A	HFR 60+305.2	L 19.6	M.H. (1200mm Dia)	No	120.500	113.987	118.750			Yes	0.000	113.987	DRN-6	49
P-237B	HFR	L	M.H. (1200mm Dia)	No	123.975	119.000	119.500			No	0.000	119.000	DRN-6	49
P-238	HFR 60+307.3	R 8.4	"C" C.B.	No	124.388	120.869	120.919			Yes	0.000	120.869	DRN-6	49
P-239	HFR 60+255.0	R 13.0	"C-L" C.B., Double Grate, Type II	Yes	123.373			121.908	121.883	No	1.200	120.683	DRN-6	49
P-240	RD 10+048.7	L 9.0	"C-L" C.B., Double Grate, Type II	Yes	123.380	121.120		121.120	121.733	No	0.000	121.120	DRN-6	49
P-240A	RD 10+105.2	L 9.3	"C-L" C.B.	Yes	124.063			122.688		No	1.200	121.488	DRN-6	49
P-241	RD 10+013.0	R 15.0	"C-L" C.B.	Yes	123.523		121.641	121.691		Yes	1.118	120.523	DRN-6	49
P-242	RD 10+034.0	R 13.8	"C-L" C.B., Double Grate, Type II	Yes	123.498	121.431	121.540		121.431	No	0.000	121.431	DRN-6	49
P-242A	RD 10+070.0	R 13.6	"C-L" C.B.	Yes	123.753			121.847	121.997	Yes	1.094	120.753	DRN-16	49
P-242B	RD 10+105.1	R 13.6	"C-L" C.B.	Yes	124.085			122.189	122.339	Yes	1.104	121.085	DRN-6	49
P-242C	RD 10+140.0	R 12.8	"C-L" C.B.	Yes	124.534			123.084		No	1.200	121.884	DRN-6	49
P-140	PR 70+329.6	R 3.3	"C" C.B.	No	117.833	116.600		115.447	115.447	Yes	0.614	114.833	DRN-7	50
P-164	PRE 50+252.0	L 10.0	"C-L" C.B., Double Grate, Type II	Yes	118.373			115.345	115.345	Yes	0.000	115.345	DRN-7	50
P-164A	PRE 50+218.8	L 22.4	M.H. (1500mm Dia)	No	117.100	115.078		114.930	115.172	No	0.000	114.930	DRN-7	50
P-218	PR 70+365.0	R 3.9	"C" C.B.	No	118.562	117.200	115.246	115.284		Yes	0.000	115.246	DRN-7	50
P-219	PR 70+365.0	L 3.9	"C" C.B.	No	118.562		117.230			No	1.200	116.030	DRN-7	50
P-182	PR 70+286.0	R 3.9	"C" C.B.	No	117.094	115.661			115.660	No	1.200	114.460	DRN-17	50
P-182A	PR 70+287.6	L 3.9	"C" C.B.	No	117.112		115.781			No	1.200	114.581	DRN-17	50
P-217	PR 70+329.6	L 3.9	"C" C.B.	No	117.858		116.630			No	1.200	115.430	DRN-17	50
P-164B	PRE 50+282.0	L 15.0	"C-L" C.B.	No	116.822			116.822			0.000	116.822		50
P-23	PRE 50+407.5	R 4.5	"C-L" C.B.	No	125.020		122.700			No	0.680	122.020	DRN-8	50A
P-33	EB 2+921.5	L 7.2	"C-M" C.B.	No	122.964	121.889				No	1.200	120.689	DRN-8	50A
P-34	WB 2+896.0	R 7.2	"C-M" C.B.	No	123.168	121.468	121.668			No	1.200	120.268	DRN-8	50A
P-35	WB 2+904.5	L 12.7	"C-M" C.B.	No	122.387	121.099	120.799	120.374	120.874	No	0.987	119.387	DRN-8	50A
P-35A	WB 2+780.0	L 14.6	"C-L" C.B.	No	120.053	117.817			118.217	No	0.764	117.053	DRN-8	50A
P-36	WB 3+137.5	L 12.7	"C-M" C.B.	No	127.366		126.118	125.543	126.218	No	1.177	124.366	DRN-8	50A
P-39	WB 3+058.7	L 12.5	"C-M" C.B.	No	125.700	124.525		123.984	124.134	No	1.200	122.784	DRN-8	50A
P-40	EB 3+172.0	L 7.2	"C-M" C.B.	No	128.304					No	1.200	998.800	DRN-8	50A
P-42	WB 3+138.5	R 7.2	"C-M" C.B.	No	128.327	126.855	127.055		127.055	No	1.200	125.655	DRN-8	50A
P-46	EB 3+308.0	L 7.2	"C-M" C.B.	No	130.290	129.115				No	1.200	127.915	DRN-9	50A
P-47	WB 3+273.0	R 7.2	"C-M" C.B.	No	130.368		128.791	128.591		No	1.200	127.391	DRN-9	50A

STRUCT. NO.	STATION	Offset	Type	PAVED APRON	TOP OF FRAME	INVERT(S) N	INVERT(S) S	INVERT(S) W	INVERT(S) E	> 3m?	SUMP DEPTH	FLOOR	SHEET	OUTFALL
P-48	WB 3+280.2	L 15.0	"C-L" C.B.	Yes	129.646			128.471		No	1.200	127.271	DRN-9	50A
P-159	PRE 50+556.0	R 4.5	"C-L" C.B.	No	129.174	127.799	125.000			Yes	0.000	125.000	DRN-8	50A
P-220	PRE 50+555.3	L 11.0	TBW"SPEC. QUAD. GRATE,TYPE II	Yes	133.023		127.961			Yes	0.000	127.961	DRN-8	50A
P-177	PR 70+080.8	R 5.6	"C" C.B.	No	114.688	112.640	112.640			Yes	0.952	111.688	DRN-17	51
P-177A	PR 70+080.7	R 2.8	M.H. (1200mm Dia)	No	114.793	113.265	112.658			No	0.000	112.658	DRN-17	51
P-178	PR 70+080.2	L 5.6	"C" C.B.	No	114.688		113.338			No	1.200	112.138	DRN-17	51
P-149	HA 25+382.7	R 9.0	"C" C.B.	No	120.114			118.841	118.841	No	1.200	117.641	DRN-3	52
P-150	HA 25+380.2	L 12.0	"C" C.B.	No	120.207				118.943	No	1.200	117.743	DRN-3	52
P-151	W23 21+265.4	R 1.2	"C" C.B.	No	121.164	118.738	118.738			No	0.574	118.164	DRN-3	52
P-152	HA 25+351.0	R 8.4	"C" C.B.	No	121.825	118.669			118.169	Yes	0.000	118.169	DRN-3	52
P-118	RD 11+430.0	R 7.0	"C" C.B.	No	139.193	139.007			139.007	No	1.200	137.807	DRN-10	55
P-118A	RD 11+430.0	R 5.4	Convert CB to MH	No	139.211	137.455	137.855			No	0.000	137.455	DRN-10	55
P-118B	RD 11+429.8	L 13.0	M.H. (1200mm Dia)	No	136.500	135.518	135.518			Yes	0.000	135.518	DRN-10	55
P-119	RD 11+498.0	R 7.5	"C" C.B.	No	141.307			139.607		No	1.200	138.407	DRN-11	55
P-70	WB 4+491.1	R 7.5	"C-M" C.B.	No	143.490		142.200			No	1.200	141.000	DRN-13	57
P-71	EB 4+527.4	L 7.2	"C-M" C.B.	No	143.123	141.917	141.817			No	1.200	140.617	DRN-13	57
P-72	EB 4+527.7	R 10.8	"C-L" SPECIAL C.B.	No	142.377	141.108		140.263	140.363	No	0.000	140.263	DRN-13	57
P-72A	EB 4+484.2	R 10.8	"C-L" SPECIAL C.B.	No	141.834		139.840		139.946	Yes	0.000	139.840	DRN-14	57
P-72B	EB 4+484.2	R 16.1	M.H. (1200mm Dia)	No	141.662	139.810		139.590		Yes	0.000	139.590	DRN-14	57
P-72C	EB 4+479.3	R 16.1	M.H. (1200mm Dia)	No	141.000			139.566	139.566	Yes	0.000	139.566	DRN-14	57
P-73	EB 4+615.5	L 7.2	"C-M" C.B.	No	144.475	143.269	143.169			No	1.200	141.969	DRN-13	57
P-74	WB 4+581.3	R 9.5	"C-M" C.B.	No	144.526		143.351			No	1.200	142.151	DRN-13	57
P-75	EB 4+705.5	L 7.2	"C-M" C.B.	No	145.397	143.883	143.483			No	1.086	142.397	DRN-14	57
P-76	EB 4+798.0	L 7.2	"C-M" C.B.	No	145.930	144.498	144.498			No	1.200	143.298	DRN-14	57
P-77	EB 4+890.3	L 7.2	"C-M" C.B.	No	146.391	145.120	144.820		144.920	No	1.200	143.620	DRN-14	57
P-78	WB 4+674.3	R 10.8	"C-M" C.B.	No	145.340		143.965			No	1.200	142.765	DRN-14	57
P-80	WB 4+865.0	R 11.0	"C-M" C.B.	No	146.359		145.184			No	1.200	143.984	DRN-14	57
P-82	EB 4+614.5	R 10.8	"C-L" C.B.	No	143.649	142.326		141.081	141.781	No	0.000	141.081	DRN-13	57
P-83	EB 4+704.1	R 10.8	"C-L" C.B.	No	144.467	142.618		142.273	142.573	No	0.000	142.273	DRN-14	57
P-84	EB 4+798.0	R 10.8	"C-L" C.B.	No	145.001	143.623		143.278	143.378	No	0.000	143.278	DRN-14	57
P-85	EB 4+890.3	R 10.8	"C-L" C.B.	No	145.452	144.030		143.830		No	1.200	142.630	DRN-14	57
P-86	WB 4+769.2	R 11.4	"C-M" C.B.	No	145.858		144.583			No	1.200	143.383	DRN-14	57
P-88	WB 4+963.9	R 9.6	"C-M" C.B.	No	147.424		145.649			No	1.200	144.449	DRN-14	57
P-89	EB 4+985.4	L 7.2	"C-M" C.B.	No	146.867	145.507		145.400		Yes	1.200	144.200	DRN-14	57
P-253	W24 12+337.0	R 1.2	"C" C.B.	No	117.888	116.513			116.513	No	1.200	115.313	DRN-6	59
P-165	W24 12+399.0	R 1.2	"C-L" C.B.	No	120.277	119.180		118.880		No	1.200	117.680	DRN-17	59
P-170	W24 12+403.0	L 6.6	"C" C.B.	No	120.493		119.318			No	1.200	118.118	DRN-17	59
P-130	W23 21+480.8	R 6.0	"C-L" SPECIAL C.B.	Yes	112.981		111.329	109.280	109.280	Yes	0.000	109.280	DRN-3	60
P-130A	W23 21+507.8	R 4.0	"C-L" SPECIAL C.B.	Yes	113.033	109.020		109.020		Yes	0.000	109.020	DRN-3	60
P-130C	W23 21+514.5	L 6.4	M.H. (1500mm Dia)	No	113.040			108.804	108.792	Yes	0.000	108.792	DRN-3	60
P-137A	E25 10+498.0	R 8.5	M.H. (1500mm Dia)	No	114.600	112.101	112.100			No	0.000	112.100	DRN-3	60
P-138	HA 25+181.7	R 11.0	"C" C.B.	No	122.785		121.011			No	1.200	119.811	DRN-3	60
P-138B	HA 25+161.1	R 12.0	"C" C.B.	No	122.735	120.810	119.910	119.910		Yes	0.175	119.735	DRN-3	60
P-142	HA 25+174.5	L 15.0	"C" C.B., Double Grate, Type II	No	122.665	121.150				No	1.200	119.950	DRN-3	60
P-142A	HA 25+175.8	L 10.5	Convert CB to MH	No	122.780	120.851		121.030	120.797	No	1.017	119.780	DRN-3	60
P-143	HA 25+144.2	R 8.4	M.H. (1500mm Dia)	No	123.068	119.200	119.237	119.760	119.760	Yes	0.000	119.200	DRN-3	60
P-143A	HA 25+140.0	R 8.4	"C" C.B.	No	123.074	119.960	119.960			Yes	0.000	119.960	DRN-3	60
P-144	HA 25+143.1	L 12.0	"C" C.B.	No	123.075	121.154	121.154			Yes	1.079	120.075	DRN-3	60
P-144A	HA 25+143.1	L 4.0	Convert CB to MH	No	123.220	120.174	120.179		120.179	Yes	0.000	120.174	DRN-3	60

1

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED: 11/09

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Drainage\d-21.dgn
PLOTTED 11/4/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: DRAINAGE TABLE

PROJECT NO.: 151-273
DRAWING NO.: DD-11
SHEET NO.:

DRAINAGE TABLE

STRUCT. NO.	STATION	Offset	Type	PAVED APRON	TOP OF FRAME	INVERT(S) N	INVERT(S) S	INVERT(S) W	INVERT(S) E	> 3m?	SUMP DEPTH	FLOOR	SHEET	OUTFALL
P-144B	HA 25+143.1	L 16.2	M.H. (1200mm Dia)	No	124.800	121.213	121.213			Yes	0.000	121.213	DRN-3	60
P-145	HA 25+083.8	L 7.9	"C" C.B.	No	124.274	122.480				No	1.200	121.280	DRN-3	60
P-146	HA 25+083.8	R 7.9	"C" C.B.	No	124.274		122.478			No	1.200	121.278	DRN-3	60
P-157	HA 25+195.5	L 15.0	"C" C.B., Double Grate, Type II	No	122.665		121.090			No	1.200	119.890	DRN-3	60
P-416	HA 25+033.0	R 5.8	"C" C.B.	No	125.028		123.987			No	1.200	122.787	DRN-3	60
P-417	HA 25+033.9	L 5.8	Reset Type "C" CB	No	125.018						1.200	998.800	DRN-3	60
P-417A	HA 25+036.7	L 2.1	Reset MH	No	125.079						0.000	1000.000	DRN-3	60
P-419	HA 25+083.8	L 4.7	Convert CB to MH	No	124.359		122.430			No	0.000	122.430	DRN-3	60
P-419A	HA 25+082.3	L 2.0	Reset MH	No	124.454						1.200	998.800	DRN-3	60
P-130B	W23 21+380.0	R 20.0	Sed. Basin 1	No	112.000				109.740		0.000	109.740		60
P-431	WB 2+216.0	L 8.0	"C-L" C.B.	Yes	115.000	113.004			113.694	Yes	1.004	112.000	DRN-6	65
P-431A	WB 2+278.0	L 14.6	"C-L" C.B.	Yes	115.073			114.010		No	1.200	112.810	DRN-6	65
P-45C	RD 11+080.0	R 6.9	Reset Type "C" CB	No	131.370						1.200	998.800	DRN-9	66
P-52E	EB 3+457.0	R 22.6	M.H. (1200mm Dia)	No	133.500	132.099	132.099			No	0.000	132.099	DRN-9	67
P-439	RD 11+153.5	R 6.4	Reset Type "C" CB	No	133.403	132.187					1.200	130.987	DRN-9	67
P-205	WB 1+021.0	R 3.7	"C" C.B.	No	133.266	132.116				No	1.200	130.916	DRN-9	68
P-205A	WB 1+012.5	L 4.7	"C" C.B.	No	133.050		132.070			No	1.200	130.870	DRN-9	68
P-205B	PRE 50+923.2	R 1.2	Reset MH	No	133.420		131.695				0.000		DRN-9	68
P-205C	WB 1+015.0	R 3.7	"C" C.B.	No	133.173	131.824				No	1.200	130.624	DRN-9	68
P-206	PRE 50+998.0	R 4.5	"C" C.B.	No	132.425			131.548		No	1.200	130.348	DRN-9	68
P-206A	PRE 50+972.8	R 4.5	"C" C.B.	No	132.415	131.430			131.430	No	1.200	130.230	DRN-9	68
P-206B	PRE 50+978.0	L 4.5	"C" C.B.	No	132.415	131.781	131.541		131.541	No	1.200	130.341	DRN-9	68
P-207	PRE 50+998.0	L 4.5	"C" C.B.	No	132.425			131.634		No	1.200	130.434	DRN-9	68
P-412	PRE 50+036.0	R 4.5	"C" C.B.	No	132.839	131.900	131.896			No	1.200	130.696	DRN-9	68
P-412A	PRE 51+047.0	L 11.0	"C-L" C.B.	No	134.750			132.000		Yes	0.250	131.750	DRN-9	68
P-413	PRE 51+030.0	R 3.0	Reset MH	No	132.826	131.811			130.825		0.000		DRN-9	68
P-413A	PRE 51+033.0	R 4.5	"C" C.B.	No	132.806			130.850		Yes	1.044	129.806	DRN-9	68
P-414	PRE 50+966.0	R 2.3	Reset MH	No	132.580								DRN-9	68
P-410	PRE 51+075.0	R 4.5	"C" C.B.	No	133.266	132.210				No	1.200	131.010	DRN-10	68
P-410A	PRE 51+075.0	L 4.5	"C" C.B.	No	133.266		132.187			No	1.200	130.987	DRN-10	68
P-410B	PRE 51+074.0	0.0	Reset MH	No	133.376	131.151	132.175				0.000		DRN-10	68
P-410C	PRE 51+144.0	L 4.5	Reset MH	No	135.381						0.000		DRN-10	68
P-410D	PRE 51+174.5	L 25.5	Convert CB to MH	No	136.400	135.541	135.384		135.541	No	0.000	135.384	DRN-10	68
P-410E	PRE 51+185.0	L 31.0	Reset MH	No	136.600						0.000		DRN-10	68
P-410F	PRE 51+213.0	L 44.5	Reset MH	No	137.300						0.000		DRN-10	68
P-410G	PRE 51+181.0	L 18.4	"C-L" C.B., Double Grate, Type II	No	136.334			135.971		No	1.200	134.771	DRN-10	68
P-52B	EB 3+539.8	R 19.5	M.H. (1200mm Dia)	No	133.500	132.350	132.350			No	0.000	132.350	DRN-9	69
P-49	WB 3+395.0	L 10.8	"C-L" C.B.	Yes	131.648		130.272			No	1.200	129.072	DRN-9	71
P-49A	WB 3+395.0	R 7.2	"C-M" C.B.	Yes	131.725	130.188	130.188			No	1.200	128.988	DRN-9	71
P-49B	EB 3+433.1	L 6.6	"C-M" C.B.	Yes	131.725	130.147	129.945		130.095	No	1.200	128.745	DRN-9	71
P-50	WB 3+495.3	L 10.8	"C-L" C.B.	No	132.910		131.535			No	1.200	130.335	DRN-9	71
P-51	WB 3+496.7	R 7.2	"C-M" C.B.	No	132.981	131.451	131.451			No	1.200	130.251	DRN-9	71
P-52	EB 3+533.8	L 7.2	"C-M" C.B.	No	133.000	131.430		131.355	131.511	No	1.200	130.155	DRN-9	71
P-52D	EB 3+433.1	R 14.5	M.H. (1200mm Dia)	Yes	131.050	129.411		129.411		No	0.000	129.411	DRN-9	71
P-52G	EB 3+430.0	R 14.5	M.H. (1200mm Dia)	Yes	130.966			129.364	129.364	No	0.000	129.364	DRN-9	71
P-52H	EB 3+425.1	R 14.5	M.H. (1200mm Dia)	Yes	130.920			129.291	129.291	No	0.000	129.291	DRN-9	71
P-58A	WB 3+604.0	L 10.8	"C-L" C.B.	No	134.212		132.837			No	1.200	131.637	DRN-10	71
P-59A	WB 3+603.9	R 7.2	"C-M" C.B.	No	134.208	132.753	132.753			No	1.200	131.553	DRN-10	71
P-60A	EB 3+640.6	L 7.2	"C-M" C.B.	No	134.236	132.732		132.732		No	1.200	131.532	DRN-10	71

STRUCT. NO.	STATION	Offset	Type	PAVED APRON	TOP OF FRAME	INVERT(S) N	INVERT(S) S	INVERT(S) W	INVERT(S) E	> 3m?	SUMP DEPTH	FLOOR	SHEET	OUTFALL
P-59A	WB 3+603.9	R 7.2	"C-M" C.B.	No	134.208	132.753	132.753			No	1.200	131.553	DRN-10	71
P-60A	EB 3+640.6	L 7.2	"C-M" C.B.	No	134.236	132.732		132.732		No	1.200	131.532	DRN-10	71
P-435	RD 10+649.5	R 5.6	"C" C.B.	No	121.850	120.152	120.152			No	1.200	118.952	DRN-8	72
P-436	RD 10+726.5	R 5.6	"C" C.B.	No	124.399	123.060	123.137			No	1.200	121.860	DRN-8	73
P-436A	RD 10+815.1	R 11.2	Reset Type "C" CB	No	127.500								DRN-8	74
P-436B	RD 10+842.3	R 8.6	Reset Type "C" CB	No	127.383								DRN-8	74
P-437	RD 10+838.2	R 4.1	Reset MH	No	127.500								DRN-8	74
P-438	RD 10+924.0	R 4.8	"C" C.B.	No	128.038	126.655	126.722			No	1.200	125.455	DRN-8	75
P-45D	RD 11+014.0	R 11.4	Reset Type "C" CB	No	129.500						1.200	998.800	DRN-9	76
P-52F	EB 3+670.0	R 21.0			135.800			133.820			1.020	132.800		77
P-243	EB 0+817.5	L 7.2	Reset "C-M" CB	No	118.300						1.200	998.800	DRN-1	
P-18	WB 1+227.8	L 11.6	"C" C.B.	No	115.152	113.494				No	1.200	112.294	DRN-2	
P-158	WB 1+057.8	L 10.8	"C" C.B.	No	116.819	113.671				Yes	0.000	113.671	DRN-2	
P-420	HA 25+463.6	R 8.4	"C" C.B.	No	115.407		113.567			Yes	1.160	112.407	DRN-2	
P-420A	HA 25+463.6	R 4.9	Reset MH	No	115.526	113.550					1.024	112.526	DRN-2	
P-421	HA 25+463.6	L 8.4	"C" C.B.	No	115.407	112.386	112.407			Yes	0.000	112.386	DRN-2	
P-421A	HA 25+439.1	R 5.4	Reset MH	No	116.656						1.200	998.800	DRN-2	
P-421B	HA 25+401.1	R 3.4	Reset MH	No	119.047						1.200	998.800	DRN-2	
P-440	E25 10+180.0	L 18.0	"C-L" C.B.	Yes	120.757		119.702			No	1.200	118.502	DRN-2	
P-402	SR 5+017.8	L 5.5	Reset Type "C" CB	No	142.045						1.200	998.800	DRN-11	
P-402A	SR 5+035.0	L 5.5	Reset Type "C" CB	No	142.192						1.200	998.800	DRN-11	
P-403	SR 5+010.0	R 5.6	Reset Type "C" CB	No	142.090						1.200	998.800	DRN-11	
P-404	SR 5+017.4	R 5.6	Reset Type "C" CB	No	142.036						1.200	998.800	DRN-11	
P-405	SR 5+036.5	R 5.6	Reset Type "C" CB	No	142.223				141.390	No	1.200	140.190	DRN-11	
P-405A	SR 5+033.0	R 11.0	"C" C.B.	No	142.098			141.490		No	1.200	140.290	DRN-11	
P-406	SR 5+070.0	R 3.5	Reset MH	No	142.814						1.200	998.800	DRN-11	
P-407	SR 5+025.0	R 7.0	Reset MH	No	142.200						1.200	998.800	DRN-11	
P-408	SR 5+022.0	R 2.0	Reset MH	No	142.200						1.200	998.800	DRN-11	
P-430	HFR 60+170.0	R 4.5	"C" C.B.	No	124.565	123.461				No	1.200	122.261	DRN-16	
P-430A	HFR 60+170.0	L 5.0	Convert CB to MH	No	124.570	122.482	123.336	122.482	122.528	No	0.912	121.570	DRN-16	
P-430B	HFR 60+170.4	L 8.4	"C" C.B.	No	124.423		122.514			Yes	1.091	121.423	DRN-16	

NOTES:

1. CATCH BASINS GREATER THAN 3 METERS DEEP ARE PAID FOR UNDER CATCH BASIN (TYPE SPECIFIED) OVER 3 METERS DEEP

REV.	DATE	DESCRIPTION	SHEET. NO.
1			

REVISIONS

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED: 11/09

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Drainage\d-22.dgn
PLOTTED 11/4/2014

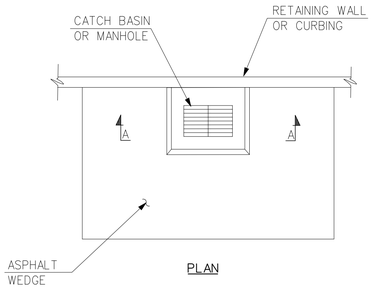
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

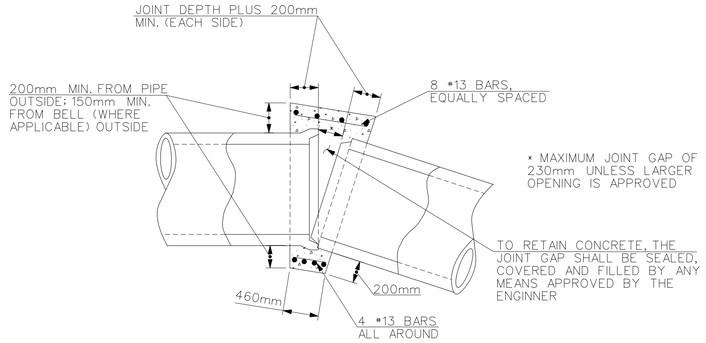
TOWN: WATERBURY

DRAWING TITLE: DRAINAGE TABLE

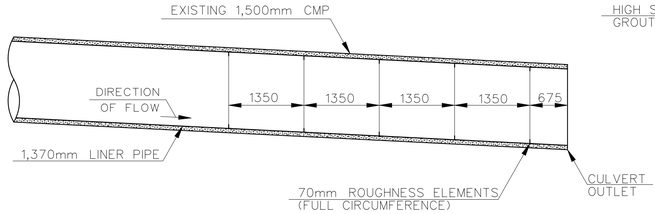
PROJECT NO.: 151-273
DRAWING NO.: DD-12
SHEET NO.:



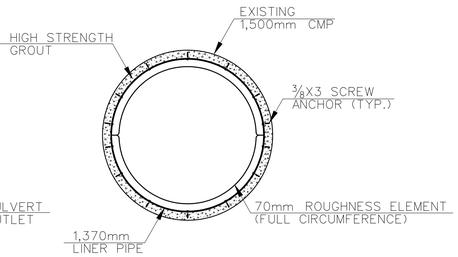
PLAN



PLAN
(DEFLECTING PIPE)

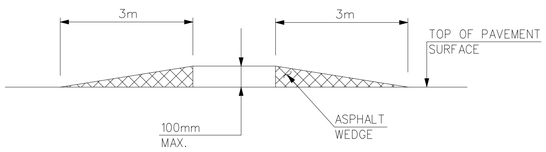


PROFILE



SECTION

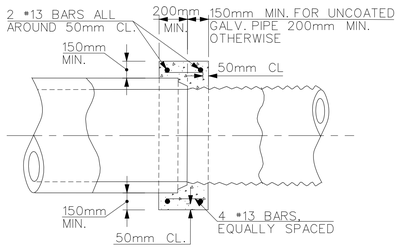
CULVERT INTERNAL ROUGHNESS ELEMENTS



SECTION A-A

TEMPORARY DRAINAGE STRUCTURE WEDGE PLACEMENT AREAS

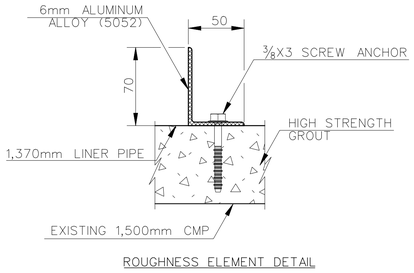
N.T.S.



PLAN
(JOINT PIPE)

CONCRETE COLLAR DETAIL

N.T.S.



ROUGHNESS ELEMENT DETAIL

NOTE:

COST OF FURNISHING AND INSTALLATION OF THE INTERNAL ROUGHNESS ELEMENTS SHALL BE INCLUDED IN THE COST OF CULVERT LINING.

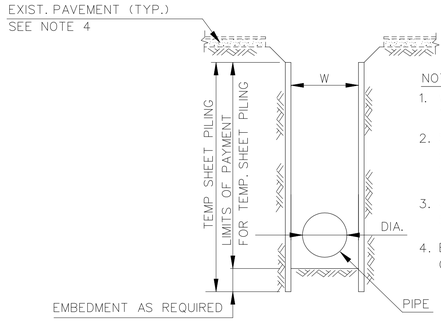
CULVERT LINING DETAILS

N.T.S.

TEMPORARY DRAINAGE DETAILS

NOTES FOR CONCRETE COLLARS:

1. PERIMETERS OF CONCRETE COLLARS DO NOT HAVE TO BE SMOOTH LINES. COLLARS MAY BE FORMED AGAINST COMPACTED OR UNDISTURBED SOIL. DIMENSIONS ARE MINIMUM. COLLARS MAY BE SQUARE, ROUND OR SHAPE MAY VARY SO LONG AS MINIMUM DIMENSIONS ARE OBTAINED.
2. ALL CONCRETE COLLARS ARE TO BE CONSTRUCTED WITH CLASS A CONCRETE.
3. PAYMENT FOR A METER OF PIPE INCLUDES THE COLLAR.



NOTES:

1. W = DIA. + 900mm FOR DIA. LESS THAN 750mm
   W = DIA. + 1200mm FOR DIA. 750mm AND OVER
2. SHEETING SHALL BE DRIVEN TO SUFFICIENT EMBEDMENT AND BRACED AS REQUIRED TO RESIST ALL LOADS.
3. UNLESS OTHERWISE DIRECTED, STEEL SHEETING SHALL BE REMOVED.
4. EXISTING PAVEMENT IS REINFORCED CONCRETE, COMPOSITE OR FLEXIBLE PAVEMENT.

TYPICAL SHEETING DETAIL

N.T.S.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED: 10/06

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\Drainage\tempdrain3.dgn | PLOTTED 11/4/2014

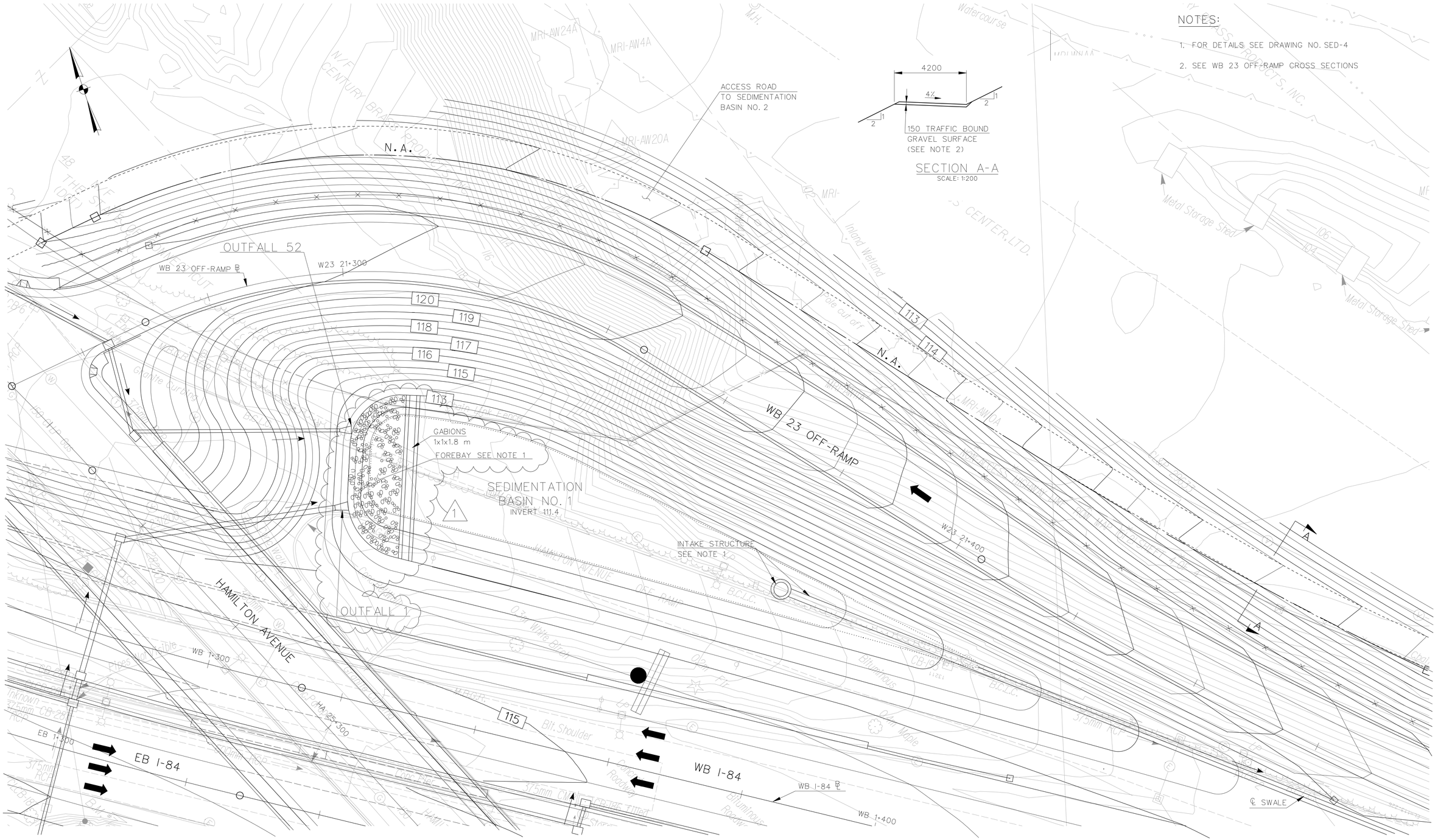
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE DETAILS

PROJECT NO.: 151-273
DRAWING NO.: DD-13
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15
SCALE 1:250

DESIGNER:	J. HUND
DRAFTER:	T. JUDGE
CHECKED BY:	T. BULZAK
DATE CHECKED:	

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\sedbas\1510273001.sed | PLOTTED 11/3/2014

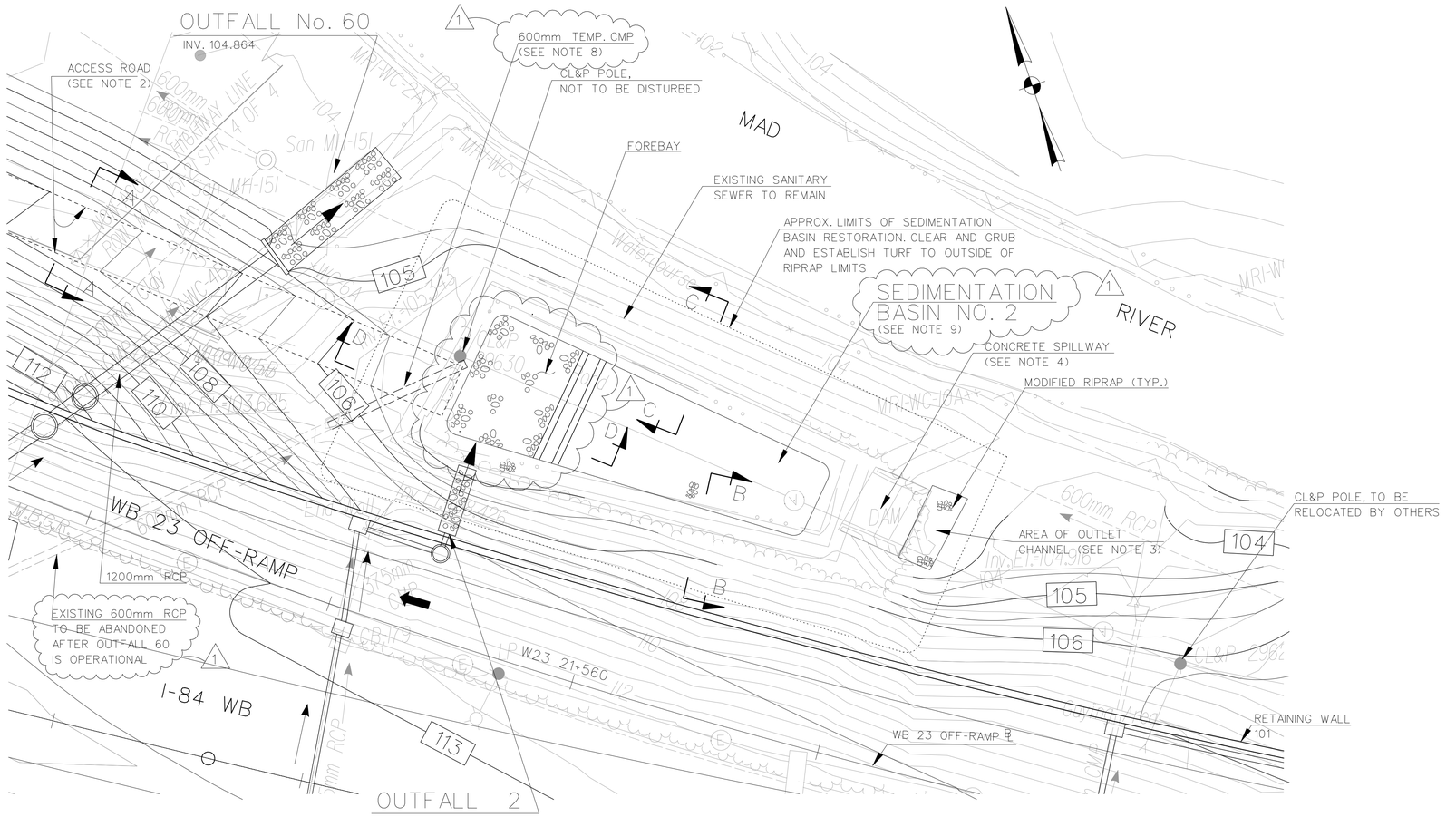
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

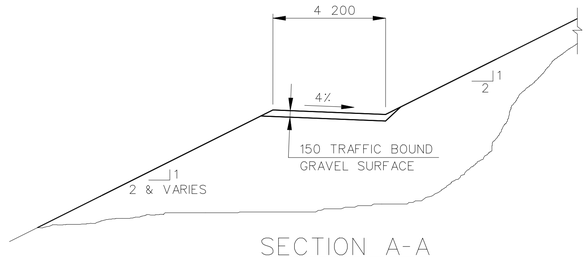
TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION BASIN NO. 1

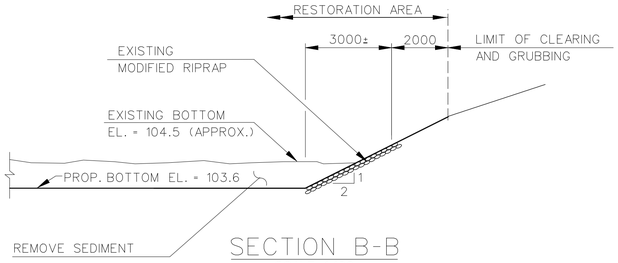
PROJECT NO.: 151-273
DRAWING NO.: SED-1
SHEET NO.:



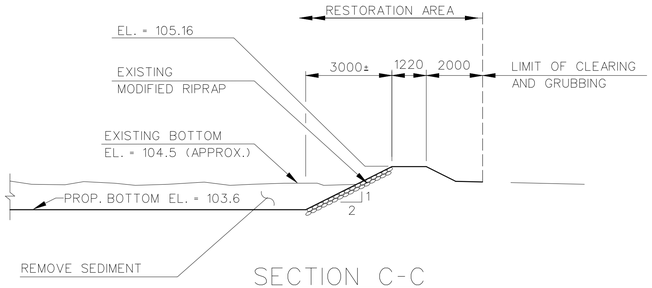
PLAN
SCALE: 1:200



SECTION A-A
SCALE: 1:100



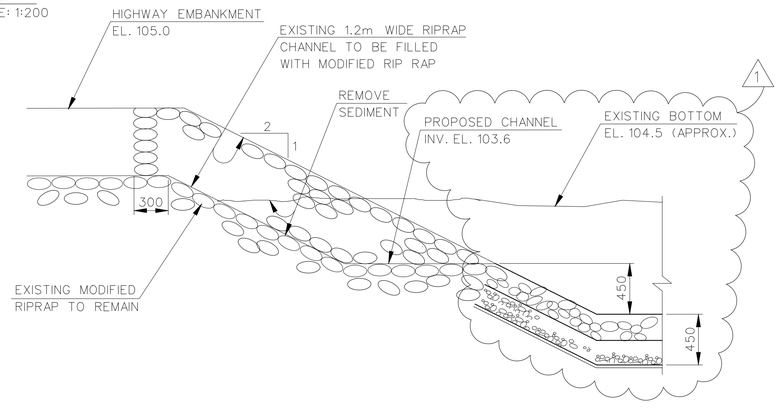
SECTION B-B
SCALE: 1:100



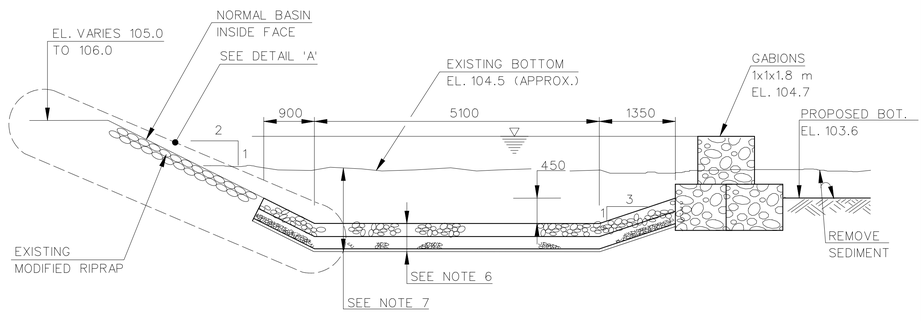
SECTION C-C
SCALE: 1:100

NOTES:

1. ALL DIMENSIONS IN MILLIMETERS, UNLESS OTHERWISE NOTED.
2. SEE WB 23 OFF-RAMP CROSS SECTIONS.
3. SHAPE THE CHANNEL CROSS SECTION , WITH MODIFIED RIPRAP AS DIRECTED BY THE ENGINEER.
4. CLEAN JOINTS TO A DEPTH OF 50 mm AND FILL WITH JOINT SEAL CONFORMING TO M.04.02.
5. PAYMENT FOR WORK ASSOCIATED WITH SEDIMENTATION BASIN RESTORATION SHALL BE MADE UNDER THE RESTORATION OF SEDIMENTATION BASIN No. 2 ITEM.
6. 300 MODIFIED RIP RAP ON 150 NO. 8 AGGREGATE SUBBASE ON GEOTEXTILE (SEPARATION HIGH SURVIVABILITY).
7. REMOVE SEDIMENT AND EXCAVATE BASIN FLOOR AS REQUIRED.
8. 600 mm TEMPORARY CMP TO BE INSTALLED IN STAGE 1 TO MAINTAIN THE INFLOW INTO SEDIMENTATION BASIN 2. IT SHALL BE REMOVED PRIOR TO THE RECONSTRUCTION/RESTORATION OF SEDIMENTATION BASIN 2.
9. ELEVATION 103.6 IS THE PROPOSED BOTTOM ELEVATION.



DETAIL 'A'
ACROSS EXISTING 1.2m CHANNEL
SCALE: 1:25



SECTION D-D
SCALE: 1:50

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\sedbas\1510273002.sed | PLOTTED 11/3/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION BASIN NO. 2

PROJECT NO.: 151-273
DRAWING NO.: SED-2
SHEET NO.:

BRIDGE NO. 01224

EB 23 ON-RAMP

EB 25 OFF-RAMP

OUTFALL 33
INV. 108.000

SEDIMENTATION BASIN NO. 3
INVERT 106.75

INTAKE STRUCTURE
SEE NOTE 1

FOREBAY
(SEE NOTE 1)

GABIONS

SWALE 1
(SEE NOTE 2)

OUTFALL 61
INV. 105.100
(SEE NOTE 3)

SWALE (TRAPEZOID SHAPE) (SEE NOTE 2)

PEDESTRIAN WALKWAY

PEDESTRIAN CROSSING

RIVER

UNNAMED STREAM

ACCESS ROAD

SLOPE VARIES

4.2m

4%

150 TRAFFIC BOUND GRAVEL SURFACE

2
1

ACCESS ROAD
(SECTION A-A)
SCALE 1:200

NOTES:

1. FOR FOREBAY AND COMPACTED EMBANKMENT DETAILS SEE DRAWING NO. SED-4.
2. FOR SWALE DETAILS SEE DWG. NO. DD-8.
3. FOR OUTFALL DETAILS SEE DWG'S NO'S DD-6 AND DD-7.
4. PAYMENT FOR WORK ASSOCIATED WITH SEDIMENTATION BASIN CONSTRUCTION SHALL BE PAID UNDER THE APPLICABLE CONTRACT ITEMS.

LEGEND:

LIMIT OF CAMPACTED EMBANKMENT FILL (SEE NOTE 1)

WP	NORTHING	EASTING
1	230875.0	282424.2
2	230866.3	282456.4
3	230835.9	282455.4
4	230834.0	282448.3
5	230854.2	282427.2
6	230868.4	282465.6
7	230826.5	282460.2
8	230823.9	282451.4

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15
SCALE 1:250

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\sedbas\1510273003.sed | PLOTTED 11/3/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

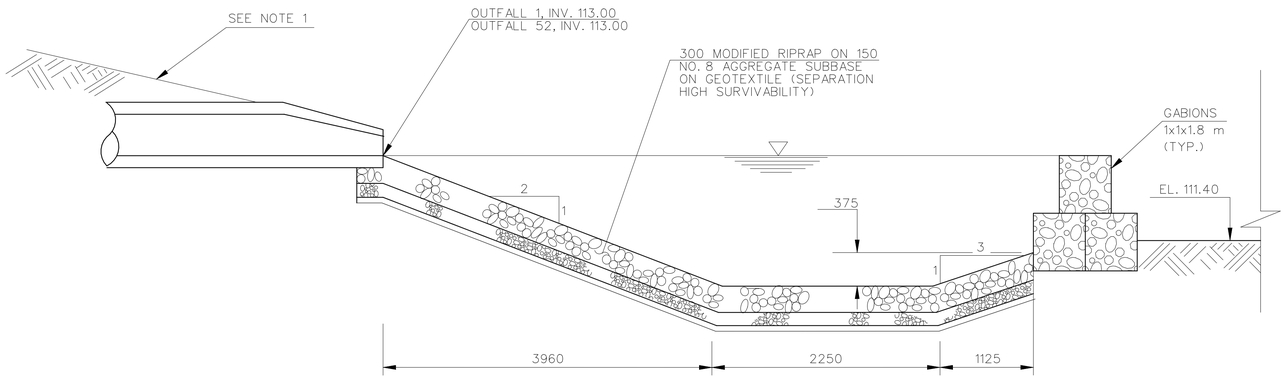
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

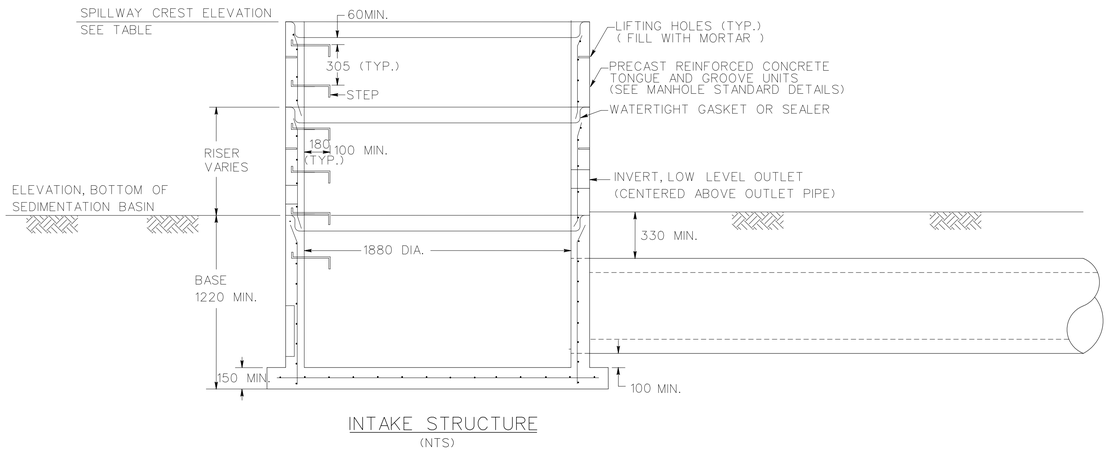
DRAWING TITLE:
SEDIMENTATION BASIN NO. 3

PROJECT NO.: 151-273
DRAWING NO.: SED-3
SHEET NO.:

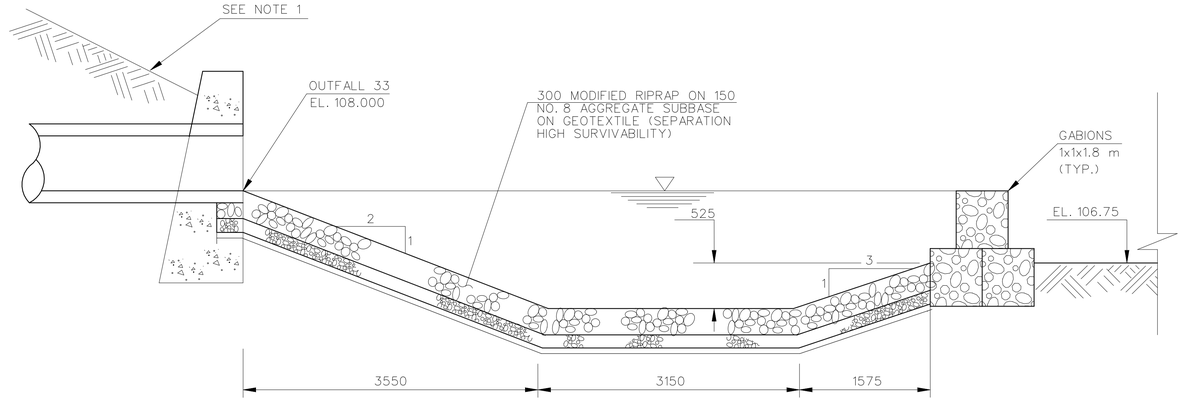
TABLE			
	SEDIMENTATION BASIN		
	NO. 1	NO. 3	NO. 4
SPILLWAY CREST ELEVATION	112.30	108.00	118.300
ELEVATION, BOTTOM OF SED. BASIN	111.40	106.75	117.500
INVERT, LOW LEVEL OUTLET	111.65	107.00	117.805
DIAMETER, LOW LEVEL INVERT	89	102	102
DIAMETER, OUTLET PIPE	1200	750	900
UPSTREAM INVERT, OUTLET PIPE	109.74	105.25	115.448
DOWNSTREAM INVERT, OUTLET PIPE	SEE DRAINAGE PLANS		
NORTHING	231161.8	230849.2	230781.8
EASTING	282086.0	282449.6	283403.4



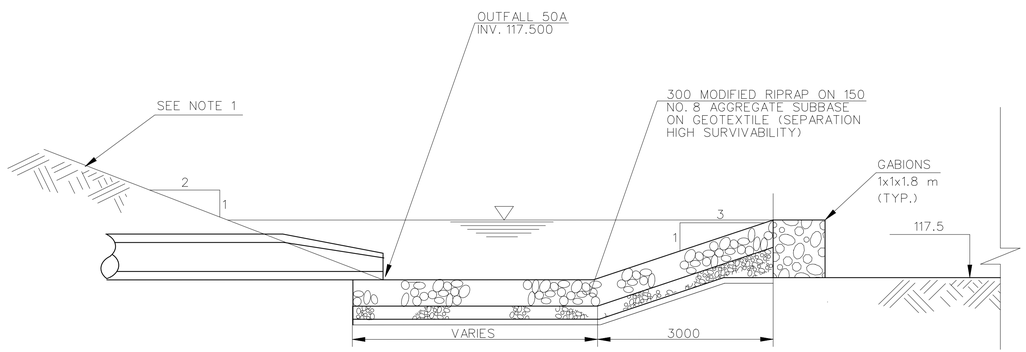
FOREBAY-SEDIMENTATION BASIN NO.1
(NTS)
(SEE NOTE 3)



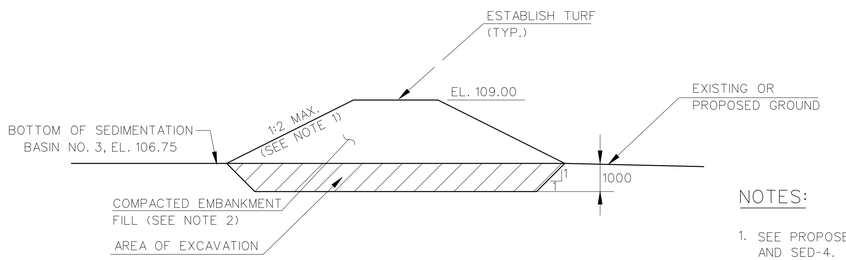
INTAKE STRUCTURE
(NTS)



FOREBAY-SEDIMENTATION BASIN NO.3
(NTS)
(SEE NOTE 3)



FOREBAY-SEDIMENTATION BASIN NO.4
(NTS)
(SEE NOTE 3)



COMPACTED EMBANKMENT
SECTION
(NTS)

NOTES:

1. SEE PROPOSED GRADING ON DRAWING NOS. SED-1, SED-3 AND SED-4.
2. SEE SPECIAL PROVISIONS.
3. THE DIMENSIONS SHOWN ARE LOCATED AT THE OUTFALL PIPE. IN SEDIMENTATION BASIN NO. 1, THE DIMENSIONS SHOWN ARE ALSO CONSTANT BETWEEN OUTFALLS 1 AND 52. BEYOND THE OUTFALLS IN HTE SEDEMENTATION BASINS, THE DIMENSIONS VARY BETWEEN THE GABION DAM AND ELEVATION 113 IN SEDIMENTATION BASIN NO. 1, ELEVATION 108 IN SEDIMENTATION BASIN 3 AND ELEVATION 118.5 IN SEDIMENTATION BASIN 4.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\Sed Details.dgn | PLOTTED 12/1/2014

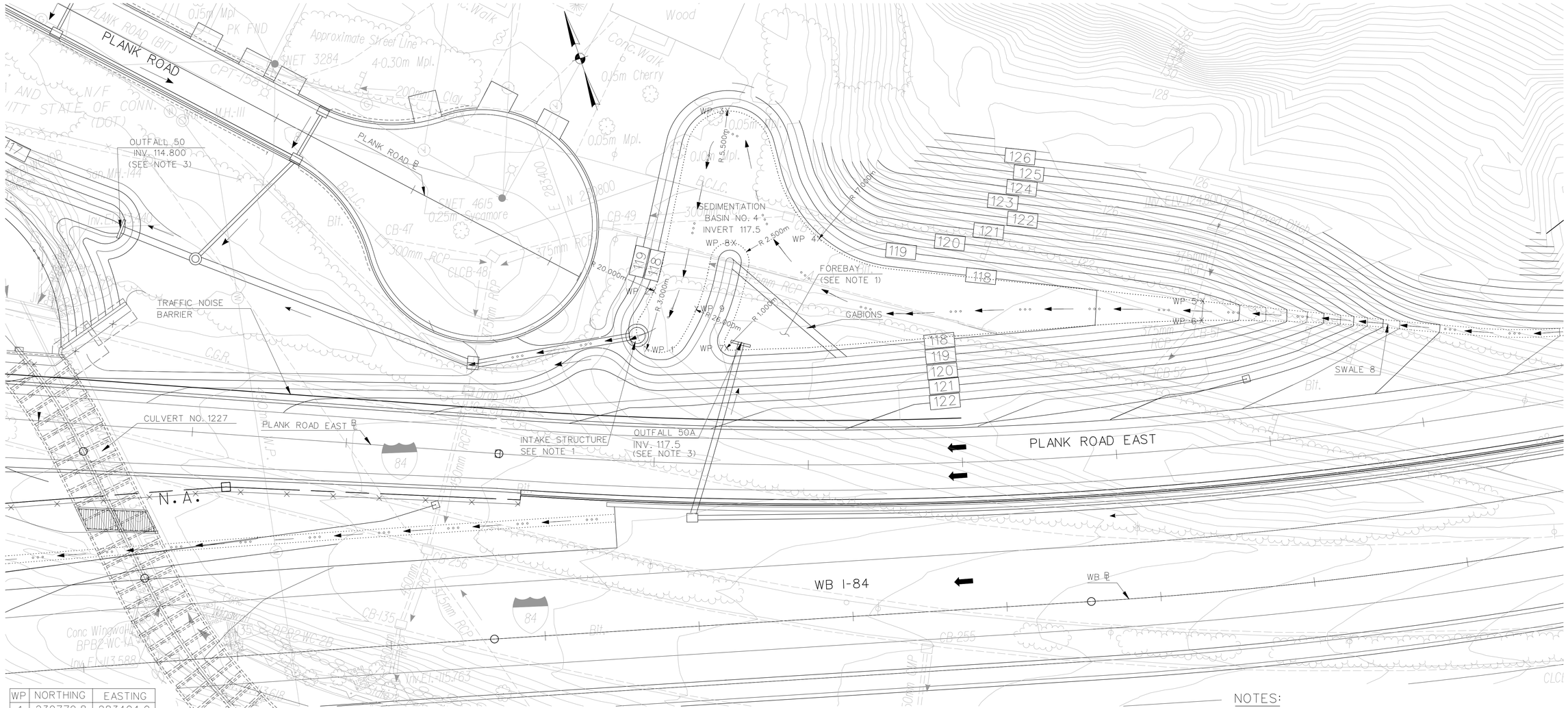
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION BASIN NO. 1, 3 & 4

PROJECT NO.: 151-273
DRAWING NO.: SED-4
SHEET NO.:



WP	NORTHING	EASTING
1	230779.8	283404.0
2	230786.6	283407.4
3	230805.4	283424.1
4	230785.9	283429.9
5	230761.7	283474.1
6	230759.4	283473.1
7	230776.5	283413.8
8	230789.0	283419.2
9	230782.5	283411.8

NOTES:

1. FOR FOREBAY DETAILS SEE DRAWING NO. SED-4.
2. FOR SWALE DETAILS SEE DWG. NO. DD-8.
3. FOR OUTFALL DETAILS SEE DWG'S NO'S DD-6 AND DD-7.
4. PAYMENT FOR WORK ASSOCIATED WITH SEDIMENTATION BASIN CONSTRUCTION SHALL BE PAID UNDER THE APPLICABLE CONTRACT ITEMS.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15
SCALE 1:250

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

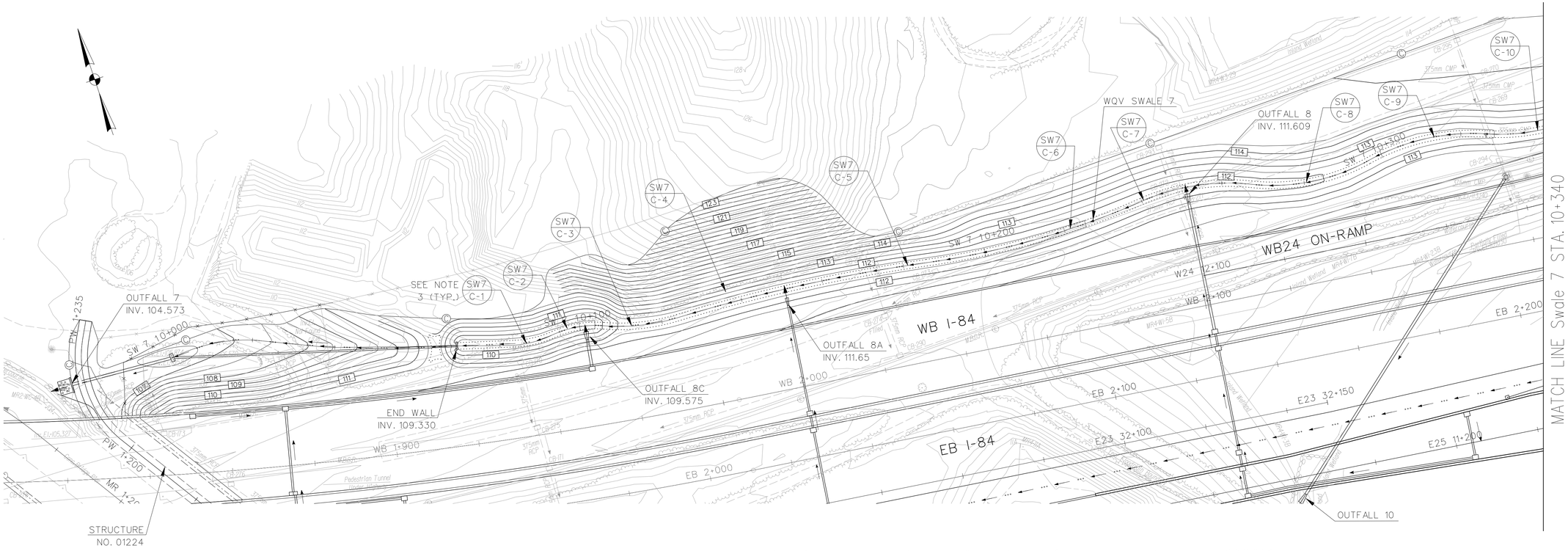
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION BASIN NO. 4

PROJECT NO.: 151-273
DRAWING NO.: SED-5
SHEET NO.:



NOTES:

1. FOR SWALE DETAILS, SEE DWG. NO. DD-8.
2. FOR OUTFALL DETAILS, SEE DWG. NO'S. DD-6 AND DD-7.
3. FOR CURVE DATA, SEE DWG. NO. IAD-003.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER:
DRAFTER:
CHECKED BY:
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

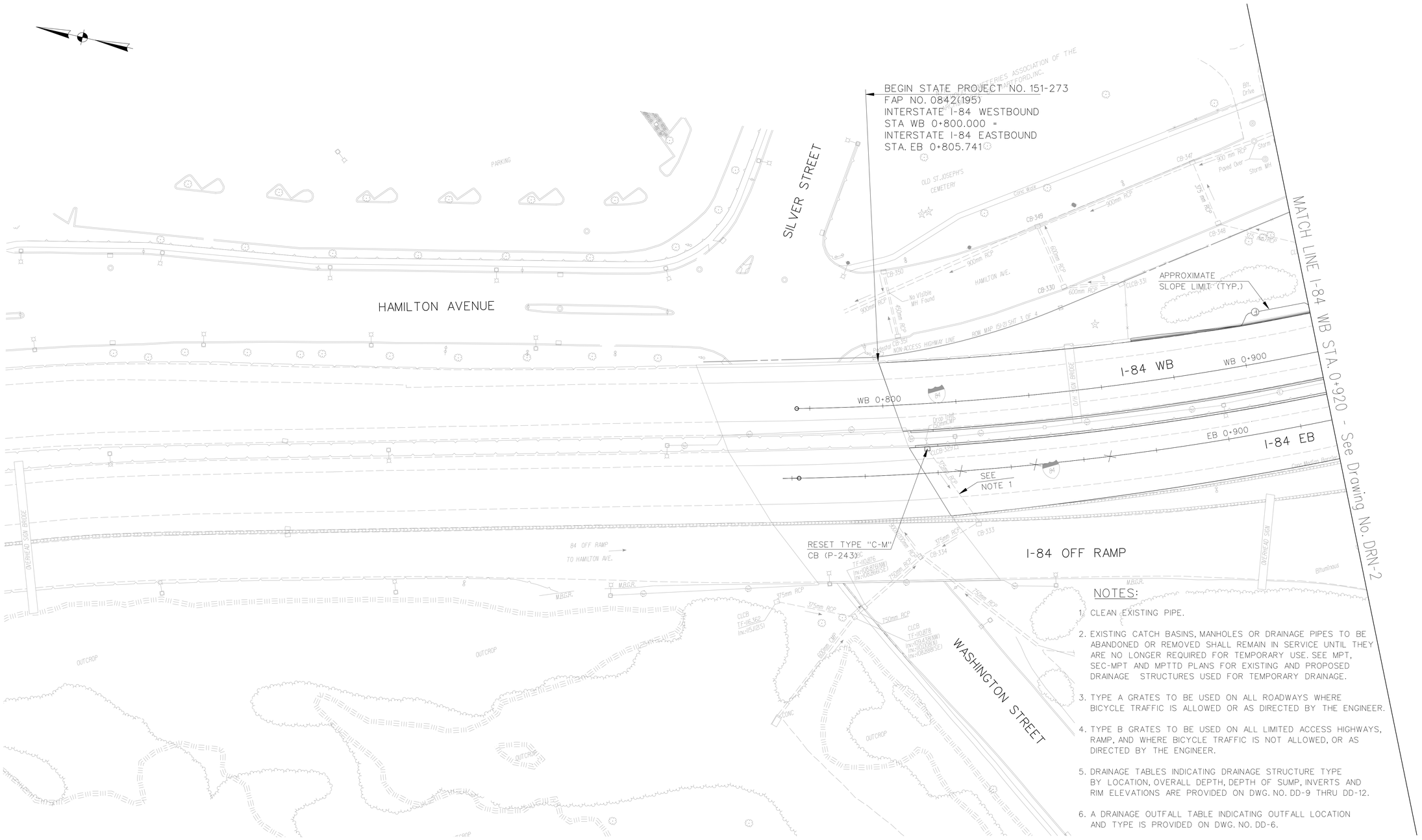
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
SWALE 7 GRADING PLAN

PROJECT NO.: 151-273
DRAWING NO.: GP-011
SHEET NO.:



NOTES:

1. CLEAN EXISTING PIPE.
2. EXISTING CATCH BASINS, MANHOLES OR DRAINAGE PIPES TO BE ABANDONED OR REMOVED SHALL REMAIN IN SERVICE UNTIL THEY ARE NO LONGER REQUIRED FOR TEMPORARY USE. SEE MPT, SEC-MPT AND MPTTD PLANS FOR EXISTING AND PROPOSED DRAINAGE STRUCTURES USED FOR TEMPORARY DRAINAGE.
3. TYPE A GRATES TO BE USED ON ALL ROADWAYS WHERE BICYCLE TRAFFIC IS ALLOWED OR AS DIRECTED BY THE ENGINEER.
4. TYPE B GRATES TO BE USED ON ALL LIMITED ACCESS HIGHWAYS, RAMP, AND WHERE BICYCLE TRAFFIC IS NOT ALLOWED, OR AS DIRECTED BY THE ENGINEER.
5. DRAINAGE TABLES INDICATING DRAINAGE STRUCTURE TYPE BY LOCATION, OVERALL DEPTH, DEPTH OF SUMP, INVERTS AND RIM ELEVATIONS ARE PROVIDED ON DWG. NO. DD-9 THRU DD-12.
6. A DRAINAGE OUTFALL TABLE INDICATING OUTFALL LOCATION AND TYPE IS PROVIDED ON DWG. NO. DD-6.
7. THE PROPOSED RCP PIPES ARE CLASS III PIPES, UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M. OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\SHEETS\Drainage\d-1.dgn
PLOTTED 12/1/2014

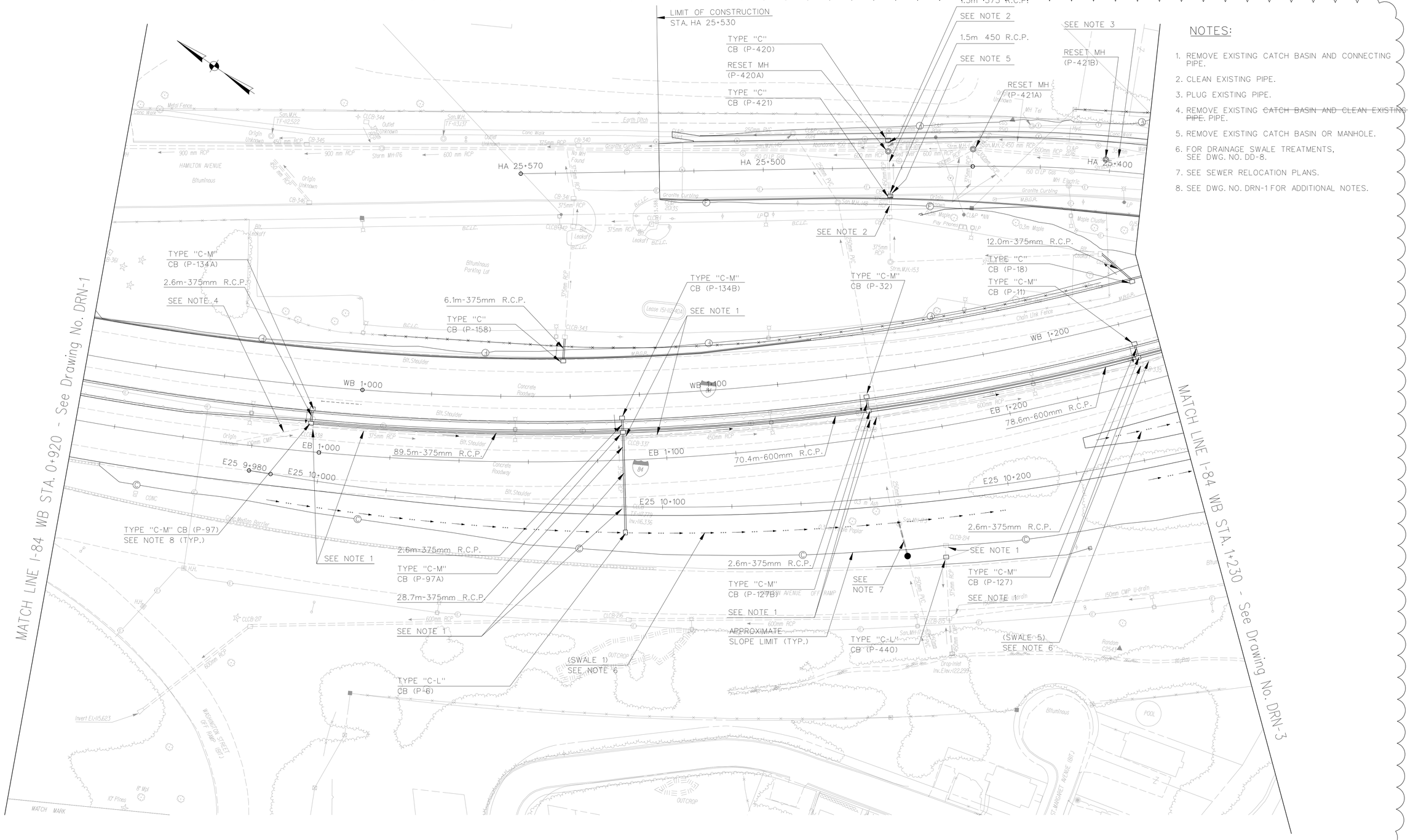
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 1

PROJECT NO.: 151-273
DRAWING NO.: DRN-1
SHEET NO.:



NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPE.
3. PLUG EXISTING PIPE.
4. REMOVE EXISTING ~~CATCH BASIN AND CLEAN EXISTING PIPE.~~ PIPE.
5. REMOVE EXISTING CATCH BASIN OR MANHOLE.
6. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
7. SEE SEWER RELOCATION PLANS.
8. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.

"DESIGN INITIATED CHANGE ORDER NO. 1 10/27/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	10/27/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-2.dgn
PLOTTED 12/1/2014

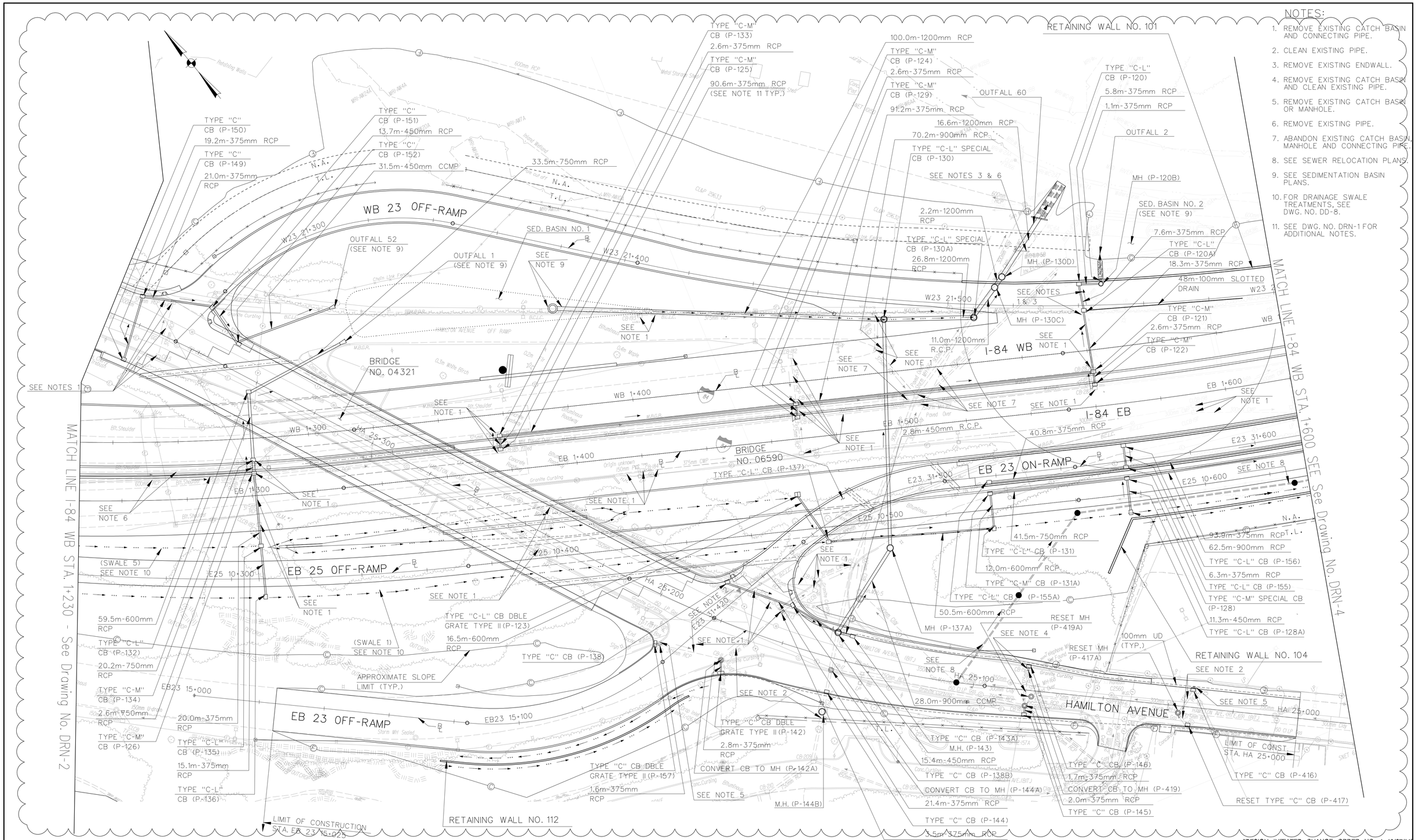
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 2

PROJECT NO.: 151-273
DRAWING NO.: DRN-2
SHEET NO.:



NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPE.
3. REMOVE EXISTING ENDWALL.
4. REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.
5. REMOVE EXISTING CATCH BASIN OR MANHOLE.
6. REMOVE EXISTING PIPE.
7. ABANDON EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
8. SEE SEWER RELOCATION PLANS.
9. SEE SEDIMENTATION BASIN PLANS.
10. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
11. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.

"DESIGN INITIATED CHANGE ORDER NO. 1 10/27/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/27/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-3.dgn
PLOTTED 12/1/2014

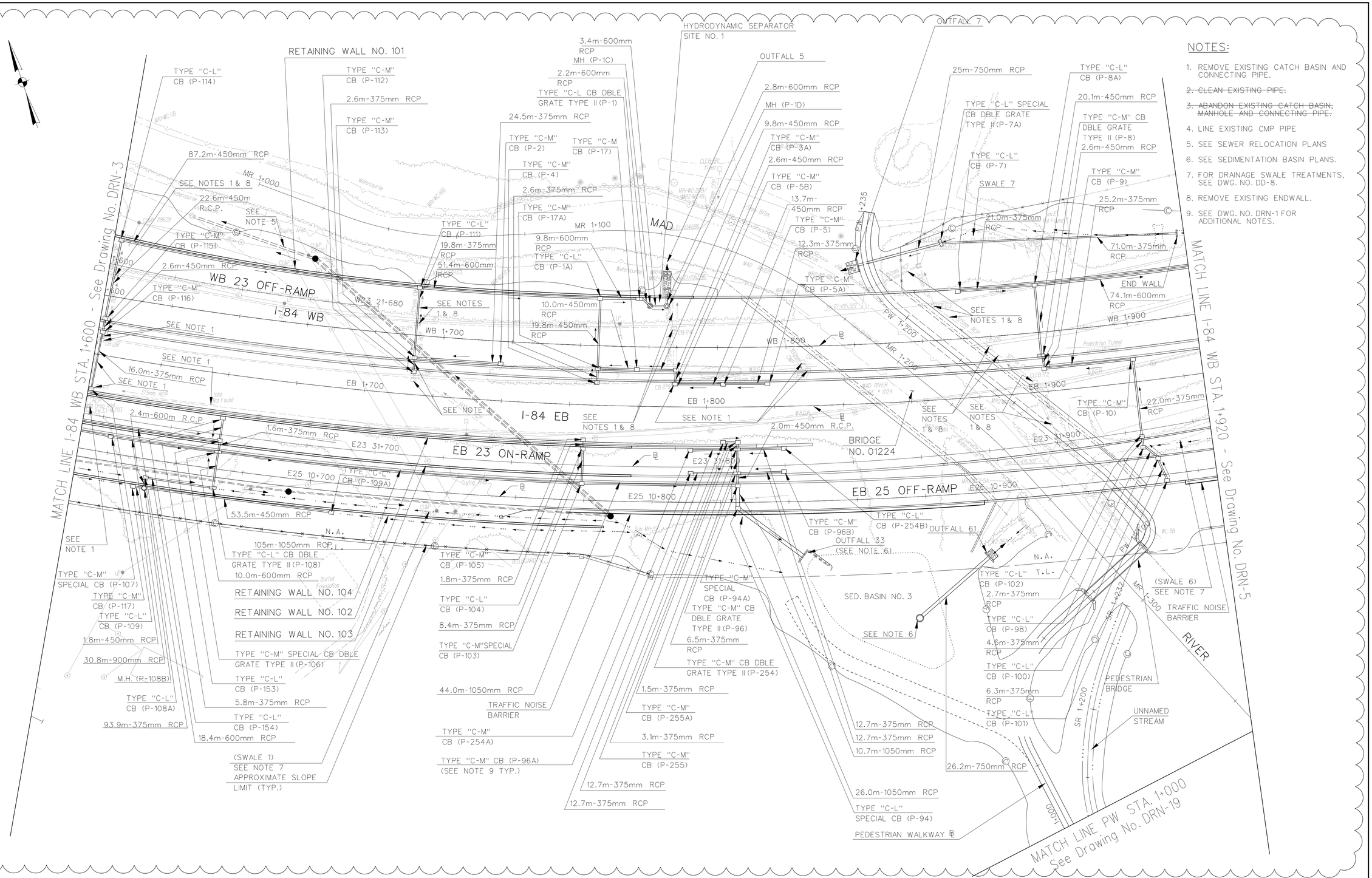
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
DRAINAGE PLAN – 3

PROJECT NO.: 151-273
DRAWING NO.: DRN-3
SHEET NO.:



NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. ~~CLEAN EXISTING PIPE.~~
3. ~~ABANDON EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.~~
4. LINE EXISTING CMP PIPE
5. SEE SEWER RELOCATION PLANS
6. SEE SEDIMENTATION BASIN PLANS.
7. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
8. REMOVE EXISTING ENDWALL.
9. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

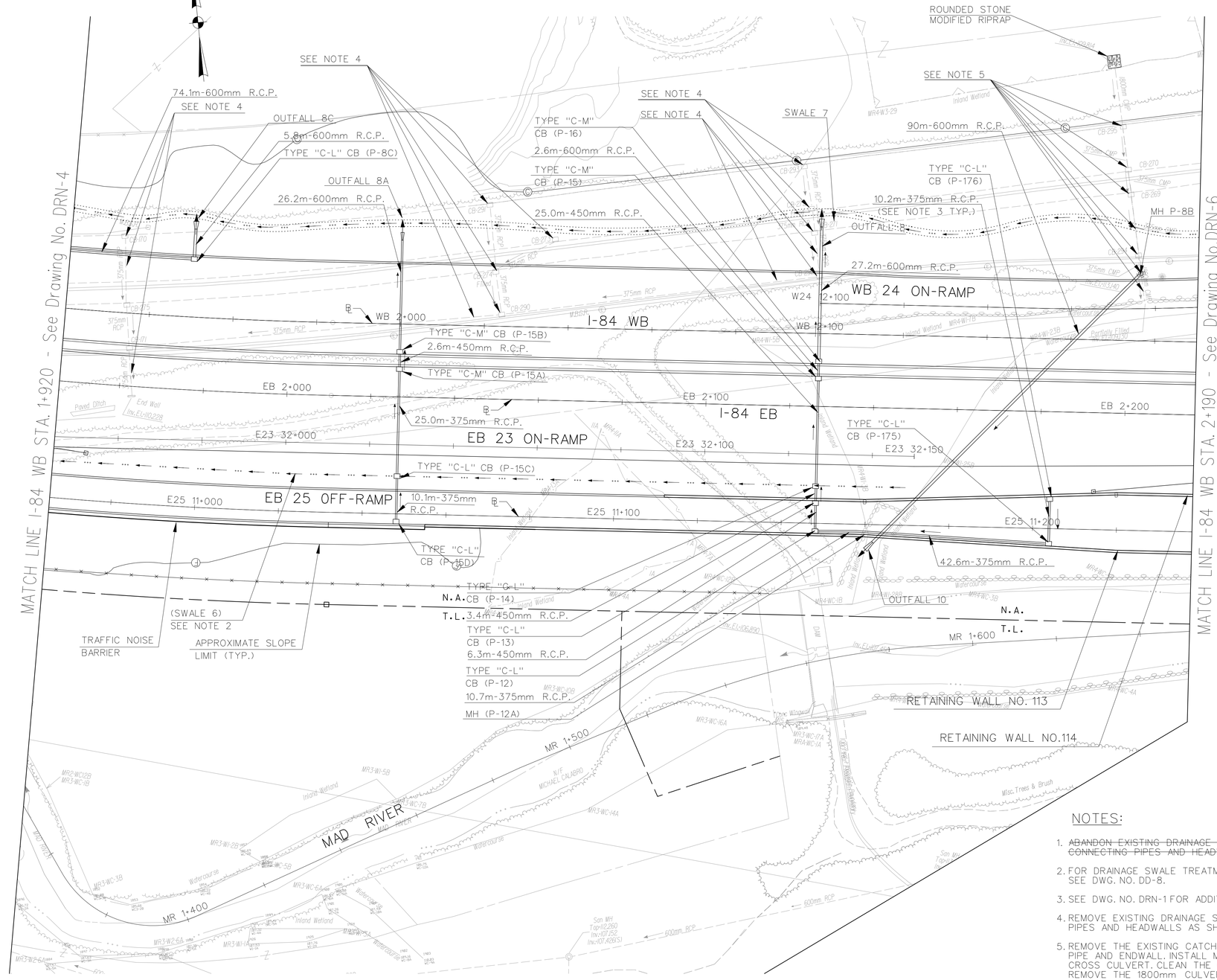
CADD ...\sheets\drainage\d-4.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: DRAINAGE PLAN - 4

PROJECT NO.: 151-273
DRAWING NO.: DRN-4
SHEET NO.:



NOTES:

1. ~~ABANDON EXISTING DRAINAGE SYSTEM (I.E. CATCH BASINS, CONNECTING PIPES AND HEADWALLS WHERE SHOWN).~~
2. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
3. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.
4. REMOVE EXISTING DRAINAGE SYSTEM (I.E. CATCH BASINS, CONNECTING PIPES AND HEADWALLS AS SHOWN).
5. REMOVE THE EXISTING CATCH BASINS, CONNECTING PIPES, THE OUTLET PIPE AND ENDWALL. INSTALL MANHOLE P-8B OVER THE EXISTING 1800mm CROSS CULVERT. CLEAN THE CULVERT NORTH OF MANHOLE P-8B AND REMOVE THE 1800mm CULVERT AND ENDWALL SOUTH OF THE MANHOLE.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED: 3 /29 /01

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-5.dgn | PLOTTED 12/1/2014

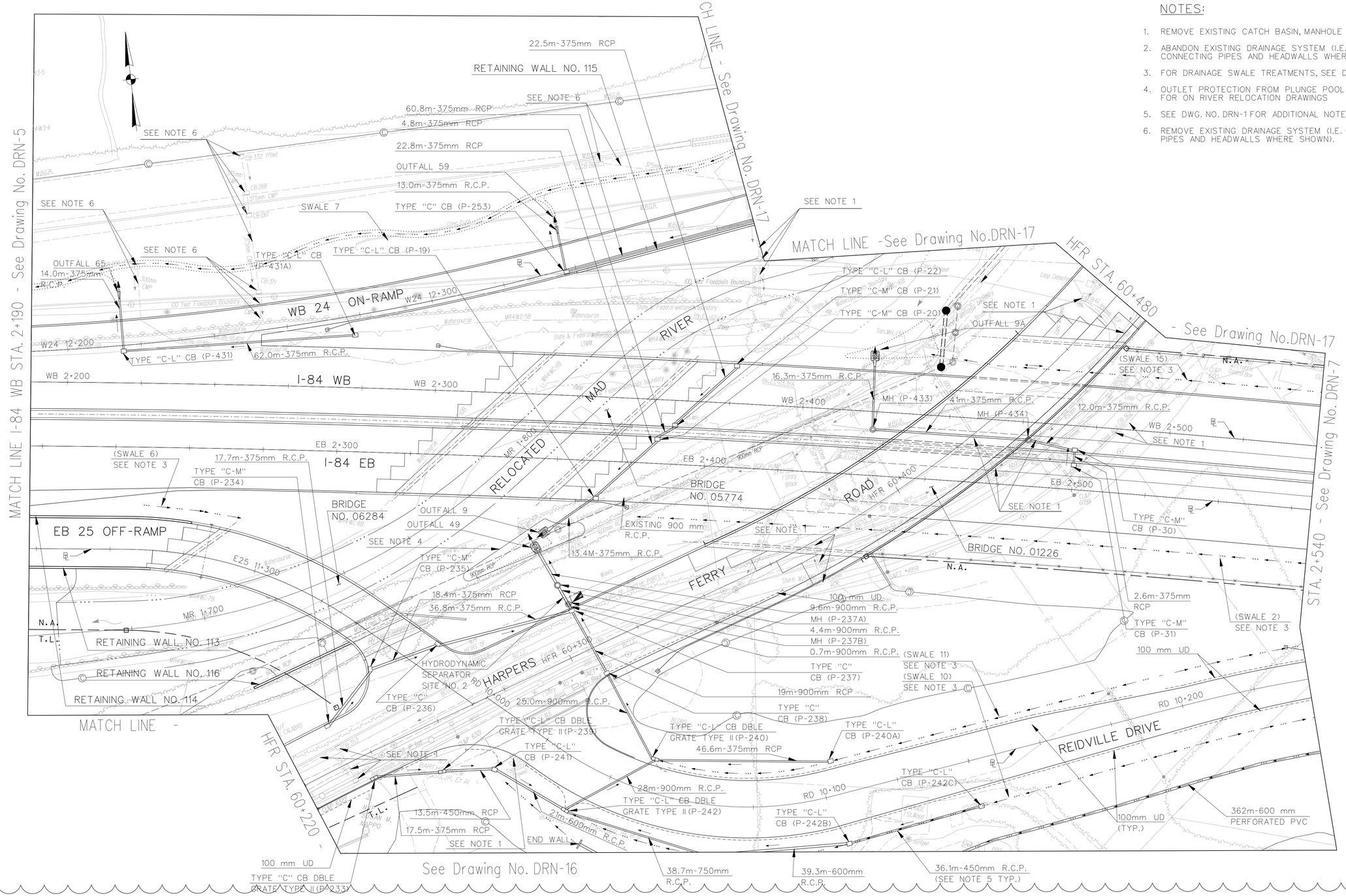
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 5

PROJECT NO.: 151–273
DRAWING NO.: DRN–5
SHEET NO.:



NOTES:

1. REMOVE EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
2. ABANDON EXISTING DRAINAGE SYSTEM (I.E. CATCH BASINS, CONNECTING PIPES AND HEADWALLS WHERE SHOWN).
3. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
4. OUTLET PROTECTION FROM PLUNGE POOL SHOWN AND PAID FOR ON RIVER RELOCATION DRAWINGS
5. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.
6. REMOVE EXISTING DRAINAGE SYSTEM (I.E. CATCH BASINS, CONNECTING PIPES AND HEADWALLS WHERE SHOWN).

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-6.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

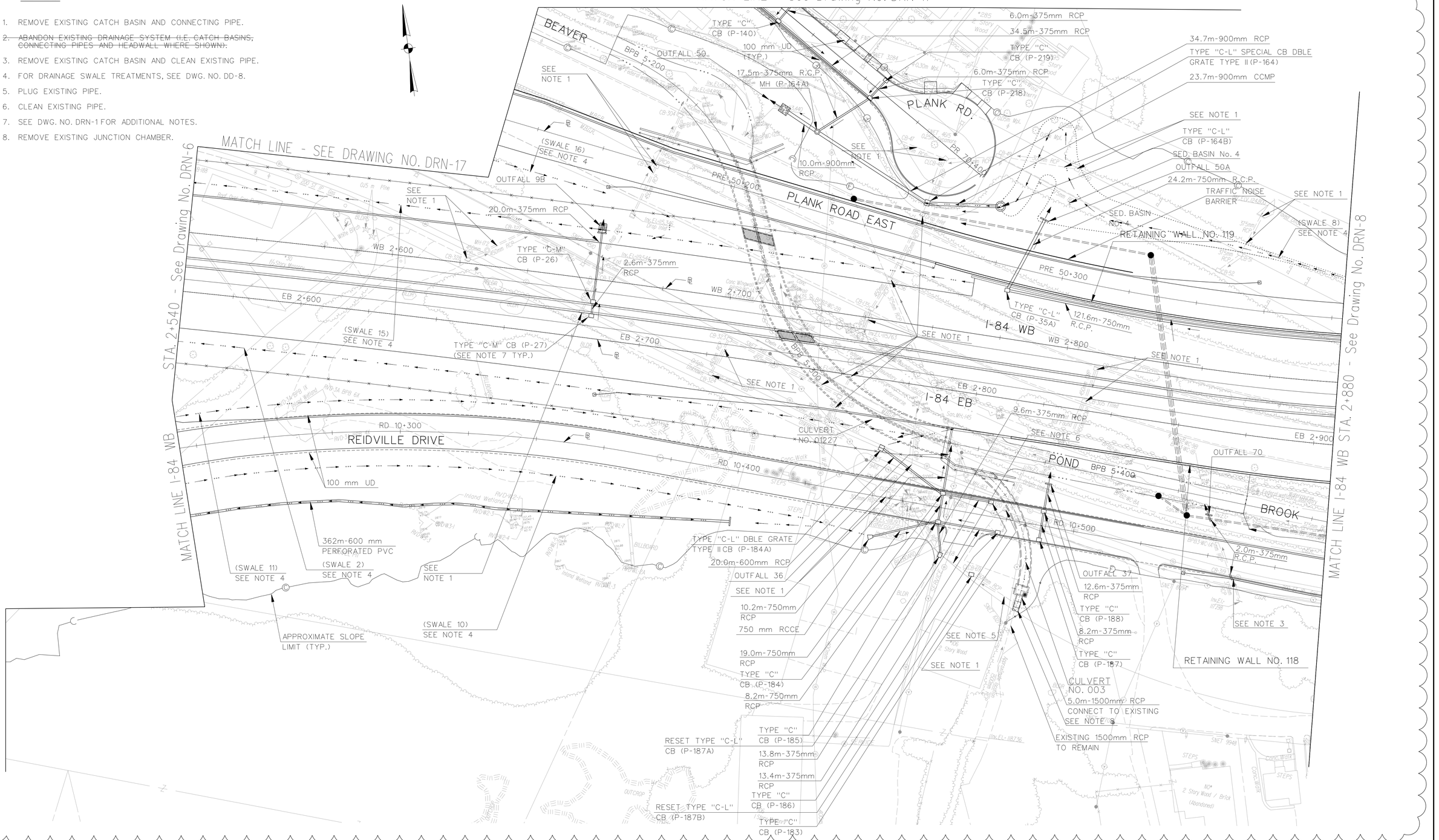
TOWN:
WATERBURY

DRAWING TITLE:
DRAINAGE PLAN – 6

PROJECT NO.: 151-273
DRAWING NO.: DRN-6
SHEET NO.:

NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. ~~ABANDON EXISTING DRAINAGE SYSTEM (I.E. CATCH BASINS, CONNECTING PIPES AND HEADWALL WHERE SHOWN).~~
3. REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.
4. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
5. PLUG EXISTING PIPE.
6. CLEAN EXISTING PIPE.
7. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.
8. REMOVE EXISTING JUNCTION CHAMBER.



"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-7.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

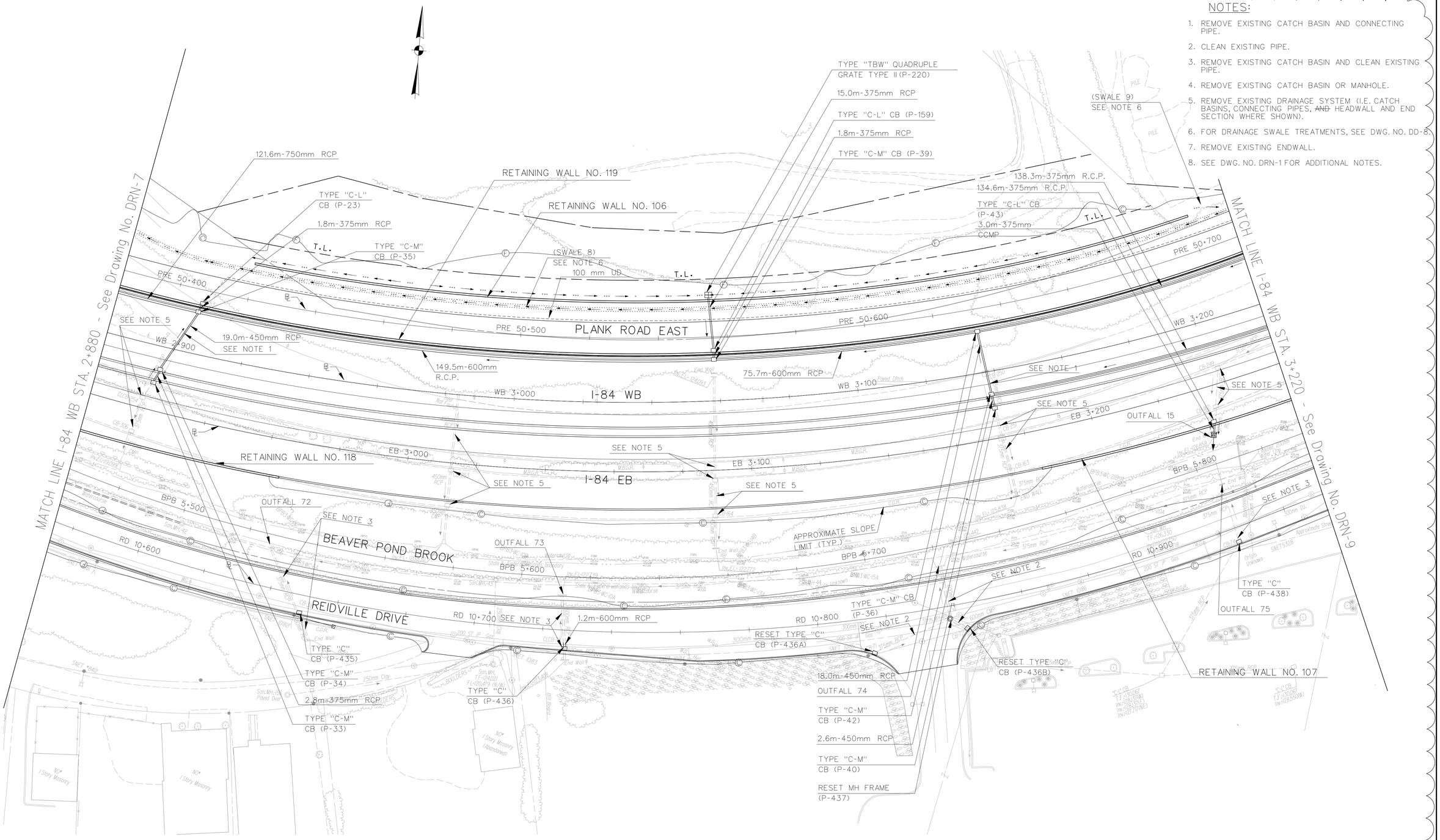
TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 7

PROJECT NO.: 151-273
DRAWING NO.: DRN-7
SHEET NO.:

NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPE.
3. REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.
4. REMOVE EXISTING CATCH BASIN OR MANHOLE.
5. REMOVE EXISTING DRAINAGE SYSTEM (I.E. CATCH BASINS, CONNECTING PIPES, ~~AND~~ HEADWALL AND END SECTION WHERE SHOWN).
6. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
7. REMOVE EXISTING ENDWALL.
8. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.



1

*DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-8.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

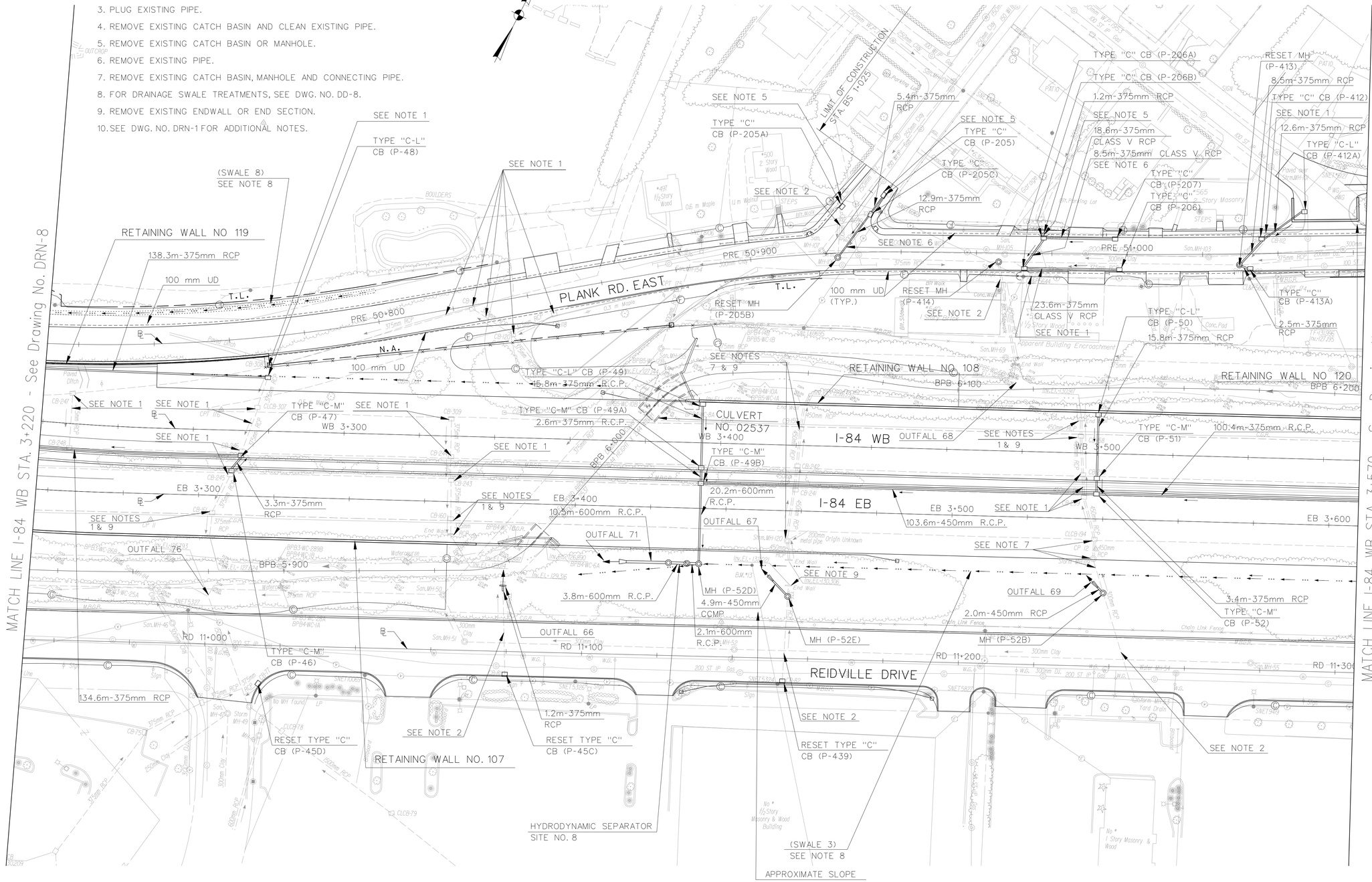
TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 8

PROJECT NO.: 151-273
DRAWING NO.: DRN-8
SHEET NO.:

NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPE.
3. PLUG EXISTING PIPE.
4. REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.
5. REMOVE EXISTING CATCH BASIN OR MANHOLE.
6. REMOVE EXISTING PIPE.
7. REMOVE EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
8. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
9. REMOVE EXISTING ENDWALL OR END SECTION.
10. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-9.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN - 9

PROJECT NO.: 151-273
DRAWING NO.: DRN-9
SHEET NO.:

*DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14

MATCH LINE I-84 WB STA. 3+750 - See Drawing No. DRN-11

48.7m-450 mm RCP
SEE NOTE 6
TYPE "C" DBLE GRATE TYPE II CB (P-227)
SEE NOTE 6
100mm UD
65.7m-450 mm RCP
RETAINING WALL NO. 121
TYPE "C" CB (P-227B)
100mm UD
59.6m-450 mm RCP
SEE NOTE 5
TYPE "C" CB DBLE GRATE TYPE I (P-227D)
SEE NOTE 6
LIMIT OF CONSTRUCTION STA. EM 30+060
EM 30+200
EAST MAIN STREET
EM 30-100
SEE NOTE 8
RESET MH FRAME (P-410F)
CULVERT NO. 06622
RESET MH (P-410E)
SEE NOTE 4
TYPE "C-L" CB DBLE GRATE TYPE II (P-410G)
CONVERT CB TO MH (P-410D)
MH (P-57B)
9.5m-900mm C.C.M.P.
TYPE "C" CB (P-212)
10.5m- 375mm RCP
TYPE "C" CB (P-211)
17.1m- 375mm CCMP
RESET MH (P-410C)
100mm UD (TYP.)
TYPE "C" CB (P-410)
SEE NOTE 1
TYPE "C" CB (P-410A)
SEE NOTE 5
3.6m-375mm RCP
RESET MH (P-410B)
PLANK ROAD EAST
T.L.
85.0m-750mm RCP
20.7m-375mm RCP
TYPE "C-L" CB (P-57) HYDRODYNAMIC SEPARATOR SITE NO. 3
PRE 51+200
OUTFALL 34
OUTFALL 19
RETAINING WALL NO. 108
APPROXIMATE SLOPE LIMIT (TYP.)
SEE NOTE 1
TYPE "C-L" CB (P-58A)
15.6m-375mm RCP
3.5m-375mm RCP
WB 3+700
I-84 WB
EB 3+700
I-84 EB
(SWALE 12) SEE NOTE 9
SEE NOTE 5
TYPE "C-M" CB (P-60)
SEE NOTE 5
SEE NOTE 1
68.8m-375mm RCP
2.6m-375mm RCP
MH (P-118B)
CONVERT CB TO MH (P-118A)
3.0m-375mm RCP
SEE NOTE 2
TYPE "C" CB (P-118)
3.2m-375mm RCP
OUTFALL 55
TYPE "C-M" CB (P-59)
SEE NOTE 1
1.3m-900mm RCP
MH (P-57A)
3.4m-900mm RCP
OUTFALL 77
5.5m - 375mm RCP
MH (P-52F)
SEE NOTE 2
(SWALE 3) SEE NOTE 9
2.6m - 375mm RCP
TYPE "C-M" CB (P-60A)
SEE NOTE 1
SEE NOTE 1
TYPE "C-M" CB (P-59A)
SEE NOTE 10 (TYP.)
100.4m- 375mm RCP
REIDVILLE DRIVE
RD 11+400

MATCH LINE I-84 WB STA. 3+570 - See Drawing No. DRN-9

NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPE.
3. PLUG EXISTING PIPE.
4. REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.
5. REMOVE EXISTING CATCH BASIN OR MANHOLE.
6. REMOVE EXISTING PIPE.
7. ABANDON EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
8. CLEAN EXISTING DRAIN.
9. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
10. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-10.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
DRAINAGE PLAN – 10

PROJECT NO.: 151-273
DRAWING NO.: DRN-10
SHEET NO.:

MATCH LINE I-84 WB STA. 3+955 - See Drawing No. DRN-12

WHITECROFT LANE

LIMIT OF CONSTRUCTION
STA. EM 30+410

EAST MAIN STREET

EM 30+400

APPROXIMATE SLOPE
LIMIT (TYP.)

TRAFFIC NOISE
BARRIER

BEAVER POND BROOK

PRE 8+600

RELOCATED

TYPE "C-L" CB
(P-95A)

SEE
NOTE 1

SEE
NOTE 8

W25 13+900

WB 25 OFF-RAMP

WB 3+900

SEE
NOTE 1

TYPE "C" CB (P-225)

SEE
NOTE 2

TYPE "C" CB (P-310)

CONVERT CB TO
MH (P-311)

SEE
NOTE 1

TYPE "C-L" CB (P-95)

15m-375mm CCMP

TYPE "C" CB (P-198)

BRIDGE
NO. 01228

3+900

SR 5+100

SEE
NOTE 2

41.1m-375mm RCP

100mm UD

CULVERT NO. 014

OUTFALL
47

SEE
NOTE 1

10.0m-1200mm CCMP
MH (P-195C)
3.4m-900mm RCP

1.3m-900mm RCP

19.1m-450mm RCP

HYDRODYNAMIC SEPARATOR
SITE NO. 6
2.0m-750mm RCP

TYPE "C" CB (P-226)

SEE
NOTE 1

SR 5+300

SCOTT ROAD

PLANK ROAD EAST

PRE 51+300

I-84 WB

WB 3+800

SEE NOTE 5

SEE NOTE 5
WB 3+800

I-84 EB

EB 3+800

SEE
NOTE 1

SEE
NOTE 1

EB 25 ON-RAMP

EB 25+900

RD 11+595

REIDVILLE DRIVE

RD 11+500

T.L.
N.A.

78.6m-600mm RCP &
(SWALE 12) SEE NOTE 9

(SWALE 3)
SEE NOTE 9

(SWALE 13)
SEE NOTE 9

87.5m-600mm RCP

TYPE "C"
CB (P-405A)

4.8m - 375mm
RCP

RESET TYPE "C"
CB (P-405)

RESET TYPE "C"
CB (P-402A)

RESET M.H.
(P-407)

RESET M.H.
(P-408)

RESET TYPE "C"
CB (P-404)

RESET TYPE "C"
CB (P-403)

SEE
NOTE 2

RESET TYPE "C" CB (P-402)

1.2m-750mm RCP

LIMIT OF CONSTRUCTION
STA. SR 5+000

RESET M.H.
(P-406)

58.9m - 600 mm RCP
(SEE NOTE 10 TYP.)

TYPE "C-M" CB (P-55)

2.8m-375mm RCP

TYPE "C-M" CB (P-54)

22.8m-375mm RCP

TYPE "C-L" CB (P-53)

12.0m-375mm CCMP

TYPE "C" CB (P-197)

TYPE "C" CB (P-119)

85.7m - 750 mm RCP

TYPE "C" CB (P-201)

2.0m-375mm RCP

TYPE "C" CB DBLE
GRATE TYPE II (P-210)
SEE NOTES 3 & 5

12.0m-375mm RCP

TYPE "C" CB (P-195)

TYPE "C" CB DBLE
GRATE TYPE II (P-200)

100mm UD

48.7m-450mm RCP

TYPE "C" CB DBLE
GRATE TYPE II (P-194)

15.7m-450mm RCP

SEE
NOTES 5 & 6

100mm UD

23.7m-600mm RCP

SEE
NOTE 7

TYPE "C" CB DBLE
GRATE TYPE II (P-196)

23.2m-750mm RCP

16.8m-600mm RCP

TYPE "C" CB DBLE
GRATE TYPE II (P-192)

TYPE "C" CB (P-193)

25.0m-450mm RCP

MATCH LINE I-84 WB STA. 3+750 - See Drawing No. DRN-10

NOTES:

1. REMOVE EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
2. CLEAN EXISTING PIPE.
3. PLUG EXISTING PIPE.
4. REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.
5. REMOVE EXISTING CATCH BASIN OR MANHOLE.
6. REMOVE EXISTING PIPE.
7. ABANDON EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
8. SEE SEWER RELOCATION PLANS
9. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
10. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-11.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

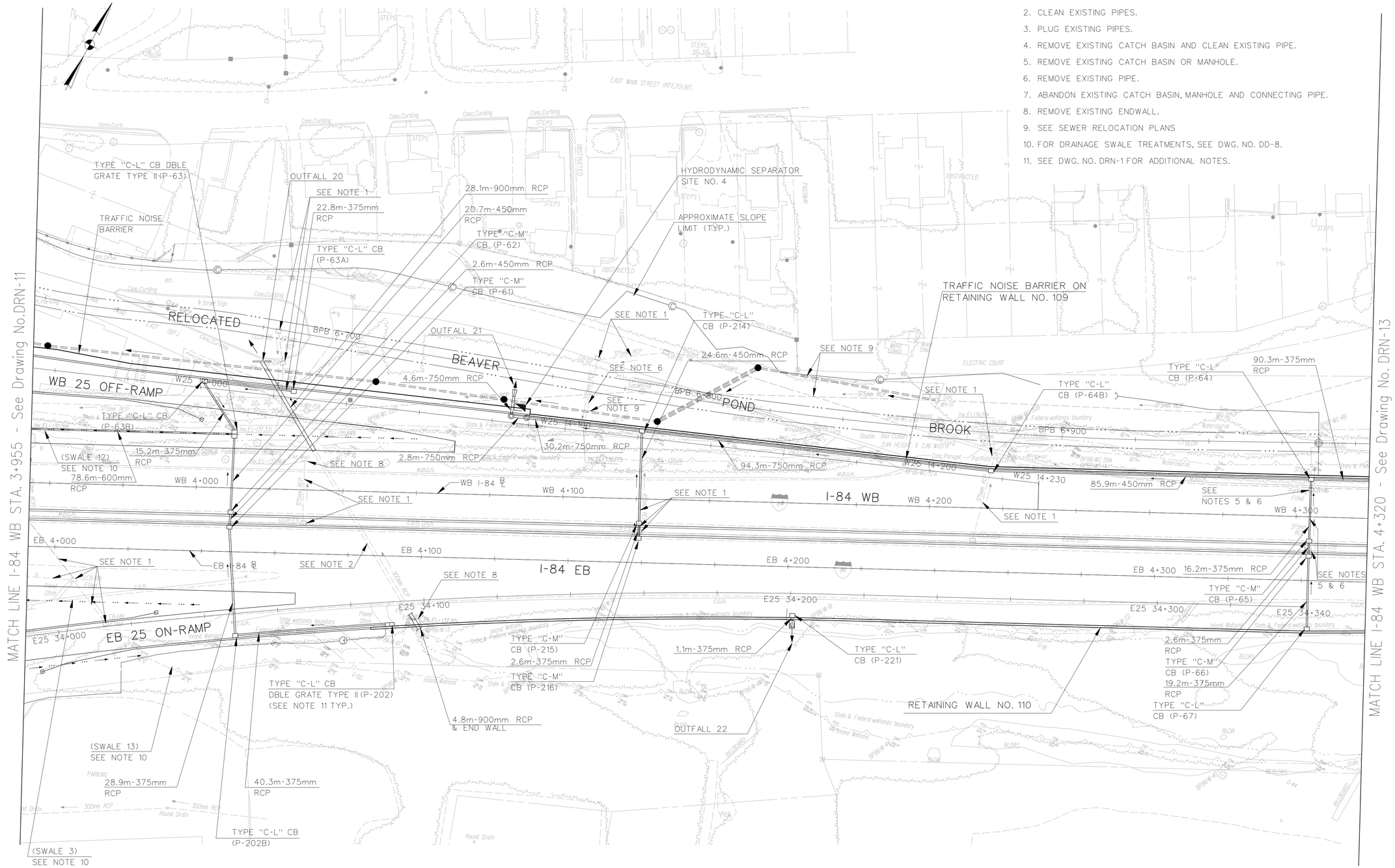
TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 11

PROJECT NO.: 151-273
DRAWING NO.: DRN-11
SHEET NO.:

NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPES.
3. PLUG EXISTING PIPES.
4. REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.
5. REMOVE EXISTING CATCH BASIN OR MANHOLE.
6. REMOVE EXISTING PIPE.
7. ABANDON EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
8. REMOVE EXISTING ENDWALL.
9. SEE SEWER RELOCATION PLANS
10. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
11. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
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SCALE 1:500
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-12.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

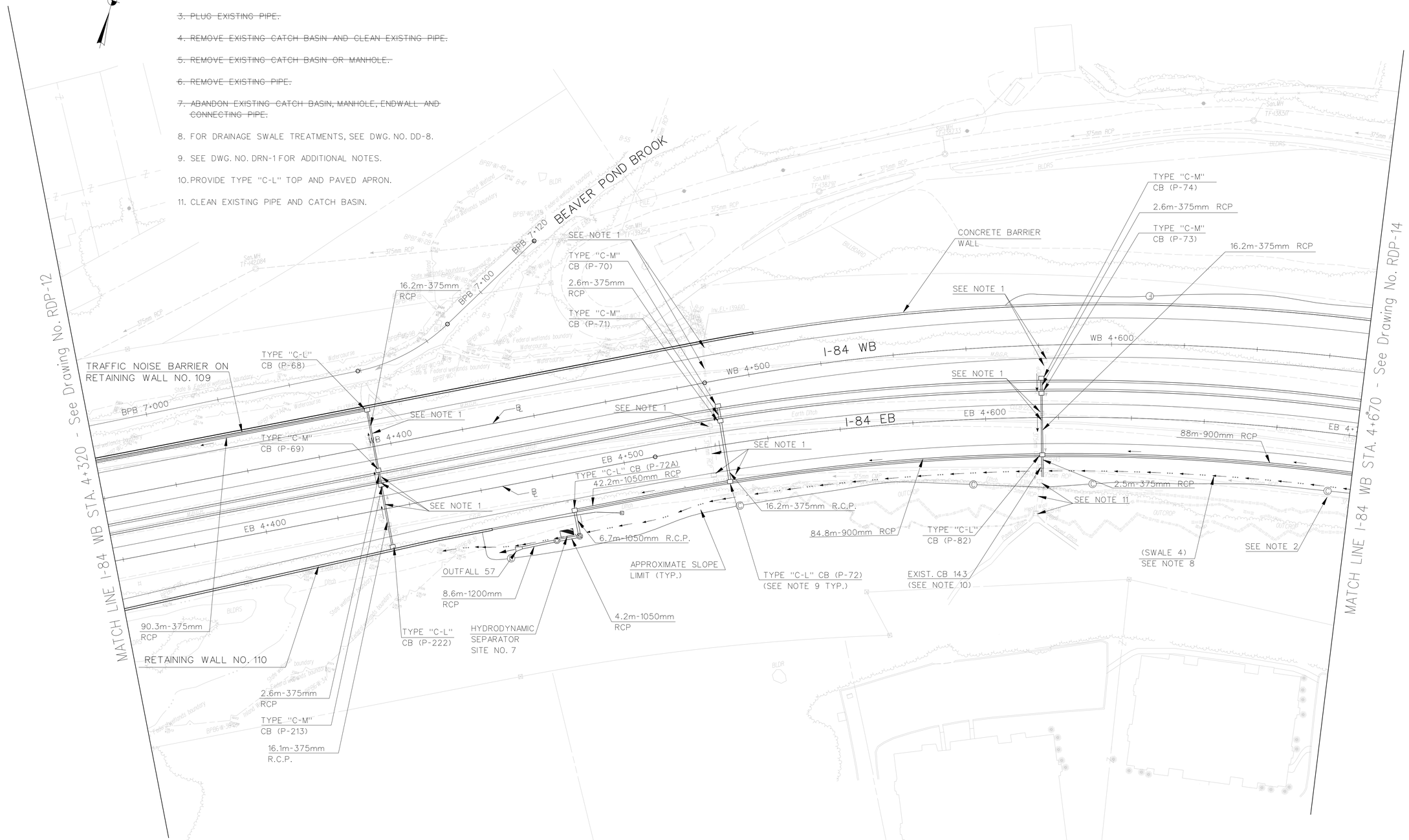
DRAWING TITLE:
DRAINAGE PLAN – 12

PROJECT NO.: 151-273
DRAWING NO.: DRN-12
SHEET NO.:

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPE.
3. ~~PLUG EXISTING PIPE.~~
4. ~~REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.~~
5. ~~REMOVE EXISTING CATCH BASIN OR MANHOLE.~~
6. ~~REMOVE EXISTING PIPE.~~
7. ~~ABANDON EXISTING CATCH BASIN, MANHOLE, ENDWALL AND CONNECTING PIPE.~~
8. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
9. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.
10. PROVIDE TYPE "C-L" TOP AND PAVED APRON.
11. CLEAN EXISTING PIPE AND CATCH BASIN.



"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS
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SCALE 1:500
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-13.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: DRAINAGE PLAN – 13

PROJECT NO.: 151-273
DRAWING NO.: DRN-13
SHEET NO.:

NOTES:

1. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
2. CLEAN EXISTING PIPES.
3. ~~PLUG EXISTING PIPES.~~
4. ~~REMOVE EXISTING CATCH BASIN AND CLEAN EXISTING PIPE.~~
5. REMOVE EXISTING CATCH BASIN OR MANHOLE.
6. REMOVE EXISTING PIPE.
7. ABANDON EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
8. ~~LINE EXISTING PIPE IF IT IS A C.M.P.~~
9. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
10. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.
11. PROVIDE TYPE "C-L" TOP AND PAVED APPRON.
12. CLEAN EXISTING PIPE AND CATCH BASIN.

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS 0 5 10 15 20 25
SCALE 1:500
1 METER = 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-14.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN - 14

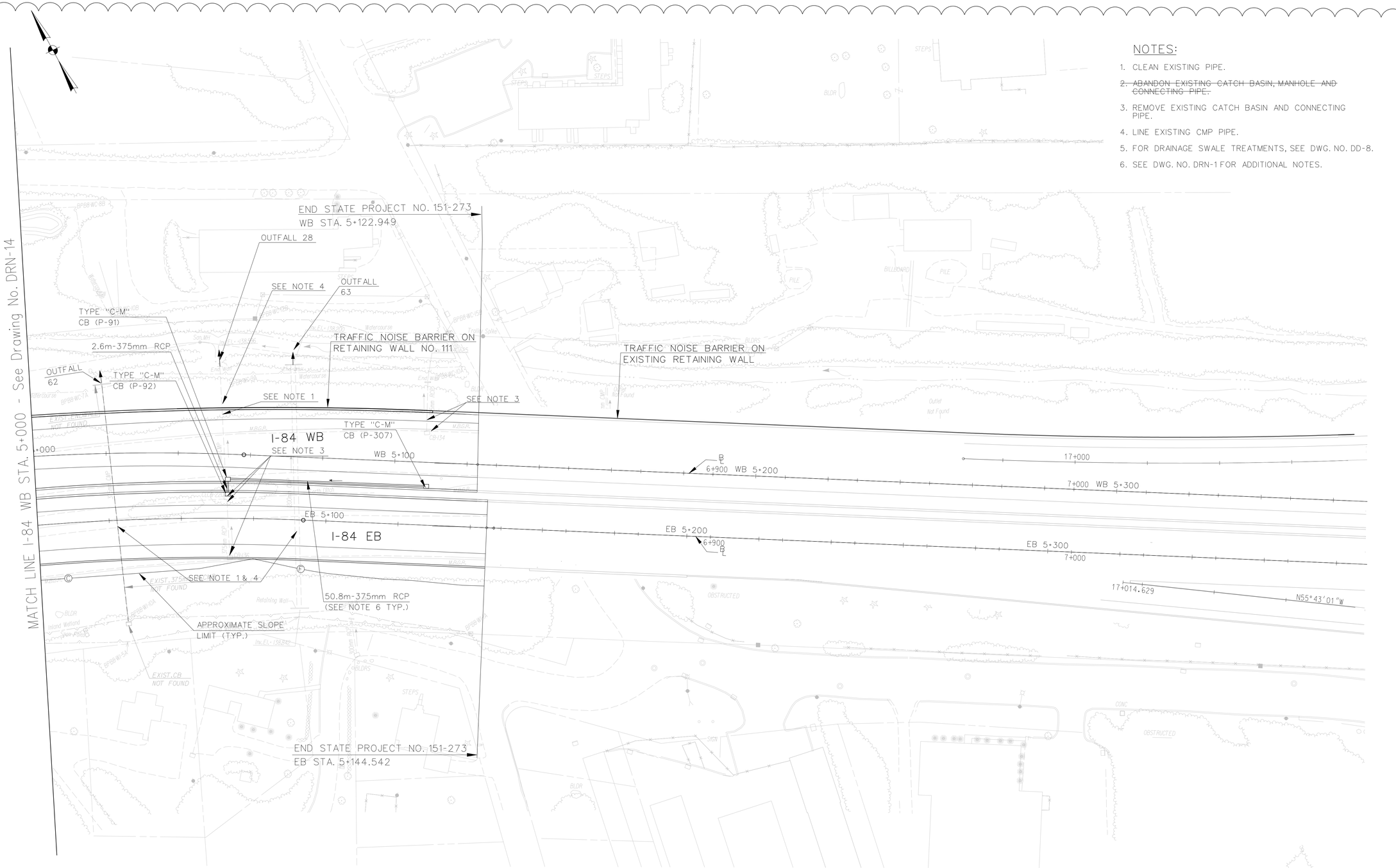
PROJECT NO.: 151-273

DRAWING NO.: DRN-14

SHEET NO.:

NOTES:

1. CLEAN EXISTING PIPE.
2. ~~ABANDON EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.~~
3. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.
4. LINE EXISTING CMP PIPE.
5. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
6. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.



1 "DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-15.dgn | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

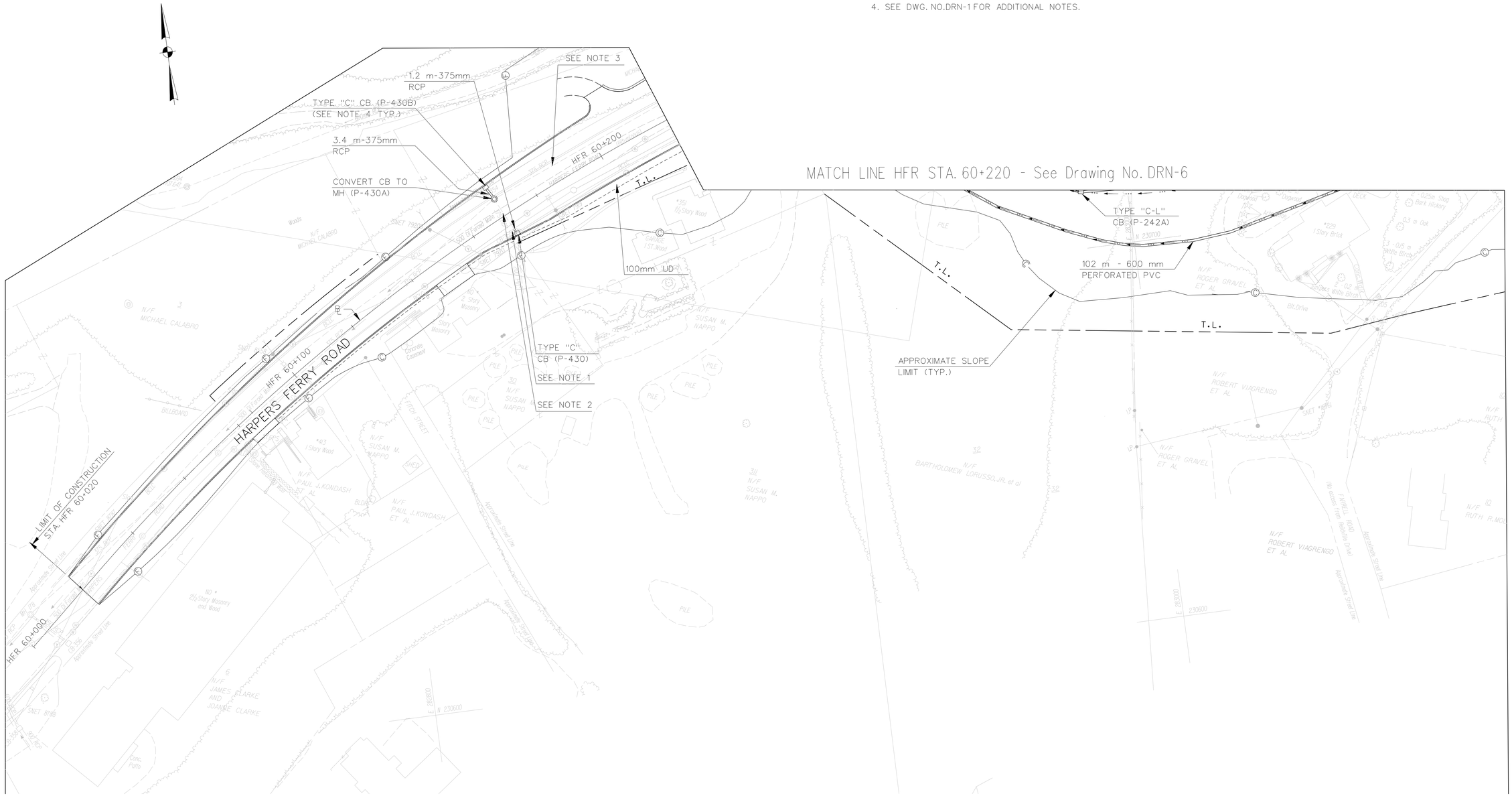
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: DRAINAGE PLAN – 15

PROJECT NO.: 151-273
DRAWING NO.: DRN-15
SHEET NO.:

NOTES:

1. REMOVE EXISTING CATCH BASIN.
2. CLEAN EXISTING PIPE.
3. REMOVE EXISTING CATCH BASIN, MANHOLE AND CONNECTING PIPE.
4. SEE DWG. NO.DRN-1 FOR ADDITIONAL NOTES.



REV.	DATE	DESCRIPTION	SHEET. NO.
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SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-16.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
DRAINAGE PLAN – 16

PROJECT NO.: 151-273
DRAWING NO.: DRN-16
SHEET NO.:

MATCH LINE HFR STA. 60+690 - See Drawing No. DRN-18

RETAINING WALL NO. 105
40.0m-600mm RCP

PLANK ROAD
LIMIT OF CONSTRUCTION
STA. PR 70+060

100mm UD (TYP.)

TYPE "C" CB DBLE GRATE TYPE II(P-172)
SEE NOTE 5

24.8m-600mm RCP

9.8m-375mm RCP

TYPE "C" CB DBLE GRATE TYPE II(P-173C)

10.3m-375mm RCP

MH (P-173A)

10.2m-450mm RCP

TYPE "C" CB DBLE GRATE TYPE II(P-173)

11.7m-450mm RCP

100mm UD (TYP.)

TYPE "C" CB (P-171)

16.0m-750mm RCP

SEE NOTE 6

TYPE "C" CB DBLE GRATE TYPE II(P-180A)

9.0m-450mm RCP

20.0m-375mm RCP

TYPE "C" CB (P-180)

17.5m-375mm RCP

TYPE "C" CB (P-190)

35.6m-375mm RCP

100mm UD (TYP.)

TYPE "C" CB (P-204)

33.0m-375mm RCP

TYPE "C" CB (P-230)

TYPE "C" CB (P-178)

7.3m-375mm RCP

MH (P-177A)

OUTFALL 78

1.8m-600mm RCP

TYPE "C" CB (P-177)

6.4m-600mm RCP

OUTFALL 51

BRIDGE NO. 05668

HYDRODYNAMIC SEPARATOR SITE NO. 5

3.4m-750mm R.C.P.

OUTFALL 43

MH (P-203B)

4.7m-750mm RCP

MH (P-203A)

1.2m-750mm R.C.P.

TYPE "C" CB (P-203)

11.6m-750mm RCP

TYPE "C" CB (P-174)

TYPE "C" CB (P-169)

SEE NOTE 2

MAD RIVER

HARPERS FERRY ROAD

HFR 60+600

TYPE "C" CB (P-168)

21m- 375mm RCP

BRIDGE NO. 06591

APPROXIMATE SLOPE LIMIT (TYP.)

SEE NOTE 5

BPB 5.000

MR 2.000

RELOCATED

SEE NOTE 1

SEE NOTE 6

21.3m-375mm RCP

TYPE "C" CB (P-179)

11.0m-375mm RCP

100mm UD

TYPE "C" CB (P-179A)

13.9m-600mm RCP

TYPE "C" CB (P-181)

35.2m-375mm RCP

TYPE "C" CB (P-191)

CULVERT NO. 03727

PLANK ROAD

HFR 70+200

TYPE "C" CB (P-182)

6.0m-375mm RCP

TYPE "C" CB (P-182A)

60.8m-375mm RCP

TYPE "C" CB (P-165)

7.4m-375mm RCP

TYPE "C" CB (P-170)
(SEE NOTE 4 TYP.)

35.6m-375mm RCP

SEE NOTE 1

75.6m-375mm RCP

TYPE "C" CB (P-167)

14m-375mm CCMP

BPB 5.100

BEAVER POND BROOK

PR 70+300

42.7m-375mm RCP

6.0m-375mm RCP

TYPE "C" CB (P-217)

WB24 ON-RAMP

W24 12+500

PRE 50+000

W24 12+400

SEE NOTE 5

TYPE "C" CB DBLE GRATE TYPE II(P-166)

SEE NOTE 5

W2 1+900

HFR 60+400

SEE NOTE 1

SEE NOTE 1

SEE NOTE 1

(SWALE 16)
SEE NOTE 3

OUTFALL 42

SEE NOTE 5

PLANK ROAD EAST

PRE 50+100

MATCH LINE HFR STA. 60+480

See Drawing No. DRN-6

MATCH LINE - See Drawing No. DRN-7

MATCH LINE - See Drawing No. DRN-7

NOTES:

1. ABANDON EXISTING CATCH BASIN, MANHOLE, ENDWALL AND CONNECTING PIPE.
2. SEE SEWER RELOCATION PLANS.
3. FOR DRAINAGE SWALE TREATMENTS, SEE DWG. NO. DD-8.
4. SEE DWG. NO. DRN-1 FOR ADDITIONAL NOTES.
5. REMOVE EXISTING CATCH BASIN, MANHOLE, ENDWALL AND CONNECTING PIPE.
6. REMOVE EXISTING CATCH BASIN AND CONNECTING PIPE.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 10/28/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-17.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 17

PROJECT NO.: 151-273
DRAWING NO.: DRN-17
SHEET NO.:

NOTES:

1. SEE DWG. NO. DRN-1 FOR NOTES

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBEERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-18.dgn | PLOTTED 12/1/2014

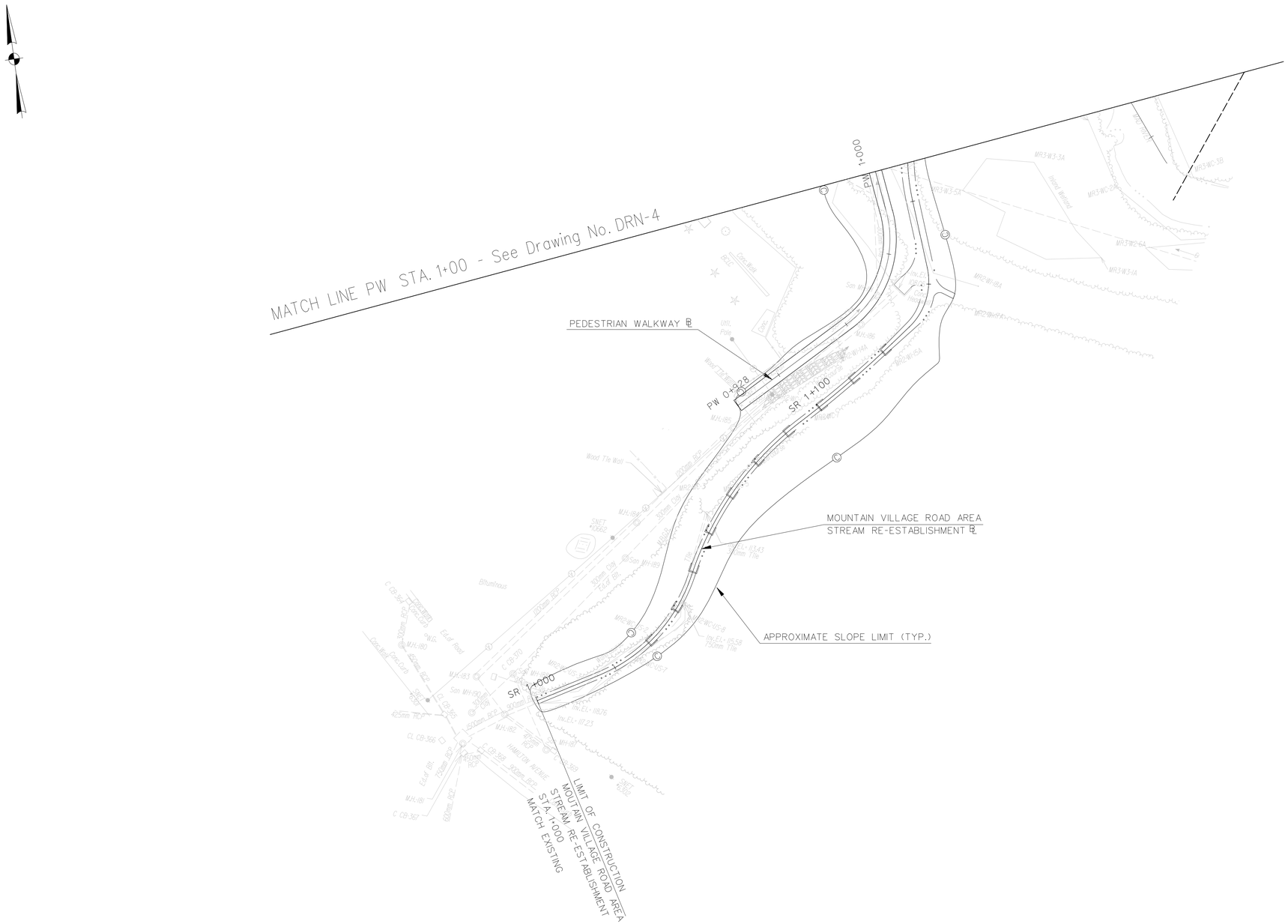
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: DRAINAGE PLAN – 18

PROJECT NO.: 151-273
DRAWING NO.: DRN-18
SHEET NO.:



NOTES:

1. SEE DWG. NO. DRN-1 FOR NOTES

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.HU
DRAFTER: M.OFFENBEERG
CHECKED BY: H.MORETT
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\drainage\d-19_MVR.dgn | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
DRAINAGE PLAN – 19

PROJECT NO.: 151-273
DRAWING NO.: DRN-19
SHEET NO.:

NOTES:

1. PIPE LINING SHALL BE PERFORMED USING POLY VINYL CHLORIDE (PVC) SPIRAL-WOUND LINER (PROFILE STRIP) PIPE REHABILITATION TECHNOLOGY.
2. ACCESS TO THE WORK AREA SHALL BE FROM THE SHOULDERS OF I-84 ABOVE.

REV.	DATE	DESCRIPTION	SHEET NO.
		REVISIONS	

SCALE IN METERS 0 5 10 15 20 25
SCALE 1:500

DESIGNER:	T. BULZAK
DRAFTER:	M. MOSLEY
CHECKED BY:	J. HUND
DATE CHECKED:	

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\1510274 Culvert Lining 20.dgn — PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY AND CHESHIRE

DRAWING TITLE: DRAINAGE PLAN-20

PROJECT NO.: 151-273

DRAWING NO.: DRN-20

SHEET NO.:

NOTES:

1. CULVERT LINING SHALL BE PERFORMED USING POLY VINYL CHLORIDE (PVC) SPIRAL-WOUND LINER (PROFILE STRIP) PIPE REHABILITATION TECHNOLOGY.
2. ACCESS TO THE WORK AREA SHALL BE FROM THE WB I-84 SHOULDER ABOVE AND HICKORY LANE.
3. FOR CULVERT INTERNAL ROUGHNESS ELEMENTS AND DETAILS SEE DWG. NO. DD-13.

I-84 WB
I-84 EB
I-84 W.B.
I-84 E.B.
WB I-84 ℄
EB I-84 ℄
101.6m-1,370mm SPIRAL WOUND PIPE LINING (SEE NOTE 1 AND 3)
10+000
10+100
10+200
10+300
10+400
PT 10+373.807
PT 10+397.880
CHD FOUND
NON-ACCESS HWY.LINE ROW MAP #25-08 SHEET #1
NON-ACCESS HWY.LINE ROW MAP #25-08 SHEET #2
NON-ACCESS HWY.LINE ROW MAP #25-08 SHEET #1 & 2
Wetlands Boundary WI-5N
Wetlands Boundary WI-25N
Wetlands Boundary WI-23N
Wetlands Boundary WI-22N
Wetlands Boundary WI-19N
Wetlands Boundary WI-17N
Wetlands Boundary WI-14N
Wetlands Boundary WI-8N
N/F TOWN OF CHESHIRE
N/F RAYMOND H.KUHARSKI,JR.
N/F LINDA & LOREN D.ANDERSON
N/F PATRICIA E.EMERY
N/F HERBERT J.& KAREN M.BROOKS
N/F PAUL J.& LYNNE E.ROSANO
HICKORY LANE (PRIVATE)
Garage
Stone Drive
Gravel Drive
Edge of Pvmt.
Row of Shrubs
Concrete Headwall
Inv. 1226
Inv. 1227
Inv. 1230
Inv. 1235
Inv. 1238
Inv. 1239
W2-20S
W2-21S
W2-22S
W2-23S
W2-24S
W2-25S
W2-26S
W2-27S
W2-28S
W2-29S
W2-30S
W2-31S
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REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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SCALE 1:500

DESIGNER: T. BULZAK
DRAFTER: M. MOSLEY
CHECKED BY: J. HUND
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\1510274 Culvert Lining 21.dgn
PLOTTED 12/1/2014

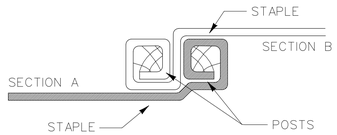
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

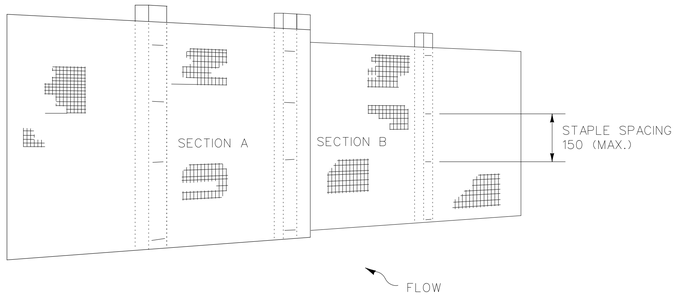
TOWN:
WATERBURY AND CHESHIRE

DRAWING TITLE:
DRAINAGE PLAN-21

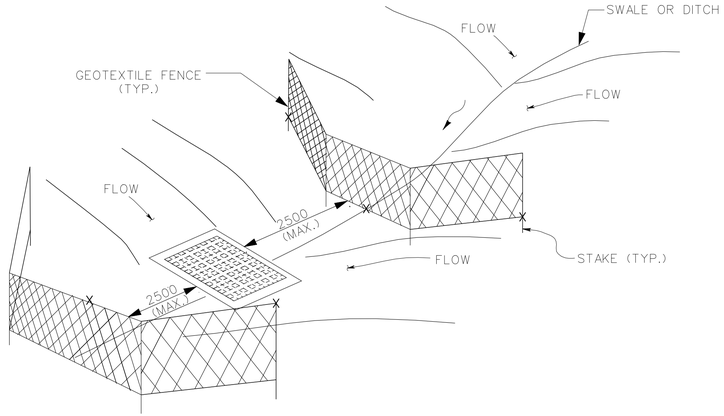
PROJECT NO.: 151-273
DRAWING NO.: DRN-21
SHEET NO.:



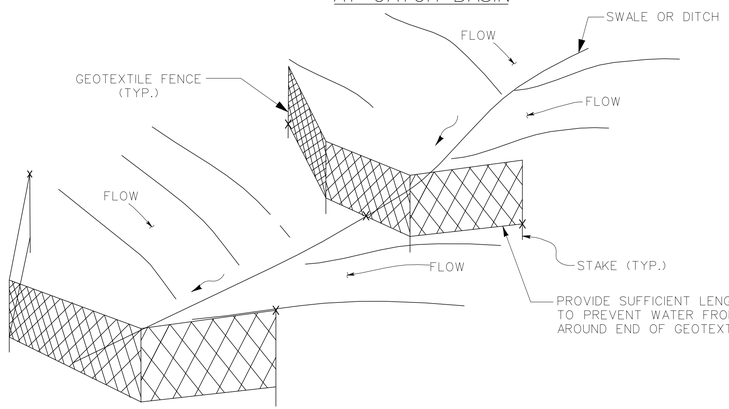
PLAN



ELEVATION
JOINING TWO ADJACENT FENCE SECTIONS



CHECK DAM, GEOTEXTILE FENCE
AT CATCH BASIN



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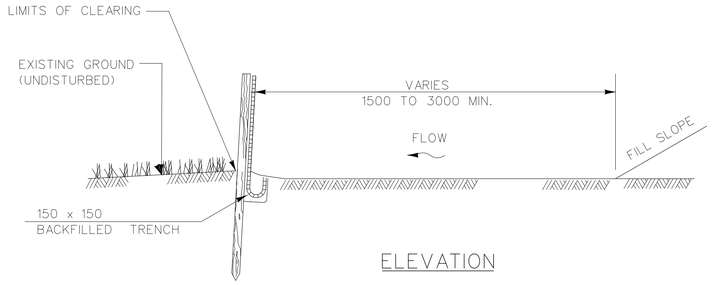

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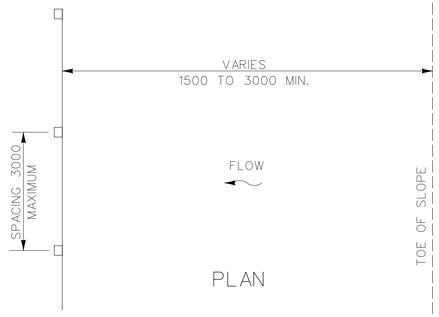
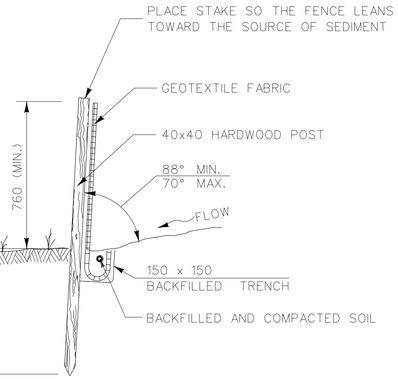
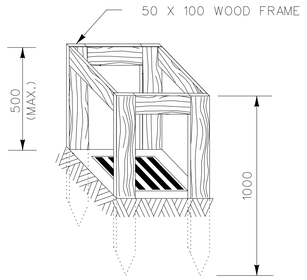


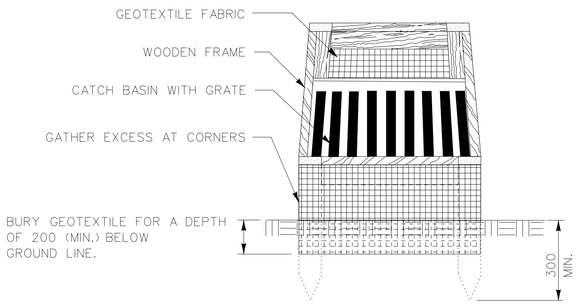
PLAN

INSTALLATION AT TOE OF FILL



POST AND FABRIC INSTALLATION DETAIL





CATCH BASIN ENCIRCLED BY GEOTEXTILE FENCE

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. PAYMENT FOR SEDIMENTATION CONTROL SYSTEM, GEOTEXTILE FENCE SHALL BE MADE UNDER CONTRACT PAY ITEM "SEDIMENTATION CONTROL SYSTEM".
3. PAYMENT FOR CATCH BASIN ENCIRCLED BY GEOTEXTILE FENCE SHALL BE PAID FOR UNDER CONTRACT PAY ITEM "SEDIMENTATION CONTROL SYSTEM AT CATCH BASIN".

SEDIMENTATION CONTROL SYSTEM, GEOTEXTILE FENCE

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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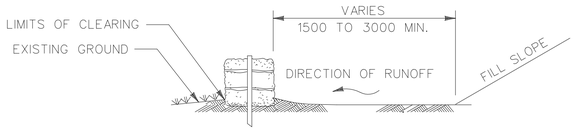
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION
CONTROL DETAILS

PROJECT NO.: 151-273
DRAWING NO.: ESD-1
SHEET NO.:



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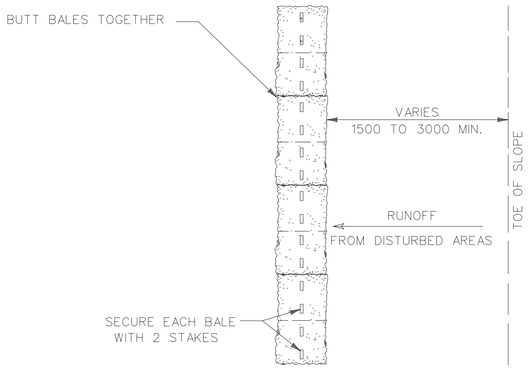
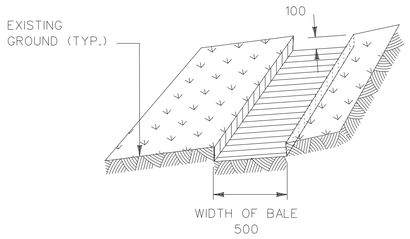
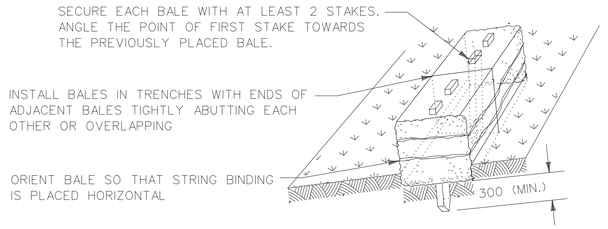


PLAN

INSTALLATION OF A HAY
BALE BARRIER AT TOE OF FILL

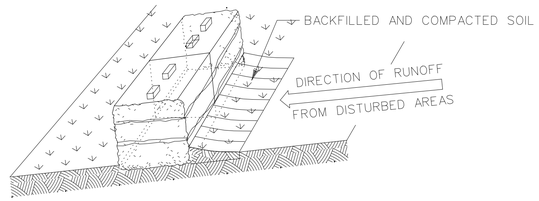


STEP 1: EXCAVATE TRENCH



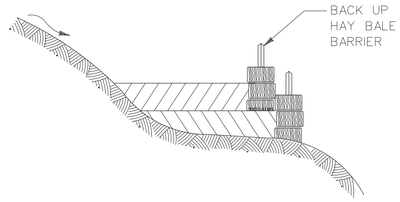
STEP 2: INSTALL BALES

STEP 3: TIGHTLY PACK STRAW BETWEEN BALES
(PLAN VIEW OF BALES)



STEP 4: BACKFILL SOIL AGAINST BALES

PROPERLY STAKED AND ENTRENCHED HAY BALES



PLACE SUPPLEMENTAL HAY BALES
(SECOND ROW) BEHIND FIRST ROW WHEN
SEDIMENT ACCUMULATION IS ABOUT
1/2 THE HEIGHT OF THE FIRST ROW

BACKUP HAY BALE BARRIER

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. PAYMENT FOR SEDIMENTATION CONTROL SYSTEM, HAY BALES SHALL BE MADE UNDER CONTRACT PAY ITEM "SEDIMENTATION CONTROL SYSTEM".

SEDIMENTATION CONTROL SYSTEM, HAY BALES

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

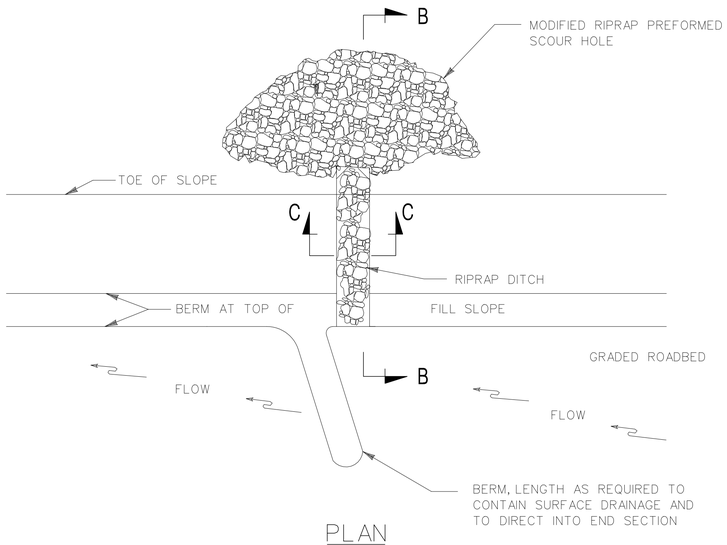
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

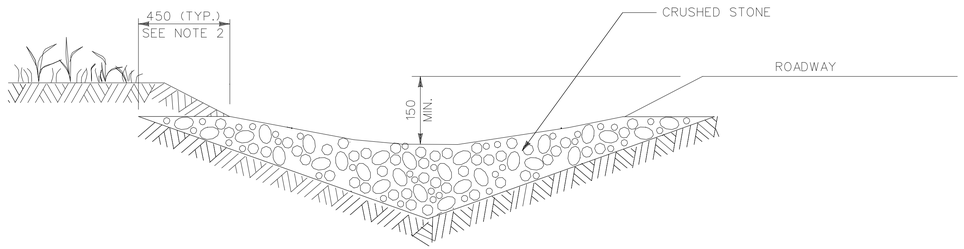
TOWN: WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION
CONTROL DETAILS

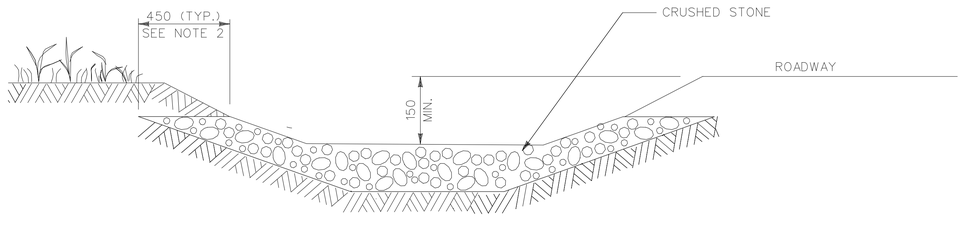
PROJECT NO.: 151-273
DRAWING NO.: ESD-2
SHEET NO.:



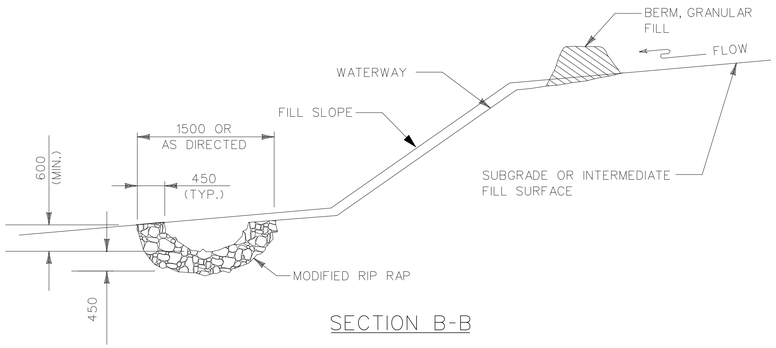
PLAN



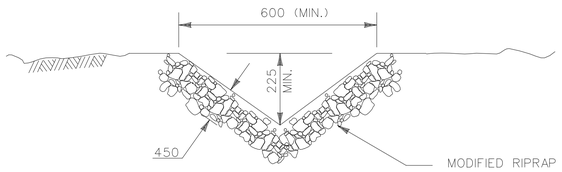
V DITCH CROSS SECTION



TRAPAZOIDAL DITCH CROSS SECTION

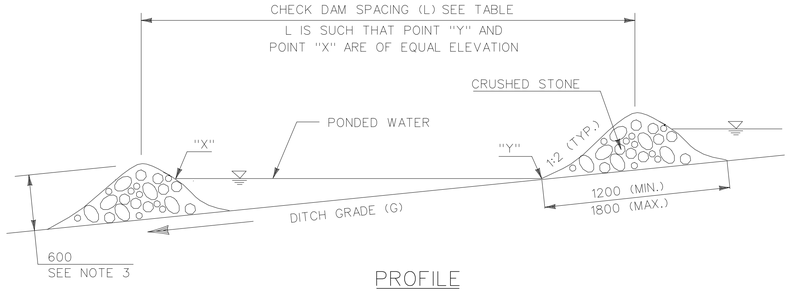


SECTION B-B



SECTION C-C

RIPRAPPED TEMPORARY SLOPE DRAIN



PROFILE

STONE CHECK DAM

DITCH GRADE (G) *	CHECK DAM SPACING (L)
2%	23000
3%	15000
4%	12000
5%	9000
6%	7500

* DO NOT USE CHECK DAMS BELOW 2% OR ABOVE 6% DITCH GRADES UNLESS INDICATED ON THE PLANS

NOTES:

1. CRUSHED STONE SHALL CONFORM TO REQUIREMENTS OF NO. 3 AGGREGATE
2. KEY STONE INTO THE BANKS AND EXTEND A MINIMUM OF 450 mm TO PREVENT FLOW FROM FLANKING THE CHECK DAM.
3. STONE CHECK DAMS SHALL NOT EXCEED A HEIGHT OF 900 mm.
4. PAYMENT FOR RIP RAPPED TEMPORARY SLOPE DRAIN SHALL BE MADE UNDER THE APPROPRIATE CONTRACT PAY ITEM.
5. PAYMENT FOR STONE CHECK DAM SHALL BE MADE UNDER CONTRACT PAY ITEM "TEMPORARY CHECK DAM"
6. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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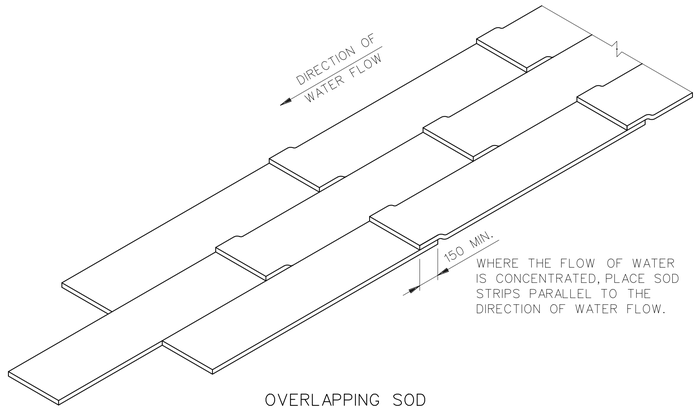
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

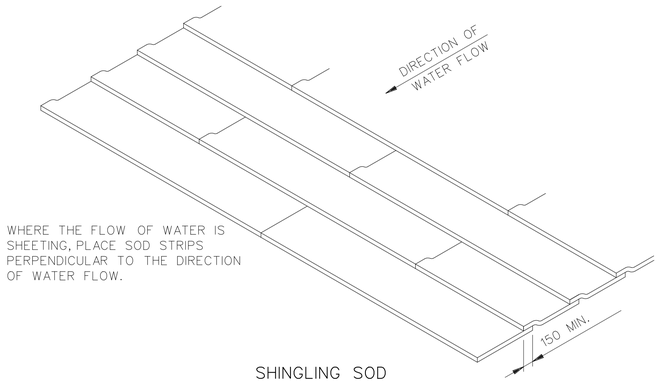
TOWN: WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT NO.: 151-273
DRAWING NO.: ESD-3
SHEET NO.:

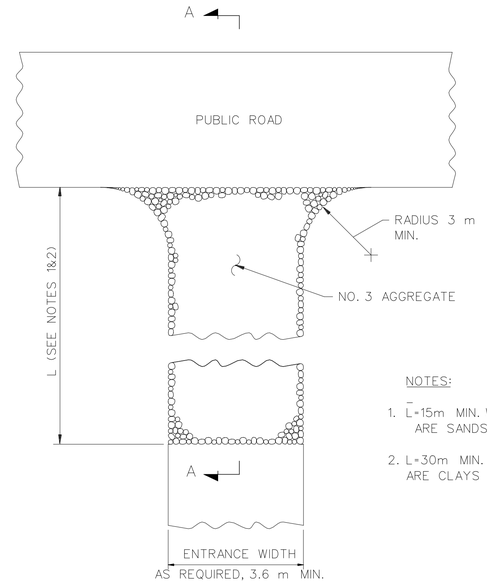


OVERLAPPING SOD



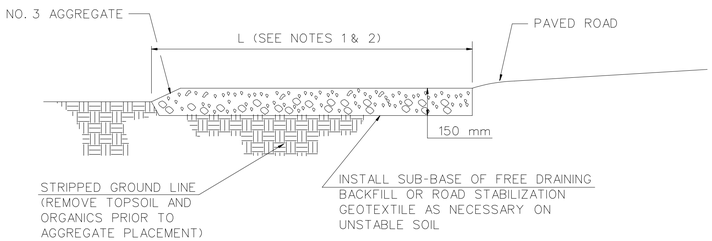
SHINGLING SOD

SPECIAL SOD PLACEMENT TECHNIQUES



NOTES:

1. L=15m MIN. WHERE THE SOILS ARE SANDS OR GRAVELS
2. L=30m MIN. WHERE THE SOILS ARE CLAYS OR SILTS



SECTION A-A

CONSTRUCTION ENTRANCE

(PAYMENT FOR CONSTRUCTION ENTRANCE SHALL BE MADE UNDER CONTRACT PAY ITEM "ANTI-TRACKING PAD")

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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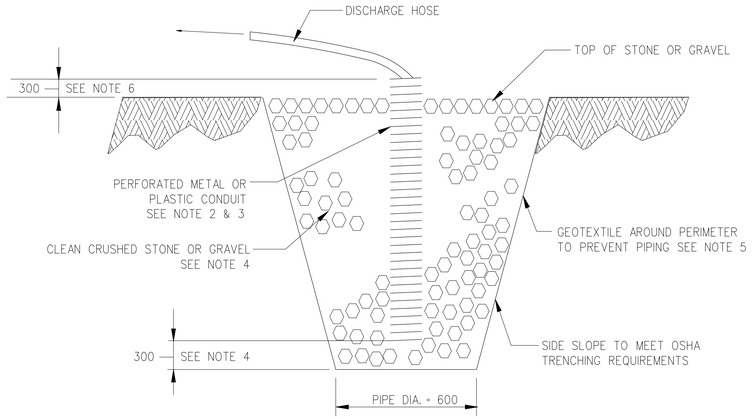
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION CONTROL DETAILS

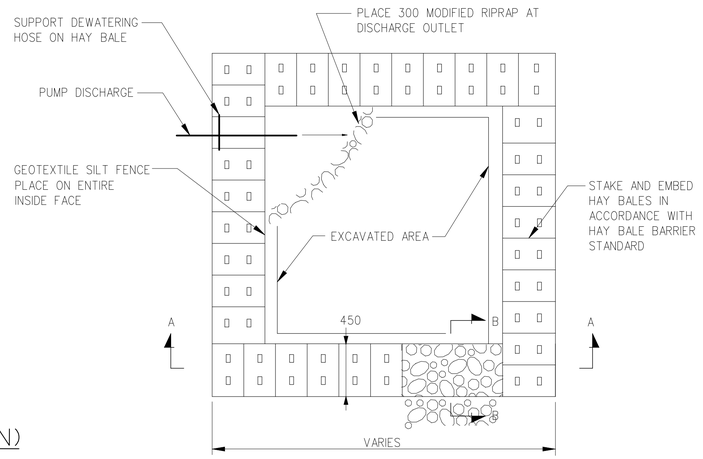
PROJECT NO.: 151-273
DRAWING NO.: ESD-4
SHEET NO.:



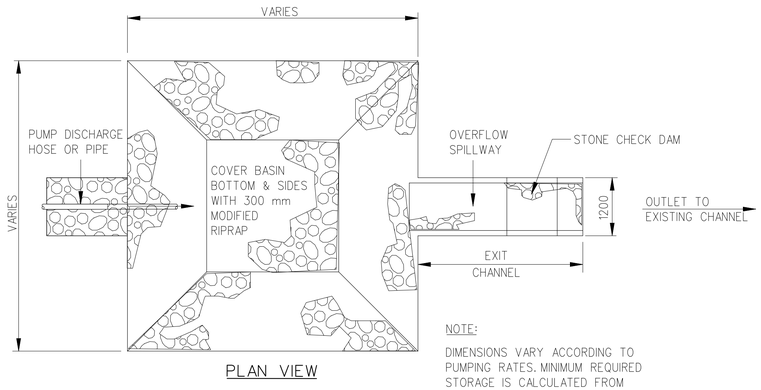
TYPICAL SECTION OF SUMP PIT (PUMP INTAKE PROTECTION)

NOTES, SUMP PIT:

1. OVERALL SUMP PIT DIMENSION SHALL BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP SIZE TO BE USED.
2. THE STANDPIPE DIAMETER AND NUMBER OF PERFORATIONS SHALL BE COMPATIBLE WITH THE PUMP SIZE BEING USED.
3. PERFORATIONS IN THE STANDPIPE SHALL BE EITHER CIRCULAR OR SLOTS. PERFORATION SIZE SHALL NOT EXCEED 10 mm IN DIAMETER.
4. CRUSHED STONE OR GRAVEL SHALL BE NO SMALLER THAN NO. 67 AGGREGATE NOR LARGER THAN NO. 3 AGGREGATE. CRUSHED STONE SHALL EXTEND A MINIMUM OF 300 mm BELOW THE BOTTOM OF THE STANDPIPE.
5. IF EXCESSIVE MOVEMENT OF FINE SOIL PARTICLES FROM THE SURROUNDING EXISTING SOILS OCCURS, GEOTEXTILE SHALL BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE OR GRAVEL BACKFILL.
6. THE STANDPIPE SHALL EXTEND A MINIMUM OF 300 mm ABOVE THE SURROUNDING GROUND.

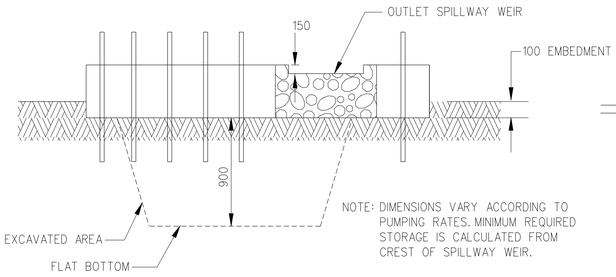


PLAN

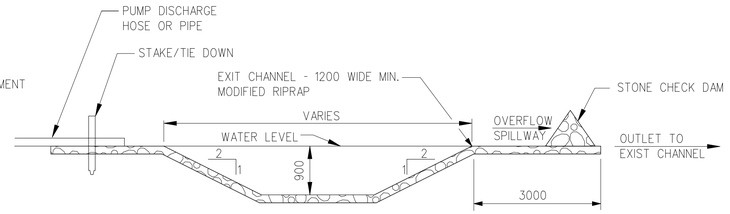


PLAN VIEW

NOTE:
DIMENSIONS VARY ACCORDING TO PUMPING RATES. MINIMUM REQUIRED STORAGE IS CALCULATED FROM SPILLWAY WEIR.

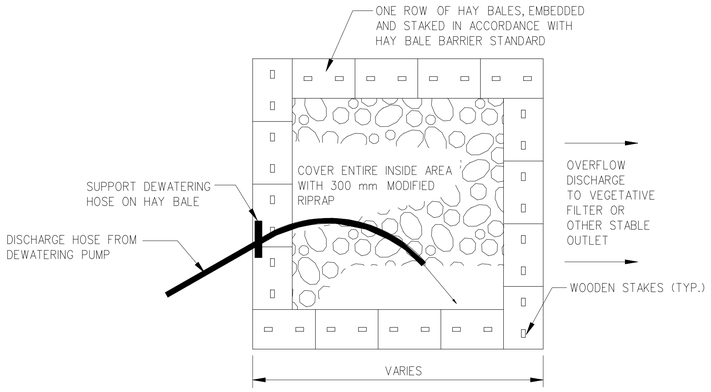


SECTION A-A



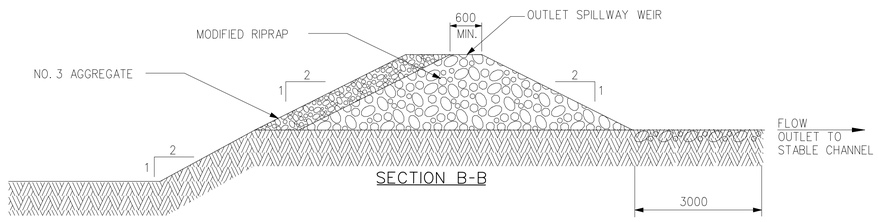
PROFILE

DEWATERING SETTLING BASIN - TYPE III



PLAN

DEWATERING SETTLING BASIN - TYPE I



SECTION B-B

DEWATERING SETTLING BASIN - TYPE II

NOTES:

1. TYPE I DEWATERING SETTLING BASINS ARE TO BE USED WHERE THE ANTICIPATED SEDIMENT DELIVERY WILL NOT REQUIRE CLEANING OF THE BASIN AND EXPECTED USE WILL BE 1 TO 2 DAYS. TYPICAL APPLICATIONS INCLUDE SIMPLE INSTALLATIONS OF STORMWATER DRAINAGE STRUCTURES AND CERTAIN SANITARY SEWERS (NOT WATERCOURSE CROSSINGS).
2. TYPE II DEWATERING SETTLING BASINS ARE TO BE USED WHEN THE EXPECTED USE IS LESS THAN 3 MONTHS. TYPICAL APPLICATIONS INCLUDE THE CONSTRUCTION OF FOUNDATIONS FOR BRIDGES AND WALLS AND CULVERT INSTALLATIONS.
3. TYPE III DEWATERING SETTLING BASINS ARE TO BE USED WHEN THE EXPECTED USE IS LONGER THAN 3 MONTHS. TYPICAL APPLICATIONS INCLUDE DEWATERING OPERATIONS FOR THE RELOCATION OF THE MAD RIVER AND BEAVER POND BROOK.
4. THE REQUIRED STORAGE VOLUME FOR DEWATERING SETTLING BASINS SHALL BE DETERMINED AS FOLLOWS:
   STORAGE VOLUME, M^3 = 36 X (PUMPING RATE, L/SEC)
   STORAGE VOLUME, FT^3 = 16 X (PUMPING RATE, GPM)
5. ACCUMULATED SEDIMENT SHALL BE CLEANED FROM DEWATERING SETTLING BASINS WHEN THE AVAILABLE STORAGE VOLUME IS 50% OF THE CONSTRUCTED STORAGE VOLUME.
6. AFTER PUMPING OPERATIONS ARE COMPLETE, THE AREA IN VICINITY OF THE BASINS SHALL BE RESTORED AS CALLED FOR IN THE PLANS.
7. PAYMENT FOR DEWATERING SETTLING BASIN SHALL BE MADE UNDER CONTRACT ITEM "TEMPORARY DEWATERING BASIN"
8. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\miscdet\1510273006.esd.dgn | PLOTTED 12/1/2014

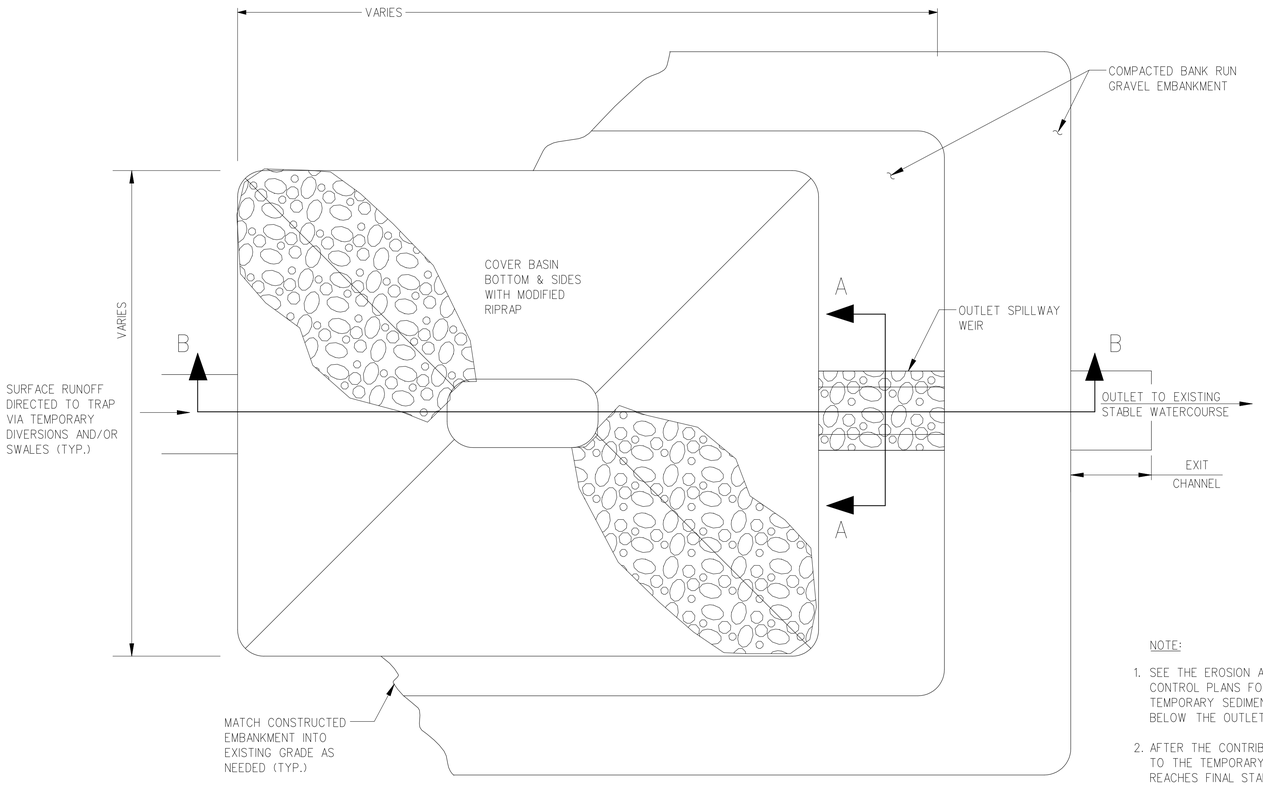
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

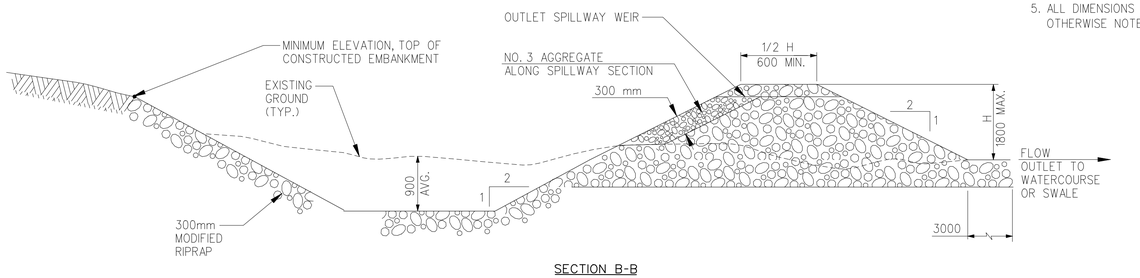
TOWN: WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION
CONTROL DETAILS

PROJECT NO.: 151-273
DRAWING NO.: ESD-5
SHEET NO.:



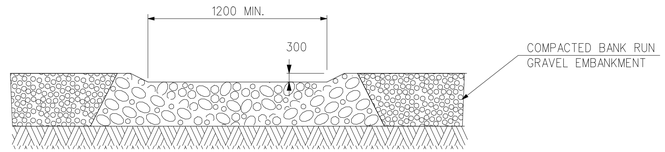
PLAN VIEW



SECTION B-B

NOTE:

1. SEE THE EROSION AND SEDIMENTATION CONTROL PLANS FOR REQUIRED VOLUME OF TEMPORARY SEDIMENT TRAP, MEASURED BELOW THE OUTLET SPILLWAY WEIR.
2. AFTER THE CONTRIBUTING DRAINAGE AREA TO THE TEMPORARY SEDIMENT TRAP REACHES FINAL STABILIZATION, THE AREA IN VICINITY OF THE TRAP SHALL BE RESTORED AS CALLED FOR IN THE PLANS.
3. THE OUTLET SPILLWAY WEIR SHALL BE SIZED TO CONVEY THE 10 YEAR DISCHARGE WITHOUT OVERTOPPING OF THE CONSTRUCTED EMBANKMENT.
4. PAYMENT FOR TEMPORARY SEDIMENT TRAP SHALL BE UNDER CONTRACT PAY ITEMS "SEDIMENTATION BOWL" AND "CLEAN SEDIMENTATION BOWL".
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



SECTION A-A

TEMPORARY SEDIMENT TRAP

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

HORIZ. SCALE IN METERS
0 5 10 15 20 25
VERT. SCALE IN METERS
0 .5 1 1.5 2 2.5
HORIZ. SCALE 1:500 VERT. SCALE 1:50
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\miscdet\1510273007.esd
PLOTTED 12/1/2014

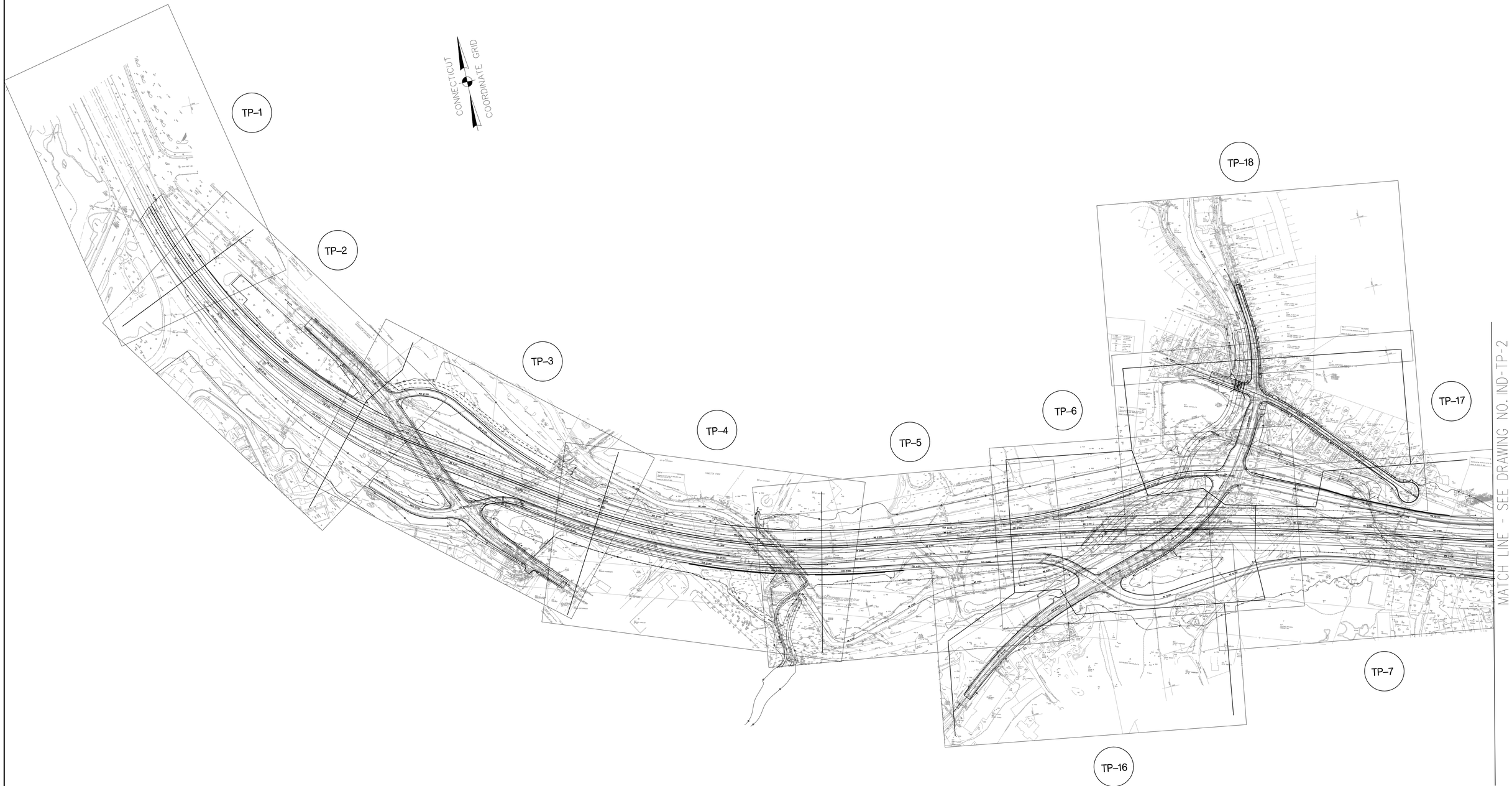
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION CONTROL DETAILS

PROJECT NO.: 151-273
DRAWING NO.: ESD-6
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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DESIGNER: T. JUDGE
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\SHEETS\Turfing\1510273001.tfp | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

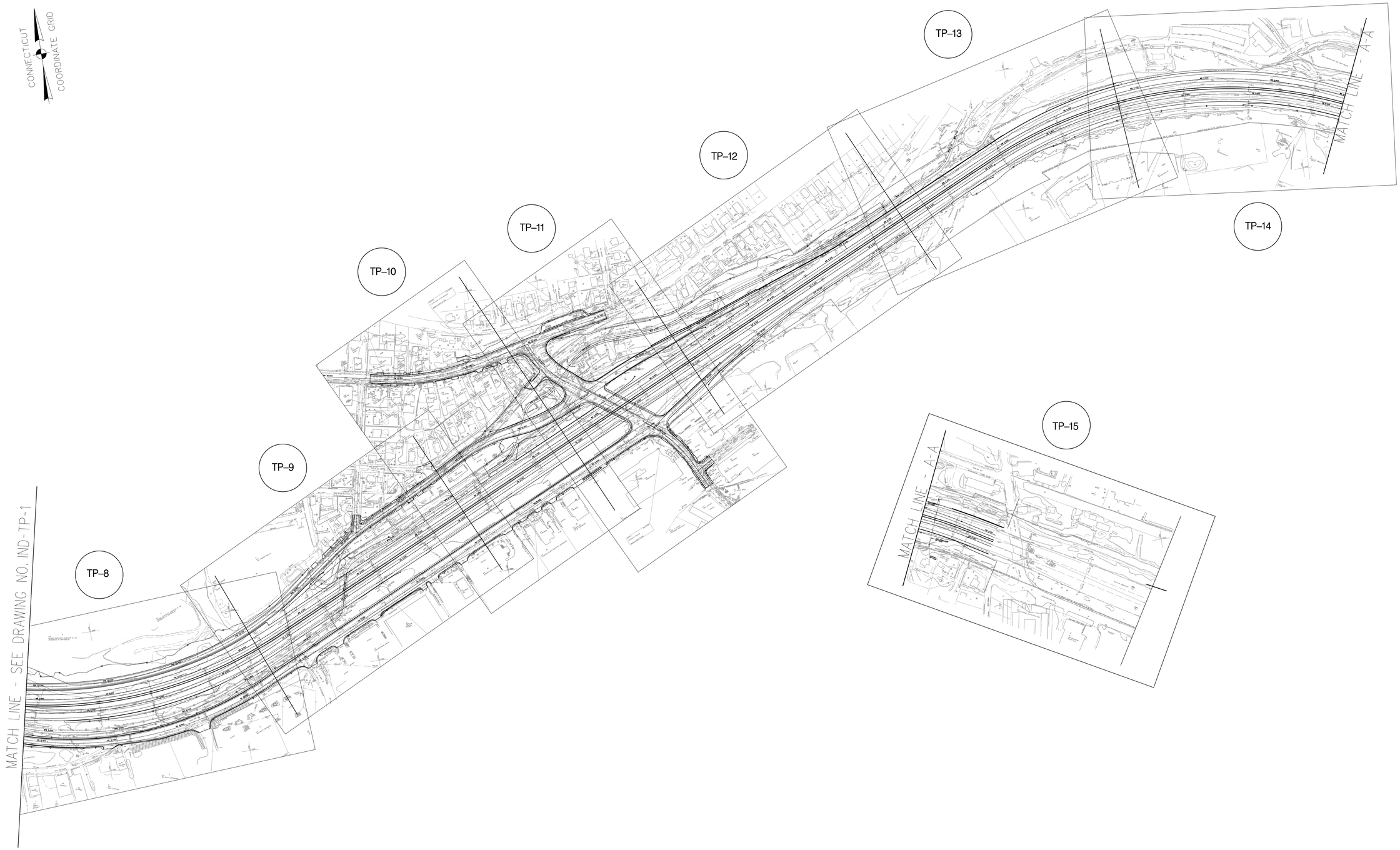
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
INDEX TURFING PLAN-1

PROJECT NO.: 151-273
DRAWING NO.: IND TP-1
SHEET NO.:

CONNECTICUT COORDINATE GRID



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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SCALE 1:2500

DESIGNER: T. JUDGE
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273002.tfp
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
INDEX TURFING PLAN – 2

PROJECT NO.: 151–273
DRAWING NO.: IND TP–2
SHEET NO.:

LEGEND:

SODDING

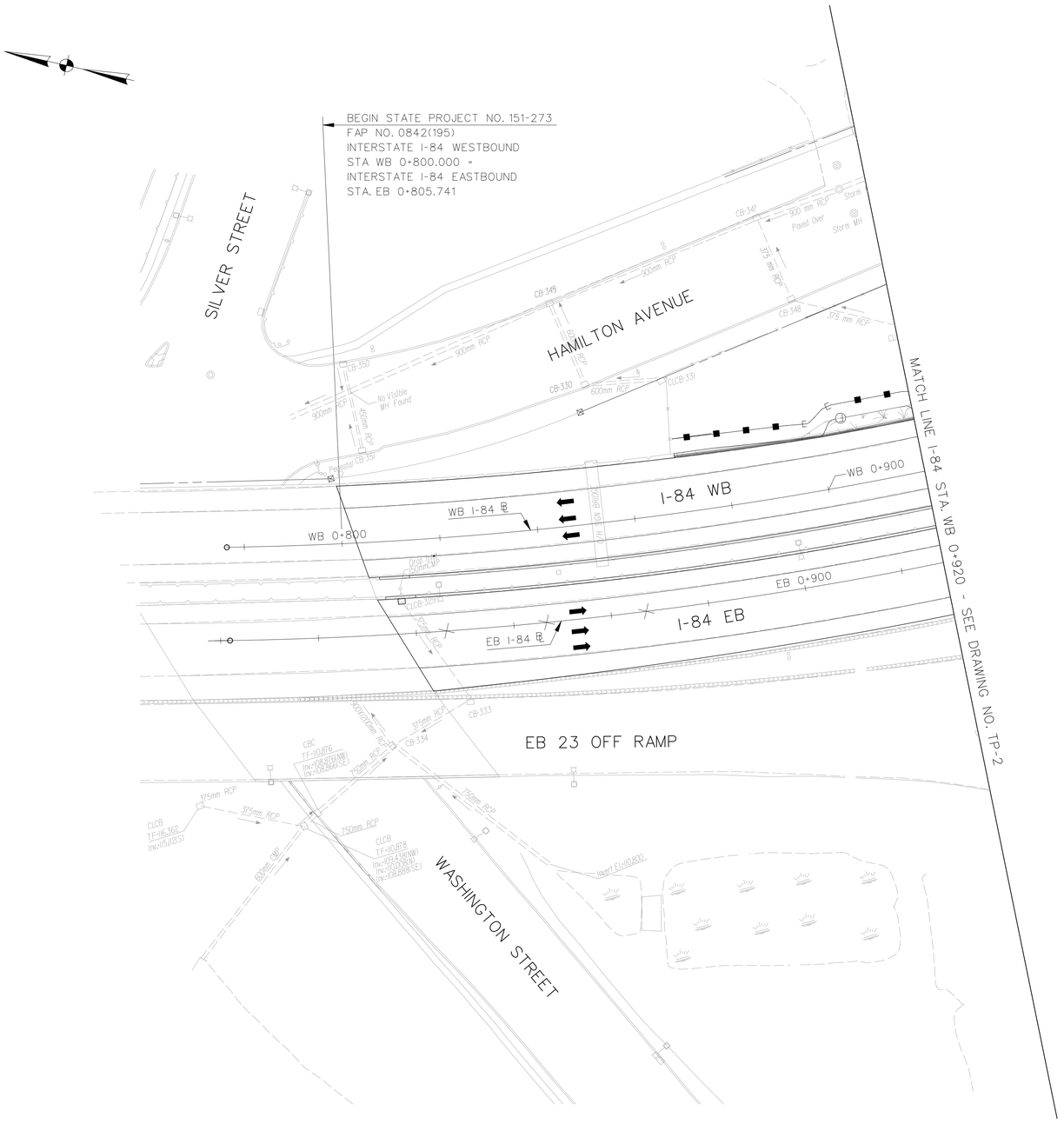
EROSION CONTROL MATTING (ECM) TYPE D WITH "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES" (SEE NOTE 2)

TURF ESTABLISHMENT (SEE NOTE 2)

CRUSHED STONE (SEE NOTE 2)

GENERAL NOTES:

1. FOR SEQUENCE OF TURF INSTALLATION AND SEDIMENTATION AND EROSION CONTROL MEASURES SEE SEC-MPT DWGS, FOR STAGES 1 THRU 5.
2. TREATMENT SHOWN IS FOR SIDE SLOPES ONLY. FOR SPECIFIC TREATMENT WITHIN THE SWALE, SEE DWG. DD-8.
3. PROVIDE CRUSHED STONE UNDER THE BRIDGE BEYOND THE LIMITS OF THE SWALE.
4. SEE GRADING PLAN AND RIP RAP REVETMENT DWG. GPRR-1. FOR SLOPE TREATMENT ALONG THE MAD RIVER UNDER THE BRIDGE.
5. EMC TYPE D WITH "CONSERVATION SEEDING FOR SLOPES".
6. SEE MAD RIVER RELOCATION PLANS FOR SIDE SLOPE AND CHANNEL TREATMENT.
7. SEE BEAVER POND BROOK RELOCATION PLANS FOR SIDE SLOPE AND CHANNEL TREATMENT.



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273001.TUR | PLOTTED 12/1/2014

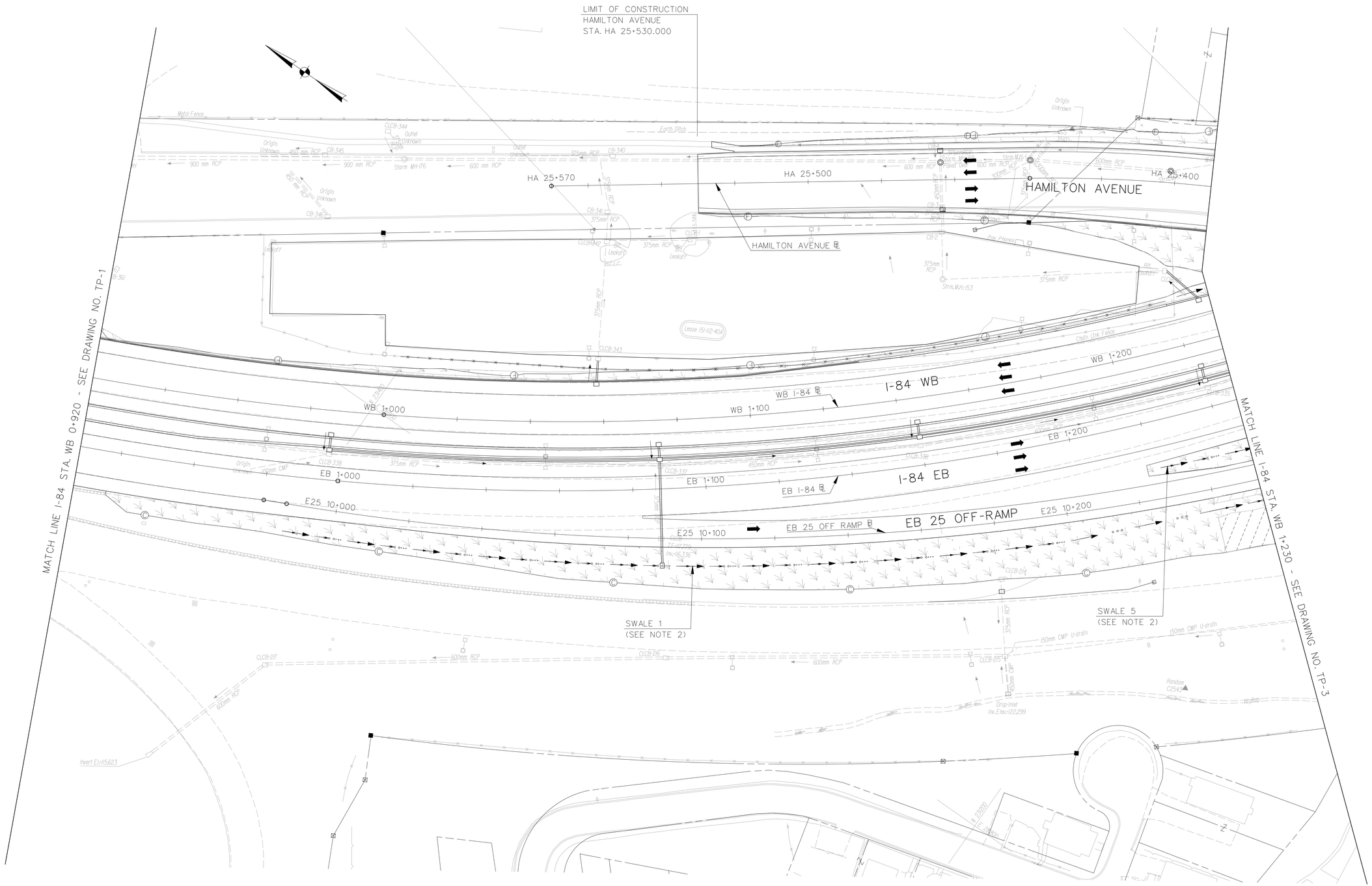
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: TURFING PLAN – 1

PROJECT NO.: 151-273
DRAWING NO.: TP-1
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES SEE DWG. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273002.TUR | PLOTTED 12/1/2014

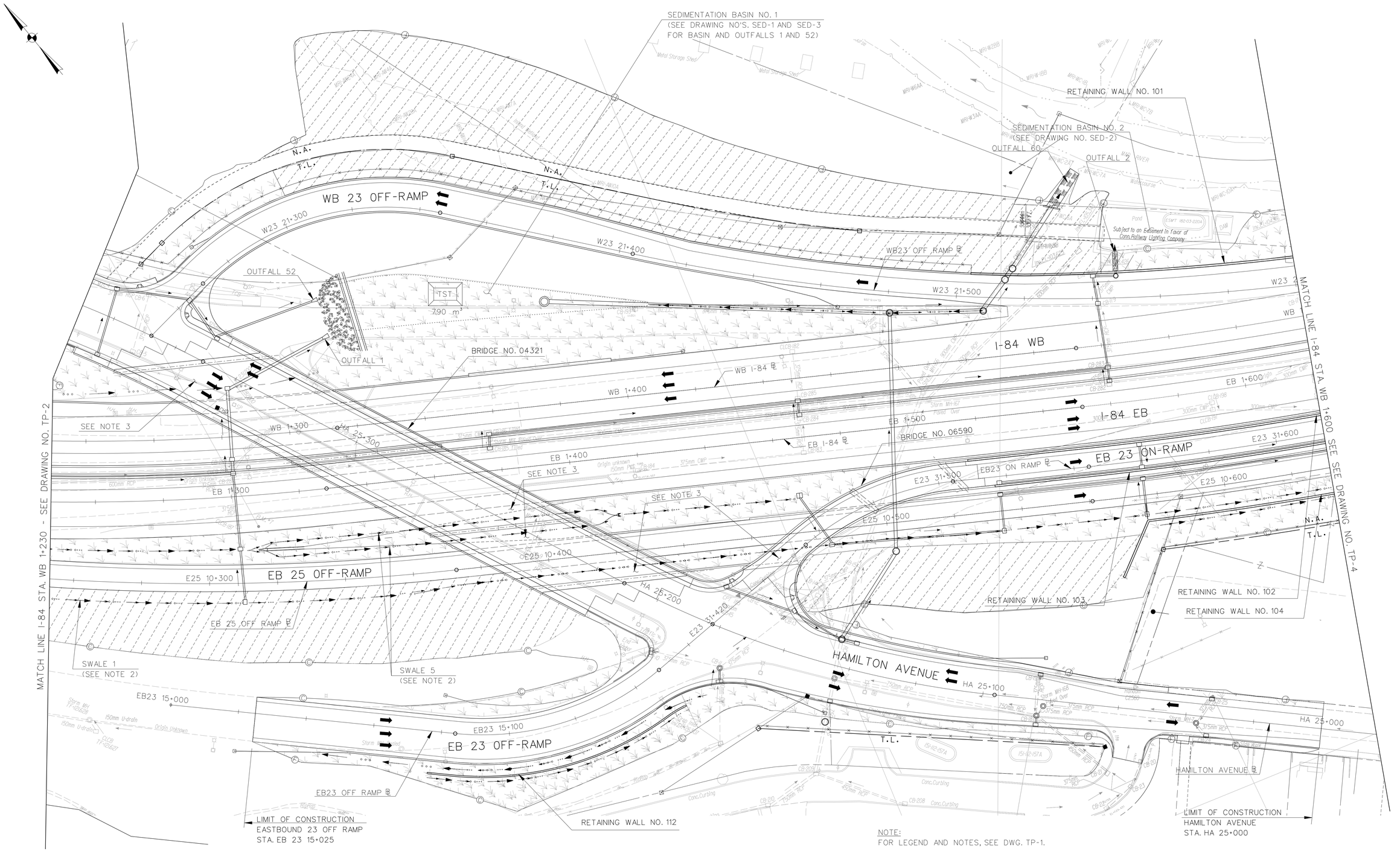
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: TURFING PLAN – 2

PROJECT NO.: 151-273
DRAWING NO.: TP-2
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES, SEE DWG. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273003.TUR
PLOTTED 12/1/2014

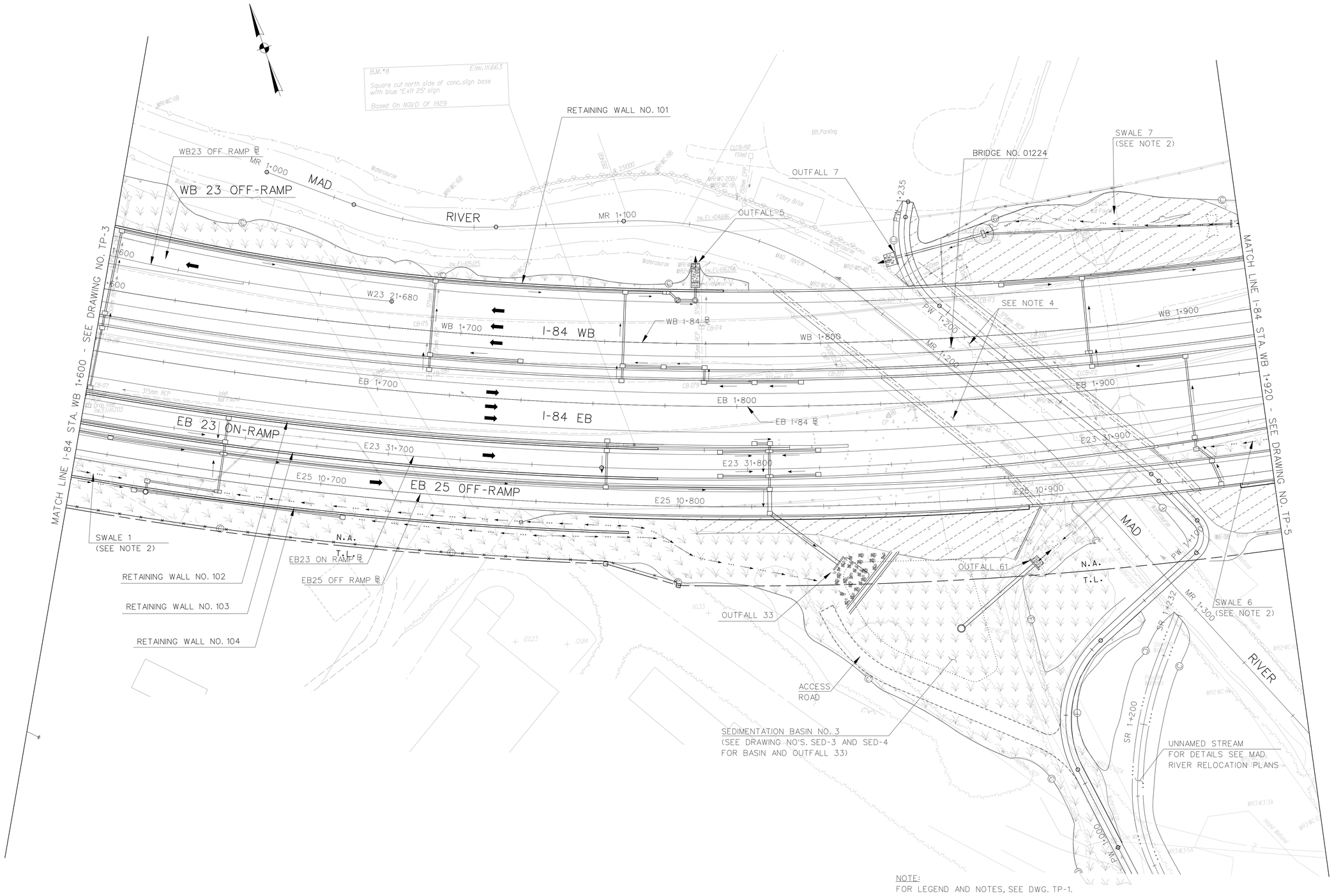
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: TURFING PLAN – 3

PROJECT NO.: 151-273
DRAWING NO.: TP-3
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES, SEE DWG. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE: 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273004.TUR | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TURFING PLAN – 4

PROJECT NO.: 151-273
DRAWING NO.: TP-4
SHEET NO.:

NOTE:
1. FOR LEGEND AND NOTES, SEE DWG. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273005.TUR
PLOTTED 12/1/2014

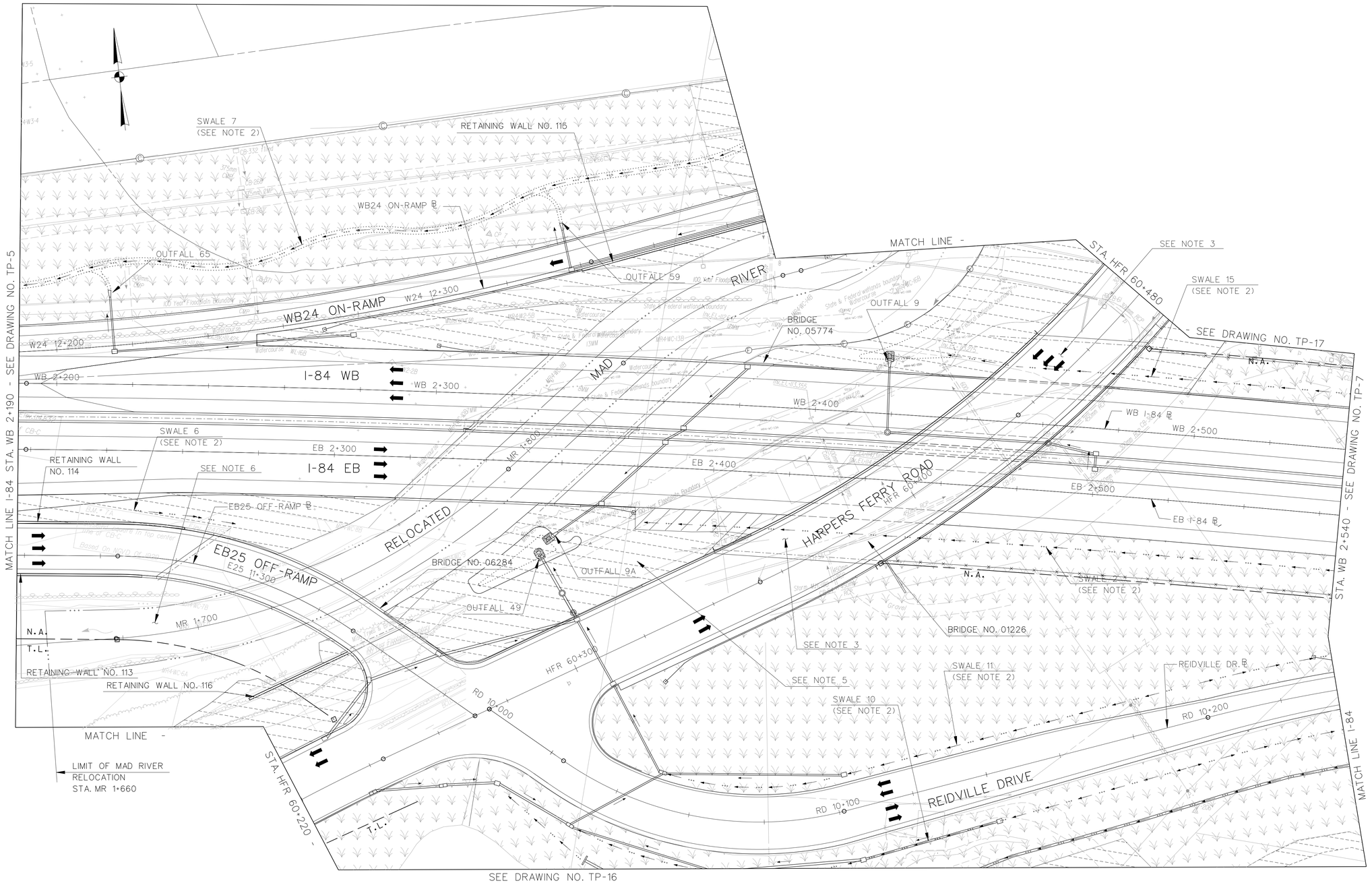
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TURFING PLAN – 5

PROJECT NO.: 151-273
DRAWING NO.: TP-5
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273006.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: TURFING PLAN - 6

PROJECT NO.: 151-273
DRAWING NO.: TP-6
SHEET NO.:

MATCH LINE - SEE DRAWING NO. TP-17

BEAVER POND BROOK

OUTFALL 50

BPB 5+200

SEDIMENTATION 4
(SEE DRAWING NO'S. SED 4 & 5
FOR BASIN AND OUTFALL 50A)

SWALE 15
(SEE NOTE 2)

SWALE 16
(SEE NOTE 2)

TRAFFIC NOISE
BARRIER

OUTFALL 5A

RETAINING WALL NO. 119

MATCH LINE - SEE DRAWING NO.TP-17

PLANK ROAD

PLANK ROAD PR 70+400

PRE 50+200

PLANK ROAD EAST

SWALE 8
(SEE NOTE 2)

PLANK RD. EAST ℄

PRE 50+300

OUTFALL 9B

CULVERT
NO. 01227

WB 2+600

WB 1-84 ℄

WB 2+700

EB 2+600

I-84 WB

WB 2+800

EB 2+700

EB I-84 ℄

BPB 5+300

I-84 EB

EB 2+800

OUTFALL 36

OUTFALL 37

EB 2+900

RD 10+300

REIDVILLE DRIVE

RD 10+400

RELOCATED BPB 5+400

BEAVER POND BROOK ℄

BEAVER POND BROOK

RD 10+500

STA. WB 2+540 - SEE DRAWING NO. TP-6

MATCH LINE I-84

MATCH LINE I-84 STA. WB 2+880 - SEE DRAWING NO. TP-8

REIDVILLE DR. ℄

SWALE 2
(SEE NOTE 2)

T.L.

CULVERT NO. 003

SWALE 11
(SEE NOTE 2)

SWALE 10
(SEE NOTE 2)

OUTFALL 70

RETAINING WALL NO. 118

T.L.

SEE DRAWING NO. TP-16

NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273007.TUR
PLOTTED 12/1/2014

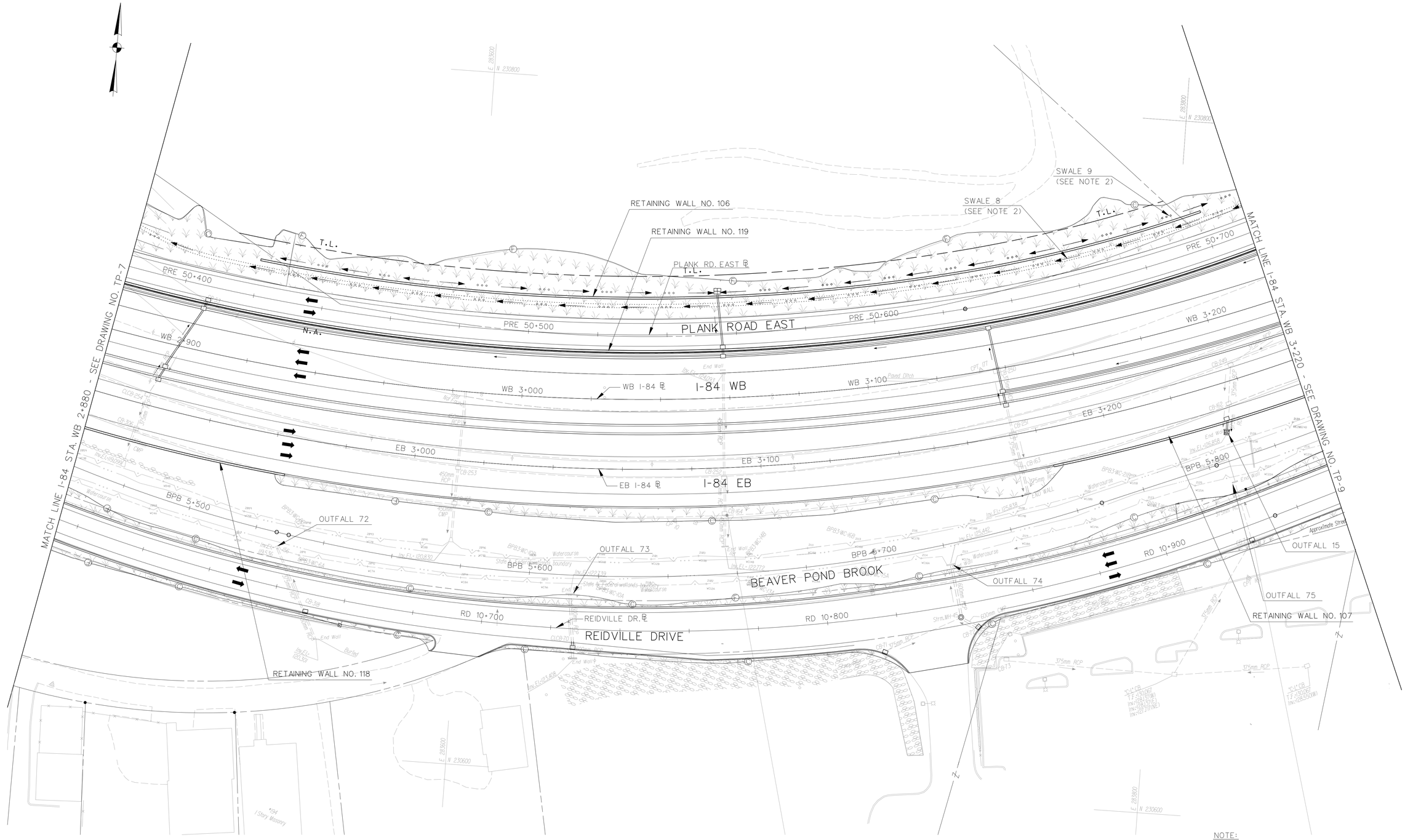
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TURFING PLAN - 7

PROJECT NO.: 151-273
DRAWING NO.: TP-7
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273008.TUR
PLOTTED 12/1/2014

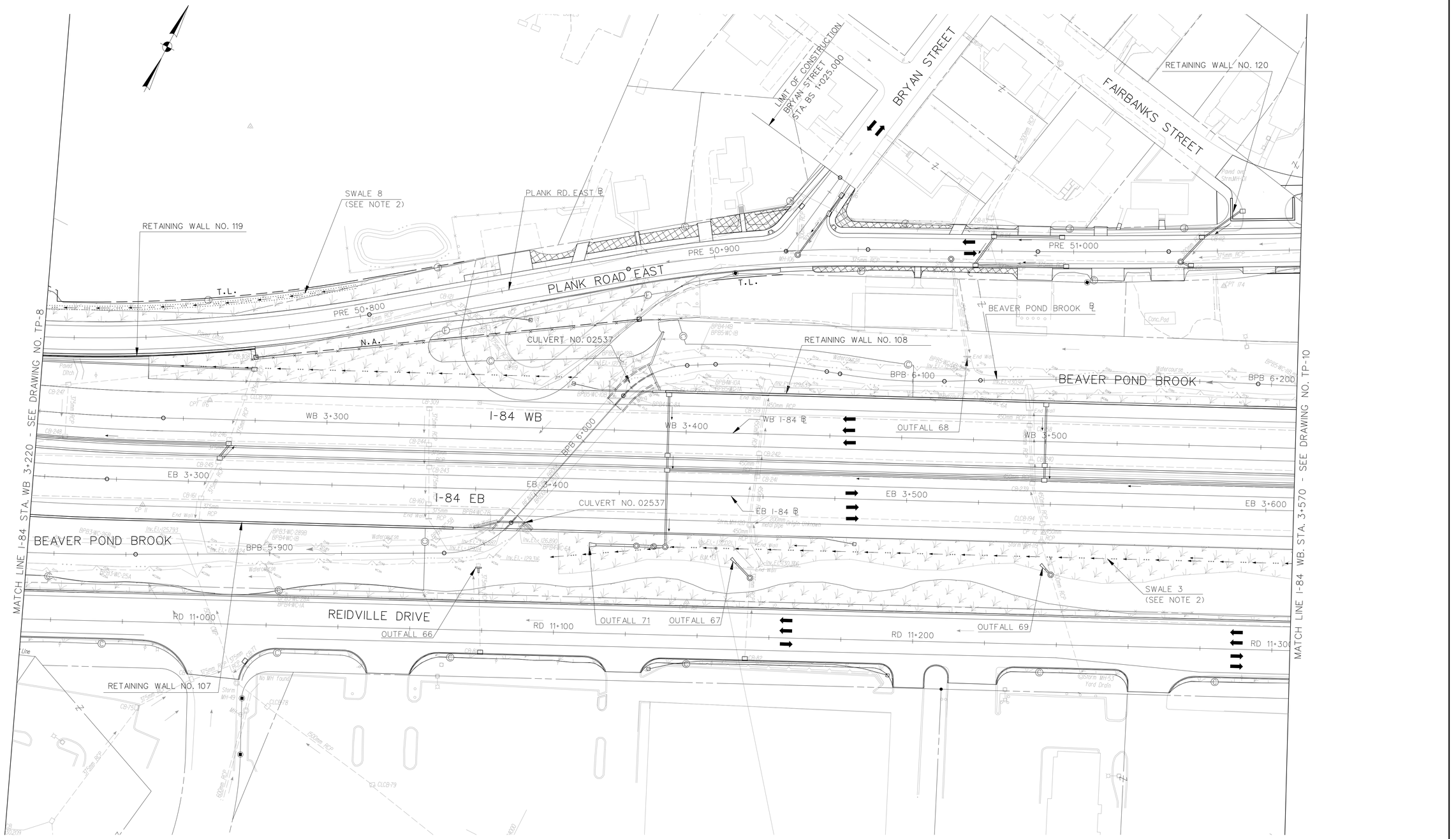
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TURFING PLAN - 8

PROJECT NO.: 151-273
DRAWING NO.: TP-8
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273009.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TURFING PLAN – 9

PROJECT NO.: 151-273
DRAWING NO.: TP-9
SHEET NO.:

NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273010.TUR
PLOTTED 12/1/2014

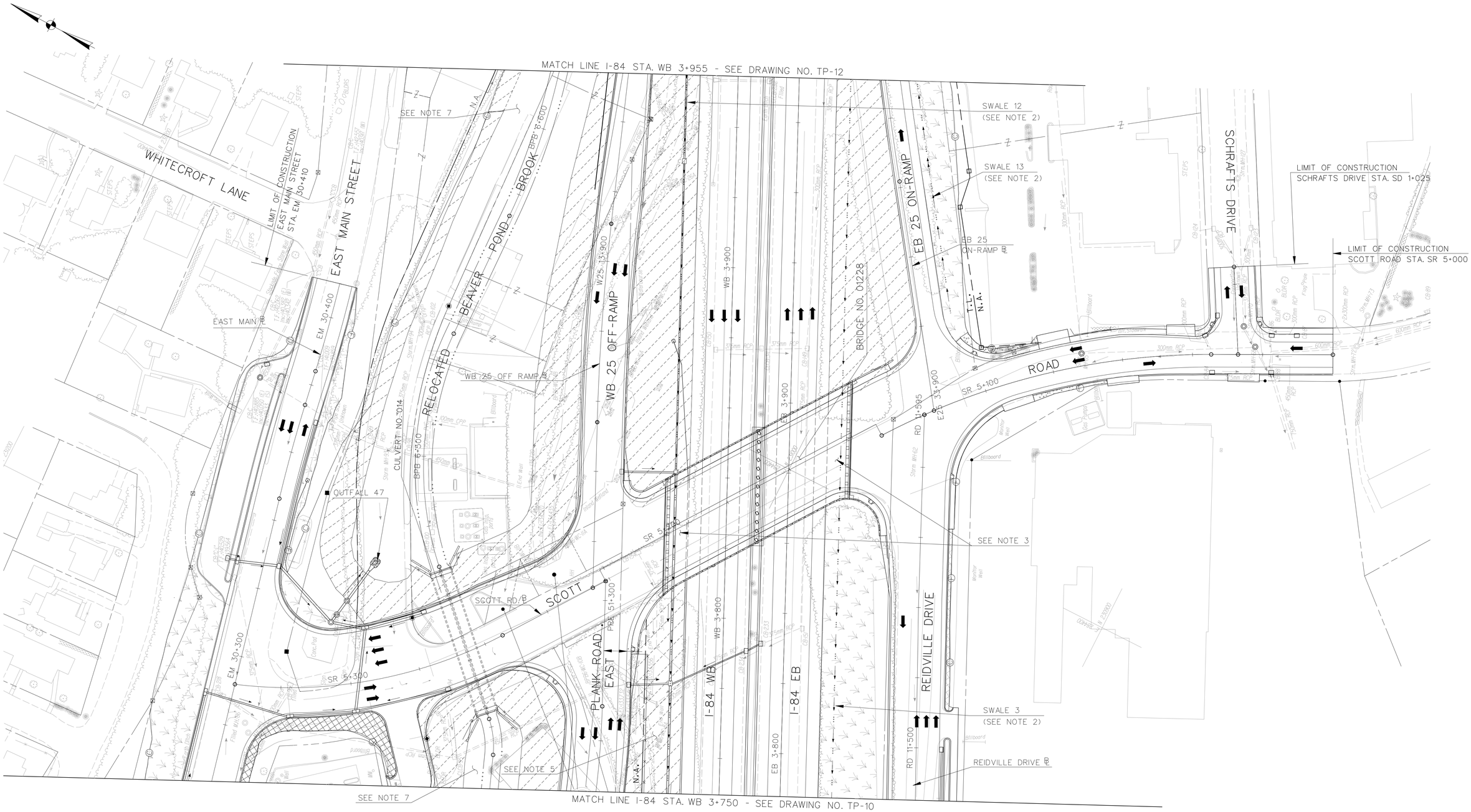
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
TURFING PLAN – 10

PROJECT NO.: 151-273
DRAWING NO.: TP-10
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273011.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: TURFING PLAN – 11

PROJECT NO.: 151-273
DRAWING NO.: TP-11
SHEET NO.:

NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273012.TUR
PLOTTED 12/1/2014

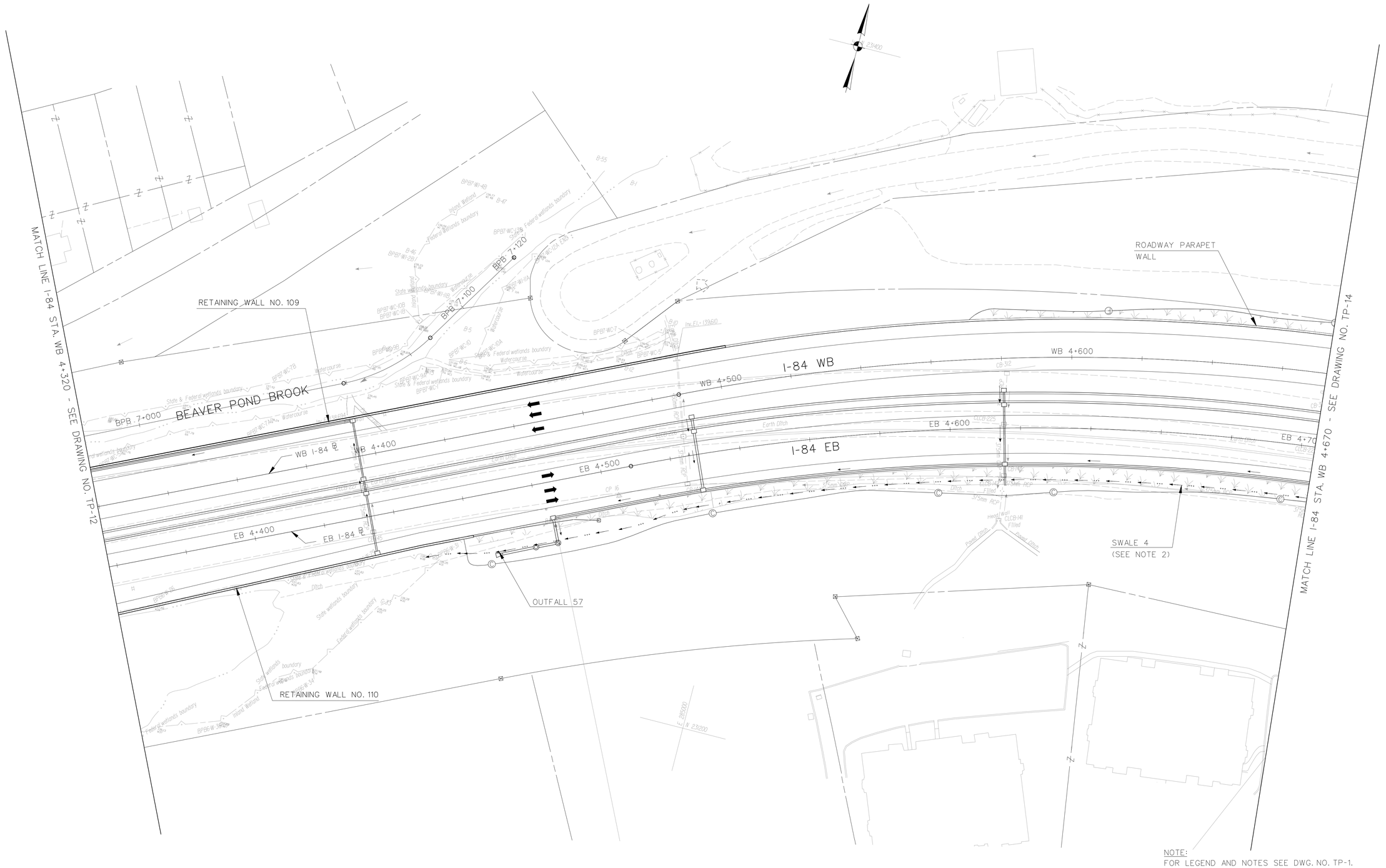
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TURFING PLAN – 12

PROJECT NO.: 151-273
DRAWING NO.: TP-12
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

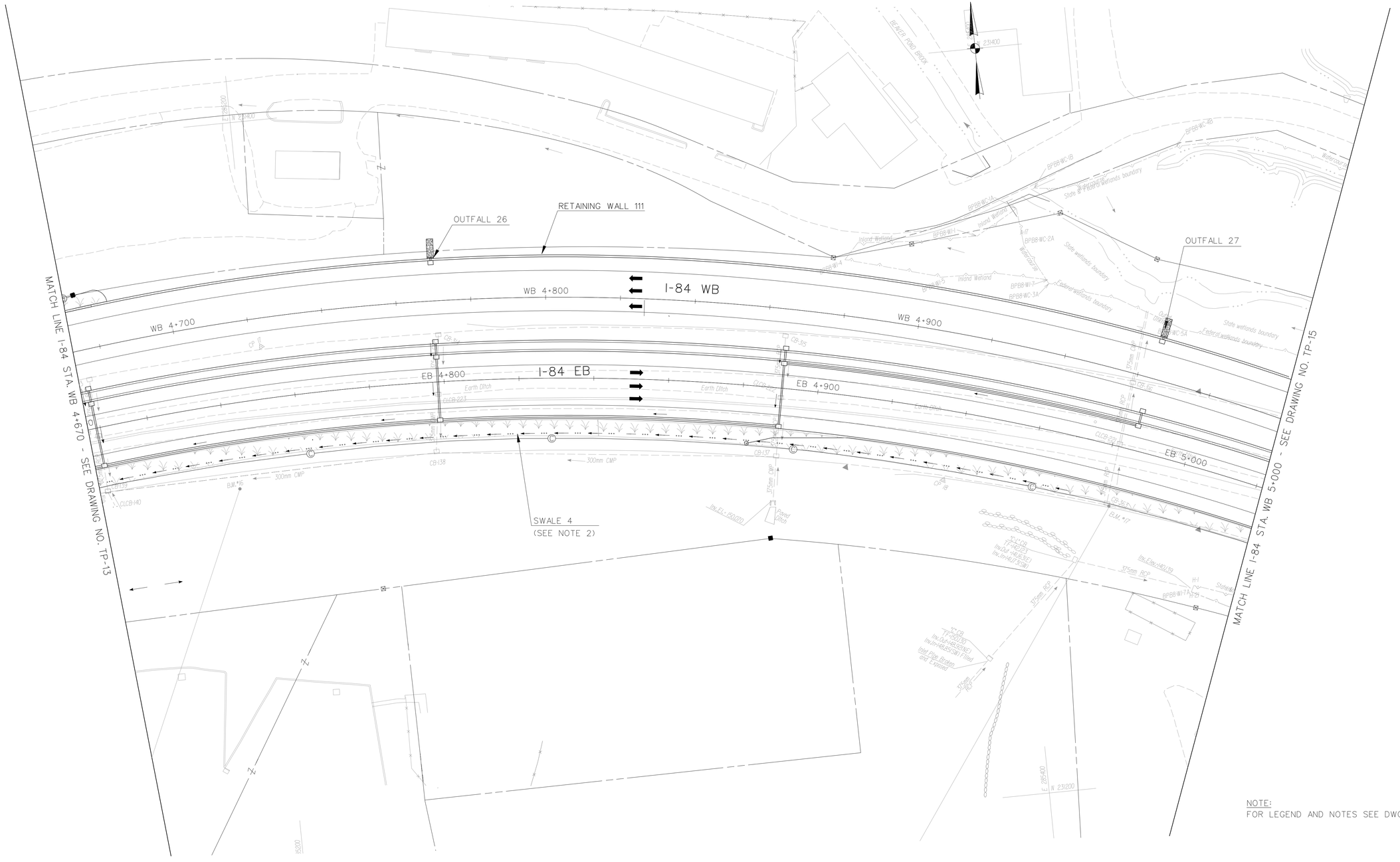
CADD ...\sheets\turfing\1510273013.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: TURFING PLAN – 13

PROJECT NO.: 151-273
DRAWING NO.: TP-13
SHEET NO.:



NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273014.TUR | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: TURFING PLAN – 14

PROJECT NO.: 151-273
DRAWING NO.: TP-14
SHEET NO.:

NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J.HUND
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273015.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
TURFING PLAN – 15

PROJECT NO.: 151-273
DRAWING NO.: TP-15
SHEET NO.:

NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273016.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
TURFING PLAN – 16

PROJECT NO.: 151-273
DRAWING NO.: TP-16
SHEET NO.:

MATCH LINE STA. HFR 60+690 - SEE DRAWING NO. TP-18

PLANK ROAD

PR 70+100

RETAINING WALL NO. 105

OUTFALL 78

LIMIT OF CONSTRUCTION
PLANK ROAD STA. PR 70+060.000

OUTFALL 51

BRIDGE NO. 05668

SEE NOTE 6

OUTFALL 43

MAD RIVER

HARPERS FERRY ROAD
HFR 60+600

PR 70+290

PLANK RD. B

CULVERT NO. 03727

PLANK ROAD

PR 70+300

BRIDGE NO. 06591

100 Year Floodplain Boundary

RETAINING WALL NO. 115

RELOCATED

WB 24 ON-RAMP B

WB24 ON-RAMP

W24 12+500

PRE 50+000

W24 12+100

MAD RIVER BRIDGE

HFR 60+480

BPB 5+100

BEAVER POND BROOK

PLANK RD. EAST B

TRAFFIC NOISE BARRIER

PLANK ROAD EAST

PRE 50+100

OUTFALL 42

HARPERS FERRY RD. B

MATCH LINE STA. HFR 60+480

SEE DRAWING NO. TP-6

MATCH LINE - SEE DRAWING NO. TP-7

SWALE 16
(SEE NOTE 2)

MATCH LINE - SEE DRAWING NO. TP-7

NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273017.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
TURFING PLAN – 17

PROJECT NO.: 151-273
DRAWING NO.: TP-17
SHEET NO.:

NOTE:
FOR LEGEND AND NOTES SEE DWG. NO. TP-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\turfing\1510273018.TUR
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: TURFING PLAN – 18

PROJECT NO.: 151-273
DRAWING NO.: TP-18
SHEET NO.:

GENERAL NOTES:

1. STONE CHECK DAM TO BE PAID FOR UNDER "TEMPORARY CHECK DAM".
2. CHECK DAM, GEOTEXTILE FENCE TO BE PAID FOR UNDER "SEDIMENTATION CONTROL SYSTEM"
3. GEOTEXTILE FENCE AROUND CATCH BASINS TO BE PAID FOR UNDER "SEDIMENTATION CONTROL AT CATCH BASINS".
4. SEDIMENTATION CONTROL GEOTEXTILE FENCE TO BE PAID FOR UNDER "SEDIMENTATION CONTROL SYSTEM".

SEDIMENTATION CONTROL SYSTEM

			STATION			
STAGE	LOCATION	SIDE	FROM	TO	LENGTH	REMARKS
1	I-84 WB	LT	0+870	1+215	345	
		LT	1+600	1+735	185	
		RT-LT	2+260	2+335	110	
	HAMILTON AVE.	LT	25+410	25+530	120	
		LT	25+000	25+085	57	
	WB 23 OFF	LT	21+265	21+600	370	
		LT	21+318	21+420	110	
		LT	21+318	21+505	185	
	EB 25 OFF	RT	10+800	10+830	30	
		RT	10+845	10+895	50	
		RT	10+945	11+300	355	
		RT	10+950	11+000	50	
		RT	11+060	11+105	45	
		LT-RT	11+105	11+105	45	
	HARPERS FERRY RD.	LT	60+020	60+260	265	
	PED. WALK	RT	1+000	1+040	40	
		LT	1+100	1+160	60	
	SED BASIN 3		-	-	55	
	HAUL RD.	LT	10+040	10+150	110	
2	HAMILTON AVE.	RT	25+390	25+520	130	
			25+000	25+140	140	
	WB 23 OFF	LT	21+540	21+600	60	g
	I-84 WB	LT	1+600	1+785	185	g
		LT	1+850	1+880	30	
		LT	2+675	2+705	30	
	I-84 EB	RT	3+255	3+375	120	
	I-84 WB	LT	3+395	3+955	510	
		LT	4+240	5+110	886	
	EB 25 ON	RT	34+000	34+340	340	
	I-84 EB	RT	4+345	4+460	115	
		RT	4+460	4+500	40	
		RT	5+080	5+145	65	
	EB 25 OFF	RT	10+800	10+830	30	g
	WB 24 ON	RT-LT	12+325	12+325	35	
3	I-84 WB	LT	1+850	1+880	30	g
	WB 24 ON	RT-LT	12+325	12+325	35	g
	HARPERS FERRY RD.	LT	60+260	60+335	75	
		LT	60+320	60+350	30	
		LT	60+370	60+500	100	
		LT	60+575	60+625	50	
		LT	60+660	60+800	140	
	I-84 WB	LT	2+675	2+705	30	g
		RT	2+860	3+265	405	
4	WB 24 ON	RT	12+325	12+410	85	
		LT	12+325	12+440	115	
	PLANK RD. EAST	LT	50+025	50+175	150	
		LT	50+205	50+245	40	
		LT	50+320	50+380	60	
		LT	50+780	50+835	55	
		RT	50+925	50+980	55	
		RT	51+035	51+080	45	
	REIDVILLE DR.	LT	10+570	10+600	30	
		LT	10+710	10+720	10	
		LT	10+760	10+835	75	
		LT	11+370	11+570	200	
	HARPERS FERRY RD.	LT	60+500	60+560	65	
		LT	60+575	60+625	50	
	EAST MAIN ST.	RT	30+315	30+410	105	
	SCOTT RD.	LT	5+295	5+325	30	
	WB 25 OFF	LT	13+830	13+990	160	
5	PLANK RD. EAST	LT	50+200	50+240	40	
	PLANK RD.	RT	70+330	70+385	55	
	HARPERS FERRY RD.	RT	60+570	60+630	60	

CHECK DAM GEOTEXTILE FENCE

		STATION			
STAGE	LOCATION	FROM	TO	NO. OF UNITS	REMARKS
1	SWALE 1				
	(EB 25 OFF)	10+030	10+315	12	
	SWALE 5				
	(I-84 EB)	1+270	1+305	3	
	EB 23 OFF, RT	15+080	15+120	2	
	RET. WALL 112	-	-	2	
	SWALE 1		-		
	(EB 23 OFF)	10+580	10+730	5	
	RET. WALL 104	-	-	2	
	SWALE 6				
	(EB 23 ON)	31+950	32+190	10	
	SWALE 10				
	(REIDVILLE DR.)	10+010	10+300	11	
	SWALE 11				
	(REIDVILLE DR.)	10+075	10+425	11	
	SWALE 8				
	(PLANK RD. EAST)	50+430	50+770	12	
	SWALE 9				
	(RET. WALL 106)	-	-	5	
2	SWALE 1				
	(EB 25 OFF)	10+030	10+315	14	
	SWALE 5				
	(I-84 EB)	1+350	1+470	5	
	SWALE 6				
	(EB 23 ON)	31+950	32+190	10	g
	SWALE 11				
	(REIDVILLE DR.)	10+075	10+425	11	g
	SWALE T-150				
	(I-84 WB TO	WB 2+615			
	I-84 EB)		EB 2+750	12	
	SWALE 3				
	(I-84 EB)	3+515	3+845	12	
	SWALE 4				
	(I-84 EB)	4+520	4+905	14	
	SWALE 13				
	(EB 25 ON)	33+040	33+070	2	
3	SWALE 11				
	(REIDVILLE DR.)	10+075	10+428	11	g
	SWALE T-150				
	(I-84 WB TO	WB 2+615			
	I-84 EB)		EB 2+750	12	g
	SWALE 3				
	(I-84 EB)	3+515	3+845	12	g
	SWALE 2				
	(I-84 EB)	2+425	2+700	11	
	SWALE 15				
	(I-84 WB)	2+440	2+650	8	
4	SWALE 7				
	(I-84 WB)	1+940	2+065	5	
	SWALE 7				
	(WB 24 ON)	12+115	12+330	8	
	SWALE 3				
	(I-84 EB)	3+515	3+845	12	g
		3+875	3+960	5	
	SWALE 16				
	(IPLANK RD. EAST)	50+020	50+255	8	
	I-84 WB	3+825	3+315	2	
5	SWALE 16				
	(IPLANK RD. EAST)	50+020	50+170	6	g

TABLE NOTES:

a. SEC DEVICE INSTALLED IN A PREVIOUS STAGE.
- THE DEVICE SHALL BE MAINTAINED TO FUNCTION AS REQUIRED OR REPLACED A.O.B.E.

b. EXISTING OUTFALL TO BE RELOCATED TO THE WINGWALL OF CULVERT 06622 IN STAGE 4.

c. EXISTING OUTFALL TO BE ELIMINATED IN STAGE 4.

d. EXISTING OUTFALL TO BE ELIMINATED IN STAGE 3.

e. NEW INSTALLATION REQUIRED AFTER CULVERT EXTENSION.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

DESIGNER: S. MAO
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\mp&t\esmpt\esdt-1.dgn | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION CONTROL TABLES

PROJECT NO.: 151-273
DRAWING NO.: ESDT-1
SHEET NO.:

STONE CHECK DAM

STAGE	LOCATION	STATION	REMARKS
1	SWALE 1		
	(EB 25 OFF)	10+820	
	SWALE 6		
	(I-84 EB)	2+275	
	SWALE 10		
	(REIDVILLE DR.)	10+350	
		10+380	
		10+410	
2	SWALE 7		
	(I-84 WB)	1+880	
		1+910	
	SWALE 1		
	(EB 25 OFF)	10+820	g
	WB 24 ON	12+295	
		12+325	
	SWALE 3		
	(I-84 EB)	3+425	
		3+455	
		3+485	
3	SWALE 7		
	(I-84 WB)	1+880	
		1+910	
	WB 24 ON	12+295	g
		12+325	g
	SWALE 3		
	(I-84 EB)	3+425	g
		3+455	g
		3+485	g
4	WB 24 ON	12+295	g
		12+325	g
	SWALE 8		
	(PLANK RD. EAST)	50+340	
		50+370	
		50+400	
	SWALE 3		
	(I-84 EB)	3+425	g
		3+455	g
		3+485	g

GEOTEXTILE FENCE AROUND CATCH BASINS

STAGE	LOCATION	SIDE	STATION	REMARKS
1	I-84 WB	LT	1+058	
		LT	1+218	
	WB 23 OFF	RT	21+508	
	I-84 WB	LT	1+602	
		LT	1+692	
		LT	1+757	
	SWALE 6			
	(EB 23 ON)	RT	31+925	
	SWALE 1			
	(EB 25 OFF)	RT	10+672	
	HARPERS FERRY RD.	RT	60+255	
	REIDVILLE DR.	LT	10+049	
	PLANK RD. EAST	LT	50+411	
			50+555	
2	WB 23 OFF	RT	21+508	g
	I-84 WB	LT	1+602	g
		LT	1+692	g
		LT	1+757	g
		LT	1+847	
	SWALE 6			
	(EB 23 ON)	RT	31+925	g
	SWALE 1			
	(EB 25 OFF)	RT	10+672	g
	REIDVILLE DR.	LT	10+049	g
	PLANK RD. EAST	LT	50+411	g
3	SWALE 7			
	(I-84 WB)	LT	1+847	g
	SWALE 11			
	(REIDVILLE DR.)	LT	10+049	g
		LT	10+440	b
	PLANK RD. EAST	LT	50+411	g
	SWALE 16			_
	(I-84 WB)	LT	2+669	_
				_
				_
				_
4	SWALE 16			
	(I-84 WB)	LT	2+669	g
	PLANK RD. EAST	LT	50+252	
	I-84 WB	LT	3+280	
		LT	3+695	
5	SWALE 16			
	(I-84 WB)	LT	2+669	g
	PLANK RD. EAST	LT	50+252	g

TABLE NOTES:

a. SEC DEVICE INSTALLED IN A PREVIOUS STAGE.

\- THE DEVICE SHALL BE MAINTAINED TO FUNCTION AS REQUIRED OR REPLACED A.O.B.E.

b. EXISTING OUTFALL TO BE RELOCATED TO THE WINGWALL OF CULVERT 06622 IN STAGE 4.

c. EXISTING OUTFALL TO BE ELIMINATED IN STAGE 4.

d. EXISTING OUTFALL TO BE ELIMINATED IN STAGE 3.

e. NEW INSTALLATION REQUIRED AFTER CULVERT EXTENSION.

SEDIMENTATION AND EROSION CONTROL GEOTEXTILE FENCE

STAGE	LOCATION	STATION	OUTFALL NO.	REMARKS
1	WB 23 OFF	21+515.6	60	
		21+606.1	3	
	I-84 WB	14+695.5	4	
		1+752.8	5	
		3+421.9	17	
		3+495.2	18	
		3+603.7	31	
		3+695	19	b
		3+780	-	c
	WB 25 OFF	14+014.6	20	
		14+120.5	21	
		14+216.6	29	
	I-84 EB	2+923.3	12	
		3+088.5	13	
		3+232.7	15	
		3+301.3	16	
		3+366.9	30	
	SED. BASIN 3	10+912.6	61	
	EB 25 OFF	11+156.1	8	
	HARPERS FERRY RD.	60+232.1	38	
	REIDVILLE DR.	10+487.0	37	
3	WB 23 OFF	21+606.1	3	g
	I-84 WB	14+695.5	4	g
		1+752.8	5	g
		3+421.9	7	g
	EB 25 OFF	10+982	T-100	
	PLANK RD. EAST	50+178.9	11	
	I-84 EB	2+923.3	12	g
		3+105	-	d
		3+088.5	13	g
		3+232.7	15	g
		3+301.3	16	g
		3+366.9	30	g
		3+404.0	71	g
	I-84 WB	3+603.7	18	g
		3+681.2	31	g
		3+695	19	g & b
		3+780	-	c
		4+303.8	24	g
		4+395.3	25	g
		4+490.2	26	g
		4+950.0	27	g
		5+012.0	62	g
		5+042.7	28	g
		5+06.0	63	g
	WB 25 OFF	14+014.6	20	g
		14+120.5	21	g
	HARPERS FERRY RD.	60+625	43	
		60+708	48	
	PLANK RD.	70+115	46	
		70+080.	51	g
4	WB 24 ON	12+337	59	
	I-84 WB	2+324.6	65	
	PLANK RD. EAST	50+178.9	11	g
	I-84 EB	2+923.3	12	g
		3+088.5	13	g
		3+174.5	14	g
		3+232.7	15	g
		3+301.3	16	g
		3+366.9	30	g
		3+404.0	71	g
	REIDVILLE DR.	10+637.5	72	
		10+725.0	73	
		10+838.0	74	
		10+925.5	75	
		11+000.0	76	
		11+078.5	66	
	PLANK RD. EAST	50+907.7	68	
	I-84 WB	3+681.2	19	g & b
	WB 25 OFF	14+014.6	20	g & e
		14+120.5	21	g
	HARPERS FERRY RD.	60+625	43	g
		60+665.4	44	g
		60+708	48	g
	WB 24 ON	12+395.2	53	
	E.MAIN ST.	30+401.8	64	
5	PLANK RD. EAST	50+178.9	11	g
	PLANK RD.	70+343.5	50	
	HARPERS FERRY RD.	60+625	43	g
		60+665.4	44	g
		60+708	48	g
	E.MAIN ST.	30+401.8	64	g
	SCOTT RD.	5+286.2	47	

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

DESIGNER: S. MAO
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\mp&t\esmpt\esdt-2.dgn | PLOTTED 12/1/2014

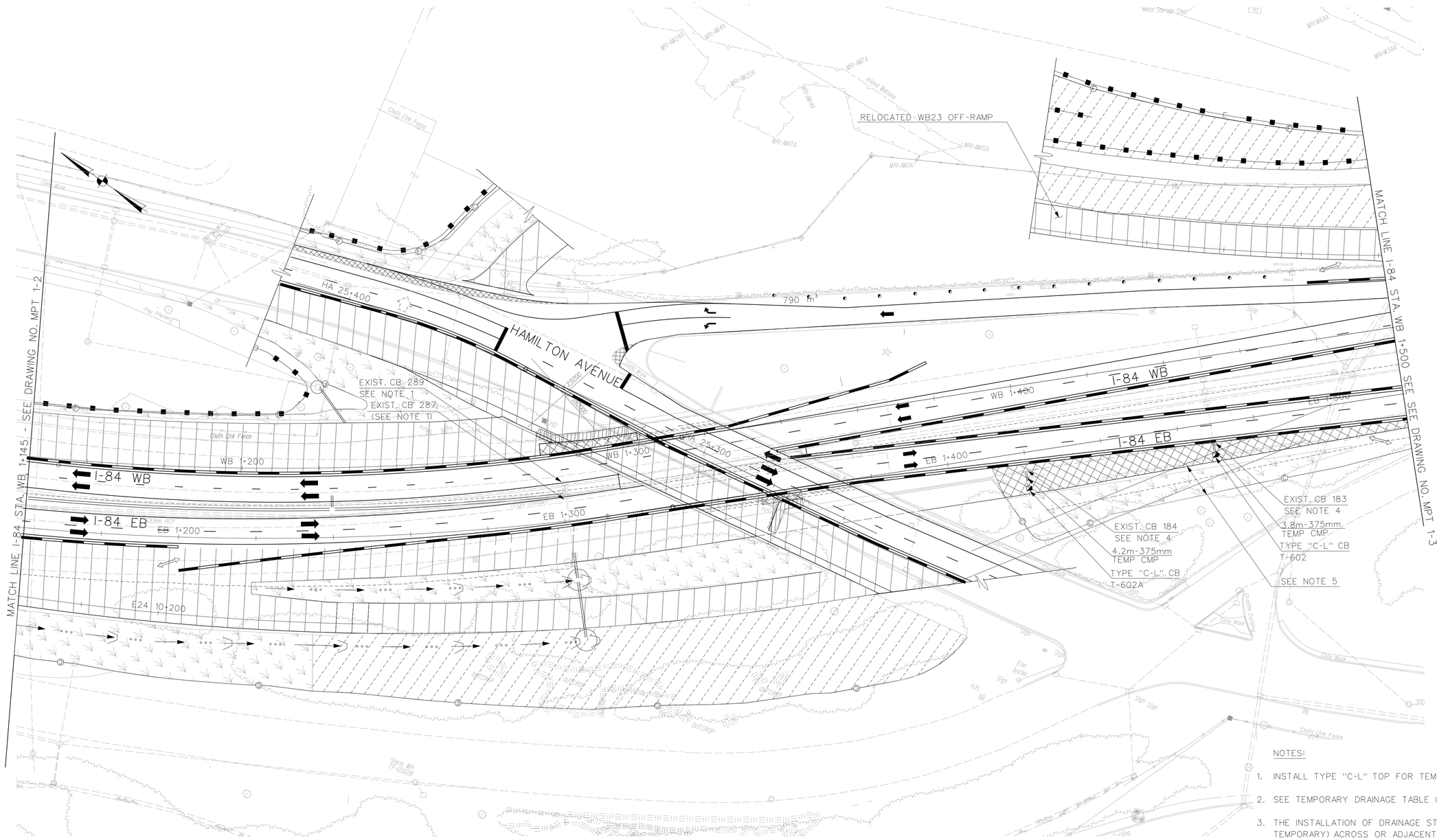
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
EROSION AND SEDIMENTATION CONTROL TABLES

PROJECT NO.: 151-273
DRAWING NO.: ESDT-2
SHEET NO.:



I-84 MAINLINE LANE SHIFT UNDER HAMILTON AVE BRIDGE TO FACILITATE REMOVAL OF WESTERLY PORTION OF THE EXISTING NORTH AND SOUTH ABUTMENTS IN PRE-STAGE 1.

NOTES:

1. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
2. SEE TEMPORARY DRAINAGE TABLE ON DWG. MPTTDT.
3. THE INSTALLATION OF DRAINAGE STRUCTURES (PERMANENT OR TEMPORARY) ACROSS OR ADJACENT TO ACTIVE TRAVEL LANES SHALL BE DONE DURING THE ALLOWABLE PERIODS OF LANE CLOSURES. THE TRENCH SHALL BE BACKFILLED AND PAVED OVER WITH TEMPORARY PAVEMENT OR COVERED WITH STEEL PLATES AS ORDERED BE ENGINEER TO ALLOW THE LANE(S) TO REOPEN TO TRAFFIC.
4. REMOVE EXISTING CATCH BASIN TOP. COVER OPENING WITH STEEL PLATES AND CONNECT TEMPORARY CMP PIPE TO EXISTING PIPE.
5. INSTALL TEMPORARY TURF ON TEMPORARY GRADED SLOPE.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: S. SIMMONS
CHECKED BY: G. STARCKEY
DATE CHECKED: 1006

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAINTENANCE AND PROTECTION OF TRAFFIC – PRE-STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC_MPSP-1
SHEET NO.:

SEC LEGEND:

SEDIMENTATION CONTROL SYSTEM

CHECK DAM, GEOTEXTILE FENCE

STONE CHECK DAM

CATCH BASIN ENCIRCLED BY GEOTEXTILE FENCE

DEWATERING SETTLING BASIN — DSB

TEMPORARY SEDIMENT TRAP — TST

REQUIRED VOLUME

SODDING

EROSION CONTROL MATTING (ECM) TYPE D WITH "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES" (SEE NOTE P)

TURF ESTABLISHMENT (SEE NOTE P)

GENERAL SEC NOTES:

A. FOR DETAILS AND TABLES OF SEDIMENTATION AND EROSION CONTROL DEVICES, SEE DWGS. ESD-1 - ESD-6 AND ESDT-1 AND ESDT-2.

B. CONSTRUCTION ENTRANCES, AS INDICATED ON THE SEC-MPT PLANS OR AS DIRECTED BY THE ENGINEER, SHALL BE INSTALLED AND MAINTAINED TO REDUCE THE TRACKING OF SEDIMENTS OFF-SITE, ONTO PAVED SURFACES.

C. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE WATER HANDLING PLANS FOR CONSTRUCTION OF BRIDGES, CULVERTS AND RETAINING WALLS

D. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE MAD RIVER RELOCATION WATER HANDLING PLANS.

E. REFER TO THE PLANTING PLAN INCLUDED IN THE MAD RIVER RELOCATION PLANS.

F. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE BEAVER POND BROOK RELOCATION WATER HANDLING PLANS.

G. REFER TO THE PLANTING PLAN INCLUDED IN THE BEAVER POND BROOK RELOCATION PLANS.

H. PAYMENT FOR TURF ESTABLISHMENT WITH EROSION CONTROL MATTING TYPE D SHALL BE MADE UNDER CONTRACT PAY ITEMS "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES", AS NOTED, AND "EROSION CONTROL MATTING TYPE D".

I. INSTALL SEDIMENTATION AND EROSION SYSTEM.

J. INSTALL CHECK DAM GEOTEXTILE FENCE.

K. INSTALL TURF ESTABLISHMENT.

L. INSTALL SEDIMENTATION AND EROSION CONTROL SYSTEM WITH WINGS.

M. INSTALL EROSION CONTROL MATTING (ECM) TYPE D WITH TURF ESTABLISHMENT.

N. INSTALL CONSERVATION SEEDING FOR SLOPES.

O. INSTALL ECM TYPE D WITH CONSERVATION SEEDING FOR SLOPES.

P. TREATMENT SHOWN AT SWALE LOCATIONS IS FOR THE SIDE SLOPES. SEE NOTE T AND DWG. NO. DD-7 FOR SPECIFIC TREATMENT WITHIN SWALES.

Q. INSTALL GEOTEXTILE FENCING AROUND CATCH BASINS.

R. INSTALL SEDIMENTATION AND EROSION CONTROL GEOTEXTILE FENCE.

S. INSTALL STONE CHECK DAM.

T INSTALL ECM TYPE E OR TYPE F. SEE DRAINAGE PLANS.

U SOD INSTALLATION.

MPT LEGEND:

CONSTRUCTION THIS STAGE

TEMPORARY PAVEMENT

TEMPORARY PRECAST CONCRETE BARRIER CURB (TPCBC) WITH DE-7 AND DE-7A DELINEATORS

TEMPORARY IMPACT ATTENUATION SYSTEM

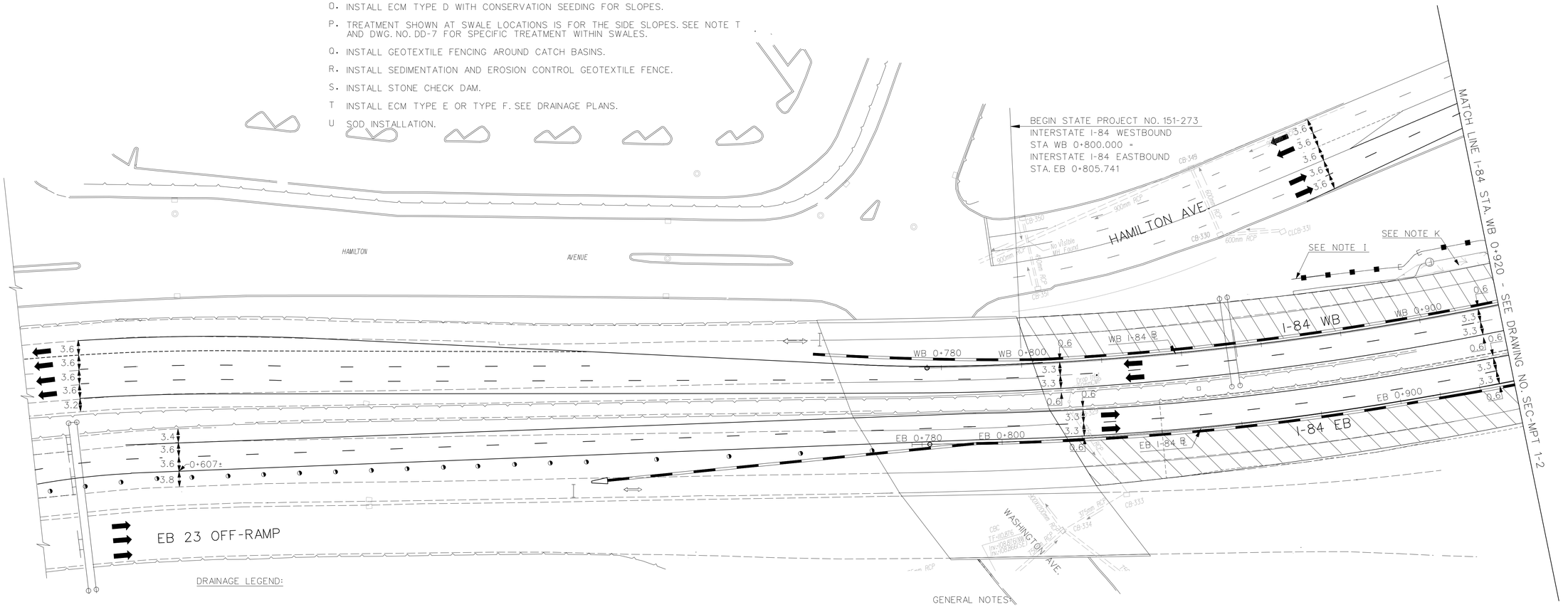
ACTIVE TRAFFIC LANE

TWO WAY TRAFFIC ON ONE LANE CONTROLLED BY TRAFFIC PERSON

TRAFFIC DRUMS

TRAFFIC BARRICADE

WORK ZONE ACCESS LOCATION



DRAINAGE LEGEND:

EXISTING DRAINAGE IN OPERATION THIS STAGE

PROPOSED DRAINAGE UNDER CONSTRUCTION OR CONSTRUCTED IN PREVIOUS STAGE

TEMPORARY DRAINAGE

GENERAL NOTES:

1. SEE DRAINAGE GENERAL NOTES ON DWG. SEC-MPT 1-2.
2. SEE MPT PLANS FOR MPT DETAILS.
3. EXISTING DRAINAGE STRUCTURES (BASINS AND MANHOLES) ARE IDENTIFIED BY A NUMBER. TEMPORARY AND PROPOSED DRAINAGE STRUCTURES ARE DESIGNATED "I" OR "P" RESPECTIVELY.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 10/31/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	10/31/14	NOTE MODIFICATION	

REVISIONS

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

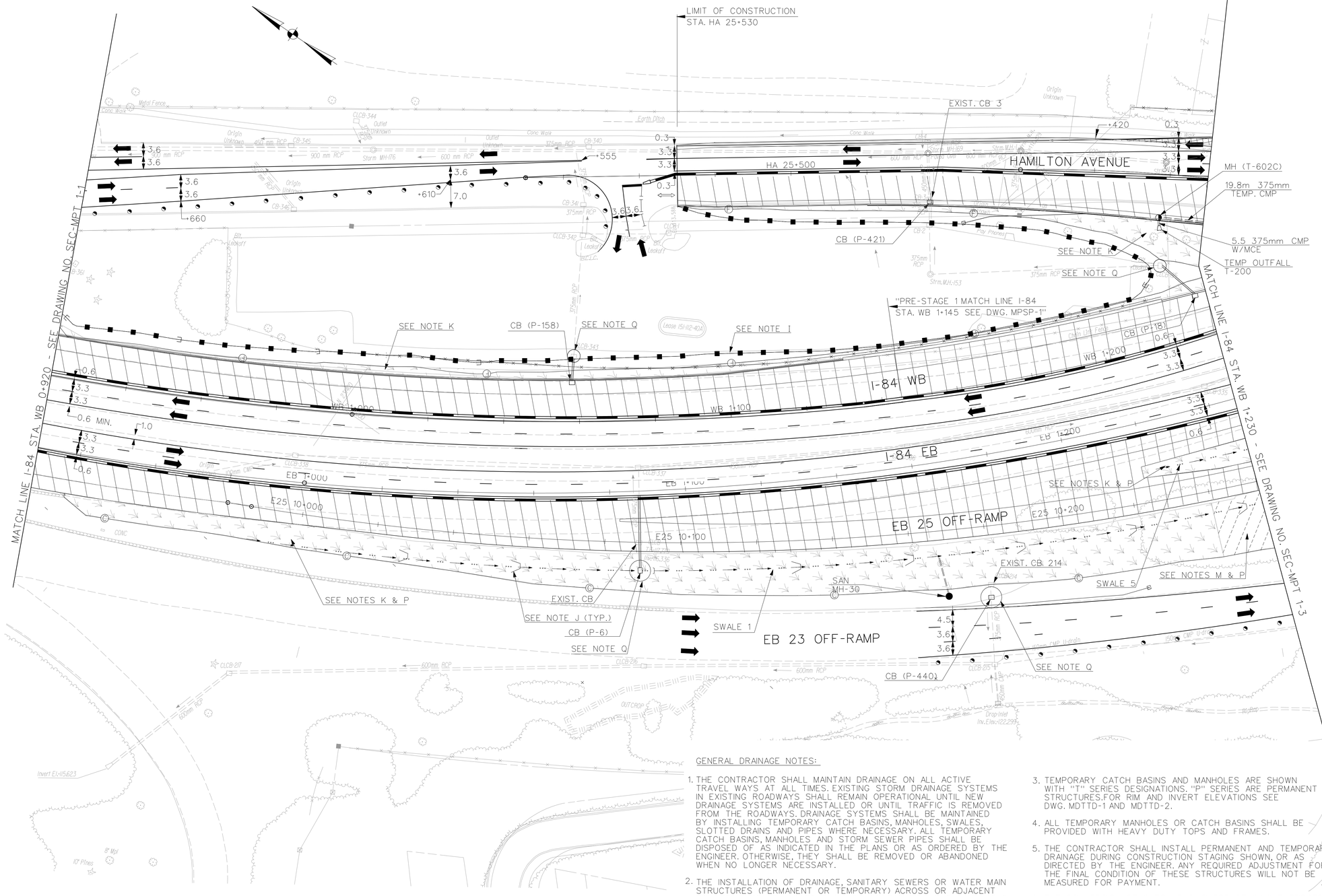
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-1
SHEET NO.:



GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL MAINTAIN DRAINAGE ON ALL ACTIVE TRAVEL WAYS AT ALL TIMES. EXISTING STORM DRAINAGE SYSTEMS IN EXISTING ROADWAYS SHALL REMAIN OPERATIONAL UNTIL NEW DRAINAGE SYSTEMS ARE INSTALLED OR UNTIL TRAFFIC IS REMOVED FROM THE ROADWAYS. DRAINAGE SYSTEMS SHALL BE MAINTAINED BY INSTALLING TEMPORARY CATCH BASINS, MANHOLES, SWALES, SLOTTED DRAINS AND PIPES WHERE NECESSARY. ALL TEMPORARY CATCH BASINS, MANHOLES AND STORM SEWER PIPES SHALL BE DISPOSED OF AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER. OTHERWISE, THEY SHALL BE REMOVED OR ABANDONED WHEN NO LONGER NECESSARY.
2. THE INSTALLATION OF DRAINAGE, SANITARY SEWERS OR WATER MAIN STRUCTURES (PERMANENT OR TEMPORARY) ACROSS OR ADJACENT TO ACTIVE TRAVEL LANES SHALL BE DONE DURING THE ALLOWABLE PERIODS OF LANE CLOSURES. THE TRENCH SHALL BE BACKFILLED AND PAVED OVER WITH TEMPORARY PAVEMENT OR COVERED WITH STEEL PLATES AS ORDERED BE ENGINEER TO ALLOW THE LANE(S) TO REOPEN TO TRAFFIC.
3. TEMPORARY CATCH BASINS AND MANHOLES ARE SHOWN WITH "T" SERIES DESIGNATIONS. "P" SERIES ARE PERMANENT STRUCTURES.FOR RIM AND INVERT ELEVATIONS SEE DWG. MDTTD-1 AND MDTTD-2.
4. ALL TEMPORARY MANHOLES OR CATCH BASINS SHALL BE PROVIDED WITH HEAVY DUTY TOPS AND FRAMES.
5. THE CONTRACTOR SHALL INSTALL PERMANENT AND TEMPORARY DRAINAGE DURING CONSTRUCTION STAGING SHOWN, OR AS DIRECTED BY THE ENGINEER. ANY REQUIRED ADJUSTMENT FOR THE FINAL CONDITION OF THESE STRUCTURES WILL NOT BE MEASURED FOR PAYMENT.
6. THE CONVERSION OF CATCH BASINS FOR STAGING PURPOSES, WHETHER THE CATCH BASIN IS EXISTING OR PROPOSED, SHALL BE PAID FOR UNDER THE ITEM "CONVERT CATCH BASIN TO TYPE 'C' CATCH BASIN".

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/28/14	DRAINAGE SYSTEM MODIFICATION	

"DESIGN INITIATED CHANGE ORDER NO. 1 10/31/14"

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

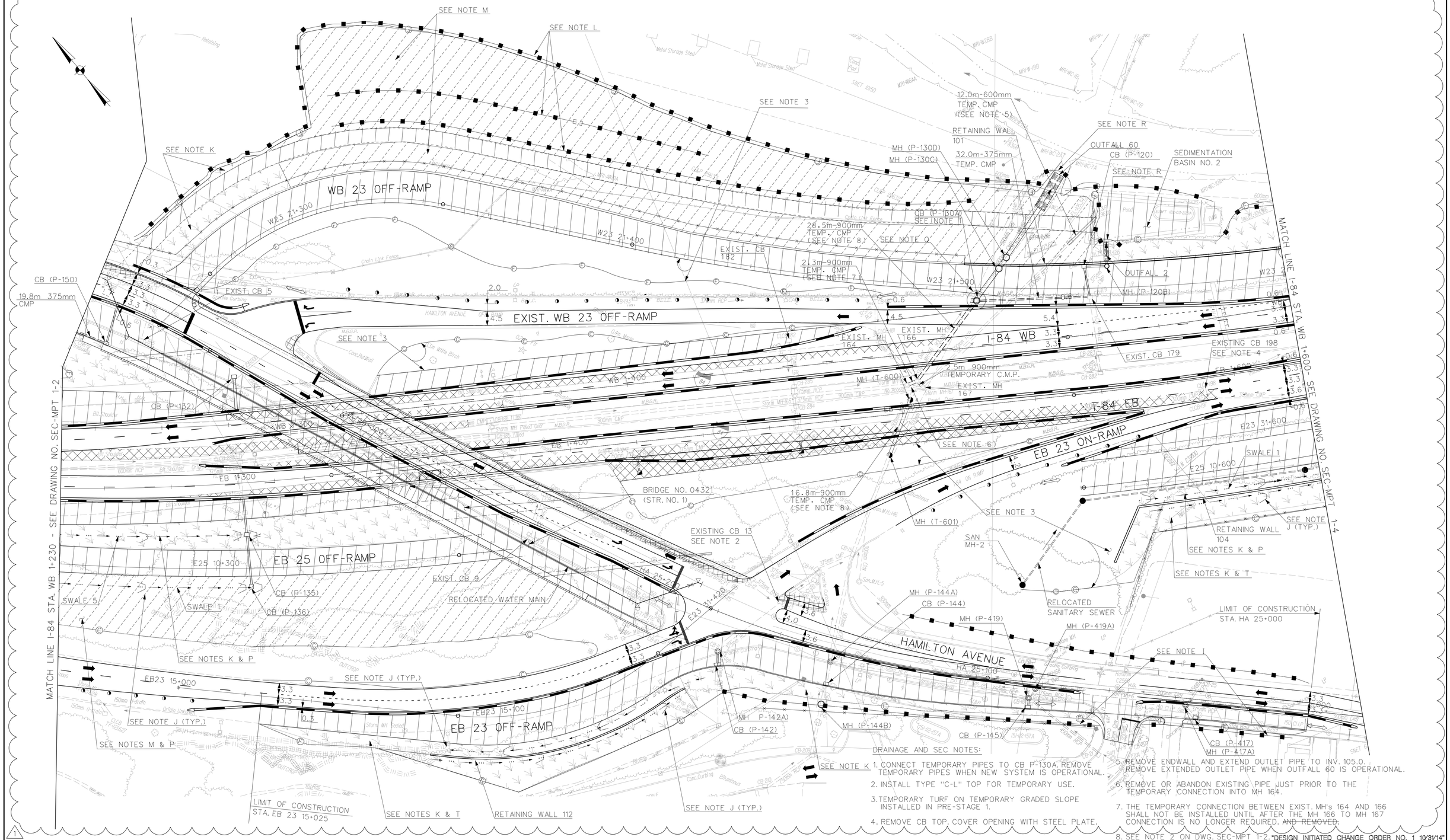
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
PROJECT NO.: 151-273
DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 1
DRAWING NO.: SEC-MPT 1-2
SHEET NO.:



DRAINAGE AND SEC NOTES:

1. CONNECT TEMPORARY PIPES TO CB P-130A. REMOVE TEMPORARY PIPES WHEN NEW SYSTEM IS OPERATIONAL.
2. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
3. TEMPORARY TURF ON TEMPORARY GRADED SLOPE INSTALLED IN PRE-STAGE 1.
4. REMOVE CB TOP. COVER OPENING WITH STEEL PLATE.
5. REMOVE ENDWALL AND EXTEND OUTLET PIPE TO INV. 105.0. REMOVE EXTENDED OUTLET PIPE WHEN OUTFALL 60 IS OPERATIONAL.
6. REMOVE OR ABANDON EXISTING PIPE JUST PRIOR TO THE TEMPORARY CONNECTION INTO MH 164.
7. THE TEMPORARY CONNECTION BETWEEN EXIST. MH's 164 AND 166 SHALL NOT BE INSTALLED UNTIL AFTER THE MH 166 TO MH 167 CONNECTION IS NO LONGER REQUIRED. ~~AND REMOVED.~~
8. SEE NOTE 2 ON DWG. SEC-MPT 1-2. "DESIGN INITIATED CHANGE ORDER NO. 1 10/31/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/31/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
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SCALE 1:500

DESIGNER: H.MORETT
DRAFTER: M. MOSLEY
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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

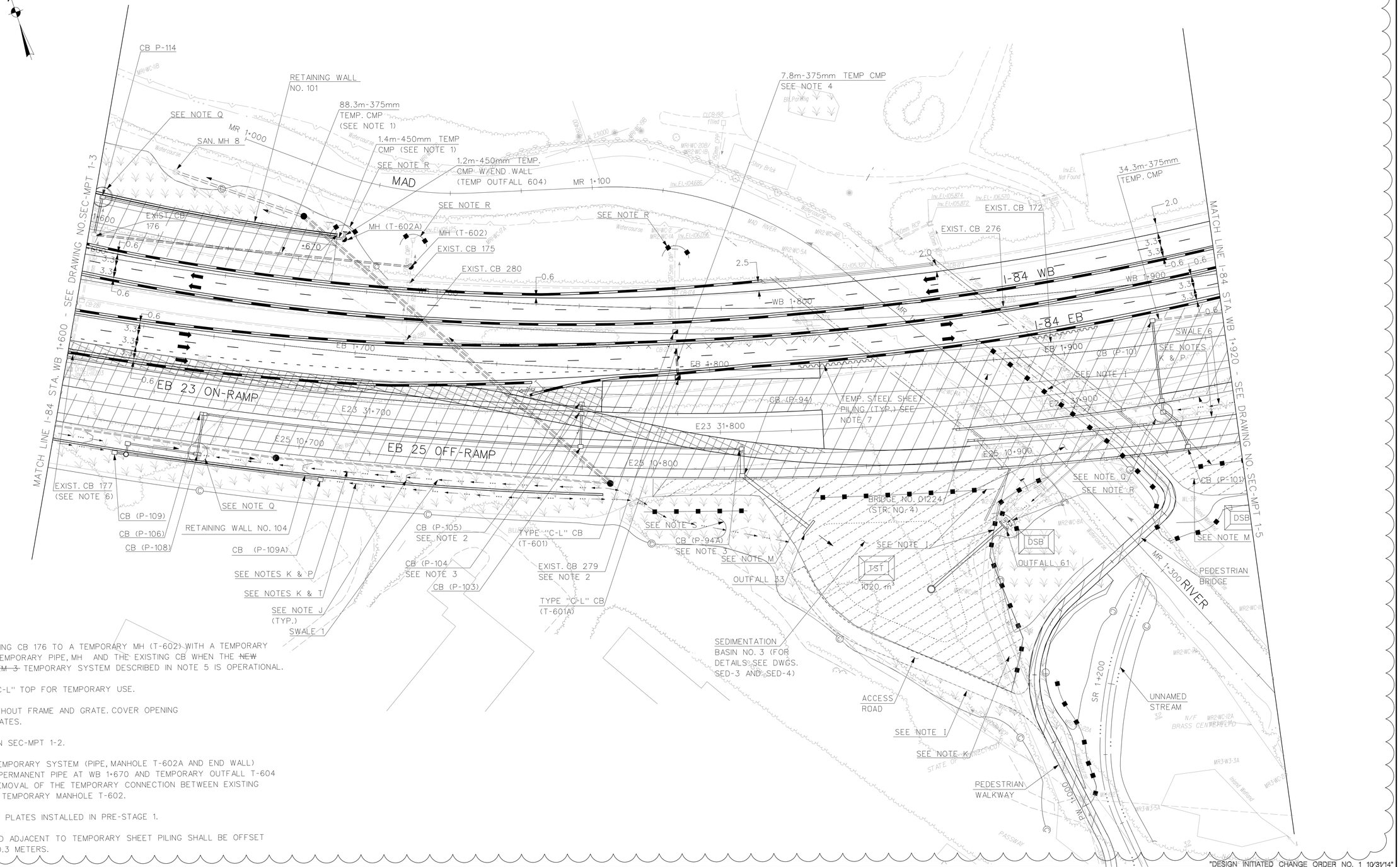
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-3
SHEET NO.:



DRAINAGE NOTES:

1. CONNECT EXISTING CB 176 TO A TEMPORARY MH (T-602) WITH A TEMPORARY PIPE. REMOVE TEMPORARY PIPE, MH AND THE EXISTING CB WHEN THE ~~NEW OUTFALL SYSTEM 3~~ TEMPORARY SYSTEM DESCRIBED IN NOTE 5 IS OPERATIONAL.
2. INSTALL TYPE"C-L" TOP FOR TEMPORARY USE.
3. INSTALL CB WITHOUT FRAME AND GRATE. COVER OPENING WITH STEEL PLATES.
4. SEE NOTE 2 ON SEC-MPT 1-2.
5. INSTALL THE TEMPORARY SYSTEM (PIPE, MANHOLE T-602A AND END WALL) BETWEEN THE PERMANENT PIPE AT WB 1+670 AND TEMPORARY OUTFALL T-604 BEFORE THE REMOVAL OF THE TEMPORARY CONNECTION BETWEEN EXISTING BASIN 176 AND TEMPORARY MANHOLE T-602.
6. MAINTAIN STEEL PLATES INSTALLED IN PRE-STAGE 1.
7. TPCBC LOCATED ADJACENT TO TEMPORARY SHEET PILING SHALL BE OFFSET A MINMUM OF 0.3 METERS.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 10/31/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	10/31/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

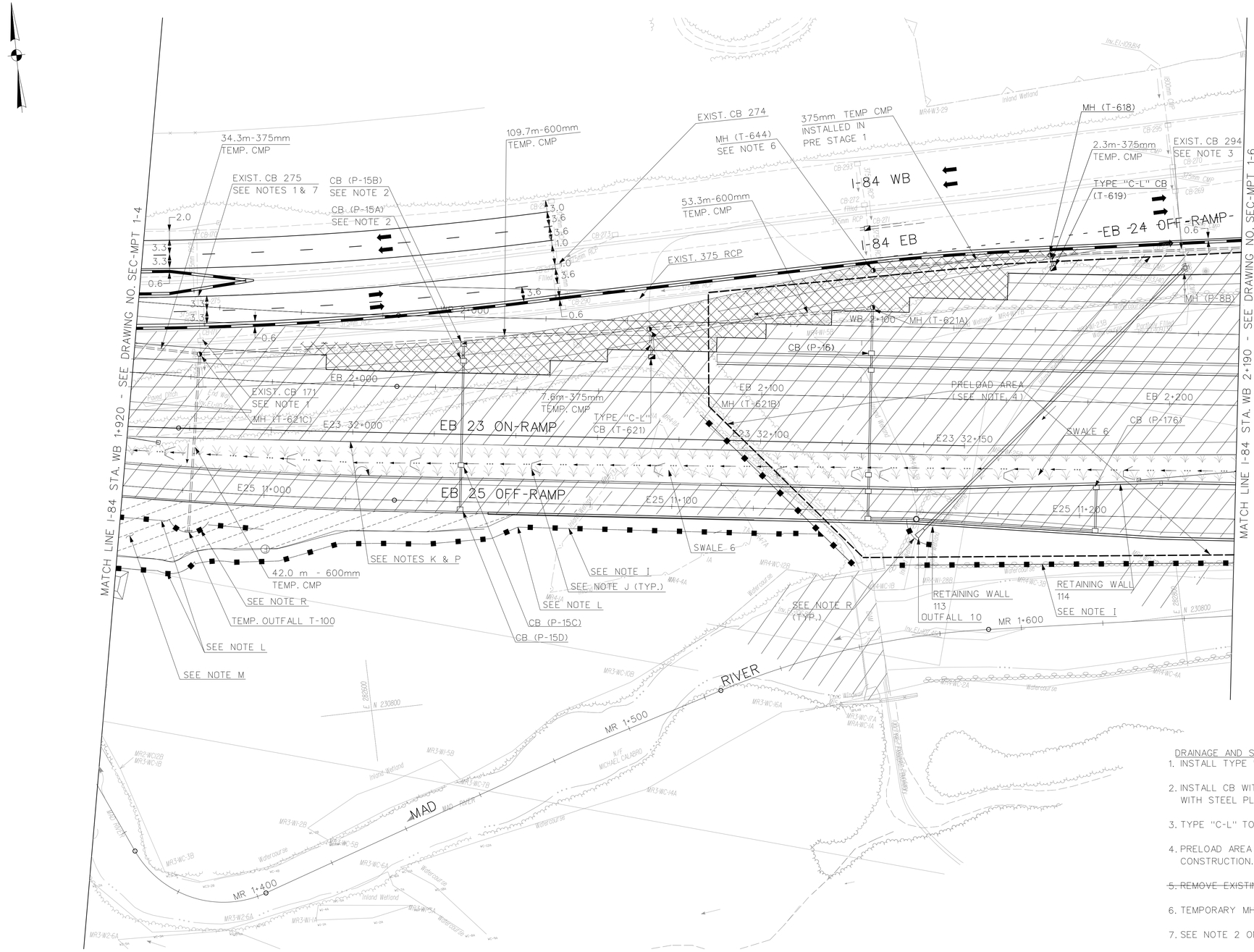
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-4
SHEET NO.:



DRAINAGE AND SEC NOTES:

1. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
2. INSTALL CB WITHOUT FRAME AND GRATE COVER OPENING WITH STEEL PLATES.
3. TYPE "C-L" TOP INSTALLED IN PRE-STAGE 1.
4. PRELOAD AREA PRIOR TO ROADWAY AND DRAINAGE CONSTRUCTION. COVER AREA WITH TEMPORARY TURF.
5. ~~REMOVE EXISTING CB AND CONNECTING PIPE.~~
6. TEMPORARY MH INSTALLED IN PRE-STAGE 1.
7. SEE NOTE 2 ON DWG. NO. SEC-MPT 1-2.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/3/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

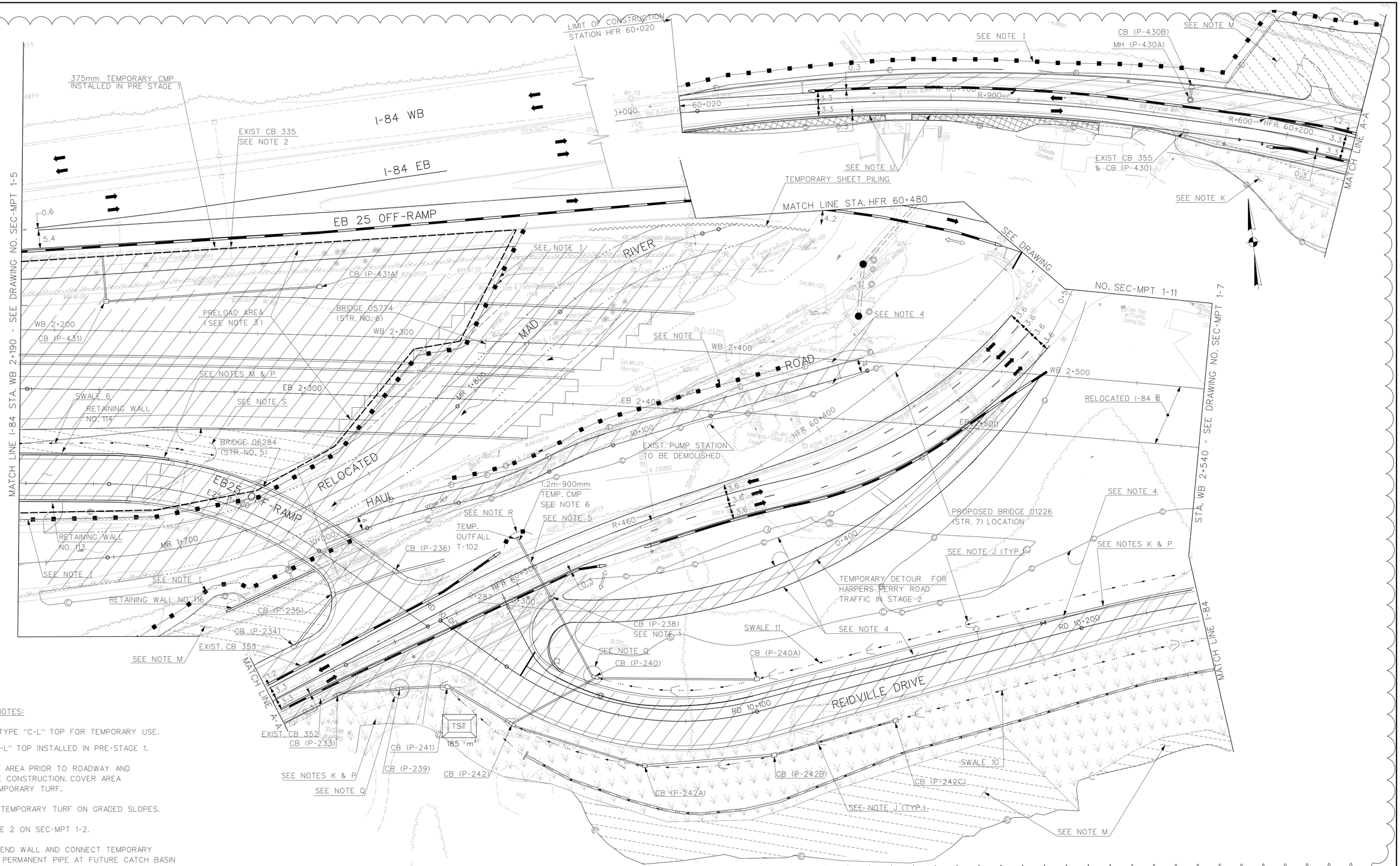
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-5
SHEET NO.:

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"



DRAINAGE NOTES:

1. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
2. TYPE "C-L" TOP INSTALLED IN PRE-STAGE 1.
3. PRELOAD AREA PRIOR TO ROADWAY AND DRAINAGE CONSTRUCTION. COVER AREA WITH TEMPORARY TURF.
4. INSTALL TEMPORARY TURF ON GRADED SLOPES.
5. SEE NOTE 2 ON SEC-MPT 1-2.
6. INSTALL END WALL AND CONNECT TEMPORARY PIPE TO PERMANENT PIPE AT FUTURE CATCH BASIN P-237 LOCATION.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/3/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H.MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
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HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

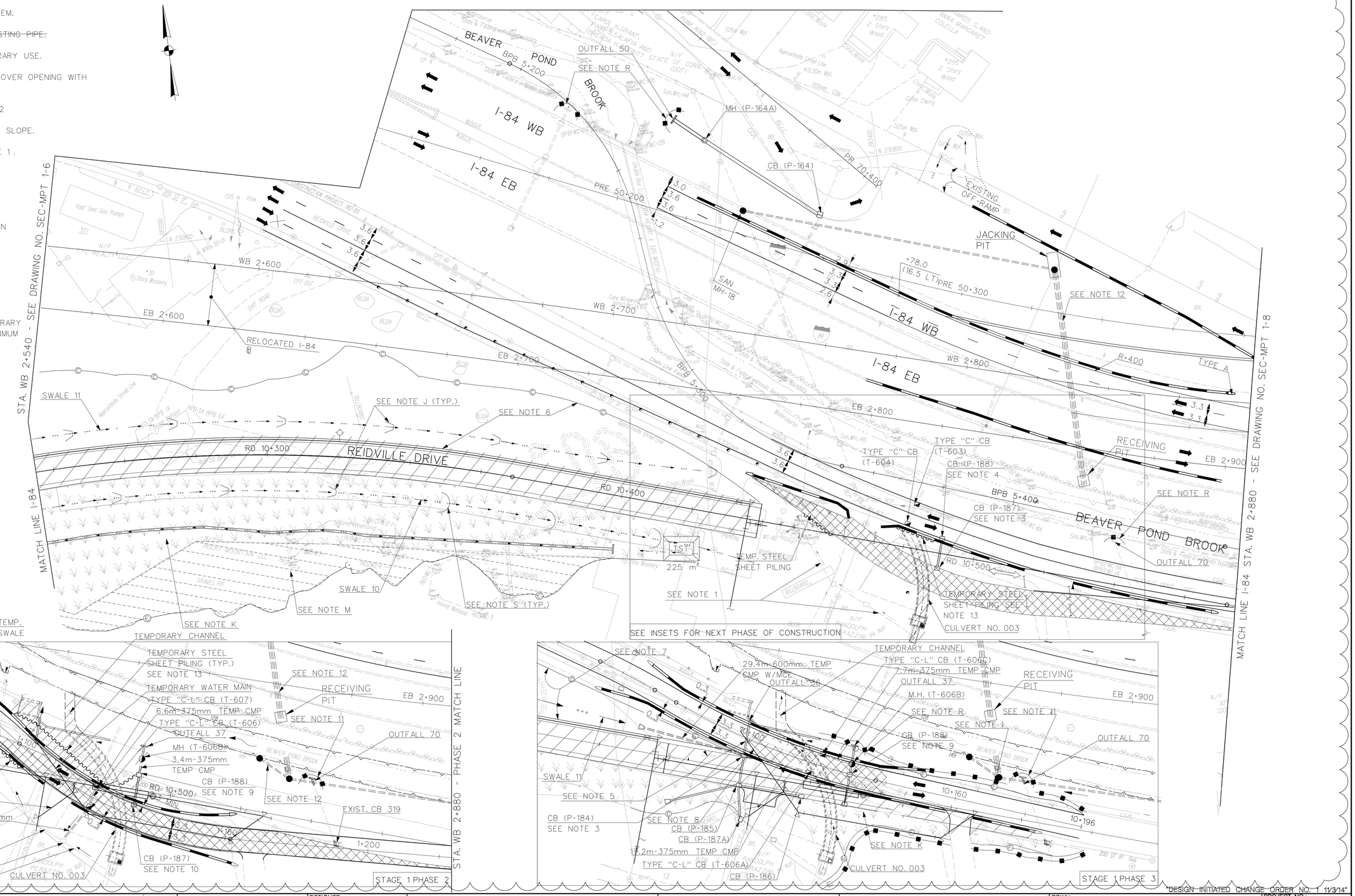
TOWN: WATERBURY
DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 1

"DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-6
SHEET NO.:

DRAINAGE AND SEC NOTES:

1. MAINTAIN FLOW IN THE EXISTING SYSTEM.
2. ~~INSTALL TEMPORARY MANHOLE ON EXISTING PIPE.~~
3. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
4. INSTALL CATCH BASIN WITHOUT TOP. COVER OPENING WITH STEEL PLATES.
5. SEE NOTE 2 ON DRAWING SEC-MPT 1-2
6. INSTALL TEMPORARY TURF ON GRADED SLOPE.
7. TEMPORARY TURF INSTALLED IN PHASE 1 .
8. REMOVE TEMPORARY WATER MAIN.
9. MAINTAIN STEEL PLATES INSTALLED IN PHASE 1.
10. MAINTAIN TYPE "C-L" TOP INSTALLED IN PHASE 1
11. MAINTAIN SEC DEVICES INSTALLED IN PHASE 1.
12. RELOCATED SANITARY SEWER, SEE DWG. BPW-8 FOR DETAILS
13. TPCBC LOCATED ADJACENT TO TEMPORARY SHEET PILING SHALL BE OFFSET A MINMUM OF 0.3 METERS.



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/3/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

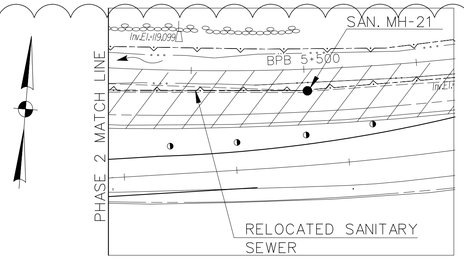
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

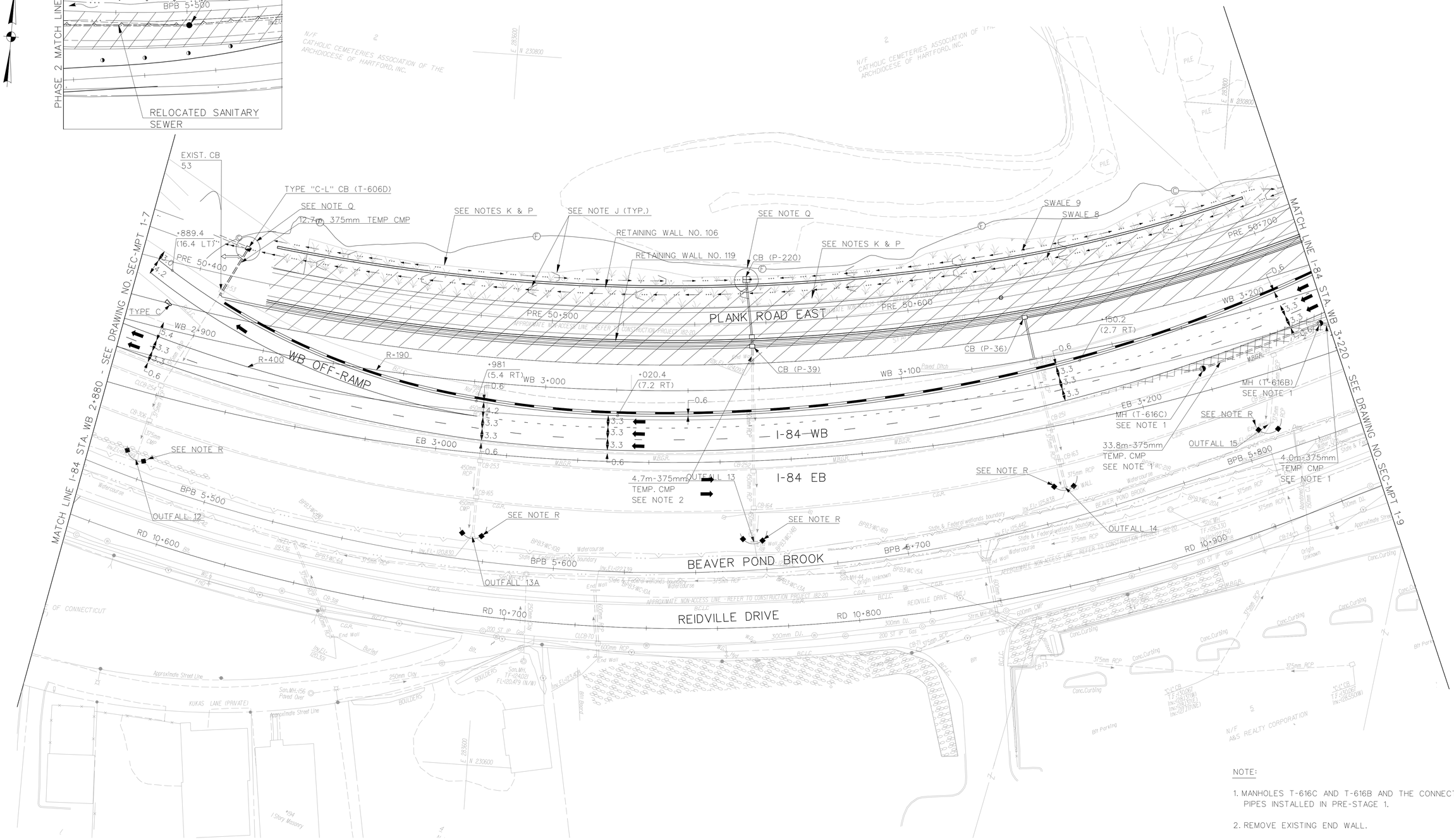
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-7
SHEET NO.:

"DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"





NOTE:

1. MANHOLES T-616C AND T-616B AND THE CONNECTING PIPES INSTALLED IN PRE-STAGE 1.

2. REMOVE EXISTING END WALL.

REV.	DATE	DESCRIPTION	SHEET. NO.
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1	11/3/14	DRAINAGE SYSTEM MODIFICATION	

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SCALE 1:500

DESIGNER: H.MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

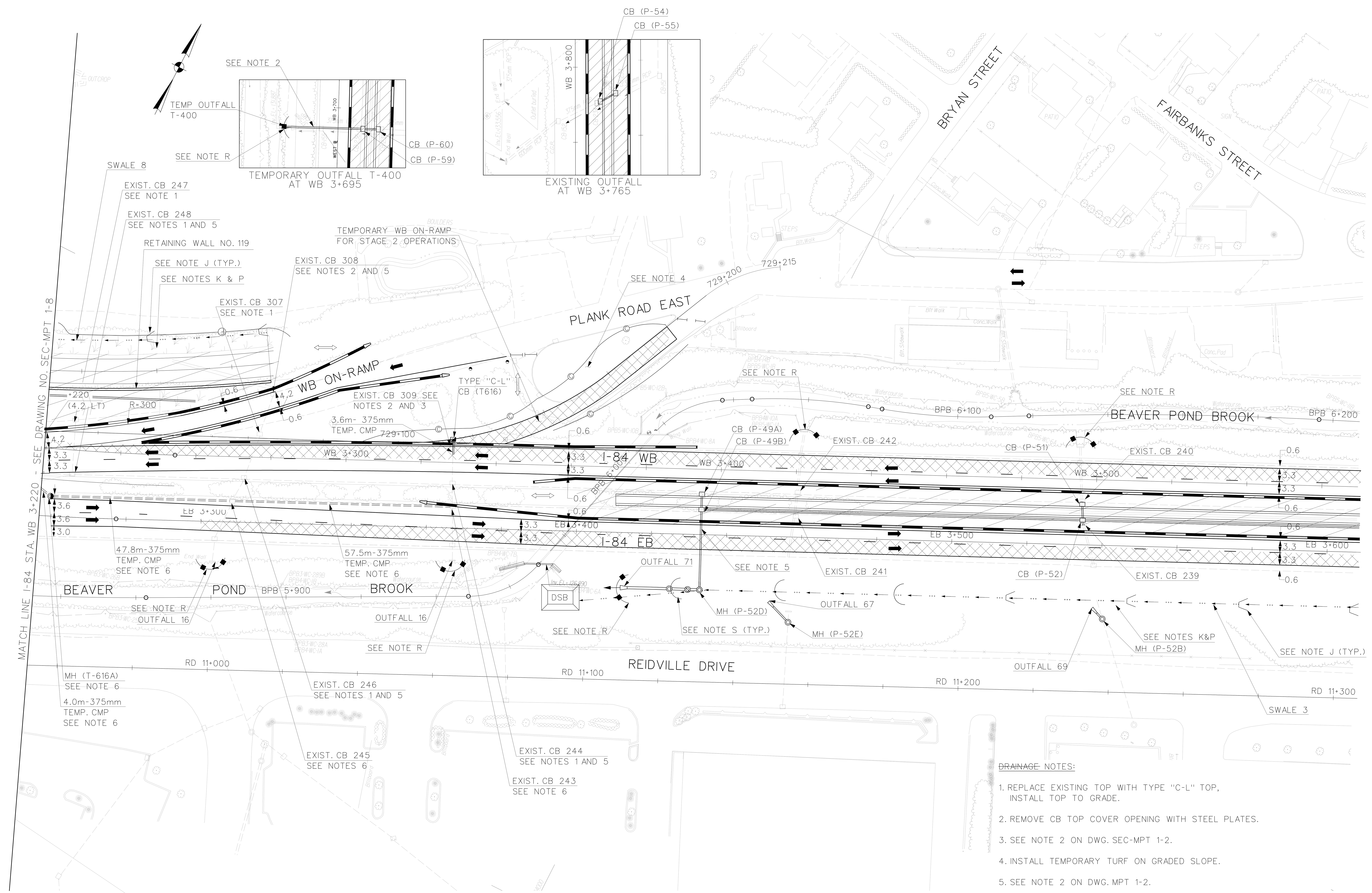
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 1

"DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-8
SHEET NO.:



~~DRAINAGE NOTES:~~

1. REPLACE EXISTING TOP WITH TYPE "C-L" TOP, INSTALL TOP TO GRADE.
2. REMOVE CB TOP COVER OPENING WITH STEEL PLATES.
3. SEE NOTE 2 ON DWG. SEC-MPT 1-2.
4. INSTALL TEMPORARY TURF ON GRADED SLOPE.
5. SEE NOTE 2 ON DWG. MPT 1-2.
6. THE "C-L" TOP ON EXIST. CB's 243 AND 245, TEMP. CMP AND TEMP. MH (T-616A) INSTALLED IN PRE-STAGE 1.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"

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REVISIONS

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0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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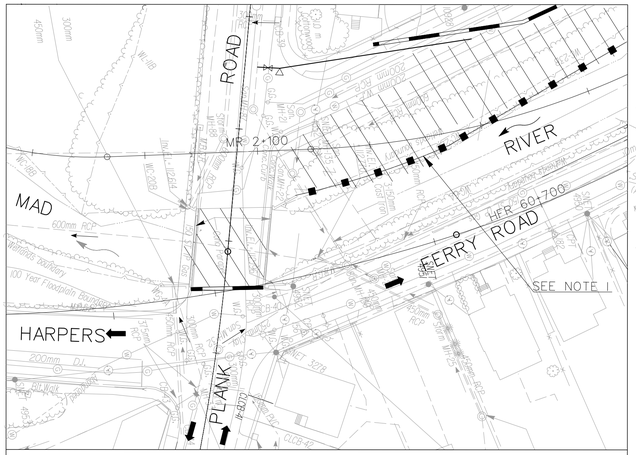
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

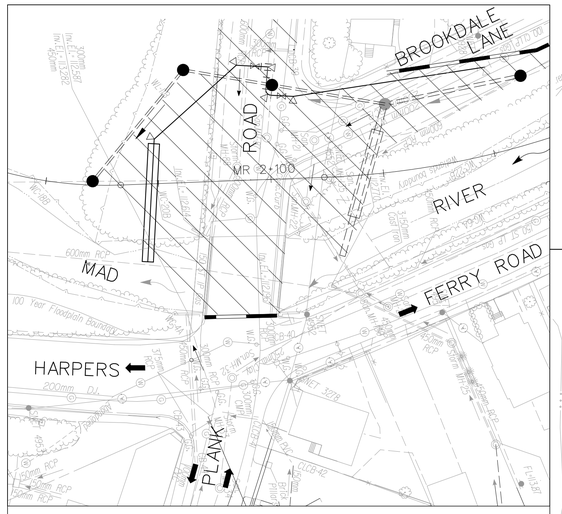
TOWN:
WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-9
SHEET NO.:



PHASE 1



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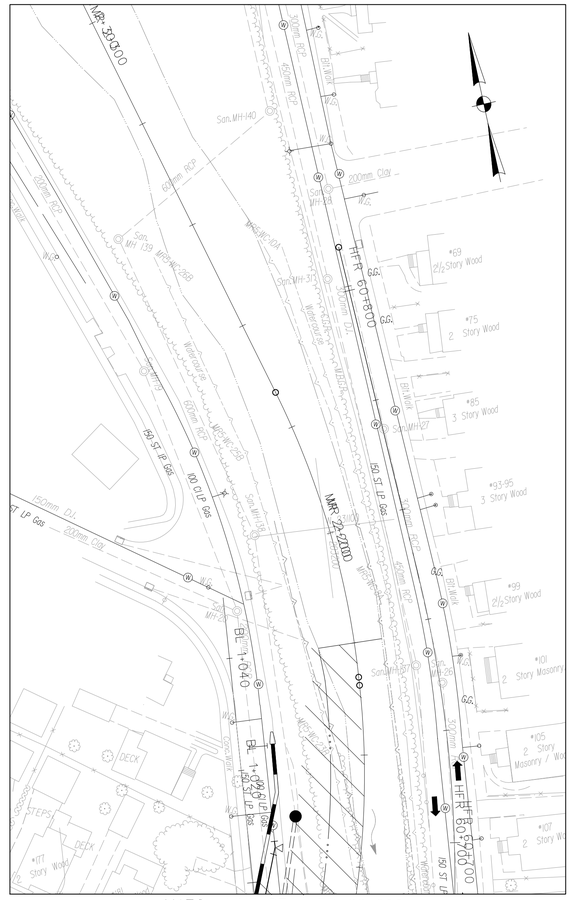
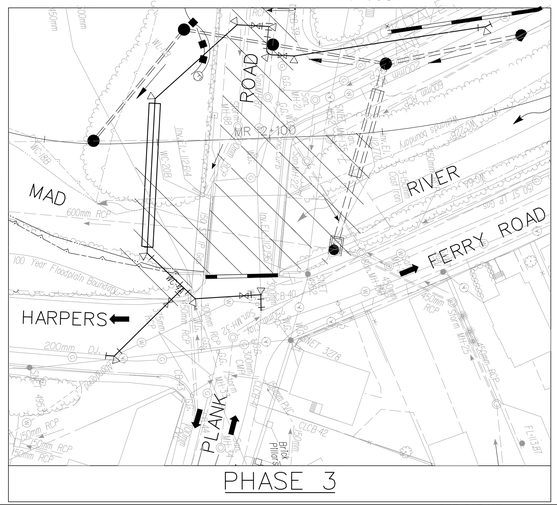




PHASE 3

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: G. STARCKEY
DRAFTER: M. MOSLEY
CHECKED BY: J.HUND
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

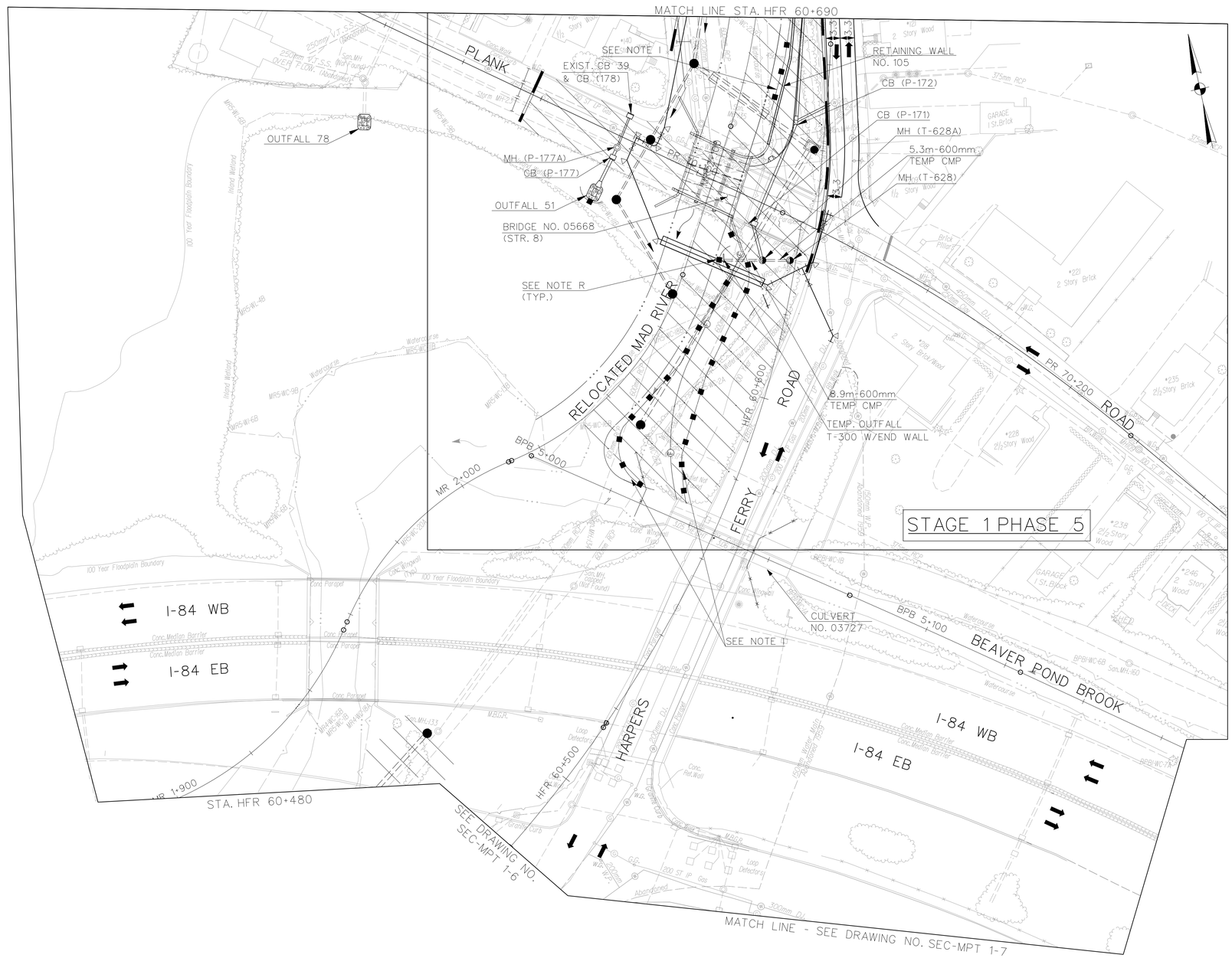
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

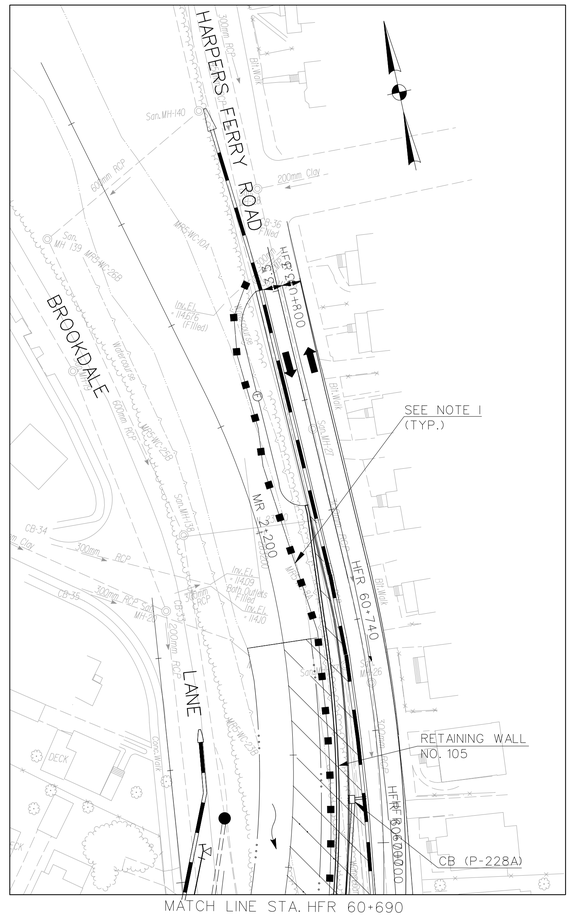
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-11
SHEET NO.:





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"DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/3/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
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DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

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DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

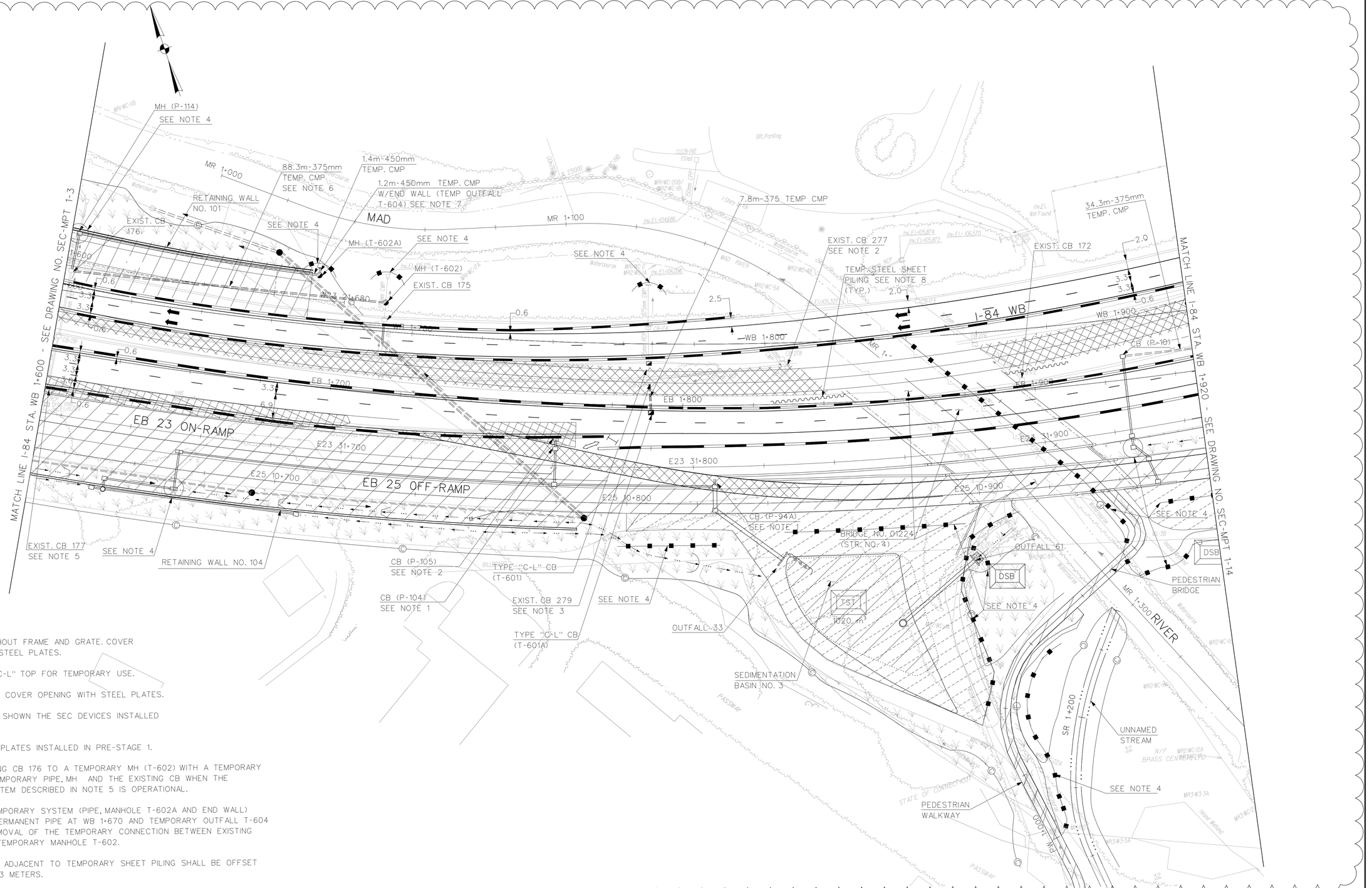
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION
CONTROL STAGE 1

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-12
SHEET NO.:



NOTES:

1. INSTALL CB WITHOUT FRAME AND GRATE. COVER OPENING WITH STEEL PLATES.
2. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
3. REMOVE CB TOP COVER OPENING WITH STEEL PLATES.
4. MAINTAIN WHERE SHOWN THE SEC DEVICES INSTALLED IN STAGE 1.
5. MAINTAIN STEEL PLATES INSTALLED IN PRE-STAGE 1.
6. CONNECT EXISTING CB 176 TO A TEMPORARY MH (T-602) WITH A TEMPORARY PIPE. REMOVE TEMPORARY PIPE, MH AND THE EXISTING CB WHEN THE TEMPORARY SYSTEM DESCRIBED IN NOTE 5 IS OPERATIONAL.
7. INSTALL THE TEMPORARY SYSTEM (PIPE, MANHOLE T-602A AND END WALL) BETWEEN THE PERMANENT PIPE AT WB 1+670 AND TEMPORARY OUTFALL T-604 BEFORE THE REMOVAL OF THE TEMPORARY CONNECTION BETWEEN EXISTING BASIN 176 AND TEMPORARY MANHOLE T-602.
8. TPCBC LOCATED ADJACENT TO TEMPORARY SHEET PILING SHALL BE OFFSET A MINMUM OF 0.3 METERS.

1

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
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SCALE IN METERS
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SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

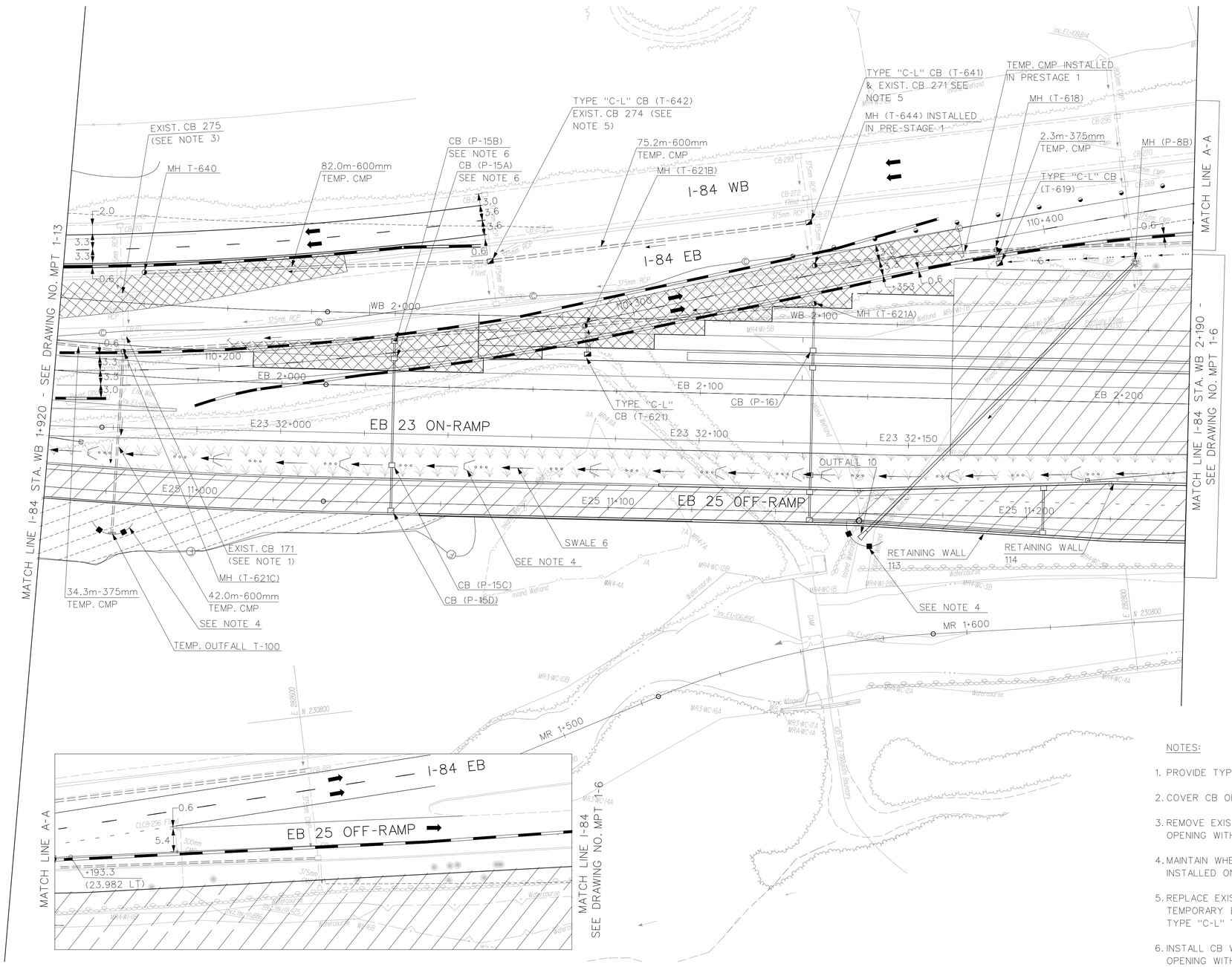
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL – STAGE 1A

"DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 1-13
SHEET NO.:



NOTES:

1. PROVIDE TYPE "C-L" TOP AT RIM ELEV. 112.250.
2. COVER CB OPENING WITH STEEL PLATES.
3. REMOVE EXISTING FRAME AND GRATE. COVER OPENING WITH STEEL PLATES.
4. MAINTAIN WHERE SHOWN THE SEC DEVICES INSTALLED ON STAGE 1.
5. REPLACE EXISTING BASINS 271 AND 274 WITH TEMPORARY BASINS T-641 AND T-642 WITH TYPE "C-L" TOPS.
6. INSTALL CB WITHOUT FRAME AND GRATE COVER OPENING WITH STEEL PLATES.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/3/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION
CONTROL - STAGE 1A

PROJECT NO.:
151-273

DRAWING NO.:
SEC-MPT 1-14

SHEET NO.:

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/3/14"

SEC LEGEND:

SEDIMENTATION CONTROL SYSTEM

CHECK DAM, GEOTEXTILE FENCE

STONE CHECK DAM

CATCH BASIN ENCIRCLED BY GEOTEXTILE FENCE

DEWATERING SETTLING BASIN — DSB

TEMPORARY SEDIMENT TRAP — TST
REQUIRED VOLUME

SODDING

EROSION CONTROL MATTING (ECM) TYPE D WITH "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES" (SEE NOTE P)

TURF ESTABLISHMENT (SEE NOTE P)

GENERAL SEC NOTES:

A. FOR DETAILS AND TABLES OF SEDIMENTATION AND EROSION CONTROL DEVICES, SEE DWGS. ESD-1 THRU ESD-6 AND DWG. ESDT-1 AND ESDT-2.

B. CONSTRUCTION ENTRANCES, AS INDICATED ON THE SEC-MPT PLANS OR AS DIRECTED BY THE ENGINEER, SHALL BE INSTALLED AND MAINTAINED TO REDUCE THE TRACKING OF SEDIMENTS OFF-SITE, ONTO PAVED SURFACES.

C. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE WATER HANDLING PLANS FOR CONSTRUCTION OF BRIDGES, CULVERTS AND RETAINING WALLS

D. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE MAD RIVER RELOCATION WATER HANDLING PLANS.

E. REFER TO THE PLANTING PLAN INCLUDED IN THE MAD RIVER RELOCATION PLANS.

F. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE BEAVER POND BROOK RELOCATION WATER HANDLING PLAN.

G. REFER TO THE PLANTING PLAN INCLUDED IN THE BEAVER POND BROOK RELOCATION PLANS.

H. PAYMENT FOR TURF ESTABLISHMENT WITH EROSION CONTROL MATTING TYPE D SHALL BE MADE UNDER CONTRACT PAY ITEMS "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES", AS NOTED, AND "EROSION CONTROL MATTING TYPE D".

I. INSTALL SEDIMENTATION AND EROSION SYSTEM.

J. INSTALL CHECK DAM GEOTEXTILE FENCE.

K. INSTALL TURF ESTABLISHMENT.

L. INSTALL SEDIMENTATION AND EROSION CONTROL SYSTEM WITH WINGS.

M. INSTALL EROSION CONTROL MATTING (ECM) TYPE D WITH TURF ESTABLISHMENT.

N. INSTALL CONSERVATION SEEDING FOR SLOPES.

O. INSTALL ECM TYPE D WITH CONSERVATION SEEDING FOR SLOPES.

P. TREATMENT SHOWN AT SWALE LOCATIONS IS FOR THE SIDE SLOPES. SEE NOTE T AND DWG. NO. ~~DD-7~~ DD-8 FOR SPECIFIC TREATMENT WITHIN SWALES.

Q. INSTALL GEOTEXTILE FENCING AROUND CATCH BASINS.

R. INSTALL SEDIMENTATION AND EROSION CONTROL GEOTEXTILE FENCE.

S. INSTALL STONE CHECK DAM.

T. INSTALL ECM TYPE E OR TYPE F SEE DRAINAGE PLANS

U. SOD INSTALLATION.

MPT LEGEND:

CONSTRUCTION THIS STAGE

TEMPORARY PAVEMENT

TEMPORARY PRECAST CONCRETE BARRIER CURB (TPCBC) WITH DE-7 AND DE-7A DELINEATORS

TEMPORARY IMPACT ATTENUATION SYSTEM

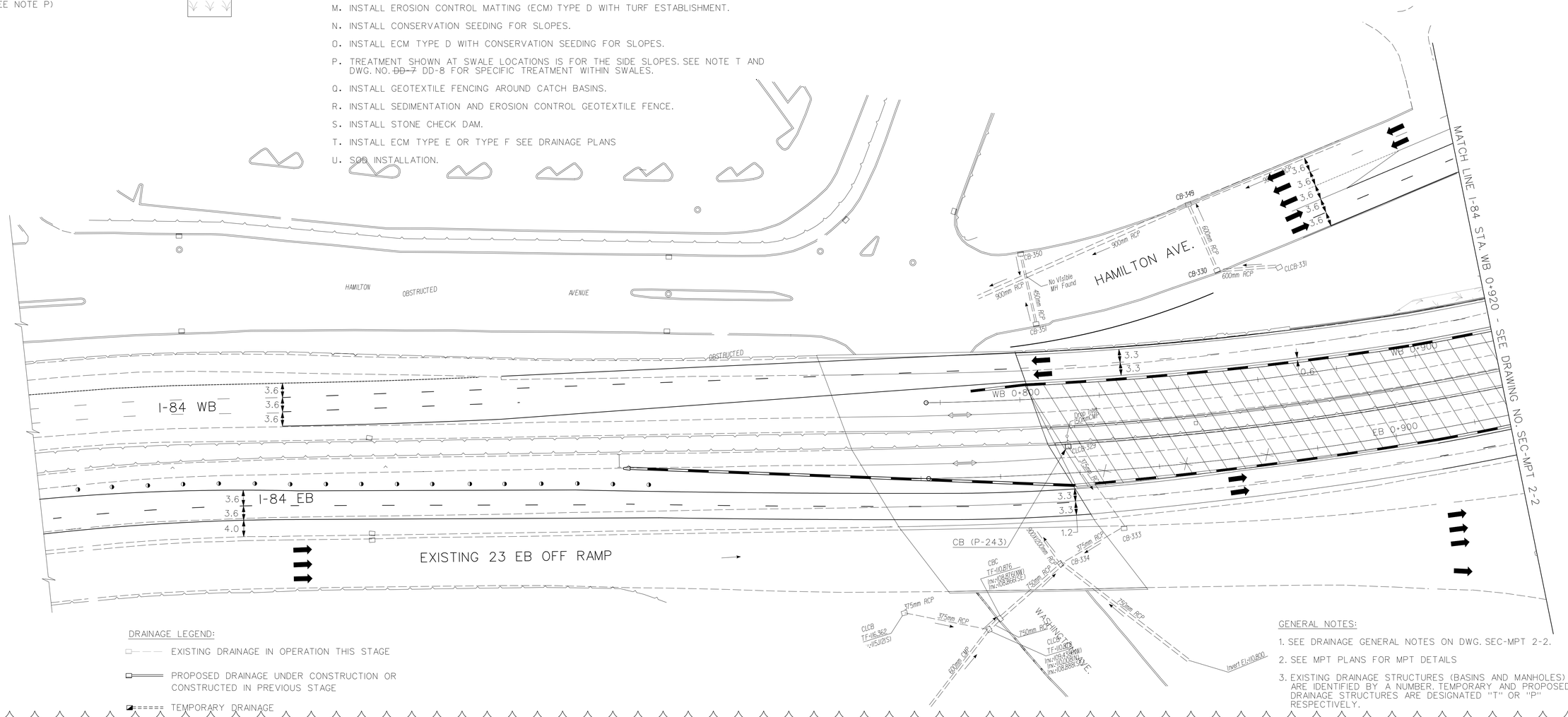
ACTIVE TRAFFIC LANE

TWO WAY TRAFFIC ON ONE LANE CONTROLLED BY TRAFFIC PERSON

TRAFFIC DRUMS

TRAFFIC BARRICADE

WORK ZONE ACCESS LOCATION



GENERAL NOTES:

1. SEE DRAINAGE GENERAL NOTES ON DWG. SEC-MPT 2-2.
2. SEE MPT PLANS FOR MPT DETAILS
3. EXISTING DRAINAGE STRUCTURES (BASINS AND MANHOLES) ARE IDENTIFIED BY A NUMBER. TEMPORARY AND PROPOSED DRAINAGE STRUCTURES ARE DESIGNATED "T" OR "P" RESPECTIVELY.

REV.	DATE	DESCRIPTION	SHEET. NO.
1	11/6/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

"DESIGN INITIATED CHANGE ORDER NO. 1 11/6/14

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H.MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

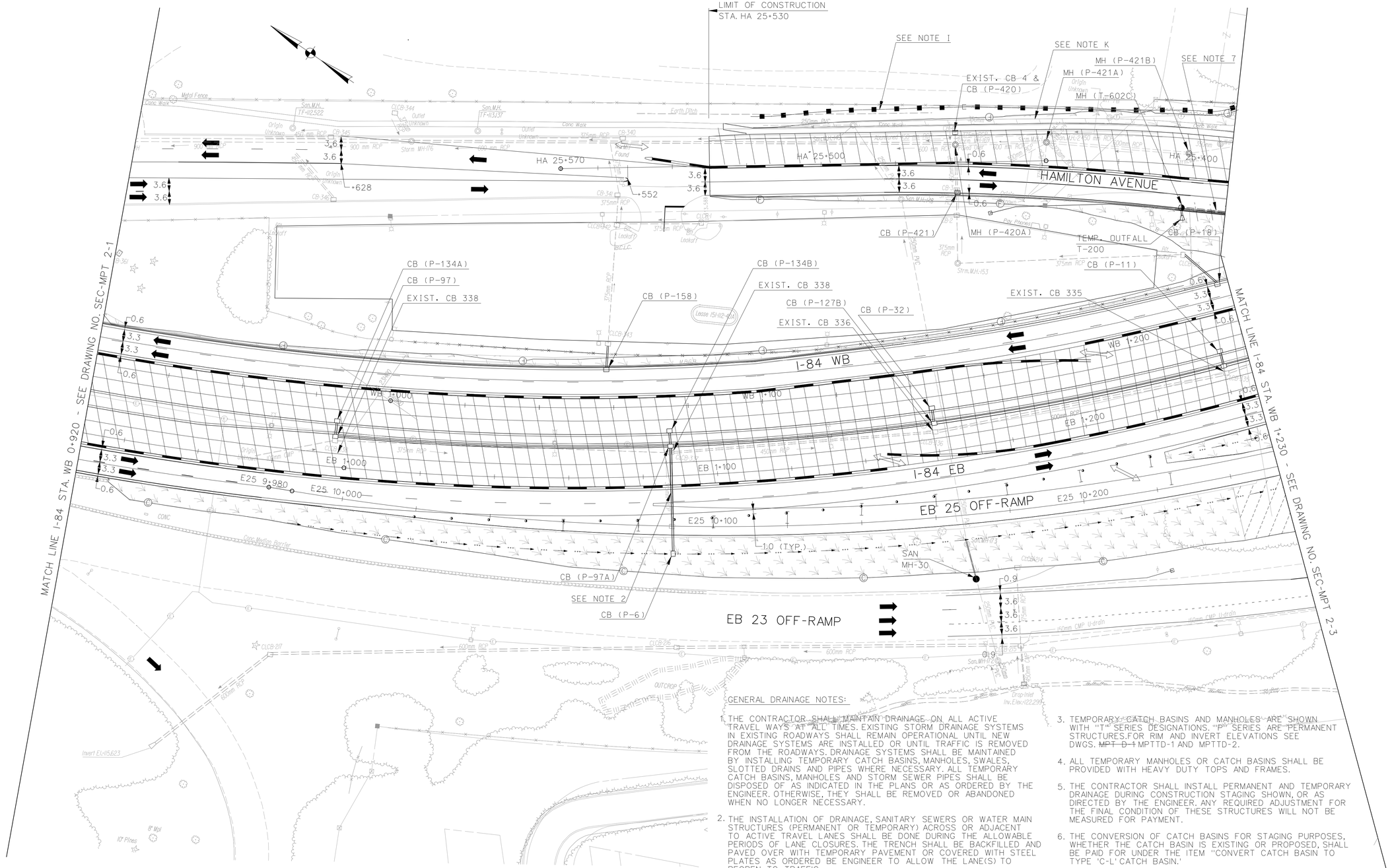
TOWN: WATERBURY

DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273

DRAWING NO.: SEC-MPT 2-1

SHEET NO.:



GENERAL DRAINAGE NOTES:

1. THE CONTRACTOR SHALL MAINTAIN DRAINAGE ON ALL ACTIVE TRAVEL WAYS AT ALL TIMES. EXISTING STORM DRAINAGE SYSTEMS IN EXISTING ROADWAYS SHALL REMAIN OPERATIONAL UNTIL NEW DRAINAGE SYSTEMS ARE INSTALLED OR UNTIL TRAFFIC IS REMOVED FROM THE ROADWAYS. DRAINAGE SYSTEMS SHALL BE MAINTAINED BY INSTALLING TEMPORARY CATCH BASINS, MANHOLES, SWALES, SLOTTED DRAINS AND PIPES WHERE NECESSARY. ALL TEMPORARY CATCH BASINS, MANHOLES AND STORM SEWER PIPES SHALL BE DISPOSED OF AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER. OTHERWISE, THEY SHALL BE REMOVED OR ABANDONED WHEN NO LONGER NECESSARY.

2. THE INSTALLATION OF DRAINAGE, SANITARY SEWERS OR WATER MAIN STRUCTURES (PERMANENT OR TEMPORARY) ACROSS OR ADJACENT TO ACTIVE TRAVEL LANES SHALL BE DONE DURING THE ALLOWABLE PERIODS OF LANE CLOSURES. THE TRENCH SHALL BE BACKFILLED AND PAVED OVER WITH TEMPORARY PAVEMENT OR COVERED WITH STEEL PLATES AS ORDERED BE ENGINEER TO ALLOW THE LANE(S) TO REOPEN TO TRAFFIC.

3. TEMPORARY CATCH BASINS AND MANHOLES ARE SHOWN WITH "T" SERIES DESIGNATIONS. "P" SERIES ARE PERMANENT STRUCTURES. FOR RIM AND INVERT ELEVATIONS SEE DWGS. ~~MPT D-1~~ MPTTD-1 AND MPTTD-2.

4. ALL TEMPORARY MANHOLES OR CATCH BASINS SHALL BE PROVIDED WITH HEAVY DUTY TOPS AND FRAMES.

5. THE CONTRACTOR SHALL INSTALL PERMANENT AND TEMPORARY DRAINAGE DURING CONSTRUCTION STAGING SHOWN, OR AS DIRECTED BY THE ENGINEER. ANY REQUIRED ADJUSTMENT FOR THE FINAL CONDITION OF THESE STRUCTURES WILL NOT BE MEASURED FOR PAYMENT.

6. THE CONVERSION OF CATCH BASINS FOR STAGING PURPOSES, WHETHER THE CATCH BASIN IS EXISTING OR PROPOSED, SHALL BE PAID FOR UNDER THE ITEM "CONVERT CATCH BASIN TO TYPE 'C-L' CATCH BASIN."

7. ABANDON MANHOLE T-602C AND THE PIPE CONNECTION TO CB P-150 AFTER CB P-150 IS OPERATIONAL. REMOVE THE OUTLET PIPE AND END SECTION.

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REV.	DATE	DESCRIPTION	SHEET. NO.
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SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
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CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

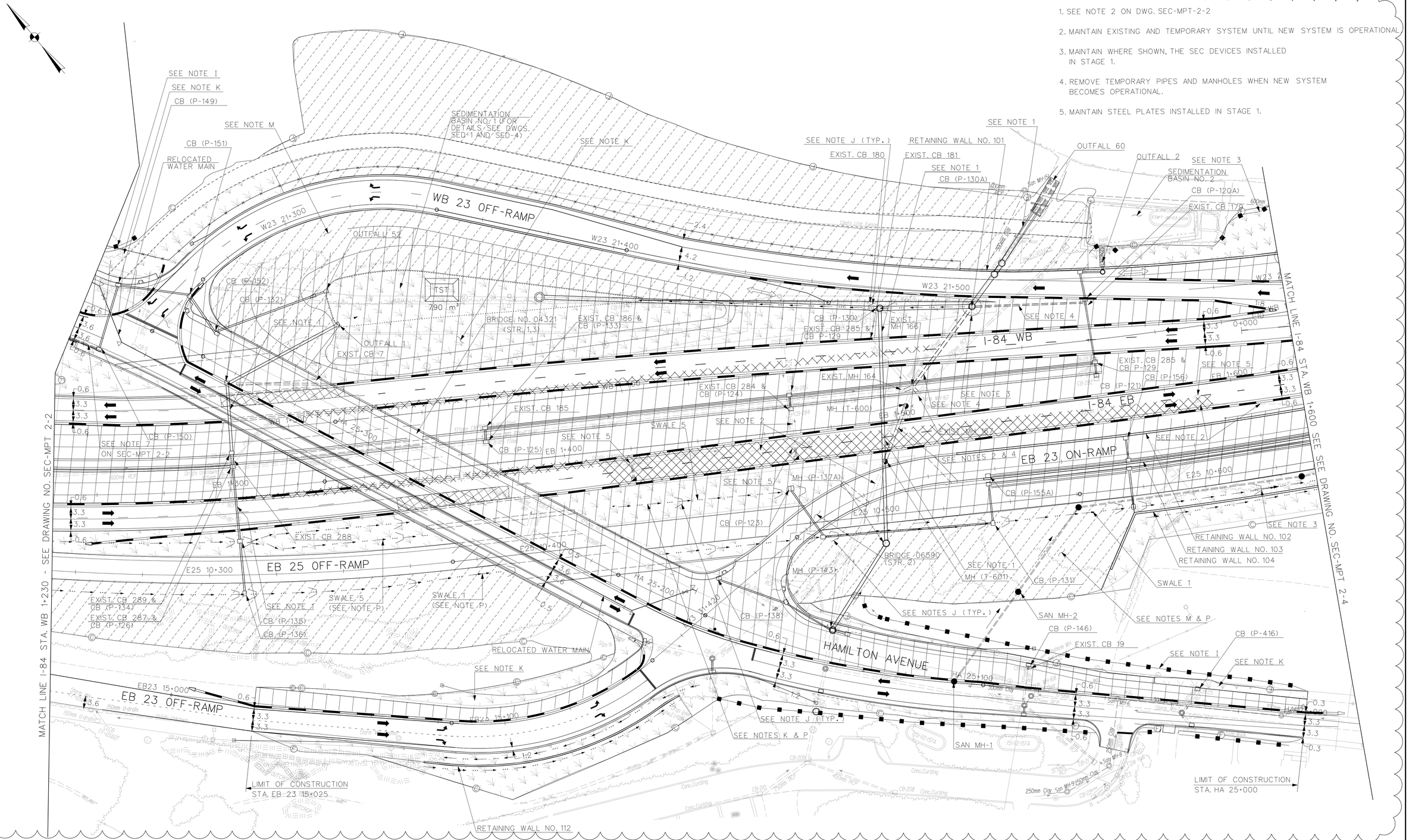
TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-2
SHEET NO.:

DRAINAGE AND SEC NOTES:

1. SEE NOTE 2 ON DWG. SEC-MPT-2-2
2. MAINTAIN EXISTING AND TEMPORARY SYSTEM UNTIL NEW SYSTEM IS OPERATIONAL
3. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 1.
4. REMOVE TEMPORARY PIPES AND MANHOLES WHEN NEW SYSTEM BECOMES OPERATIONAL.
5. MAINTAIN STEEL PLATES INSTALLED IN STAGE 1.



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DRAFTER: M. MOSLEY
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DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

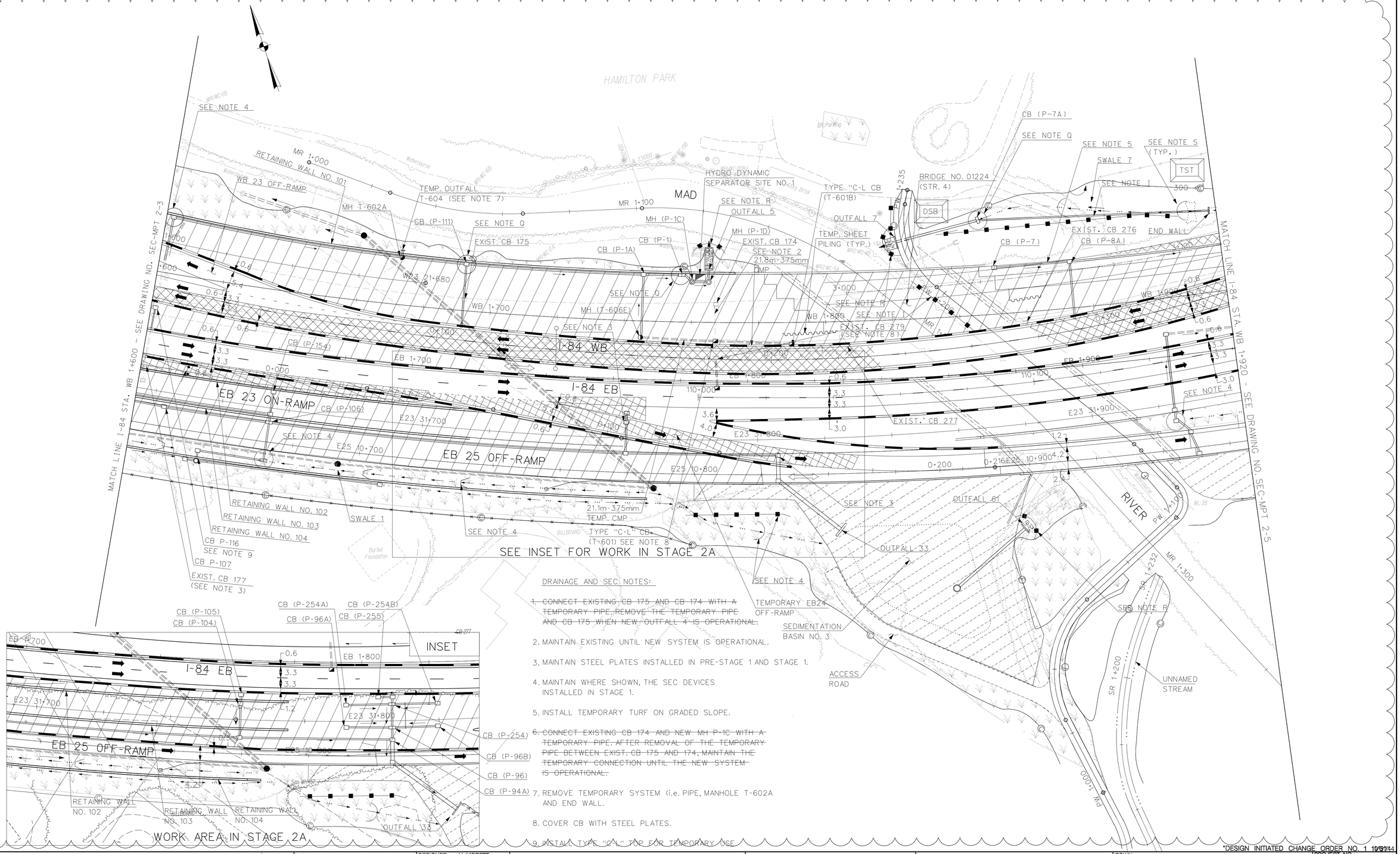
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-3
SHEET NO.:

*DESIGN INITIATED CHANGE ORDER NO. 1 11/6/14



DRAINAGE AND SEC NOTES:

1. ~~CONNECT EXISTING CB 175 AND CB 174 WITH A TEMPORARY PIPE. REMOVE THE TEMPORARY PIPE AND CB 175 WHEN NEW OUTFALL 4 IS OPERATIONAL.~~
2. MAINTAIN EXISTING UNTIL NEW SYSTEM IS OPERATIONAL.
3. MAINTAIN STEEL PLATES INSTALLED IN PRE-STAGE 1 AND STAGE 1.
4. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 1.
5. INSTALL TEMPORARY TURF ON GRADED SLOPE.
6. ~~CONNECT EXISTING CB 174 AND NEW MH P-1C WITH A TEMPORARY PIPE. AFTER REMOVAL OF THE TEMPORARY PIPE BETWEEN EXIST. CB 175 AND 174, MAINTAIN THE TEMPORARY CONNECTION UNTIL THE NEW SYSTEM IS OPERATIONAL.~~
7. REMOVE TEMPORARY SYSTEM (i.e. PIPE, MANHOLE T-602A AND END WALL.
8. COVER CB WITH STEEL PLATES.
9. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE

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DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

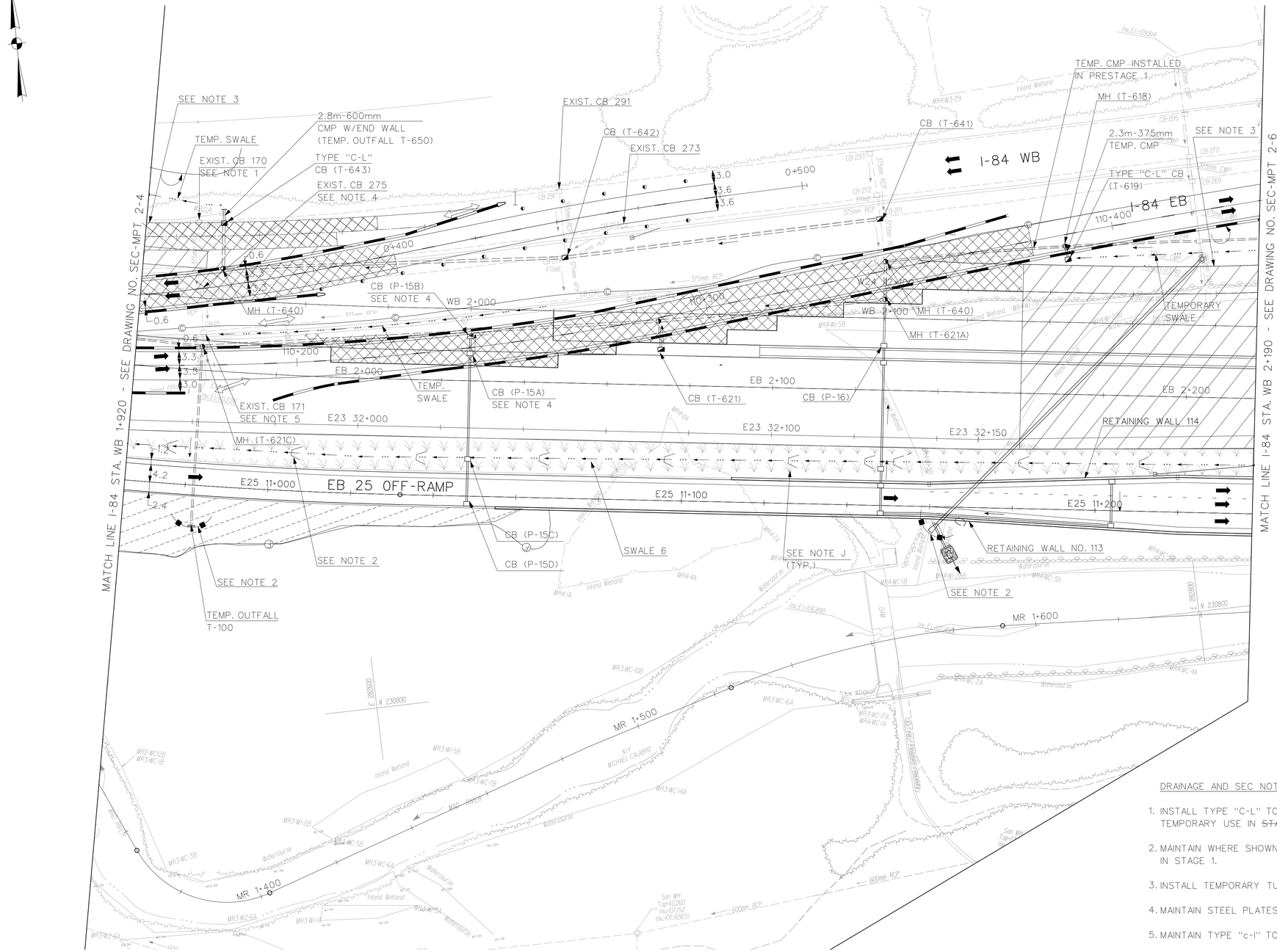
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-4
SHEET NO.:

"DESIGN INITIATED CHANGE ORDER NO. 1 10/5/14"



DRAINAGE AND SEC NOTES:

1. INSTALL TYPE "C-L" TOP TO GRADE FOR TEMPORARY USE IN ~~STAGES 2 AND 3~~ STAGE 3.
2. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 1.
3. INSTALL TEMPORARY TURF ON GRADED SLOPE.
4. MAINTAIN STEEL PLATES INSTALLED IN ~~STAGE 1~~ PRE-STAGE 1 AND STAGE 1.
5. MAINTAIN TYPE "c-l" TOP INSTALLED IN STAGE 1.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/7/14

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SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED: 10/06

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

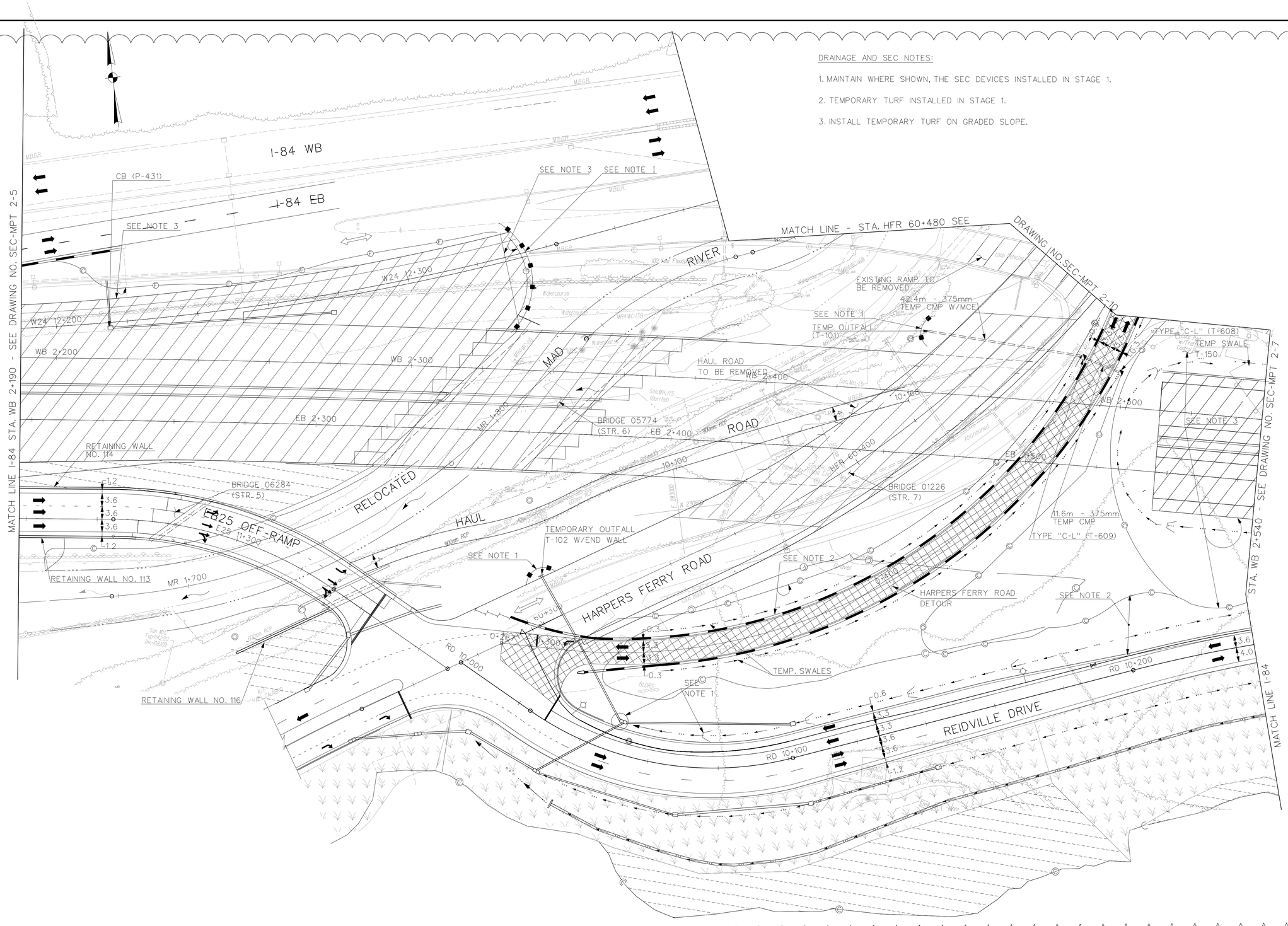
PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-5
SHEET NO.:

DRAINAGE AND SEC NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 1.

2. TEMPORARY TURF INSTALLED IN STAGE 1.

3. INSTALL TEMPORARY TURF ON GRADED SLOPE.



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0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
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DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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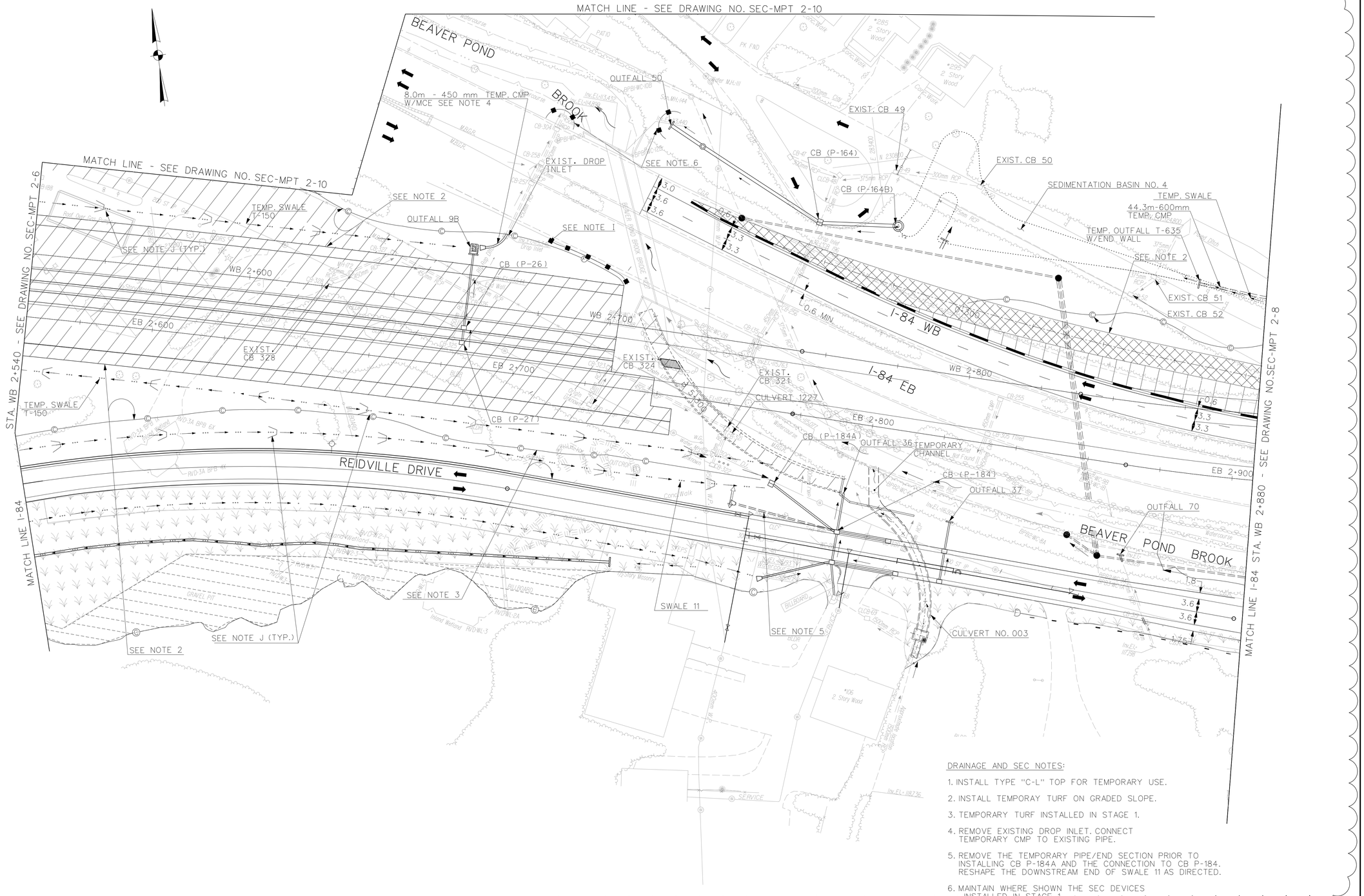
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-6
SHEET NO.:



DRAINAGE AND SEC NOTES:

1. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
2. INSTALL TEMPORAY TURF ON GRADED SLOPE.
3. TEMPORARY TURF INSTALLED IN STAGE 1.
4. REMOVE EXISTING DROP INLET. CONNECT TEMPORARY CMP TO EXISTING PIPE.
5. REMOVE THE TEMPORARY PIPE/END SECTION PRIOR TO INSTALLING CB P-184A AND THE CONNECTION TO CB P-184. RESHAPE THE DOWNSTREAM END OF SWALE 11 AS DIRECTED.
6. MAINTAIN WHERE SHOWN THE SEC DEVICES INSTALLED IN STAGE 1.

1

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REV.	DATE	DESCRIPTION	SHEET. NO.
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DESIGNER: H. MORETT
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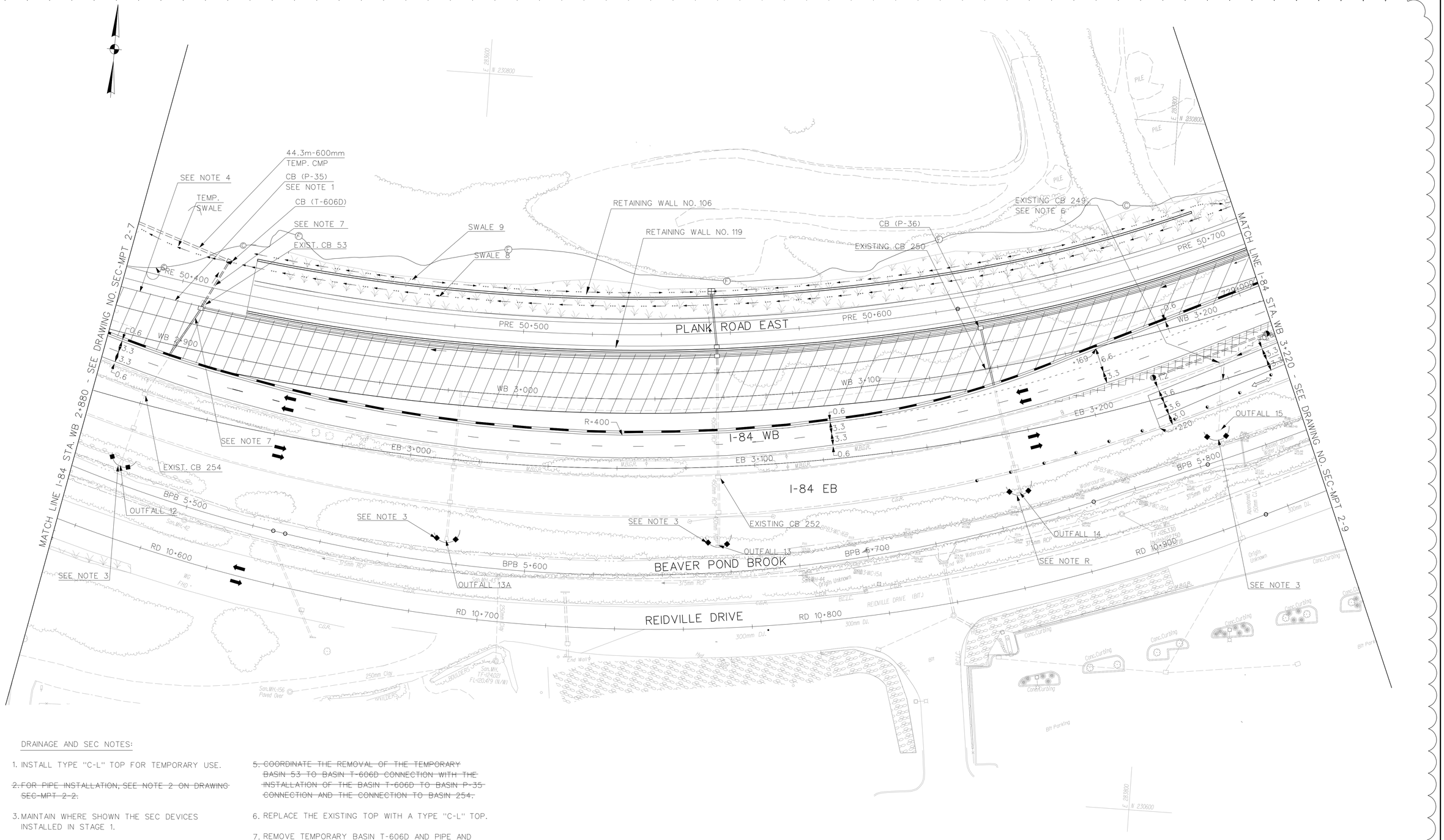
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-7
SHEET NO.:



DRAINAGE AND SEC NOTES:

1. INSTALL TYPE "C-L" TOP FOR TEMPORARY USE.
2. ~~FOR PIPE INSTALLATION, SEE NOTE 2 ON DRAWING SEC-MPT 2-2.~~
3. MAINTAIN WHERE SHOWN THE SEC DEVICES INSTALLED IN STAGE 1.
4. INSTALL TEMPORARY TURF ON GRADED SLOPE.
5. ~~COORDINATE THE REMOVAL OF THE TEMPORARY BASIN 53 TO BASIN T-606D CONNECTION WITH THE INSTALLATION OF THE BASIN T-606D TO BASIN P-35 CONNECTION AND THE CONNECTION TO BASIN 254.~~
6. REPLACE THE EXISTING TOP WITH A TYPE "C-L" TOP.
7. REMOVE TEMPORARY BASIN T-606D AND PIPE AND EXISTING CB 53 AND EXISTING PIPE.

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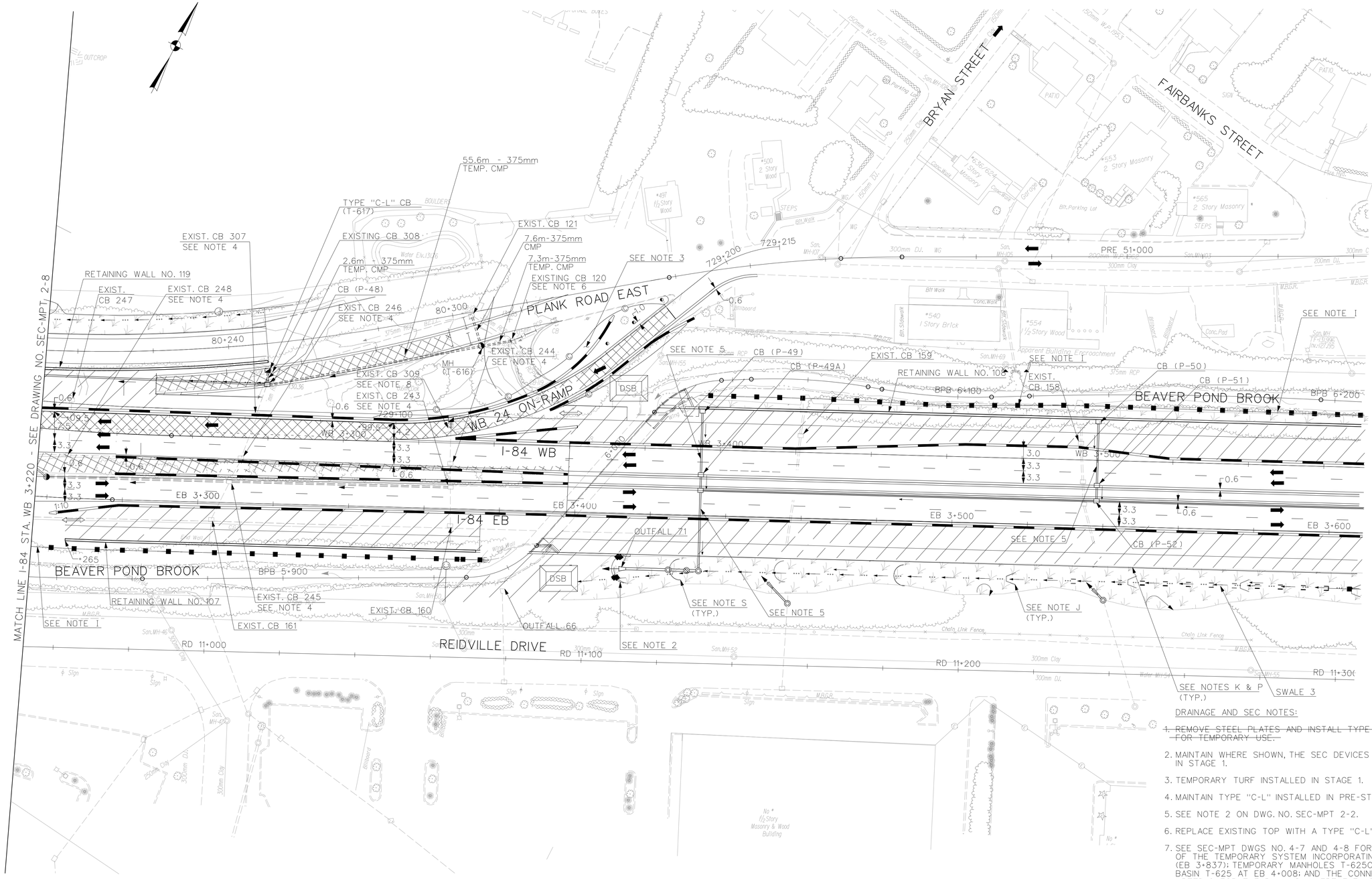
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-8
SHEET NO.:



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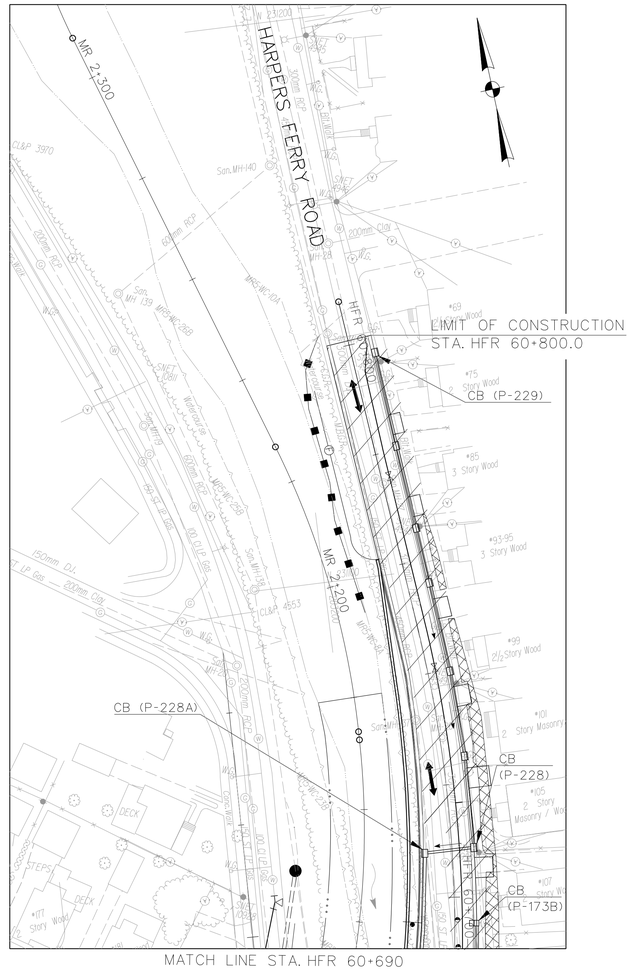
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-9
SHEET NO.:



NOTES:

1. MAINTAIN WHERE SHOWN THE SEC DEVICES INSTALLED IN STAGE 1.

1

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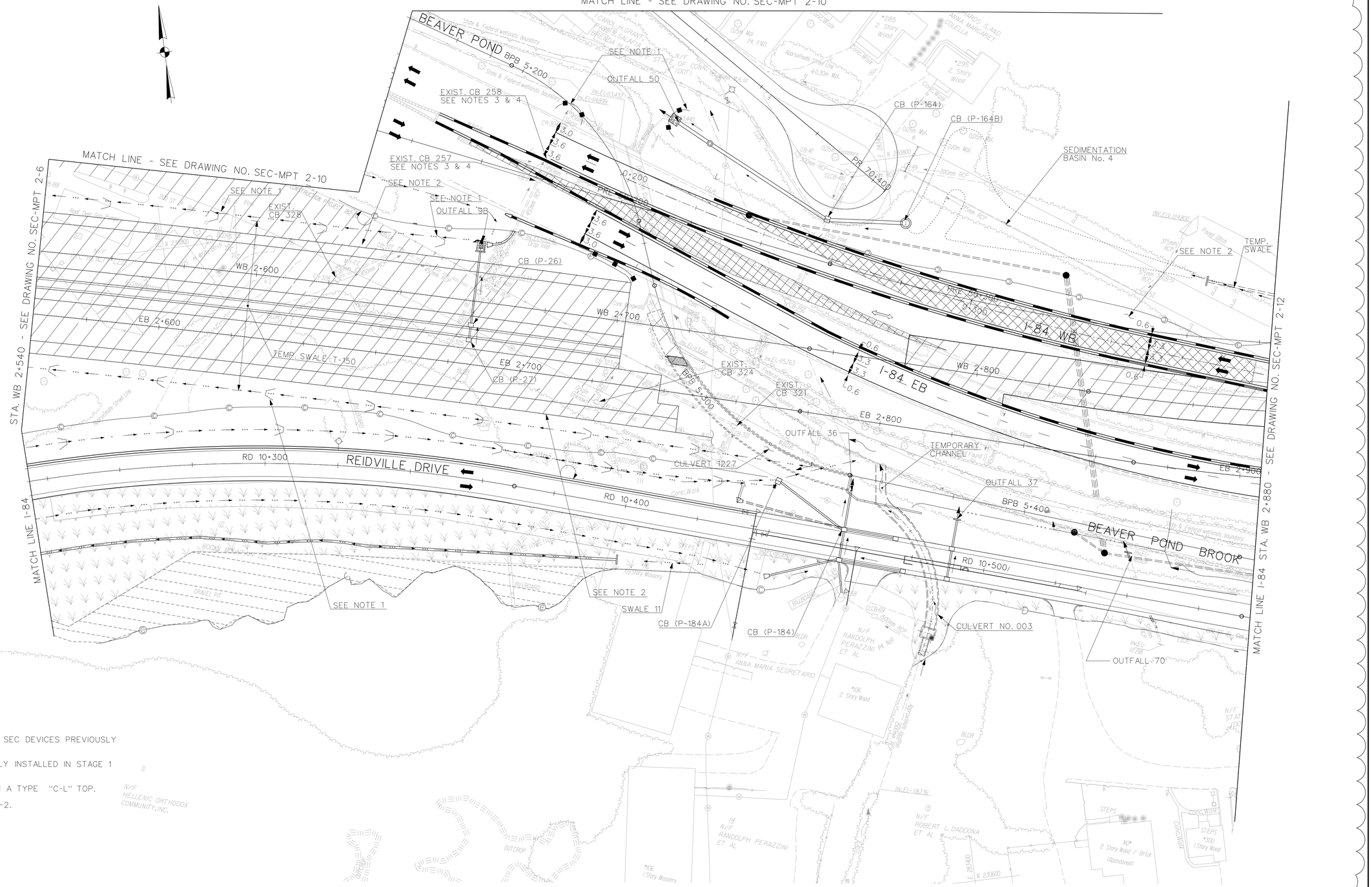
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION
CONTROL STAGE 2

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-10
SHEET NO.:



SEC NOTES:

1. MAINTAIN WHERE SHOWN THE SEC DEVICES PREVIOUSLY INSTALLED IN STAGE 1.
2. TEMPORARY TURF PREVIOUSLY INSTALLED IN STAGE 1 AND/OR STAGE 2.
3. REPLACE EXISTING TOP WITH A TYPE "C-L" TOP.
4. SEE NOTE 2 ON SEC-MPT 2-2.

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AMMANN & WHITNEY
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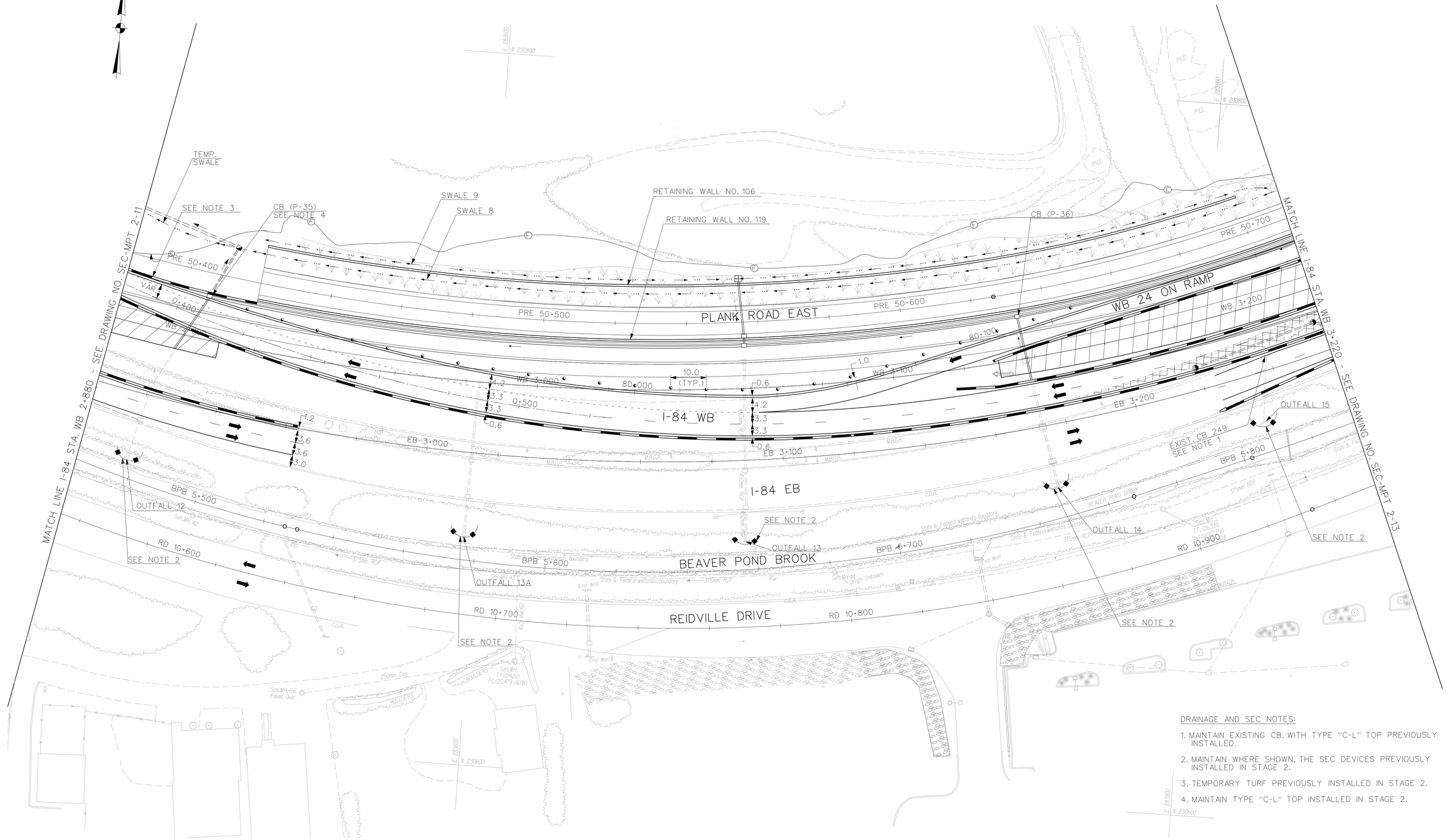
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2 AND 2A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-11
SHEET NO.:



DRAINAGE AND SEC NOTES:

1. MAINTAIN EXISTING CB. WITH TYPE "C-L" TOP PREVIOUSLY INSTALLED.
2. MAINTAIN WHERE SHOWN, THE SEC DEVICES PREVIOUSLY INSTALLED IN STAGE 2.
3. TEMPORARY TURF PREVIOUSLY INSTALLED IN STAGE 2.
4. MAINTAIN TYPE "C-L" TOP INSTALLED IN STAGE 2.

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DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

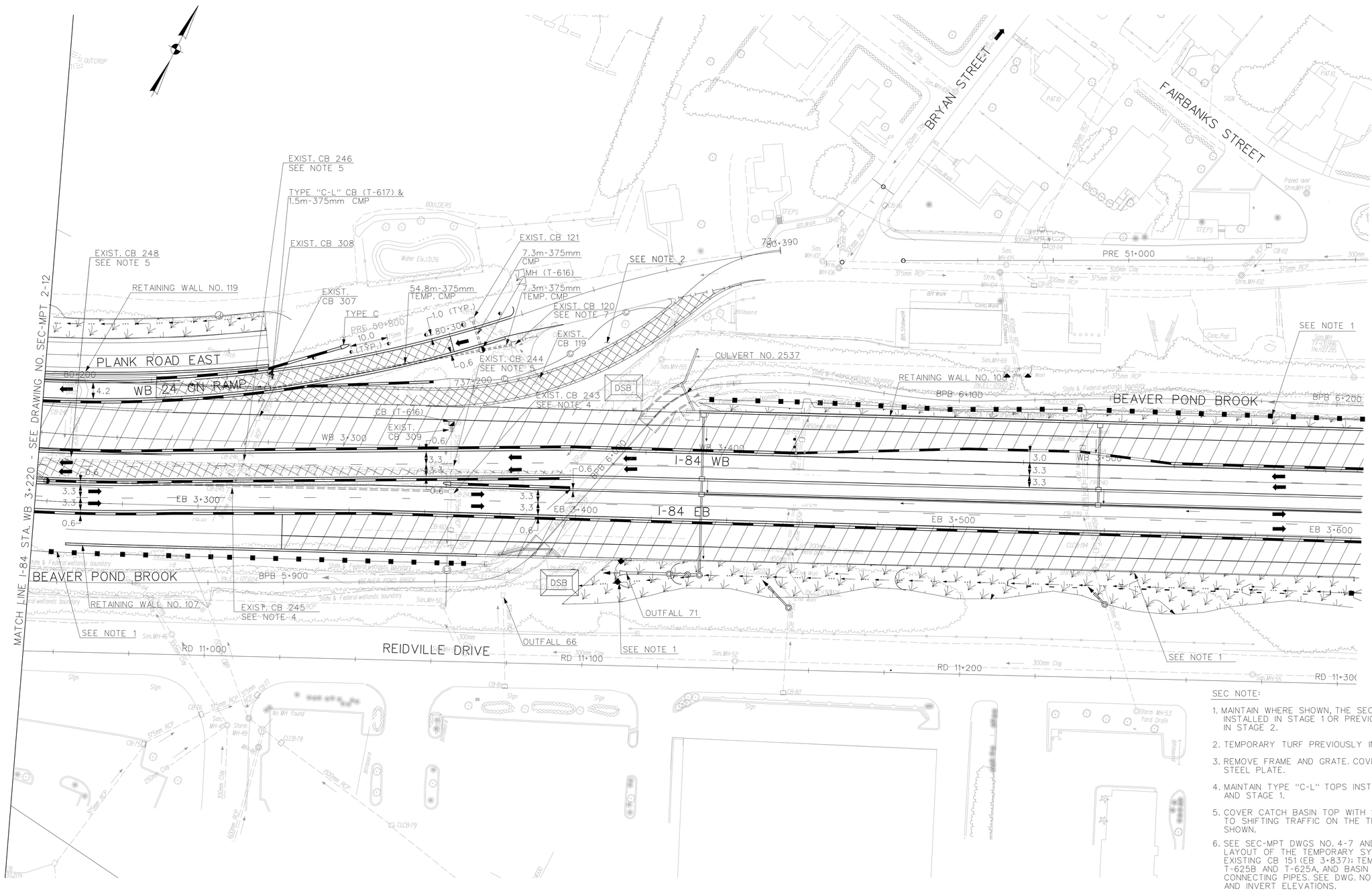
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-12
SHEET NO.:

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/7/14"



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/7/14	DRAINAGE SYSTEM MODIFICATION	

"DESIGN INITIATED CHANGE ORDER NO. 1 11/7/14"

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

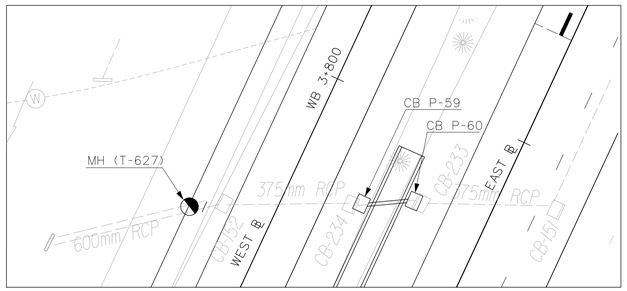
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

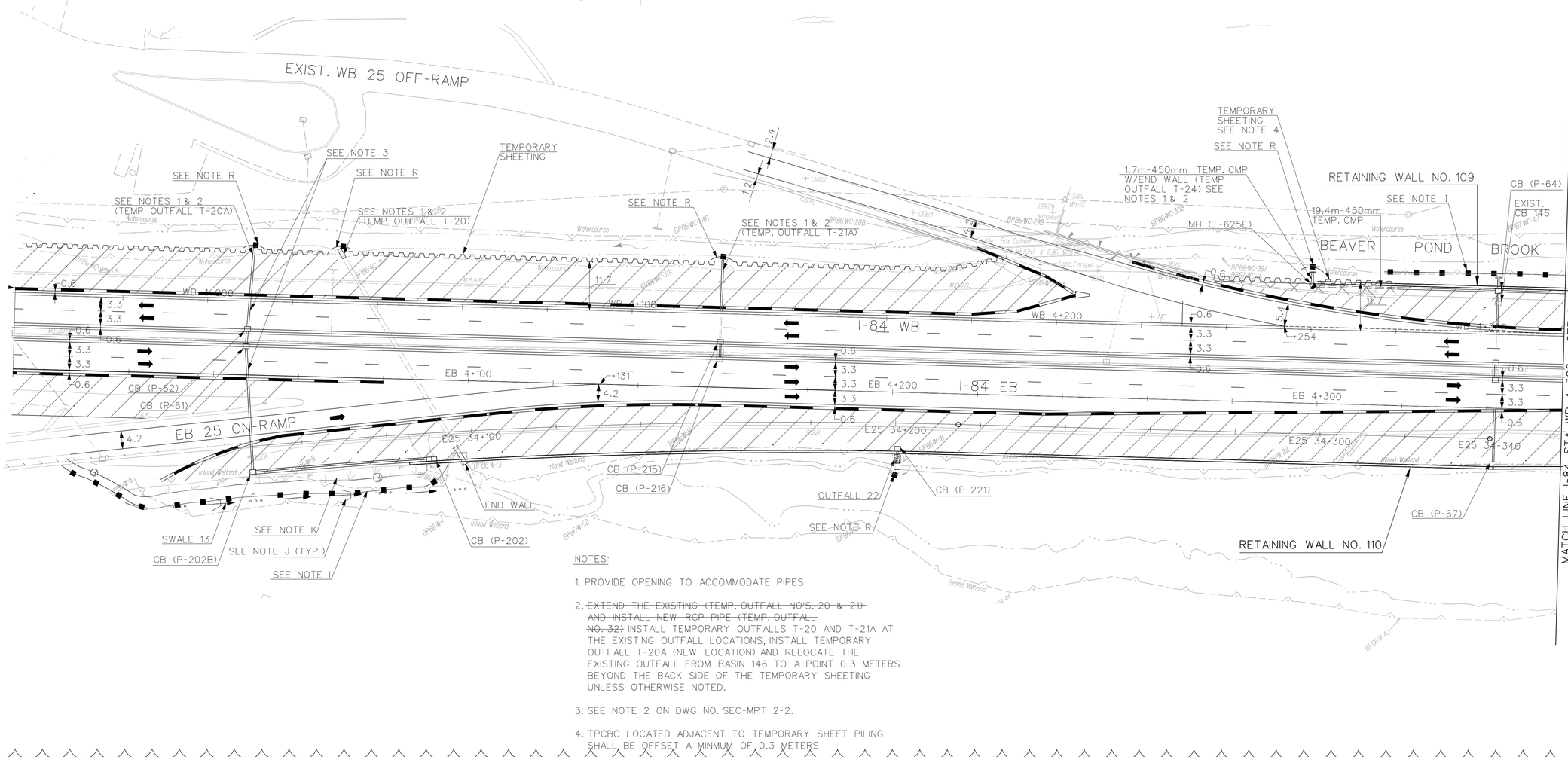
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-13
SHEET NO.:





NOTES:

1. PROVIDE OPENING TO ACCOMMODATE PIPES.
2. ~~EXTEND THE EXISTING (TEMP. OUTFALL NO'S. 20 & 21) AND INSTALL NEW RCP PIPE (TEMP. OUTFALL NO. 32)~~ INSTALL TEMPORARY OUTFALLS T-20 AND T-21A AT THE EXISTING OUTFALL LOCATIONS, INSTALL TEMPORARY OUTFALL T-20A (NEW LOCATION) AND RELOCATE THE EXISTING OUTFALL FROM BASIN 146 TO A POINT 0.3 METERS BEYOND THE BACK SIDE OF THE TEMPORARY SHEETING UNLESS OTHERWISE NOTED.
3. SEE NOTE 2 ON DWG. NO. SEC-MPT 2-2.
4. TPCBC LOCATED ADJACENT TO TEMPORARY SHEET PILING SHALL BE OFFSET A MINMUM OF 0.3 METERS

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"DESIGN INITIATED CHANGE ORDER NO. 1 11/10/14"

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SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: M. DION
DRAFTER: M. DION
CHECKED BY: C. LANPHEAR
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

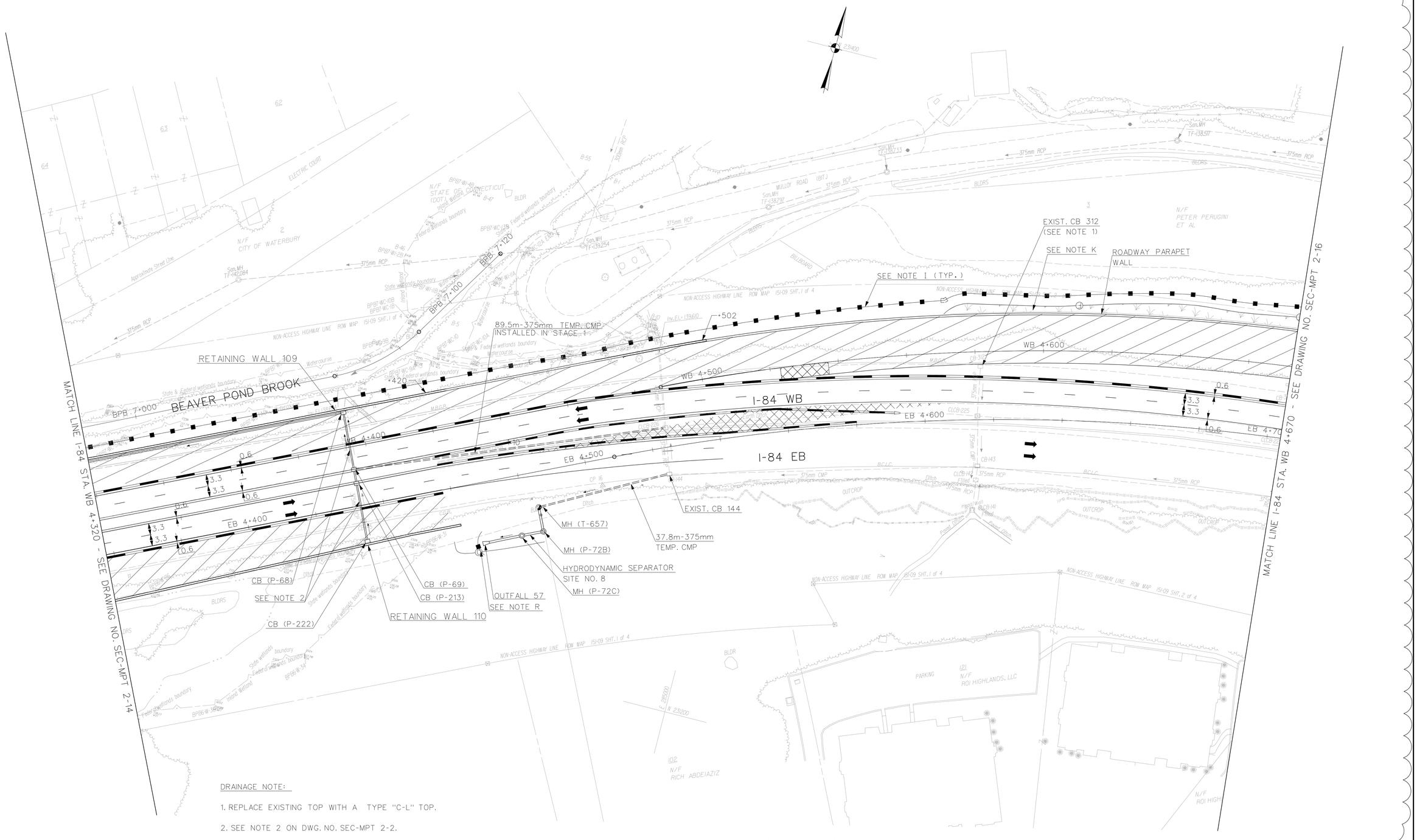
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION
CONTROL – STAGE 2 AND 2A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-14
SHEET NO.:



DRAINAGE NOTE:

1. REPLACE EXISTING TOP WITH A TYPE "C-L" TOP.
2. SEE NOTE 2 ON DWG. NO. SEC-MPT 2-2.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/10/14"

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0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. CHOW
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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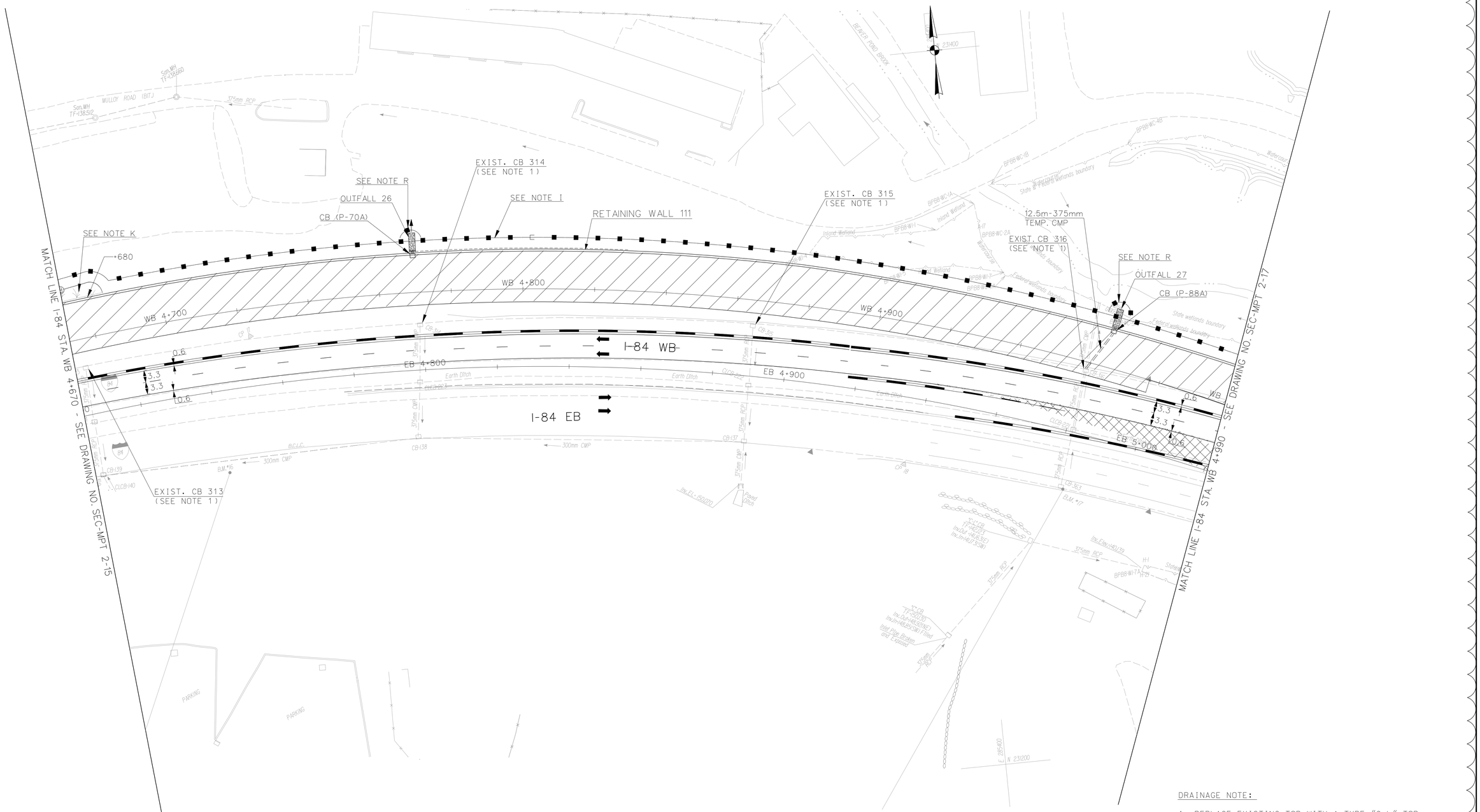
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2 AND 2A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-15
SHEET NO.:



DRAINAGE NOTE:

1. REPLACE EXISTING TOP WITH A TYPE "C-L" TOP.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/10/14"

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SCALE 1:500

DESIGNER: J. CHOW
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DATE CHECKED:

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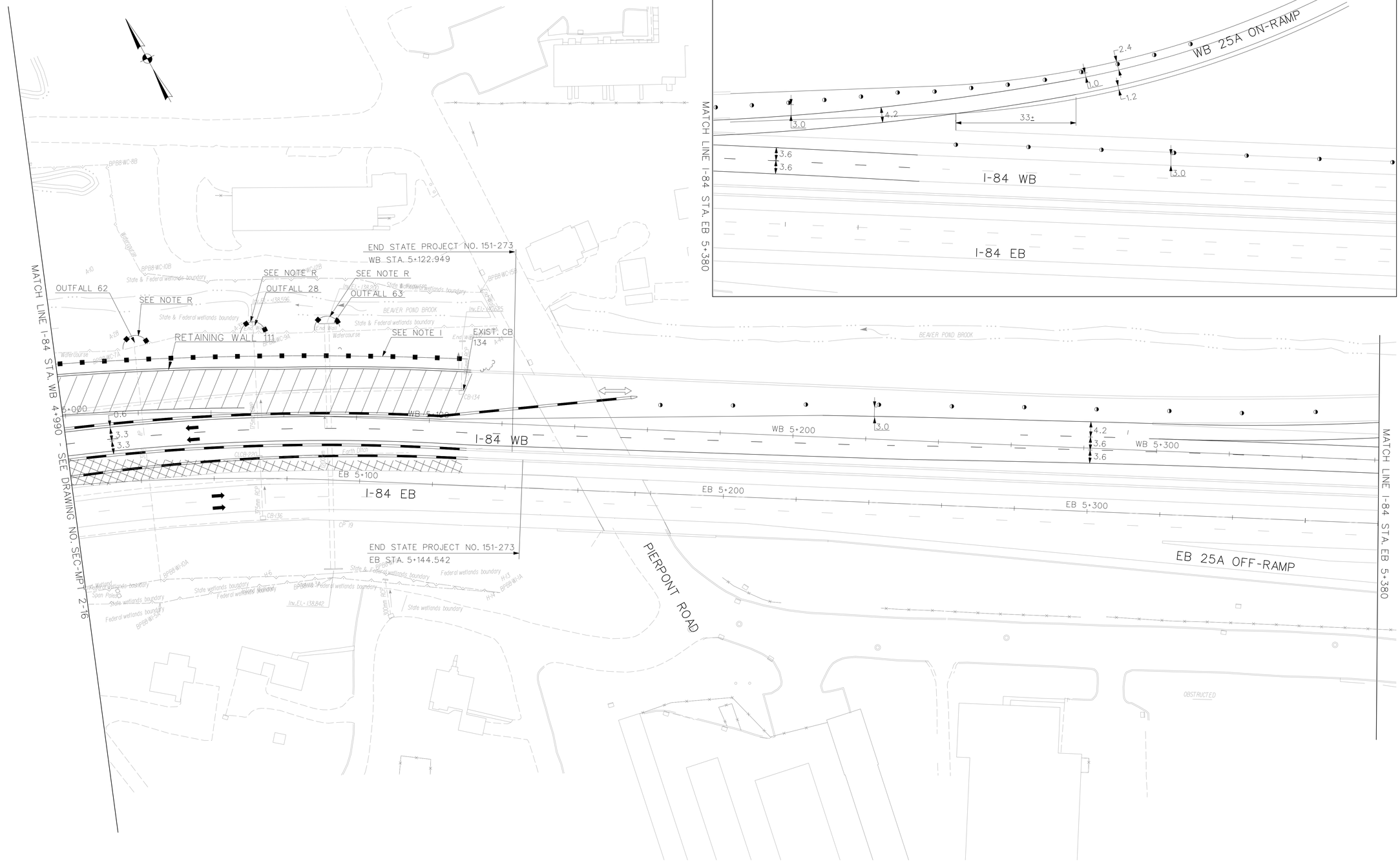
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 2A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-16
SHEET NO.:



1 11/10/14 DRAINAGE SYSTEM MODIFICATION

REV. DATE DESCRIPTION SHEET. NO.

REVISIONS

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J.CHOW
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE – 2A

PROJECT NO.: 151–273
DRAWING NO.: SEC–MPT2–17
SHEET NO.:

1 *DESIGN INITIATED CHANGE ORDER NO. 1 11/10/14*

DRAINAGE AND SEC NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES PREVIOUSLY INSTALLED IN STAGE 2.
2. ADJUST FRAME AND GRATE TO TEMPORARY PAVEMENT ELEVATION.
3. MAINTAIN TYPE "C-L" TOP INSTALLED IN STAGE 2A.
4. REPLACE MANHOLE T-657 WITH CB P-72A.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/10/14"

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DESIGNER: J. CHOW
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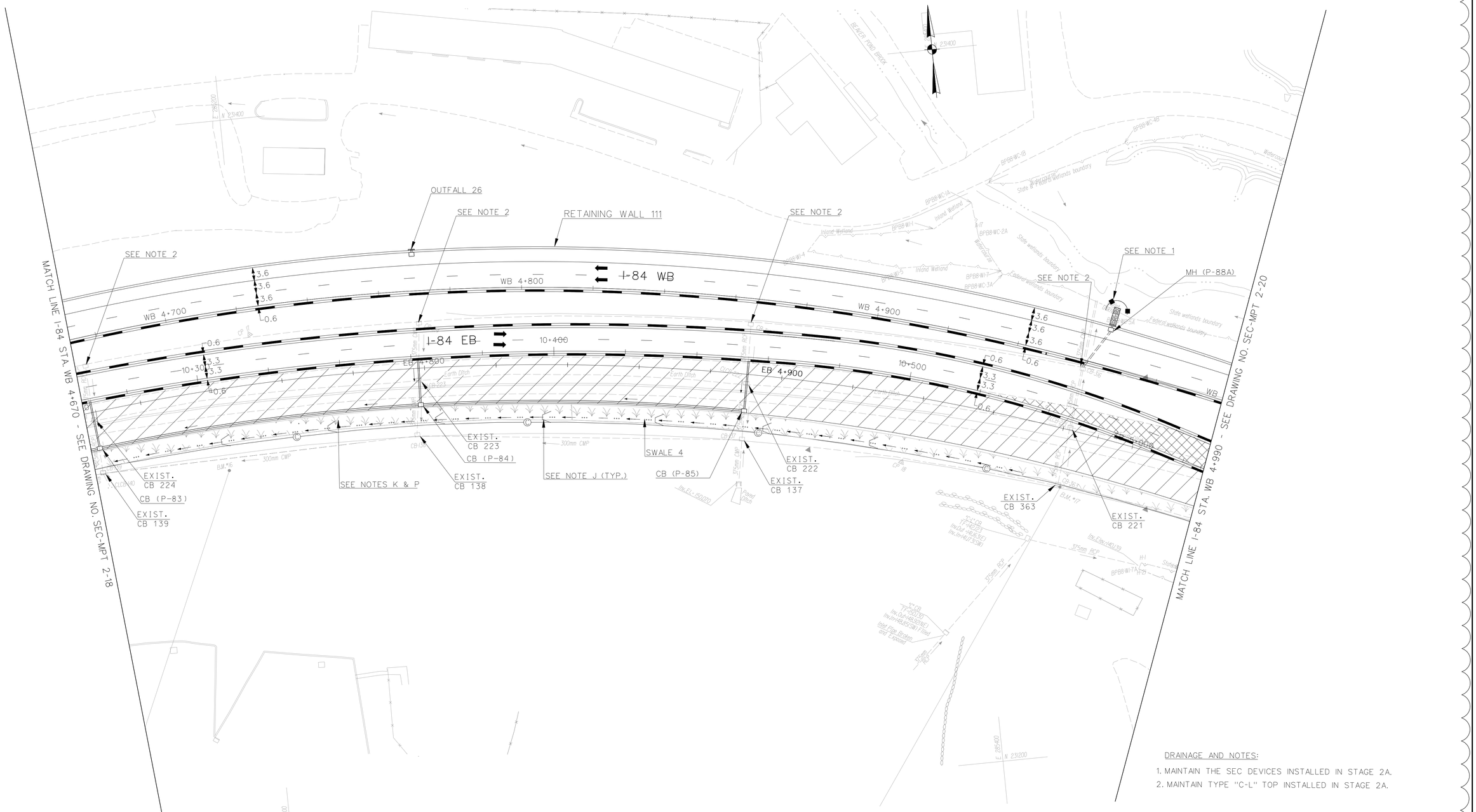
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE - 2B

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-18
SHEET NO.:



DRAINAGE AND NOTES:

1. MAINTAIN THE SEC DEVICES INSTALLED IN STAGE 2A.
2. MAINTAIN TYPE "C-L" TOP INSTALLED IN STAGE 2A.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 11/10/14

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SCALE 1:500

DESIGNER: J. CHOW
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
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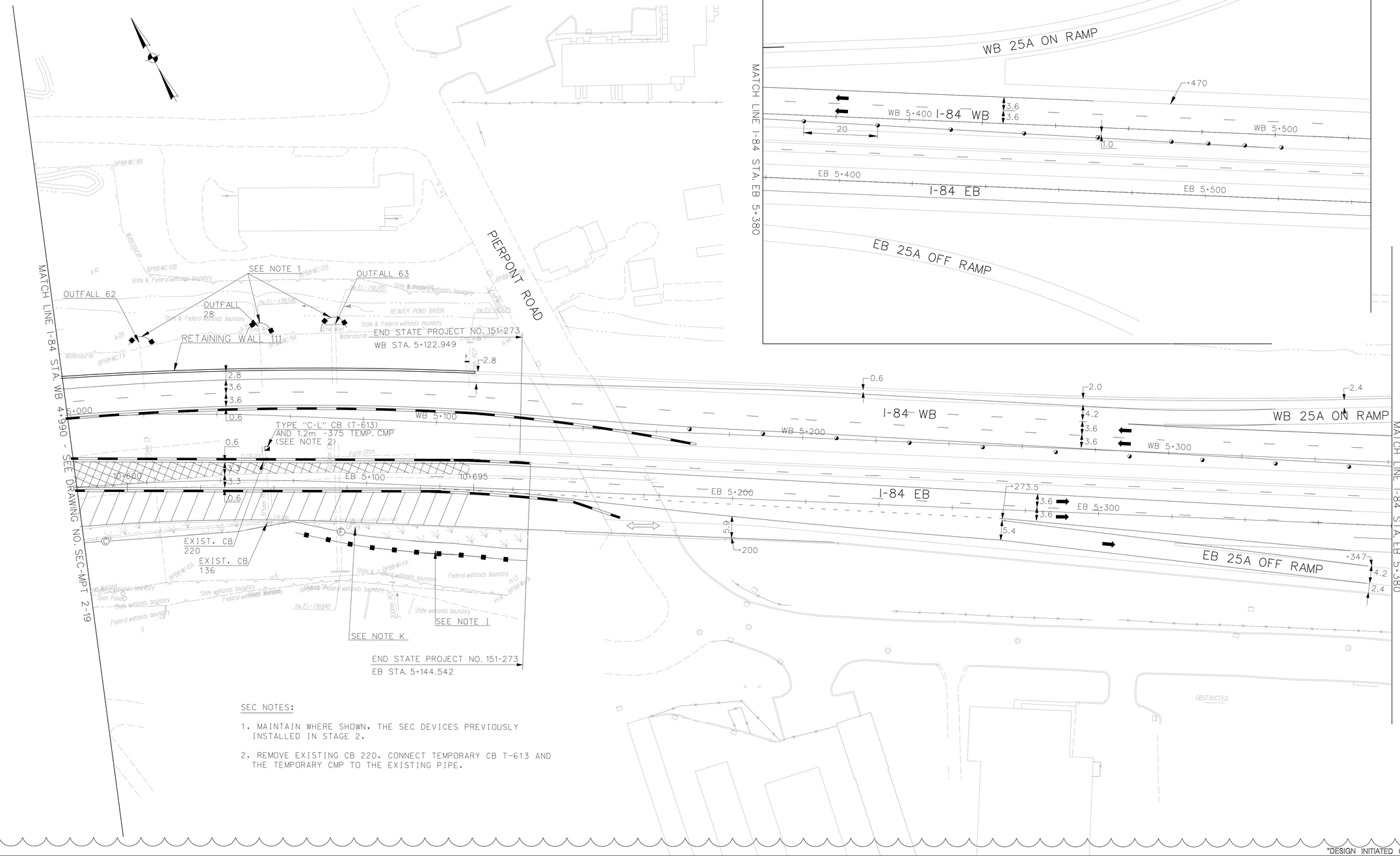
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE – 2B

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-19
SHEET NO.:



SEC NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES PREVIOUSLY INSTALLED IN STAGE 2.

2. REMOVE EXISTING CB 220. CONNECT TEMPORARY CB T-613 AND THE TEMPORARY CMP TO THE EXISTING PIPE.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/10/14

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DRAFTER: M. MOSLEY
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HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE – 2B

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 2-20
SHEET NO.:

GENERAL SEC NOTES:

A. FOR DETAILS AND TABLES OF SEDIMENTATION AND EROSION CONTROL DEVICES, SEE DWGS. ESD-1 - ESD-6 AND ESDT-1 AND ESDT-2.

B. CONSTRUCTION ENTRANCES, AS INDICATED ON THE SEC-MPT PLANS OR AS DIRECTED BY THE ENGINEER, SHALL BE INSTALLED AND MAINTAINED TO REDUCE THE TRACKING OF SEDIMENTS OFF-SITE, ONTO PAVED SURFACES.

C. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE WATER HANDLING PLANS FOR CONSTRUCTION OF BRIDGES, CULVERTS AND RETAINING WALLS

D. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE MAD RIVER RELOCATION WATER HANDLING PLANS.

E. REFER TO THE PLANTING PLAN INCLUDED IN THE MAD RIVER RELOCATION PLANS.

F. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE BEAVER POND BROOK RELOCATION WATER HANDLING PLANS.

G. REFER TO THE PLANTING PLAN INCLUDED IN THE BEAVER POND BROOK RELOCATION PLANS.

H. PAYMENT FOR TURF ESTABLISHMENT WITH EROSION CONTROL MATTING TYPE D SHALL BE MADE UNDER CONTRACT PAY ITEMS "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES", AS NOTED, AND "EROSION CONTROL MATTING TYPE D".

I. INSTALL SEDIMENTATION AND EROSION SYSTEM.

J. INSTALL CHECK DAM GEOTEXTILE FENCE.

K. INSTALL TURF ESTABLISHMENT.

L. INSTALL SEDIMENTATION AND EROSION CONTROL SYSTEM WITH WINGS.

M. INSTALL EROSION CONTROL MATTING (ECM) TYPE D WITH TURF ESTABLISHMENT.

N. INSTALL CONSERVATION SEEDING FOR SLOPES.

O. INSTALL ECM TYPE D WITH CONSERVATION SEEDING FOR SLOPES.

P. TREATMENT SHOWN AT SWALE LOCATIONS IS FOR THE SIDE SLOPES. SEE NOTE T AND DWG. NO. ~~DD-7~~ DD-8 FOR SPECIFIC TREATMENT WITHIN SWALES.

Q. INSTALL GEOTEXTILE FENCING AROUND CATCH BASINS.

R. INSTALL SEDIMENTATION AND EROSION CONTROL GEOTEXTILE FENCE.

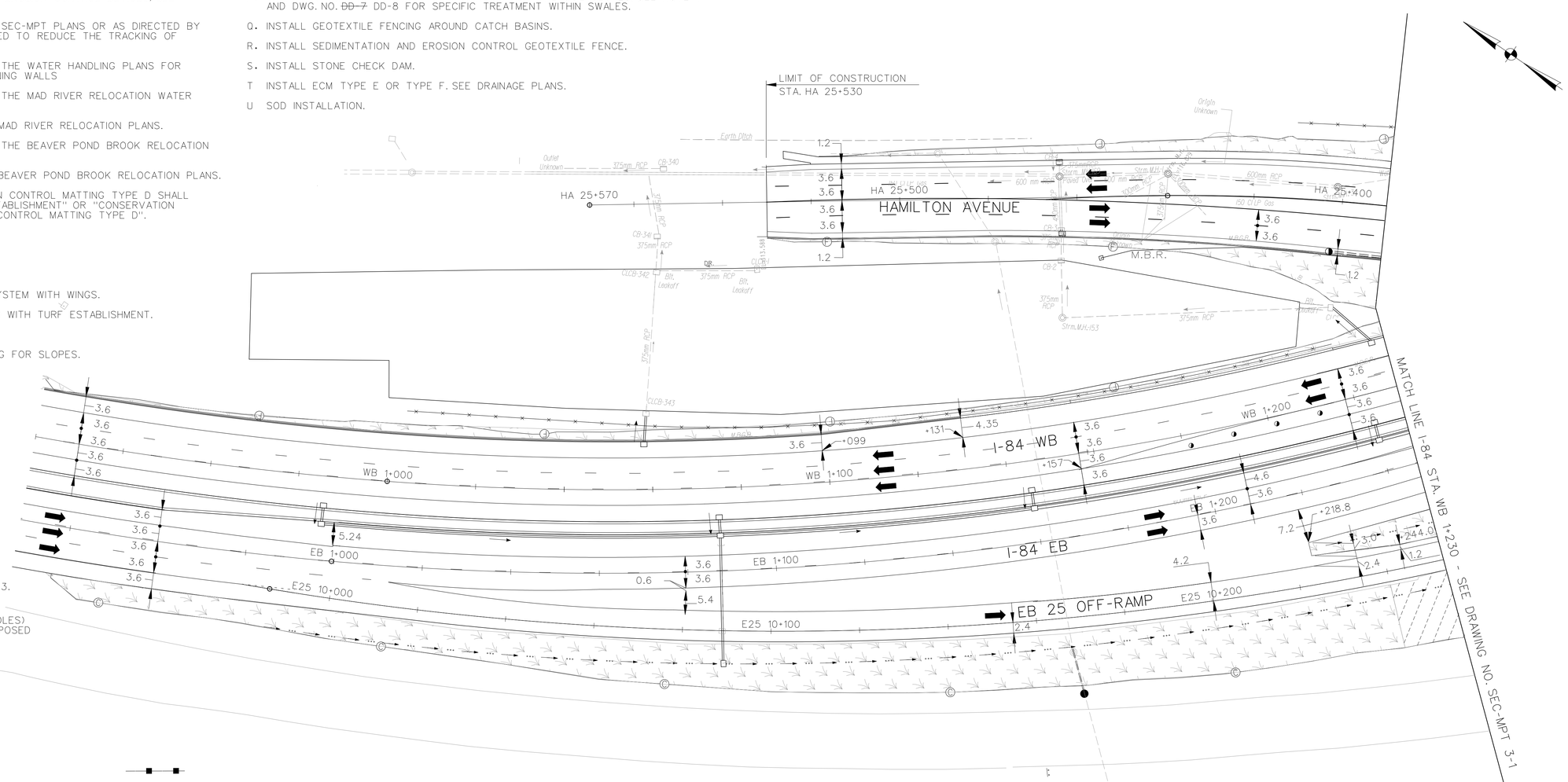
S. INSTALL STONE CHECK DAM.

T INSTALL ECM TYPE E OR TYPE F. SEE DRAINAGE PLANS.

U SOD INSTALLATION.

GENERAL NOTES:

1. SEE DRAINAGE GENERAL NOTES ON DWG. SEC-MPT 3-3.
2. SEE MPT PLANS FOR MPT DETAILS.
3. EXISTING DRAINAGE STRUCTURES (BASINS AND MANHOLES) ARE IDENTIFIED BY A NUMBER. TEMPORARY AND PROPOSED DRAINAGE STRUCTURES ARE DESIGNATED "T" OR "P" RESPECTIVELY.



SEC LEGEND:

SEDIMENTATION CONTROL SYSTEM

CHECK DAM, GEOTEXTILE FENCE

STONE CHECK DAM

CATCH BASIN ENCIRCLED BY GEOTEXTILE FENCE

DEWATERING SETTLING BASIN — DSB

TEMPORARY SEDIMENT TRAP — TST

REQUIRED VOLUME

SODDING

EROSION CONTROL MATTING (ECM) TYPE D WITH "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES" (SEE NOTE P)

TURF ESTABLISHMENT (SEE NOTE P)

DRAINAGE LEGEND:

EXISTING DRAINAGE IN OPERATION THIS STAGE

PROPOSED DRAINAGE UNDER CONSTRUCTION OR CONSTRUCTED IN PREVIOUS STAGE

TEMPORARY DRAINAGE

MPT LEGEND:

CONSTRUCTION THIS STAGE

TEMPORARY PAVEMENT

TEMPORARY PRECAST CONCRETE BARRIER CURB (TPCBC) WITH DE-7 AND DE-7A DELINEATORS

TEMPORARY IMPACT ATTENUATION SYSTEM

ACTIVE TRAFFIC LANE

TWO WAY TRAFFIC ON ONE LANE CONTROLLED BY TRAFFIC PERSON

TRAFFIC DRUMS

TRAFFIC BARRICADE

WORK ZONE ACCESS LOCATION

1

"DESIGN INITIATED CHANGE ORDER NO. 1 11/4/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
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SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORRETT
DRAFTER: J. PHINIZY
CHECKED BY: G. STARCKEY
DATE CHECKED:

H. MORRETT
J. PHINIZY
G. STARCKEY
STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

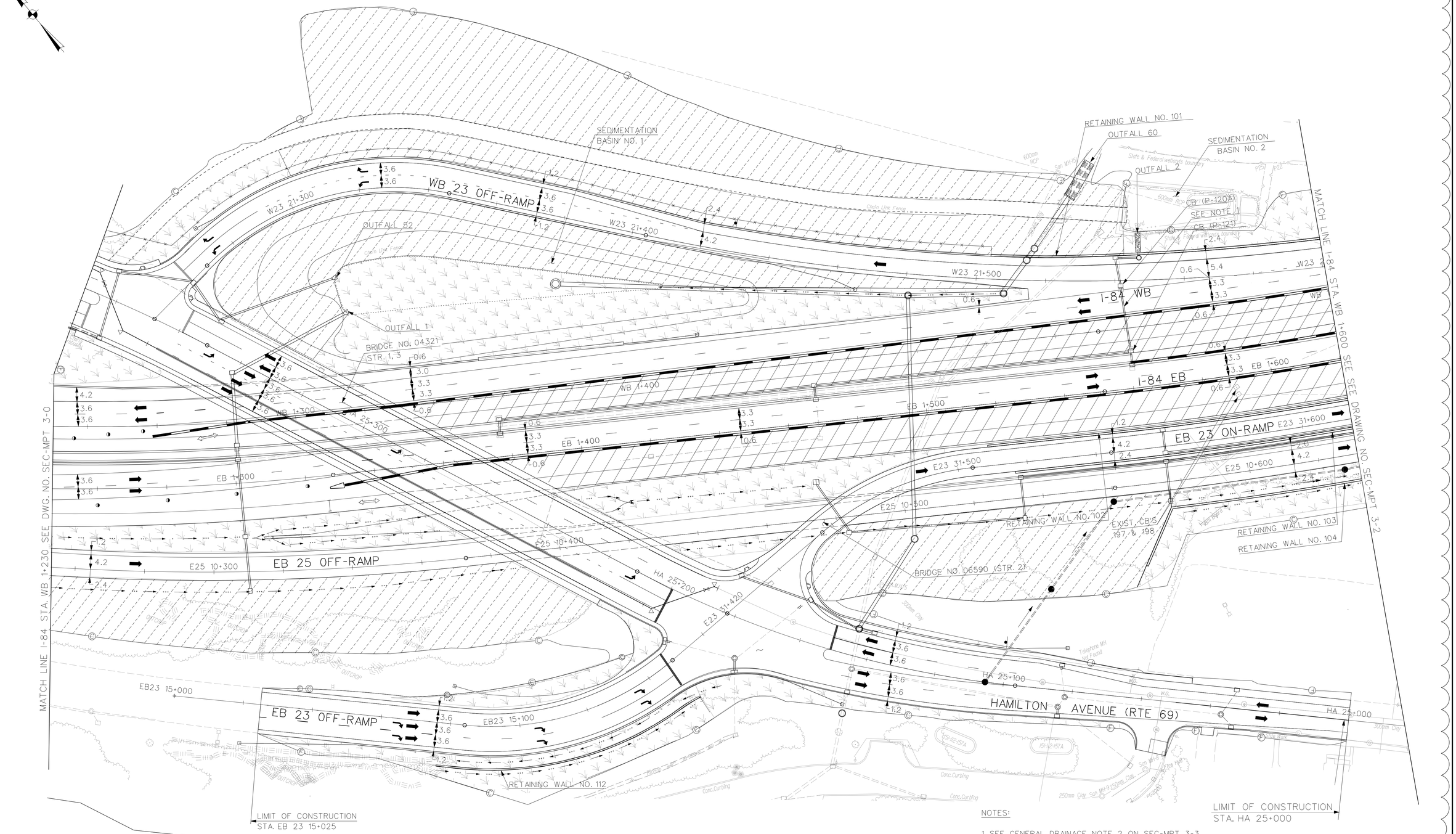
TOWN: WATERBURY

DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 3

PROJECT NO.: 151-273

DRAWING NO.: SEC-MPT 3-0

SHEET NO.:



NOTES:

1. SEE GENERAL DRAINAGE NOTE 2 ON SEC-MPT 3-3.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/4/14"

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SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE-3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-1
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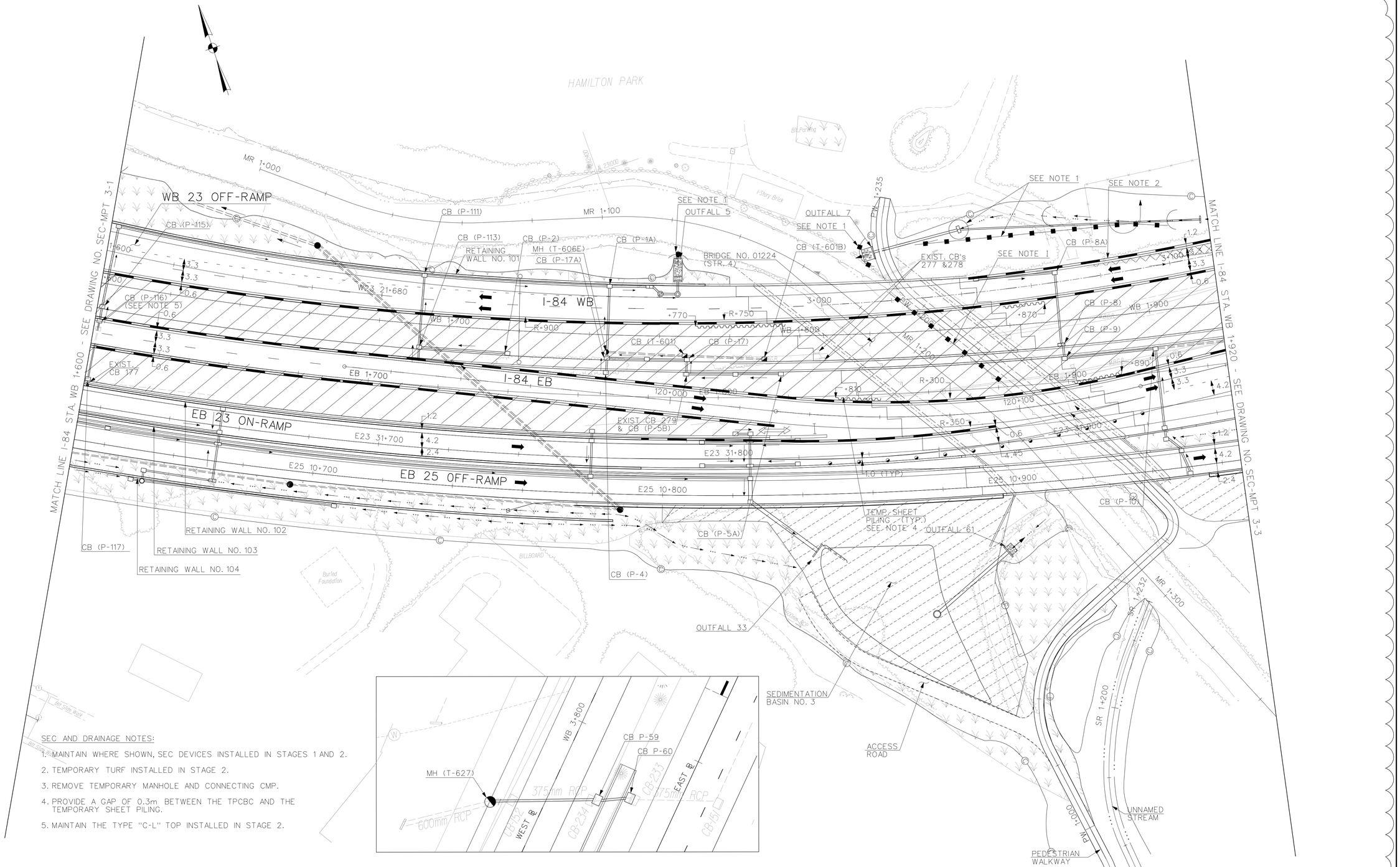

SEC AND DRAINAGE NOTES:

1. MAINTAIN WHERE SHOWN, SEC DEVICES INSTALLED IN STAGES 1 AND 2.
2. TEMPORARY TURF INSTALLED IN STAGE 2.
3. REMOVE TEMPORARY MANHOLE AND CONNECTING CMP.
4. PROVIDE A GAP OF 0.3m BETWEEN THE TPCBC AND THE TEMPORARY SHEET PILING.
5. MAINTAIN THE TYPE "C-L" TOP INSTALLED IN STAGE 2.

1

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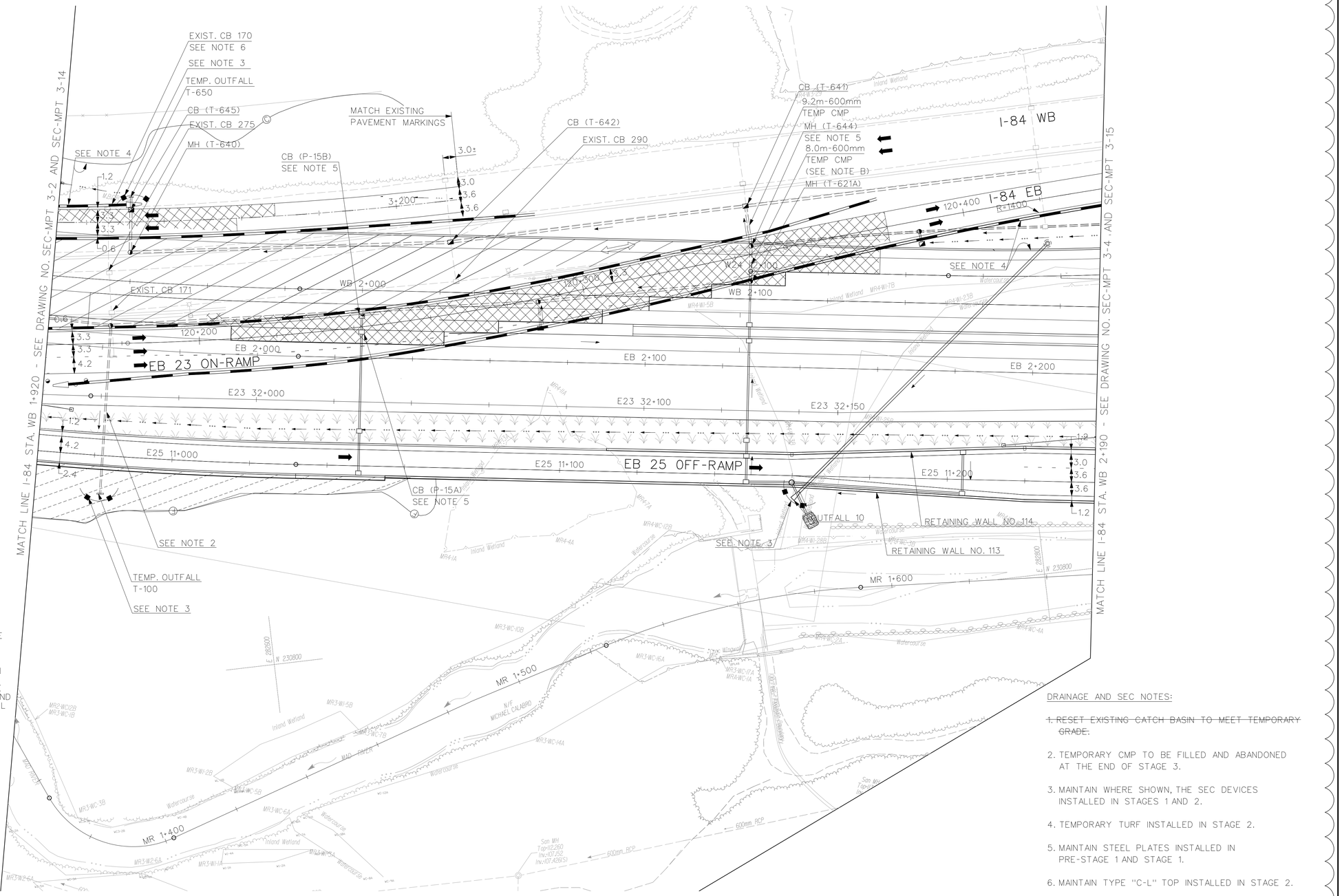
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE -3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-2
SHEET NO.:



GENERAL DRAINAGE NOTES:

A. THE CONTRACTOR SHALL MAINTAIN DRAINAGE ON ALL ACTIVE TRAVEL WAYS AT ALL TIMES. EXISTING STORM DRAINAGE SYSTEMS IN EXISTING ROADWAYS SHALL REMAIN OPERATIONAL UNTIL NEW DRAINAGE SYSTEMS ARE INSTALLED OR UNTIL TRAFFIC IS REMOVED FROM THE ROADWAYS. DRAINAGE SYSTEMS SHALL BE MAINTAINED BY INSTALLING TEMPORARY CATCH BASINS, MANHOLES, SWALES, SLOTTED DRAINS AND PIPES WHERE NECESSARY. ALL TEMPORARY CATCH BASINS, MANHOLES AND STORM SEWER PIPES SHALL BE DISPOSED OF AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER. OTHERWISE, THEY SHALL BE REMOVED OR ABANDONED WHEN NO LONGER NECESSARY.

B. THE INSTALLATION OF DRAINAGE, SANITARY SEWERS OR WATER MAIN STRUCTURES (PERMANENT OR TEMPORARY) ACROSS OR ADJACENT TO ACTIVE TRAVEL LANES SHALL BE DONE DURING THE ALLOWABLE PERIODS OF LANE CLOSURES. THE TRENCH SHALL BE BACKFILLED AND PAVED OVER WITH TEMPORARY PAVEMENT OR COVERED WITH STEEL PLATES AS ORDERED BE ENGINEER TO ALLOW THE LANE(S) TO REOPEN TO TRAFFIC.

C. TEMPORARY CATCH BASINS AND MANHOLES ARE SHOWN WITH "T" SERIES DESIGNATIONS. "P" SERIES ARE PERMANENT STRUCTURES. FOR RIM AND INVERT ELEVATIONS SEE DWG. MPT D-1

D. ALL TEMPORARY MANHOLES OR CATCH BASINS SHALL BE PROVIDED WITH HEAVY DUTY TOPS AND FRAMES.

E. THE CONTRACTOR SHALL INSTALL PERMANENT AND TEMPORARY DRAINAGE DURING CONSTRUCTION STAGING SHOWN, OR AS DIRECTED BY THE ENGINEER. ANY REQUIRED ADJUSTMENT FOR THE FINAL CONDITION OF THESE STRUCTURES WILL NOT BE MEASURED FOR PAYMENT.

F. THE CONVERSION OF CATCH BASINS FOR STAGING PURPOSES, WHETHER THE CATCH BASIN IS EXISTING OR PROPOSED, SHALL BE PAID FOR UNDER THE ITEM "CONVERT CATCH BASIN TO TYPE 'C-L' CATCH BASIN.'

DRAINAGE AND SEC NOTES:

1. ~~RESET EXISTING CATCH BASIN TO MEET TEMPORARY GRADE.~~
2. TEMPORARY CMP TO BE FILLED AND ABANDONED AT THE END OF STAGE 3.
3. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGES 1 AND 2.
4. TEMPORARY TURF INSTALLED IN STAGE 2.
5. MAINTAIN STEEL PLATES INSTALLED IN PRE-STAGE 1 AND STAGE 1.
6. MAINTAIN TYPE "C-L" TOP INSTALLED IN STAGE 2.

1

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DESIGNER: H. MORETT
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DATE CHECKED: 10/06
CADD $FILEABREV$ | PLOTTED $DATE$

STATE OF CONNECTICUT
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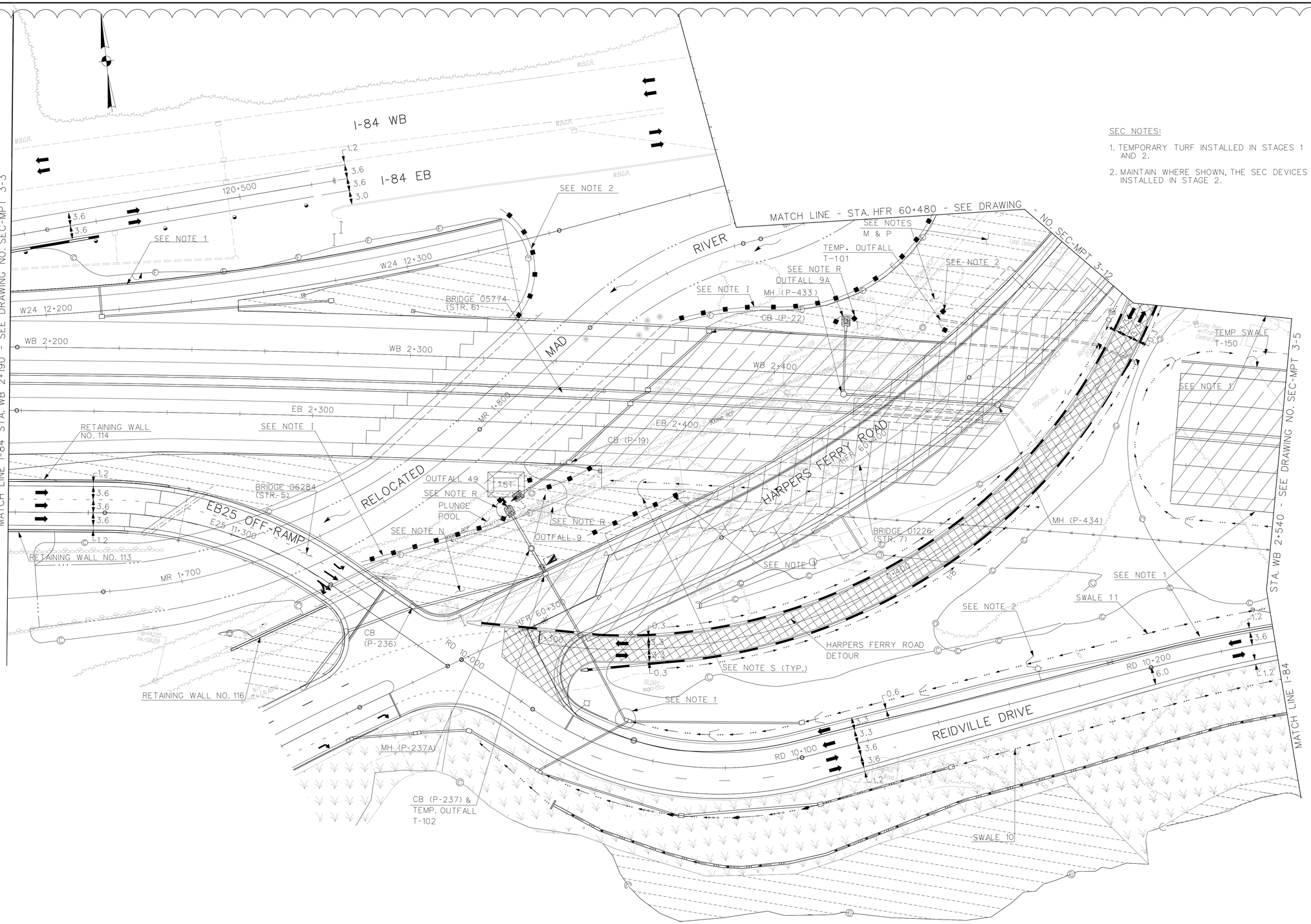
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE-3 AND 3A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-3
SHEET NO.:



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CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE-3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-4
SHEET NO.:

DRAINAGE AND SEC NOTES:

1. MAINTAIN TYPE "C-L" TOP INSTALLED IN STAGE 2.
3. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN PREVIOUS STAGE .
4. TEMPORARY TURF INSTALLED IN STAGES 1 AND 2.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/4/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/4/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

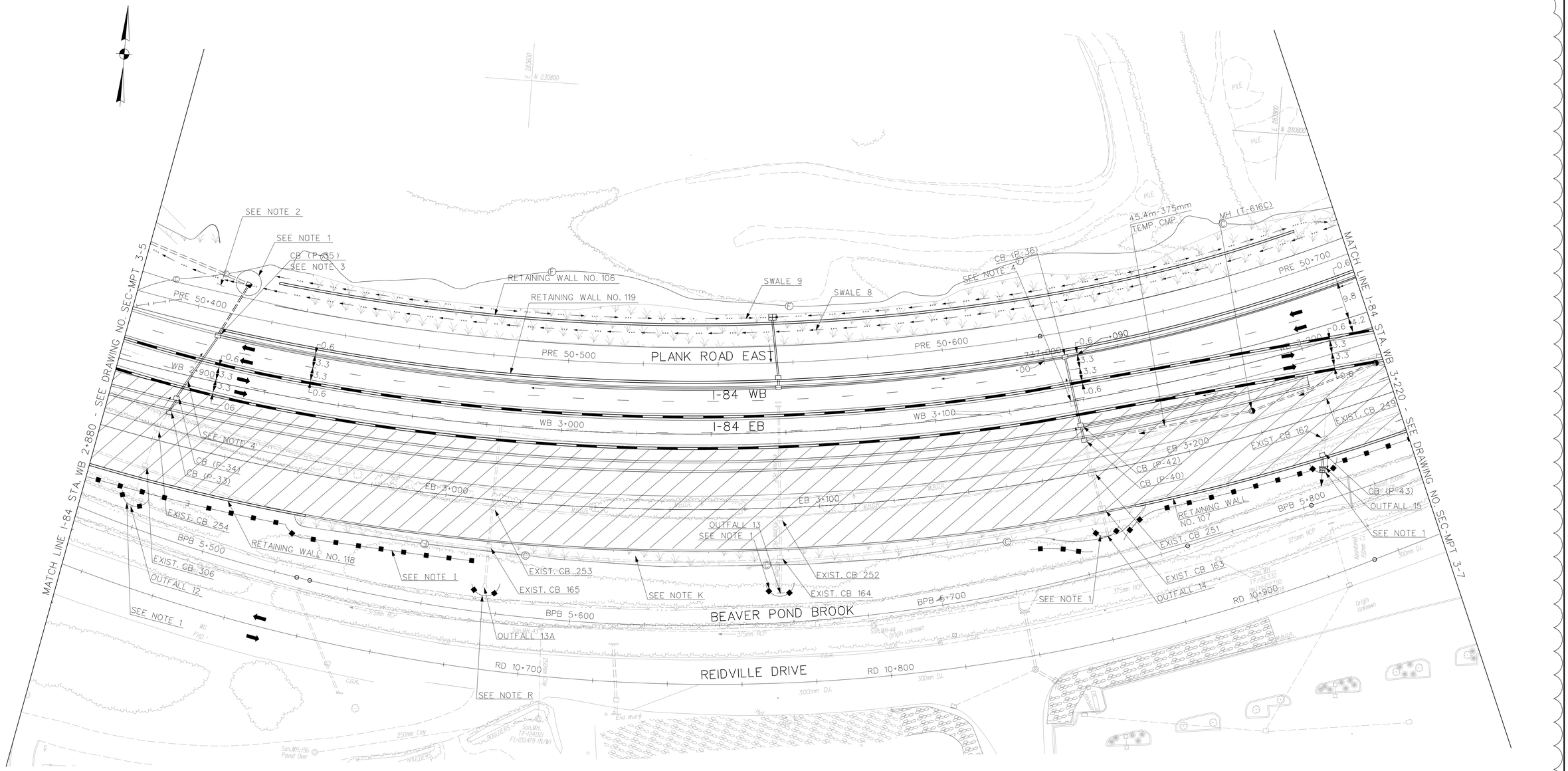
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION
CONTROL STAGE-3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-5
SHEET NO.:



SEC AND DRAINAGE NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICE INSTALLED IN STAGES 1 AND 2.
2. TEMPORARY TURF INSTALLED IN STAGE 2.
3. MAINTAIN TYPE "C-L" TOP INSTALLED IN STAGE 2.
4. SEE GENERAL DRAINAGE NOTE B ON SEC-MPT 3-3.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

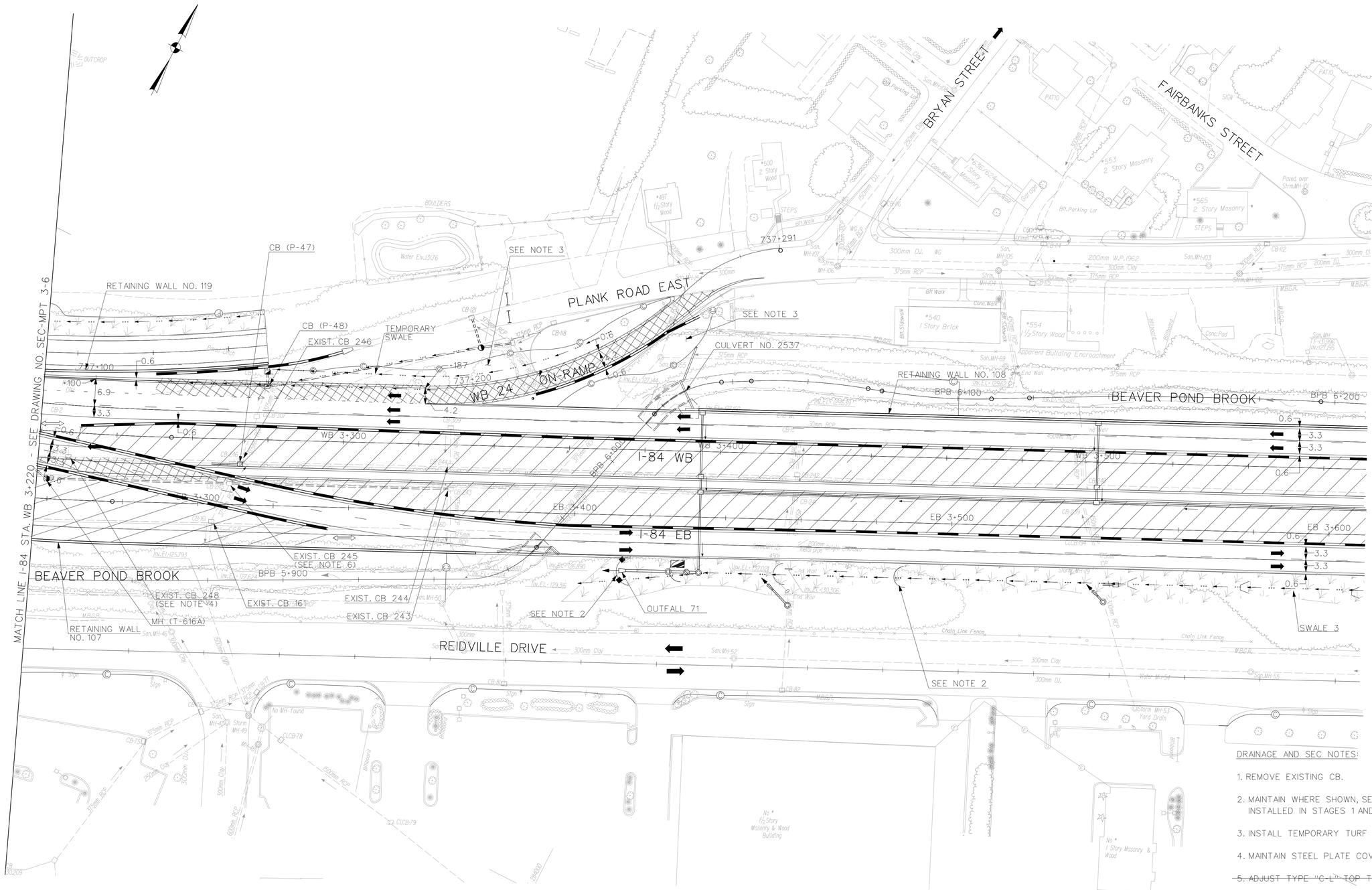
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-6
SHEET NO.:



1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

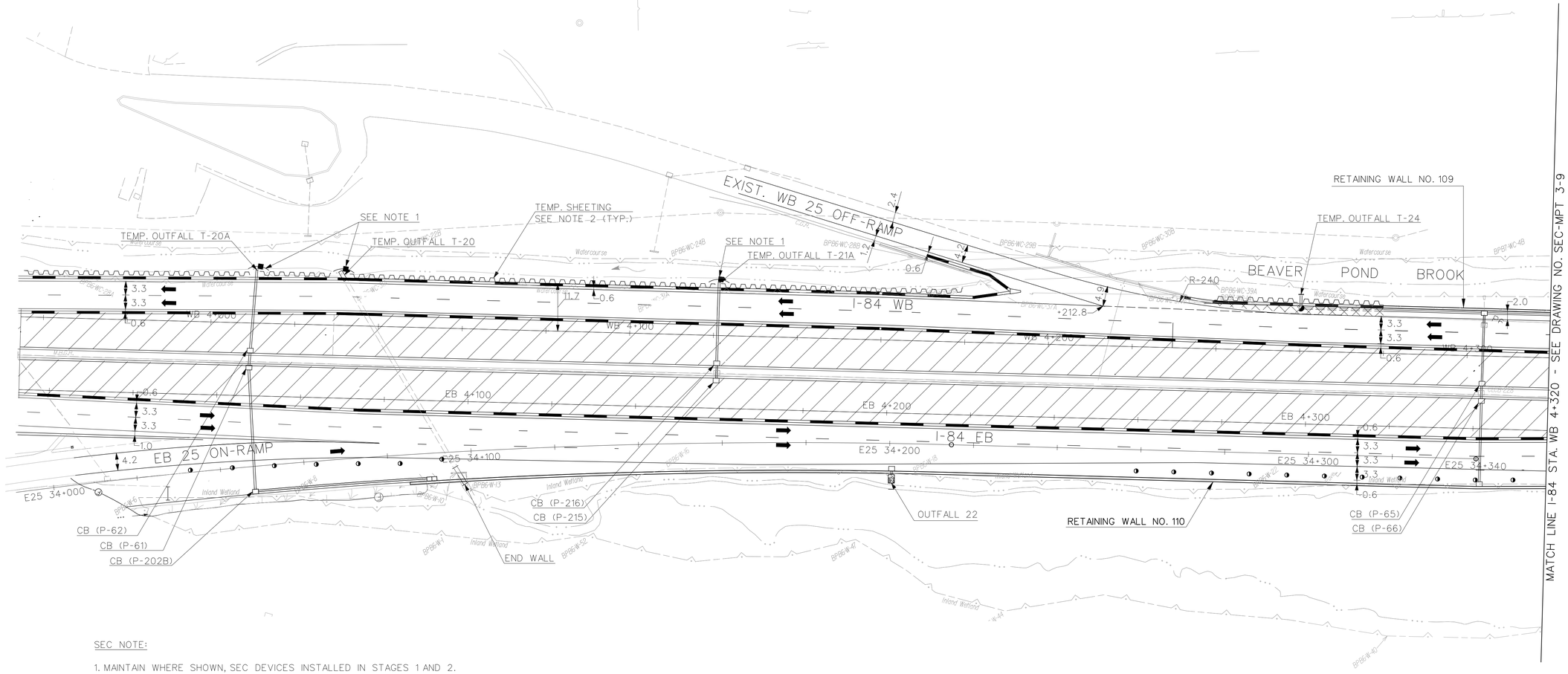
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-7
SHEET NO.:



SEC NOTE:

1. MAINTAIN WHERE SHOWN, SEC DEVICES INSTALLED IN STAGES 1 AND 2.

2. PROVIDE A GAP OF 0.3 m BETWEEN TPCBC AND THE TEMPORARY SHEET PILING.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

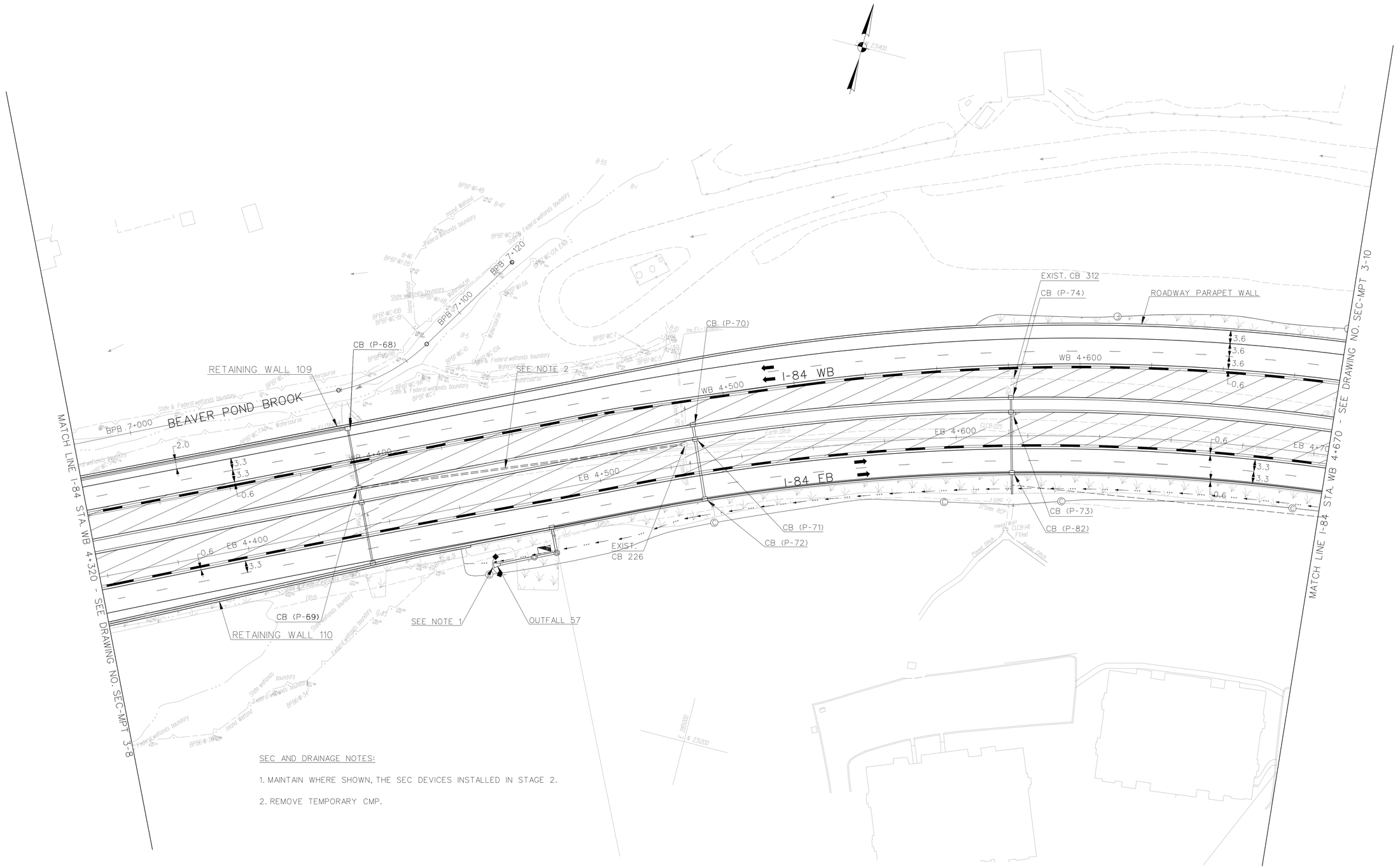
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-8
SHEET NO.:



SEC AND DRAINAGE NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 2.

2. REMOVE TEMPORARY CMP.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. CHOW
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE – 3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-9
SHEET NO.:

SEC NOTE:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 2.
2. ABANDON AND FILL TEMPORARY CMP.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET NO.
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. CHOW
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

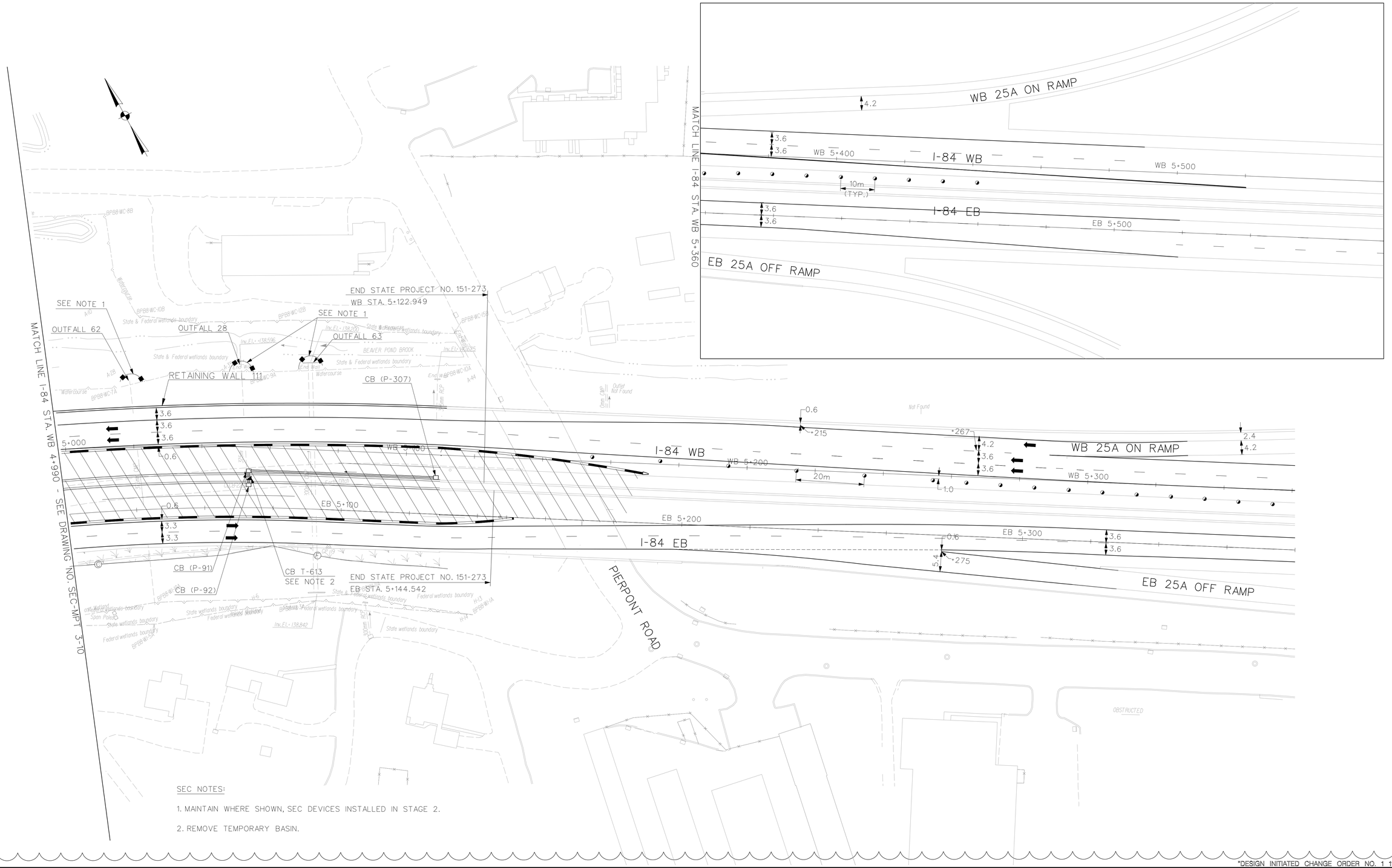
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-10
SHEET NO.:



"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J.CHOW
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

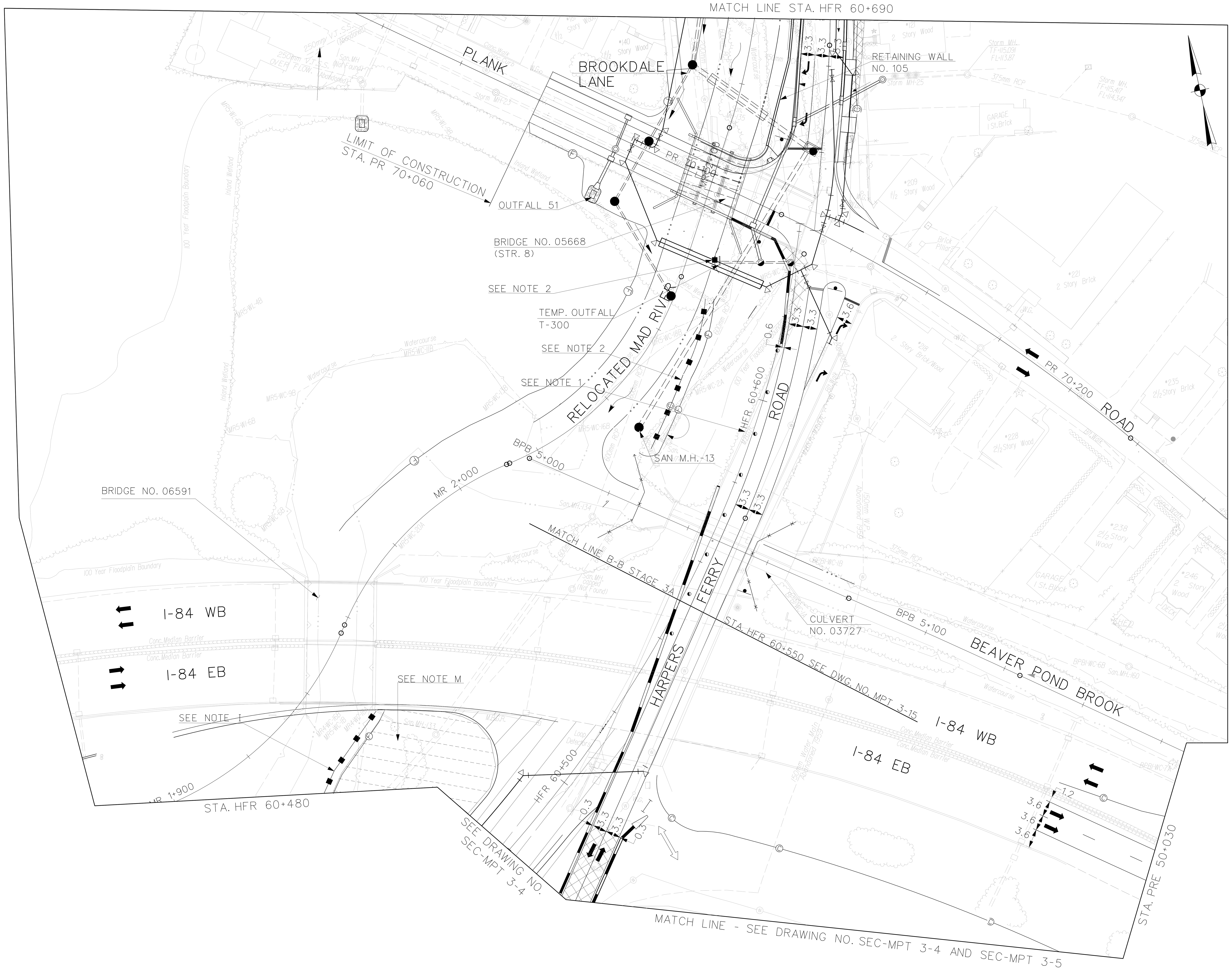
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

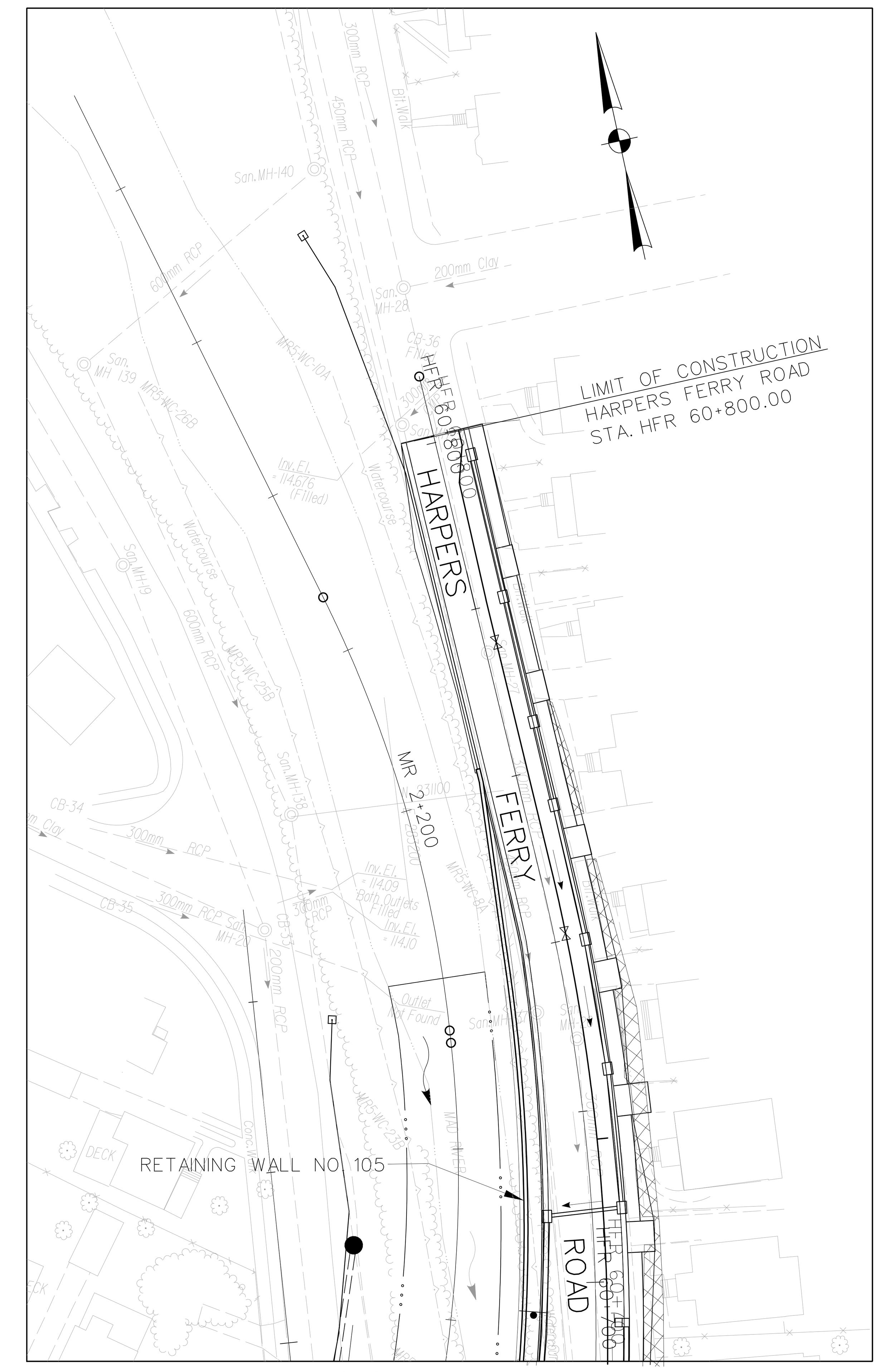
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE - 3

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-11
SHEET NO.:





MATCH LINE STA. HFR 60+690

NOTES:

1. MAINTAIN TEMPORARY TURF INSTALLED IN STAGE 1.
2. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 1.

"DESIGN INITIATED CHANGE ORDER NO. 1" 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

REVISIONS

SCALE IN METERS 0 5 10 15 20 25 SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

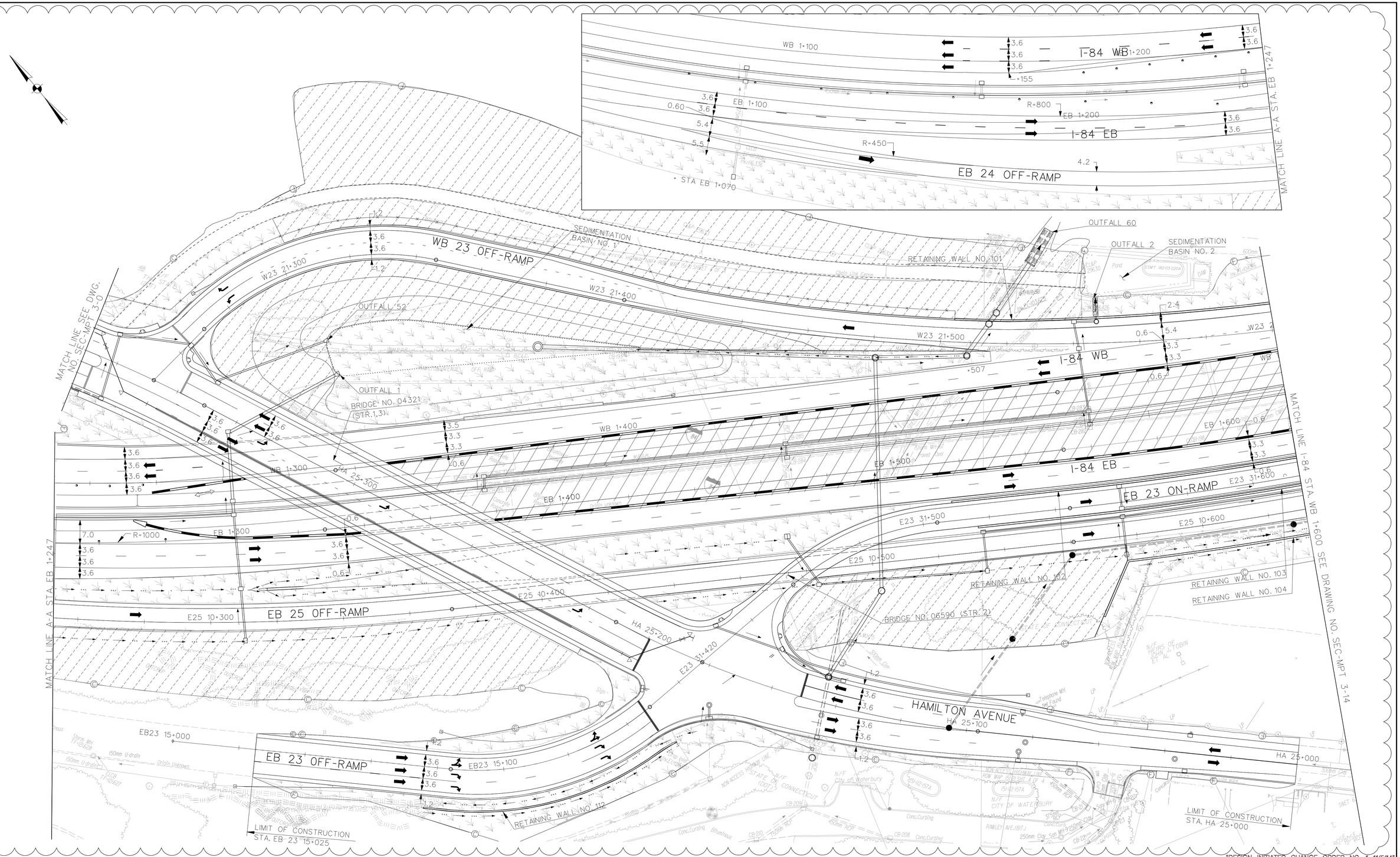
TOWN: WATERBURY

DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 3

PROJECT NO.: 151-273

DRAWING NO.: SEC-MPT 3-12

SHEET NO.:



"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

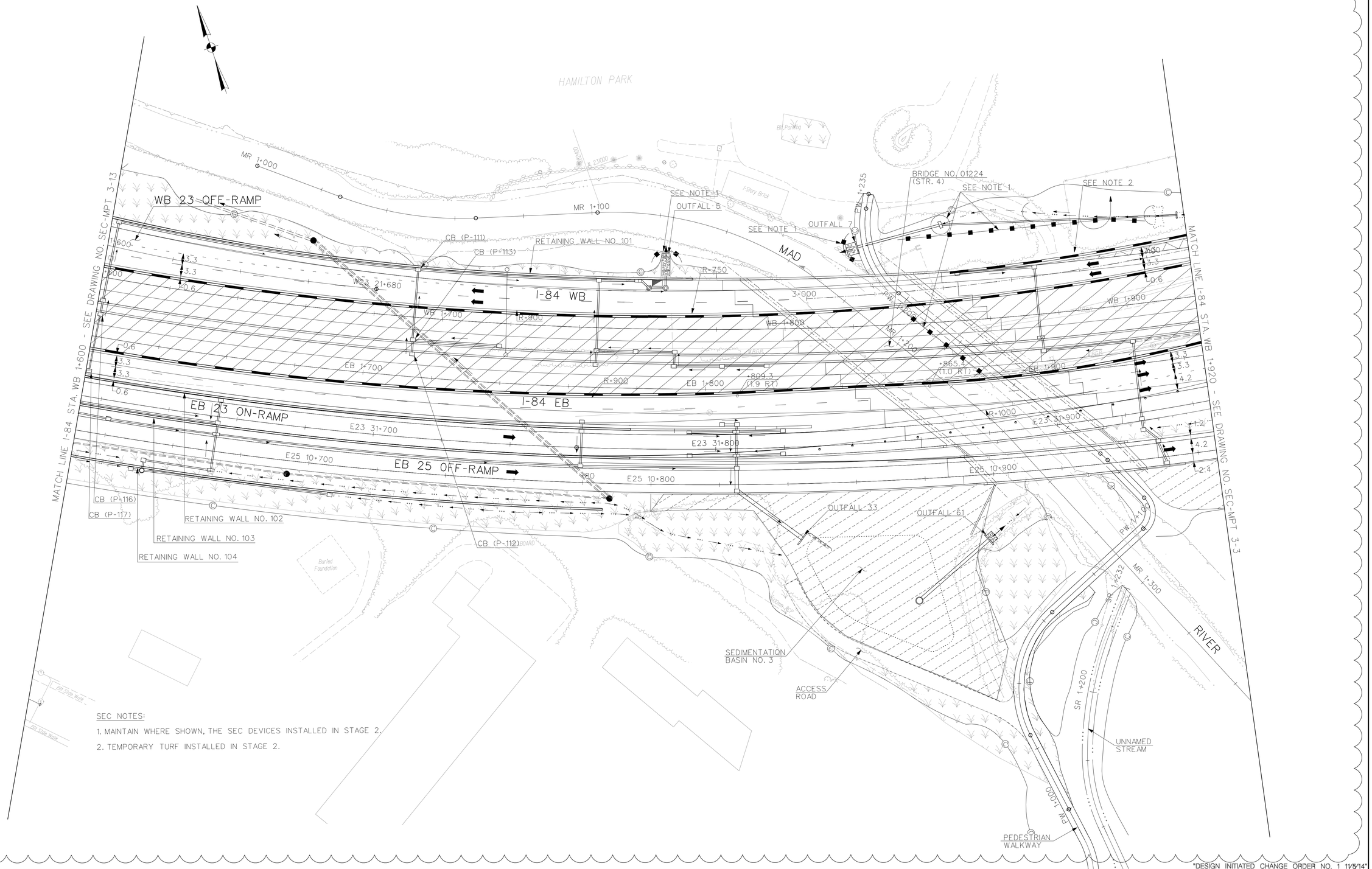
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 3A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-13
SHEET NO.:



SEC NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE 2.
2. TEMPORARY TURF INSTALLED IN STAGE 2.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

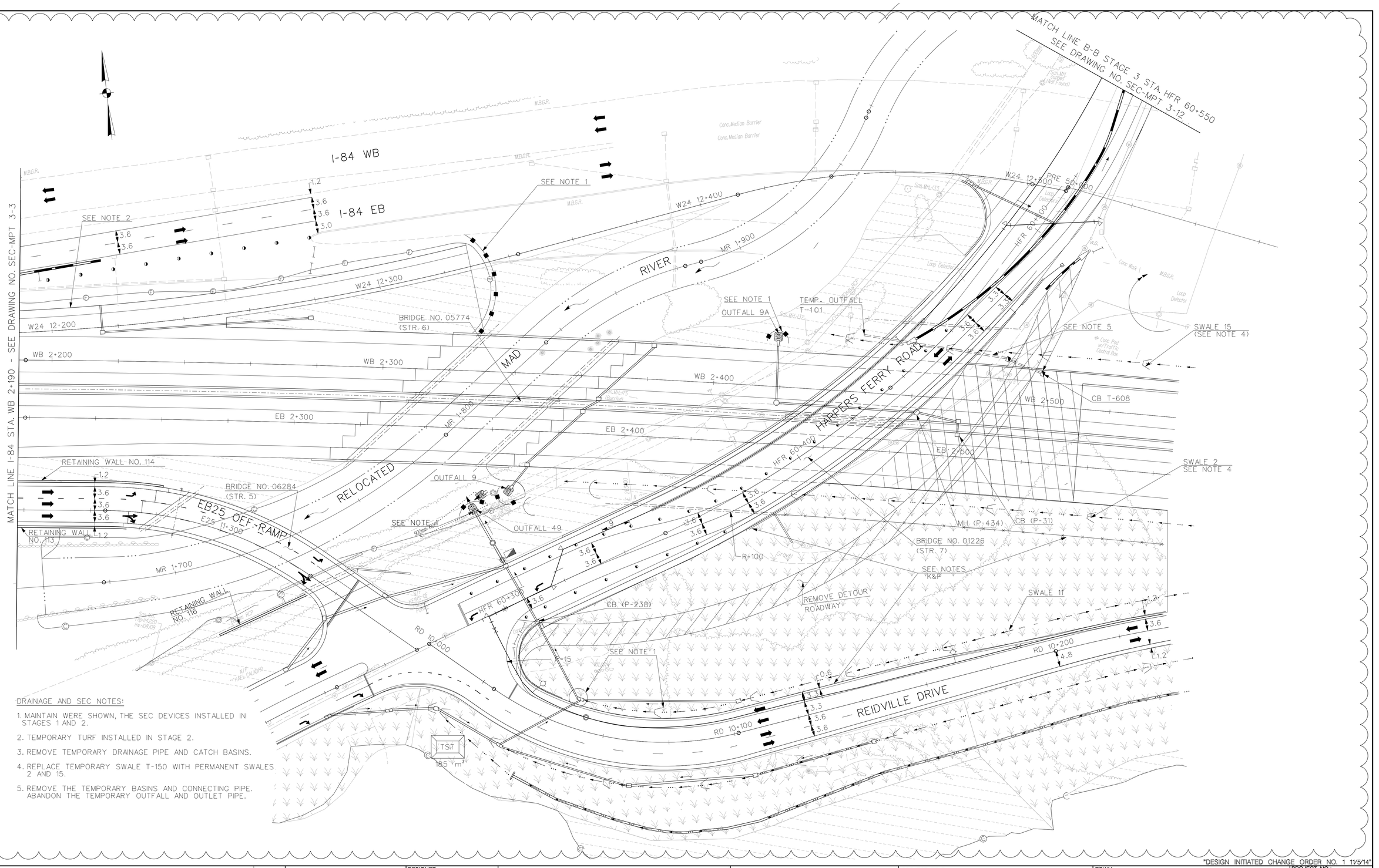
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION
CONTROL STAGE 3A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-14
SHEET NO.:



DRAINAGE AND SEC NOTES:

1. MAINTAIN WERE SHOWN, THE SEC DEVICES INSTALLED IN STAGES 1 AND 2.
2. TEMPORARY TURF INSTALLED IN STAGE 2.
3. REMOVE TEMPORARY DRAINAGE PIPE AND CATCH BASINS.
4. REPLACE TEMPORARY SWALE T-150 WITH PERMANENT SWALES 2 AND 15.
5. REMOVE THE TEMPORARY BASINS AND CONNECTING PIPE. ABANDON THE TEMPORARY OUTFALL AND OUTLET PIPE.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

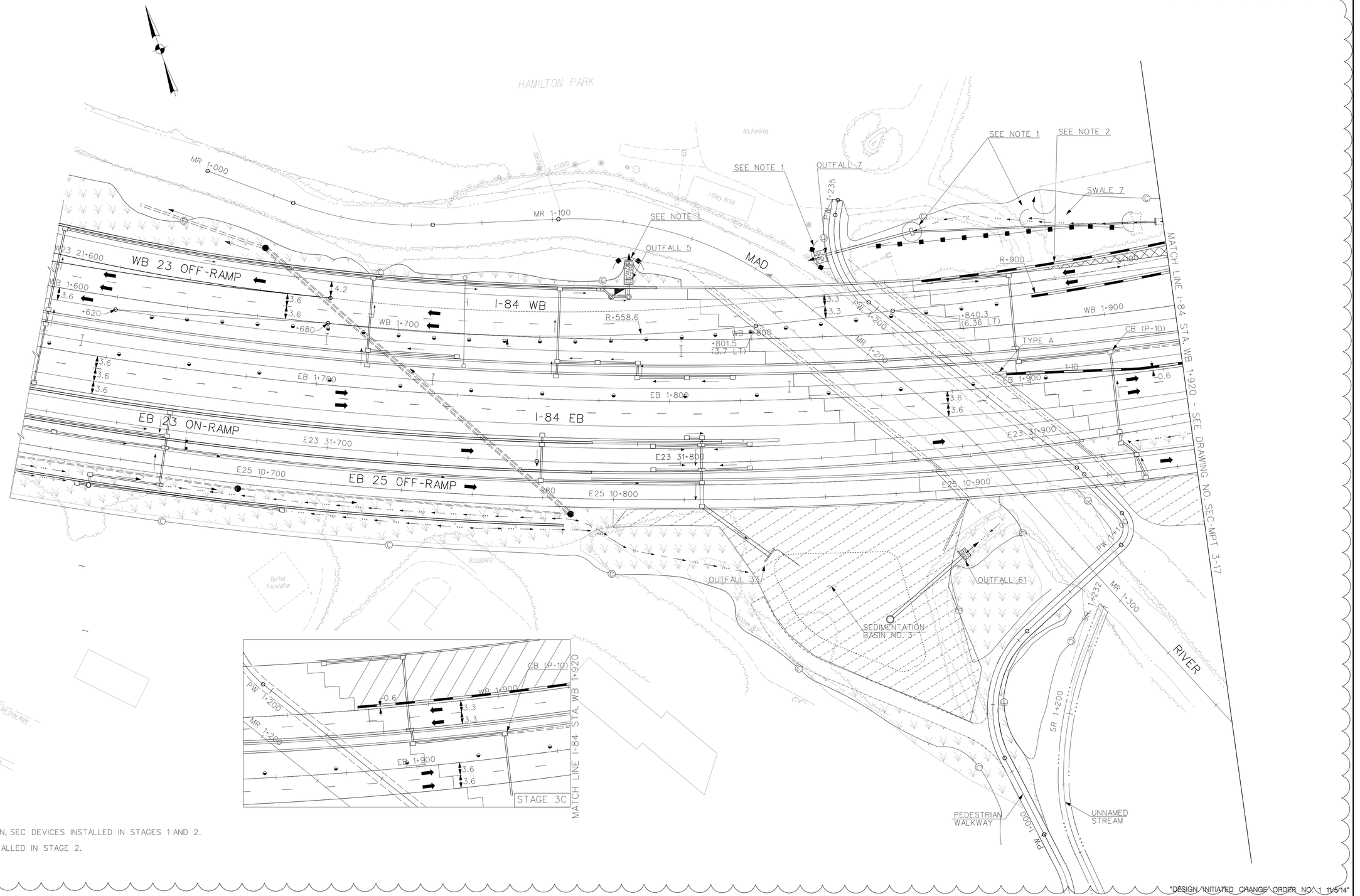
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 3A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-15
SHEET NO.:



SEC NOTES:

1. MAINTAIN WHERE SHOWN, SEC DEVICES INSTALLED IN STAGES 1 AND 2.
2. TEMPORARY TURF INSTALLED IN STAGE 2.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

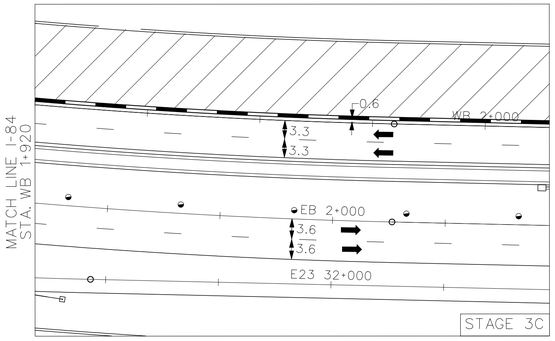
CADD $FILEABREV$ | PLOTTED $DATE$

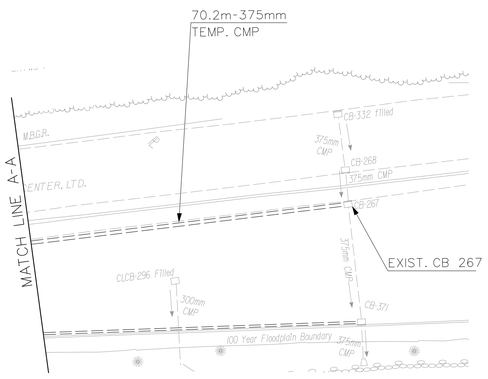
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

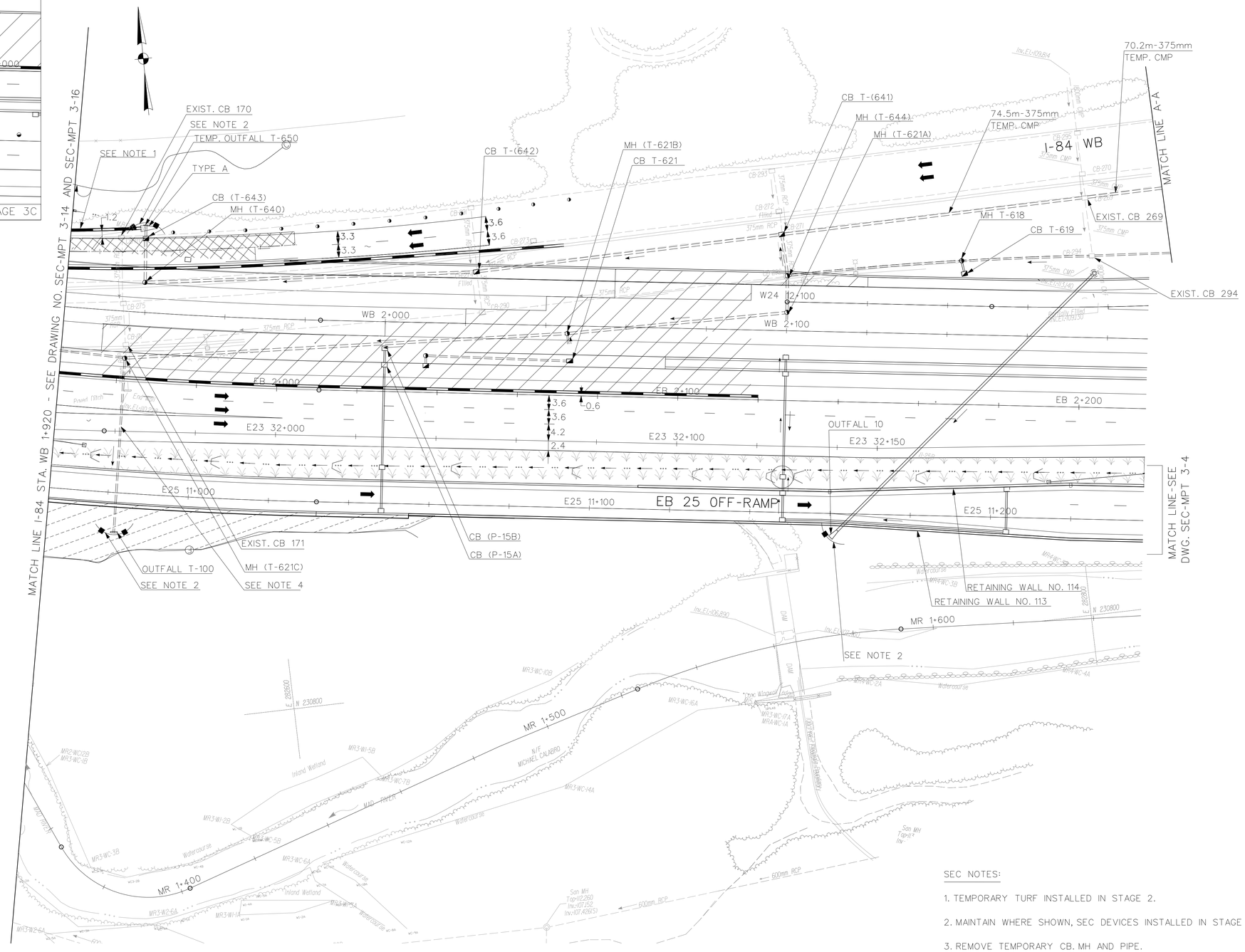
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 3B

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-16
SHEET NO.:







SEC NOTES:

1. TEMPORARY TURF INSTALLED IN STAGE 2.
2. MAINTAIN WHERE SHOWN, SEC DEVICES INSTALLED IN STAGE 1 AND 2.
3. REMOVE TEMPORARY CB. MH AND PIPE.
4. TEMPORARY CMP TO BE FILLED AND ABANDONED AT THE END OF STAGE 3.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 11/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY
DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 3B

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 3-17
SHEET NO.:

SEC LEGEND:

- SEDIMENTATION CONTROL SYSTEM
- CHECK DAM, GEOTEXTILE FENCE
- STONE CHECK DAM
- CATCH BASIN ENCIRCLED BY GEOTEXTILE FENCE
- DEWATERING SETTLING BASIN — DSB
- TEMPORARY SEDIMENT TRAP — TST — REQUIRED VOLUME
- SODDING
- EROSION CONTROL MATTING (ECM) TYPE D WITH "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES" (SEE NOTE P)
- TURF ESTABLISHMENT

MPT LEGEND:

- CONSTRUCTION THIS STAGE
- TEMPORARY PAVEMENT
- TEMPORARY PRECAST CONCRETE BARRIER CURB (TPCBC) WITH DE-7 AND DE-7A DELINEATORS
- TEMPORARY IMPACT ATTENUATION SYSTEM
- ACTIVE TRAFFIC LANE
- TWO WAY TRAFFIC ON ONE LANE CONTROLLED BY TRAFFIC PERSON
- TRAFFIC DRUMS
- TRAFFIC BARRICADE
- WORK ZONE ACCESS LOCATION

GENERAL NOTES:

A. SEE DRAINAGE AND SEC GENERAL NOTES ON DWG. SEC-MPT 4-2

B. SEE MPT PLANS FOR MPT DETAILS.

C. EXISTING DRAINAGE STRUCTURES (BASINS AND MANHOLES) ARE IDENTIFIED BY A NUMBER. TEMPORARY AND PROPOSED DRAINAGE STRUCTURES ARE DESIGNATED "T" OR "P" RESPECTIVELY.

SEC NOTE:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGE ~~2.~~ 3.

DRAINAGE LEGEND:

- EXISTING DRAINAGE IN OPERATION THIS STAGE
- PROPOSED DRAINAGE UNDER CONSTRUCTION OR CONSTRUCTED IN PREVIOUS STAGE
- TEMPORARY DRAINAGE

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER:	H. MORETT
DRAFTER:	M. MOSLEY
CHECKED BY:	T. BULZAK
DATE CHECKED:	

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

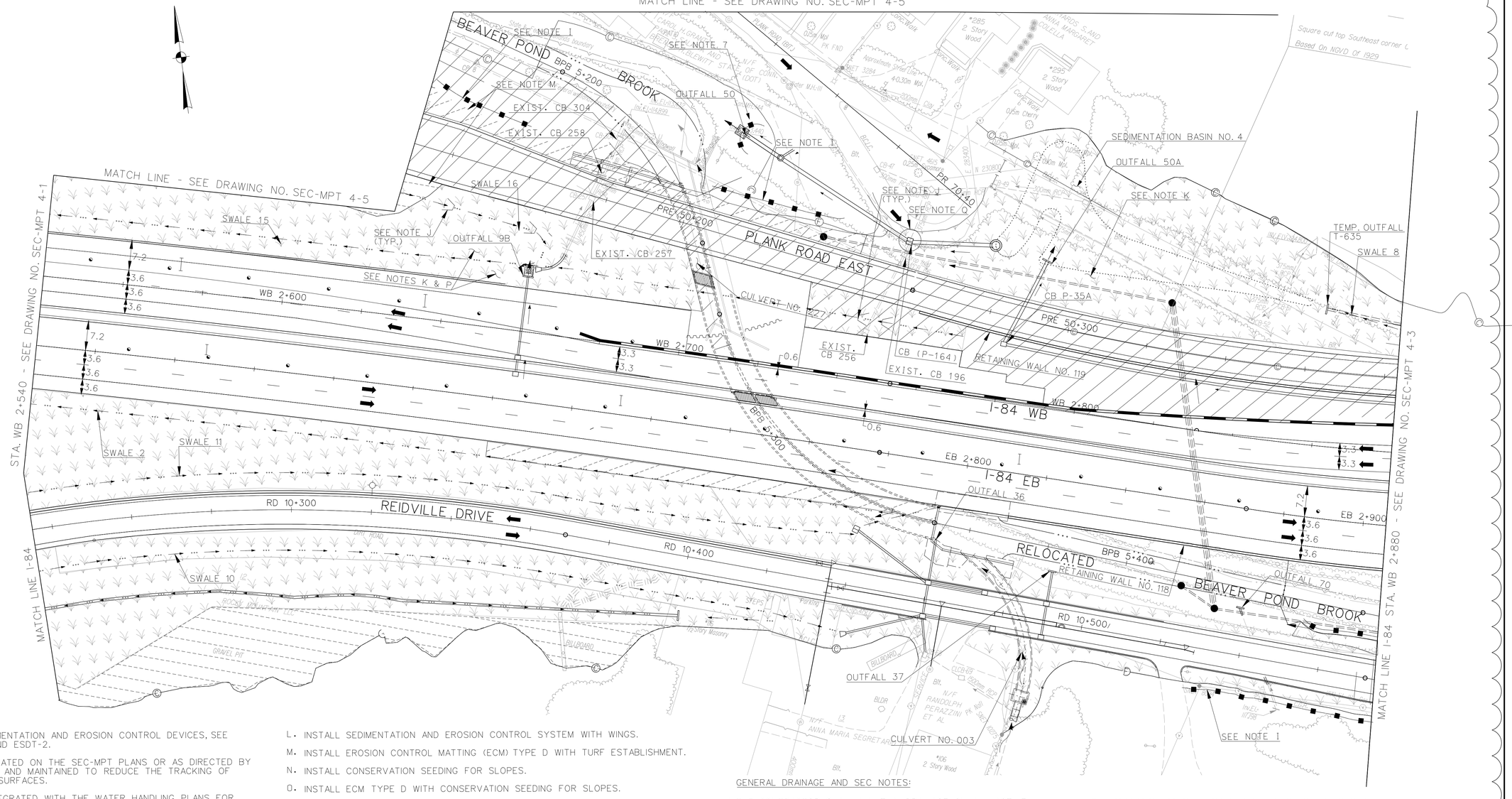
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-1
SHEET NO.:

"DESIGN INITIATED CHANGE ORDER NO. 1 12/5/14"



GENERAL SEC NOTES:

A. FOR DETAILS AND TABLES OF SEDIMENTATION AND EROSION CONTROL DEVICES, SEE DWGS. ESD-1 - ESD-6 AND ESDT-1 AND ESDT-2.

B. CONSTRUCTION ENTRANCES, AS INDICATED ON THE SEC-MPT PLANS OR AS DIRECTED BY THE ENGINEER, SHALL BE INSTALLED AND MAINTAINED TO REDUCE THE TRACKING OF SEDIMENTS OFF-SITE, ONTO PAVED SURFACES.

C. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE WATER HANDLING PLANS FOR CONSTRUCTION OF BRIDGES, CULVERTS AND RETAINING WALLS

D. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE MAD RIVER RELOCATION WATER HANDLING PLANS.

E. REFER TO THE PLANTING PLAN INCLUDED IN THE MAD RIVER RELOCATION PLANS.

F. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE BEAVER POND BROOK RELOCATION WATER HANDLING PLANS.

G. REFER TO THE PLANTING PLAN INCLUDED IN THE BEAVER POND BROOK RELOCATION PLANS.

H. PAYMENT FOR TURF ESTABLISHMENT WITH EROSION CONTROL MATTING TYPE D SHALL BE MADE UNDER CONTRACT PAY ITEMS "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES", AS NOTED, AND "EROSION CONTROL MATTING TYPE D".

I. INSTALL SEDIMENTATION AND EROSION SYSTEM.

J. INSTALL CHECK DAM GEOTEXTILE FENCE.

K. INSTALL TURF ESTABLISHMENT.

L. INSTALL SEDIMENTATION AND EROSION CONTROL SYSTEM WITH WINGS.

M. INSTALL EROSION CONTROL MATTING (ECM) TYPE D WITH TURF ESTABLISHMENT.

N. INSTALL CONSERVATION SEEDING FOR SLOPES.

O. INSTALL ECM TYPE D WITH CONSERVATION SEEDING FOR SLOPES.

P. TREATMENT SHOWN AT SWALE LOCATIONS IS FOR THE SIDE SLOPES. SEE NOTE T AND DWG. NO. ~~DD-7~~ DD-8 FOR SPECIFIC TREATMENT WITHIN SWALES.

Q. INSTALL GEOTEXTILE FENCING AROUND CATCH BASINS.

R. INSTALL SEDIMENTATION AND EROSION CONTROL GEOTEXTILE FENCE.

S. INSTALL STONE CHECK DAM.

T INSTALL ECM TYPE E OR TYPE F. SEE DRAINAGE PLANS.

U SOD INSTALLATION.

GENERAL DRAINAGE AND SEC NOTES:

1. THE CONTRACTOR SHALL MAINTAIN DRAINAGE ON ALL ACTIVE TRAVEL WAYS AT ALL TIMES. EXISTING STORM DRAINAGE SYSTEMS IN EXISTING ROADWAYS SHALL REMAIN OPERATIONAL UNTIL NEW DRAINAGE SYSTEMS ARE INSTALLED OR UNTIL TRAFFIC IS REMOVED FROM THE ROADWAYS. DRAINAGE SYSTEMS SHALL BE MAINTAINED BY INSTALLING TEMPORARY CATCH BASINS, MANHOLES, SWALES, SLOTTED DRAINS AND PIPES WHERE NECESSARY. ALL TEMPORARY CATCH BASINS, MANHOLES AND STORM SEWER PIPES SHALL BE DISPOSED OF AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER. OTHERWISE, THEY SHALL BE REMOVED OR ABANDONED WHEN NO LONGER NECESSARY.

2. THE INSTALLATION OF DRAINAGE, SANITARY SEWERS OR WATER MAIN STRUCTURES (PERMANENT OR TEMPORARY) ACROSS OR ADJACENT TO ACTIVE TRAVEL LANES SHALL BE DONE DURING THE ALLOWABLE PERIODS OF LANE CLOSURES. THE TRENCH SHALL BE BACKFILLED AND PAVED OVER WITH TEMPORARY PAVEMENT OR COVERED WITH STEEL PLATES AS ORDERED BE ENGINEER TO ALLOW THE LANE(S) TO REOPEN TO TRAFFIC.

3. TEMPORARY CATCH BASINS AND MANHOLES ARE SHOWN WITH "T" SERIES DESIGNATIONS. "P" SERIES ARE PERMANENT STRUCTURES. FOR RIM AND INVERT ELEVATIONS SEE ~~DWG. MPT D-1~~ DWG'S. MPTTDT-1 AND MPTTDT-2.

4. ALL TEMPORARY MANHOLES OR CATCH BASINS SHALL BE PROVIDED WITH HEAVY DUTY TOPS AND FRAMES.

5. THE CONTRACTOR SHALL INSTALL PERMANENT AND TEMPORARY DRAINAGE DURING CONSTRUCTION STAGING SHOWN, OR AS DIRECTED BY THE ENGINEER. ANY REQUIRED ADJUSTMENT FOR THE FINAL CONDITION OF THESE STRUCTURES WILL NOT BE MEASURED FOR PAYMENT.

6. THE CONVERSION OF CATCH BASINS FOR STAGING PURPOSES, WHETHER THE CATCH BASIN IS EXISTING OR PROPOSED, SHALL BE PAID FOR UNDER THE ITEM "CONVERT CATCH BASIN TO TYPE 'C-L' CATCH BASIN."

7. MAINTAIN WHERE SHOWN THE SEC DEVICES INSTALLED IN STAGE 1.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 12/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

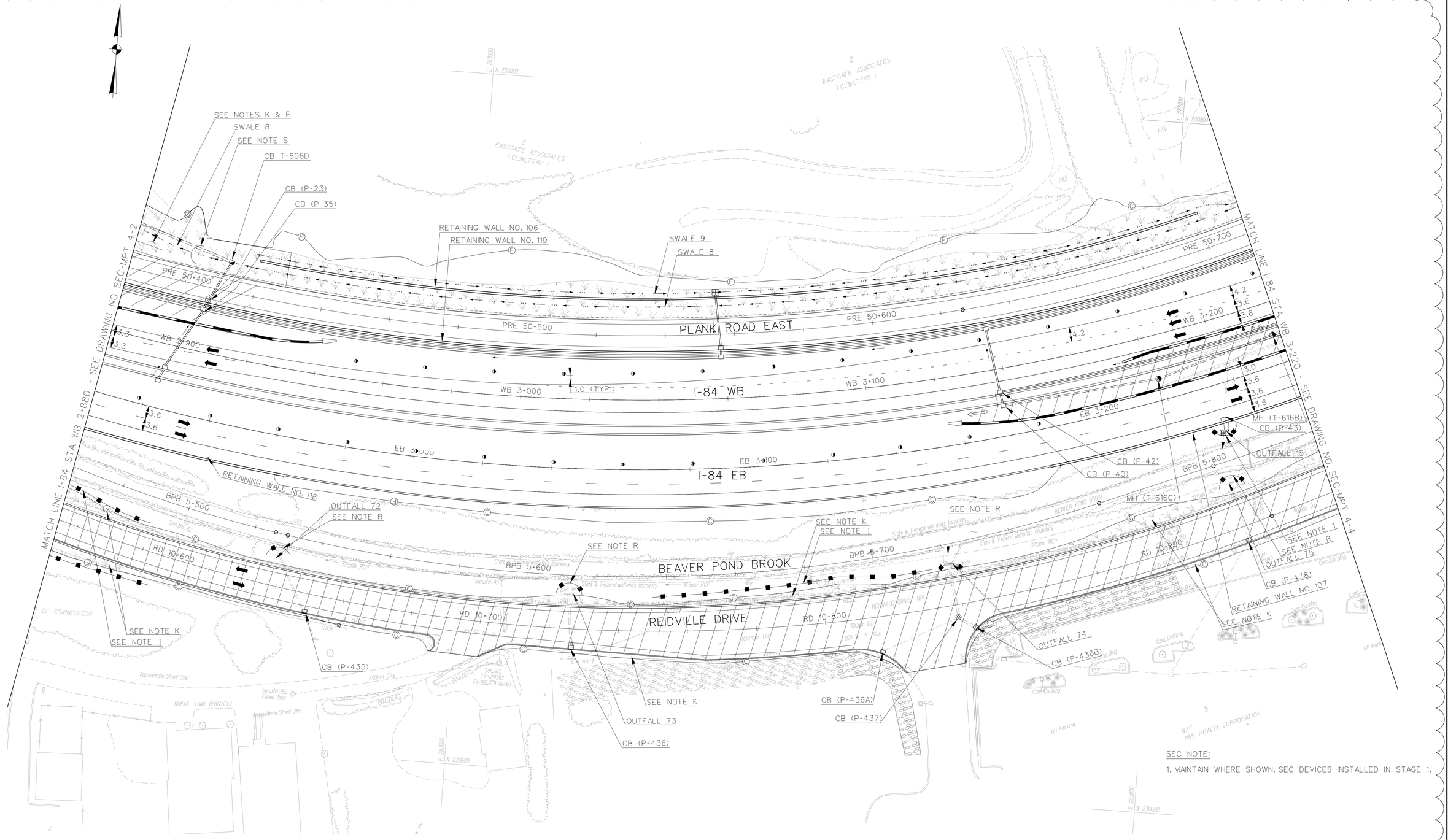
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-2
SHEET NO.:



1 "DESIGN INITIATED CHANGE ORDER NO. 1 12/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
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STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

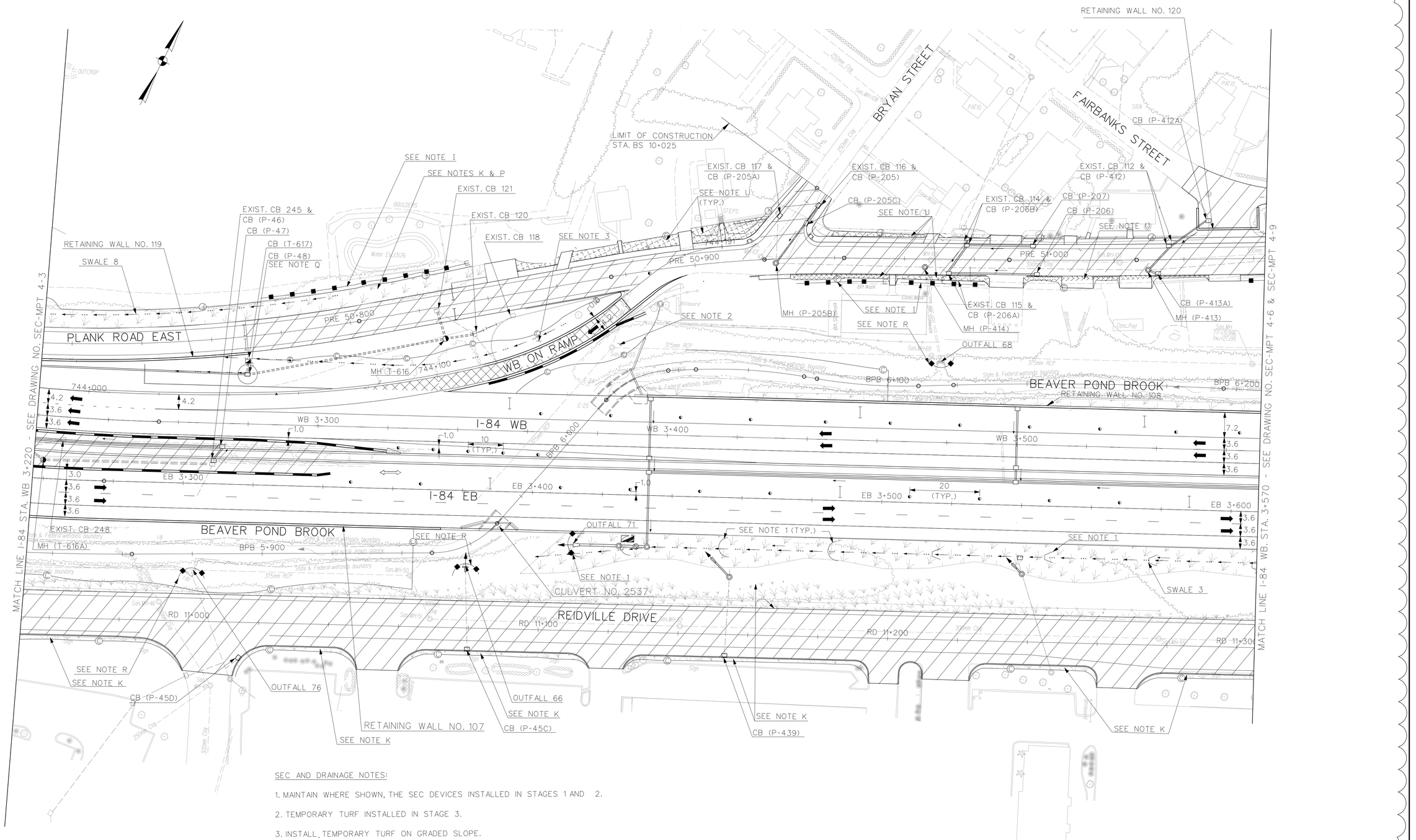
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-3
SHEET NO.:



SEC AND DRAINAGE NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGES 1 AND 2.
2. TEMPORARY TURF INSTALLED IN STAGE 3.
3. INSTALL TEMPORARY TURF ON GRADED SLOPE.
4. ~~ABANDON EXISTING CATCH BASINS AND CONNECTING PIPES.~~

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/5/14	DRAINAGE SYSTEM MODIFICATION	

"DESIGN INITIATED CHANGE ORDER NO. 1 12/5/14"

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION
CONTROL STAGE 4

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-4
SHEET NO.:

RETAINING WALL NO. 105

PLANK ROAD

LIMIT OF CONSTRUCTION STA. PR 70+060

OUTFALL 51

BRIDGE NO. 05668 (STR. 8)

TEMPORARY OUTFALL T-300 SEE NOTE 1 SEE NOTE R

OUTFALL 43

MH (P-203B)

SEE NOTE M

SAN. MH-13A

SAN. MH-13

MH (T-628A)

MH (T-628)

MH (P-203A)

CB (P-203)

HYDRODYNAMIC SEPARATOR

PR 70+200

EXISTING BRIDGE TO BE DEMOLISHED

SEE NOTE M

EXIST. CB 169

EXIST. CB 263

EXIST. CB 264

EXIST. CB 299

SEE NOTE M

EXIST. CB 265

EXIST. CB 297

SEE NOTE I

RETAINING WALL NO. 115

EXIST. CB 298

CB (P-170)

CB (P-165)

SEE NOTE I

MP 1+900

MAD RIVER

RELOCATED

MH 2+000

BPB 5+000

HARPERS FERRY ROAD

MER 60+600

R=100'

DSB

CB (P-168)

WB24 ON-RAMP

W24 12+480

W24 12+800

PRE 50+000

BRIDGE NO. 06591 (STR. 10)

CB (P-166)

HFR 60+400

MATCH LINE

SEE DRAWING NO. SEC-MPT4-1 STA HFR 60+480

TEMP. SHEETING CULVERT NO. 3727 FOR PHASE II SEE INSET

CB (P-168)

SEE NOTE I

PHASE I BPB 5+100

TST 210 m³

SEE NOTE K

SEE NOTE M

PR 70+300

PLANK ROAD EAST

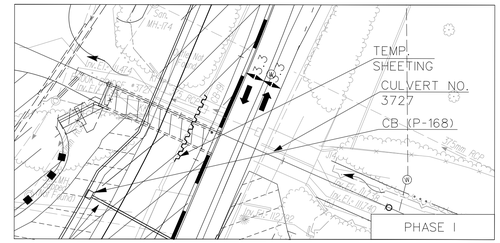
PRE 50+100

SWALE 16

SEE NOTES M & P

MATCH LINE - SEE DRAWING NO. SEC-MPT 4-1 AND SEC-MPT 4-2

MATCH LINE - SEE DRAWING NO. SEC-MPT 4-2



SEC NOTES:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGES 2 AND 3.

"DESIGN INITIATED CHANGE ORDER NO. 1 11/20/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	11/20/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-5
SHEET NO.:

SEC NOTE:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGES 1 AND 2.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/1/14	DRAINAGE SYSTEM MODIFICATION	

"DESIGN INITIATED CHANGE ORDER NO. 1 12/1/14"

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

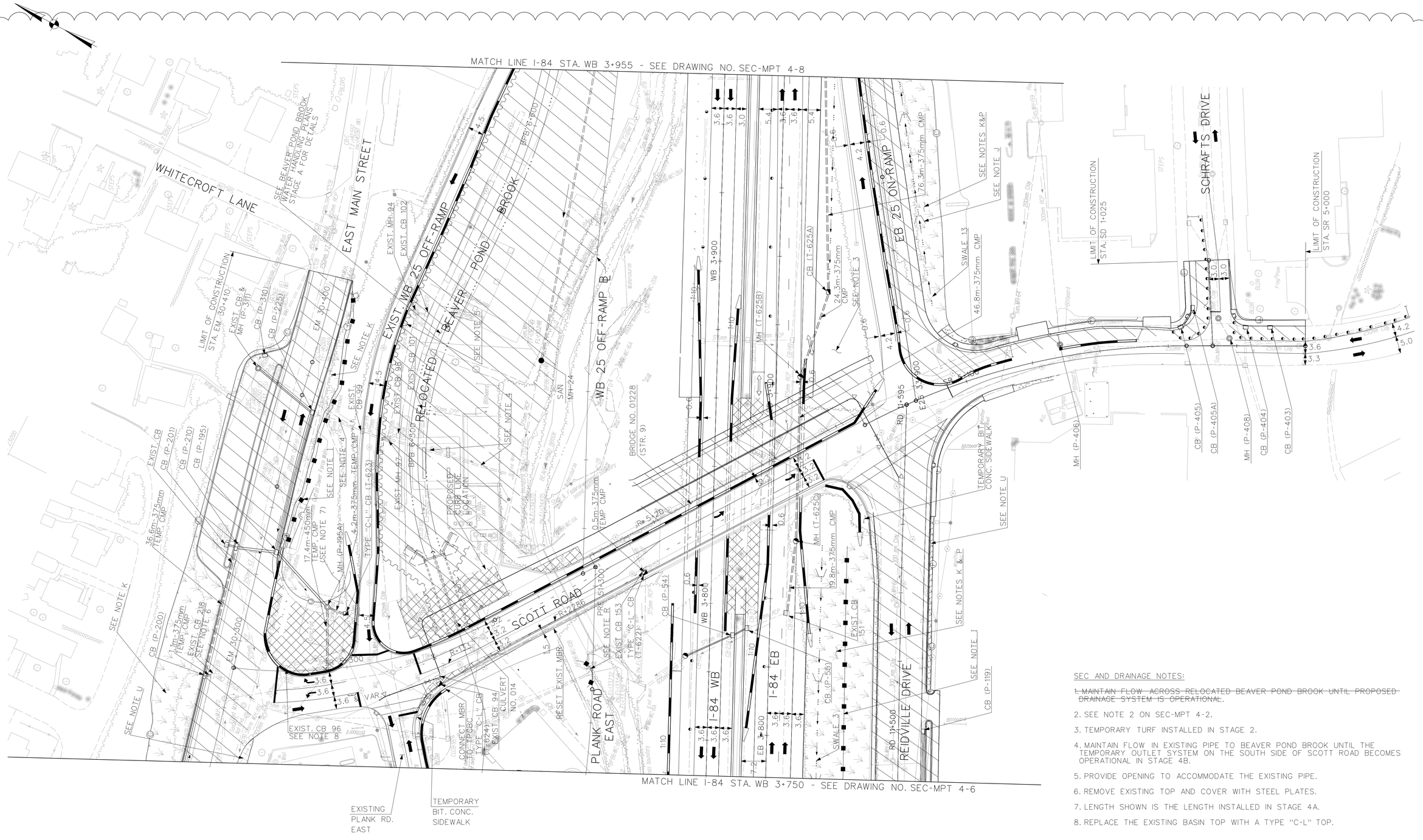
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4 & 4A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-6
SHEET NO.:



SEC AND DRAINAGE NOTES:

~~1. MAINTAIN FLOW ACROSS RELOCATED BEAVER POND BROOK UNTIL PROPOSED DRAINAGE SYSTEM IS OPERATIONAL.~~

2. SEE NOTE 2 ON SEC-MPT 4-2.

3. TEMPORARY TURF INSTALLED IN STAGE 2.

4. MAINTAIN FLOW IN EXISTING PIPE TO BEAVER POND BROOK UNTIL THE TEMPORARY OUTLET SYSTEM ON THE SOUTH SIDE OF SCOTT ROAD BECOMES OPERATIONAL IN STAGE 4B.

5. PROVIDE OPENING TO ACCOMMODATE THE EXISTING PIPE.

6. REMOVE EXISTING TOP AND COVER WITH STEEL PLATES.

7. LENGTH SHOWN IS THE LENGTH INSTALLED IN STAGE 4A.

8. REPLACE THE EXISTING BASIN TOP WITH A TYPE "C-L" TOP.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 12/1/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/1/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

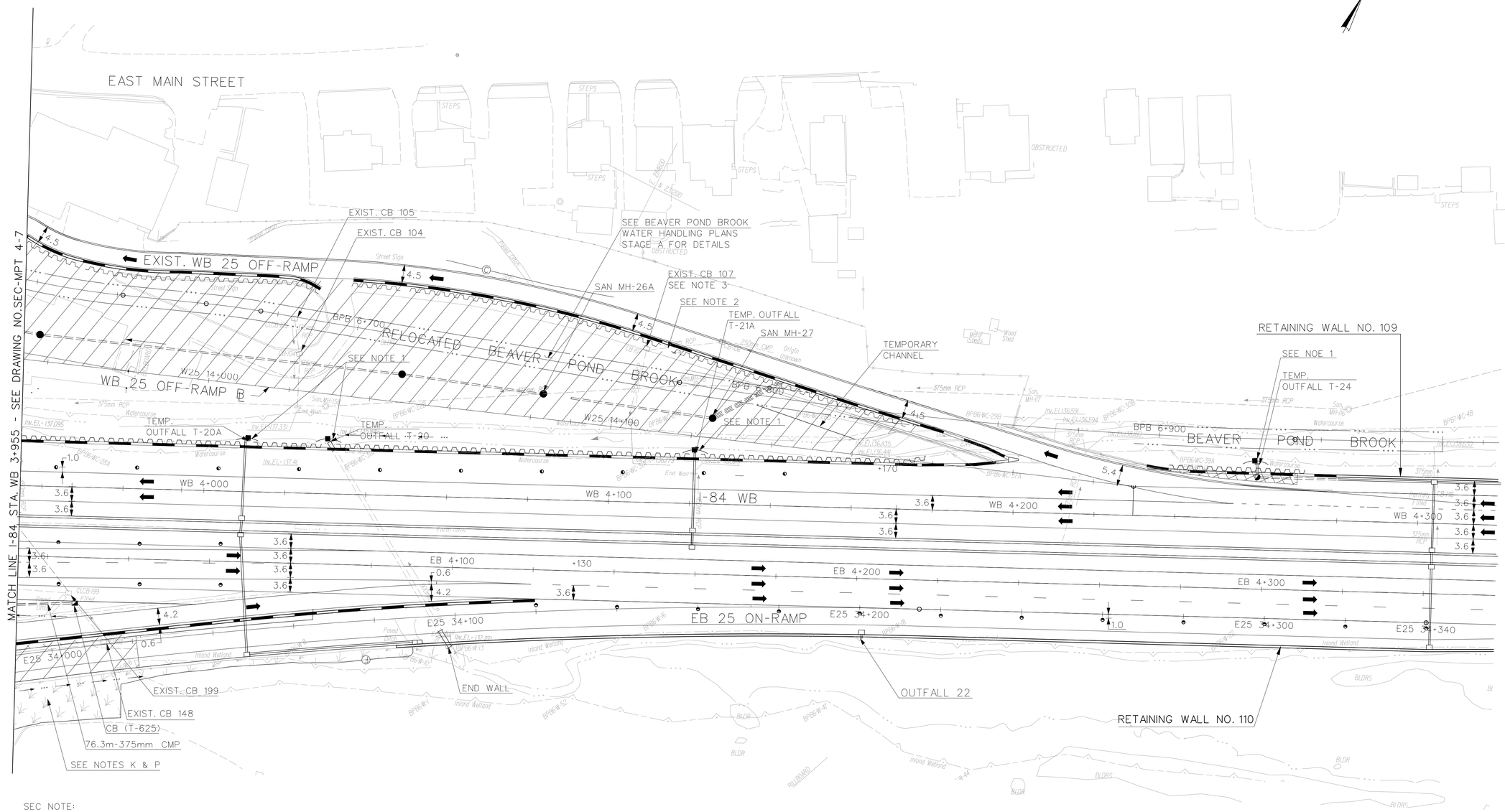
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-7
SHEET NO.:



SEC NOTE:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGES 1 AND 2.
2. PROVIDE OPENING TO ACCOMMODATE THE EXISTING PIPE.
3. REMOVE EXISTING BASIN, THE SOUTHERLY PIPE AND THE EASTERLY PIPE TO A POINT 0.3 METERS WEST OF THE TEMPORARY SHEETING (TEMP OUTFALL T-107).

1 "DESIGN INITIATED CHANGE ORDER NO. 1 12/1/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/1/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H.MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-8
SHEET NO.:

SEC NOTES:

1. SEE STAGES 4 AND 4A FOR TURF TREATMENT.
2. MAINTAIN WHERE SHOWN. THE SEC DEVICES INSTALLED IN STAGES 4 AND 4A.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 12/1/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/1/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J.HUND
DRAFTER: M. MOSLEY
CHECKED BY: G.STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

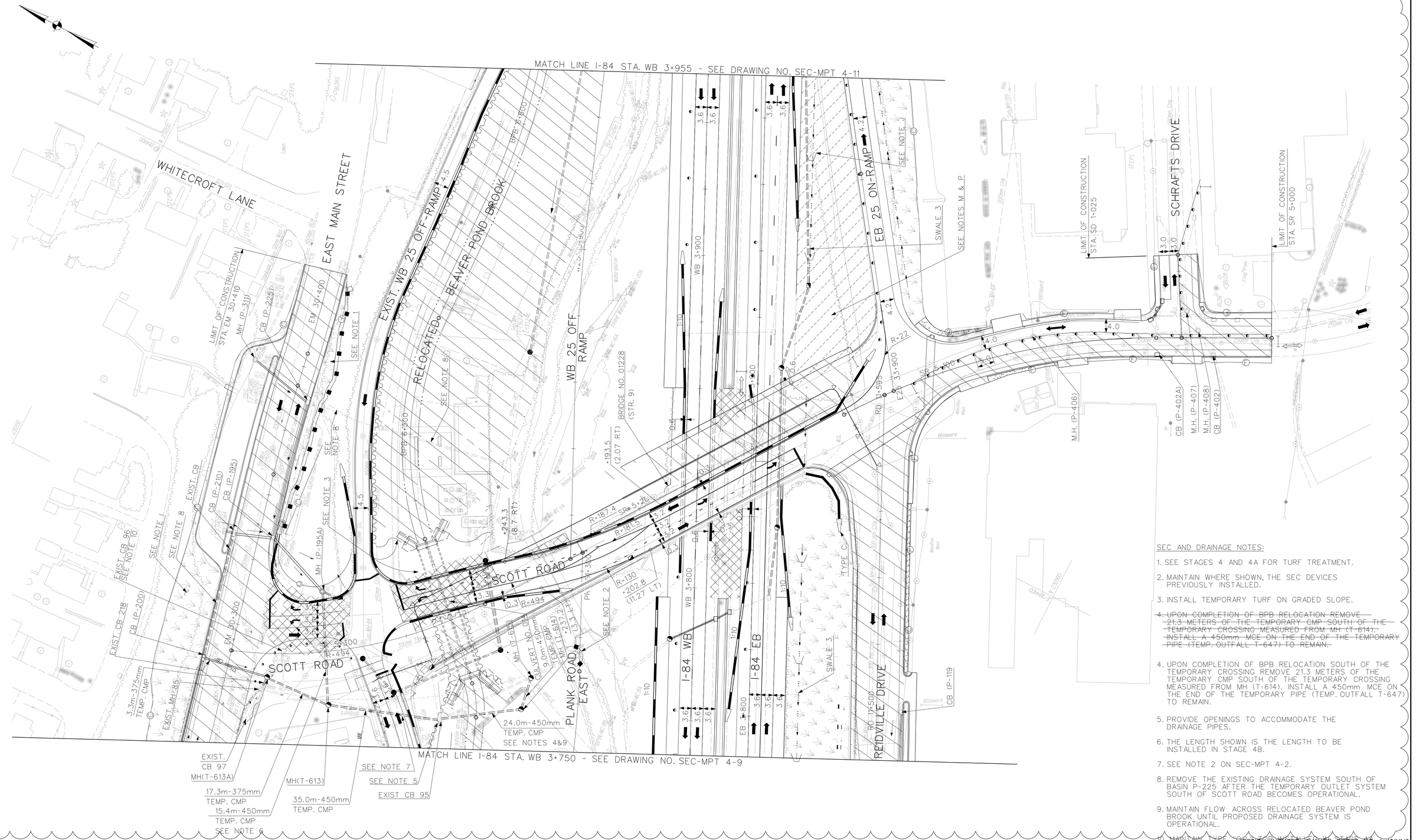
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4B

PROJECT NO.: 151-273
DRAWING NO.: SEC- MPT 4-9
SHEET NO.:



SEC AND DRAINAGE NOTES:

1. SEE STAGES 4 AND 4A FOR TURF TREATMENT.
2. MAINTAIN WHERE SHOWN, THE SEC DEVICES PREVIOUSLY INSTALLED.
3. INSTALL TEMPORARY TURF ON GRADED SLOPE.
4. ~~UPON COMPLETION OF BPB RELOCATION REMOVE 21.3 METERS OF THE TEMPORARY CMP SOUTH OF THE TEMPORARY CROSSING MEASURED FROM MH (T-614). INSTALL A 450mm MCE ON THE END OF THE TEMPORARY PIPE (TEMP. OUTFALL T-647) TO REMAIN.~~
4. UPON COMPLETION OF BPB RELOCATION SOUTH OF THE TEMPORARY CROSSING REMOVE 21.3 METERS OF THE TEMPORARY CMP SOUTH OF THE TEMPORARY CROSSING MEASURED FROM MH (T-614). INSTALL A 450mm MCE ON THE END OF THE TEMPORARY PIPE (TEMP. OUTFALL T-647) TO REMAIN.
5. PROVIDE OPENINGS TO ACCOMMODATE THE DRAINAGE PIPES.
6. THE LENGTH SHOWN IS THE LENGTH TO BE INSTALLED IN STAGE 4B.
7. SEE NOTE 2 ON SEC-MPT 4-2.
8. REMOVE THE EXISTING DRAINAGE SYSTEM SOUTH OF BASIN P-225 AFTER THE TEMPORARY OUTLET SYSTEM SOUTH OF SCOTT ROAD BECOMES OPERATIONAL.
9. MAINTAIN FLOW ACROSS RELOCATED BEAVER POND BROOK UNTIL PROPOSED DRAINAGE SYSTEM IS OPERATIONAL.
10. MAINTAIN TYPE "C" SWALE UNTIL PROPOSED SWALE IS OPERATIONAL.

"DESIGN INITIATED CHANGE ORDER NO. 1 12/1/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/1/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J.HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

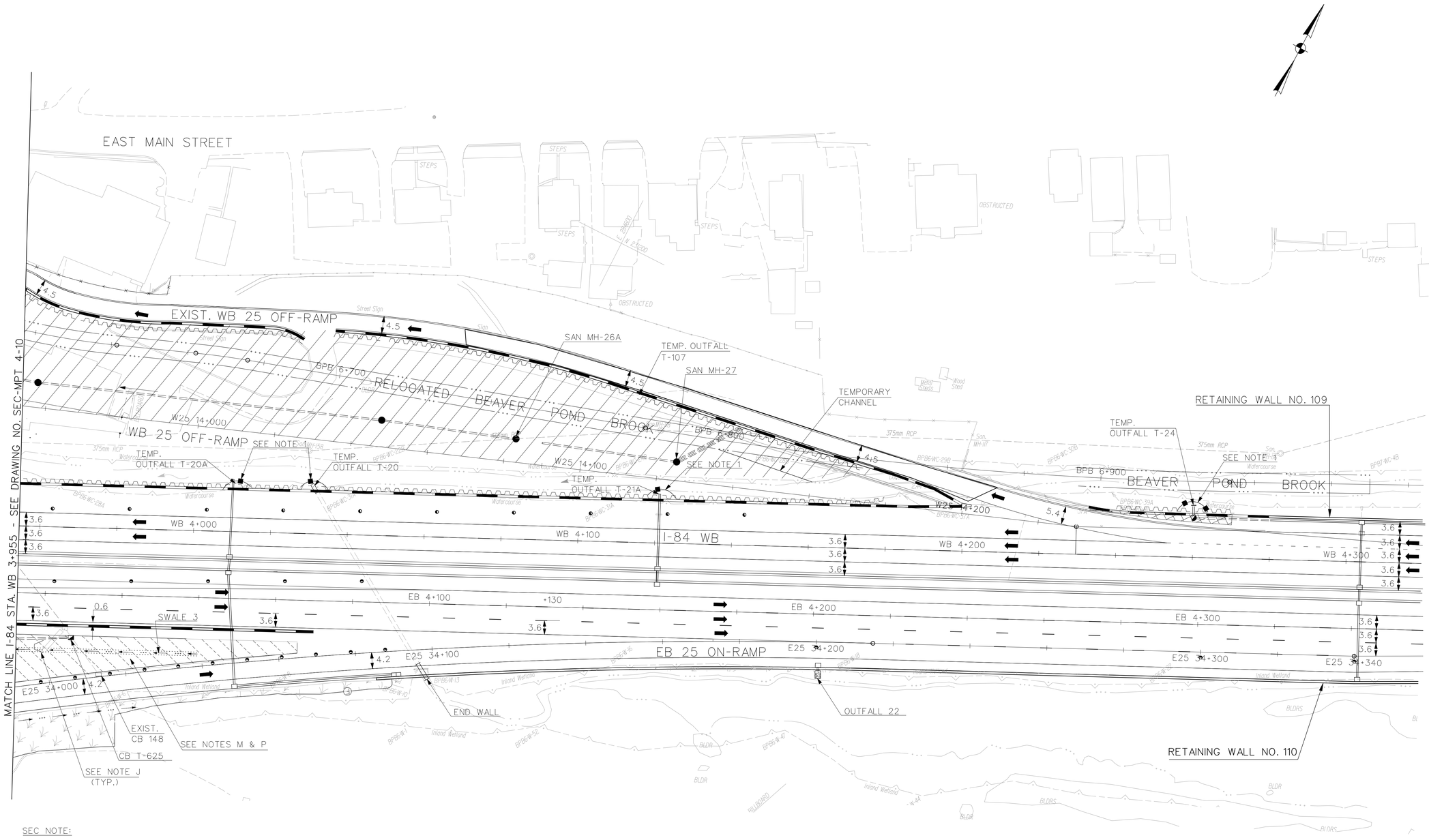
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4B

PROJECT NO.: 151-273
DRAWING NO.: SEC- MPT 4-10
SHEET NO.:



SEC NOTE:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES INSTALLED IN STAGES 1 AND 2.

"DESIGN INITIATED CHANGE ORDER NO. 1 12/1/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/1/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H.MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4B

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-11
SHEET NO.:

1

"DESIGN INITIATED CHANGE ORDER NO. 1 12/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/5/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G.STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

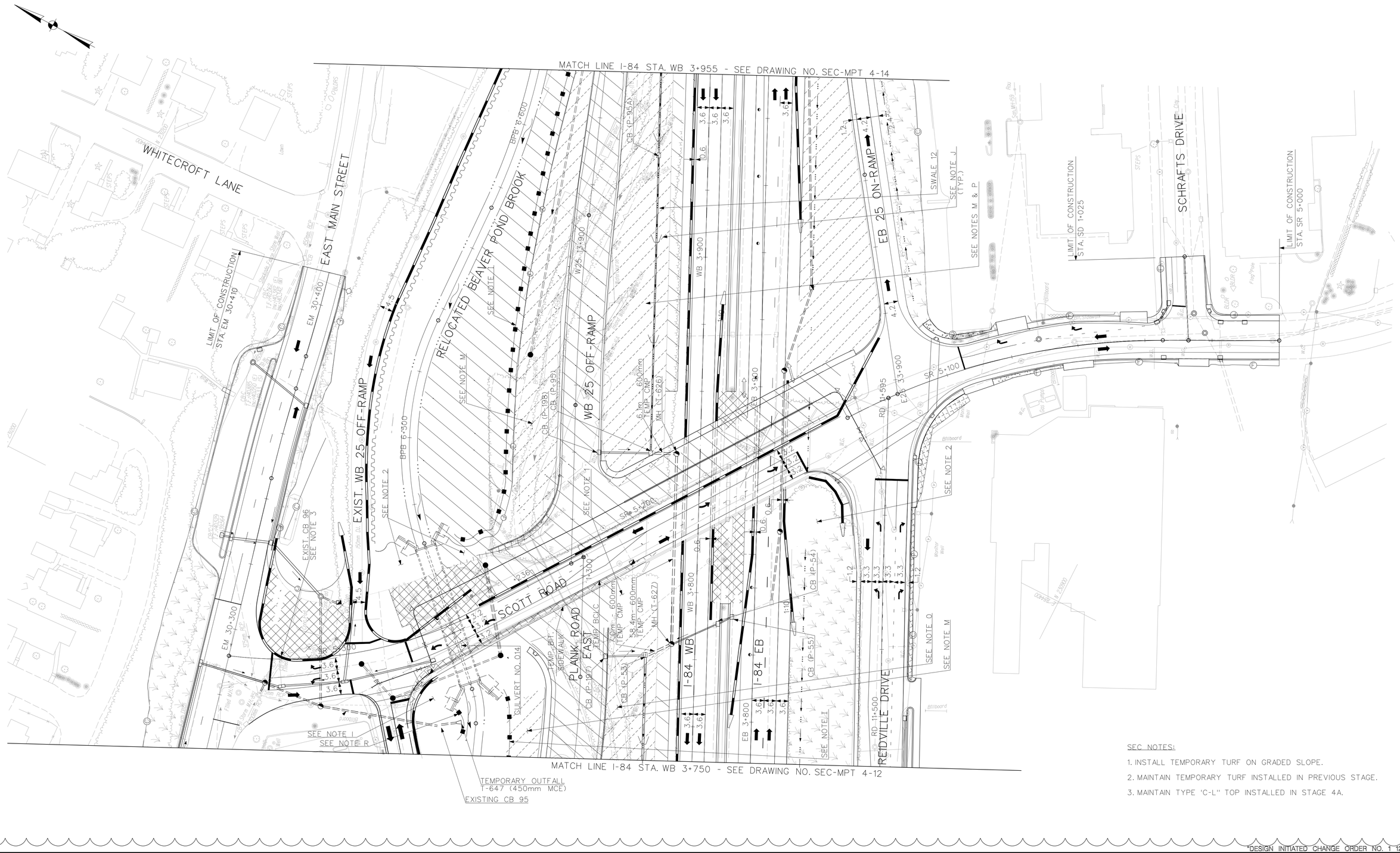
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4C

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-12
SHEET NO.:



SEC NOTES:

1. INSTALL TEMPORARY TURF ON GRADED SLOPE.
2. MAINTAIN TEMPORARY TURF INSTALLED IN PREVIOUS STAGE.
3. MAINTAIN TYPE 'C-L" TOP INSTALLED IN STAGE 4A.

1

"DESIGN INITIATED CHANGE ORDER NO. 1 12/5/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
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SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J.HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

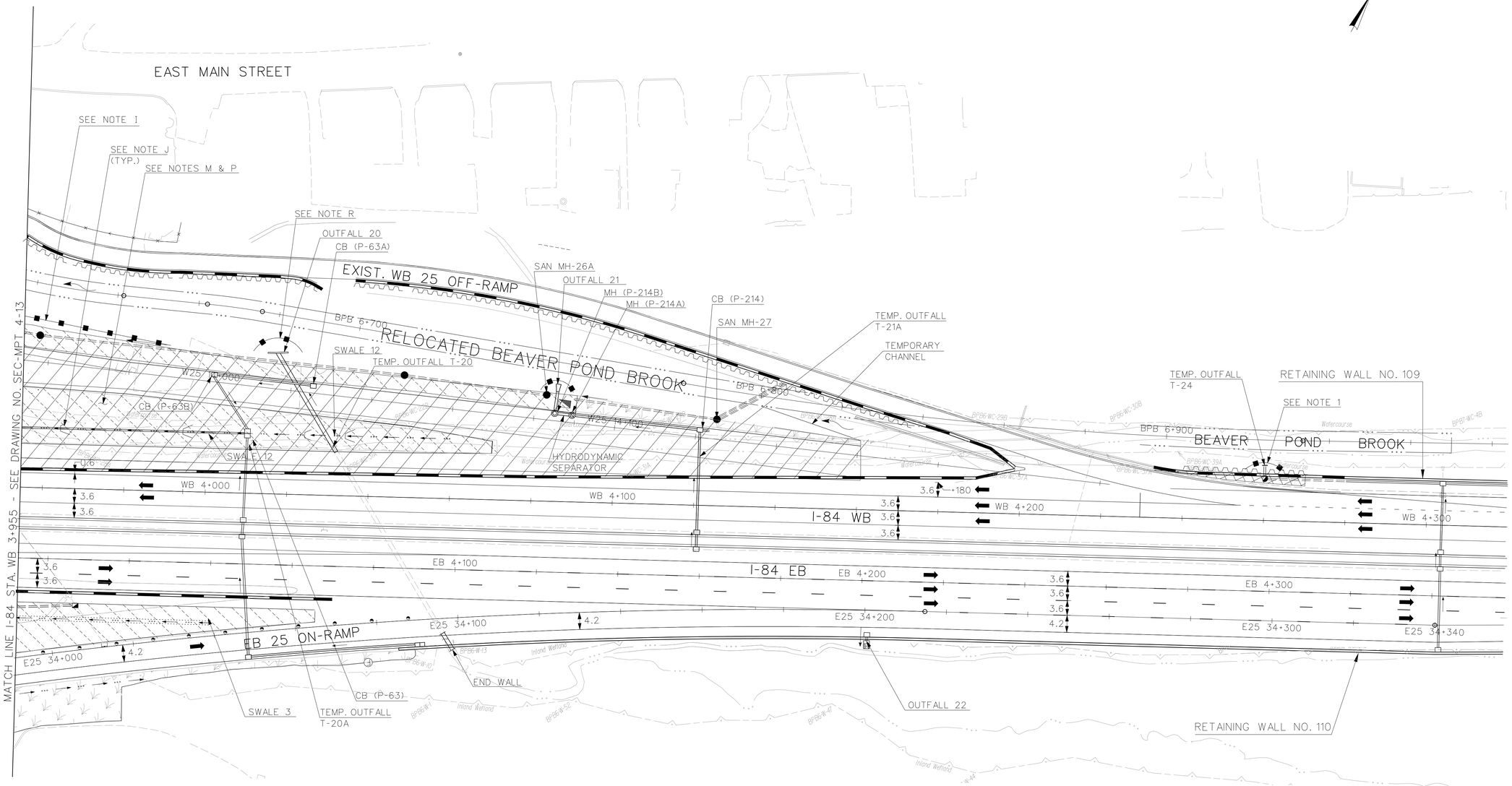
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4C

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-13
SHEET NO.:



NOTE:

1. MAINTAIN WHERE SHOWN THE SEC DEVICES INSTALLED IN STAGES 1 & 2.

1 "DESIGN INITIATED CHANGE ORDER NO. 1 12/1/14"

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	
1	12/1/14	DRAINAGE SYSTEM MODIFICATION	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 4C

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 4-14
SHEET NO.:

SEC LEGEND:

SEDIMENTATION CONTROL SYSTEM

CHECK DAM, GEOTEXTILE FENCE

STONE CHECK DAM

CATCH BASIN ENCIRCLED BY GEOTEXTILE FENCE

DEWATERING SETTLING BASIN — DSB

TEMPORARY SEDIMENT TRAP — TST
REQUIRED VOLUME

SODDING

EROSION CONTROL MATTING (ECM) TYPE D WITH "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES" (SEE NOTE P)

TURF ESTABLISHMENT (SEE NOTE P)

MPT LEGEND:

CONSTRUCTION THIS STAGE

TEMPORARY PAVEMENT

TEMPORARY PRECAST CONCRETE BARRIER CURB (TPCBC) WITH DE-7 AND DE-7A DELINEATORS

TEMPORARY IMPACT ATTENUATION SYSTEM

ACTIVE TRAFFIC LANE

TWO WAY TRAFFIC ON ONE LANE CONTROLLED BY TRAFFIC PERSON

TRAFFIC DRUMS

TRAFFIC BARRICADE

WORK ZONE ACCESS LOCATION

GENERAL NOTES:

1. SEE DRAINAGE AND SEC GENERAL NOTES ON DWG. SEC-MPT 5-2.
2. SEE MPT PLANS FOR MPT DETAILS.
3. EXISTING DRAINAGE STRUCTURES (BASINS AND MANHOLES) ARE IDENTIFIED BY A NUMBER. TEMPORARY AND PROPOSED DRAINAGE STRUCTURES ARE DESIGNATED "T" OR "P" RESPECTIVELY.

DRAINAGE LEGEND:

EXISTING DRAINAGE IN OPERATION THIS STAGE

PROPOSED DRAINAGE UNDER CONSTRUCTION OR CONSTRUCTED IN PREVIOUS STAGE

TEMPORARY DRAINAGE

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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SCALE 1:500

DESIGNER: H. MORETT
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CADD $FILEABREV$ | PLOTTED $DATE$

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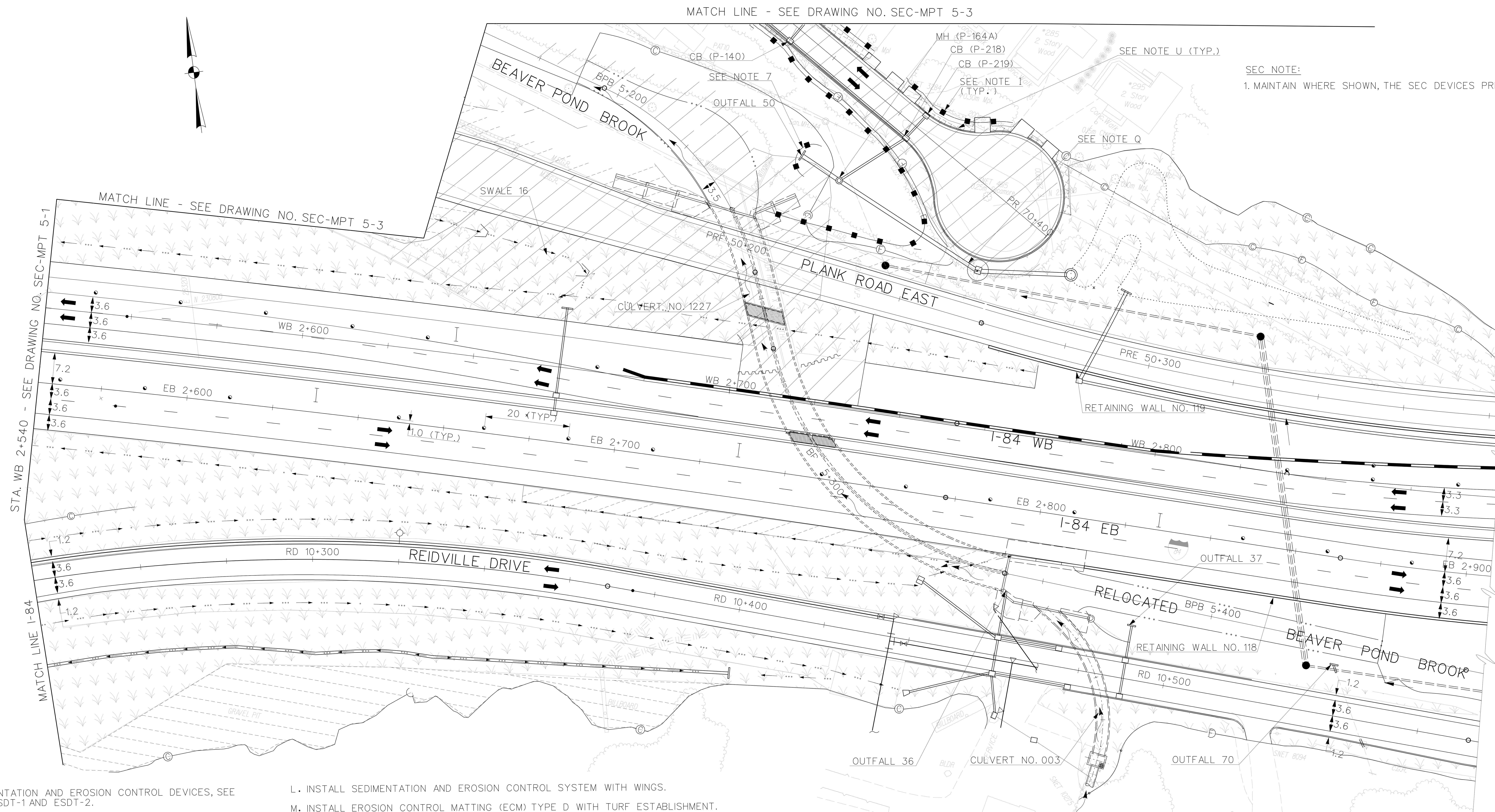
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 5

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 5-1
SHEET NO.:



SEC NOTE:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES PREVIOUSLY INSTALLED.

GENERAL SEC NOTES:

A. FOR DETAILS AND TABLES OF SEDIMENTATION AND EROSION CONTROL DEVICES, SEE DWGS. ESD-1 THRU ESD-6 AND DWG. ESDT-1 AND ESDT-2.

B. CONSTRUCTION ENTRANCES, AS INDICATED ON THE SEC-MPT PLANS OR AS DIRECTED BY THE ENGINEER, SHALL BE INSTALLED AND MAINTAINED TO REDUCE THE TRACKING OF SEDIMENTS OFF-SITE, ONTO PAVED SURFACES.

C. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE WATER HANDLING PLANS FOR CONSTRUCTION OF BRIDGES, CULVERTS AND RETAINING WALLS

D. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE MAD RIVER RELOCATION WATER HANDLING PLANS.

E. REFER TO THE PLANTING PLAN INCLUDED IN THE MAD RIVER RELOCATION PLANS.

F. THE SEC-MPT PLANS SHALL BE INTEGRATED WITH THE BEAVER POND BROOK RELOCATION WATER HANDLING PLAN.

G. REFER TO THE PLANTING PLAN INCLUDED IN THE BEAVER POND BROOK RELOCATION PLANS.

H. PAYMENT FOR TURF ESTABLISHMENT WITH EROSION CONTROL MATTING TYPE D SHALL BE MADE UNDER CONTRACT PAY ITEMS "TURF ESTABLISHMENT" OR "CONSERVATION SEEDING FOR SLOPES", AS NOTED, AND "EROSION CONTROL MATTING TYPE D".

I. INSTALL SEDIMENTATION AND EROSION SYSTEM.

J. INSTALL CHECK DAM GEOTEXTILE FENCE.

K. INSTALL TURF ESTABLISHMENT.

L. INSTALL SEDIMENTATION AND EROSION CONTROL SYSTEM WITH WINGS.

M. INSTALL EROSION CONTROL MATTING (ECM) TYPE D WITH TURF ESTABLISHMENT.

N. INSTALL CONSERVATION SEEDING FOR SLOPES.

O. INSTALL ECM TYPE D WITH CONSERVATION SEEDING FOR SLOPES.

P. TREATMENT SHOWN AT SWALE LOCATIONS IS FOR THE SIDE SLOPES. SEE NOTE T AND DWG. NO. ~~DD-7~~ DD-8 FOR SPECIFIC TREATMENT WITHIN SWALES.

Q. INSTALL GEOTEXTILE FENCING AROUND CATCH BASINS.

R. INSTALL SEDIMENTATION AND EROSION CONTROL GEOTEXTILE FENCE.

S. INSTALL STONE CHECK DAM.

T. INSTALL ECM TYPE E OR TYPE F SEE DRAINAGE PLANS

U. SOD INSTALLATION.

GENERAL DRAINAGE AND SEC NOTES:

1. THE CONTRACTOR SHALL MAINTAIN DRAINAGE ON ALL ACTIVE TRAVEL WAYS AT ALL TIMES. EXISTING STORM DRAINAGE SYSTEMS IN EXISTING ROADWAYS SHALL REMAIN OPERATIONAL UNTIL NEW DRAINAGE SYSTEMS ARE INSTALLED OR UNTIL TRAFFIC IS REMOVED FROM THE ROADWAYS. DRAINAGE SYSTEMS SHALL BE MAINTAINED BY INSTALLING TEMPORARY CATCH BASINS, MANHOLES, SWALES, SLOTTED DRAINS AND PIPES WHERE NECESSARY. ALL TEMPORARY CATCH BASINS, MANHOLES AND STORM SEWER PIPES SHALL BE DISPOSED OF AS INDICATED IN THE PLANS OR AS ORDERED BY THE ENGINEER. OTHERWISE, THEY SHALL BE REMOVED OR ABANDONED WHEN NO LONGER NECESSARY.

2. THE INSTALLATION OF DRAINAGE, SANITARY SEWERS OR WATER MAIN STRUCTURES (PERMANENT OR TEMPORARY) ACROSS OR ADJACENT TO ACTIVE TRAVEL LANES SHALL BE DONE DURING THE ALLOWABLE PERIODS OF LANE CLOSURES. THE TRENCH SHALL BE BACKFILLED AND PAVED OVER WITH TEMPORARY PAVEMENT OR COVERED WITH STEEL PLATES AS ORDERED BE ENGINEER TO ALLOW THE LANE(S) TO REOPEN TO TRAFFIC.

3. TEMPORARY CATCH BASINS AND MANHOLES ARE SHOWN WITH "T" SERIES DESIGNATIONS. "P" SERIES ARE PERMANENT STRUCTURES.FOR RIM AND INVERT ELEVATIONS SEE DWG. MPT D-1

4. ALL TEMPORARY MANHOLES OR CATCH BASINS SHALL BE PROVIDED WITH HEAVY DUTY TOPS AND FRAMES.

5. THE CONTRACTOR SHALL INSTALL PERMANENT AND TEMPORARY DRAINAGE DURING CONSTRUCTION STAGING SHOWN, OR AS DIRECTED BY THE ENGINEER. ANY REQUIRED ADJUSTMENT FOR THE FINAL CONDITION OF THESE STRUCTURES WILL NOT BE MEASURED FOR PAYMENT.

6. THE CONVERSION OF CATCH BASINS FOR STAGING PURPOSES, WHETHER THE CATCH BASIN IS EXISTING OR PROPOSED, SHALL BE PAID FOR UNDER THE ITEM "CONVERT CATCH BASIN TO TYPE 'C-L' CATCH BASIN."

7. MAINTAIN WHERE SHOWN THE SEC DEVICES SHOWN IN STAGE 1.

REV.	DATE	DESCRIPTION	SHEET NO.
		REVISIONS	

SCALE IN METERS 0 5 10 15 20 25 SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: SEDIMENTATION AND EROSION CONTROL STAGE 5

PROJECT NO.: 151-273

DRAWING NO.: SEC-MPT 5-2

SHEET NO.:

SEC NOTE:

1. MAINTAIN WHERE SHOWN, THE SEC DEVICES PREVIOUSLY INSTALLED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

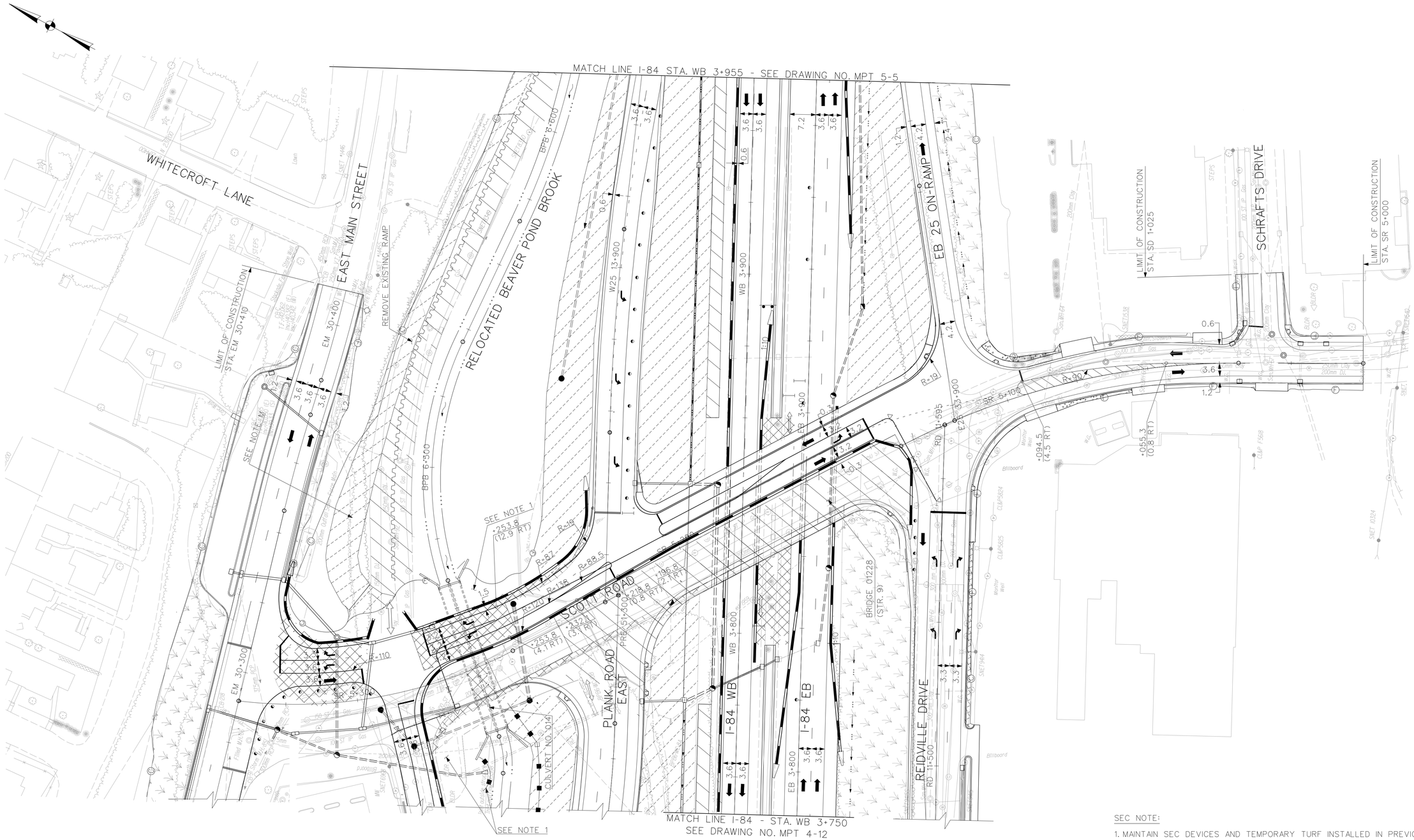
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 5

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 5-3
SHEET NO.:



SEC NOTE:

1. MAINTAIN SEC DEVICES AND TEMPORARY TURF INSTALLED IN PREVIOUS STAGES.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

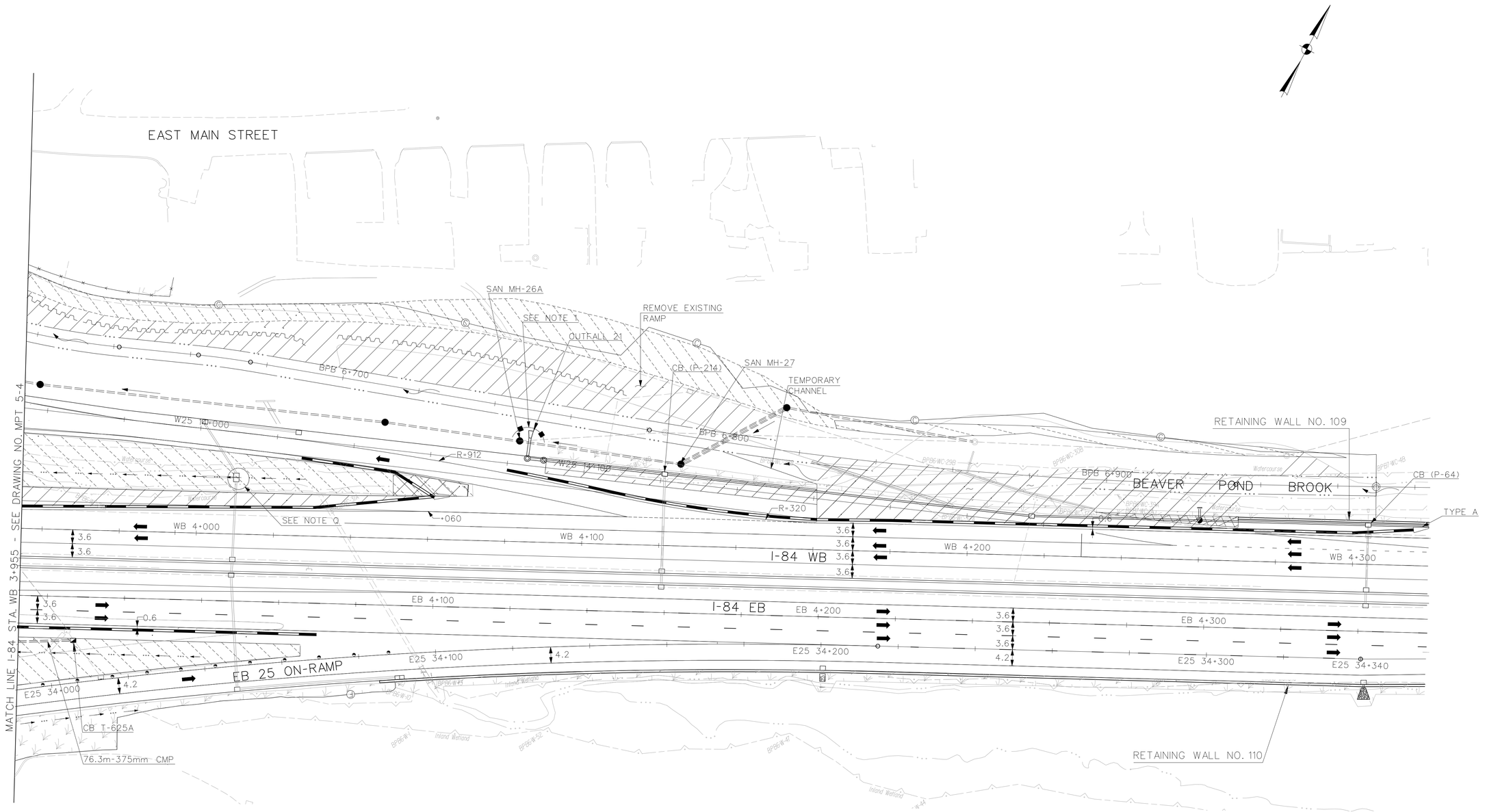
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 5

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 5-4
SHEET NO.:



SEC NOTE:

1. MAINTAIN THE SEC DEVICES INSTALLED IN STAGE 4C.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: H. MORETT
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

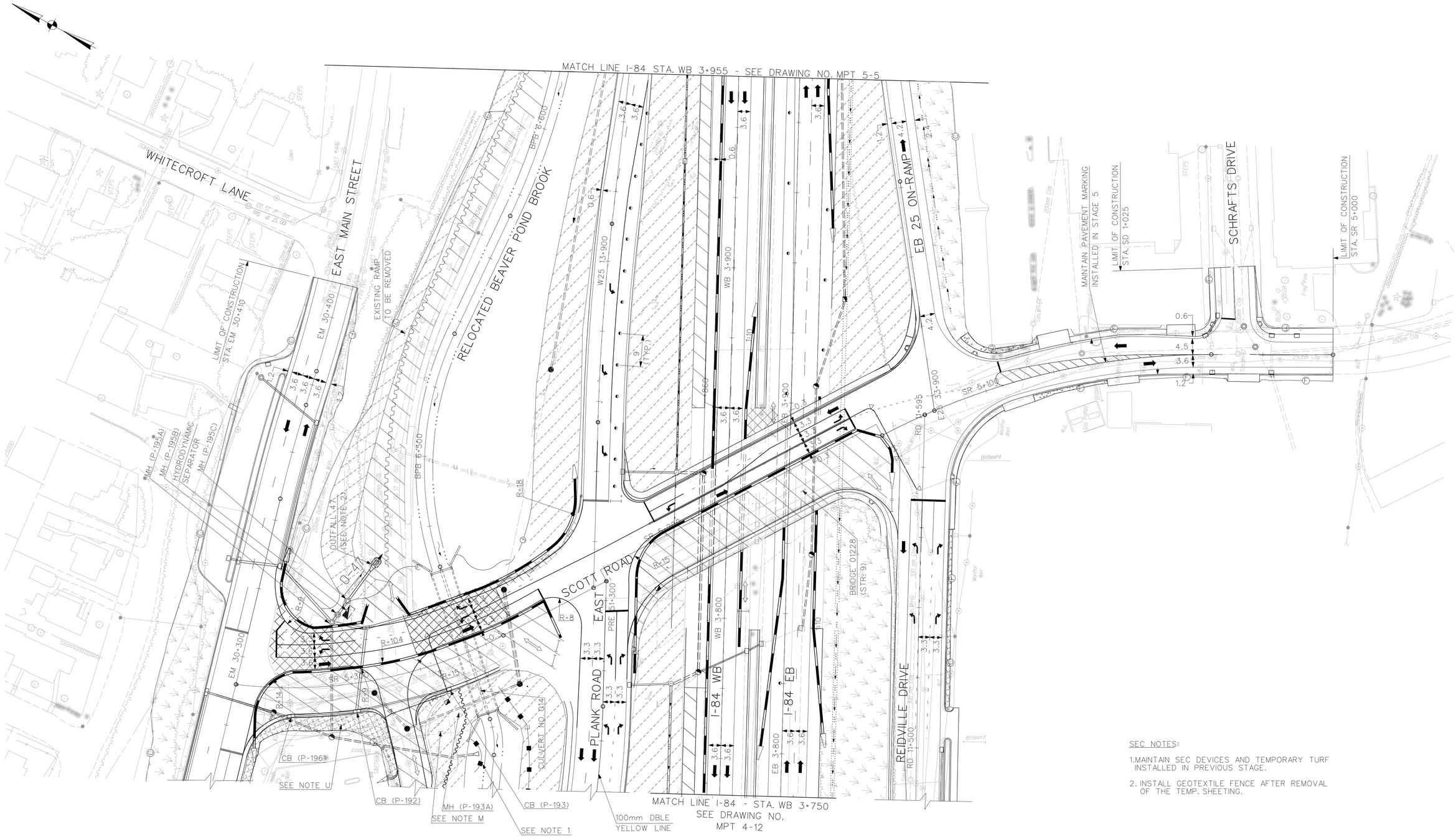
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 5

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 5-5
SHEET NO.:



SEC NOTES:

1. MAINTAIN SEC DEVICES AND TEMPORARY TURF INSTALLED IN PREVIOUS STAGE.
2. INSTALL GEOTEXTILE FENCE AFTER REMOVAL OF THE TEMP. SHEETING.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 5A

PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 5-6
SHEET NO.:

SEC NOTE:

1. MAINTAIN THE SEC DEVICES AND TEMPORARY TURF INSTALLED IN PREVIOUS STAGE.

WHITECROFT LANE
EAST MAIN STREET
RELOCATED BEAVER POND BROOK
LIMIT OF CONSTRUCTION STA. EM 30+410
EM 30+400
EM 30+300
SEE NOTE K
SEE NOTE 1
HYDRODYNAMIC SEPARATOR
SEE NOTE M
BPB 6+500
SCOTT ROAD
PLANK ROAD EAST
PRE 51+300
CULVERT NO. 014
W25 13+900
WB 3+900
WB 3+800
EB 3+900
EB 3+800
I-84 WB
I-84 EB
EB 25 ON-RAMP
RD 11+595
E25 33+900
SR 5+100
SR 5+200
SR 5+300
R-22
R-25
R-27
R-130
MH (T-625B)
CB (T-625A)
BRIDGE 01228 (STR. 9)
REIDVILLE DRIVE
RD 11+500
SCHRAFFTS DRIVE
LIMIT OF CONSTRUCTION STA. SD 1+025
LIMIT OF CONSTRUCTION STA. SR 5+000
MATCH LINE A-A
MATCH LINE A-A
WB 4+000
EB 4+000
CB (T-625)
MH T-625B
MH T-625C
CB (T-625A)
CB (P-95)
MH (T-626)
CB (P-53)
MH (T-627)
EXIST. CB-151
Billboard

STAGE 5B PHASE 2

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: M. MOSLEY
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

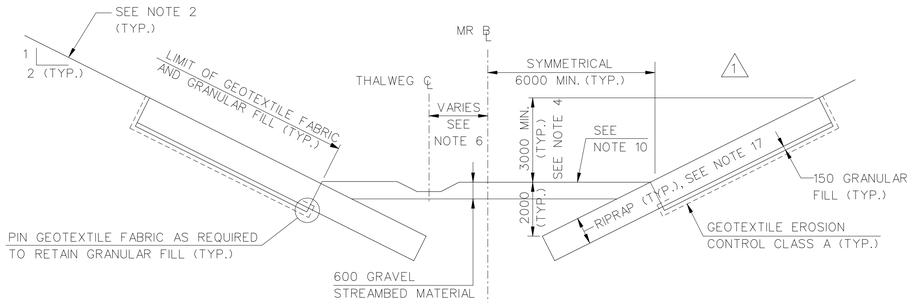
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
SEDIMENTATION AND EROSION CONTROL STAGE 5B

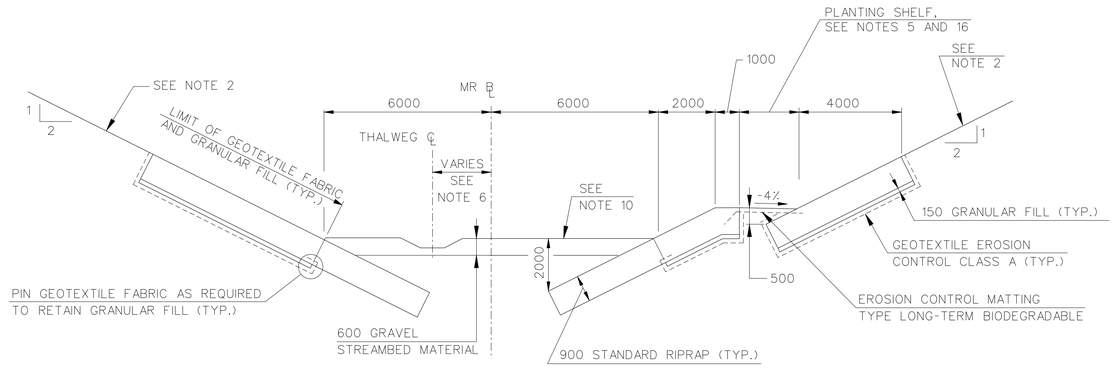
PROJECT NO.: 151-273
DRAWING NO.: SEC-MPT 5-7
SHEET NO.:



SECTION M1

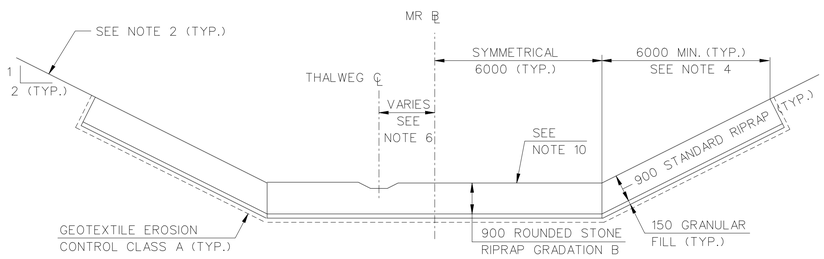
STA. MR 1+660 TO MR 1+882±
STA. MR 1+930 TO MR 1+940±
STA. MR 2+030 TO MR 2+090± (RIGHT SIDE OF ℄ ONLY)
STA. MR 2+070± TO MR 2+090± (LEFT SIDE OF ℄ ONLY)
STA. MR 2+104 TO MR 2+164+-
STA. MR 2+170± TO MR 2+180

NOTE: CROSS VANES AND VORTEX WEIRS ARE LOCATED WITHIN THE ABOVE LIMITS. SEE CROSS VANE W/ GRADE CONTROL STRUCTURE AND VORTEX WEIR DETAILS FOR STREAMBED CONSTRUCTION.



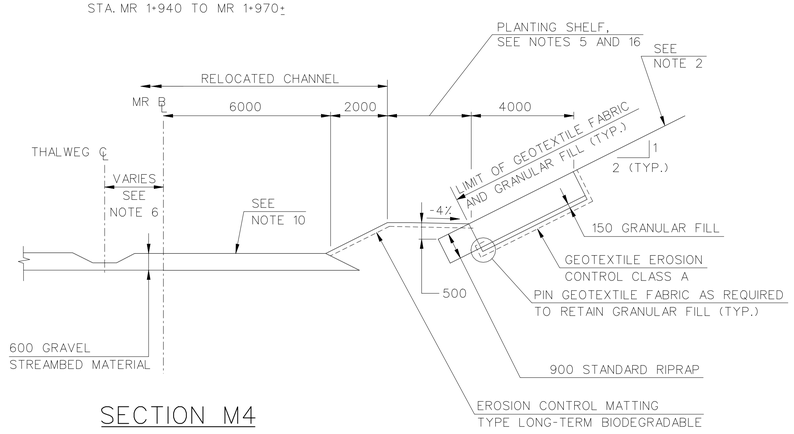
SECTION M2

STA. MR 1+882± TO MR 1+930±



SECTION M3

STA. MR 1+940 TO MR 1+970±



SECTION M4

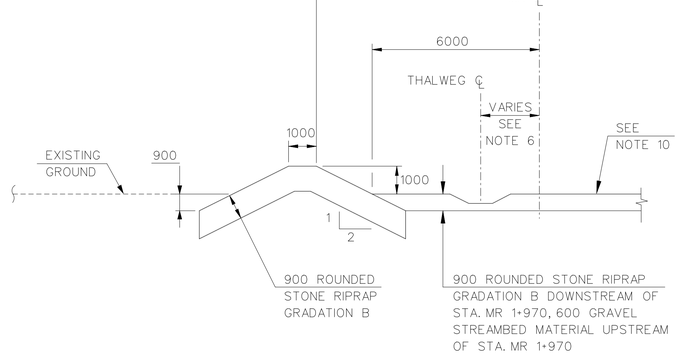
STA. MR 1+970 TO MR 2+025±

NOTE:

FOR NOTES, REFER TO DRAWING NO. RRD-1

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED

"TYP." IS AN ABBREVIATION FOR "TYPICAL" AND INDICATES THAT THE NOTED FEATURES SHALL BE APPLIED SIMILARLY ABOUT THE DETAIL.



SECTION M5

STA. MR 1+970± TO MR 2+070±

TYPICAL SECTIONS

STA. MR 1+660 TO 2+164±
N.T.S.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 1 2 3 4 5
SCALE 1:100

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\riverreloc\rrd-2.dgn
PLOTTED 12/1/2014

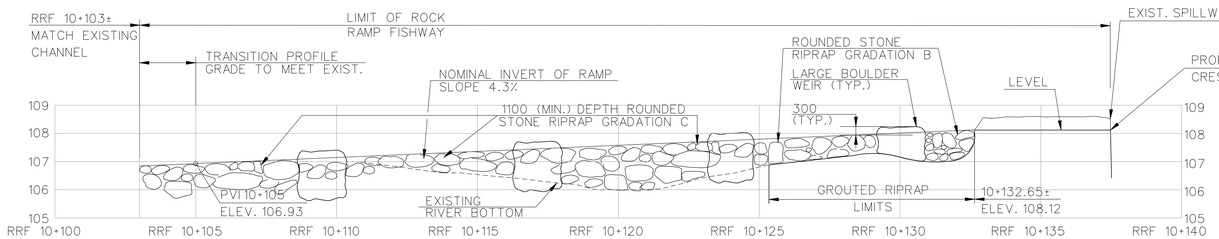
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

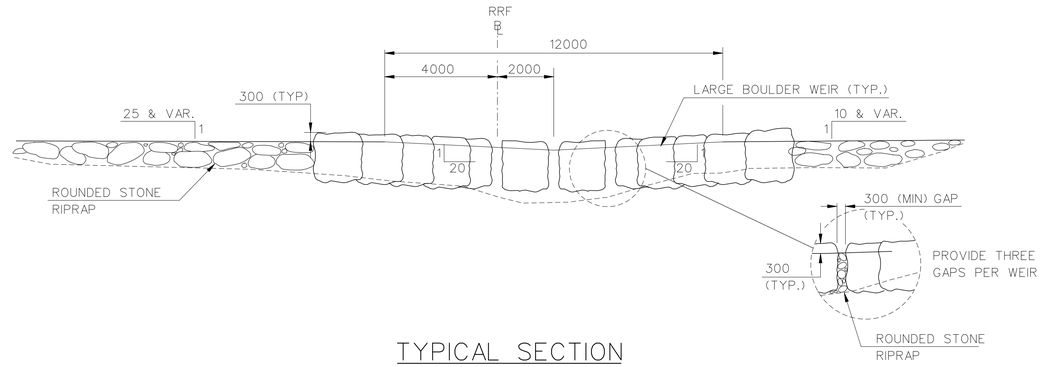
TOWN:
WATERBURY

DRAWING TITLE:
RIVER RELOCATION DETAILS
MAD RIVER

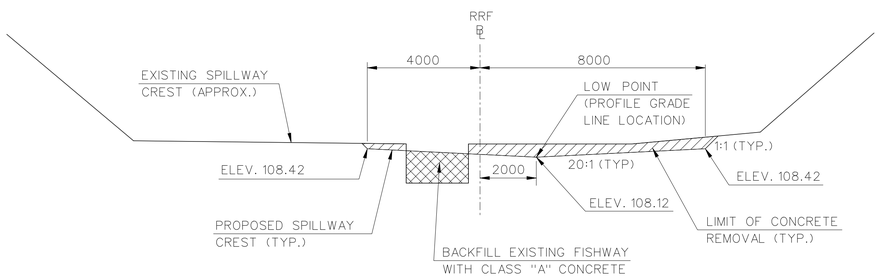
PROJECT NO.: 151-273
DRAWING NO.: RRD-2
SHEET NO.:



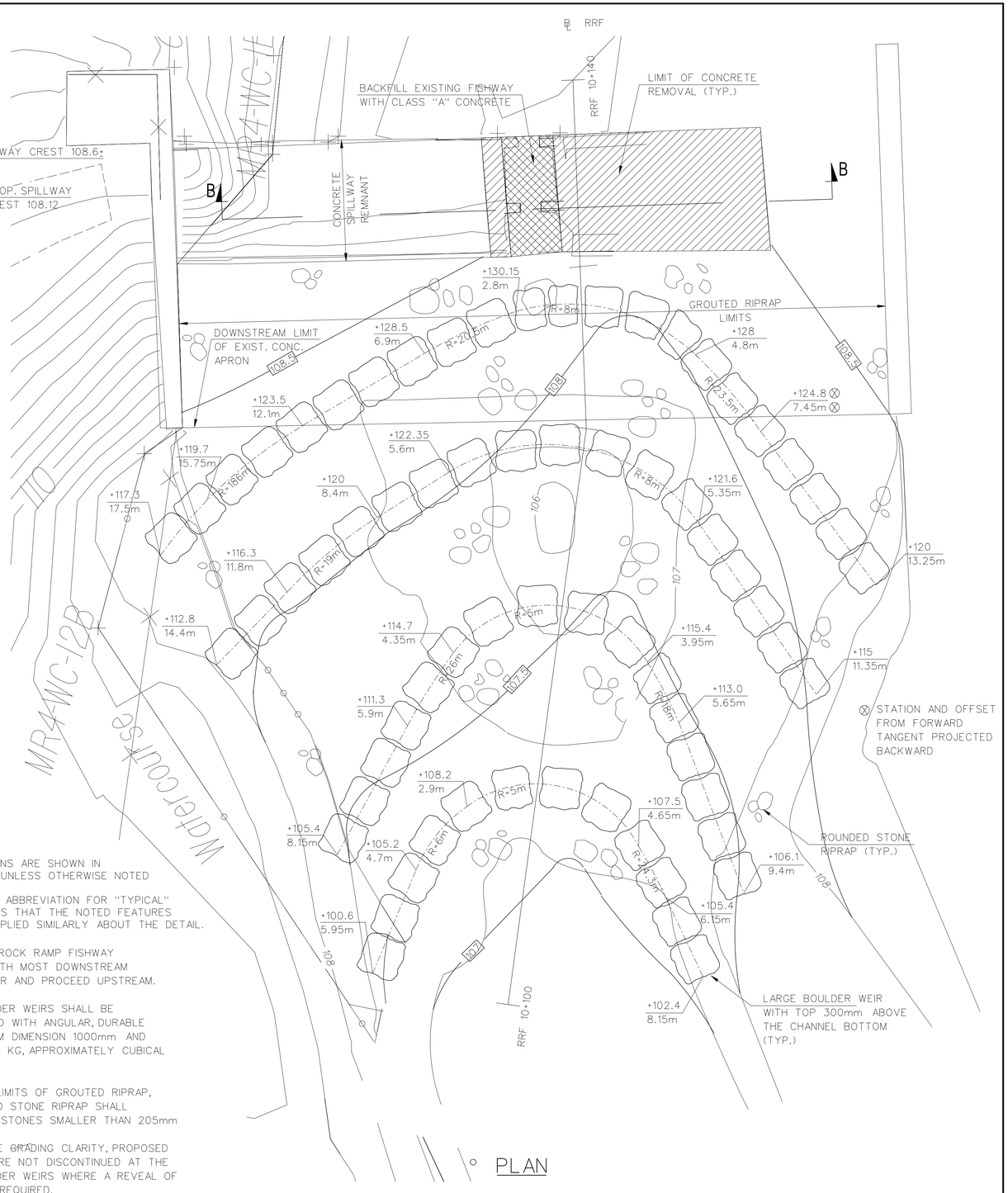
PROFILE
N.T.S.



TYPICAL SECTION
THRU PROFILE GRADE LINE
N.T.S.



SECTION B-B
N.T.S.



PLAN

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED
2. "TYP." IS AN ABBREVIATION FOR "TYPICAL" AND INDICATES THAT THE NOTED FEATURES SHALL BE APPLIED SIMILARLY ABOUT THE DETAIL.
3. CONSTRUCT ROCK RAMP FISHWAY BEGINNING WITH MOST DOWNSTREAM BOULDER WEIR AND PROCEED UPSTREAM.
4. LARGE BOULDER WEIRS SHALL BE CONSTRUCTED WITH ANGULAR, DURABLE ROCK MINIMUM DIMENSION 1000mm AND WEIGHT 2600 KG, APPROXIMATELY CUBICAL IN SHAPE.
5. WITHIN THE LIMITS OF GROUTED RIPRAP, THE ROUNDED STONE RIPRAP SHALL CONTAIN NO STONES SMALLER THAN 205mm
6. FOR SURFACE GRADING CLARITY, PROPOSED CONTOURS ARE NOT DISCONTINUED AT THE LARGE BOULDER WEIRS WHERE A REVEAL OF 300 mm IS REQUIRED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 1 2 3 4 5
SCALE 1:100

DESIGNER: D. NYMAN
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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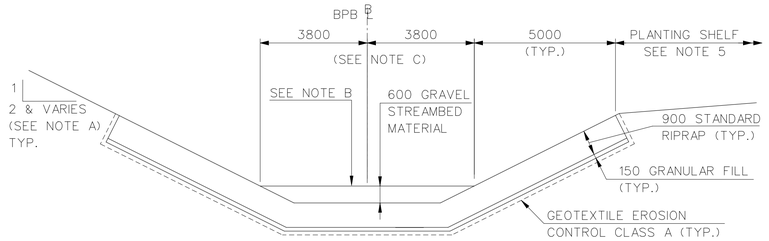
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
RIVER RELOCATION DETAILS
ROCK RAMP FISHWAY

PROJECT NO.: 151-273
DRAWING NO.: RRD-5
SHEET NO.:



SECTION B

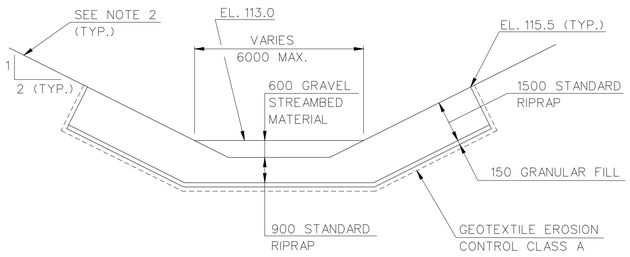
STA. BPB 5+007± TO BPB 5+026±
STA. BPB 5+057± TO STA. BPB 5+100
(FOR STA. BPB 5+026± TO STA. BPB 5+057±
SEE CULVERT No. 03727)

NOTES:

A. SIDE SLOPE VARIES SEE GRADING PLAN.

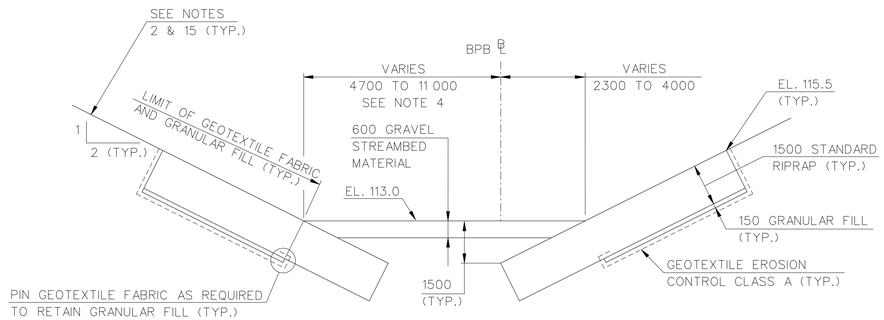
B. MAINTAIN EXISTING CHANNEL PROFILE GRADE FROM BPB 5+075± TO BPB 5+100±. FOR BPB 5+007± TO 5+075 PROFILE, SEE CULVERT NO. 03727.

C. THE CHANNEL WIDTH VARIES BETWEEN BPB 5+007± AND BPB 5+026. SEE DEVELOPMENT PLAN BPD-1.



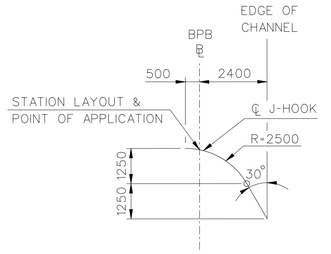
SECTION B1

STA. BPB 5+190 TO BPB 5+200±

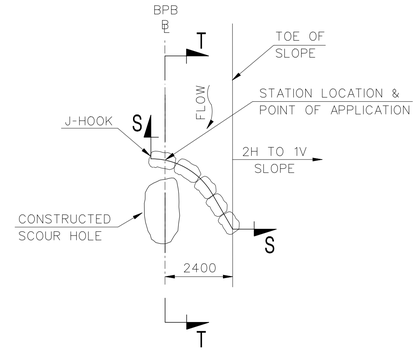


SECTION B2

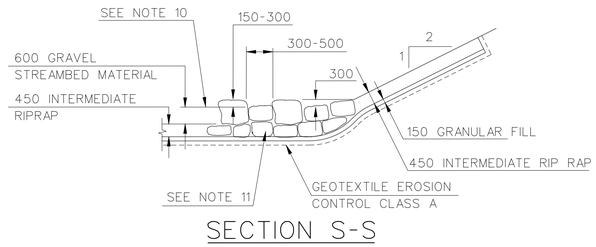
STA. BPB 5+206 TO BPB 5+238±



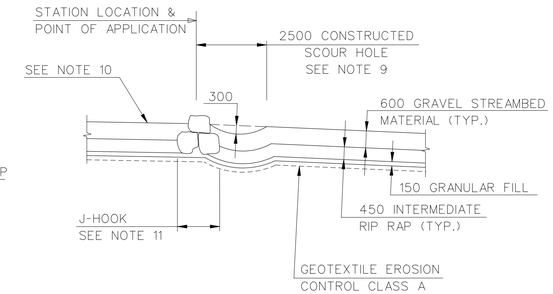
LAYOUT PLAN



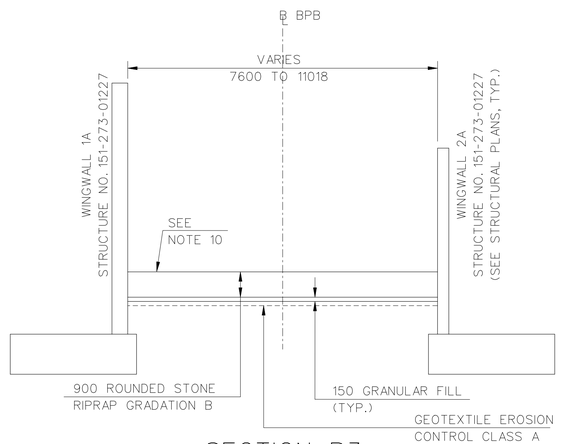
PLAN VIEW



SECTION S-S



SECTION T-T



SECTION B3

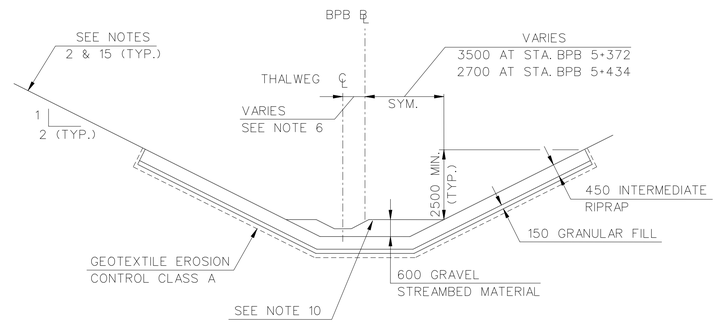
STA. BPB 5+351 TO BPB 5+370±

J-HOOK (RIGHTHANDED)

(LEFTHANDED MIRRORED ABOUT ℄)

STA. BPB 6+505 (RH)
STA. BPB 6+570 (RH)
STA. BPB 6+610 (LH)
STA. BPB 6+720 (RH)
STA. BPB 6+800 (RH)

N.T.S.



SECTION B4

STA. BPB 5+370± TO 5+434±

TYPICAL SECTIONS

STA. BPB 5+007± TO STA. BPB 5+434±
(FOR STA BPB 5+026± TO BPB 5+057±
AND STA. BPB 5+238± TO STA. BPB 5+351±
SEE CULVERT NOS. 03727 AND 01227)
N.T.S.

NOTE:

FOR NOTES, REFER TO DRAWING NO. RRD-1

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED

"TYP." IS AN ABBREVIATION FOR "TYPICAL" AND INDICATES THAT THE NOTED FEATURES SHALL BE APPLIED SIMILARLY ABOUT THE DETAIL

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 1 2 3 4 5
SCALE 1:100

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\sheets\riverreloc\rrd-6.dgn
PLOTTED 12/1/2014

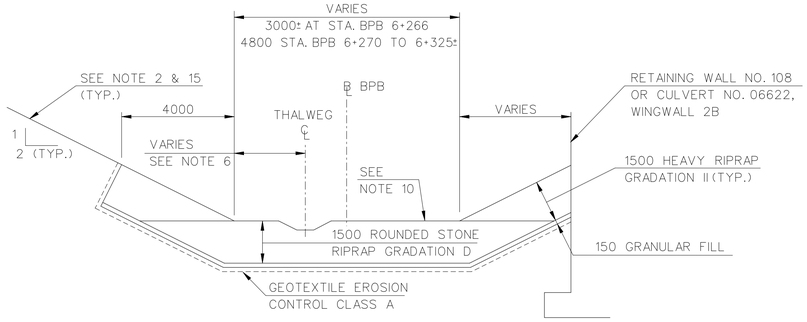
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

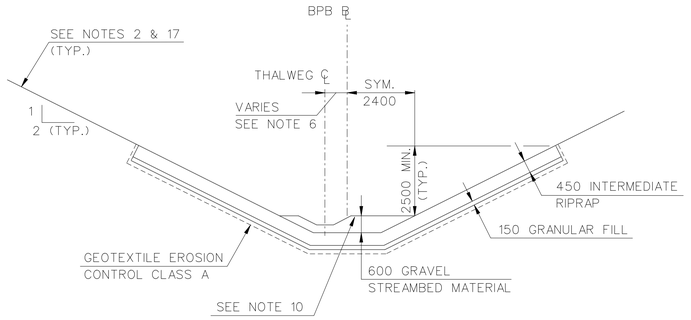
DRAWING TITLE:
RIVER RELOCATION DETAILS
BEAVER POND BROOK

PROJECT NO.: 151-273
DRAWING NO.: RRD-6
SHEET NO.:



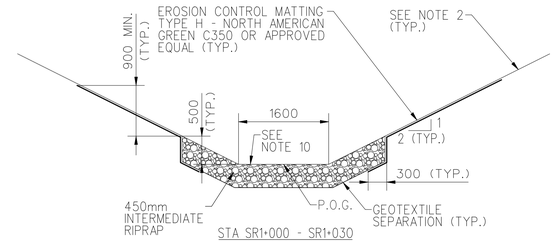
SECTION B5

STA. BPB 6+266 TO BPB 6+325±

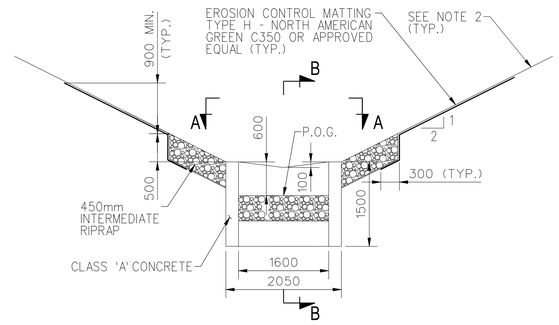


SECTION B8

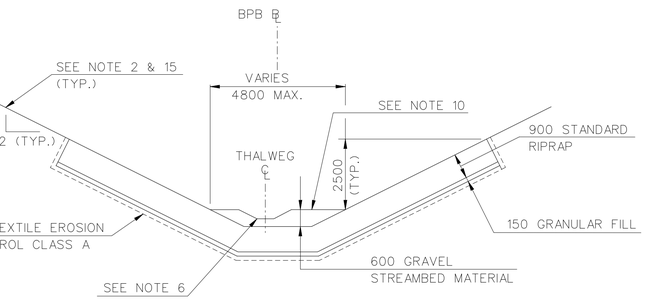
STA. BPB 6+620 TO 6+675 (LEFT SIDE OF ℄ ONLY)
STA. BPB 6+720 TO 6+958 (RIGHT SIDE OF ℄ ONLY)
STA. BPB 6+810 TO 6+865 (LEFT SIDE OF ℄ ONLY)
STA. BPB 6+900 TO 6+958 (LEFT SIDE OF ℄ ONLY)
(SEE NOTE 'C')



STA SR1+000 - SR1+030

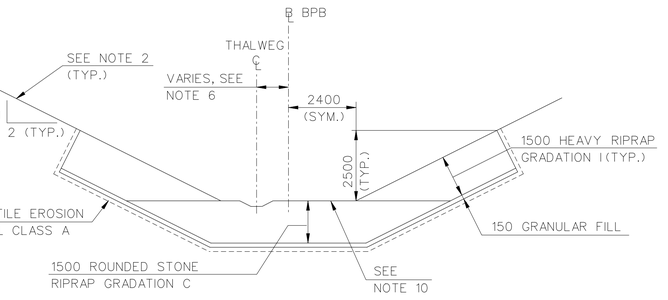


STA. SR1+030 - SR1+120
(SEE NOTE A)



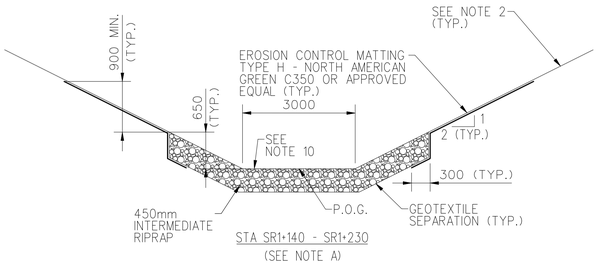
SECTION B9

STA. BPB 6+958 TO BPB 6+964±

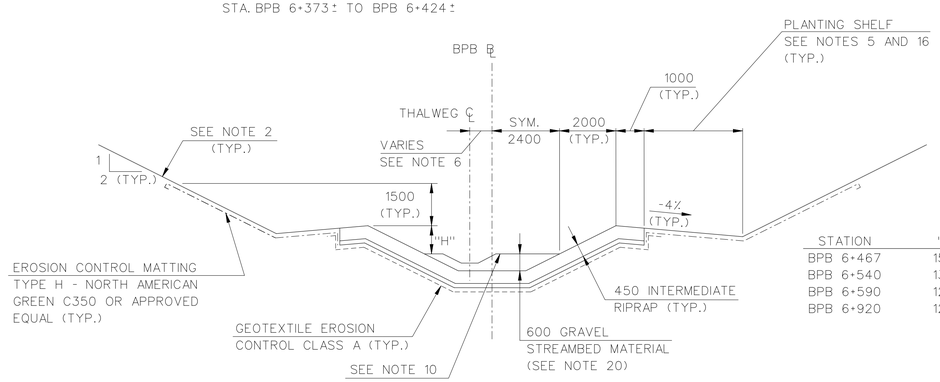


SECTION B7

STA. BPB 6+467± TO 6+620
STA. BPB 6+620 TO 6+720 (RIGHT SIDE OF ℄ ONLY)
STA. BPB 6+675 TO 6+810 (LEFT SIDE OF ℄ ONLY)
STA. BPB 6+865 TO 6+900 (LEFT SIDE OF ℄ ONLY)
(SEE NOTE 'C')



STA SR1+140 - SR1+230
(SEE NOTE A)

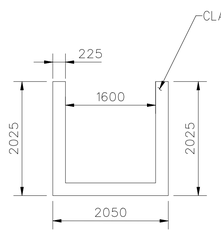


STATION	"H"
BPB 6+467	1500
BPB 6+540	1300
BPB 6+590	1200
BPB 6+920	1200

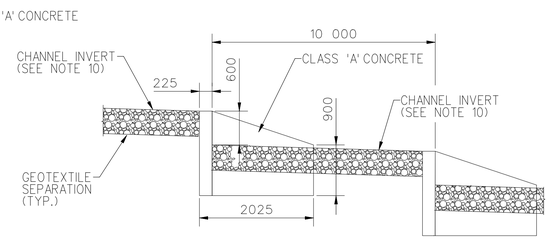
NOTES:
A. TRANSITION THE WIDTH OF THE CHANNEL BETWEEN STA. SR1+120 AND SR1+140.

B. PAYMENT FOR WORK ASSOCIATED WITH THE RELOCATION OF BEAVER POND BROOK AND THE STREAM RE-ESTABLISHMENT OF THE UNNAMED STREAM SHALL BE PAID FOR UNDER THE APPLICABLE CONTRACT ITEMS.

C. CROSS VANES ARE LOCATED WITHIN THE ABOVE LIMITS. SEE CROSS VANE W/ GRADE CONTROL STRUCTURE DETAILS FOR STREAMBED CONSTRUCTION.



SECTION A-A



SECTION B-B

NOTE:

FOR NOTES, REFER TO DRAWING NO. RRD-1

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED

"TYP." IS AN ABBREVIATION FOR "TYPICAL" AND INDICATES THAT THE NOTED FEATURES SHALL BE APPLIED SIMILARLY ABOUT THE DETAIL.

BEAVER POND BROOK TYPICAL SECTIONS

STA. BPB 6+266 TO 6+964±
N.T.S.

STREAM RE-ESTABLISHMENT MOUNTAIN VILLAGE ROAD AREA TYPICAL SECTIONS

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 1 2 3 4 5
SCALE 1:100

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
CADD ...\sheets\riverreloc\rrd-7.dgn
PLOTTED 12/1/2014

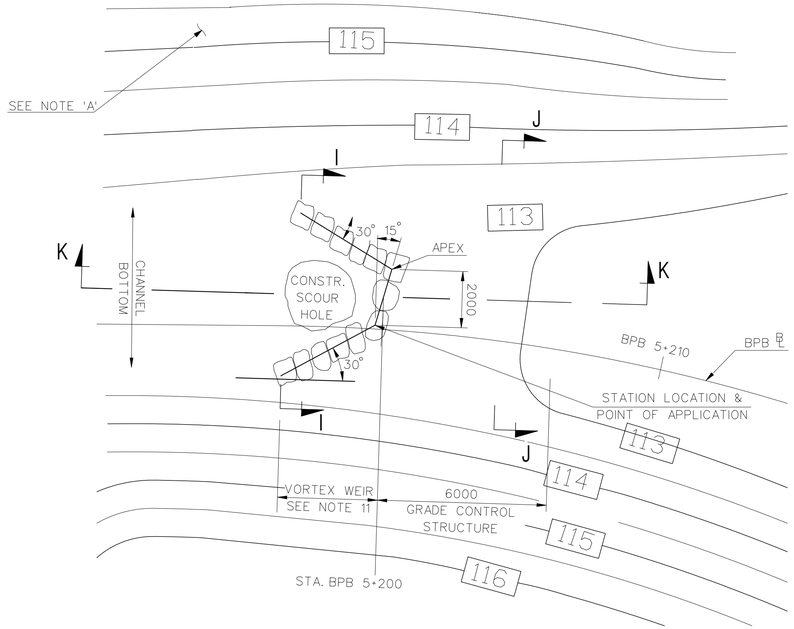
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

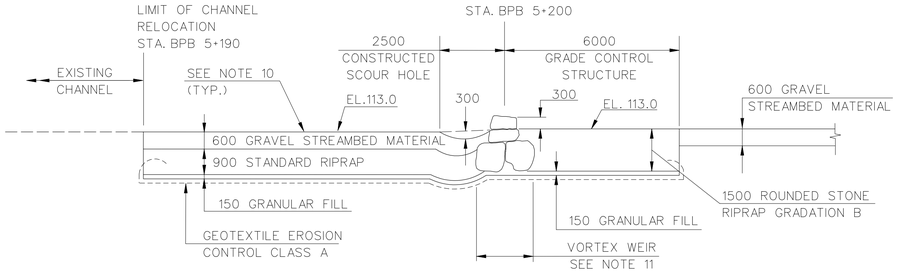
DRAWING TITLE:
RIVER RELOCATION DETAILS – BEAVER POND BROOK & MOUNTAIN VILLAGE ROAD

PROJECT NO.: 151-273
DRAWING NO.: RRD-7
SHEET NO.:

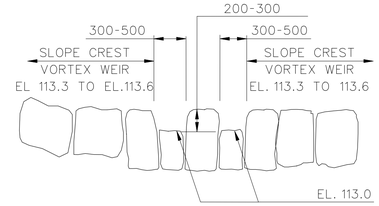


PLAN VIEW

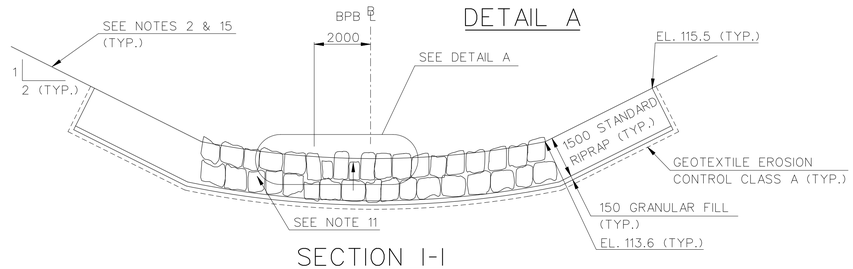
NOTE "A"
EXISTING VEGETATION ABOVE ELEV. 115.5 BETWEEN BPB STA. 5+190 AND STA. 5+200 SHALL NOT BE DISTURBED. SEE GRADING PLAN BPG-1.



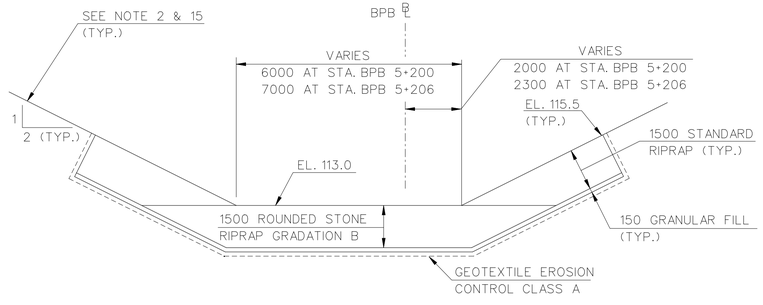
SECTION K-K



DETAIL A

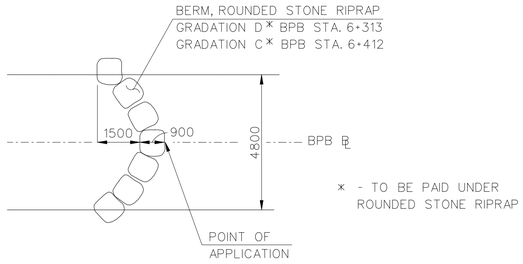


SECTION I-I



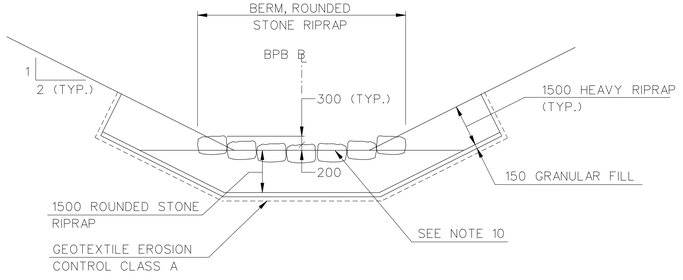
SECTION J-J

STA. BPB 5+200 TO BPB 5+206



* - TO BE PAID UNDER ROUNDED STONE RIPRAP

PLAN VIEW



TYPICAL SECTION

BERM, ROUNDED STONE RIPRAP
STA. BPB 6+313
STA. BPB 6+412
N.T.S.

VORTEX WEIR (LEFTHANDED) W/ GRADE CONTROL STRUCTURE

STA. BPB 5+200
N.T.S.

NOTE:

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED

FOR NOTES, REFER TO DRAWING NO. RRD-1

"TYP." IS AN ABBREVIATION FOR "TYPICAL" AND INDICATES THAT THE NOTED FEATURES SHALL BE APPLIED SIMILARLY ABOUT THE DETAIL.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 1 2 3 4 5
SCALE 1:100

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

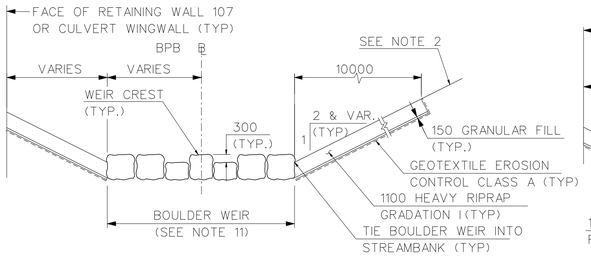
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

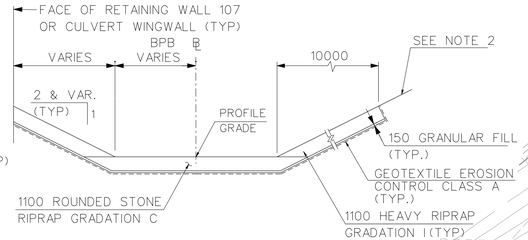
TOWN: WATERBURY

DRAWING TITLE:
RIVER RELOCATION DETAILS
BEAVER POND BROOK

PROJECT NO.: 151-273
DRAWING NO.: RRD-8
SHEET NO.:



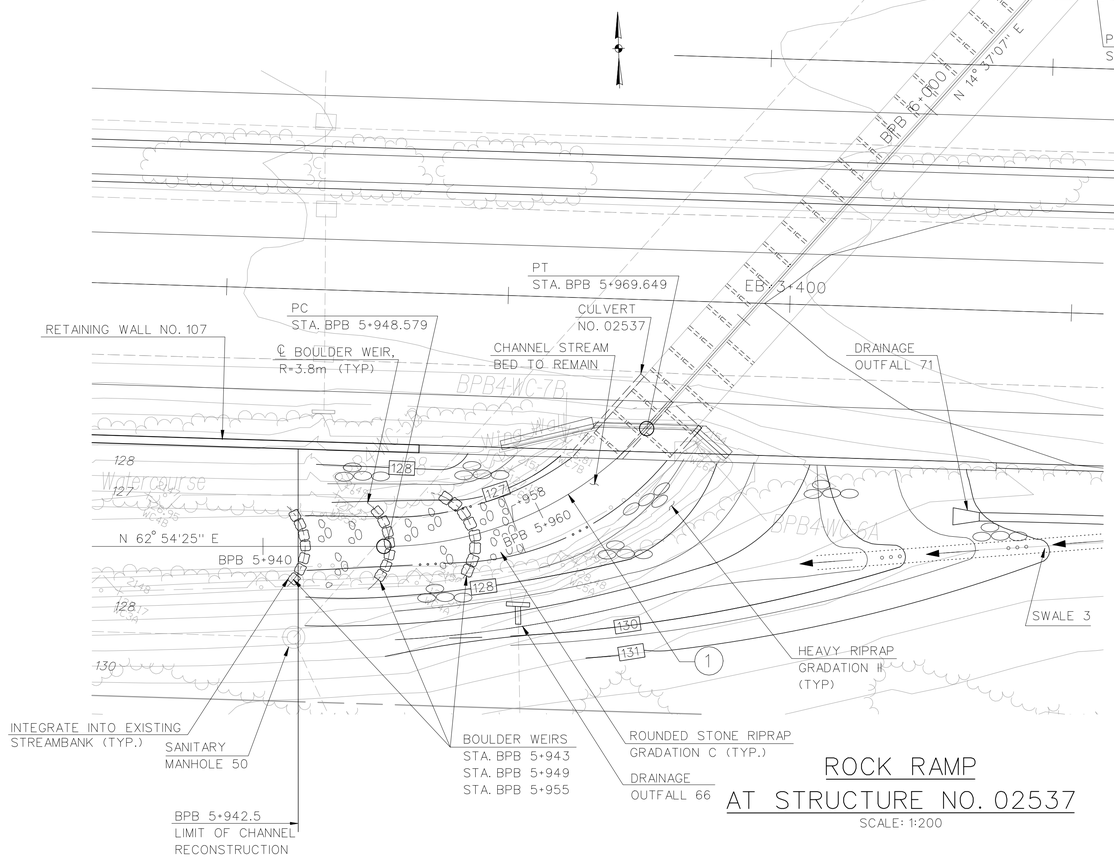
AT BOULDER WEIR



BETWEEN BOULDER WEIR

TYPICAL ROCK RAMP SECTION

N.T.S.

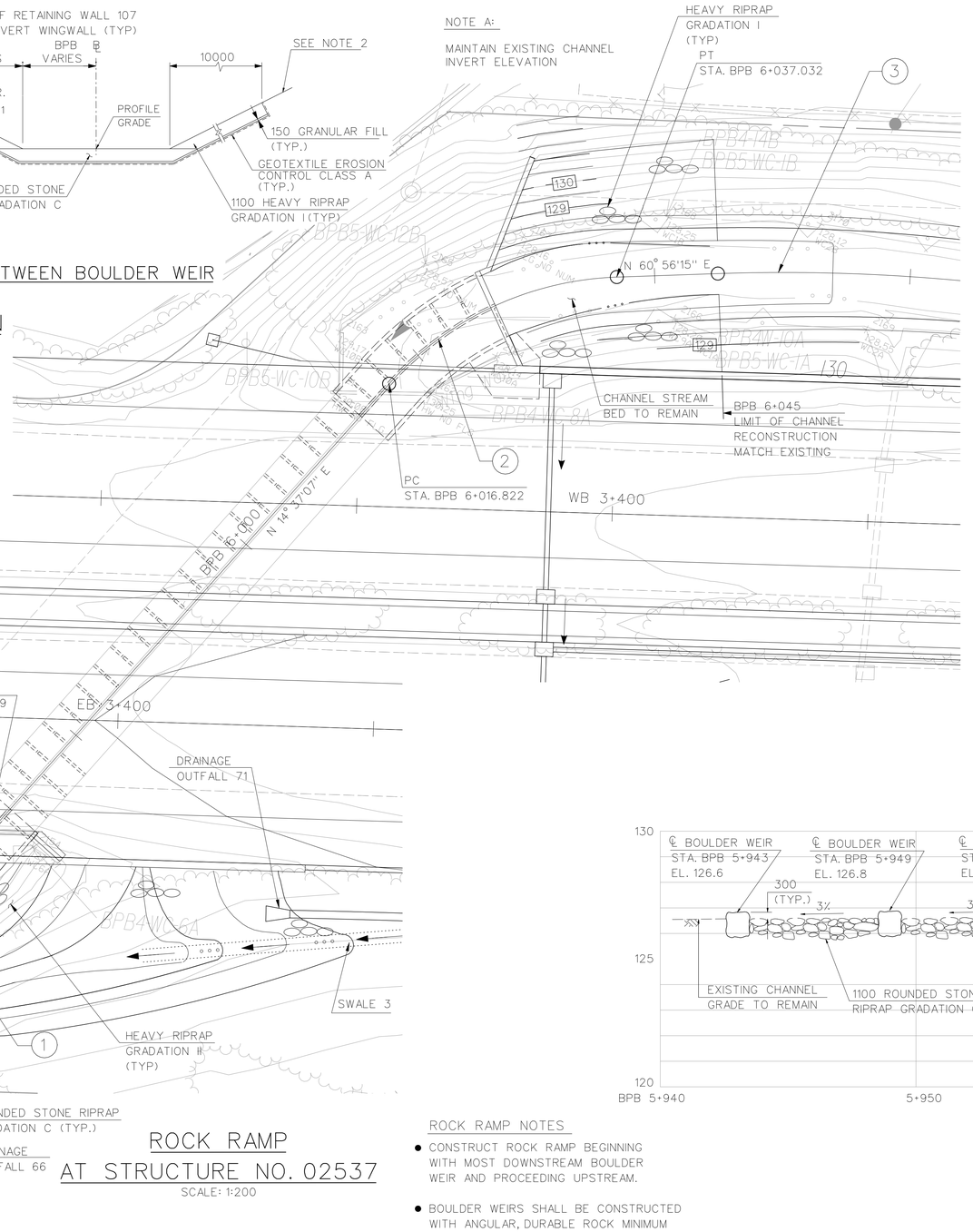


ROCK RAMP AT STRUCTURE NO. 02537

SCALE: 1:200

NOTE A:

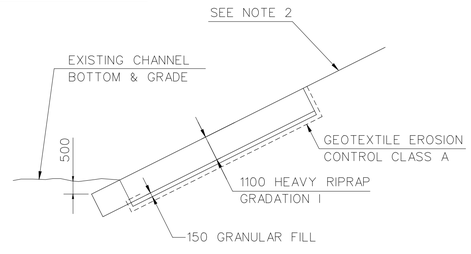
MAINTAIN EXISTING CHANNEL INVERT ELEVATION



CURVE DATA #1	
P.C.	STA. BPB 5+948.579
	N 230765.876
	E 283947.238
C.C.	N 230781.133
	E 283935.852
P.T.	STA. BPB 5+969.649
	N 230781.823
	E 283960.042
△	48° 17'18" Left
T (m)	11.206
L (m)	21.070
R (m)	25.000

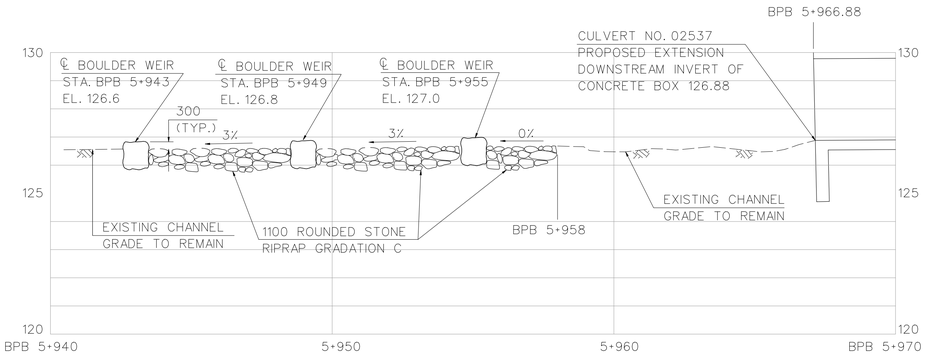
CURVE DATA #2	
P.C.	STA. BPB 6+016.822
	N 230827.469
	E 283971.948
C.C.	N 230821.159
	E 283996.139
P.T.	STA. BPB 6+037.032
	N 230843.011
	E 283983.995
△	46° 19'08" Right
T (m)	10.694
L (m)	20.210
R (m)	25.000

CURVE DATA #3	
P.C.	STA. BPB 6+044.943
	N 230846.854
	E 283990.909
C.C.	N 230715.740
	E 284063.774
P.T.	STA. BPB 6+076.023
	N 230859.040
	E 284019.441
△	11° 52'19" Right
T (m)	15.596
L (m)	31.081
R (m)	150.000



TYPICAL RIPRAP SLOPE PROTECTION DETAIL

N.T.S.



ROCK RAMP PROFILE

ROCK RAMP NOTES

- CONSTRUCT ROCK RAMP BEGINNING WITH MOST DOWNSTREAM BOULDER WEIR AND PROCEEDING UPSTREAM.
- BOULDER WEIRS SHALL BE CONSTRUCTED WITH ANGULAR, DURABLE ROCK MINIMUM DIMENSION 1000 mm AND MINIMUM WEIGHT 2600 KG, APPROXIMATELY CUBICAL IN SHAPE

NOTE:

FOR NOTES, REFER TO DRAWING NO. RRD-1

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED

"TYP." IS AN ABBREVIATION FOR "TYPICAL" AND INDICATES THAT THE NOTED FEATURES SHALL BE APPLIED SIMILARLY ABOUT THE DETAIL.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 1 2 3 4 5
SCALE 1:100

DESIGNER: D. NYMAN
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
RIVER RELOCATION DETAILS
BEAVER POND BROOK

PROJECT NO.: 151-273
DRAWING NO.: RRD-10
SHEET NO.:

RIVER RELOCATION NOTES:

1. FOR PROPOSED HIGHWAY WORK, SEE ROADWAY DEVELOPMENT PLANS.
2. FOR PROPOSED DRAINAGE, SEE DRAINAGE PLANS.
3. FOR PROPOSED WATER MAIN RELOCATION, SEE WATER MAIN RELOCATION PLANS.
4. FOR PROPOSED SANITARY SEWER RELOCATION, SEE SEWER RELOCATION PLANS.
5. FOR HABITAT ENHANCEMENT TREATMENTS, SEE HABITAT ENHANCEMENT PLANS AND SPECIAL PROVISIONS.
6. FOR PROPOSED CHANNEL TREATMENTS, SEE RIVER RELOCATION DETAILS.
7. FOR SANITARY SEWER CONSTRUCTION STAGING AT THE RIVER CROSSINGS, SEE DWG. NOS. MRW-1 AND BPSSC-1.
8. FOR STREAM RE-ESTABLISHMENT ALIGNMENT, SEE DWG. NOS. RAP-4 AND RAP-19.
9. SEE WATER HANDLING PLANS FOR STAGING CHANNEL RELOCATION.
10. FOR PROPOSED RETAINING WALLS, CULVERTS AND BRIDGES, SEE STRUCTURAL PLANS.
11. SEE MAD RIVER RELOCATION GRADING PLANS FOR PROPOSED GRADING.

MRG-3
MVR-1
MVR-2
MRW-11,12&13

MRP-1
MRD-1
MRG-1
MRH-1
MRW-3,5&7

MRP-2
MRD-2
MRG-2
MRH-2
MRW-1&2
MRW-4&6
MRW-8,9&10

STR. NO. 01224

STREAM RE-ESTABLISHMENT

LEGEND

MRP: MAD RIVER RELOCATION PROFILES
MRD: MAD RIVER RELOCATION DEVELOPMENT PLANS
MRG: MAD RIVER RELOCATION GRADING PLANS OR GRADING AT STRUCTURE NO. 01224
MRH: MAD RIVER RELOCATION HABITAT ENHANCEMENT PLANS
MVR: MOUNTAIN VALLEY ROAD STREAM RE-ESTABLISHMENT PROFILE AND GRADING PLAN
MRW: MAD RIVER WATER HANDLING PLAN

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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SCALE 1:1500

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
INDEX PLAN

PROJECT NO.: 151-273
DRAWING NO.: MR-I
SHEET NO.:

NOTE:
FOR NOTES, SEE DRAWING NO. MR-I

RETAINING WALL NO. 115
(SEE NOTE 9)

SEE DRAWING NO. MRD-2

WB 24 ON-RAMP

I-84 WB

I-84 EB

EB 25 OFF-RAMP

RETAINING WALL NO. 114
(SEE NOTE 9)

RETAINING WALL NO. 113
(SEE NOTE 9)

RETAINING WALL NO. 116
(SEE NOTE 9)

BRIDGE NO. 05774
(SEE NOTE 9)

BRIDGE NO. 06284
(SEE NOTE 9)

MAD RIVER

RELOCATED

EXIST. SANITARY SEWER

RIPRAP SLOPE PROTECTION (TYP.)

EDGE OF CHANNEL (TYP.)

GRADE CONTROL STRUCTURE (TYP.)

LIMIT OF CHANNEL RELOCATION
STA. MR 1+660.000
MATCH EXISTING

LIMIT OF RIPRAP SLOPE PROTECTION (TYP.) (SEE NOTE 6)

PC
STA. MR 1+834.084

MR 1+820.622 =
WB 2+339.416

PT
STA. MR 1+792.900

MR 1+796.038 =
EB 2+348.175

MR 1+727.466 =
E25 11+313.828

STA. RRF 10+100
N 230804.9
E 282688.8

STA. RRF 10+140
N 230802.1
E 282728.6

STA. RRF 10+125
N 230801.5
E 282713.6

S82° 16'04"E

N87° 48'32"E

S86° 28' 12"E

MR 1+600

RRF 10+100

RRF 10+140

MR STA. 1+860.00

MATCH LINE

REIDVILLE DR. E

REIDVILLE DRIVE

HARPERS FERRY ROAD

RD 10.000 E

SEE NOTE 3

CURVE NO. MR1
MAD RIVER

P.C.	STA. MR 1+678.188
	N 230796.817
	E 282838.595
C.C.	N 230966.495
	E 282849.062
P.T.	STA. MR 1+792.900
	N 230827.464
	E 282946.891
△	38° 39'43" Lt.
T (m)	59.636
L (m)	114.712
R (m)	170.000

CURVE NO. MR2
MAD RIVER

P.C.	STA. MR 1+834.084
	N 230851.164
	E 282980.572
C.C.	N 230769.381
	E 283038.118
P.T.	STA. MR 1+882.517
	N 230868.552
	E 283025.269
△	27° 44'59" Rt.
T (m)	24.701
L (m)	48.433
R (m)	100.000

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

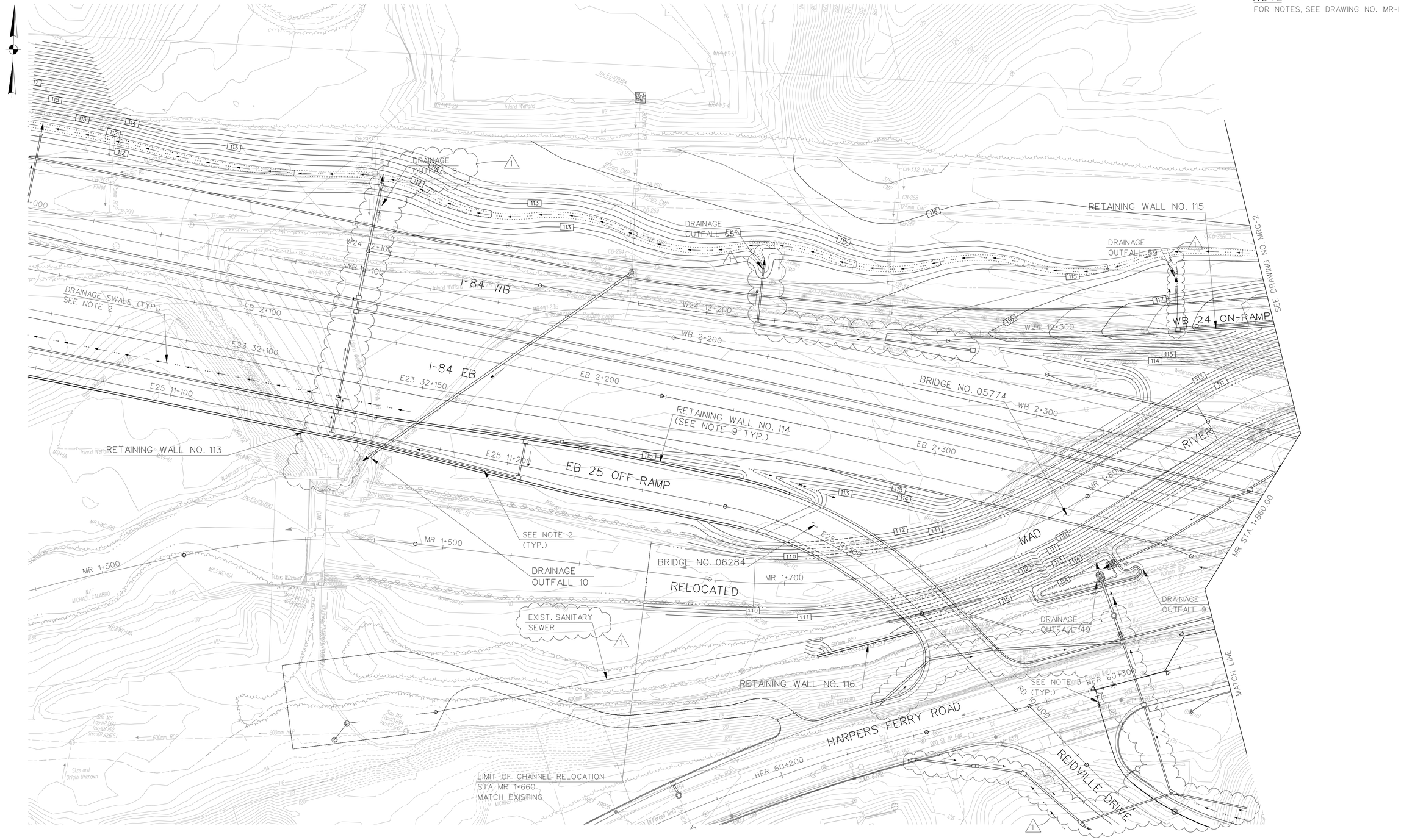
DRAWING TITLE:
MAD RIVER RELOCATION
DEVELOPMENT PLAN 1 OF 2

PROJECT NO.:
151-273

DRAWING NO.:
MRD-1

SHEET NO.:

NOTE
FOR NOTES, SEE DRAWING NO. MR-1



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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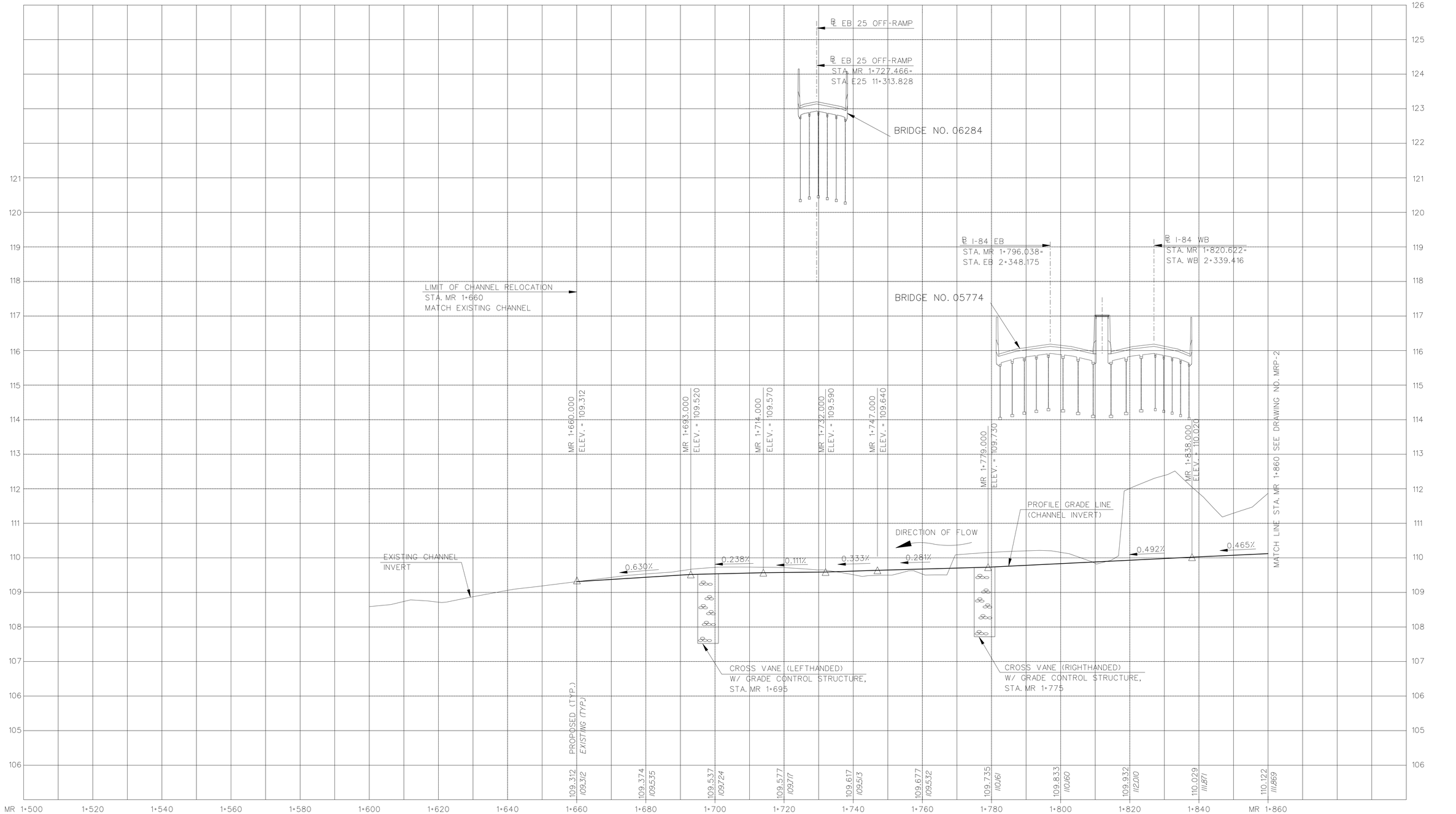
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
GRADING PLAN 1 OF 3

PROJECT NO.: 151-273
DRAWING NO.: MRG-1
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

HORIZ. SCALE IN METERS
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VERT. SCALE IN METERS
0 .5 1 1.5 2 2.5
HORIZ. SCALE 1:500 VERT. SCALE 1:50
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\MadRiv\mrreloc02.pro
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
PROFILE STA. MR 1+600 TO STA. 1+860

PROJECT NO.: 151-273
DRAWING NO.: MRP-1
SHEET NO.:

NOTE
FOR NOTES, SEE DRAWING NO. MR-1

RETAINING WALL NO. 115
(SEE NOTE 9)

SEE DRAWING NO. MRD-1

RIPRAP SLOPE
PROTECTION (TYP.)

WB24 ON-RAMP

WB24 ON-RAMP ℄

MR STA. 1+860.00

MATCH LINE

EB 2+400

WB 2+400

MR2

MR 1+935.309 =
W24 12+440.477

MR3

N46° 03'51"E

ROUNDED STONE
RIPRAP GRADATION B

EDGE OF
CHANNEL (TYP.)

MR4

N74° 27'05"E

PC STA.
MR 1+887.460
N82° 37'04" E

PT STA.
MR 1+882.517

PC STA.
MR 2+012.854

CULVERT NO. 05668
(SEE NOTE 9)

MR 2+016.710=
BPB 4+998.842

N24° 58'42"E

PT STA.
MR 2+073.296

LIMITS OF RIPRAP
SLOPE PROTECTION
(TYP.)

MR5

RELOCATED

MAD RIVER ℄

BRIDGE NO. 06591
(SEE NOTE 9)

PC
STA. MR 1+958.074

PT
STA. MR 1+956.042

PT STA.
MR 2+012.107

SEE NOTE 3

EXIST. SANITARY
SEWER

SEE NOTE 4

SEE NOTE 7

HFR 60+400

HFR 60+500

PRE 50+000

HARPERS FERRY ROAD ℄

HARPERS FERRY ROAD
HFR 60+600

BRIDGE NO. 01226
(SEE NOTE 9)

REIDVILLE DRIVE

REIDVILLE DR. ℄

RD 10+200

EB I-84 ℄

I-84 EB

WB I-84 ℄

I-84 WB

EB 2+500

WB 2+500

PLANK ROAD EAST

CULVERT NO. 03727
(SEE NOTE 9)

BEAVER POND BROOK

BEAVER POND
BROOK ℄

MR 2+096.361=
PR 70+104.108

PR 70+200

PLANK ROAD ℄

PLANK ROAD

PR 70+000

GRADE CONTROL
STRUCTURE (TYP.)

LIMIT OF RIPRAP
SLOPE PROTECTION
(TYP.)

SEE NOTE 3

PT STA.
MR 2+172.405

PC STA.
MR 2+173.854

PC STA.
MR 2+109.460

RETAINING WALL NO. 105
(SEE NOTE 9)

MR6

MR 2+200

MAD RIVER

LIMIT OF CHANNEL
RELOCATION
STA. MR 2+180
MATCH EXISTING

CURVE NO. MR3	MAD RIVER
P.C.	STA. MR 1+887.460
	N 230869.187
	E 283030.172
C.C.	N 230943.565
	E 283020.536
P.T.	STA. MR 1+956.042
	N 230905.811
	E 283085.340
△	52° 23'35" Lt.
T (m)	36.899
L (m)	68.582
R (m)	75.000

CURVE NO. MR4	MAD RIVER
P.C.	STA. MR 1+958.074
	N 230907.566
	E 283086.363
C.C.	N 230872.329
	E 283146.847
P.T.	STA. MR 2+012.107
	N 230939.767
	E 283128.082
△	44° 13'35" Rt.
T (m)	28.443
L (m)	54.033
R (m)	70.000

CURVE NO. MR5	MAD RIVER
P.C.	STA. MR 2+012.854
	N 230939.967
	E 283128.802
C.C.	N 231007.405
	E 283110.038
P.T.	STA. MR 2+073.296
	N 230977.846
	E 283173.491
△	49° 28'23" Lt.
T (m)	32.250
L (m)	60.443
R (m)	70.000

CURVE NO. MR6	MAD RIVER
P.C.	STA. MR 2+109.460
	N 231010.627
	E 283188.762
C.C.	N 231073.968
	E 283052.791
P.T.	STA. MR 2+172.405
	N 231071.520
	E 283202.771
△	24° 02'35" Lt.
T (m)	31.943
L (m)	62.945
R (m)	150.000

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
DEVELOPMENT PLAN 2 OF 2

PROJECT NO.: 151-273
DRAWING NO.: MRD-2
SHEET NO.:

NOTE
FOR NOTES, SEE DRAWING NO. MR-1

RETAINING WALL NO. 115
SEE DRAWING NO. MRG-1
W24 ON-RAMP
MR STA. 1+860.00
MATCH LINE
EB 2+400
WB 2+400
MR 1+900
RELOCATED
BRIDGE NO. 06591
SEE NOTE 4
MR 2+000
BPB 5+000
SEE NOTE 7
DRAINAGE OUTFALL 51
CULVERT NO. 05668
DRAINAGE OUTFALL 43
PLANK ROAD
PR 70+900
SEE NOTE 2 (TYP.)
SEE NOTE 3 (TYP.)
BL 1+040
BL 1+020
MR 2+200
MR 2+100
MAD RIVER
EXIST. SANITARY SEWER
HER 60+400
BRIDGE NO. 01226
W24 2+500
PRE 50+000
HER 60+500
HARPERS FERRY ROAD
HER 60+600
LIMIT OF CHANNEL RELOCATION
STA. MR 2+180
MATCH EXISTING
SEE NOTE 4
RETAINING WALL NO. 105
(SEE NOTE 9 TYP.)
CULVERT NO. 03727
REIDVILLE DRIVE
RD 10+200
EB 2+500
WB 2+500
I-84 EB
I-84 WB
PLANK ROAD EAST
BEAVER POND BROOK
PR 70+500
PLANK ROAD

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
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PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
GRADING PLAN 2 OF 3

PROJECT NO.: 151-273
DRAWING NO.: MRG-2
SHEET NO.:

℄ WB 24 ON-RAMP
STA. MR 1+935.309=
STA. W24 12+440.477

BRIDGE NO. 06591

℄ PLANK ROAD
STA. MR 2+096.361
STA. PR 70+104.108

LIMIT OF CHANNEL RELOCATION
STA. MR 2+180.00
MATCH EXISTING CHANNEL

CULVERT NO. 05668

MATCH LINE STA. MR 1+860 SEE DRAWING NO. MRP-1

MR 1+881.000
ELEV. = 110.220

MR 1+921.000
ELEV. = 110.420

MR 1+928.000
ELEV. = 110.460

MR 1+933.000
ELEV. = 110.480

MR 1+946.000
ELEV. = 110.540

MR 1+971.000
ELEV. = 110.710

MR 2+132.000
ELEV. = 112.470

MR 2+170.000
ELEV. = 113.030

PROFILE GRADE LINE
(CHANNEL INVERT)

EXISTING GROUND
LINE

DIRECTION OF FLOW

0.500%
0.680%
1.093%
1.474%
0.462%
0.400%
0.571%

900 ROUNDED STONE
RIPRAP GRADATION B

900mm RCP
SANITARY SEWER

450mm DIP
WATER MAIN

VORTEX WEIRS
STA. MR 2+045
AND MR 2+060

CROSS VANE (LEFTHANDED)
W/ GRADE CONTROL STRUCTURE,
STA. MR 1+860

J-HOOK (LEFTHANDED)
STA. MR 1+891, MR 1+907
AND MR 1+923

CROSS VANE (RIGHTHANDED)
W/ GRADE CONTROL STRUCTURE,
STA. MR 2+164

	PROPOSED (TYP.)	EXISTING (TYP.)
MR 1+860	110.122	111.869
1+880	110.215	115.897
1+900	110.315	119.076
1+920	110.415	114.567
1+940	110.512	110.913
1+960	110.635	110.886
1+980	110.808	111.655
2+000	111.027	111.593
2+020	111.246	111.110
2+040	111.464	111.718
2+060	111.683	111.843
2+080	111.902	114.521
2+100	112.120	114.959
2+120	112.339	114.450
2+140	112.588	113.328
2+160	112.883	113.039
MR 2+180	113.317	113.317

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

HORIZ. SCALE IN METERS
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VERT. SCALE IN METERS
0 .5 1 1.5 2 2.5
HORIZ. SCALE 1:500 VERT. SCALE 1:50
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

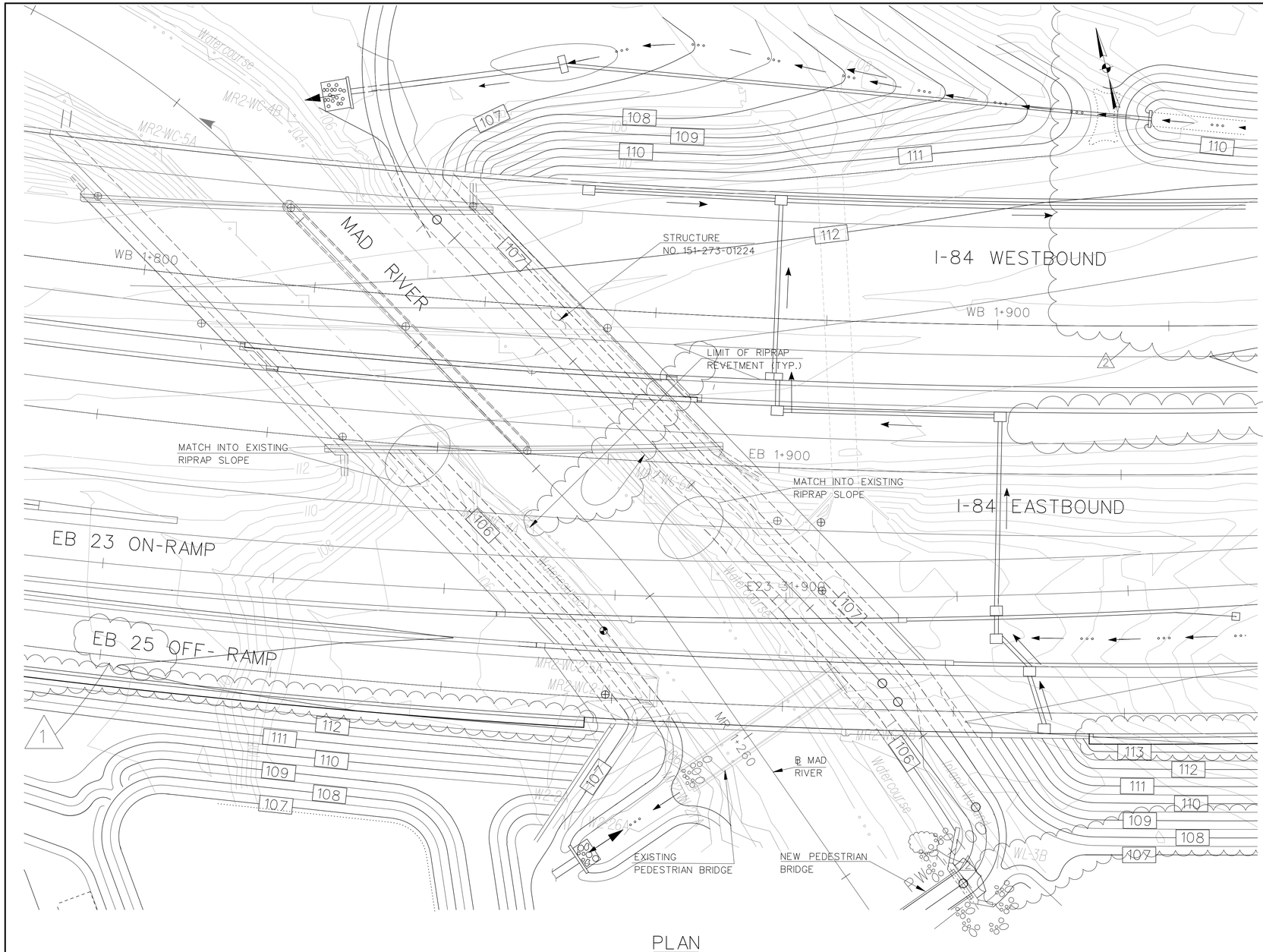
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

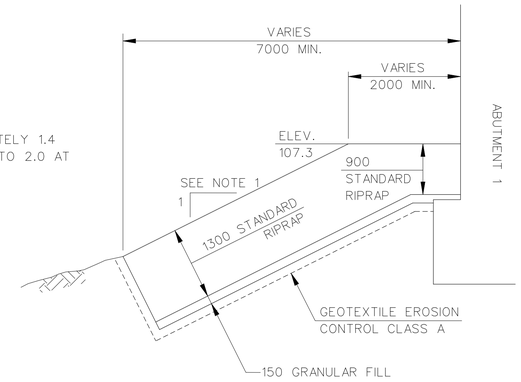
TOWN:
WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
PROFILE STA. MR 1+860 TO STA. 2+180

PROJECT NO.: 151-273
DRAWING NO.: MRP-2
SHEET NO.:



PLAN
SCALE: 1:250



NOTE 1:
VARIES, APPROXIMATELY 1.4 AT STA. MR 1+210 TO 2.0 AT STA. MR 1+250

RIPRAP REVETMENT - ABUTMENT 1
STRUCTURE 151-273-01224
(LOOKING UPSTREAM)

N.T.S.

NOTE 2:
VARIES, APPROXIMATELY 1.7 AT STA. MR 1+235 TO 2.0 AT STA. MR 1+281

RIPRAP REVETMENT - ABUTMENT 2
STRUCTURE 151-273-01224
(LOOKING UPSTREAM)

N.T.S.

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE NOTED.

"TYP." IS AN ABBREVIATION FOR "TYPICAL" AND INDICATES THAT THE NOTED FEATURE SHALL BE APPLIED SIMILARLY ABOUT THE DETAIL.

1

ACCESS FOR STAGED REMOVAL OF EXISTING CENTER PIER WILL BE FROM THE EASTERLY ABUTMENT. DISTURBANCE OF EXISTING RIPRAPPED SLOPES SHALL BE MINIMIZED. COST OF RESTORATION OF RIPRAPPED SLOPES SHALL BE INCLUDED IN IN THE COST FOR "HANDLING WATER". SEE DWWG. NOS. MRW-11 THRU 13 FOR WATER HANDLING SEQUENCE.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

DESIGNER: R. LOPUSNY
DRAFTER: A. PRESS
CHECKED BY: N. VYAS
DATE CHECKED:

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DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER @ STR. 01224
GRADING PLAN

PROJECT NO.: 151-273
DRAWING NO.: MRG-3
SHEET NO.:

NOTES:

A. FOR GENERAL RIVER NOTES SEE DRAWING NO. MRW-3.

B. RELOCATE THE WATER MAIN ON BROOKDALE LANE IN PHASE 1 AND PRIOR TO THE EXCAVATION FOR THE TEMPORARY CHANNEL EXPANSION. MAINTAIN THE EXISTING SANITARY SEWER IN PHASE 1.

C. EXCAVATE TO (VERTICAL LIMITS):
- ELEV. 114.7M STARTING AT MR STA. 2+215
- TRANSITIONING TO ELEV. 113.9M AT STA. 2+170
- THEN TRANSITIONING TO ELEV. 113.2 AT STA 2+104.

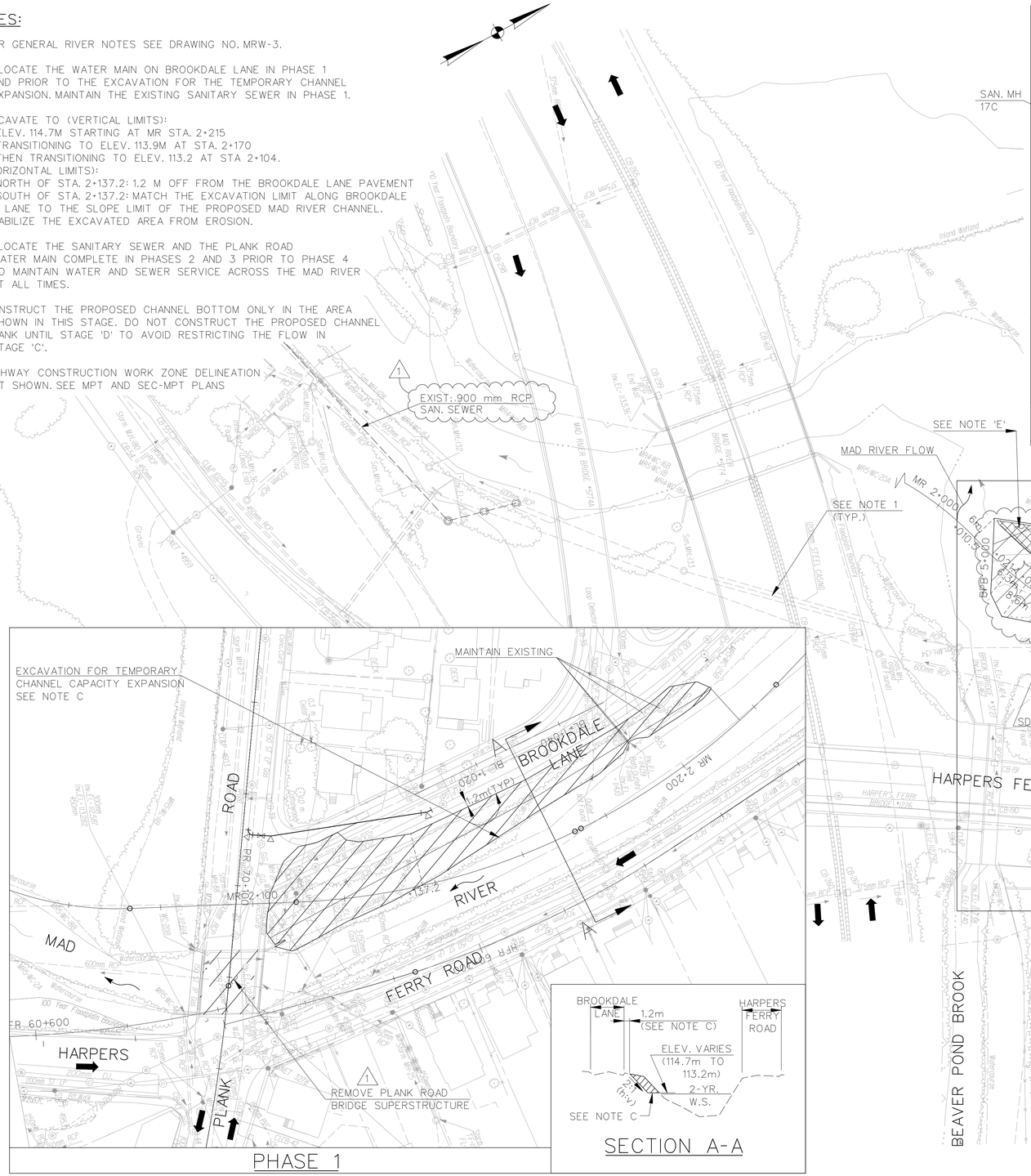
(HORIZONTAL LIMITS):
- NORTH OF STA. 2+137.2: 1.2 M OFF FROM THE BROOKDALE LANE PAVEMENT
- SOUTH OF STA. 2+137.2: MATCH THE EXCAVATION LIMIT ALONG BROOKDALE LANE TO THE SLOPE LIMIT OF THE PROPOSED MAD RIVER CHANNEL.

STABILIZE THE EXCAVATED AREA FROM EROSION.

D. RELOCATE THE SANITARY SEWER AND THE PLANK ROAD WATER MAIN COMPLETE IN PHASES 2 AND 3 PRIOR TO PHASE 4 TO MAINTAIN WATER AND SEWER SERVICE ACROSS THE MAD RIVER AT ALL TIMES.

E. CONSTRUCT THE PROPOSED CHANNEL BOTTOM ONLY IN THE AREA SHOWN IN THIS STAGE. DO NOT CONSTRUCT THE PROPOSED CHANNEL BANK UNTIL STAGE 'D' TO AVOID RESTRICTING THE FLOW IN STAGE 'C'.

F. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
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SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK, G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 1 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-1
SHEET NO.:

NOTES:

A. FOR GENERAL RIVER NOTES SEE DRAWING NO. MRW-3.

B. CONSTRUCTION OF RETAINING WALL 105 MUST BE COMPLETED AND ITS COFFERDAM REMOVED PRIOR TO COMMENCEMENT OF THE RIVER WORK UPSTREAM OF PLANK ROAD.

C. AFTER THE RIVER RELOCATION WORK UNDER THIS PHASE IS COMPLETED AND SDS IS REMOVED, REBUILD THE PREVIOUSLY EXCAVATED, UPPER PORTION OF THE WESTERN RIVER BANK USING EXCAVATED BANK MATERIAL FOR BACKFILL AND THE MAD RIVER 'SECTION M1' DETAIL ON RRD-2.

D. CONSTRUCT PROPOSED CHANNEL BOTTOM ONLY AT THE LOCATION SHOWN IN THIS STAGE. DO NOT CONSTRUCT THE CHANNEL BANK UNTIL STAGE 'C' - PHASE 2 TO AVOID RESTRICTING THE BEAVER POND BROOK FLOW IN STAGE 'C' - PHASE 1.

E. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS

EXIST. 900 mm RCP SAN SEWER

SEE NOTE 1

SEE NOTE D

SEE NOTE 14

MAD RIVER FLOW

DRAINAGE OUTFALL 51

CULVERT NO. 05668
SEE NOTE 2
SDS ELEV.: 113.5 (3-YR)

SDS ELEV.: 113.0 (3-YR)
DOWNSTREAM TURN-IN SECTION
SDS ELEV.: 113.0 (3-YR)

MR 2+000

MR 2+200

REBUILD CHANNEL BANK TO FINISHED GRADE AFTER REMOVING SDS (SEE NOTE C)

SDS ELEV.: 114.9 (4xAve.SpringFlow)
UPSTREAM TURN-IN SECTION

SDS ELEV.: 113.0 (4xAve.SpringFlow)

RETAINING WALL NO. 105
SEE NOTE "B"

SDS ELEV.: 113.0 (4xAve.SpringFlow)
DOWNSTREAM TURN-IN SECTION

PHASE 6

SDS ELEV.: 114.9 (3-YR)
SDS ELEV.: 114.9 (3-YR)
UPSTREAM TURN-IN SECTION

SDS ELEV.: 114.7 (3-YR)

SDS ELEV.: 114.3 (3-YR)

RETAINING WALL NO. 105
SEE NOTE 'B'

SDS ELEV.: 113.5 (3-YR)

JUNCTION CHAMBER No. 1

TEMP. SAN. MH 13B

SAN. MH 13

TEMP. SAN. MH 13C

DRAINAGE OUTFALL 43

HARPERS FERRY ROAD

MAD RIVER

PLANK ROAD

BEAVER POND BROOK

SAND BAG BERM
SEE DWG. BPSSC-1
FOR DETAILS

REIDVILLE DRIVE

PHASE 5

STAGE A (PHASES 5 & 6)
(HIGHWAY MPT STAGE 1)

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- TEMP. SHEET PILING
- WORK AREA (SEE NOTE E)
- DSB — DEWATERING SETTLING BASIN
- C — COFFERDAM

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

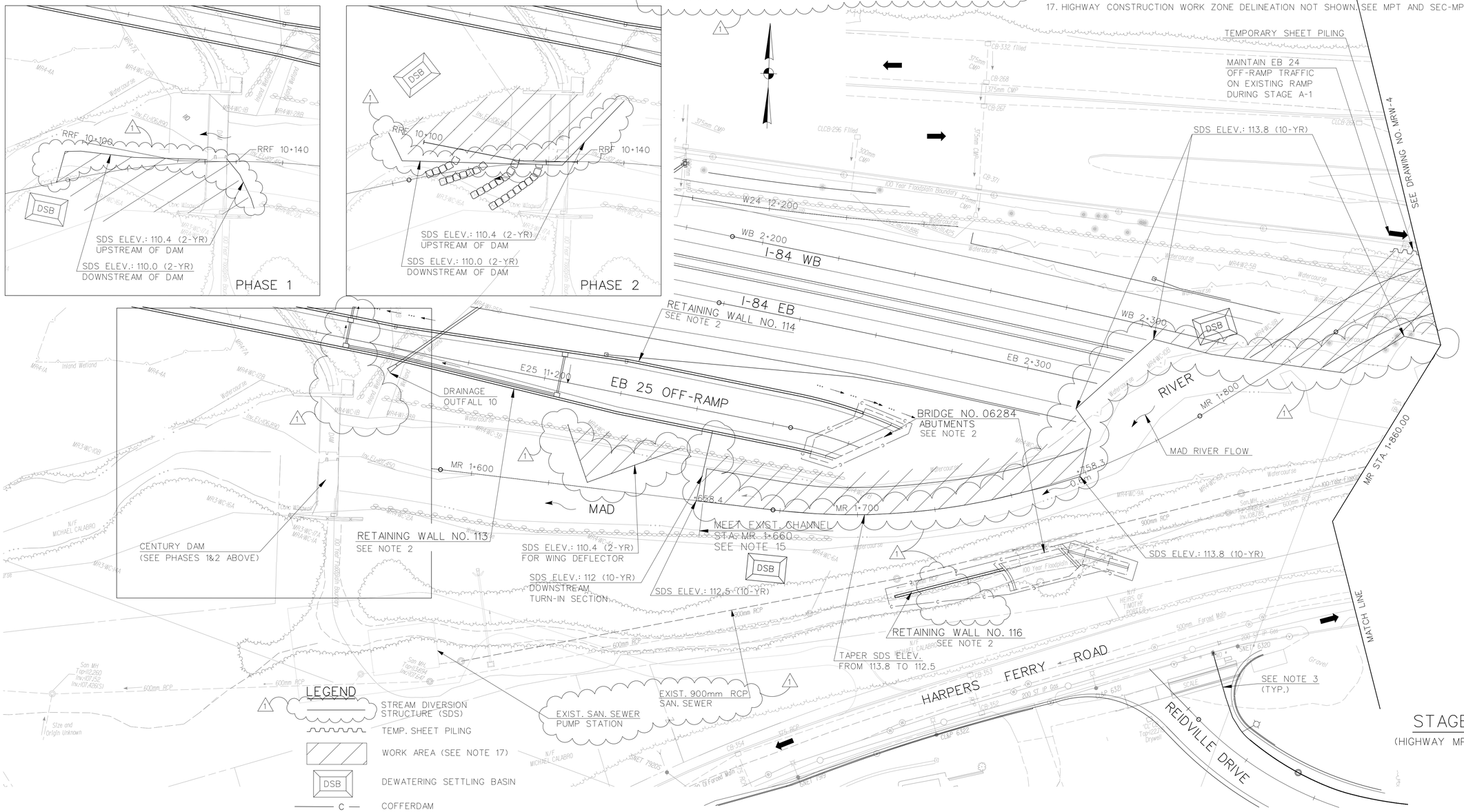
TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 2 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-2
SHEET NO.:

GENERAL RIVER STAGING NOTES:

1. MAD RIVER SANITARY SEWER RELOCATION TO BE COORDINATED WITH THE RELOCATION OF THE MAD RIVER CHANNEL.
2. RELOCATION OF THE MAD RIVER CHANNEL TO BE COORDINATED WITH THE CONSTRUCTION OF BRIDGES, CULVERTS AND RETAINING WALLS. SEE STRUCTURAL PLANS.
3. WATER MAIN RELOCATION TO BE COORDINATED WITH THE RELOCATION OF THE MAD RIVER CHANNEL.
4. RELOCATION OF THE MAD RIVER CHANNEL TO BE COORDINATED WITH M&PT PLANS.
5. RELOCATION OF THE MAD RIVER TO BE COORDINATED WITH THE STORM DRAINAGE SYSTEM TO FACILITATE ROADWAY DRAINAGE.
6. UTILITY RELOCATION TO BE COORDINATED WITH THE RELOCATION OF THE MAD RIVER CHANNEL
7. MAD RIVER RELOCATION WATER HANDLING PLAN TO BE INTEGRATED WITH THE EROSION AND SEDIMENTATION CONTROL AND M&PT PLANS.
8. FOR PROPOSED HIGHWAY WORK, SEE ROADWAY DEVELOPMENT PLANS.
9. STREAM DIVERSION STRUCTURES FOR MAD RIVER RELOCATION SHALL BE INCLUDED IN THE PRICE BID FOR "HANDLING WATER - WATERCOURSE RELOCATION".
10. THE WATER HANDLING STAGES INDICATED ARE NOT NECESSARILY SEQUENTIAL. CONSTRUCTION SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE INDICATED IN THE MAINTENANCE AND PROTECTION OF TRAFFIC PLANS. THIS SEQUENCING AND/OR THE CONTRACTOR'S CHOICE OF MEANS AND METHODS OF CONSTRUCTION MAY REQUIRE ALTERNATING BETWEEN RIVER RELOCATION STAGES AT VARIOUS LOCATIONS AT VARIOUS TIMES. THE COST OF SUCH CHANGES SHALL BE INCLUDED IN THE PRICE BID FOR "HANDLING WATER-WATERCOURSE RELOCATION".
11. THE DEPICTED LOCATIONS OF DEWATERING SETTLING BASINS ARE APPROXIMATE AND ARE DEPENDENT ON THE CONTRACTOR'S CHOSEN METHOD OF WORK.
12. CONTRACTOR SHALL REMOVE THE STREAM DIVERSION STRUCTURES FOR EACH STAGE IMMEDIATELY AFTER COMPLETION OF CONSTRUCTION FOR THAT STAGE AND PERMIT UNIMPEDED FLOW THROUGH THE WATERWAY UNTIL COMMENCEMENT OF THE NEXT CONSTRUCTION STAGE, UNLESS OTHERWISE INDICATED ON THE PLANS OR AS DIRECTED BY THE EIC.
13. WITHIN THE REACH OF WATERCOURSE TO BE MODIFIED IN EACH RELOCATION STAGE, THE CONTRACTOR SHALL BEGIN HIS OPERATIONS AT THE DOWNSTREAM END AND PROGRESS UPSTREAM IN ORDER TO MINIMIZE DOWNSTREAM EFFECTS OF CONSTRUCTION OPERATIONS.
14. FOR SANITARY SEWER RIVER CROSSING AT THE CONFLUENCE OF BEAVER POND BROOK, SEE DWG. NO. BPSSC-1 FOR CONSTRUCTION SEQUENCE.
15. THE RECONSTRUCTION OF THE MAD RIVER CHANNEL DOWNSTREAM OF THE CONFLUENCE WITH BEAVER POND BROOK SHALL NOT COMMENCE UNTIL THE CHANNEL IMPROVEMENTS UPSTREAM OF THE CONFLUENCE IS COMPLETED AND OPERATIONAL.
16. SDS ELEVATION REPRESENTS THE MAXIMUM TOP ELEVATION ALLOWED. THE STORM FREQUENCY NOTED IN PARENTHSIS REPRESENTS THE MAXIMUM STORM-FREQUENCY FOR WHICH THE SDS WILL DIVERT THE FLOW AWAY FROM THE WORK AREA. THE STATIONG AND OFFSET ASSOCIATED WITH SDS ARE APPROXIMATE AND MAY VARY DEPENDING ON THE TYPE OF SDS SELECTED.
17. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_3_w_DOT_MOD_2013-09.dgn
PLOTTED 12/1/2014

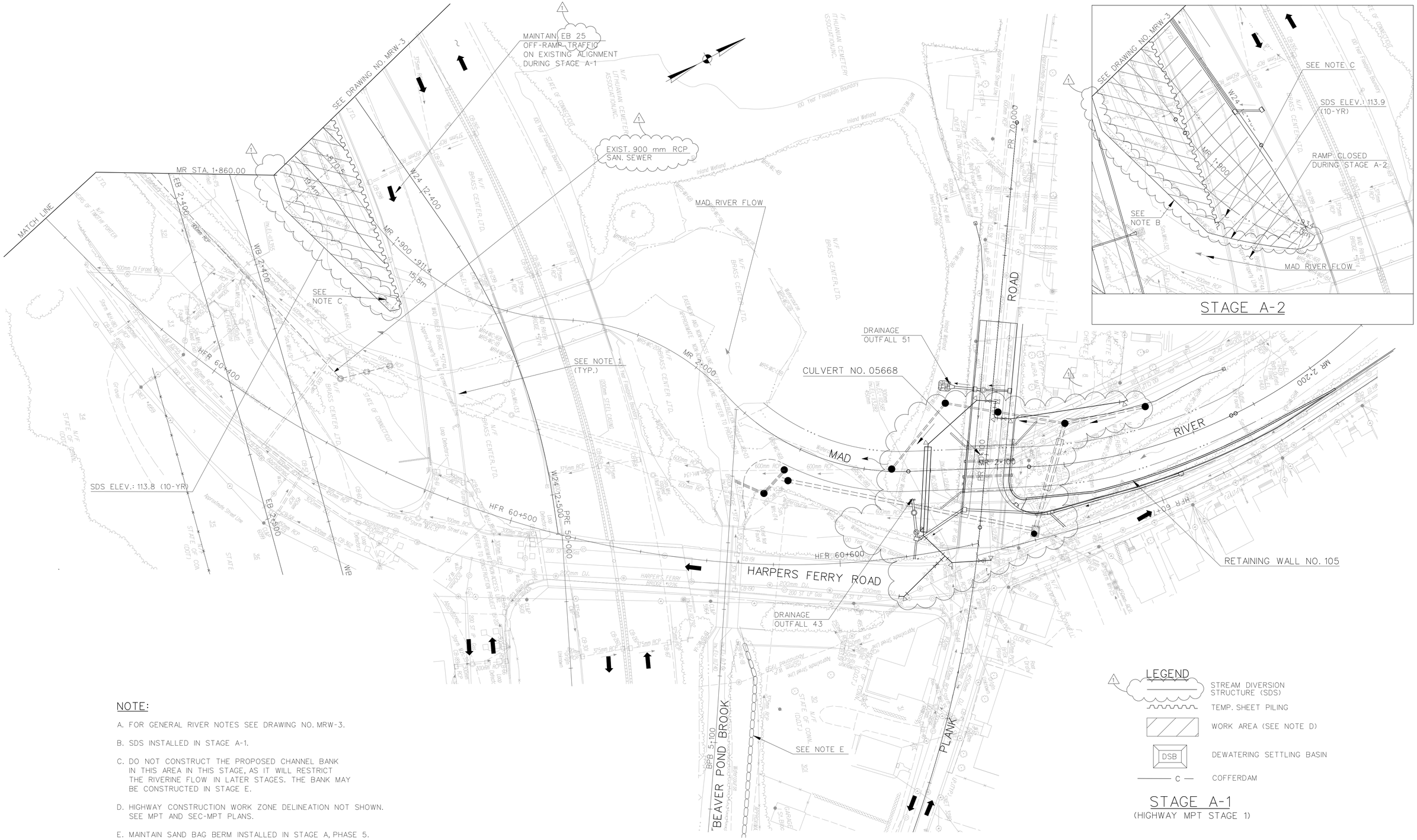
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 3 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-3
SHEET NO.:



NOTE:

A. FOR GENERAL RIVER NOTES SEE DRAWING NO. MRW-3.

B. SDS INSTALLED IN STAGE A-1.

C. DO NOT CONSTRUCT THE PROPOSED CHANNEL BANK IN THIS AREA IN THIS STAGE, AS IT WILL RESTRICT THE RIVERINE FLOW IN LATER STAGES. THE BANK MAY BE CONSTRUCTED IN STAGE E.

D. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.

E. MAINTAIN SAND BAG BERM INSTALLED IN STAGE A, PHASE 5.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_4_w_DOT_MOD_2013-09.dgn | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 4 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-4
SHEET NO.:

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS 0 5 10 15 20 25 SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_5_w_DOT_MOD_2013-09.dgn PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE 3RD FLOOR HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: MAD RIVER RELOCATION WATER HANDLING PLAN 5 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-5
SHEET NO.:

NOTE:

A. FOR GENERAL RIVER NOTES SEE DRAWING NO. MRW-3.

B. MAINTAIN EXISTING RIVER FLOW AT ALL TIMES.

C. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS

D. MAINTAIN SAND BAG BERM INSTALLED IN STAGE A, PHASE 5.

STAGE B-1
(HIGHWAY MPT STAGE 1)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_6_w_DOT_MOD_2013-09.dgn
PLOTTED 12/1/2014

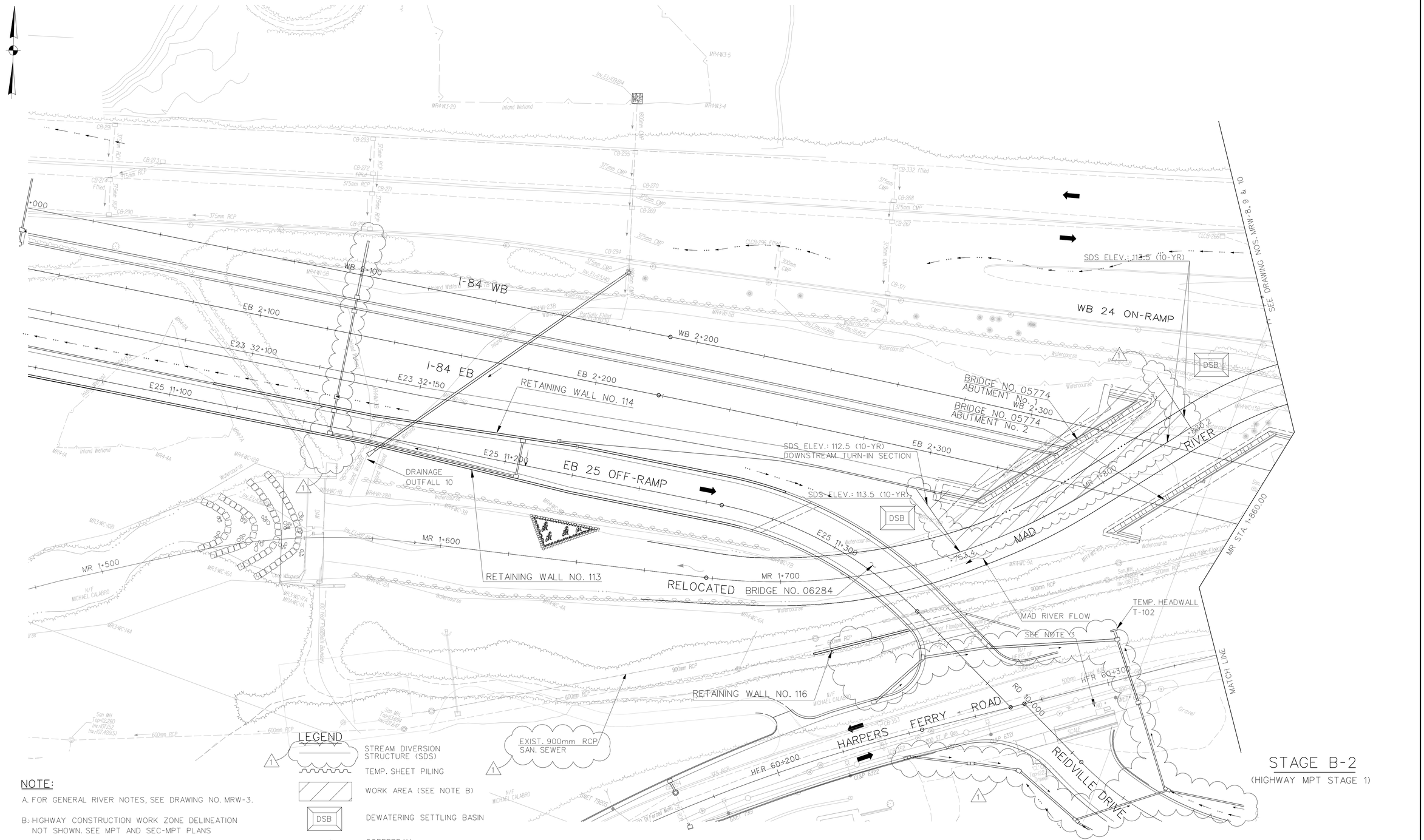
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 6 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-6
SHEET NO.:



NOTE:

A. FOR GENERAL RIVER NOTES, SEE DRAWING NO. MRW-3.

B. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS

STAGE B-2

(HIGHWAY MPT STAGE 1)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_7_w_DOT_MOD_2013-09.dgn | PLOTTED 12/1/2014

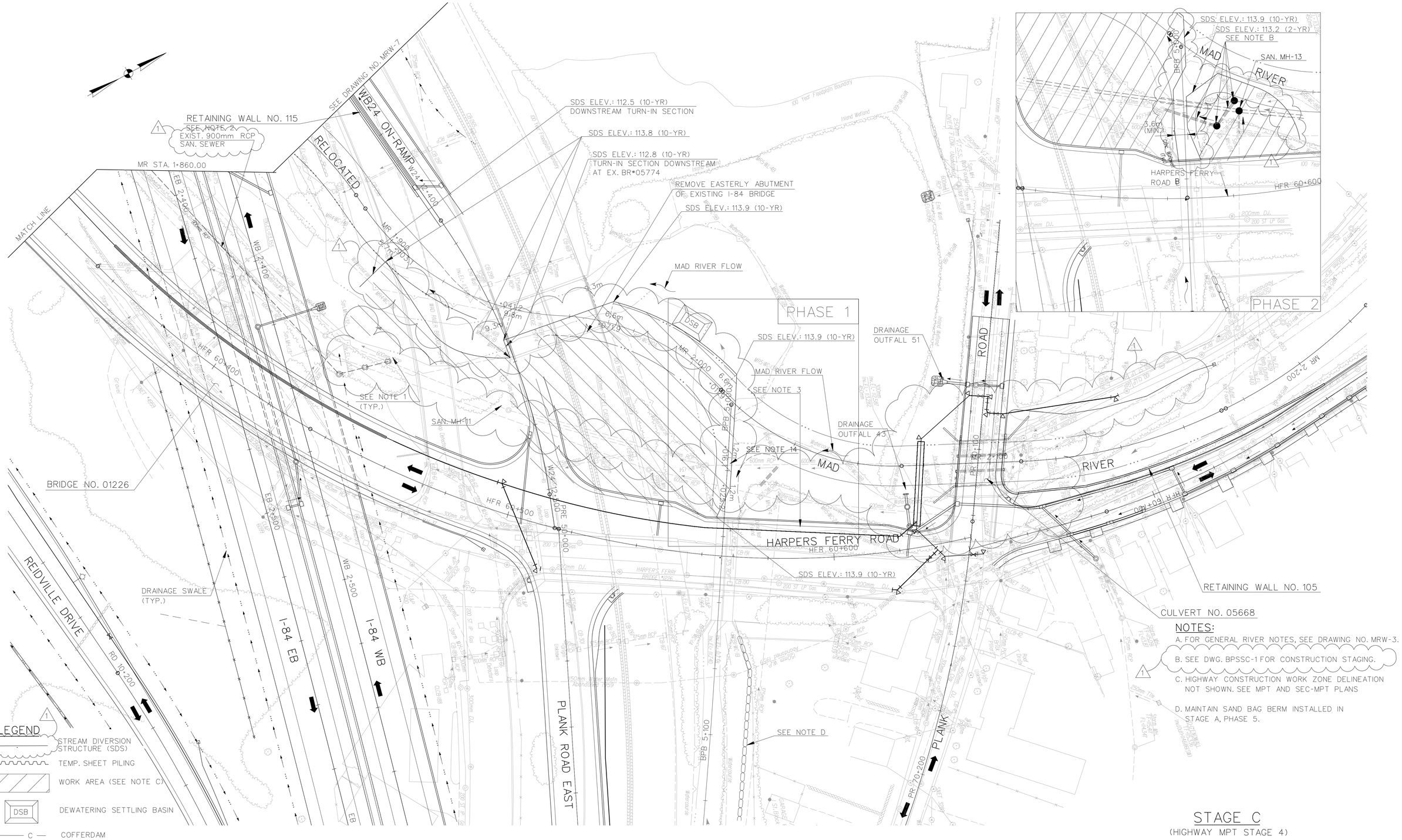
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 7 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-7
SHEET NO.:



NOTES:

A. FOR GENERAL RIVER NOTES, SEE DRAWING NO. MRW-3.

1 B. SEE DWG. BPSSC-1 FOR CONSTRUCTION STAGING.

C. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS

D. MAINTAIN SAND BAG BERM INSTALLED IN STAGE A, PHASE 5.

LEGEND

1 STREAM DIVERSION STRUCTURE (SDS)

TEMP. SHEET PILING

WORK AREA (SEE NOTE C)

DSB DEWATERING SETTLING BASIN

C COFFERDAM

STAGE C

(HIGHWAY MPT STAGE 4)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_8_w_DOT_MOD_2013-09.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 8 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-8
SHEET NO.:

NOTE:

A. FOR GENERAL RIVER NOTES, SEE DRAWING NO. MRW-3.

B. IN ORDER TO CAPTURE THE STORM WATER RUNOFF FROM THE FLOODPLAIN AND DIRECT IT AWAY FROM THE WORK AREA, ADDITIONAL SDS, COFFERDAM, SANDBAGS AND/OR TEMPORARY PIPE WITHIN THE AREA BOUND BY THE SDS MAY BE NECESSARY.

C. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS

D. MAINTAIN SAND BAG BERM INSTALLED IN STAGE A, PHASE 5.

RETAINING WALL NO. 115
SEE NOTE 2

SDS ELEV.: 112.5 (10-YR)
DOWNSTREAM TURN-IN SECTION

SDS ELEV.: 113.8 (10-YR)

SDS ELEV.: 113.8 (10-YR)

BRIDGE NO. 06591
ABUTMENT No. 1
SEE NOTE 2

SEE NOTE B

SDS ELEVATION: 114 (10-YR)

SDS ELEVATION: 113.9 (10-YR)

DRAINAGE
OUTFALL 51

SDS ELEV.: 113.8 (10-YR)
(from STAGE C)
SDS ELEV.: 112.5 (10-YR)
(from STAGE C)

MAD RIVER FLOW

BRIDGE NO. 01226

DRAINAGE SWALE
(TYP.)

SEE NOTE D

RETAINING WALL NO. 105

CULVERT NO. 05668

DRAINAGE
OUTFALL 43

STAGE D
(HIGHWAY MPT STAGE 4)

LEGEND

1 — STREAM DIVERSION STRUCTURE (SDS)

TEMP. SHEET PILING

WORK AREA (SEE NOTE C)

DSB — DEWATERING SETTLING BASIN

C — COFFERDAM

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_9_w_DOT_MOD_2013-09.dgn | PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 9 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-9
SHEET NO.:

NOTE:

A. FOR GENERAL RIVER NOTES, SEE DRAWING NO. MRW-3.

B. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.

C. MAINTAIN SAND BAG BERM INSTALLED IN STAGE A, PHASE 5.

RETAINING WALL NO. 115

SDS ELEV.: 112.5 (10-YR)
DOWNSTREAM TURN-IN SECTION

SDS ELEV.: 113.8 (10-YR)

BRIDGE NO. 06591
ABUTMENT No. 1
SEE NOTE 2

SDS ELEV.: 113.8 (10-YR)

SDS ELEVATION: 113.9 (10-YR)

REMOVE REMAINING
EASTERLY ABUTMENT
OF EXISTING I-84 BRIDGE

SDS ELEVATION: 113.9 (10-YR)
UPSTREAM TURN-IN SECTION

SEE DRAWING NO. MRW-7

MR STA. 1+860.00

MATCH LINE

WB 2+400

EB 2+400

RELOCATED

WB24 ON-RAMP W24 12 500 490

MR 1+900

DSB

5.7m

924.9

955.9 963.7

1.1m 1.1m

MAD RIVER
FLOW

EXIST. 900mm RCP
SAN. SEWER

HRR 60+400

BRIDGE NO. 06591
ABUTMENT No. 2
SEE NOTE 2

MR 2+000

BPB 5+000

MAD RIVER FLOW

DRAINAGE
OUTFALL 43

DRAINAGE
OUTFALL 51

PR 70+000

PLANK ROAD

MR 2+200

PR 2+100

MAD RIVER

BRIDGE NO. 01226

EB 2+500

WB 2+500

W24 12 500

PRE 50+000

HRR 60+600

HARPERS FERRY ROAD

RETAINING WALL NO. 105

REIDVILLE DRIVE

RD 10+200

DRAINAGE SWALE
(TYP.)

I-84 EB

I-84 WB

PLANK ROAD EAST

BEAVER POND BROOK

BPB 5+100

SEE NOTE C

PR 70+200

PLANK

CULVERT NO. 05668

STAGE E
(HIGHWAY MPT STAGE 4)

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- TEMP. SHEET PILING
- WORK AREA (SEE NOTE B)
- DSB — DEWATERING SETTLING BASIN
- c — COFFERDAM

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\madr_water1_10_w_DOT_MOD_2013-09.dgn
PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 10 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-10
SHEET NO.:

STRUCTURE NO.
01224

610 (TYP.)
600 SHOULDER
3300 LANE
3300 LANE
3300 LANE
600 SHOULDER
300
WB 1+300
MAD RIVER
I-84 WESTBOUND
I-84 EASTBOUND
CUT LINE
EXISTING PILE (TYP.)
PIER COFFERDAM (MAX. ELEV. 106.2)
STREAM DIVERSION STRUCTURE MAXIMUM ELEV. VARIES FROM 106.5 AT UPSTREAM END TO 106.2 AT PIER COFFERDAM (SEE NOTE 4)
COFFERDAM. MAX. ELEV. 106.2* (TYP.)
EXIST. PEDESTRIAN BRIDGE WEST ABUTMENT TO BE REMOVED IN PHASE 3
℄ MAD RIVER
DSB
NOTE
PROPOSED PILES NOT SHOWN FOR CLARITY.
MATCH LINE X STA. 1+281.00
TEMP. PRECAST CONC. BARRIER CURB ANCHORED TO EXIST. DECK
TEMP. PRECAST CONC. BARRIER CURB ANCHORED TO EXIST. DECK FROM PREVIOUS PHASE (TYP.)
℄ EXISTING I-84
TEMP. STEEL SHEET PILING (TYP.)
PARTS OF EXISTING UNDERPASS STRUCTURE, SUCH AS WINGWALL WHICH ARE ENCROACHING WITHIN THE LIMITS OF STAGE 1 STRUCTURE EXCAVATION, SHALL BE REMOVED IN STAGE 1 REMOVAL.
TEMPORARY BENTS FOR ERECTION OF STRUCTURAL STEEL
REMOVE PEDESTRIAN BRIDGE EAST ABUTMENT * *
MR 1+220
MR 1+260
MR 1+300
MR 1+340
MR 1+380
MR 1+420
MR 1+460
MR 1+500
MR 1+540
MR 1+580
MR 1+620
MR 1+660
MR 1+700
MR 1+740
MR 1+780
MR 1+820
MR 1+860
MR 1+900
MR2-WC-4A
MR2-WC-4B
MR2-WC-4C
MR2-WC-4D
MR2-WC-4E
MR2-WC-4F
MR2-WC-4G
MR2-WC-4H
MR2-WC-4J
MR2-WC-4K
MR2-WC-4L
MR2-WC-4M
MR2-WC-4N
MR2-WC-4P
MR2-WC-4Q
MR2-WC-4R
MR2-WC-4S
MR2-WC-4T
MR2-WC-4U
MR2-WC-4V
MR2-WC-4W
MR2-WC-4X
MR2-WC-4Y
MR2-WC-4Z
MR2-WC-4AA
MR2-WC-4AB
Watercourse
Watercourse
Watercourse

STAGE 1 PHASE 1 (HIGHWAY STAGE 1)
SCALE: 1:250

STREAM DIVERSION STRUCTURE MAXIMUM ELEV. VARIES FROM 106.5 AT UPSTREAM END TO 106.2 AT DOWNSTREAM END (SEE NOTE 4)
EXIST. PEDESTRIAN BRIDGE WEST ABUTMENT TO BE REMOVED * *
℄ MAD RIVER
℄ EB 25 OFF-RAMP
NOTE
PROPOSED PILES NOT SHOWN FOR CLARITY.
CONSULTANT FILE NAME:

STAGE 1 PHASE 2 (HIGHWAY STAGE 1)
SCALE: 1:250

MATCH LINE X STA. 1+281.00

WATER HANDLING NOTES:

1. THE TOP OF THE STREAM DIVERSION STRUCTURES AND COFFERDAMS, SHALL BE INSTALLED TO AN ELEVATION NOT TO EXCEED THE MAXIMUM ELEVATION SHOWN AND IN THE GENERAL LOCATION DEPICTED ON THE PLANS. ABOVE THIS ELEVATION THE FLOW OF THE RIVER SHALL BE CAPABLE OF OVERTOPPING THE STRUCTURES. THE CONTRACTOR IS ADVISED THAT SUCH OVERTOPPING WILL OCCUR FOR ANY EVENT WITH A DISCHARGE GREATER THAN A STORM WITH APPROXIMATELY A TWO YEAR FREQUENCY OF OCCURRENCE. THE CONTRACTOR SHALL EITHER ACCEPT THE RISK FOR DAMAGE TO UNCOMPLETED WORK DUE TO SUCH AN OCCURRENCE OR OBTAIN AT HIS OWN EXPENSE INSURANCE PROTECTING AGAINST SAME.
2. ANY ALTERNATIVE CONSTRUCTION PROCEDURE PROPOSED BY THE CONTRACTOR MUST PROVIDE AT ALL TIMES A HYDRAULIC CONVEYANCE CAPABILITY EQUAL TO OR GREATER THAN THAT PROVIDED BY THE STAGING SHOWN ON THE PLANS.
3. PAYMENT FOR STREAM DIVERSION STRUCTURES AND DEWATERING FOR RIPRAP INSTALLATION/REPAIR ARE INCLUDED IN THE ITEM HANDLING WATER.
4. STREAM DIVERSION STRUCTURES AT WEST AND EAST ABUTMENTS OF STRUCTURE NO. 01224SHALL NOT BE IN PLACE SIMULTANEOUSLY. PIER COFFERDAM MAY COEXIST WITH EASTERLY STREAM DIVERSION STRUCTURE BUT MUST BE REMOVED BEFORE INSTALLATION OF WESTERLY STREAM DIVERSION STRUCTURE.
5. AT THE CONCLUSION OF EACH STAGE, STREAM DIVERSION STRUCTURES AND PIER COFFERDAMS SHALL BE REMOVED PRIOR TO PROCEEDING TO THE NEXT STAGE.

* TOP OF COFFERDAM MAY EXCEED THIS ELEVATION WHERE NECESSARY TO RETAIN EXISTING GROUND.

* * REMOVE THE ABUTMENT AND EXCAVATE AS REQUIRED TO INCORPORATE THE RIP RAP COVER SHOWN ON DWG. NO. MRG-3.

CONSULTANT PROJ. No.:
CONSULTANT FILE NAME:

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: R. LOPUSNY
DRAFTER: A. PRESS
CHECKED BY: N. VYAS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
CADD ...\riverreloc\MadRiv\madwater01
PLOTTED 12/1/2014

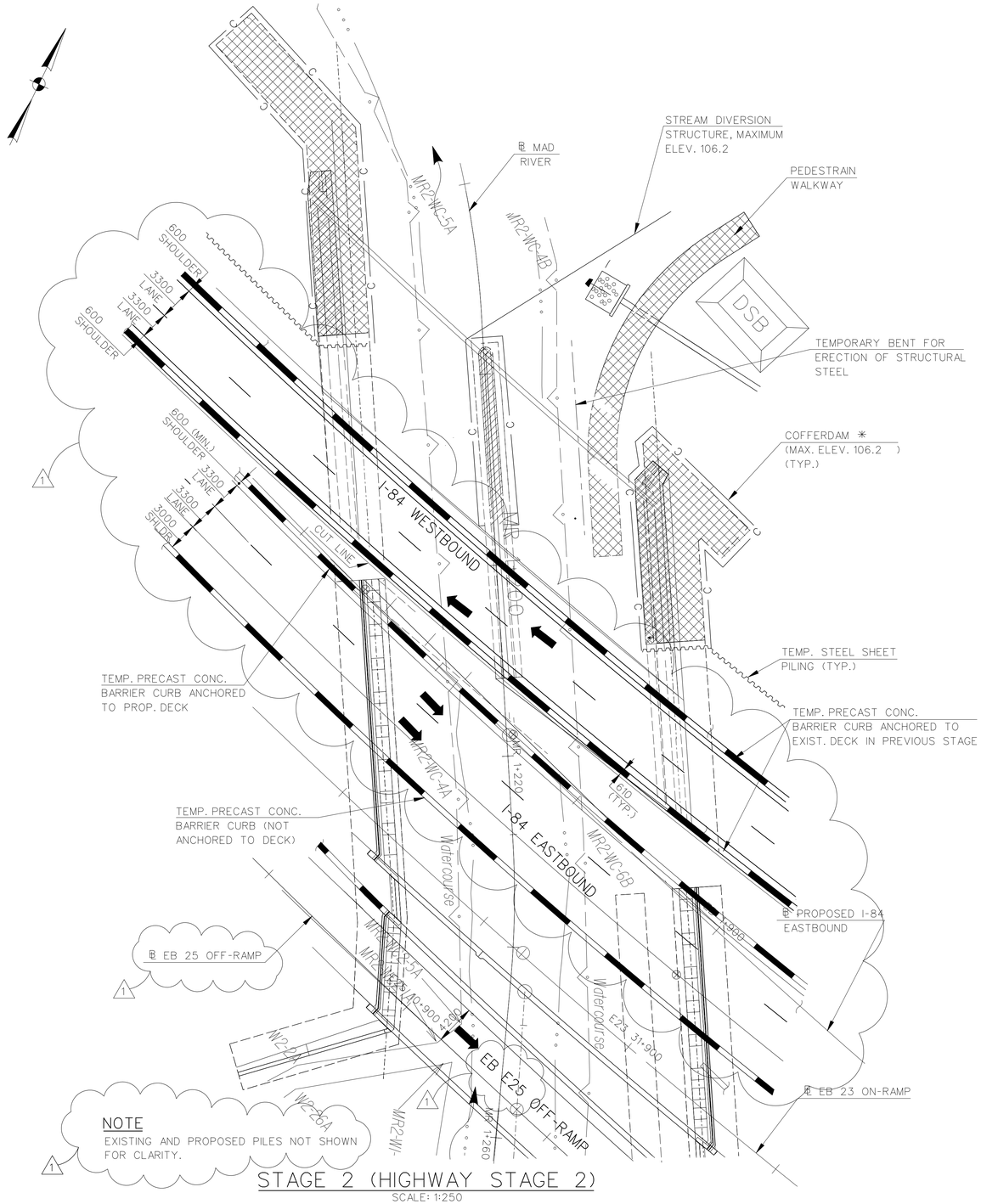
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84 WATERBURY
I-84 OVER MAD RIVER
STRUCTURE NO. 151-273-01224

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 11 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-11
SHEET NO.:



STAGE 2 (HIGHWAY STAGE 2)

SCALE: 1:250

WATER HANDLING NOTES:

1. THE TOP OF THE STREAM DIVERSION STRUCTURES AND COFFERDAMS, SHALL BE INSTALLED TO AN ELEVATION NOT TO EXCEED 106.2✳ AND IN THE GENERAL LOCATION DEPICTED ON THE PLANS. ABOVE THIS ELEVATION THE FLOW OF THE RIVER SHALL BE CAPABLE OF OVERTOPPING THE STRUCTURES. THE CONTRACTOR IS ADVISED THAT SUCH OVERTOPPING WILL OCCUR FOR ANY EVENT WITH A DISCHARGE GREATER THAN A STORM WITH APPROXIMATELY A TWO YEAR FREQUENCY OF OCCURRENCE. THE CONTRACTOR SHALL EITHER ACCEPT THE RISK FOR DAMAGE TO UNCOMPLETED WORK DUE TO SUCH AN OCCURRENCE OR OBTAIN AT HIS OWN EXPENSE INSURANCE PROTECTING AGAINST SAME.
2. ANY ALTERNATIVE CONSTRUCTION PROCEDURE PROPOSED BY THE CONTRACTOR MUST PROVIDE AT ALL TIMES A HYDRAULIC CONVEYANCE CAPABILITY EQUAL TO OR GREATER THAN THAT PROVIDED BY THE STAGING SHOWN ON THE PLANS.
3. PAYMENT FOR STREAM DIVERSION STRUCTURES AND DEWATERING FOR RIPRAP INSTALLATION/REPAIR ARE INCLUDED IN THE ITEM HANDLING WATER.
4. AT THE CONCLUSION OF EACH STAGE, STREAM DIVERSION STRUCTURES AND PIER COFFERDAMS SHALL BE REMOVED PRIOR TO PROCEEDING TO THE NEXT STAGE.

✳ TOP OF COFFERDAM MAY EXCEED THIS ELEVATION WHERE NECESSARY TO RETAIN EXISTING GROUND.

LEGEND

- REMOVED PORTION OF EXISTING STRUCTURE.
- STAGE CONSTRUCTION.
- — C — COFFERDAM
- STREAM DIVERSION STRUCTURE
- TEMPORARY SHEET PILING
- DSB — DEWATERING SETTLING BASIN

CONSULTANT PROJ. No:

CONSULTANT FILE NAME:

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: R. LOPUSNY
DRAFTER: A. PRESS
CHECKED BY: N. VYAS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\riverreloc\MadRiv\madwater02

PLOTTED 12/1/2014

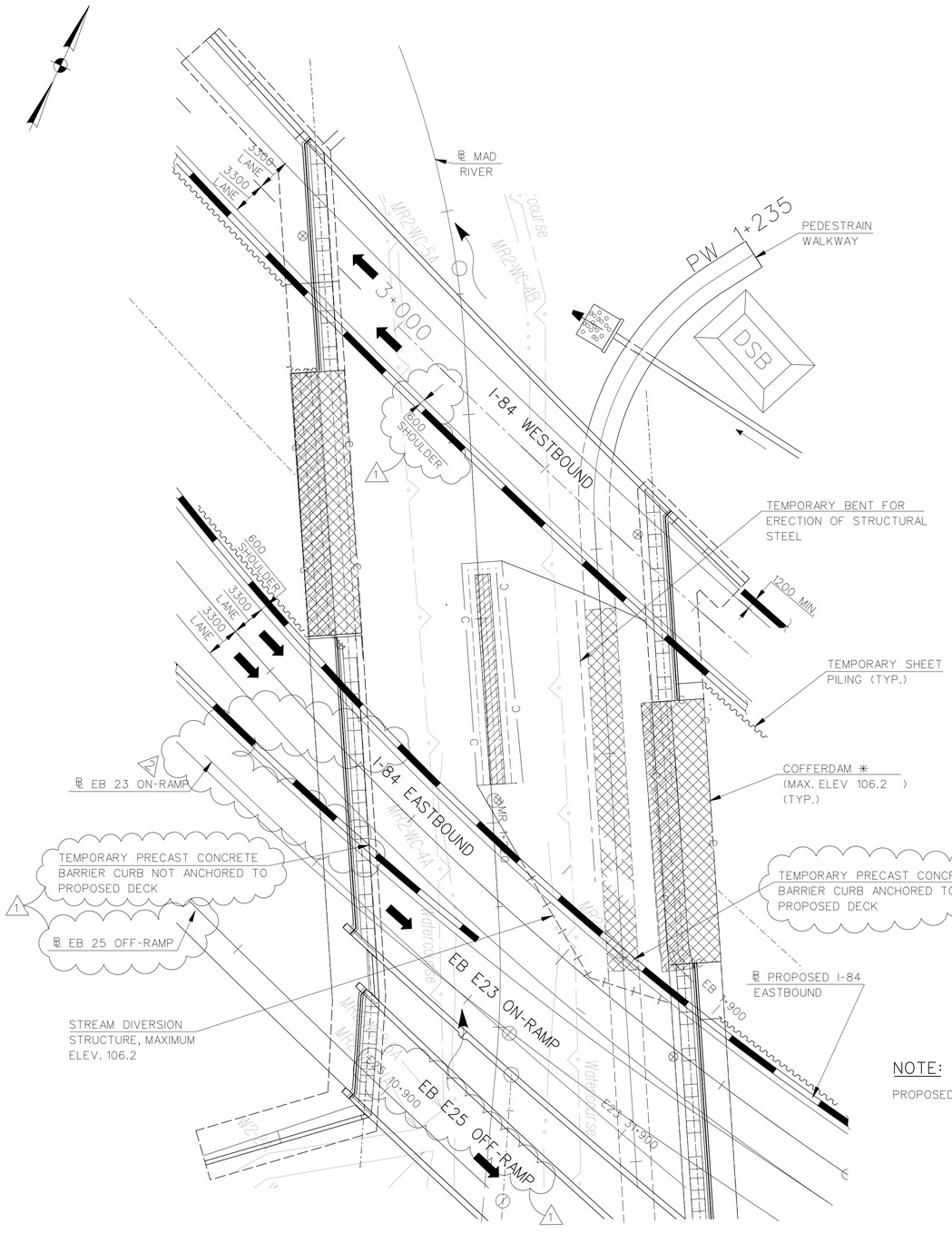
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84 WATERBURY
I-84 OVER MAD RIVER
STRUCTURE NO. 151-273-01224

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 12 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-12
SHEET NO.:



STAGE 3 (HIGHWAY STAGE 3)

SCALE: 1:250

WATER HANDLING NOTES:

1. THE TOP OF THE STREAM DIVERSION STRUCTURES AND COFFERDAMS, SHALL BE INSTALLED TO AN ELEVATION NOT TO EXCEED 106.2 ✳ AND IN THE GENERAL LOCATION DEPICTED ON THE PLANS. ABOVE THIS ELEVATION THE FLOW OF THE RIVER SHALL BE CAPABLE OF OVERTOPPING THE STRUCTURES. THE CONTRACTOR IS ADVISED THAT SUCH OVERTOPPING WILL OCCUR FOR ANY EVENT WITH A DISCHARGE GREATER THAN A STORM WITH APPROXIMATELY A TWO YEAR FREQUENCY OF OCCURRENCE. THE CONTRACTOR SHALL EITHER ACCEPT THE RISK FOR DAMAGE TO UNCOMPLETED WORK DUE TO SUCH AN OCCURRENCE OR OBTAIN AT HIS OWN EXPENSE INSURANCE PROTECTING AGAINST SAME.
2. ANY ALTERNATIVE CONSTRUCTION PROCEDURE PROPOSED BY THE CONTRACTOR MUST PROVIDE AT ALL TIMES A HYDRAULIC CONVEYANCE CAPABILITY EQUAL TO OR GREATER THAN THAT PROVIDED BY THE STAGING SHOWN ON THE PLANS.
3. PAYMENT FOR STREAM DIVERSION STRUCTURES AND DEWATERING FOR RIPRAP INSTALLATION/REPAIR ARE INCLUDED IN THE ITEM HANDLING WATER.
4. AT THE CONCLUSION OF EACH STAGE, STREAM DIVERSION STRUCTURES AND PIER COFFERDAMS SHALL BE REMOVED PRIOR TO PROCEEDING TO THE NEXT STAGE.

✳ TOP OF COFFERDAM MAY EXCEED THIS ELEVATION WHERE NECESSARY TO RETAIN EXISTING GROUND.

LEGEND

- REMOVED PORTION OF EXISTING STRUCTURE.
- STAGE CONSTRUCTION.
- — C — COFFERDAM
- STREAM DIVERSION STRUCTURE
- TEMPORARY SHEET PILING
- DSB — DEWATERING SETTLING BASIN

NOTE:

PROPOSED PILES NOT SHOWN FOR CLARITY.

CONSULTANT PROJ. No: | CONSULTANT FILE NAME: | LOCATION SECTION NOTES & TABLES & REF NOTES

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

DESIGNER: R. LOPUSNY
DRAFTER: A. PRESS
CHECKED BY: N. VYAS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\riverreloc\MadRiv\madwater03 | PLOTTED 12/1/2014

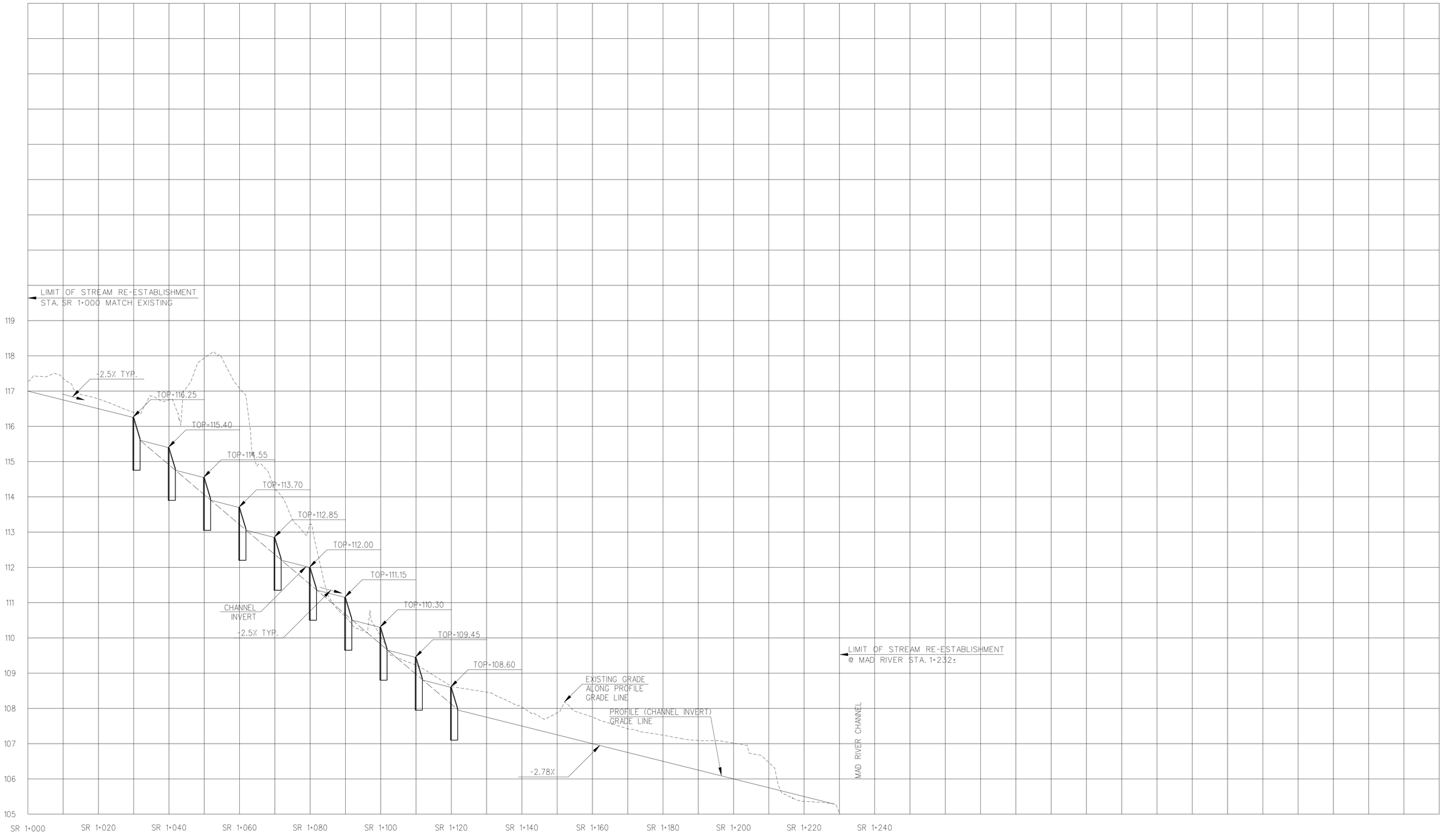
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84 WATERBURY
I-84 OVER MAD RIVER
STRUCTURE NO. 151-273-01224

TOWN: WATERBURY

DRAWING TITLE:
MAD RIVER RELOCATION
WATER HANDLING PLAN 13 OF 13

PROJECT NO.: 151-273
DRAWING NO.: MRW-13
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

HORIZ. SCALE IN METERS
0 5 10 15 20 25
VERT. SCALE IN METERS
0 .5 1 1.5 2 2.5
HORIZ. SCALE 1:500 VERT. SCALE 1:50
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ PLOTTED $DATE$

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
MOUNTAIN VILLAGE ROAD AREA
STREAM RE-ESTABLISHMENT PROFILE

PROJECT NO.: 151-273
DRAWING NO.: MVR-1
SHEET NO.:

NOTE:

1. FOR STREAM RE-ESTABLISHMENT DETAILS, SEE RRD-7.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER:
DRAFTER:
CHECKED BY:
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD $FILEABREV$ | PLOTTED $DATE$

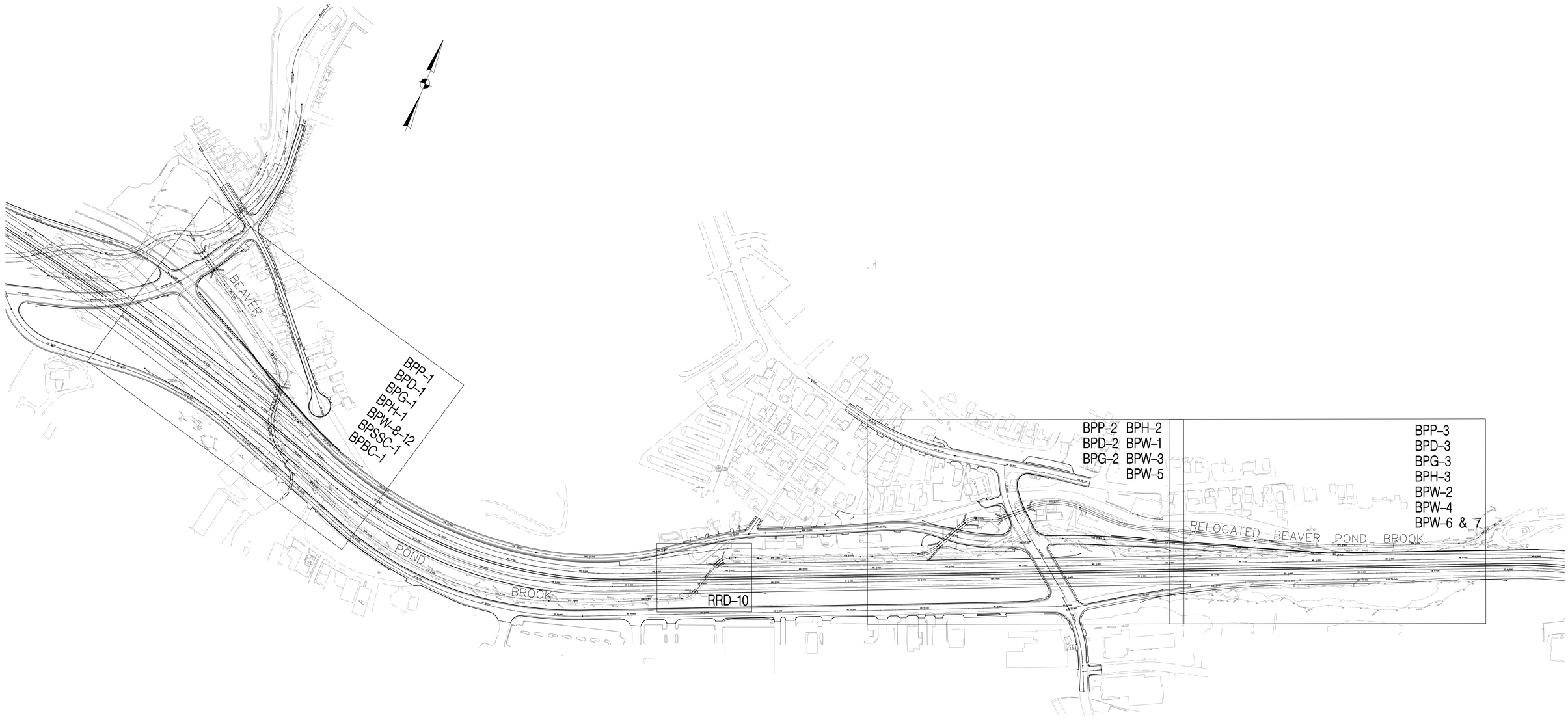
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
MOUNTAIN VILLAGE ROAD AREA
STREAM RE-ESTABLISHMENT GRADING

PROJECT NO.: 151-273
DRAWING NO.: MVR-2
SHEET NO.:



LEGEND

BPP: BEAVER POND BROOK RELOCATION PROFILES
BPD: BEAVER POND BROOK RELOCATION DEVELOPMENT PLANS
BPG: BEAVER POND BROOK RELOCATION GRADING PLANS
BPH: BEAVER POND BROOK RELOCATION HABITAT ENHANCEMENT PLANS
BPW: BEAVER POND BROOK WATER HANDLING PLANS
BPSSC-1: BEAVER POND BROOK SANITARY SEWER CROSSING
BPBC-1: BEAVER POND BROOK-CULVERT NO. 03727
RRD: RIVER RELOCATION DETAILS

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 15 30 45 60 75
SCALE 1:2500

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
INDEX PLAN

PROJECT NO.: 151-273
DRAWING NO.: BPB-I
SHEET NO.:

NOTE

FOR NOTES SEE DRAWING NO. MR-1.

CURVE NO. BPB-1	
BEAVER POND BROOK	
P.C.	STA. BPB 5+080.563
	N 230899.311
	E 283202.715
C.C.	N 229180.706
	E 282179.779
P.T.	STA. BPB 5+123.917
	N 230876.735
	E 283239.726
Δ	1° 14'31" Right
T (m)	21.678
L (m)	43.354
R (m)	2000.000

CURVE NO. BPB-2	
BEAVER POND BROOK	
P.C.	STA. BPB 5+196.452
	N 230838.294
	E 283301.236
C.C.	N 230784.445
	E 283267.582
P.T.	STA. BPB 5+253.630
	N 230791.528
	E 283330.686
Δ	51° 35'30" Right
T (m)	30.691
L (m)	57.178
R (m)	63.500

CURVE NO. BPB-3	
BEAVER POND BROOK	
P.C.	STA. BPB 5+271.908
	N 230773.364
	E 283332.725
C.C.	N 230781.173
	E 283402.288
P.T.	STA. BPB 5+350.897
	N 230714.963
	E 283379.5660
Δ	64° 39'14" Left
T (m)	44.298
L (m)	78.990
R (m)	70.000

RELOCATED MAD RIVER
HFR 60+600
R 70+200
LIMIT OF CHANNEL WORK STA. BPB 5+100+ MATCH EXISTING
PC STA. BPB 5+080.563
BPB 5+000
HFR 2+000
BPB 5+045.893
HFR 60+566.182
S59° 14'18"E
BPB 5+100
BEAVER POND BROOK
PT STA. BPB 5+123.917
RIPRAP (TYP.)
PR 70+300
PLANK ROAD B.L.
CULVERT NO. 03727 (SEE NOTE 9)
BPB-1
PC STA. BPB 5+196.452
LIMIT OF RIPRAP PROTECTION (TYP.)
S57° 59'47"E
HARPERS FERRY ROAD B.L.
W24 12+500
PRE 50+000
HFR 60+500
LIMIT OF CHANNEL RELOCATION STA. BPB 5+190 MATCH EXISTING
BPB 5+400
PLANK RD. EAST B.L.
PRE 50+100
BPB-2
BPB 5+249.478
PRE 50+203.881
PR 70+400
PLANK ROAD
PLANK ROAD EAST
PRE 50+200
PT STA. BPB 5+253.630
RETAINING WALL NO. 119 (SEE NOTE 9)
SEE NOTE 4 (TYP.)
CULVERT NO. 01227 (SEE NOTE 9)
PC STA. BPB 5+271.908
PRE 50+300
BPB 5+284.182 = WB 2+714.236
WB 2+500
WB 2+600
I-84 WB
WB I-84 B.L.
WB 2+700
BPB-3
WB 2+800
EB 2+500
BRIDGE NO. 01226 (SEE NOTE 9)
EB 2+600
I-84 EB
EB 2+700
EB I-84 B.L.
EB 2+800
PT STA. BPB 5+350.897
RETAINING WALL NO. 118 (SEE NOTE 9)
EDGE OF CHANNEL (TYP.)
BPB 5+307.467 = EB 2+754.019
BPB 5+400
S71° 03'31"E
5.4 m
REIDVILLE DRIVE
RD 10+300
RD 10+400
RD 10+500
RD 10+200
SEE NOTE 3 (TYP.)
CULVERT NO. 003 (SEE NOTE 9)
GRADE CONTROL STRUCTURE (TYP.)
LIMIT OF CHANNEL RELOCATION STA. BPB 5+440 MATCH EXISTING

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
DEVELOPMENT PLAN 1 OF 3

PROJECT NO.: 151-273
DRAWING NO.: BPD-1
SHEET NO.:

NOTE
FOR NOTES, SEE DRAWING NO. MR-1

RELOCATED MAD RIVER
BPB 5+000
R 2+000
HER 60+600
LIMIT OF CHANNEL WORK
STA. BPB 5+100±
MATCH EXISTING
BPB 5+100
BEAVER POND BROOK
CULVERT NO. 03727
(SEE NOTE 9)
PR 70+200
PR 70+300
DRAINAGE
OUTFALL 50
LIMIT OF CHANNEL
RELOCATION
STA. BPB 5+190
MATCH EXISTING
BPB 5+200
PR 70+400
PLANK ROAD
SEE NOTE 4
(TYP.)
SEE NOTE 2
(TYP.)
RETAINING WALL NO. 119
(SEE NOTE 9)
W24 12+500
PRE 50+000
HER 60+500
HARPERS FERRY ROAD
PRE 50+100
PLANK ROAD EAST
PRE 50+200
STRUCTURE NO. 01226
(SEE NOTE 9)
PRE 50+300
WB 2+500
WB 2+600
I-84 WB
CULVERT NO. 01227
(SEE NOTE 9)
WB 2+700
WB 2+800
EB 2+500
EB 2+600
EB 2+700
I-84 EB
BPB 5+300
EB 2+800
DRAINAGE
OUTFALL 36
DRAINAGE
OUTFALL 37
DRAINAGE
OUTFALL 70
EB 2
RETAINING WALL NO 118
(SEE NOTE 9)
BPB 5+400
RD 10+300
REIDVILLE DRIVE
RD 10+400
RD 10+500±
RD 10+200
SEE NOTE 3
SEE NOTE 3
(TYP.)
LIMIT OF CHANNEL
RELOCATION
STA. BPB 5+440
MATCH EXISTING
CULVERT NO. 003
(SEE NOTE 9)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

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DEPARTMENT OF TRANSPORTATION

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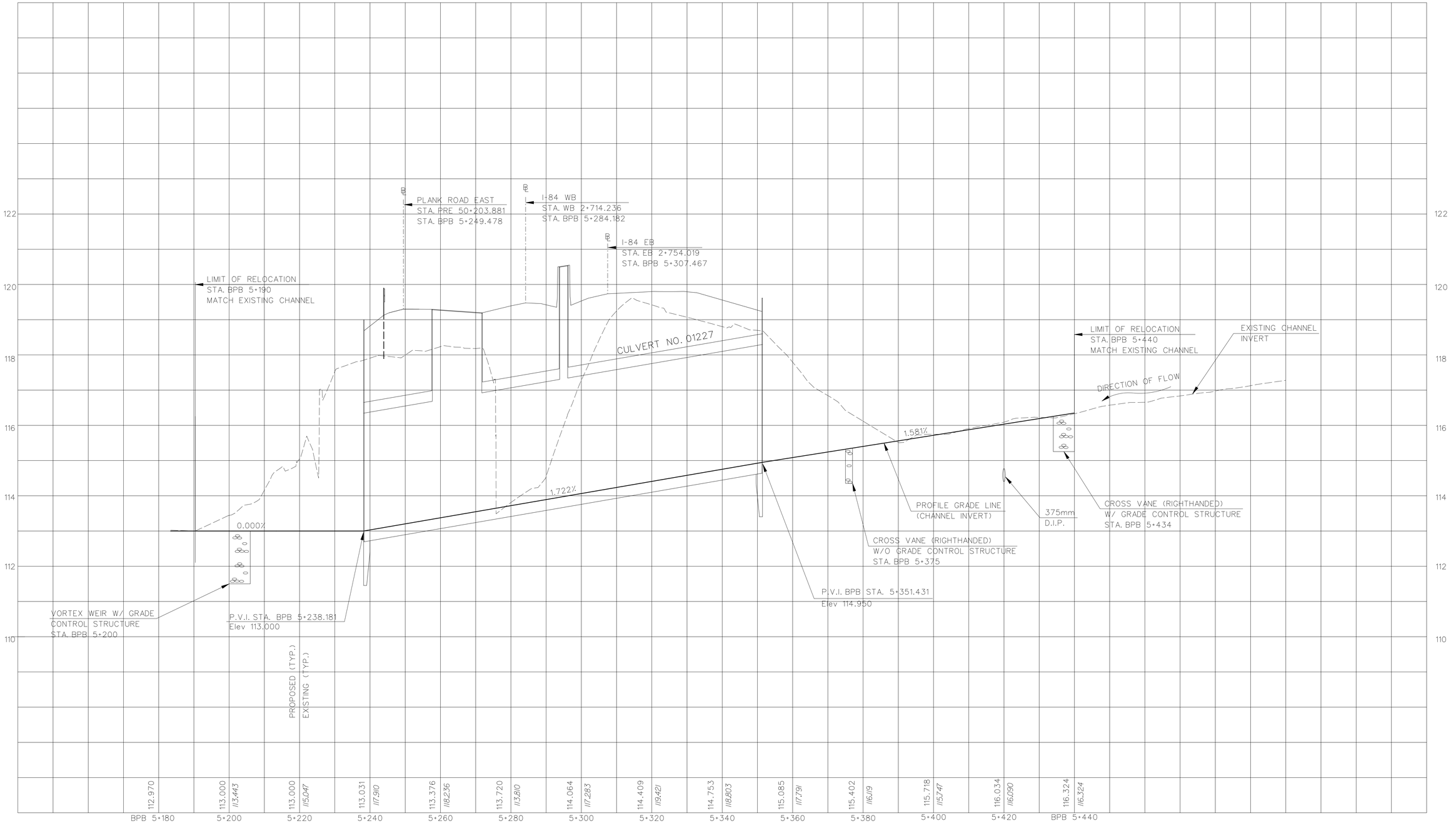
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
GRADING PLAN 1 OF 3

PROJECT NO.: 151-273
DRAWING NO.: BPG-1
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

HORIZ. SCALE IN METERS
0 5 10 15 20 25
VERT. SCALE IN METERS
0 .5 1 1.5 2 2.5
HORIZ. SCALE 1:500 VERT. SCALE 1:50
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: BEAVER POND
BROOK RELOCATION PROFILE STA.
BPB 5+190 TO STA. BPB 5+440

PROJECT NO.: 151-273
DRAWING NO.: BPP-1
SHEET NO.:

CURVE NO. BPB-4	
BEAVER POND BROOK	
P.C.	STA. BPB 6+287.711
	N 230949.649
	E 284210.842
C.C.	N 230995.225
	E 284190.280
P.T.	STA. BPB 6+323.049
	N 230973.918
	E 284235.513
△	40° 29'40" Left
T (m)	18.443
L (m)	35.338
R (m)	50.000

CURVE NO. BPB-5	
BEAVER POND BROOK	
P.C.	STA. BPB 6+374.112
	N 231020.113
	E 284257.272
C.C.	N 231011.590
	E 284275.365
P.T.	STA. BPB 6+389.318
	N 231030.235
	E 284268.127
△	43° 33'41" Right
T (m)	7.992
L (m)	15.206
R (m)	20.000

CURVE NO. BPB-6	
BEAVER POND BROOK	
P.C.	STA. BPB 6+411.980
	N 231038.436
	E 284289.254
C.C.	N 231061.742
	E 284280.207
P.T.	STA. BPB 6+422.359
	N 231044.065
	E 284297.886
△	23° 47'14" Left
T (m)	5.265
L (m)	10.379
R (m)	25.000

CURVE NO. BPB-7	
BEAVER POND BROOK	
P.C.	STA. BPB 6+468.032
	N 231076.362
	E 284330.179
C.C.	N 231012.726
	E 284393.822
P.T.	STA. BPB 6+536.234
	N 231102.692
	E 284391.333
△	43° 25'08" Right
T (m)	35.833
L (m)	68.202
R (m)	90.000

CURVE NO. BPB-8	
BEAVER POND BROOK	
P.C.	STA. BPB 6+573.360
	N 231103.719
	E 284428.446
C.C.	N 231303.642
	E 284422.915
P.T.	STA. BPB 6+641.397
	N 231117.021
	E 284494.835
△	19° 29'27" Left
T (m)	34.350
L (m)	68.036
R (m)	200.000

NOTE

FOR NOTES SEE DRAWING NO. MR-1

RETAINING WALL NO. 121 (SEE NOTE 9)
EM 30+200
EAST MAIN STREET
EM 30+300
EM 30+400
CULVERT NO. 151-014 (SEE NOTE 9)
SEE NOTE 4
SEE NOTE 3
PT STA. BPB 6+422.359
BPB 6+442.457 = SR 5+265.580
GRADE CONTROL STRUCTURE (TYP.)
RIPRAP (TYP.)
SR 5+300
PC STA. BPB 6+573.360
EDGE OF CHANNEL (TYP.)
BPB 6+500
RELOCATED
BEAVER
PT STA. BPB 6+641.397
PC STA. BPB 6+411.980
PC STA. BPB 6+374.112
BPB 6+400
N44° 54' 41"E
N68° 47' 01"E
N68° 24' 55"E
POND
BPB 6+600
BROOK
N68° 55' 28"E
PT STA. BPB 6+536.234
PT STA. BPB 6+389.318
BPB-7
BPB-6
BPB-8
PC STA. BPB 6+468.032
WB 25 OFF RAMP ℄
W25 13+900
WB 25 OFF-RAMP
SCOTT ROAD
PRE 51+525.120
PRE 51+200
PRE 51+300
PLANK ROAD EAST
LIMIT OF CHANNEL RELOCATION STA. BPB 6+266 MATCH EXISTING
PT STA. BPB 6+323.049
PC STA. BPB 6+287.711
BPB 6+346.349 = PRE 51+196.045
BPB 6+300
N65° 43' 10"E
BPB-5
BPB-4
CULVERT NO. 06622 (SEE NOTE 9)
I-84 WB
WB 3+700
WB I-84 ℄
WB 3+800
WB 3+900
EB 3+700
EB I-84 ℄
EB 3+800
EB 3+900
EB 4+000
I-84 EB
RETAINING WALL NO. 108 (SEE NOTE 9)
BRIDGE NO. 01228 (SEE NOTE 9)
E25 34+000
MATCH LINE STA. BPB 6+660.00 SEE DRAWING BPD-3

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJWESKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
DEVELOPMENT PLAN 2 OF 3

PROJECT NO.: 151-273
DRAWING NO.: BPD-2
SHEET NO.:

NOTE
FOR NOTES, SEE DRAWING NO. MR-I

EAST MAIN STREET
EM 30+200
EM 30+300
EM 30+400
SR 5300
SEE NOTE 4
SEE NOTE 3
DRAINAGE OUTFALL 47
CULVERT NO. 06622 (SEE NOTE 9)
BPB 6+400
PRE 51+100
PRE 51+200
PRE 51+300
BPB 6+300
RELOCATED
BEAVER POND BROOK
BPB 6+600
CULVERT NO. 014 (SEE NOTE 9)
SCOTT ROAD
PLANK ROAD EAST
WB 25 OFF-RAMP
W25 13+900
LIMIT OF CHANNEL RELOCATION STA. BPB 6+266 MATCH EXISTING
EXIST. CULVERT TO BE ABANDON AND BACKFILL
SEE NOTE 2 (TYP.)
DRAINAGE OUTFALL 19
WB 3+700
I-84 WB
WB 3+800
WB 3+900
STRUCTURE NO. 01228 (SEE NOTE 9)
EB 3+700
RETAINING WALL 108 (SEE NOTE 9)
I-84 EB
EB 3+800
EB 3+900
EB 4+000
E25 34+000
DRAINAGE SWALE (TYP.) SEE NOTE 2
MATCH LINE STA. BPB 6+660.00 SEE DRAWING BPG-3
N/F FRANK AND LORRANNE MANCINI
N/F DAVID ALAN ENTERPRISES LLC.
28 EAST MAIN STREET, LLC

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED: S. ANDRZEJEWSKI

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
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PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
GRADING PLAN 2 OF 3

PROJECT NO.: 151-273
DRAWING NO.: BPG-2
SHEET NO.:

℄ SCOTT ROAD
STA. SR 5+265.580
STA. BPB 6+442.457

℄ PLANK POAD EAST
STA. PRE 51+196.045
STA. BPB 6+346.349

Existing
Grade

LIMIT OF CHANNEL RELOCATION
STA. BPB 6+266
MATCH EXISTING

BERM, ROUNDED STONE RIPRAP
GRADATION C
STA. BPB 6+412

CULVERT NO. 014

PROFILE GRADE LINE
(CHANNEL INVERT)

P.V.I. STA. BPB 6+484.22
Elev 133.745

DIRECTION OF FLOW

0.585%

BERM, ROUNDED STONE RIPRAP
GRADATION D
STA. BPB 6+313

CULVERT NO. 06622

INV. EL. 133.40

2.000%

1.972%

2.000%

INV. EL. 132.54

INV. EL. 131.54

INV. EL. 130.58

CROSS VANE (LEFTHANDED)
W/ GRADE CONTROL STRUCTURE
STA. BPB 6+472

J-HOOK (RIGHTHANDED)
STA. BPB 6+505

CROSS VANE (RIGHTHANDED)
W/O GRADE CONTROL STRUCTURE
STA. BPB 6+545

J-HOOK (RIGHTHANDED)
STA. BPB 6+570

J-HOOK (LEFTHANDED)
STA. BPB 6+610

CROSS VANE (LEFTHANDED)
W/ GRADE CONTROL STRUCTURE
STA. BPB 6+655

P.V.I. STA.BPB 6+280.000
Elev 129.675

Existing
Channel Invert

MATCH LINE STA. BPB 6+660 - SEE DRAWING NO. BPP-3

PROPOSED (TYP.)	EXISTING (TYP.)
129.584	
129.675	129.843
130.075	130.062
130.475	135.672
130.875	136.280
131.275	136.674
131.672	137.381
132.067	138.247
132.462	138.691
132.860	139.652
133.260	139.376
133.661	138.796
133.837	138.601
133.954	138.638
134.071	138.435
134.188	138.673
134.305	139.030
134.422	139.076
134.539	139.262
134.656	139.187

142 140 138 136 134 132 130 128

BPB 6+260 6+280 6+300 6+320 6+340 6+360 6+380 6+400 6+420 6+440 6+460 6+480 6+500 6+520 6+540 6+560 6+580 6+600 6+620 6+640 BPB 6+660

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

HORIZ. SCALE IN METERS
0 5 10 15 20 25
VERT. SCALE IN METERS
0 .5 1 1.5 2 2.5
HORIZ. SCALE 1:500 VERT. SCALE 1:50
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: BEAVER POND
BROOK RELOCATION PROFILE STA. BPB 6+266 TO STA. BPB 6+660

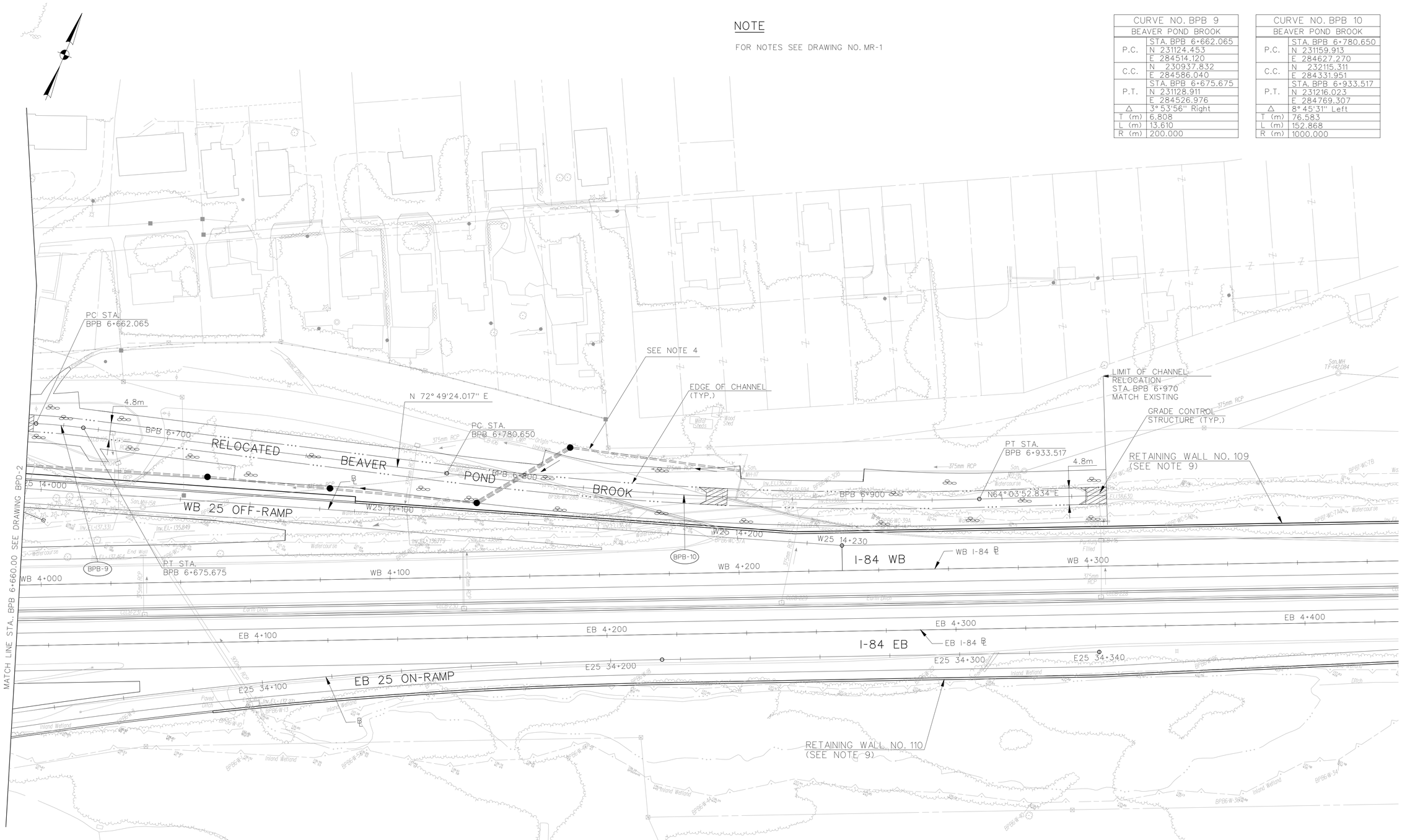
PROJECT NO.: 151-273
DRAWING NO.: BPP-2
SHEET NO.:

NOTE

FOR NOTES SEE DRAWING NO. MR-1

CURVE NO. BPB 9	
BEAVER POND BROOK	
P.C.	STA. BPB 6+662.065
	N 231124.453
	E 284514.120
C.C.	N 230937.832
	E 284586.040
P.T.	STA. BPB 6+675.675
	N 231128.911
	E 284526.976
△	3° 53'56" Right
T (m)	6.808
L (m)	13.610
R (m)	200.000

CURVE NO. BPB 10	
BEAVER POND BROOK	
P.C.	STA. BPB 6+780.650
	N 231159.913
	E 284627.270
C.C.	N 232115.311
	E 284331.951
P.T.	STA. BPB 6+933.517
	N 231216.023
	E 284769.307
△	8° 45'31" Left
T (m)	76.583
L (m)	152.868
R (m)	1000.000



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
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STATE OF CONNECTICUT
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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
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HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

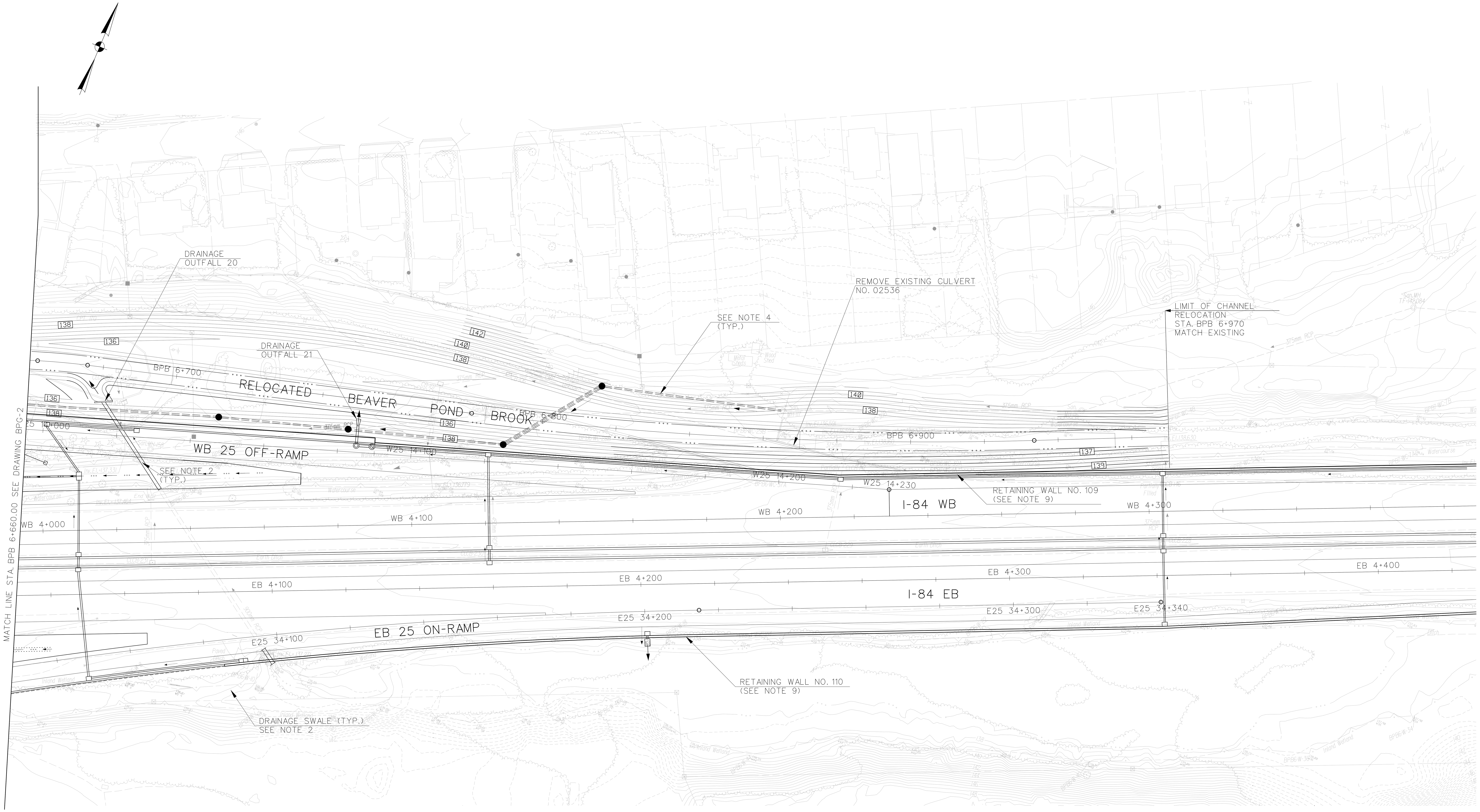
DRAWING TITLE:
BEAVER POND BROOK RELOCATION
DEVELOPMENT PLAN 3 OF 3

PROJECT NO.:
151-273

DRAWING NO.:
BPD-3

SHEET NO.:

NOTE
FOR NOTES, SEE DRAWING NO. MR-I



REV.	DATE	DESCRIPTION	SHEET NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: J. HUND
DRAFTER: T. JUDGE
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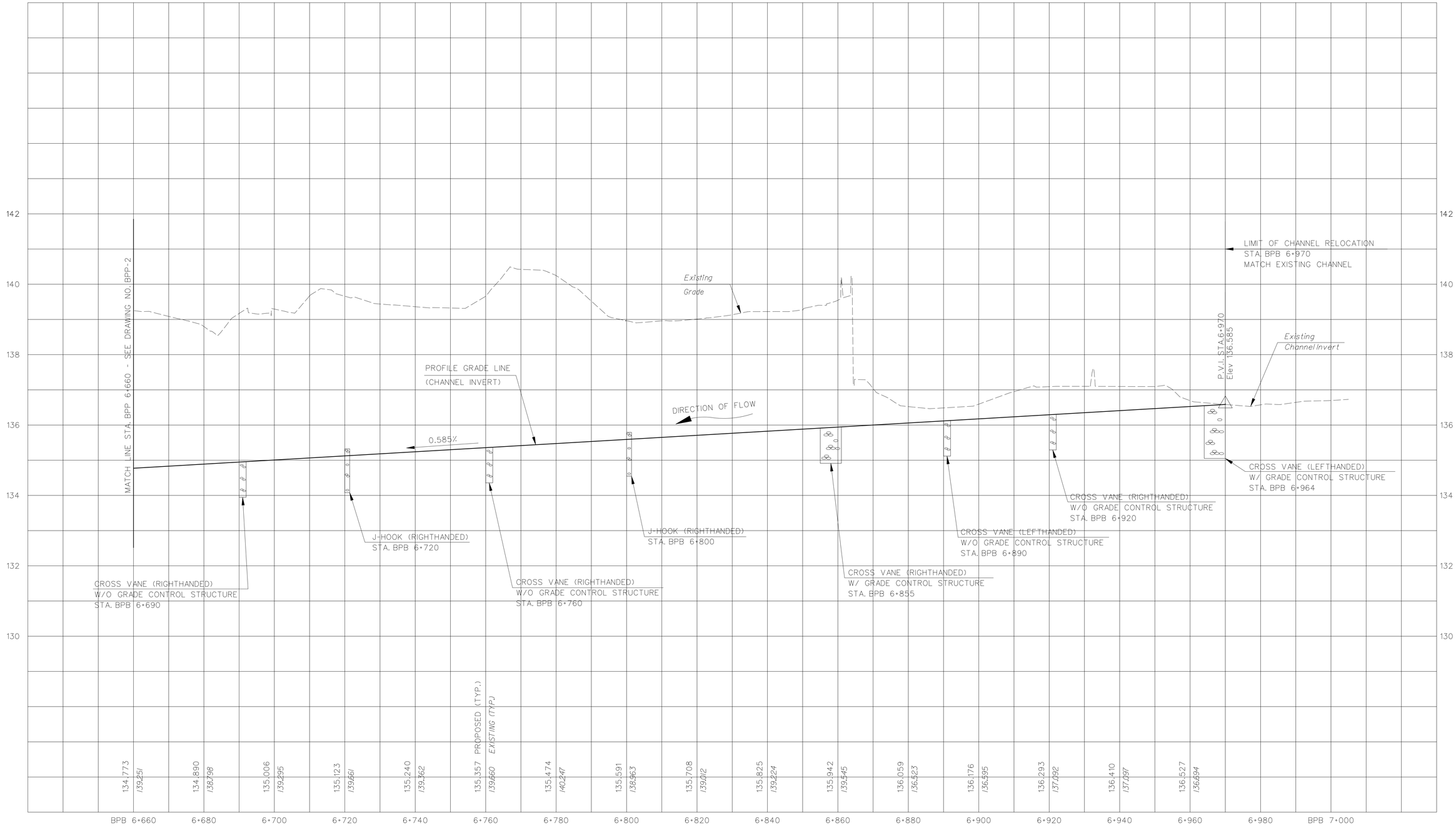
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
GRADING PLAN 3 OF 3

PROJECT NO.: 151-273
DRAWING NO.: BPG-3
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

HORIZ. SCALE IN METERS
0 5 10 15 20 25
VERT. SCALE IN METERS
0 .5 1 1.5 2 2.5
HORIZ. SCALE 1:500 VERT. SCALE 1:50
1 METER= 3.28083333 U.S. SURVEY FEET

DESIGNER: T. BULZAK
DRAFTER: T. JUDGE
CHECKED BY: S. ANDRZEJEWSKI
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\riverreloc\BPBrook\bpb3.pro
PLOTTED 12/1/2014

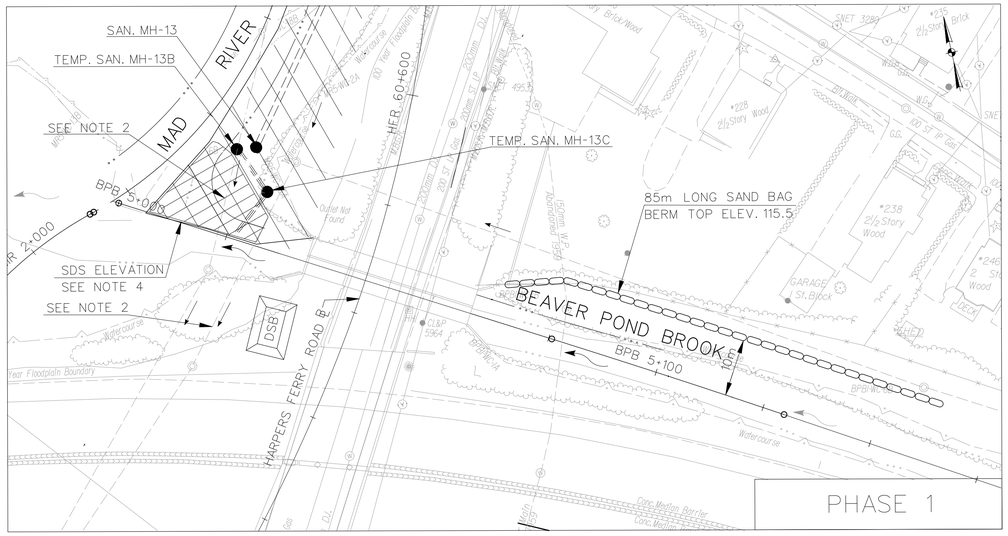
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

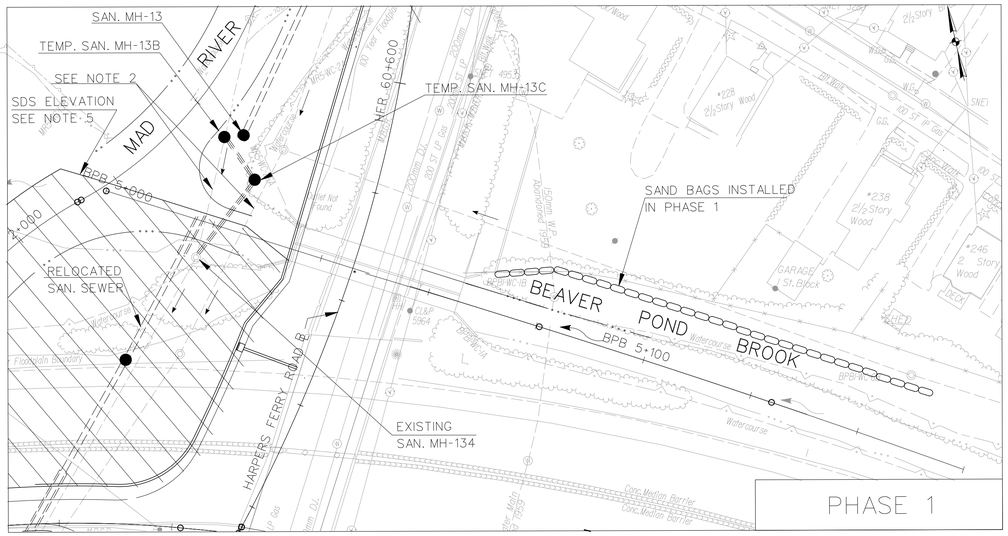
TOWN: WATERBURY

DRAWING TITLE: BEAVER POND
BROOK RELOCATION PROFILE STA.
BPB 6+660 TO STA. BPB 6+970

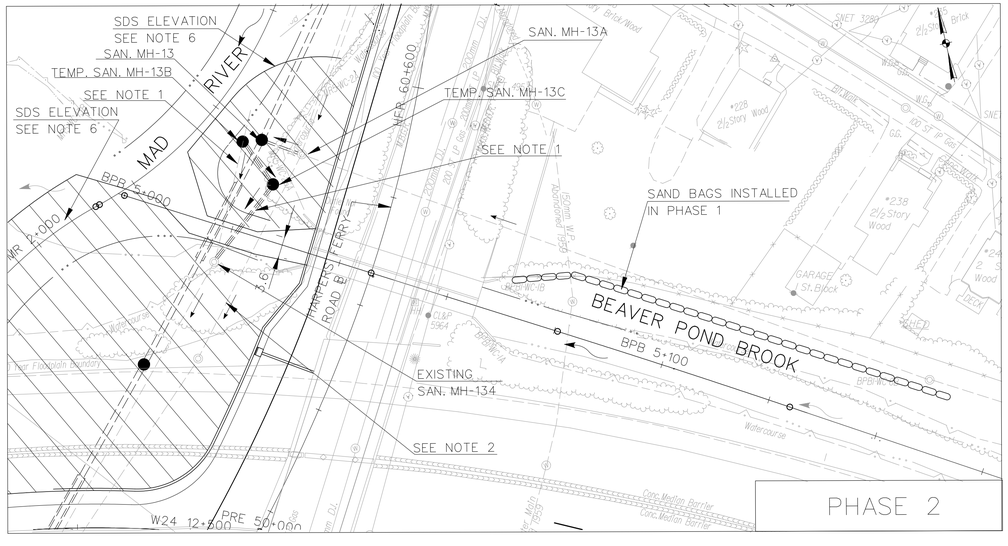
PROJECT NO.: 151-273
DRAWING NO.: BPP-3
SHEET NO.:



BEAVER POND BROOK STAGE 1, PHASE 1
(MAD RIVER STAGE A, PHASE 5 / MPT STAGE 1)



BEAVER POND BROOK STAGE 4, PHASE 1
(MAD RIVER STAGE C, PHASE 1 / MPT STAGE 4)



BEAVER POND BROOK STAGE 4, PHASE 2
(MAD RIVER STAGE C PHASE 2 / MPT STAGE 4)

NOTES:

1. AFTER THE RELOCATED SANITARY SEWER IS COMPLETED AND OPERATIONAL, REMOVE THE TEMPORARY SYSTEM AS WELL AS ANY REMAINING PORTIONS OF THE EXISTING NORTHERLY SEWER PIPE.
2. MAINTAIN FLOW IN THE EXISTING SEWER UNTIL RELOCATED SANITARY SEWER IS COMPLETED AND OPERATIONAL.
3. SEE DWG. BPBC-1 FOR THE PHASING (PHASES 3 & 4 IN STAGE 4 AND PHASES 1 & 2 IN STAGE 5) OF CULVERT No. 03727.
4. SEE DWG. MRW-2 (MAD RIVER STAGE A, PHASE 5).
5. SEE DWG. MRW-8 (MAD RIVER STAGE C, PHASE 1)
6. SEE DWG. MRW-8 (MAD RIVER STAGE C, PHASE 2).
7. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 7)
- DSB — DEWATERING SETTLING BASIN

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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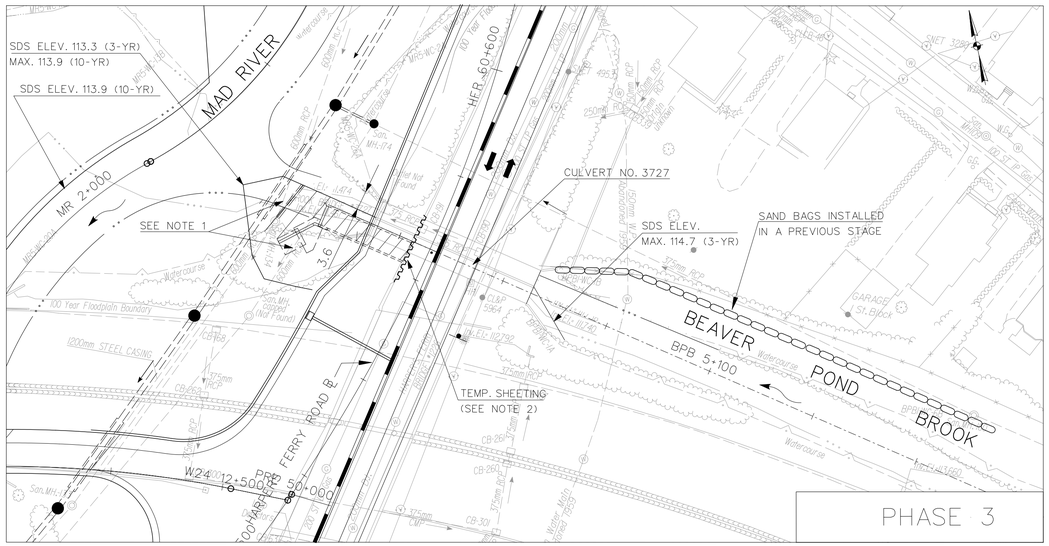
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

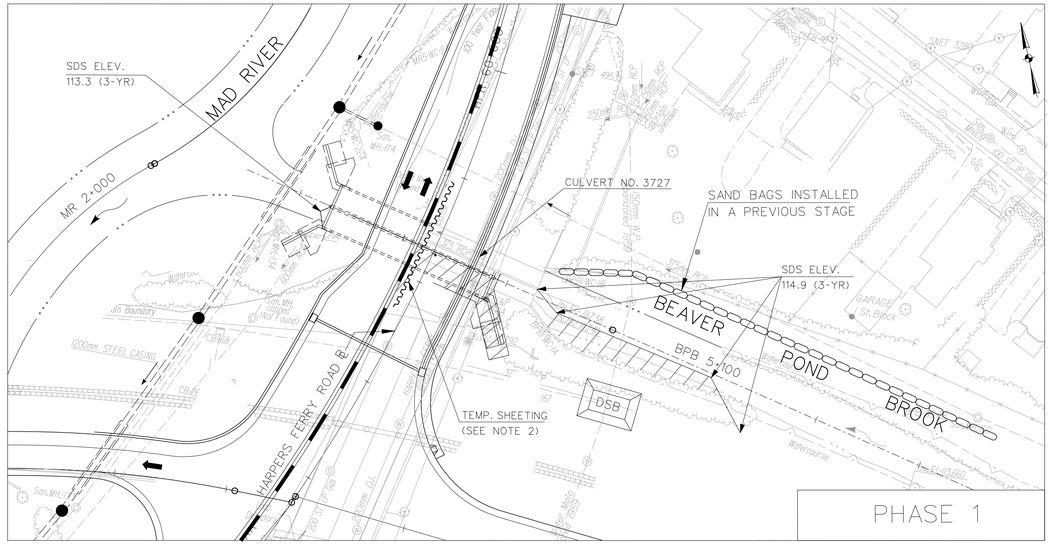
TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK SANITARY SEWER CROSSING 1 OF 1

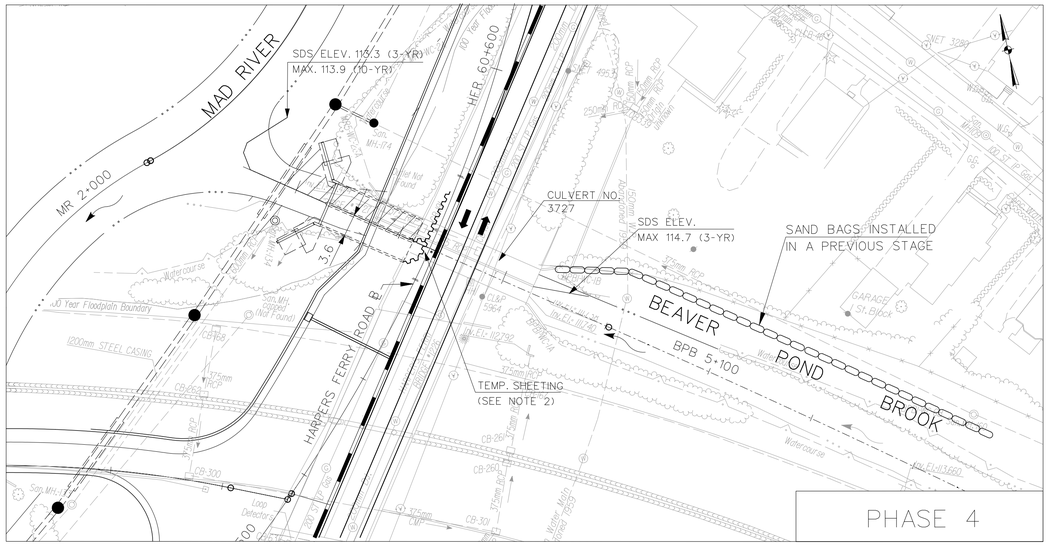
PROJECT NO.: 151-273
DRAWING NO.: BPSSC-1
SHEET NO.:



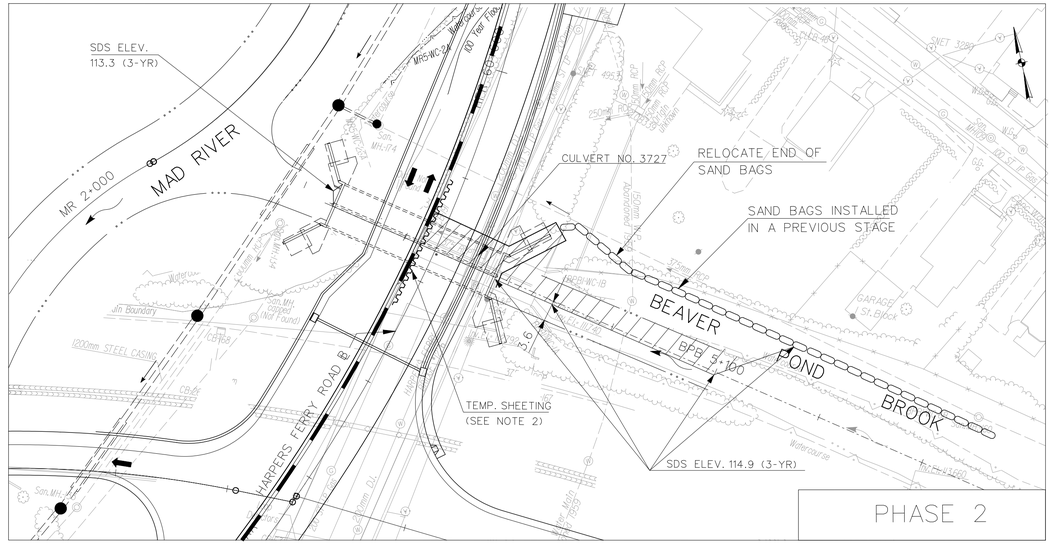
BEAVER POND BROOK STAGE 4, PHASE 3
(MAD RIVER STAGE D / MPT STAGE 4)



BEAVER POND BROOK STAGE 5, PHASE 1
(MPT STAGE 5)



BEAVER POND BROOK STAGE 4, PHASE 4
(MAD RIVER STAGE E / MPT STAGE 4)



BEAVER POND BROOK STAGE 5, PHASE 2
(MPT STAGE 5)

NOTES:

1. REMOVE SANITARY SEWER PIPES.
2. TEMPORARY SHEETING TO RETAIN ROADWAY EMBANKMENT.
3. SEE CULVERT No. 03727 PLANS FOR ADDITIONAL DETAILS.
4. SEE DWG. BPSSC-1 FOR LEGEND AND FOR BEAVER POND BROOK STAGE 4, PHASES 1 AND 2 CONSTRUCTION ZONE.
5. SDS ELEVATION REPRESENTS THE MAXIMUM ALLOWED UNLESS NOTED OTHERWISE. THE NOTED YEAR REPRESENTS THE MAXIMUM STORM FREQUENCY FOR WHICH THE SDS WILL DIRECT THE STORM FLOW AWAY FROM THE WORK AREA.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: T. JUDGE
DRAFTER: T. BULZAK
CHECKED BY: J. HUND
DATE CHECKED:

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK
CULVERT No. 03727 1 OF 1

PROJECT NO.: 151-273
DRAWING NO.: BPBC-1
SHEET NO.:

STAGE A
(HIGHWAY MPT STAGES 4A & 4B)

NOTES

1. BEAVER POND BROOK SANITARY SEWER RELOCATION SHALL BE COORDINATED WITH THE RELOCATION OF THE BEAVER POND BROOK CHANNEL.
2. RELOCATION OF THE BEAVER POND BROOK CHANNEL SHALL BE COORDINATED WITH THE CONSTRUCTION OF CULVERTS AND RETAINING WALLS. SEE STRUCTURAL PLANS.
3. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.
4. RELOCATION OF THE BEAVER POND BROOK CHANNEL SHALL BE COORDINATED WITH M&PT. SEE M&PT PLANS.
5. RELOCATION OF THE BEAVER POND BROOK SHALL BE COORDINATED WITH THE STORM DRAINAGE SYSTEM TO FACILITATE CONSTRUCTION AND ROADWAY DRAINAGE.
6. UTILITY RELOCATION SHALL BE COORDINATED WITH THE RELOCATION OF THE BEAVER POND BROOK CHANNEL.
7. BEAVER POND BROOK RELOCATION WATER HANDLING PLAN SHALL BE INTEGRATED WITH THE EROSION CONTROL AND SEDIMENTATION CONTROL AND M&PT PLANS.
8. FOR PROPOSED HIGHWAY WORK, SEE ROADWAY DEVELOPMENT PLANS.
9. STREAM DIVERSION STRUCTURES FOR BEAVER POND BROOK RELOCATION SHALL BE INCLUDED IN THE PRICE BID FOR "HANDLING WATER - WATERCOURSE RELOCATION".
10. THE WATER HANDLING STAGES INDICATED ARE NOT NECESSARILY SEQUENTIAL. CONSTRUCTION SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE INDICATED IN THE MAINTENANCE AND PROTECTION OF TRAFFIC PLANS. THIS SEQUENCING AND/OR THE CONTRACTORS CHOICE OF MEANS AND METHODS OF CONSTRUCTION MAY REQUIRE ALTERNATING BETWEEN RIVER RELOCATION STAGES AT VARIOUS LOCATIONS AT VARIOUS TIMES. THE COST OF SUCH CHANGES SHALL BE INCLUDED IN THE PRICE BID FOR "HANDLING WATER - WATERCOURSE RELOCATIONS".
11. THE DEPICTED LOCATIONS OF DEWATERING SETTLING BASINS ARE APPROXIMATE AND ARE DEPENDENT ON THE CONTRACTOR'S CHOSEN METHOD OF WORK.
12. CONTRACTOR SHALL REMOVE THE STREAM DIVERSION STRUCTURES FOR EACH STAGE IMMEDIATELY AFTER COMPLETION OF CONSTRUCTION FOR THAT STAGE AND PERMIT UNIMPEDED FLOW THROUGH THE WATERWAY UNTIL COMMENCEMENT OF THE NEXT CONSTRUCTION STAGE.UNLESS OTHERWISE SHOWN OR DIRECTED BY THE EIC.
13. WITHIN THE REACH OF WATERCOURSE TO BE MODIFIED IN EACH RELOCATION STAGE, THE CONTRACTOR SHALL BEGIN HIS OPERATIONS AT THE DOWNSTREAM END AND PROGRESS UPSTREAM IN ORDER TO MINIMIZE DOWNSTREAM EFFECTS OF CONSTRUCTION OPERATIONS.
14. SDS ELEVATION REPRESENTS THE MAXIMUM ALLOWED. TAPER THE TOP ELEVATION BETWEEN THE NOTED ELEVATIONS. THE NOTED YEAR REPRESENTS THE MAXIMUM STORM FREQUENCY FOR WHICH THE SDS WILL DIRECT THE STORM FLOW AWAY FROM THE WORK AREA.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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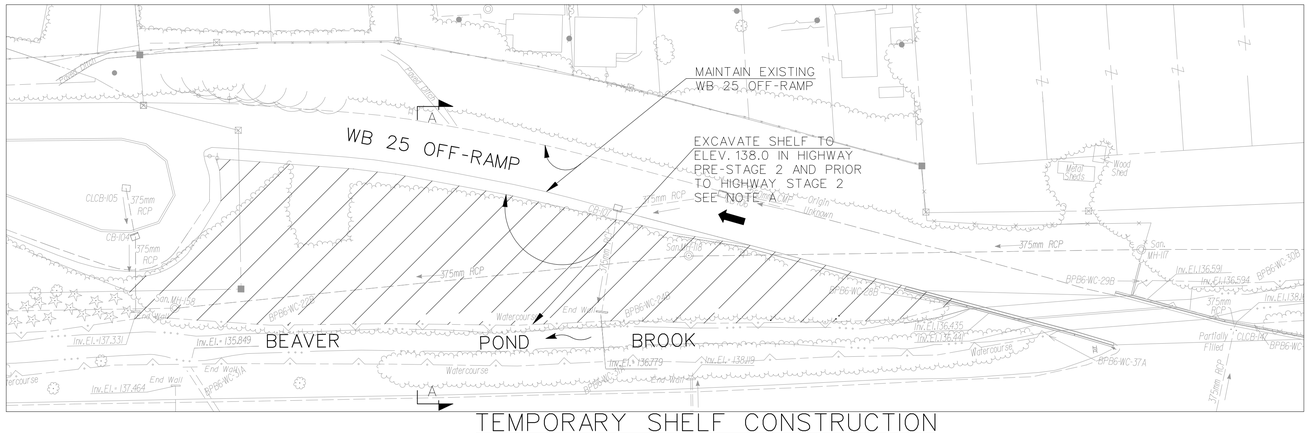
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

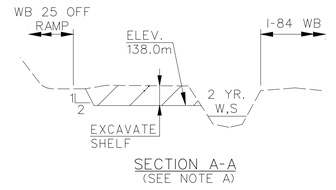
DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 1 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-1
SHEET NO.:



TEMPORARY SHELF CONSTRUCTION

(PRIOR TO HIGHWAY STAGE 2 CONSTRUCTION)



SECTION A-A
(SEE NOTE A)

NOTE:

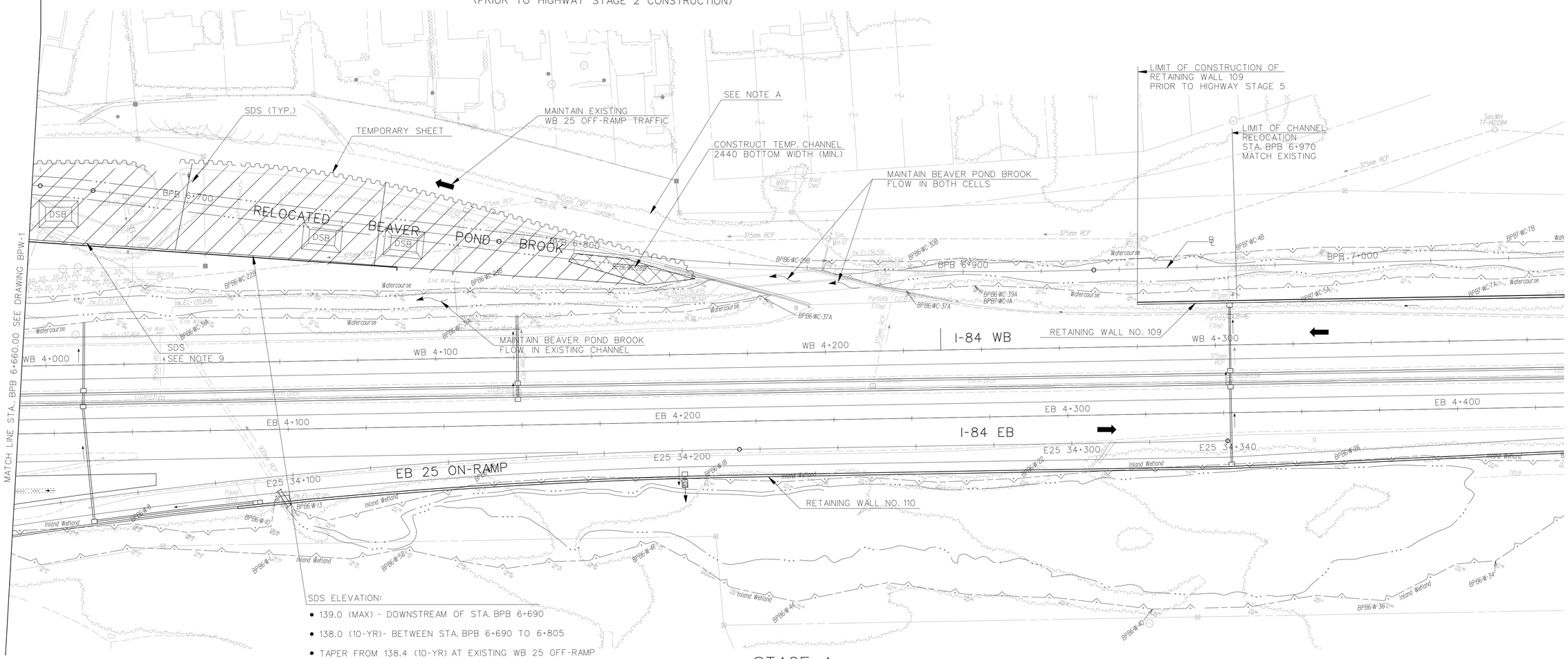
FOR NOTES, SEE DRAWING NO. BPW-1.

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 3)
- DSB — DEWATERING SETTLING BASIN

NOTE:

A. THE TEMPORARY SHELF SHALL BE EXCAVATED PRIOR TO THE INSTALLATION OF THE TEMPORARY SHEETING REQUIRED BETWEEN THE BROOK AND THE WB ROADWAY.



SDS ELEVATION:

- 139.0 (MAX) - DOWNSTREAM OF STA. BPB 6+690
- 138.0 (10-YR)- BETWEEN STA. BPB 6+690 TO 6+805
- TAPER FROM 138.4 (10-YR) AT EXISTING WB 25 OFF-RAMP CULVERT TO 138.0 (10-YR) AT STA. BPB 6+805

STAGE A

(HIGHWAY MPT STAGES 4A & 4B)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
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DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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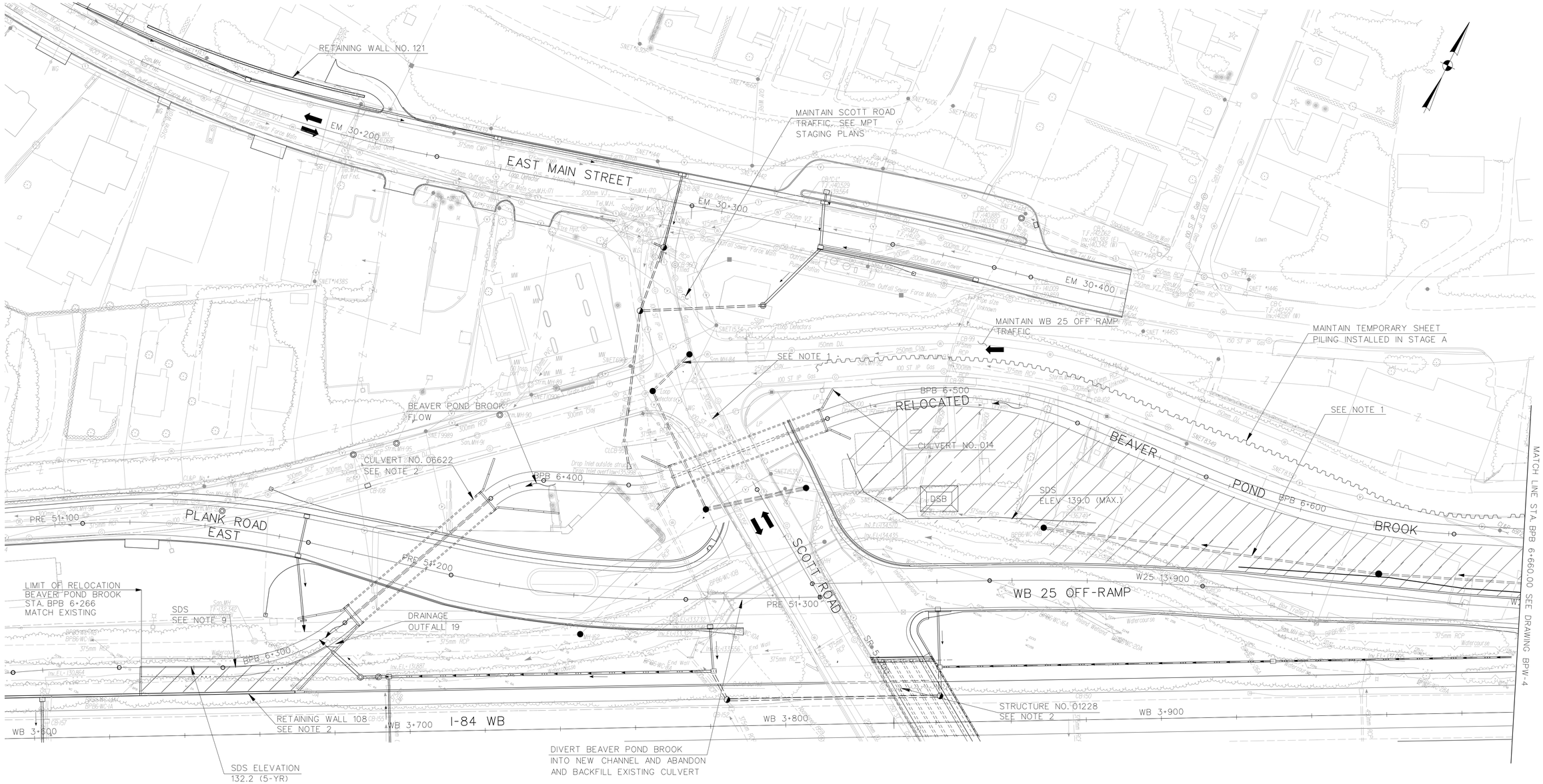
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 2 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-2
SHEET NO.:



STAGE B

(HIGHWAY MPT STAGE 4C)

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 3)
- DSB — DEWATERING SETTLING BASIN

NOTE:

FOR NOTES, SEE DRAWING NO. BPW-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
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CHECKED BY: T. BULZAK
DATE CHECKED:

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2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 3 OF 12

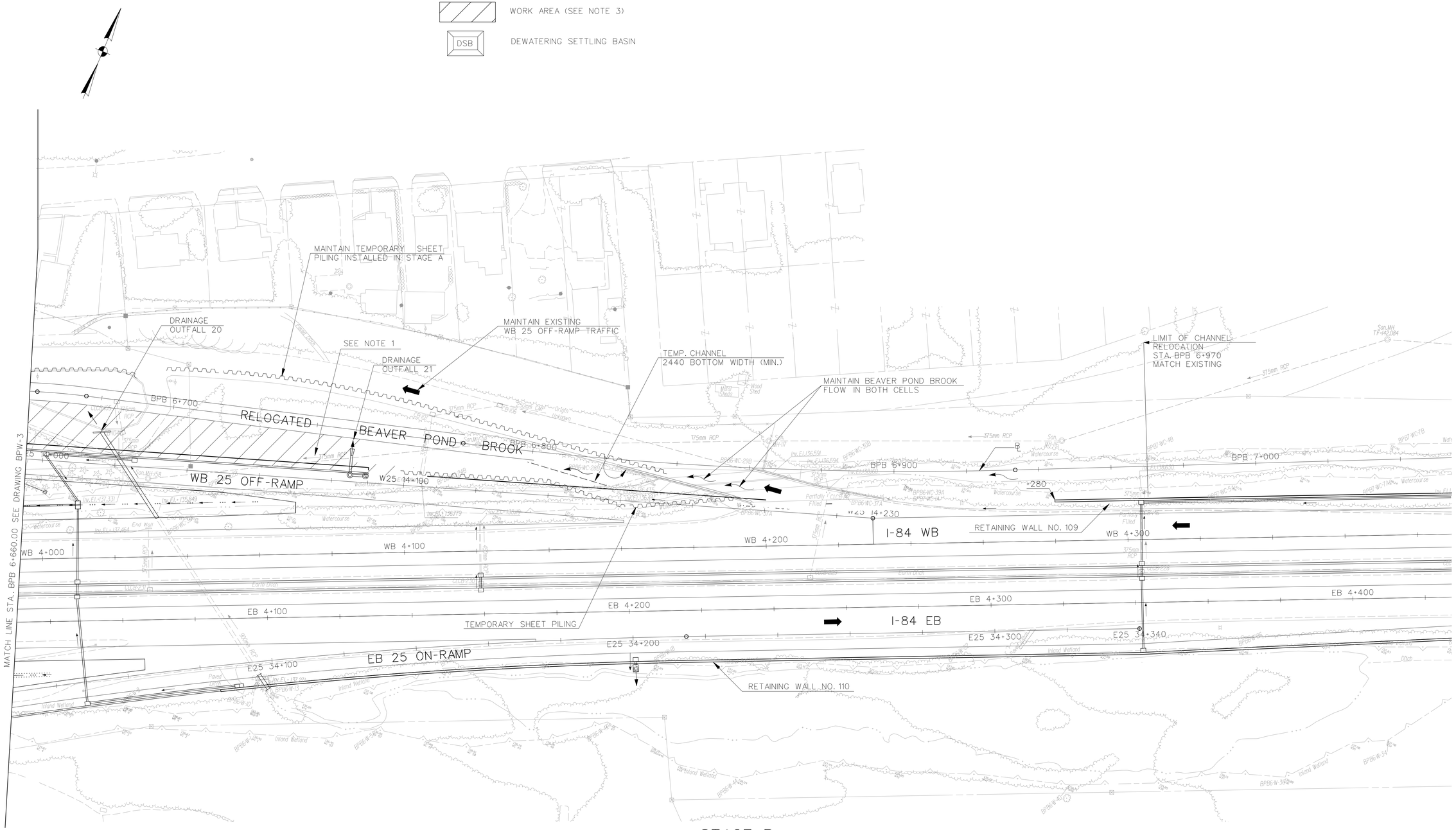
PROJECT NO.: 151-273
DRAWING NO.: BPW-3
SHEET NO.:

NOTE:

FOR NOTES, SEE DRAWING NO. BPW-1.

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 3)
- DSB — DEWATERING SETTLING BASIN



STAGE B

(HIGHWAY MPT STAGE 4C)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS

0 5 10 15 20 25

SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI

DRAFTER: T. JUDGE

CHECKED BY: T. BULZAK

DATE CHECKED:

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2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

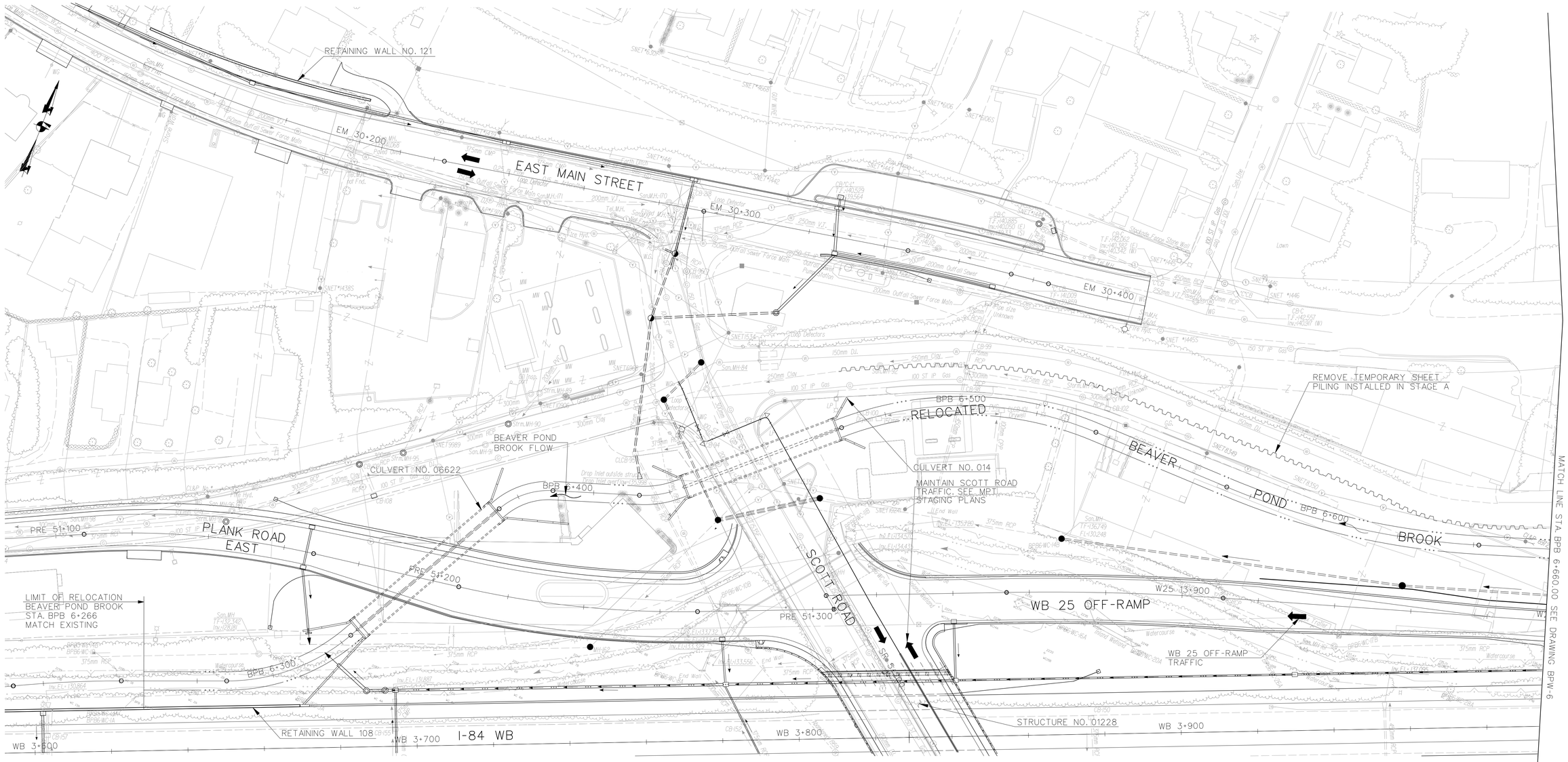
TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 4 OF 12

PROJECT NO.: 151-273

DRAWING NO.: BPW-4

SHEET NO.:



STAGE C
(HIGHWAY MPT STAGE 5)

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 3)
- DSB — DEWATERING SETTLING BASIN

NOTE:

FOR NOTES, SEE DRAWING NO. BPW-1.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

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DEPARTMENT OF TRANSPORTATION

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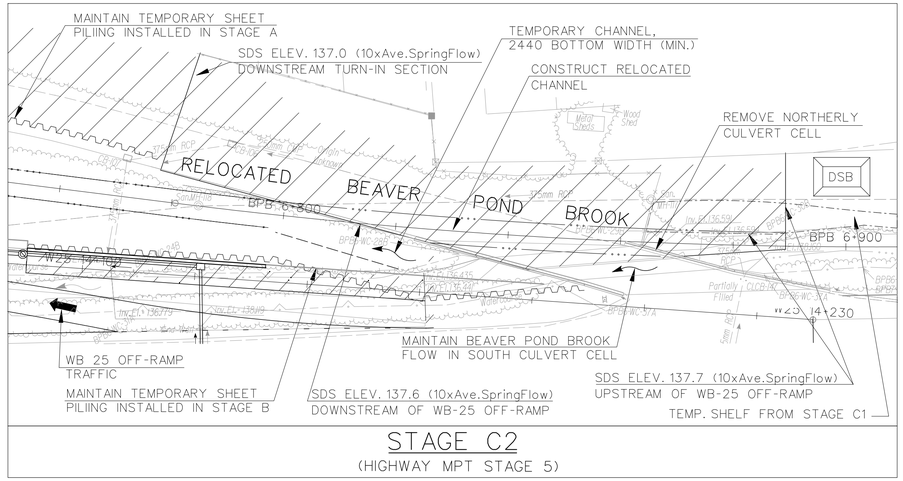
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

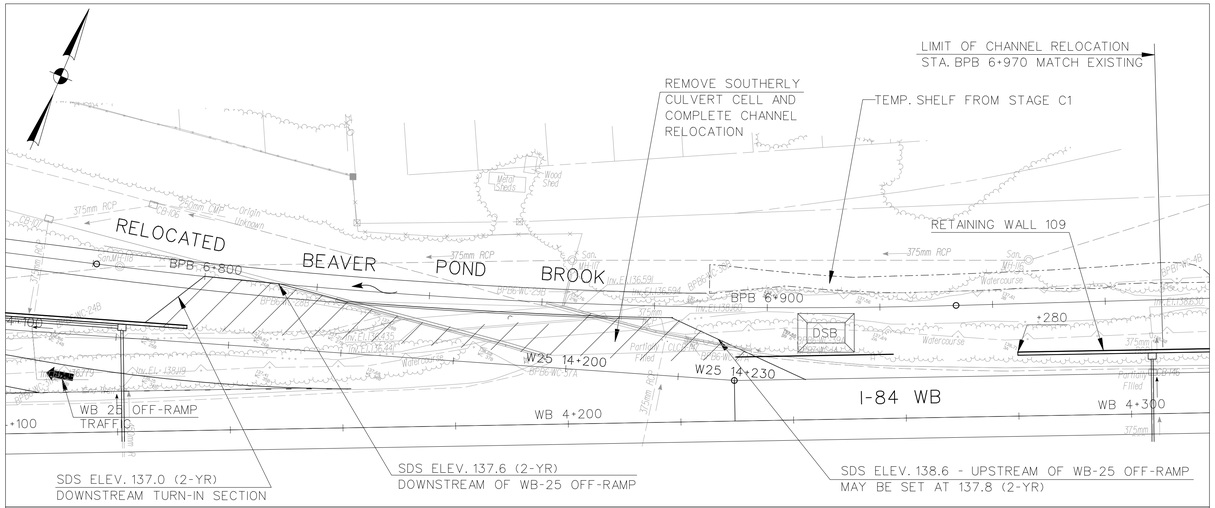
TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 5 OF 12

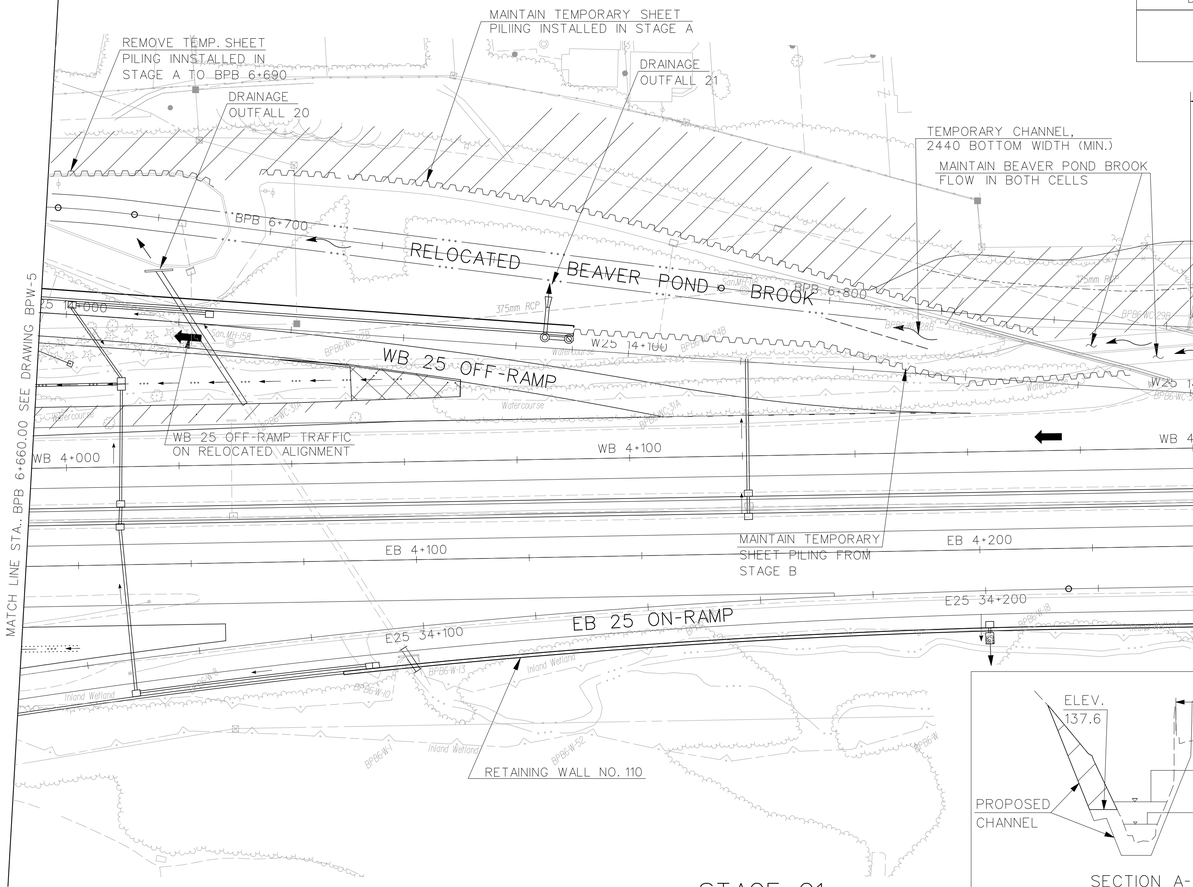
PROJECT NO.: 151-273
DRAWING NO.: BPW-5
SHEET NO.:



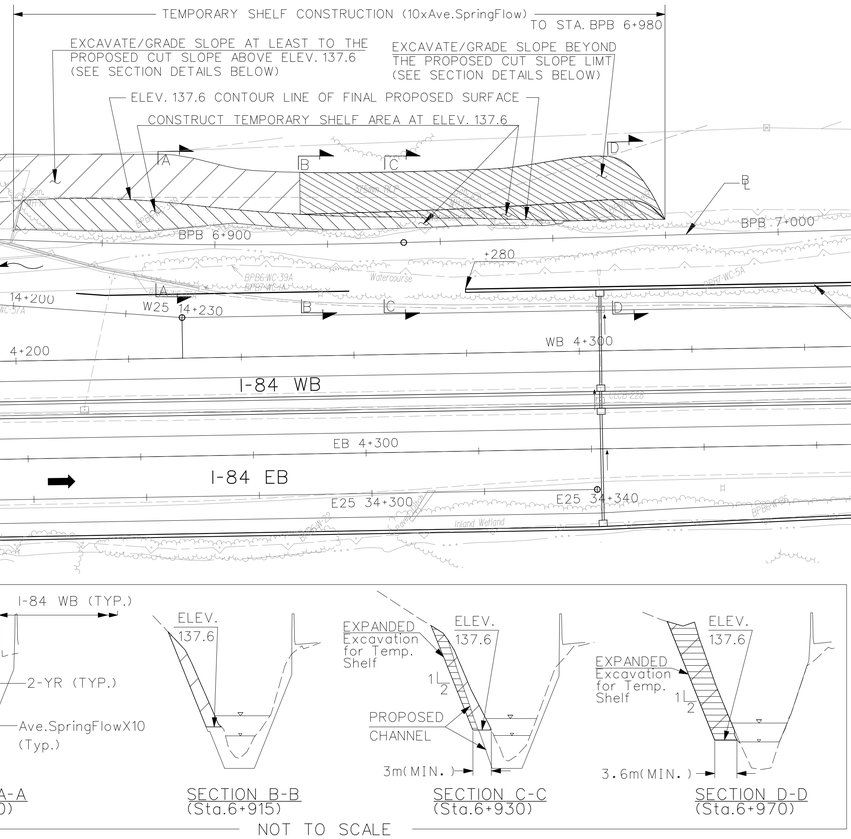
STAGE C2
(HIGHWAY MPT STAGE 5)

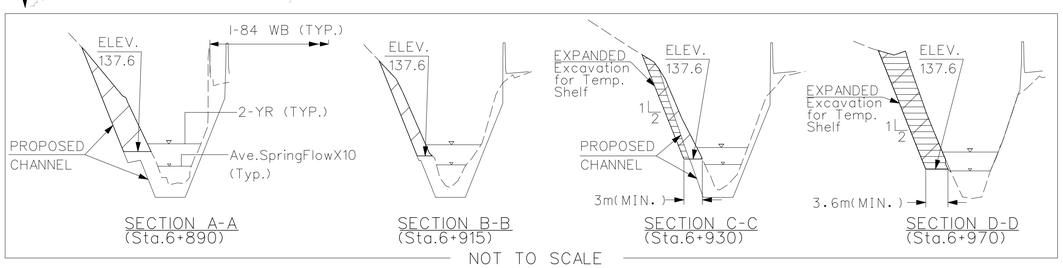


STAGE C3
(HIGHWAY MPT STAGE 5)



STAGE C1
(HIGHWAY MPT STAGE 5)





NOT TO SCALE

NOTE:

FOR NOTES, SEE DRAWING NO. BPW-1.

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 3)
- DSB — DEWATERING SETTLING BASIN

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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3RD FLOOR
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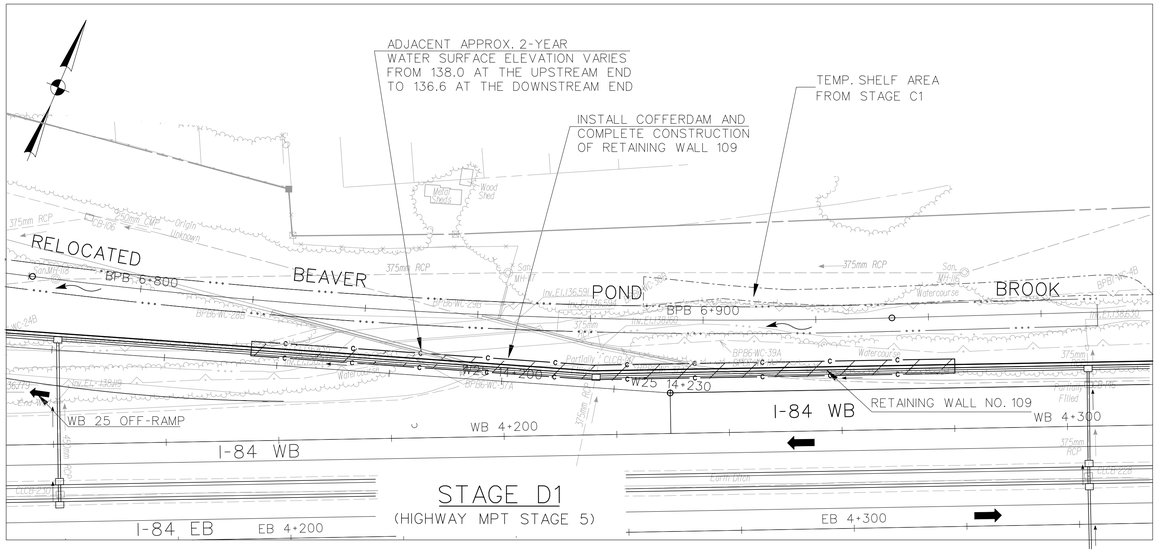
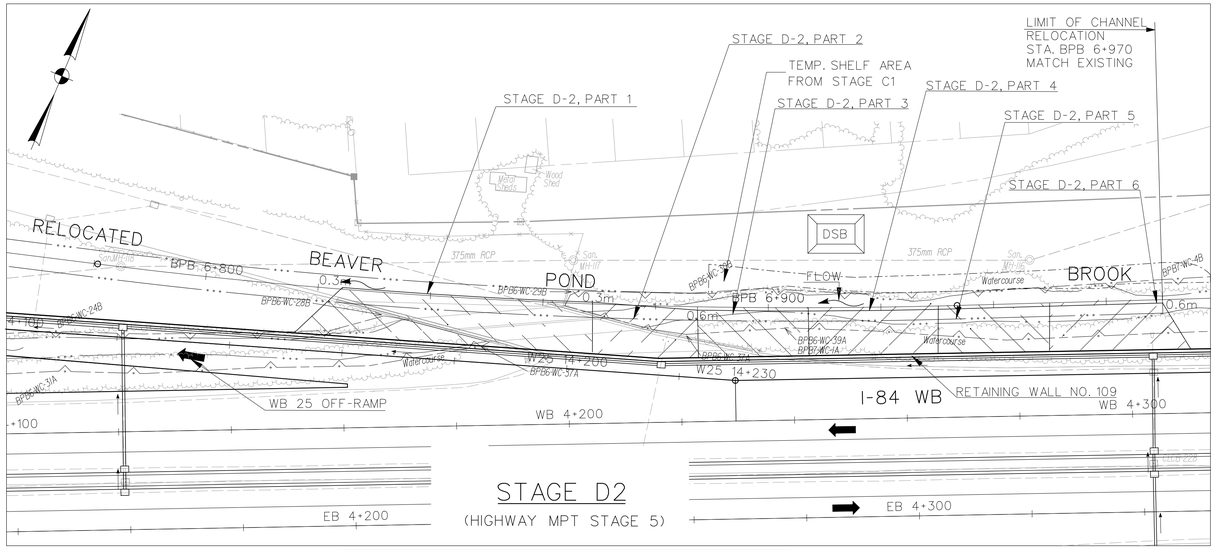
PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 6 OF 12

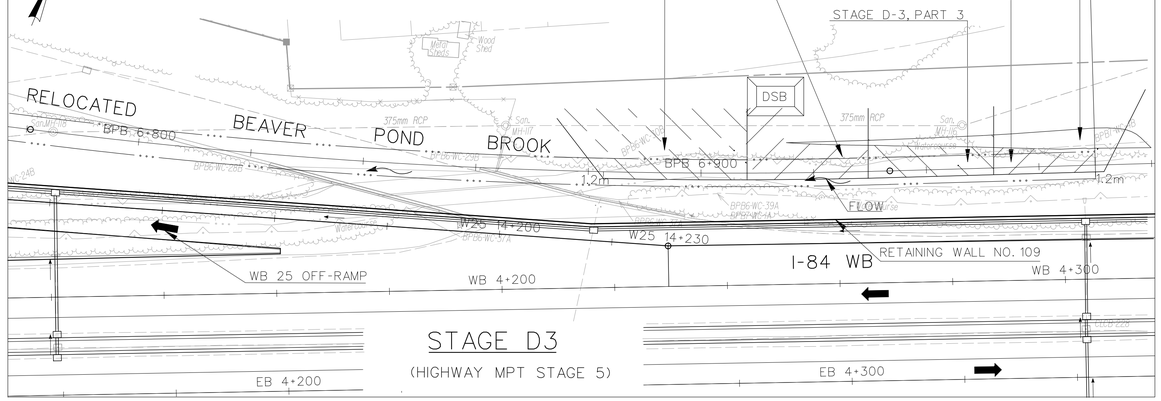
PROJECT NO.: 151-273
DRAWING NO.: BPW-6
SHEET NO.:

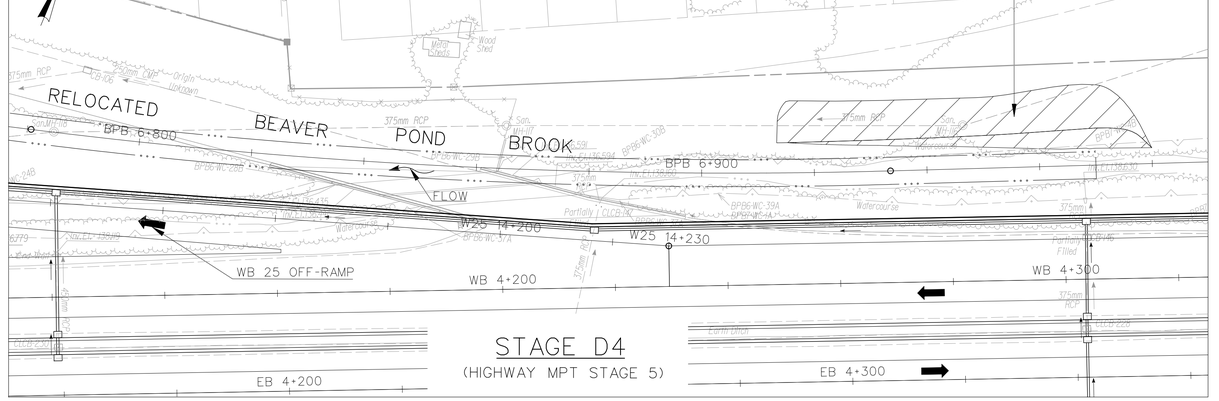




SDS ELEVATIONS (4 x Ave. Spring Flow)			
LOCATION	TOP ELEV.	LOCATION	TOP ELEV.
D2 PART 1	137.1	D2 PART 4	137.5
D2 PART 2	137.4	D2 PART 5	137.5
D2 PART 3	137.4	D2 PART 6	137.6

NOTE: BETWEEN STA. 6+915 AND +970 (UPSTREAM LIMIT), CONSTRUCT ONLY THE LOWER PORTION OF THE CHANNEL BELOW THE TEMPORARY SHELF (ELEV. 137.6), LEAVING THE PART OF THE SHELF AREA THAT WAS FORMED BEYOND THE PROPOSED GRADING LIMIT IN STAGE C1. THE UPPER PORTION IS TO BE COMPLETED IN STAGE D4.





SDS ELEVATIONS (4 x Ave. Spring Flow)	
LOCATION	TOP ELEV.
D3 PART 1	137.4
D3 PART 2	137.5
D3 PART 3	137.5
D3 PART 4	137.6

NOTE: A. FOR GENERAL NOTES, SEE DRAWING NO. BPW-1.

B. FOR STAGES D2 AND D3: RIPRAP AND RIVER FACILITIES SHALL BE CONSTRUCTED IN INCREMENTS AS SHOWN COMMENCING FROM THE DOWNSTREAM END AND PROCEEDING UPSTREAM. MAXIMUM ELEVATION OF DIVERSION STRUCTURES SHALL BE AS SPECIFIED FOR EACH STAGES. STREAM DIVERSION STRUCTURES SHALL ONLY BE CONSTRUCTED FOR THE SEGMENT UNDER CONSTRUCTION AND REMOVED IMMEDIATELY UPON ITS COMPLETION.

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 3)
- DSB — DEWATERING SETTLING BASIN

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER:
DRAFTER: T. JUDGE
CHECKED BY: T. BULZAK
DATE CHECKED:

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DEPARTMENT OF TRANSPORTATION

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2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 7 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-7
SHEET NO.:

STAGE 1, PHASE 1 CONSTRUCTION

SCALE: 1:300

(HIGHWAY M&PT STAGE 1 - PHASE 2)

LEGEND

(line)	STREAM DIVERSION STRUCTURE (SDS)
(symbol)	SHEET PILING
(hatch)	WORK AREA (SEE NOTE 8)
(hatch)	PROPOSED CULVERT CONSTRUCTION
DSB	DEWATERING SETTLING BASIN
(crosshatch)	TEMPORARY PAVEMENT

NOTES:

1. FOR MPT STAGE 1 PHASE 1 CONSTRUCTION OF CULVERT NO. 003 SEE DWG. MPT 1-7.
2. MAINTAIN EAST MOUNTIAN BROOK FLOW THRU EXISTING JUNCTION CHAMBER IN EXISTING 1500mm PIPE.
3. MAINTAIN SANITARY SEWER FLOW IN EXISTING PIPE.
4. CONSTRUCT TEMPORARY CHANNEL 2700mm WIDE LINED WITH 450mm INTERMEDIATE RIP RAP.
5. SEE DWG. BPW-12 FOR ADDITIONAL NOTES.
6. TRENCHLESS CONSTRUCTION BETWEEN PITS.
7. SDS ELEVATION REPRESENTS THE MAXIMUM ALLOWED. TAPER THE TOP ELEVATION BETWEEN THE NOTED ELEVATIONS. THE NOTED YEAR REPRESENTS THE MAX. STORM FREQUENCY FOR WHICH SDS WILL DIRECT THE FLOW AWAY FROM THE WORK AREA.
8. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS 0 5 10 15 20 25 SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

CADD ...\beaverwater08_w_DOT_MOD_2013-09.dgn | PLOTTED 12/1/2014

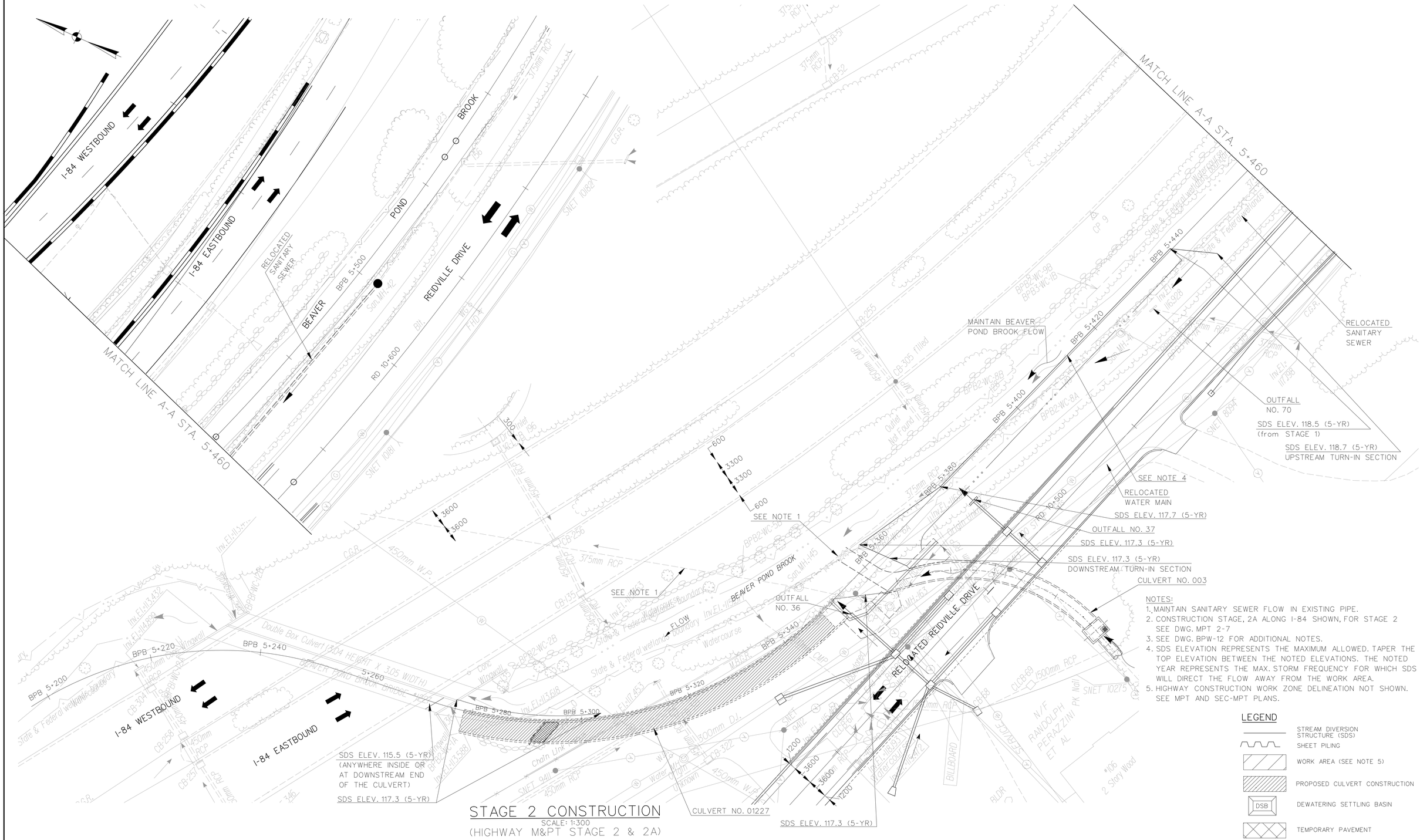
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: BEAVER POND BROOK RELOCATION WATER HANDLING PLAN 8 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-8
SHEET NO.:



NOTES:
1. MAINTAIN SANITARY SEWER FLOW IN EXISTING PIPE.
2. CONSTRUCTION STAGE, 2A ALONG I-84 SHOWN, FOR STAGE 2 SEE DWG. MPT 2-7
3. SEE DWG. BPW-12 FOR ADDITIONAL NOTES.
4. SDS ELEVATION REPRESENTS THE MAXIMUM ALLOWED. TAPER THE TOP ELEVATION BETWEEN THE NOTED ELEVATIONS. THE NOTED YEAR REPRESENTS THE MAX. STORM FREQUENCY FOR WHICH SDS WILL DIRECT THE FLOW AWAY FROM THE WORK AREA.
5. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.

LEGEND
- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 5)
- PROPOSED CULVERT CONSTRUCTION
- DSB — DEWATERING SETTLING BASIN
- TEMPORARY PAVEMENT

STAGE 2 CONSTRUCTION
SCALE: 1:300
(HIGHWAY M&PT STAGE 2 & 2A)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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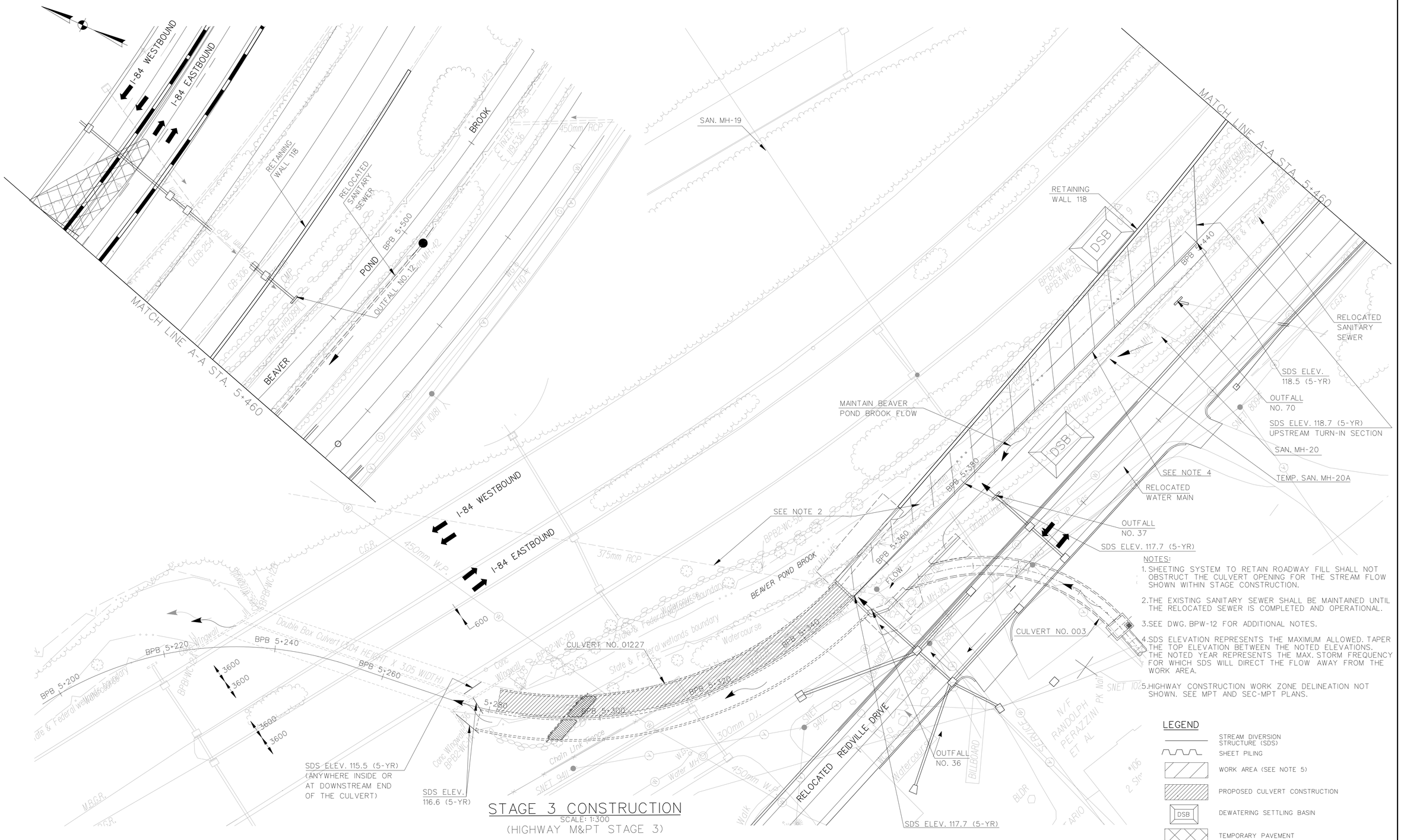
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 9 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-9
SHEET NO.:



NOTES:

1. SHEETING SYSTEM TO RETAIN ROADWAY FILL SHALL NOT OBSTRUCT THE CULVERT OPENING FOR THE STREAM FLOW SHOWN WITHIN STAGE CONSTRUCTION.
2. THE EXISTING SANITARY SEWER SHALL BE MAINTAINED UNTIL THE RELOCATED SEWER IS COMPLETED AND OPERATIONAL.
3. SEE DWG. BPW-12 FOR ADDITIONAL NOTES.
4. SDS ELEVATION REPRESENTS THE MAXIMUM ALLOWED. TAPER THE TOP ELEVATION BETWEEN THE NOTED ELEVATIONS. THE NOTED YEAR REPRESENTS THE MAX. STORM FREQUENCY FOR WHICH SDS WILL DIRECT THE FLOW AWAY FROM THE WORK AREA.
5. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 5)
- PROPOSED CULVERT CONSTRUCTION
- DSB — DEWATERING SETTLING BASIN
- TEMPORARY PAVEMENT

STAGE 3 CONSTRUCTION

SCALE: 1:300

(HIGHWAY M&PT STAGE 3)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN:
WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 10 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-10
SHEET NO.:

STAGE 4 CONSTRUCTION

SCALE: 1:300

(HIGHWAY M&PT STAGE 4)

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 4)
- PROPOSED CULVERT CONSTRUCTION
- DSB — DEWATERING SETTLING BASIN

NOTES:

1. SHEETING SYSTEM TO RETAIN ROADWAY FILL SHALL NOT OBSTRUCT THE CULVERT OPENING FOR THE STREAM FLOW SHOWN WITHIN STAGE CONSTRUCTION.
2. SEE DWG. BPW-12 FOR ADDITIONAL NOTES.
3. SDS ELEVATION REPRESENTS THE MAXIMUM ALLOWED. TAPER THE TOP ELEVATION BETWEEN THE NOTED ELEVATIONS. THE NOTED YEAR REPRESENTS THE MAX. STORM FREQUENCY FOR WHICH SDS WILL DIRECT THE FLOW AWAY FROM THE WORK AREA.
4. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN. SEE MPT AND SEC-MPT PLANS.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS 0 5 10 15 20 25 SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

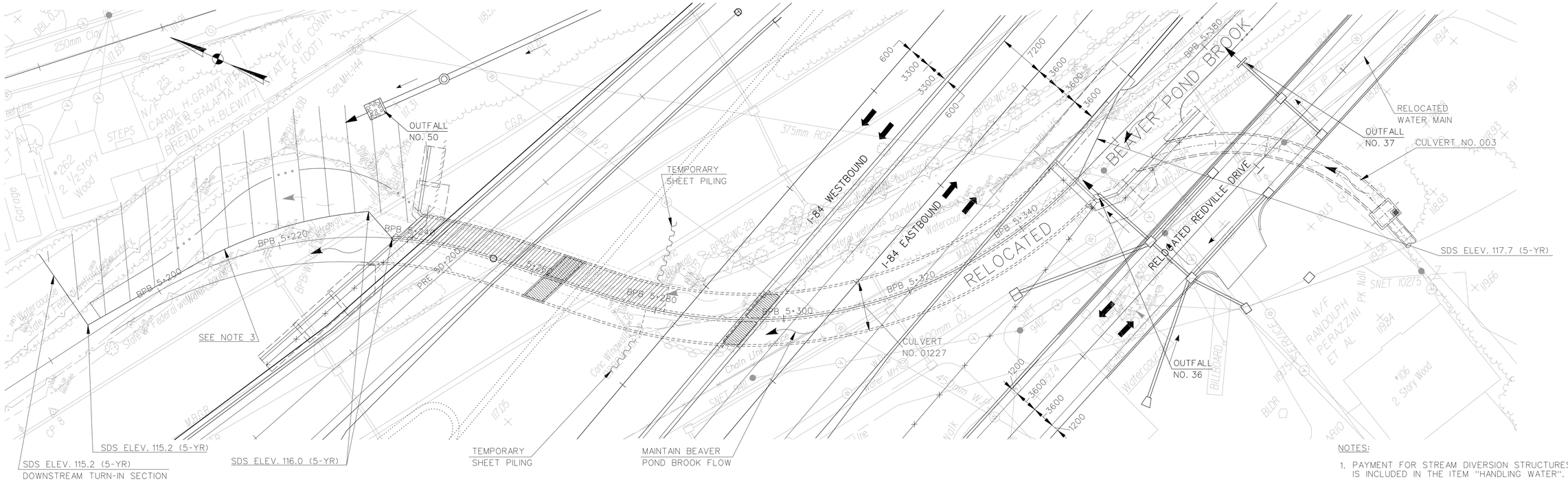
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: BEAVER POND BROOK RELOCATION WATER HANDLING PLAN 11 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-11
SHEET NO.:



STAGE 5 CONSTRUCTION

SCALE: 1:300

(HIGHWAY M&PT STAGE 5)

NOTES:

1. PAYMENT FOR STREAM DIVERSION STRUCTURES IS INCLUDED IN THE ITEM "HANDLING WATER".
2. SHEETING SYSTEM TO RETAIN ROADWAY FILL SHALL NOT OBSTRUCT THE CULVERT OPENING FOR THE STREAM FLOW SHOWN WITHIN STAGE CONSTRUCTION.
3. SDS ELEVATION REPRESENTS THE MAXIMUM ALLOWED. TAPER THE TOP ELEVATION BETWEEN THE NOTED ELEVATIONS. THE NOTED YEAR REPRESENTS THE MAX. STORM FREQUENCY FOR WHICH SDS WILL DIRECT THE FLOW AWAY FROM THE WORK AREA.
4. HIGHWAY CONSTRUCTION WORK ZONE DELINEATION NOT SHOWN SEE MPT AND SEC-MPT PLANS.

LEGEND

- STREAM DIVERSION STRUCTURE (SDS)
- SHEET PILING
- WORK AREA (SEE NOTE 4)
- PROPOSED CULVERT CONSTRUCTION
- DSB — DEWATERING SETTLING BASIN

REQUIREMENTS FOR MAINTAINING WATERWAY OPENING

1. THE CULVERT SHALL BE CONSTRUCTED IN STAGES AS SHOWN. A MINIMUM WIDTH OF HYDRAULIC OPENING (MEASURED PERPENDICULAR TO THE FLOW) OF 3 METERS SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION. THE MINIMUM HEIGHT OF AVAILABLE HYDRAULIC OPENING SHALL BE AT LEAST 3 METERS MEASURED FROM THE TOP OF THE CONCRETE BAFFLES DURING ALL STAGES OF CONSTRUCTION.
2. IN ADDITION TO THE REQUIREMENTS OF NOTE 1 ABOVE, THE TOP OF THE STREAM DIVERSION STRUCTURES SHALL BE INSTALLED TO AN ELEVATION NOT TO EXCEED THE ELEVATIONS AND IN THE GENERAL LOCATIONS DEPICTED ON THE PLANS. ABOVE THESE ELEVATION THE FLOW OF THE BROOK SHALL BE CAPABLE OF OVERTOPPING THE STREAM DIVERSION STRUCTURE AND BEING CONVEYED THROUGH THE CONSTRUCTION AREA WITHOUT IMPEDIMENT. THE CONTRACTOR IS ADVISED THAT SUCH OVERTOPPING WILL OCCUR FOR ANY EVENT WITH A DISCHARGE GREATER THAN A STORM WITH APPROXMATELY A FIVE YEAR FREQUENCY OF OCCURRENCE. THE CONTRACTOR SHALL EITHER ACCEPT THE RISK FOR DAMAGE TO UNCOMPLETED WORK DUE TO SUCH AN OCCURRENCE OR OBTAIN AT HIS OWN EXPENSE INSURANCE PROTECTING AGAINST SAME.
3. FOR STAGES 3 AND 4, THE CONSTRUCTION LIMITS OF THE NEW CULVERTS SHALL ALLOW FOR A HYDRAULIC OPENING TRANSITION OF 1:1 INTO THE EXISTING CULVERTS.
4. ANY ALTERNATIVE CONSTRUCTION PROCEDURE PROPOSED BY THE CONTRACTOR MUST PROVIDE AT ALL TIMES A HYDRAULIC CONVEYANCE CAPABILITY EQUAL TO OR GREATER THAN THAT PROVIDED BY THE STAGING SHOWN ON THE PLANS.
5. CONTRACTOR SHALL REMOVE THE STREAM DIVERSION STRUCTURES FOR EACH CULVERT CONSTRUCTION STAGE IMMEDIATELY AFTER COMPLETION OF CULVERT CONSTRUCTION FOR THAT STAGE AND PERMIT UNIMPEDED FLOW THROUGH ALL CULVERT BARRELS UNTIL COMMENCEMENT OF THE NEXT CULVERT CONSTRUCTION STAGE.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: S. ANDRZEJEWSKI
DRAFTER: T. JUDGE
CHECKED BY: G. STARCKEY
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

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PLOTTED 12/1/2014

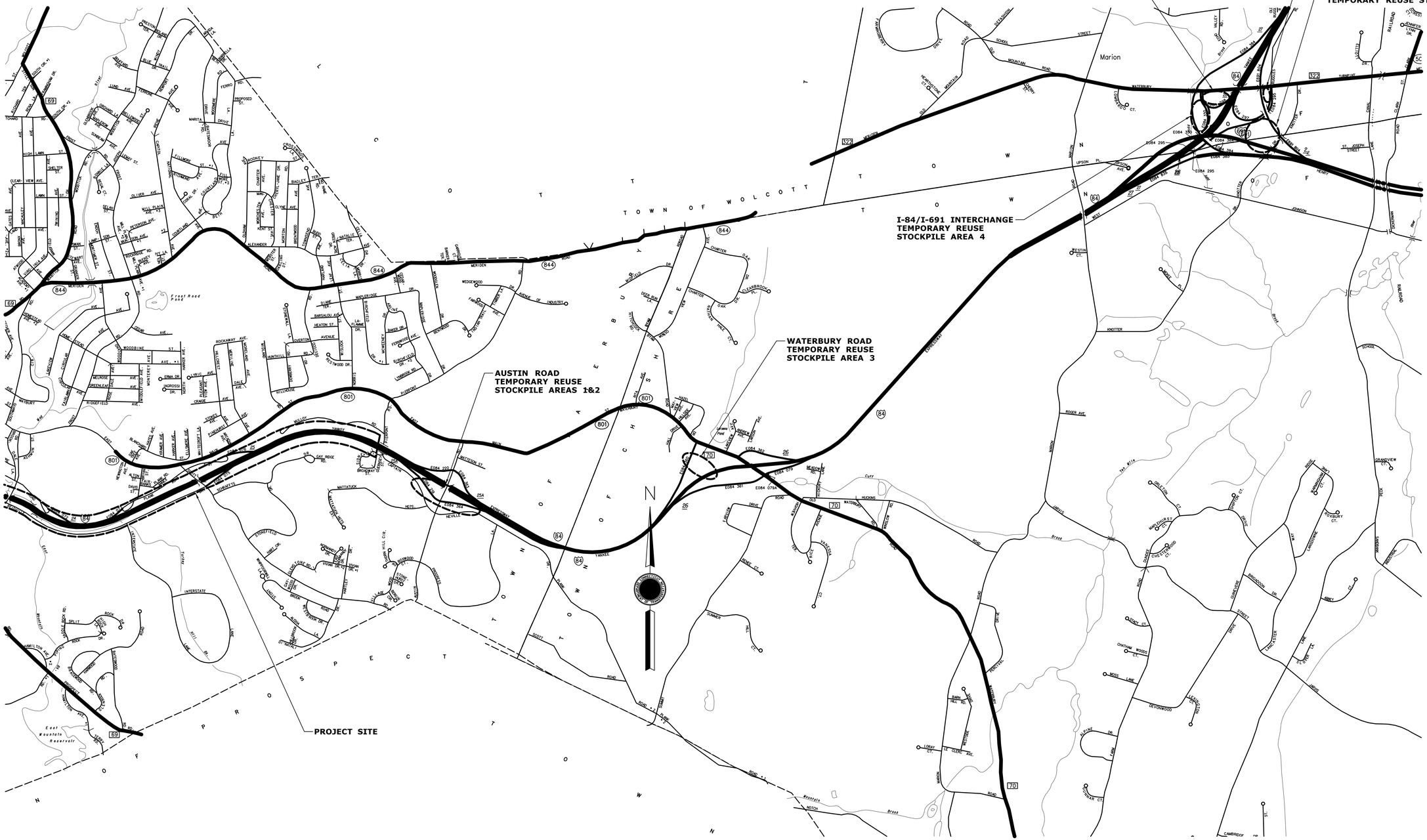
AMMANN & WHITNEY
2500 WESTCHESTER AVENUE
3RD FLOOR
HARRISON, NY

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
BEAVER POND BROOK RELOCATION
WATER HANDLING PLAN 12 OF 12

PROJECT NO.: 151-273
DRAWING NO.: BPW-12
SHEET NO.:



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: MJB
DRAFTER: MJB
CHECKED BY: DRS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILE: ...\19097_92 I-84 WTBY ENV-020.dgn | PLOTTED: 4/30/2014

CDR Maguire
2080 Silas Deane Highway
Rocky Hill, CT 06067

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WASTE AND TEMPORARY REUSE
STOCKPILE AREAS LOCATION PLAN

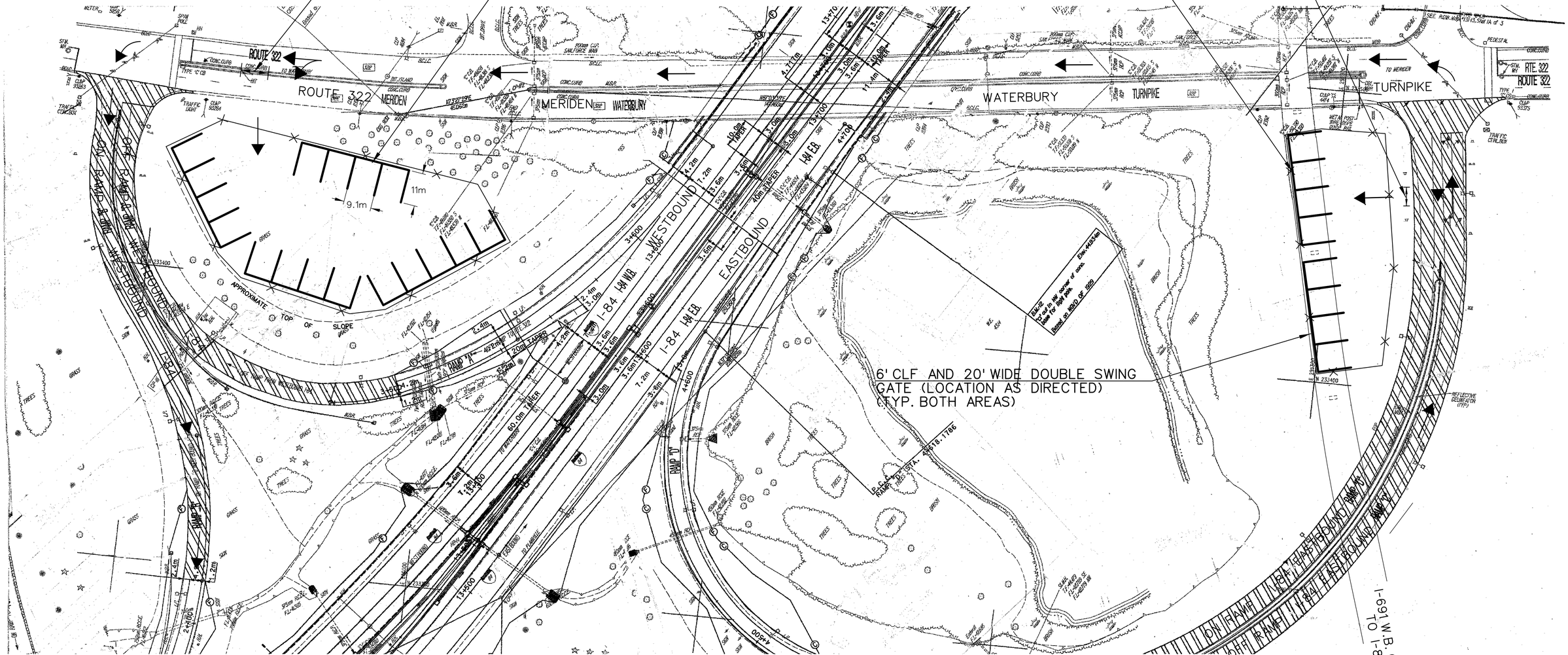
PROJECT NO.: 151-273
DRAWING NO.: ENV-21
SHEET NO.: 10.03.21

TEMPORARILY REMOVE EXISTING CURB AND ISLAND (9m +/-) TO PROVIDE ACCESS \ EGRESS FOR WSA SITE

WASTE STOCKPILE AREA #1
(17) BINS - 11m X 9.1m X 1.8m EACH

WASTE STOCKPILE AREA #2
(8) BINS - 11m X 9.1m X 1.8m EACH

TEMPORARILY REGRADE BERM (6m+/-) TO PROVIDE ACCESS \ EGRESS FOR WSA SITE



ENVIRONMENTAL NOTES:
1) PAVEMENT UNDER BINS AS SHOWN ON DETAILS AND AS DIRECTED.
2) CONSTRUCTION ENTRANCE ANTI-TRACKING PADS AS DIRECTED

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

NOT TO SCALE

DESIGNER: MJB
DRAFTER: MJB
CHECKED BY: DRS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
FILE: ...\19097_92 I-84 WTBY ENV-021.dgn | PLOTTED: 4/30/2014

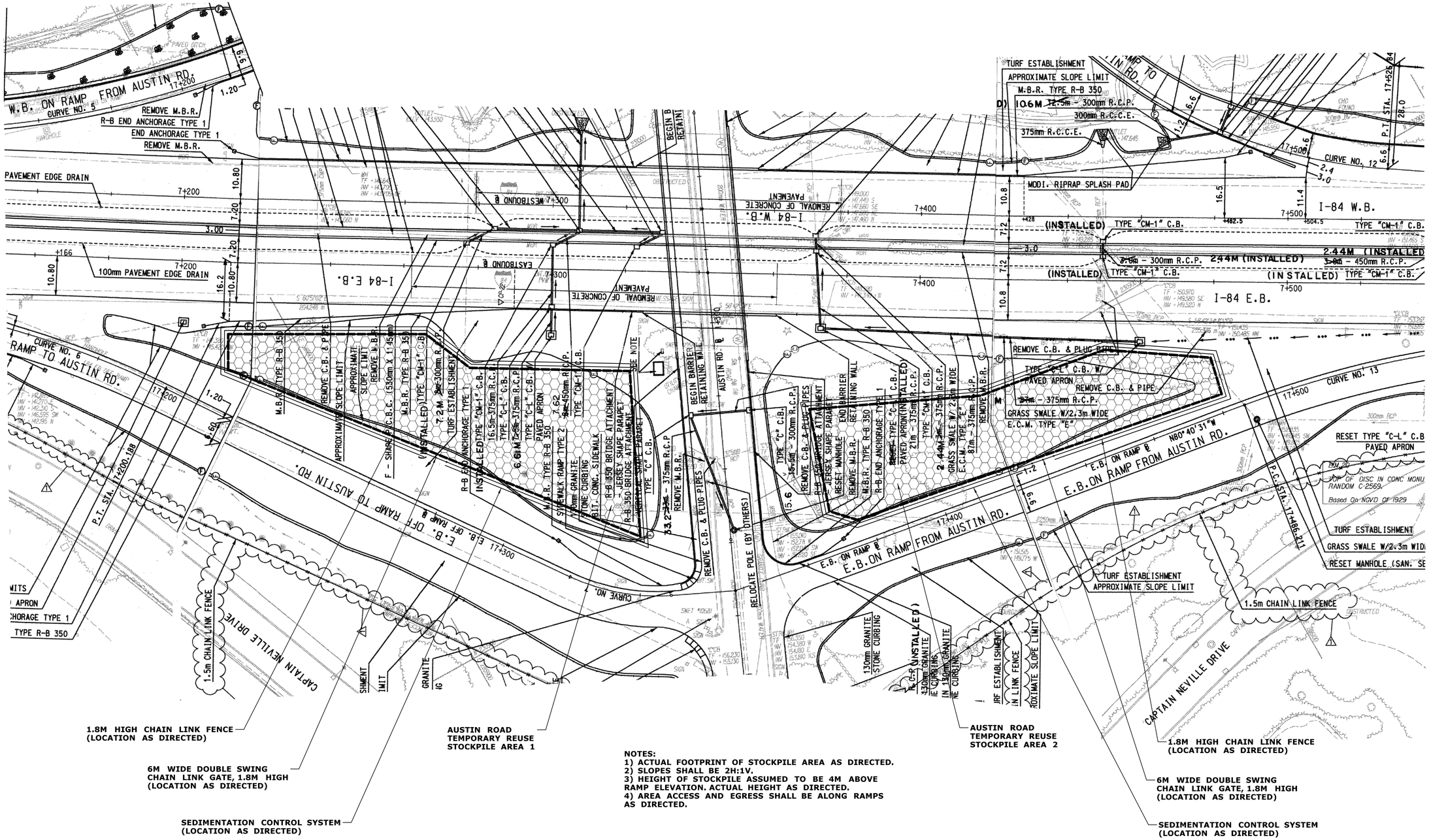
CDR Maguire
2080 Silas Deane Highway
Rocky Hill, CT 06067

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: WASTE STOCKPILE AREAS

PROJECT NO.: 151-273
DRAWING NO.: ENV-22
SHEET NO.: 10.03.22



NOTES:
1) ACTUAL FOOTPRINT OF STOCKPILE AREA AS DIRECTED.
2) SLOPES SHALL BE 2H:1V.
3) HEIGHT OF STOCKPILE ASSUMED TO BE 4M ABOVE RAMP ELEVATION. ACTUAL HEIGHT AS DIRECTED.
4) AREA ACCESS AND EGRESS SHALL BE ALONG RAMPS AS DIRECTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: MJB
DRAFTER: MJB
CHECKED BY: DRS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILE: ...\19097_92 I-84 WTBY ENV-022.dgn
PLOTTED: 4/30/2014

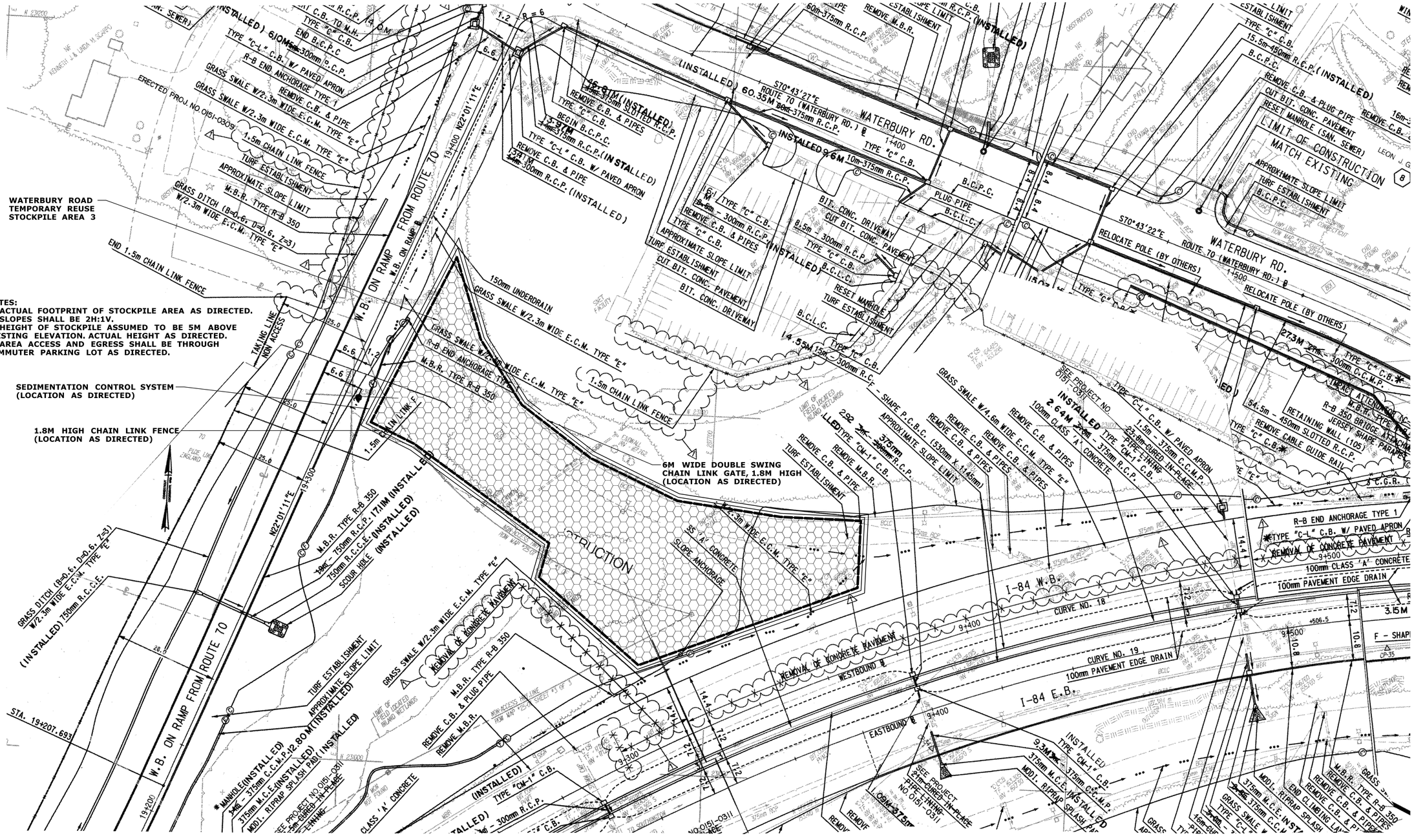
CDR Maguire
2080 Silas Deane Highway
Rocky Hill, CT 06067

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TEMPORARY REUSE
STOCKPILE AREAS 1&2

PROJECT NO.: 151-273
DRAWING NO.: ENV-23
SHEET NO.: 10.03.23



REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

DESIGNER: MJB
DRAFTER: MJB
CHECKED BY: DRS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILE: ...\19097_92 I-84 WTBY ENV-023.dgn | PLOTTED: 4/30/2014

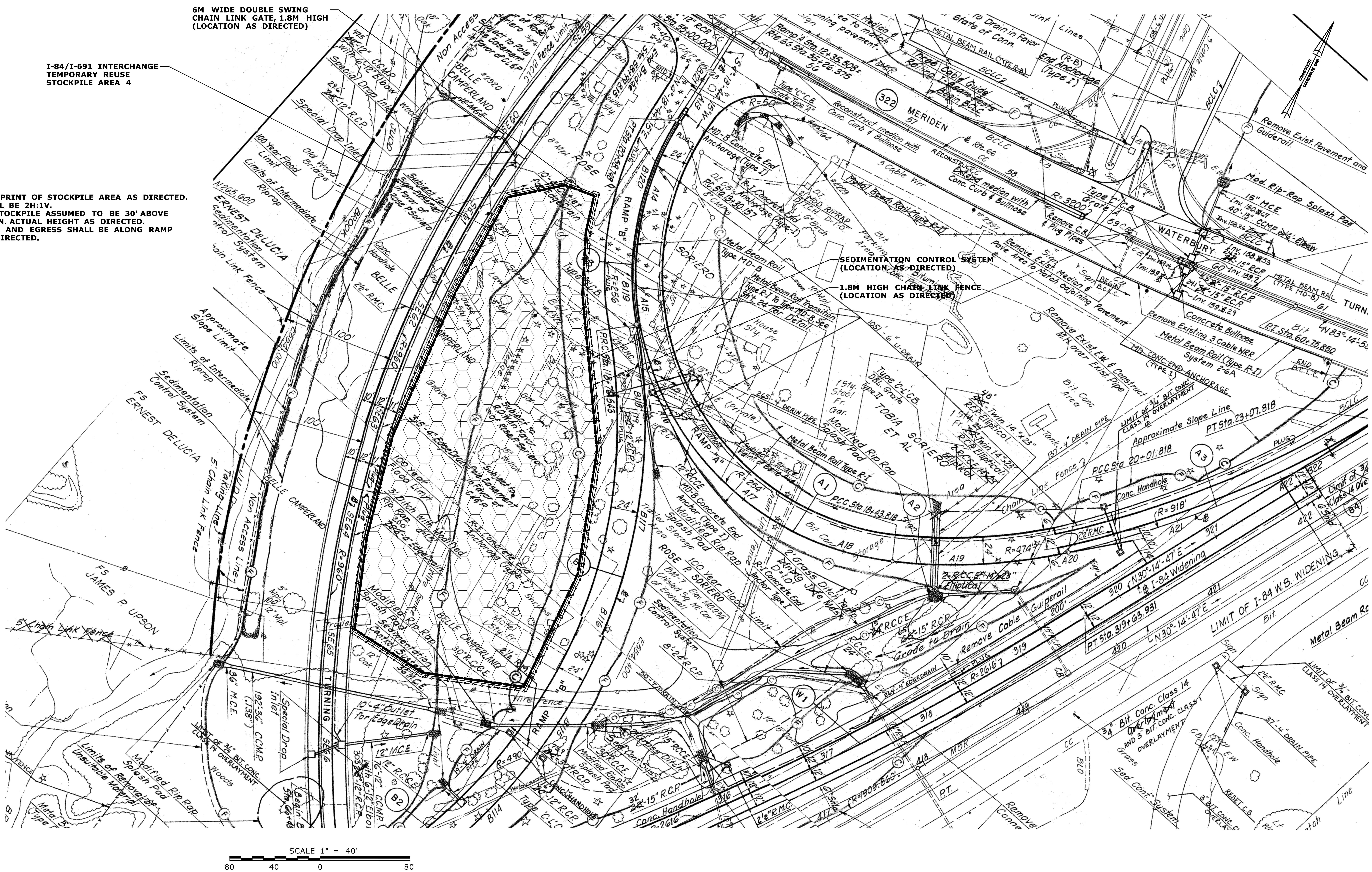
CDR Maguire
2080 Silas Deane Highway
Rocky Hill, CT 06067

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
TEMPORARY REUSE
STOCKPILE AREA 3

PROJECT NO.: 151-273
DRAWING NO.: ENV-24
SHEET NO.: 10.03.24



NOTES:
1) ACTUAL FOOTPRINT OF STOCKPILE AREA AS DIRECTED.
2) SLOPES SHALL BE 2H:1V.
3) HEIGHT OF STOCKPILE ASSUMED TO BE 30' ABOVE RAMP ELEVATION. ACTUAL HEIGHT AS DIRECTED.
4) AREA ACCESS AND EGRESS SHALL BE ALONG RAMP SHOULDER AS DIRECTED.

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

DESIGNER: MJB
DRAFTER: MJB
CHECKED BY: DRS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILE: ...\19097_92 I-84 WTBY ENV-024.dgn
PLOTTED: 4/30/2014

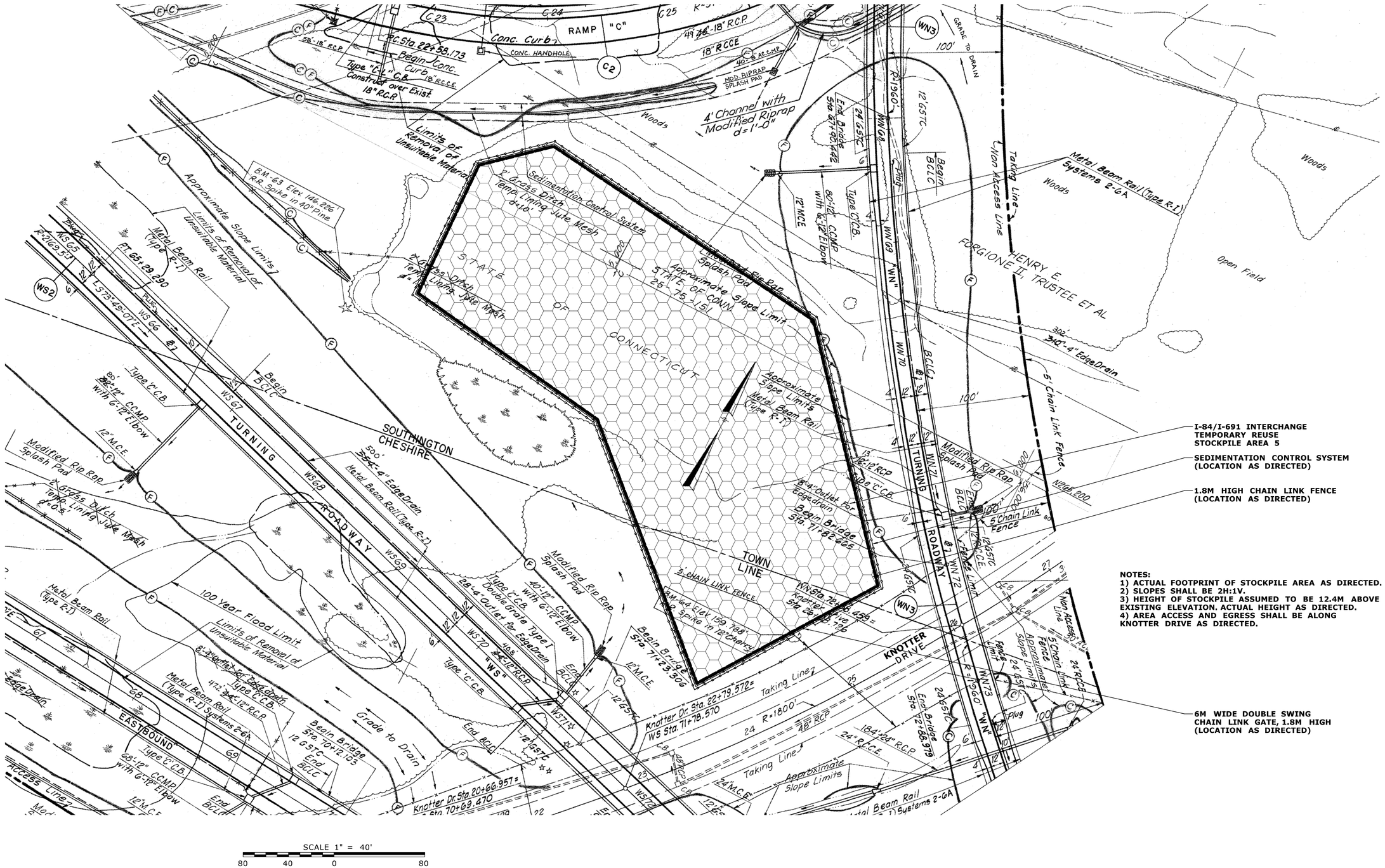
CDR Maguire
2080 Silas Deane Highway
Rocky Hill, CT 06067

PROJECT TITLE: RECONSTRUCTION OF I-84 CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE: TEMPORARY REUSE STOCKPILE AREA 4

PROJECT NO.: 151-273
DRAWING NO.: ENV-25
SHEET NO.: 10.03.25



I-84/I-691 INTERCHANGE
TEMPORARY REUSE
STOCKPILE AREA 5

SEDIMENTATION CONTROL SYSTEM
(LOCATION AS DIRECTED)

1.8M HIGH CHAIN LINK FENCE
(LOCATION AS DIRECTED)

NOTES:
1) ACTUAL FOOTPRINT OF STOCKPILE AREA AS DIRECTED.
2) SLOPES SHALL BE 2H:1V.
3) HEIGHT OF STOCKPILE ASSUMED TO BE 12.4M ABOVE EXISTING ELEVATION. ACTUAL HEIGHT AS DIRECTED.
4) AREA ACCESS AND EGRESS SHALL BE ALONG KNOTTER DRIVE AS DIRECTED.

6M WIDE DOUBLE SWING
CHAIN LINK GATE, 1.8M HIGH
(LOCATION AS DIRECTED)

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE AS NOTED

DESIGNER: MJB
DRAFTER: MJB
CHECKED BY: DRS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILE: ...\19097_92 I-84 WTBY ENV-025.dgn | PLOTTED: 4/30/2014

CDR Maguire
2080 Silas Deane Highway
Rocky Hill, CT 06067

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

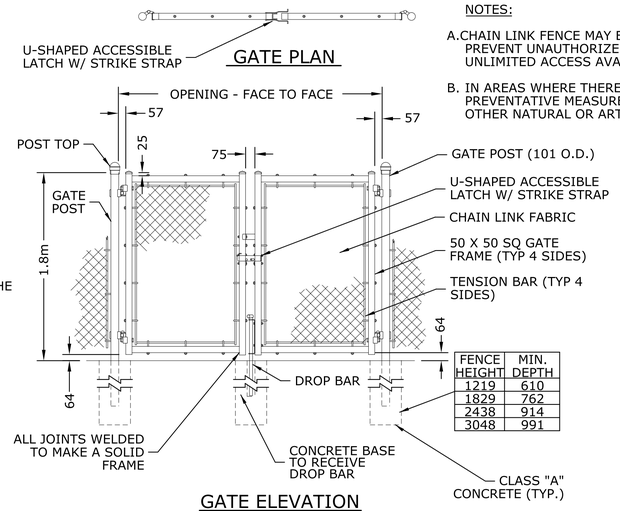
DRAWING TITLE:
TEMPORARY REUSE
STOCKPILE AREA 5

PROJECT NO.: 151-273
DRAWING NO.: ENV-26
SHEET NO.: 10.03.26

ALL DIMENSIONS ARE IN MILLIMETERS(MM) UNLESS OTHERWISE NOTED.

GENERAL NOTES:

1. WSA INSTALLATION AND ALL REQUIRED MATERIALS ARE AS INDICATED ON THE WSA PLAN.
2. ANTI-TRACKING PAD SHALL BE INSTALLED AS SHOWN ON THE WSA PLAN AND IN ACCORDANCE WITH "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL, 2002-SECTION 5-12."
3. WHERE FEASIBLE, A MINIMUM DISTANCE OF 1.5m IMMEDIATELY OUTSIDE THE PERIMETER OF THE WSA CONCRETE BLOCK WALLS SHALL REMAIN CLEAR AND FREE OF ANY OBJECT TO PROVIDE ACCESS FOR MAINTENANCE.
4. HEIGHT OF THE CONCRETE BLOCKS, STOCKPILED CONTROLLED MATERIAL AND CONFIGURATION OF THE BIN(S) MAY VARY BASED ON THE SIZE AS INDICATED ON THE WSA PLAN OR AS DIRECTED BY THE ENGINEER.
5. THE WSA SURFACE SHALL BE SUFFICIENTLY IMPERVIOUS TO PREVENT OR MINIMIZE THE TRANSFER OR INFILTRATION OF CONTAMINANTS FROM THE STOCKPILES TO THE GROUND. THE WSA SURFACE WILL VARY BASED ON PROJECT SPECIFICS AND MAY BE CONSTRUCTED ON NEW OR EXISTING PAVEMENT, BEDDING SAND, OR OTHER MATERIAL AS SHOWN ON THE WSA PLAN OR THE AREAS OF ENVIRONMENTAL CONCERN PLAN(S).



FENCE HEIGHT	MIN. DEPTH
1219	610
1829	762
2438	914
3048	991

NOTES:

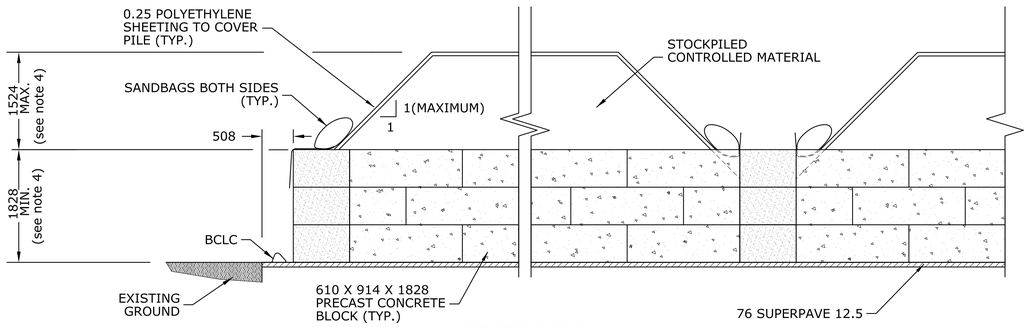
A. CHAIN LINK FENCE MAY BE UTILIZED IN RESIDENTIAL NEIGHBORHOODS TO PREVENT UNAUTHORIZED ENTRY ONTO STOCKPILES WHERE THERE IS UNLIMITED ACCESS AVAILABLE TO PEDESTRIANS AND/OR TRAFFIC.

B. IN AREAS WHERE THERE IS LIMITED ACCESS, OTHER APPROPRIATE PREVENTATIVE MEASURES MAY BE ACCOMPLISHED THROUGH THE USE OF OTHER NATURAL OR ARTIFICIAL BARRIERS.

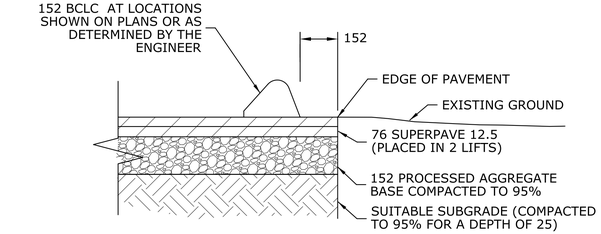
NOTE:

GATES SHOULD HAVE THE ABILITY TO SWING 180 DEGREES.

1 TYPICAL DOUBLE SWING GATES



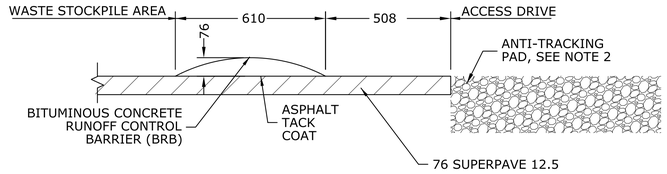
2 WASTE STOCKPILE AREA DETAIL



NOTE:

IF THE WSA IS TO BE LOCATED ON EXISTING PAVEMENT SUCH AS ROADWAY AND OR PARKING LOT A COMPOSITE PAVEMENT STRUCTURE WILL NOT BE REQUIRED.

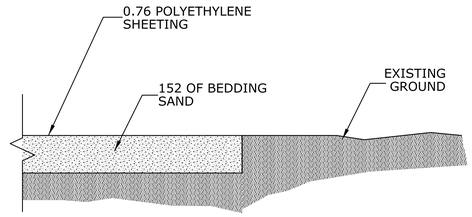
3 COMPOSITE PAVEMENT STRUCTURE DETAIL



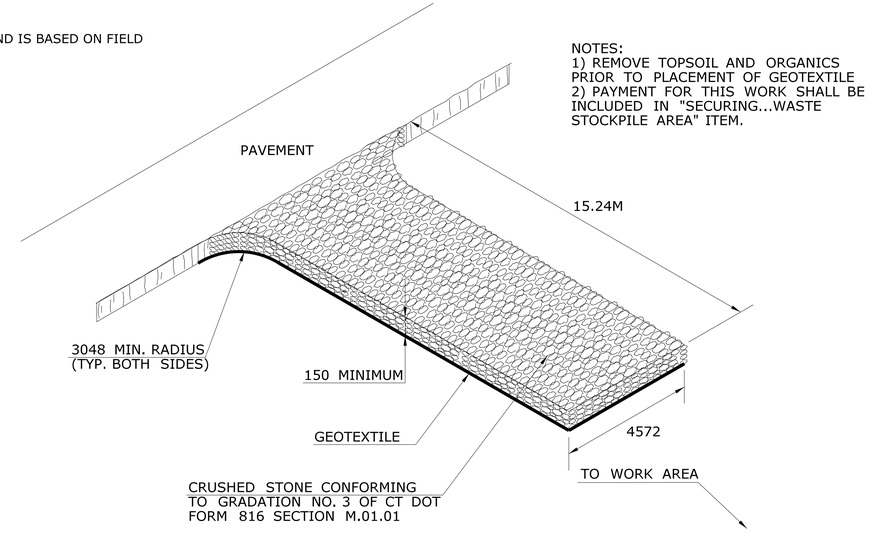
NOTE:

INSTALLATION OF BRB SHALL BE ON PAVEMENT ONLY AND IS BASED ON FIELD CONDITIONS OR AS DETERMINED BY THE ENGINEER.

4 BITUMINOUS CONCRETE RUNOFF CONTROL BARRIER (BRB) DETAIL



5 BEDDING SAND OVER EXISTING GROUND DETAIL



CONSTRUCTION ENTRANCE ANTI-TRACKING PAD

NOT TO SCALE

REV.	DATE	DESCRIPTION	SHEET. NO.
		REVISIONS	

SCALE IN METERS
0 5 10 15 20 25
SCALE 1:500

DESIGNER: MJB
DRAFTER: MJB
CHECKED BY: DRS
DATE CHECKED:

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

FILE: ...\19097_92 I-84 WTBY ENV-026.dgn
PLOTTED: 4/30/2014

CDR Maguire
2080 Silas Deane Highway
Rocky Hill, CT 06067

PROJECT TITLE:
RECONSTRUCTION OF I-84
CITY OF WATERBURY

TOWN: WATERBURY

DRAWING TITLE:
WASTE STOCKPILE AREA & TEMPORARY REUSE STOCKPILE AREA DETAILS

PROJECT NO.: 151-273
DRAWING NO.: ENV-27
SHEET NO.: 10.03.27

Appendix D - Stormwater Management Report - Study of Pre- and Post-construction Conditions

Bounded Separately

CONNECTICUT DEPARTMENT OF TRANSPORTATION
Reconstruction of I-84
Washington Avenue to Pierpont Road
Waterbury, CT
ConnDOT Project No. 151-273
Federal Aid Project No. NHI-84-2 (172) 33

Stormwater Management Report

Study of Pre- and Post-construction Conditions

Supporting Documentation to Attachment H, Part 2
Section II Stormwater Management

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January 2003
Revised December 2014

Stormwater Management Report
Study of Pre- and Post-construction Conditions

Table of Contents

Narrative

Purpose of Project
Overview and Storm Water Management Assessment
Methodology
Results
Storm Water Quality

Figures

Figure 1	Overall Watershed Map - Mad River and Beaver Pond Brook
Figure 2	Site Plan - Proposed Storm Drainage Outfalls - (Sheets 1 and 2 of 2)
Figure 3	Pavement Area Map – (Sheets 1 to 4 of 4)
Figure 4	Hydrologic Model Subareas
Figure 5	Hydrologic Model Study Points

Tables

Table 1	Mad River Summary of Runoff Parameters for Subareas Adjacent Project used in Hydrograph Analysis (Metric Units)
Table 2	Mad River and Beaver Pond Brook - Summary of Discharges along Study Points - A Comparison of Pre and Post Conditions (Metric Units)
Table 3	Beaver Pond Brook - Summary of Discharges along Subareas A Comparison of Pre and Post Conditions (Metric Units)
Table 4	Mad River - Summary of Discharges along Subareas A Comparison of Pre and Post Conditions (Metric Units)
Table 5	Beaver Pond Brook Summary of Runoff Parameters for Subareas Adjacent Project used in Hydrograph Analysis (Metric Units)
Table 6	Drainage Outfall Table
Table 1a thru 5a	Same as 1 thru 5 except English Units

Appendix

- Time of Concentration (Tc) & Curve Number (CN) Computations
- Hydrograph Summary Report: Pre-construction Conditions (Metric-English Units)
- Hydrograph Summary Report: Post-construction Conditions (Metric-English Units)

Purpose of Project

The purpose of the project is to improve operational movements and highway capacity on Interstate 84 (I-84) in the City of Waterbury. The project involves widening for a third travel lane in each direction and eliminating existing weaving sections at several ramps. Approximately 4,300 meters (2.7 miles) of Interstate 84 will be widened to provide a third travel lane in each direction. The project also includes drainage improvements, the construction/replacement of nine highway bridges and one pedestrian crossing, six culverts, twenty retaining walls and the relocation of portions of both the Mad River and Beaver Pond Brook.

Overview and Storm Water Management Assessment

I-84, within the project limits lies within the watersheds of the Mad River and Beaver Pond Brook (see Figure 1). Beaver Pond Brook drains to the Mad River with the confluence located at I-84 and Harpers Ferry Road, Interchange No. 24.

The scope of the project requires the construction of new drainage systems in many locations. There are fifty-two (52) drainage outfalls on the project. A majority of the outlets discharge directly into or in close proximity to the Mad River and Beaver Pond Brook (see Figure 2).

An examination of existing and proposed highway plans determined that the proposed project would result in approximately 7.16 hectares (17.69 acres) of additional pavement being added within the watersheds (see Figure 3). The additional impervious surface has the potential to increase storm water runoff and peak flow rates.

A comparison of existing and proposed conditions for an individual outlet where there is an increase in impervious surface would result in an increase in runoff and peak flow at the outlet location. Such increases in flow on this project are addressed by adequately designed conveyance systems and erosion protection at the individual outlets.

Given the size of the project, increased impervious surface and number of drainage outlets, it is necessary to evaluate what affect the proposed project would have on the overall watershed and receiving streams.

Mad River in the vicinity of the westerly project limit has a watershed area of approximately 62.16 square kilometers (24 square miles). The watershed area of Beaver Pond Brook at the confluence of the Mad River is approximately 14.5 square kilometers (5.6 square miles). Drainage areas to the proposed highway storm drainage systems are significantly smaller and the times of concentration for systems conveying predominantly paved areas are approximately 5 to 10 minutes including travel time in pipes. Alternately, the times of concentration for the receiving streams are much longer. Because of the difference in magnitude of the drainage areas and times of concentration, flow in the storm drainage systems would peak much faster and would not be coincident with peak stream flow. Therefore it is likely that any increase in runoff or peak flow from the additional pavement would not affect peak stream flow.

A study has been performed to evaluate the quantity of storm water runoff for pre- and post-construction conditions and to verify the above supposition. This report documents the methodology and results of the study.

Methodology

A hydrograph analysis is best suited for evaluating pre- and post-development conditions and the relative timing of peak flow rates for sub-areas in a watershed. SCS (now NRCS) methodology was used to develop hydrographs and a hydrologic model for this study.

A computer model using TR-20 was previously prepared as a part of the hydrologic study to develop design discharges for the various structures crossing the Mad River and Beaver Pond Brook on this project. The original model was modified for the purposes of this study.

The Hydraflow Hydrographs software program *(originally in Version 6.0; then, converted and re-ran in the AutoCAD Civil 3D 2015 extension version)* was used to perform the evaluation. Hydraflow is a windows based program that employs widely used and accepted methods for watershed modeling including the SCS methodology. Hydraflow can use up to 1,440 points for each hydrograph making it appropriate for modeling very small watersheds with short times of concentration (Tc).

The SCS Type III, 24-hour duration, storm distribution was used for the hydrologic model. A 10-year frequency storm was modeled which is consistent with the design storm for the drainage systems.

As previously discussed, the project has numerous outfall locations along the Mad River and Beaver Pond Brook, that generally follow existing drainage patterns. In order to simplify and reduce the time required for the analysis, the outlets (52) were not analyzed separately, but a series of outlets were consolidated to eight study points. Study points were selected at convenient locations or points of interest within the project limits. The watershed areas of the Mad River and Beaver Pond Brook, as shown in Figure 1, were subdivided based on the study point locations and other off-site features in the watershed, such as at reservoirs and at the confluence of stream networks.

Figure 4 shows the resulting sub-areas in the hydrologic model where hydrographs would be developed. Figure 5 has been enlarged to show the study points and sub-areas adjacent to the project. The study points are located as follows:

Study Points in Hydrologic Model

Study Point	Location
1	Beaver Pond Brook near easterly limit of project near Outfall 27, I-84 WB Sta. 4+960 Lt.
2	Beaver Pond Brook at or upstream of an northerly tributary, I-84 WB Sta. 4+530 Far Lt.
3	Beaver Pond Brook at Outfall 20, I-84 Ramp W25 Sta. 14+016 Lt.
4	Beaver Pond Brook at Outfall 76, I-84 EB Sta. 3+400 Rt., downstream of Structure 02537 or upstream of Turkey Hill Brook confluence
5	Beaver Pond Brook near Outfall 36, EB Sta. 2+800 Rt., near East Mountain Brook confluence
6	Beaver Pond Brook at confluence with Mad River at the inlet of Structure No. 03727, Harpers Ferry Road Sta. 60+565 Rt; upstream of the confluence; and downstream of confluence (upstream of existing I-84 Bridge 05774)
7	Mad River near Outfall 10, E24 Sta. 11+160 Rt., vicinity of existing remnants of Century Dam
8	Mad River near westerly limit of project near Outfall 60, W23 Sta. 21+520 Lt.

The sub-areas adjacent the project were further subdivided in terms of highway pavement (drainage systems conveying primarily paved areas) and off-site flow.

Time of concentration for the pavement sub-areas were determined using the drainage system with the longest time plus the travel time from the system outlet to the study point location.

A summary of the runoff parameters used in Hydrograph Analysis for the subareas adjacent the project is provided on Tables 1 and 2.

Hydrographs were developed for existing and proposed conditions based on the difference in highway pavement. Existing and proposed pavement areas are shown in Tables 1 and 2.

Results

The results of the analysis using hydrographs show:

- The project will not increase peak discharge at the study points on the Mad River and Beaver Pond Brook for the 10-year storm event. The study confirms what was expected; that the difference in magnitude of the drainage areas and times of concentration results in the flow from the storm drainage systems peaking much faster and not coincident with peak stream flow. Any increase in runoff or peak flow from the additional pavement does not increase peak stream flow.

- The additional pavement will result in a slight increase in the volume of runoff at the study points. The increase in the volume of runoff varied from 0.01 to 0.14 percent, which is considered to be insignificant.

The results for the subareas adjacent the project are summarized on Tables 3 and 4. The results for the Study Points on the receiving streams are summarized on Table 5.

The results show peak discharges for post-construction less than pre-construction. This study does <u>not</u> suggest that additional pavement and associated storm drainage systems will actually lower peak discharge. What is derived from this study is that the paved areas associated with the project are still minute in relation to the overall watershed and will not increase peak discharge on the receiving streams. Computational tolerances in the computer software may introduce slight error in the results when analyzing these areas.

It is anticipated that an analysis for a 2- and 100-year storm event would yield similar results.

A copy of the Hydraflow Hydrograph Summary Reports for pre- and post-construction conditions are provided in the Appendix. Detailed computer printouts and additional back-up information for this study is available for review upon request.

As a final note, FEMA flow rates were adopted for the hydraulic design of structures on the Mad River and Beaver Pond Brook for this project. It is recognized that the discharges generated by Hydraflow were comparably higher than those determined by FEMA or the original TR-20 analysis. Past experience has shown that SCS methodology yields estimates of peak discharge that are typically higher than those determined using USGS Regression Equations or gage analysis. Neither of the alternate methods provides hydrographs, which were necessary for this study. The use of the simplified Hydraflow model was therefore considered sufficient for the purposes of this study.

<u>Storm Water Quality</u>

The project includes provisions to treat pavement runoff prior to discharging to water bodies. It is anticipated that the construction of Hydrodynamic Separators (HDS), water quality swales, vegetative swales, permanent sedimentation ponds, adequate outlet protection and deeper catch basin sumps will address the sedimentation and erosion concerns that are introduced by runoff from paved areas.

Specific plans for erosion and sedimentation control and storm water treatment are addressed in the project plans and other sections of the environmental permit application.

Table 6, “Drainage Outfall Table”, shows the type of outlet and proposed outlet protection.

FIGURES

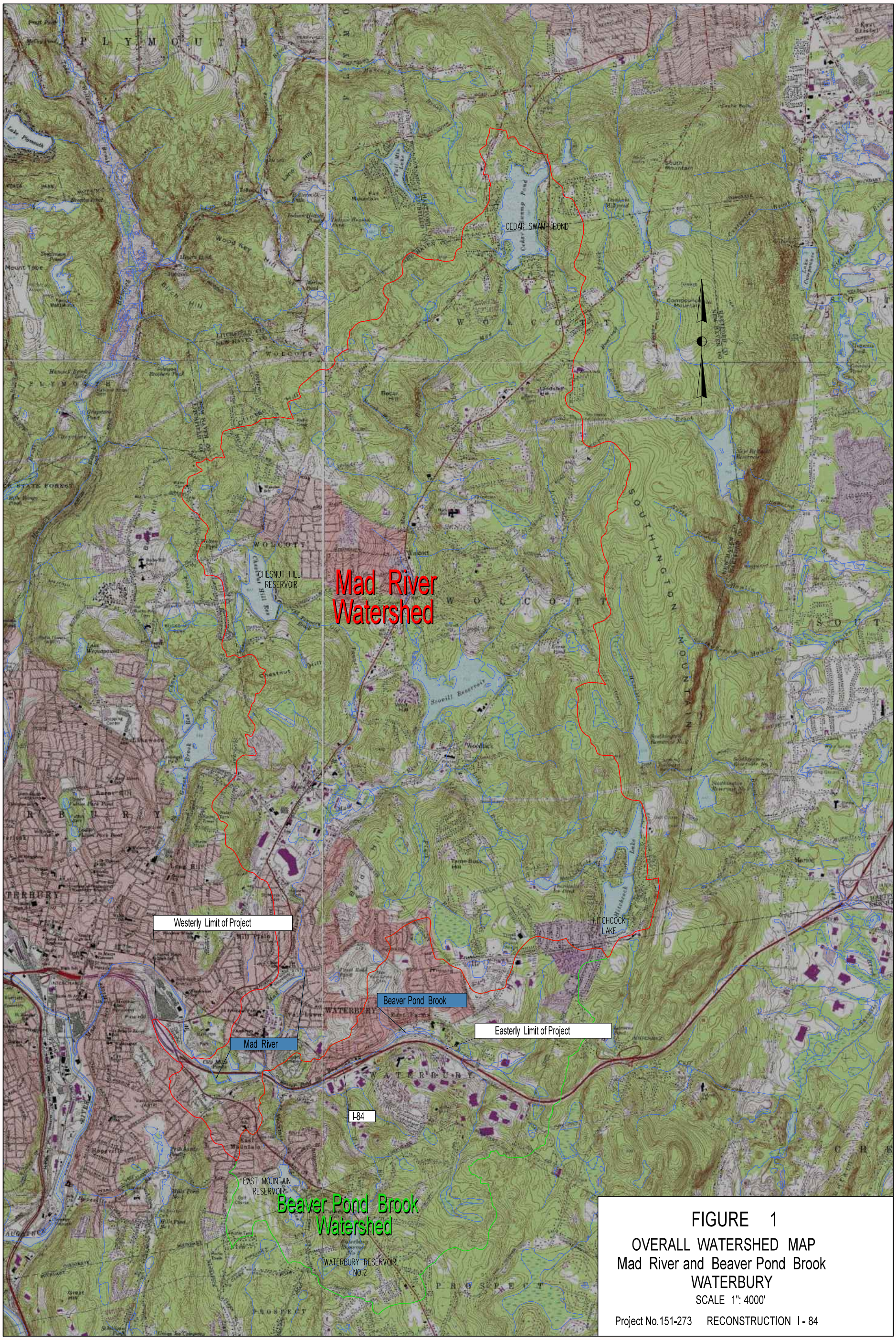


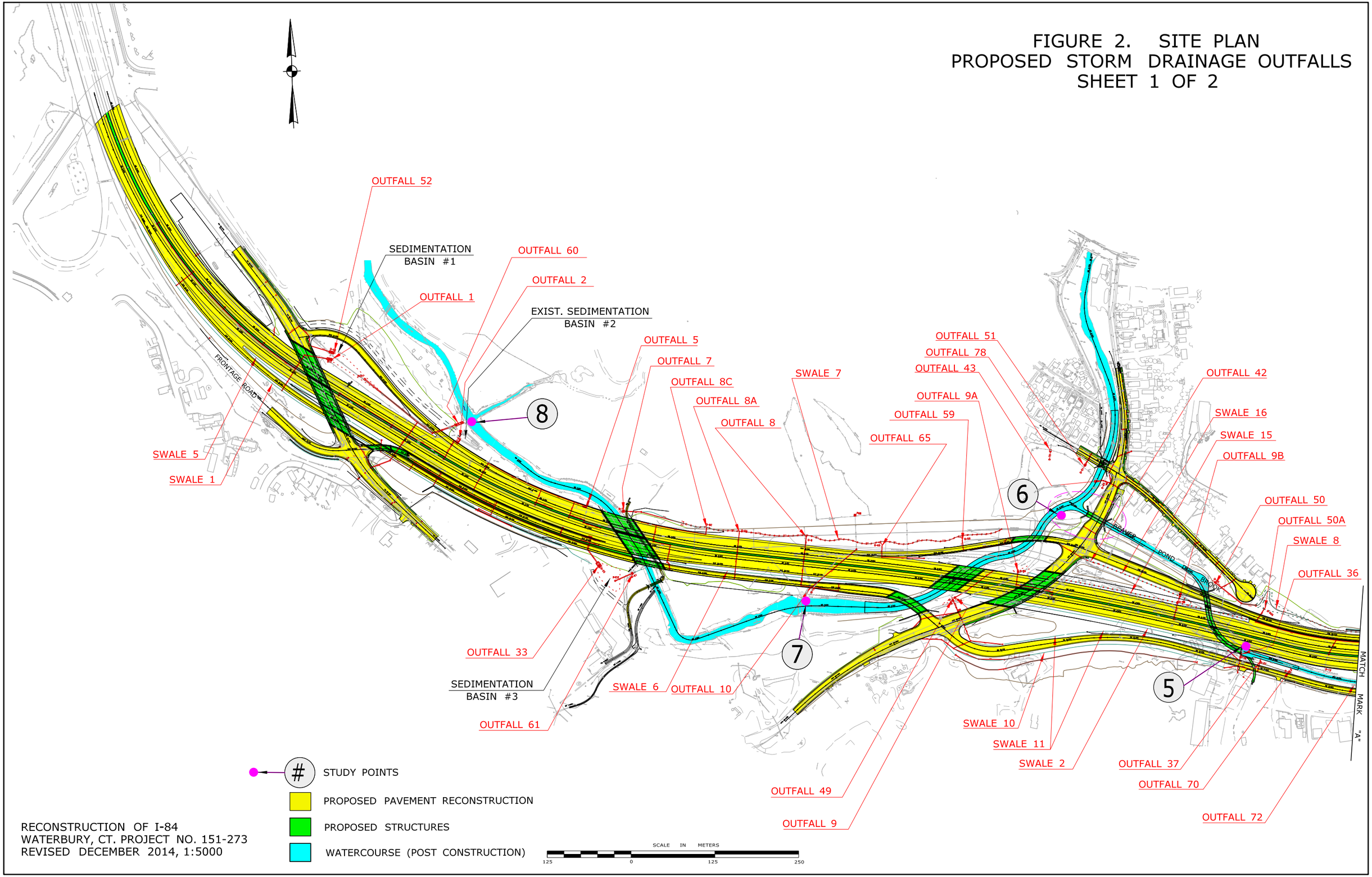
FIGURE 1

OVERALL WATERSHED MAP
Mad River and Beaver Pond Brook
WATERBURY

SCALE 1": 4000'

Project No.151-273 RECONSTRUCTION I - 84

FIGURE 2. SITE PLAN
PROPOSED STORM DRAINAGE OUTFALLS
SHEET 1 OF 2



RECONSTRUCTION OF I-84
WATERBURY, CT. PROJECT NO. 151-273
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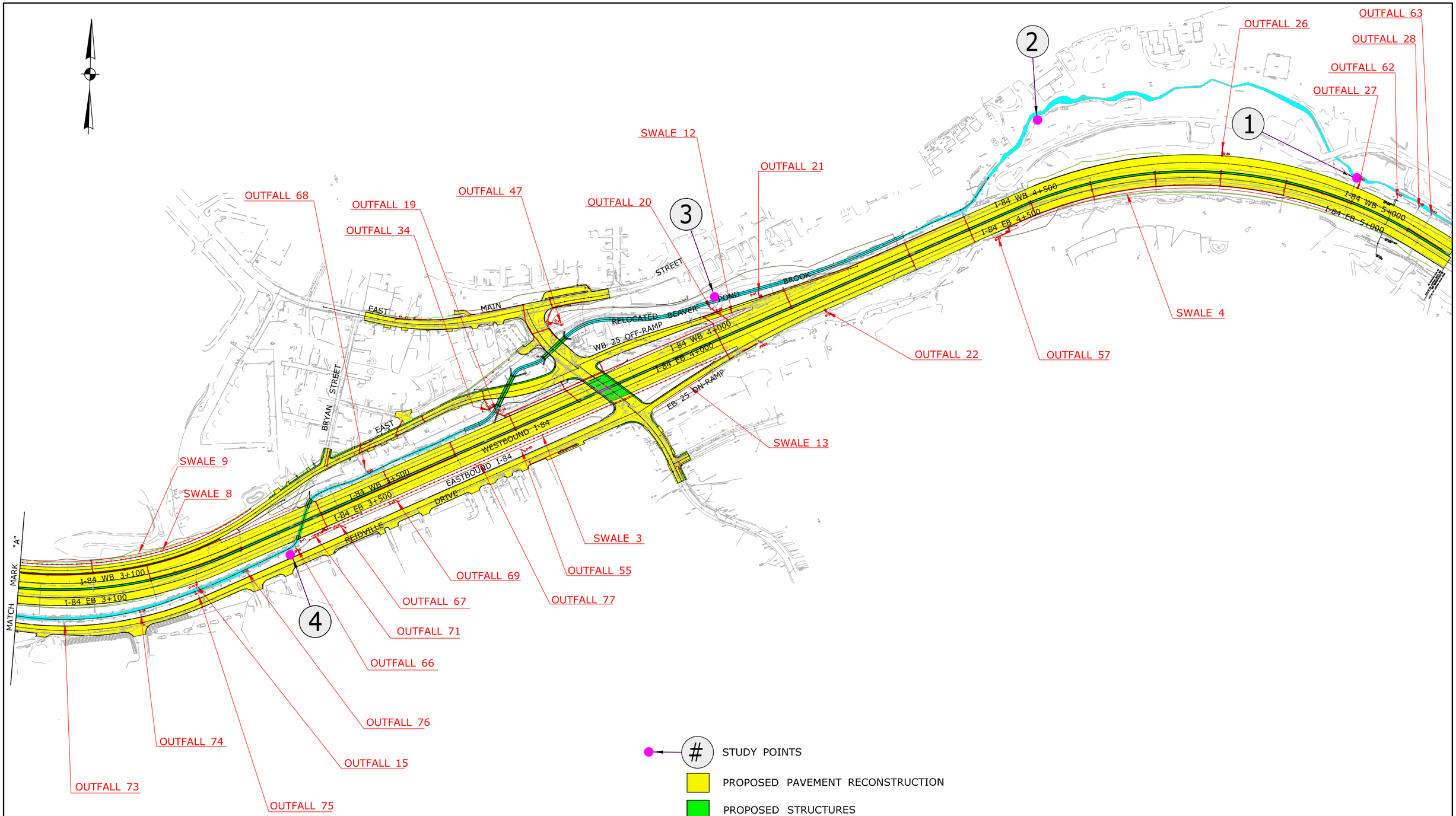
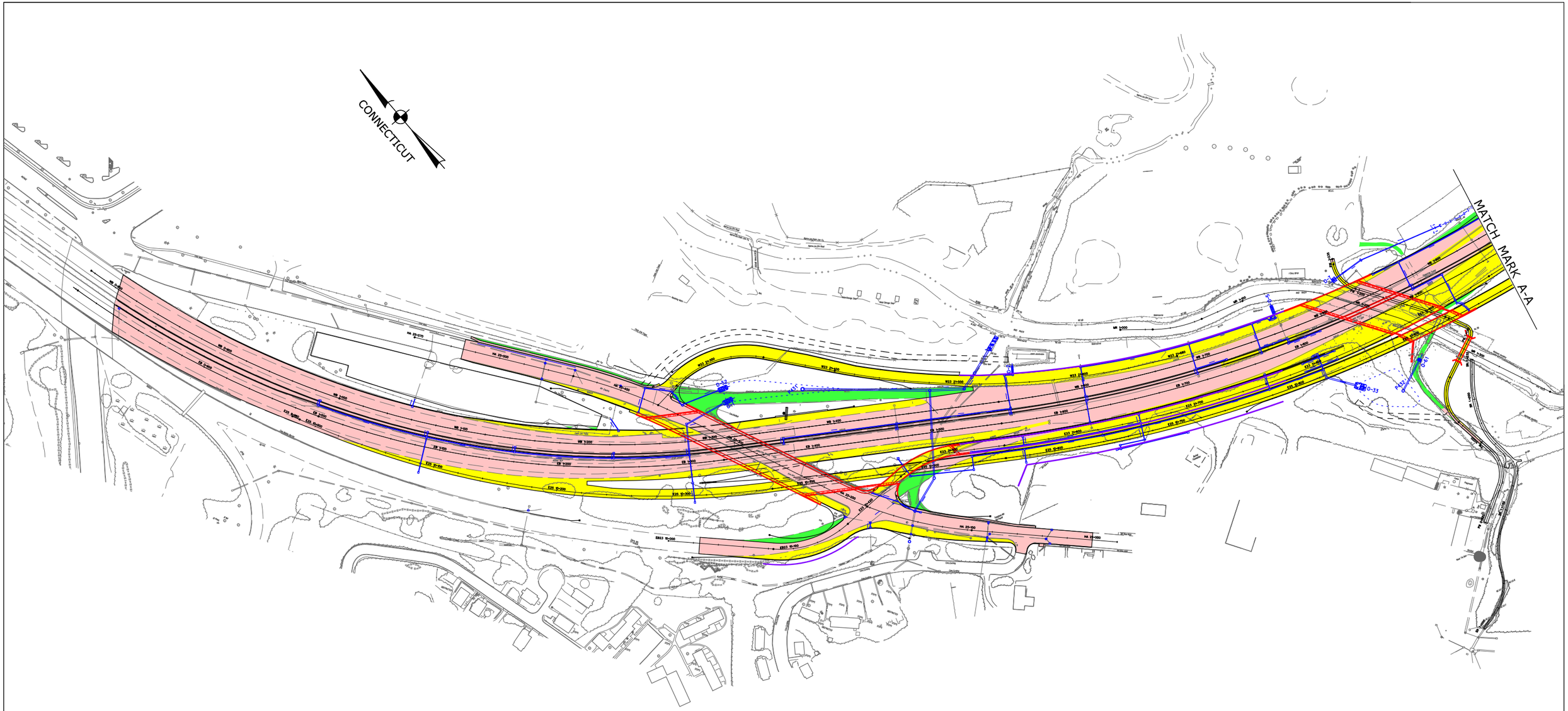


RECONSTRUCTION OF I-84
WATERBURY, CT. PROJECT NO. 151-273
REVISED DECEMBER 2014, SCALE 1: 5000

FIGURE 2. SITE PLAN
PROPOSED STORM DRAINAGE OUTFALLS
SHEET 2 OF 2



PROPOSED STRUCTURES

PROPOSED DRAINAGE

PROPOSED RETAINING WALL

PROPOSED PAVEMENT AREA

OVERLAPPING PAVEMENT AREA

EXISTING PAVEMENT TO BE REMOVED

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
RECONSTRUCTION OF I - 84
PAVEMENT AREA MAP

COUNTY: NEW HAVEN
CITY: WATERBURY
STATE PROJECT NO. 151-273

SCALE IN METERS
0 50 100 150 200
SCALE 1:3000

FIGURE 3
SHEET 1 OF 4
REVISED DECEMBER 2014

CONNECTICUT

MATCH MARK A-A

MATCH MARK B-B

PROPOSED STRUCTURES

PROPOSED DRAINAGE

PROPOSED RETAINING WALL

PROPOSED PAVEMENT AREA

OVERLAPPING PAVEMENT AREA

EXISTING PAVEMENT TO BE REMOVED

COUNTY: NEW HAVEN
CITY: WATERBURY
STATE PROJECT NO. 151-273

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
RECONSTRUCTION OF I - 84
PAVEMENT AREA MAP

SCALE IN METERS
0 50 100 150 200
SCALE 1:3000

FIGURE 3
SHEET 2 OF 4
REVISED DECEMBER 2014

MATCH MARK B-B

MATCH MARK C-C

PROPOSED STRUCTURES

PROPOSED DRAINAGE

PROPOSED RETAINING WALL

PROPOSED PAVEMENT AREA

OVERLAPPING PAVEMENT AREA

EXISTING PAVEMENT TO BE REMOVED

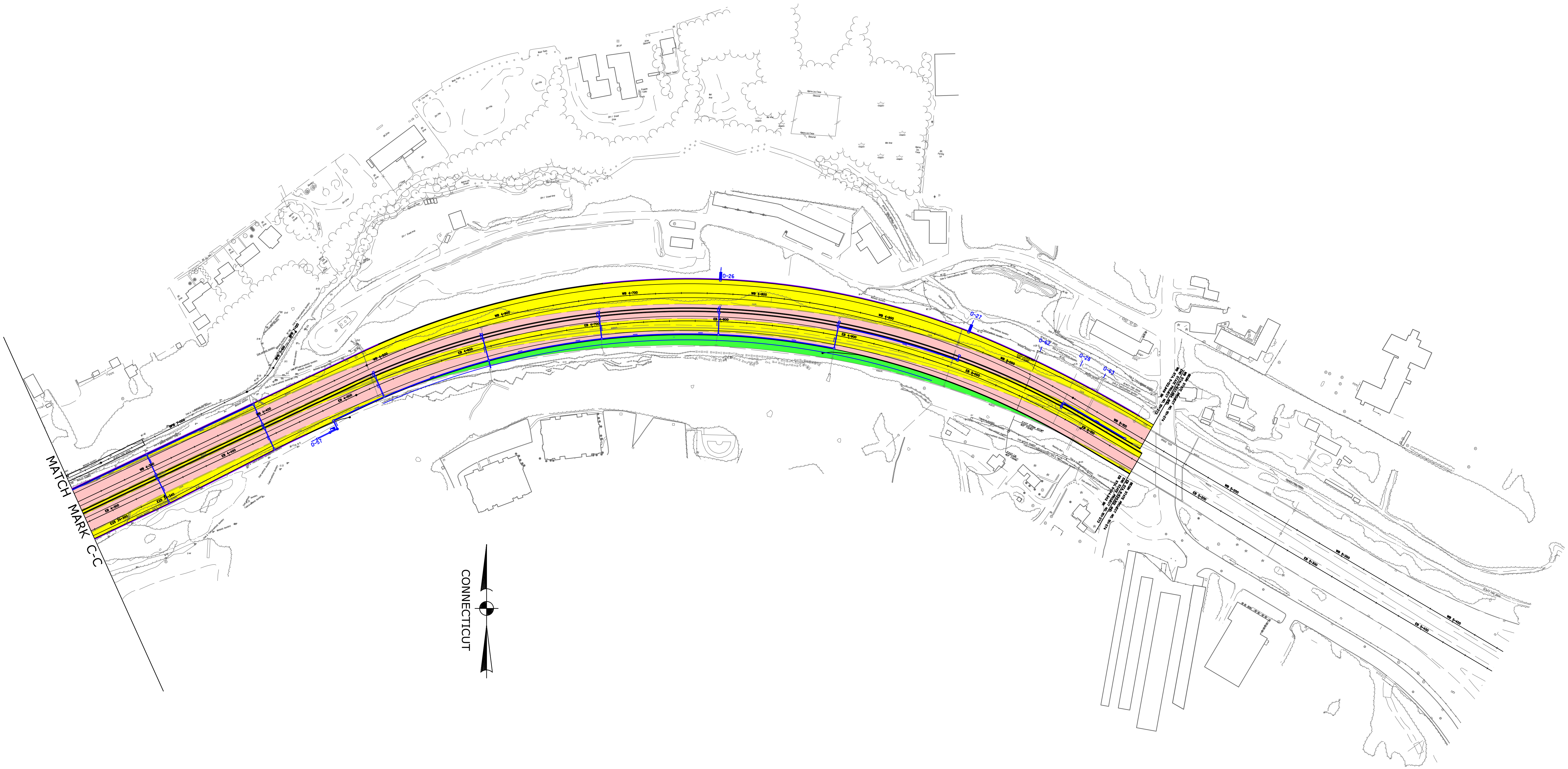
CONNECTICUT

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
RECONSTRUCTION OF I - 84
PAVEMENT AREA MAP

COUNTY: NEW HAVEN
CITY: WATERBURY
STATE PROJECT NO. 151-273

SCALE IN METERS
0 50 100 150 200
SCALE 1:3000

FIGURE 3
SHEET 3 OF 4
REVISED DECEMBER 2014



PROPOSED DRAINAGE

PROPOSED RETAINING WALL

PROPOSED PAVEMENT AREA

OVERLAPPING PAVEMENT AREA

EXISTING PAVEMENT TO BE REMOVED

CONNECTICUT
DEPARTMENT OF TRANSPORTATION
RECONSTRUCTION OF I - 84
PAVEMENT AREA MAP

COUNTY: NEW HAVEN
CITY: WATERBURY
STATE PROJECT NO. 151-273

SCALE IN METERS
0 50 100 150 200
SCALE 1:3000

FIGURE 3
SHEET 4 OF 4
REVISED DECEMBER 2014

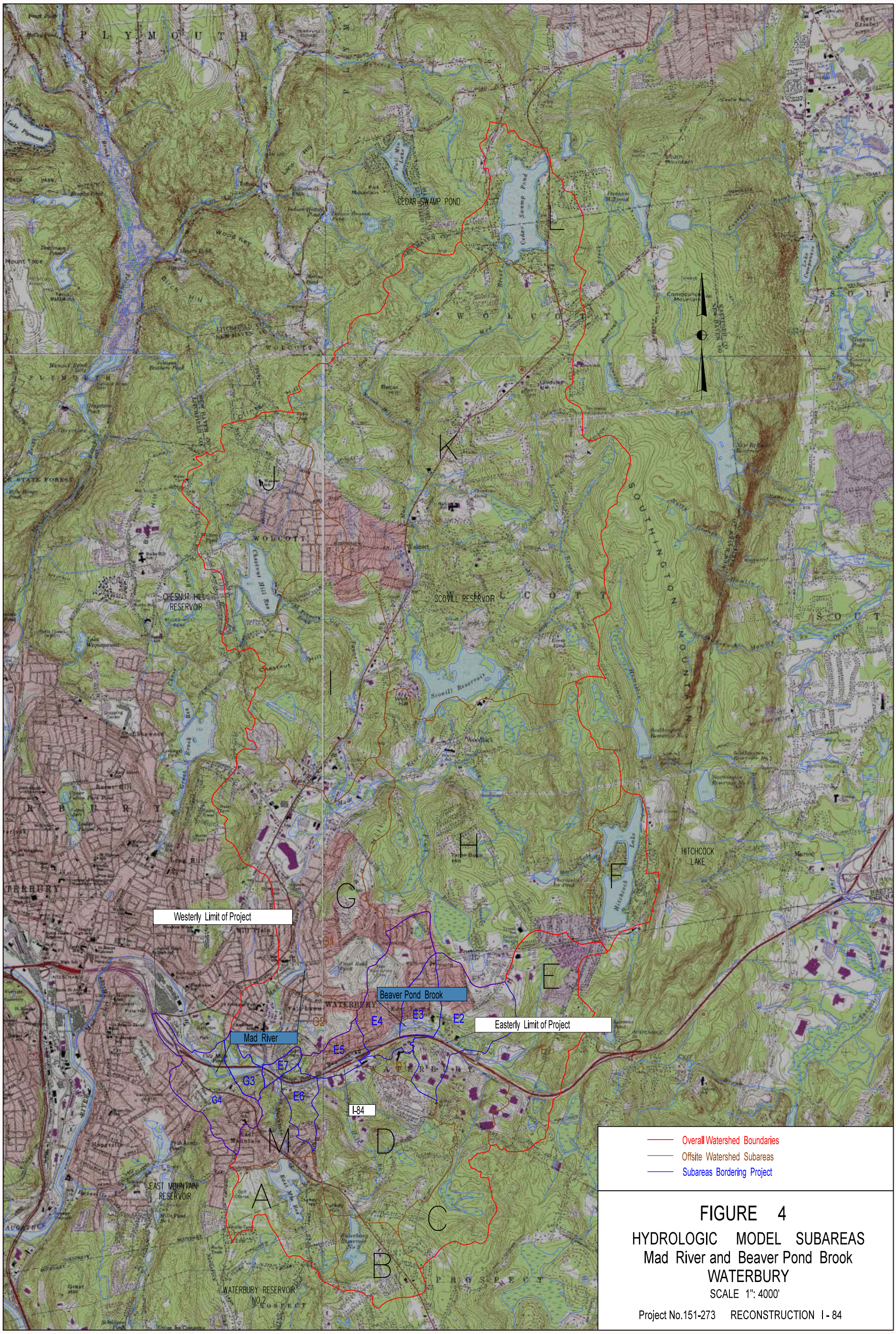


FIGURE 4

HYDROLOGIC MODEL SUBAREAS
Mad River and Beaver Pond Brook
WATERBURY

SCALE 1": 4000'

Project No.151-273 RECONSTRUCTION I - 84

Westerly Limit of Project

Mad River

Beaver Pond Brook

Easterly Limit of Project

I-84

WATERBURY

G1 G2 G3 G4 E1 E2 E3 E4 E5 E6 E7 A C D D1 F H M

1 2 3 4 5 6 7 8

Study Points

Offsite Watershed Areas

Subareas Bordering Project

FIGURE 5

HYDROLOGIC MODEL STUDY POINTS

Mad River and Beaver Pond Brook WATERBURY

SCALE 1": 1500'

Project No.151-273
RECONSTRUCTION I - 84

TABLES

Table 1

Beaver Pond Brook

Summary of Runoff Parameters for Subareas Adjacent Project
used in Hydrograph Analysis

(Metric Units)

Subarea	**Description**	**Drainage Area Pre Construction (hectares)**	**Drainage Area Post Construction (hectares)**	**Curve Number** (CN = 98 for all pavement areas shown below)	**Time of Concentration * (minutes)**	**Hydrograph No.** *(reference no. same for pre and post)*
E2	Off-site	124.00	123.75	84	35.	# 34
	Impervious area (within construction limits)	0.46	0.71	98 (typ.)	6.	# 35
E3	Off-site	39.89	38.69	83	34	# 39
	Impervious area (within construction limits)	0.93	2.13		15	# 40
E4	Off-site	106.54	105.99	84	61	# 44
	Impervious area (within construction limits)	1.45	2.01		10	#45
E5	Off-site	33.06	32.92	82	20	# 49
	Impervious area (within construction limits)	4.12	4.26		11	# 50
E6	Off-site	31.55 hectares CN = 83	30.65 hectares CN = 82	CN = see previous columns	13	# 60
	Impervious area (within construction limits)	2.34	3.24		9	# 61
E7	Off-site	12.01	11.79	83	17	#71
	Impervious area (within construction limits)	0.59	0.81		7.5	# 72

***** T_c for I-84 pavement areas includes travel time in pipes and travel time from farthest outlet to study point.

Table 1A

Beaver Pond Brook

Summary of Runoff Parameters for Subareas Adjacent Project
used in Hydrograph Analysis

(English Units)

Subarea	**Description**	**Drainage Area Pre Construction (acres)**	**Drainage Area Post Construction (acres)**	**Curve Number** (CN = 98 for all pavement areas shown below)	**Time of Concentration * (minutes)**	**Hydrograph No.** *(reference no. same for pre and post)*
E_2	Off-site	306.4	305.8	84	35.	# 34
	Impervious area (within construction limits)	1.14	1.76	98 (typ.)	6.	# 35
E_3	Off-site	98.6	95.9	83	34	# 39
	Impervious area (within construction limits)	2.31	5.27		15	# 40
E_4	Off-site	263.3	261.9	84	61	# 44
	Impervious area (within construction limits)	3.60	4.98		10	#45
E_5	Off-site	81.7	81.3	82	20	# 49
	Impervious area (within construction limits)	10.18	10.52		11	# 50
E_6	Off-site	78.0 acres CN = 83	75.7 acres CN = 82	CN = see previous columns	13	# 60
	Impervious area (within construction limits)	5.77	8.00		9	# 61
E_7	Off-site	29.7	29.1	83	17	#71
	Impervious area (within construction limits)	1.46	2.00		7.5	# 72

***** T_c for I-84 pavement areas includes travel time in pipes and travel time from farthest outlet to study point.

Table 2

Mad River

Summary of Runoff Parameters for Subareas Adjacent Project
used in Hydrograph Analysis

(Metric Units)

Subarea	**Description**	**Drainage Area Pre Construction (hectares)**	**Drainage Area Post Construction (hectares)**	**Pre Constr. Curve Number**	**Post Constr. Curve Number**	**Time of Concentration * (minutes)**	**Hydrograph No.** *(reference no. same for pre and post)*
G_2	Off-site	124.16	124.17	79	79	29	# 25
	Impervious area (within construction limits)	0.49	0.48	98	98	10	# 26
G_3	Off-site	22.95	21.56	77	76	11	# 78
	Impervious area (within construction limits)	1.60	2.99	98	98	10	# 79
G_4	Off-site	83.41	80.90	78	77	25	# 83
	Impervious area (within construction limits)	5.05	7.56	98	98	14	# 84

***** T_c for I-84 pavement areas includes travel time in pipes and travel time from farthest outlet to study point.

Table 2A

Mad River

Summary of Runoff Parameters for Subareas Adjacent Project
used in Hydrograph Analysis

(English Units)

Subarea	**Description**	**Drainage Area Pre Construction (acres)**	**Drainage Area Post Construction (acres)**	**Pre Constr. Curve Number**	**Post Constr. Curve Number**	**Time of Concentration * (minutes)**	**Hydrograph No.** *(reference no. same for pre and post)*
G_2	Off-site	306.8	306.8	79	79	29	# 25
	Impervious area (within construction limits)	1.22	1.19	98	98	10	# 26
G_3	Off-site	56.7	53.3	77	76	11	# 78
	Impervious area (within construction limits)	3.96	7.39	98	98	10	# 79
G_4	Off-site	206.1	199.9	78	77	25	# 83
	Impervious area (within construction limits)	12.47	18.67	98	98	14	# 84

***** T_c for I-84 pavement areas includes travel time in pipes and travel time from farthest outlet to study point**.**

Table 3

Beaver Pond Brook

Summary of Discharges along Subareas
A Comparison of Pre and Post Conditions
(Metric Units)

From Hydrograph Summary Report and drainage area calculations
(See Appendix for Backup)

Subarea	**Study Point**	**Pre/Post Construction**	**Drainage Area** *(Same acreage for both pre and post subarea)* **(hectares)**	**Impervious Area** *(within construction limits)* **(hectares)**	**Peak Discharge** *(includes overland and pavement runoff)* **(cms)**	**Volume of Runoff (m^3)**	**Hydrograph No.** (R*eference no. same for pre and post*)
E_1		*Pre/post*	259.8	*Unchanged between pre and post conditions*	28.52	215,925	# 30
E_2	*1*	*pre*	124.6	0.46	17.82	102,356	# 36
		post		0.96	17.81	102,435	
E_3	*2*	*pre*	40.9	0.93	5.69	32,894	# 41
		post		1.52	5.69	33,353	
E_4	*3*	*pre*	108.1	1.46	11.41	90,909	# 46
		post		2.35	11.37	91,140	
E_5	*4*	*pre*	37.2	4.13	6.97	31,251	# 51
		post		4.78	6.92	31,057	
E_6	*5*	*pre*	34	2.35	7.52	29,059	# 62
		post		4.01	7.40	28,636	
E_7	*6*	*pre*	12.5	0.61	2.32	10,401	# 73
		post		0.45	2.32	10, 489	

Table 3a

Beaver Pond Brook

Summary of Discharges along Subareas
A Comparison of Pre and Post Conditions
(English Units)

From Hydrograph Summary Report and drainage area calculations
(See Appendix for Backup)

Subarea	**Study Point**	**Pre/Post Construction**	**Drainage Area** *(Same acreage for both pre and post subarea)* **(acres)**	**Impervious Area** *(within construction limits)* **(acres)**	**Peak Discharge** *(includes overland and pavement runoff)* **(cfs)**	**Volume of Runoff (ac-ft)**	**Hydrograph No.** (*Reference no. same for pre and post*)
E_1		*Pre/post*	642	*Unchanged between pre and post conditions*	1,007	175.1	# 30
E_2	*1*	*pre*	308	1.14	629	83.0	# 36
		post		2.37	629	83.0	
E_3	*2*	*pre*	101	2.31	201	26.7	# 41
		post		3.75	201	27.0	
E_4	*3*	*pre*	267	3.60	403	73.7	# 46
		post		5.81	402	73.9	
E_5	*4*	*pre*	92	10.2	246	25.3	# 51
		post		11.8	245	25.2	
E_6	*5*	*pre*	84	5.8	265	23.6	# 62
		post		9.9	261	23.2	
E_7	*6*	*pre*	31	1.5	82	8.4	# 73
		post		1.1	82	8.5	

Table 4

Mad River

Summary of Discharges along Subareas
A Comparison of Pre and Post Conditions
(Metric Units)

From Hydrograph Summary Report and drainage area calculations
(See Appendix for Backup)

Subarea	**Study Point**	**Pre/Post Construction**	**Drainage Area** *(Same acreage for both pre and post subarea)* **(hectares)**	**Impervious Area** *(within construction limits)* **(hectares)**	**Discharge** *(includes overland and pavement runoff)* **(cms)**	**Volume of Runoff (m^3)**	**Hydrograph No.** *(Reference no. same for pre and post)*
G_1		*Pre/post*	507.5	*Unchanged between pre and post conditions*	35.18	359,463	# 22
G_2	*6*	*pre*	124.6	0.49	17.00	88,970	# 27
		post		0.53	17.00	88,964	
G_3	*7*	*pre*	24.7	1.62	4.57	17,766	# 80
		post		3.04	4.58	18,051	
G_4	*8*	*pre*	88.6	5.06	12.49	62,506	# 85
		post		7.77	12.31	61,971	

Table 4a

Mad River

Summary of Discharges along Subareas
A Comparison of Pre and Post Conditions
(English Units)

From Hydrograph Summary Report and drainage area calculations
(See Appendix for Backup)

Subarea	**Study Point**	**Pre/Post Construction**	**Drainage Area** *(Same acreage for both pre and post subarea)* **(acres)**	**Impervious Area** *(within construction limits)* **(acres)**	**Discharge** *(includes overland and pavement runoff)* **(cfs)**	**Volume of Runoff (ac-ft)**	**Hydrograph No.** *(Reference no. same for pre and post)*
G_1		*pre/post*	1,254	*Unchanged between pre and post conditions*	1,243	291.4	# 22
G_2	*6*	*pre*	308	1.2	600	72.1	# 27
		post		1.3	600	72.1	
G_3	*7*	*pre*	61	4.0	161	14.4	# 80
		post		7.5	162	14.6	
G_4	*8*	*pre*	219	12.5	441	50.7	# 85
		post		19.2	435	50.2	

Table 5

Mad River and Beaver Pond Brook

Summary of Discharges along Study Points
A Comparison of Pre and Post Conditions
(Metric Units)

From Hydrograph Summary Report and drainage area calculations
(See Appendix for Backup)

Study Point	Watercourse	Watershed Area (km^2)	Peak Discharge (cms)		Volume of Runoff (m^3)		Hydrograph No.
			Pre-	Post-	Pre-	Post-	
1	Beaver Pond Brook	5.80	52.20	52.19	424,042	424,120	37
2	Beaver Pond Brook	6.22	54.93	54.85	456,936	457,473	42
3	Beaver Pond Brook	7.30	65.47	65.36	547,846	548,614	47
4	Beaver Pond Brook upstream of Turkey Hill Brook	7.67	66.06	65.94	579,096	579,670	52
	Beaver Pond Brook downstream of Turkey Hill Brook	11.89	83.46	82.86	808,431	806,519	58
5	Beaver Pond Brook upstream of East Mountain Brook	12.25	84.31	83.69	837,489	835,150	63
	Beaver Pond Brook downstream of East Mountain Brook	14.32	88.04	87.44	877,648	875,311	69
6	Beaver Pond Brook upstream of Mad River	14.45	88.39	87.77	888,045	885,793	74
	Mad River upstream of Beaver Pond Brook	46.67	88.28	88.28	2,659,254	2,659,249	28
	Mad River downstream of Beaver Pond Brook	61.12	153.52	152.76	3,547,308	3,545,042	76
7	Mad River	61.35	153.3	152.51	3,564,974	3,562,992	81
8	Mad River	62.26	154.48	153.66	3,627,389	3,624,859	86

Table 5a

Mad River and Beaver Pond Brook

Summary of Discharges along Study Points
A Comparison of Pre and Post Conditions
(English Units)

From Hydrograph Summary Report and drainage area calculations
(See Appendix for Backup)

Study Point	Watercourse	Watershed Area (miles^2)	Peak Discharge (cfs)		Volume of Runoff (ac-ft)		Hydrograph No.
			Pre-	Post-	Pre-	Post-	
1	Beaver Pond Brook	2.24	1,844	1,843	343.8	343.8	37
2	Beaver Pond Brook	2.40	1,940	1,937	370.4	370.9	42
3	Beaver Pond Brook	2.82	2,312	2,308	444.1	444.8	47
4	Beaver Pond Brook upstream of Turkey Hill Brook	2.96	2,333	2,329	469.5	469.9	52
	Beaver Pond Brook downstream of Turkey Hill Brook	4.59	2,947	2,926	655.4	653.9	58
5	Beaver Pond Brook upstream of East Mountain Brook	4.73	2,977	2,955	679.0	667.0	63
	Beaver Pond Brook downstream of East Mountain Brook	5.53	3,109	3,088	711.5	709.6	69
6	Beaver Pond Brook upstream of Mad River	5.58	3,121	3,100	719.9	718.1	74
	Mad River upstream of Beaver Pond Brook	18.02	3,118	3,118	2,155.9	2,155.9	28
	Mad River downstream of Beaver Pond Brook	23.60	5,421	5,395	2,875.8	2,874.0	76
7	Mad River	23.69	5,414	5,386	2,890.2	2,888.5	81
8	Mad River	24.04	5,455	5,427	2,940.8	2,938.7	86

TABLE 6. DRAINAGE OUTFALL TABLE

OUTFALL	ROADWAY STATION	OFFSET (M)	SHEET	PIPE DIAMETER Rp (MM)	OUTLET INVERT (M)	END TYPE	RIPRAP TYPE *	OUTLET PROTECTION	NO. OF CATCH BASINS IN SYSTEM
1	WB	L 28.9	DRN-3	750	113.000	750mm RCCE	MODIFIED	Preformed Scour Hole	14
2	W23 21+547	L 8.2	DRN-3	375	106.902	PROJECTING BARREL	MODIFIED	Riprap Swale	8
5	WB 1761.2	L 15.3	DRN-4	600	106.773	PROJECTING	MODIFIED	Riprap Swale	17
7	WB 1821.8	L 23	DRN-4	900	104.573	ENDWALL	STANDARD	Riprap Swale	1
8	WB 2+100	L 25.5	DRN-5	600	111.653	600mm RCCE	MODIFIED	Preformed Scour Hole	7
8A	WB 1+200	L 10	DRN-5	750	117.500	1200mm RCCE	MODIFIED	Preformed Scour Hole	4
8C	WB 1+950	L 21	DRN-4	750	117.500	1200mm RCCE	MODIFIED	Preformed Scour Hole	10
9	EB 2+359.6	R 18.3	DRN-6	375	113.800	375mm RCCE	MODIFIED	Preformed Scour Hole	4
9A	WB	L 12.2	DRN-6	750	117.500	1200mm RCCE	MODIFIED	Preformed Scour Hole	2
9B	WB 2660	L 13.6	DRN-7	750	117.500	1200mm RCCE	MODIFIED	Preformed Scour Hole	2
10	E24	R 4.1	DRN-5	600	109.000	600mm RCCE	MODIFIED	Riprap Swale	0
15	EB 3233	R 13.6	DRN-8	375	126.940	ENDWALL	MODIFIED	Riprap Swale	1
19	WB 3679.6	L 21.7	DRN-	900	131.080	PROJECTING	STANDARD	n/a	17
20	W25 14+016	L 9	DRN-12	900	135.500	ENDWALL (a)	N/A	Riprap Swale	0
21	W25 14085	L 1.8	DRN-	750	137.340	750mm RCCE	INTERMEDIAT	n/a	12
22	E25 34+201	R 7.5	DRN-12	375	137.800	PROJECTING BARREL	MODIFIED	Riprap Swale	1
26	WB	L 11.9	DRN-	375	143.500	PROJECTING	MODIFIED	Preformed Scour Hole	1
27	WB 4+964	L 11.6	DRN-14	375	141.750	PROJECTING BARREL	MODIFIED	Riprap Swale	1
28	WB 5042	L 27.7	DRN-	375	139.650	ENDWALL (a)	N/A	n/a	3
33	E24 10+845.5	R 18.5	DRN-4	1050	108.000	ENDWALL	MODIFIED	Preformed Scour Hole	30
34	PRE 51+171.3	R 20.8	DRN-10	375	132.190	ENDWALL	HEAVY	n/a	2
36	RD 10460.3	L 15.1	DRN-7	750	115.300	PROJECTING BARREL	ROUNDED	n/a	5
37	RD 10490.3	L 12.6	DRN-7	375	116.800	ENDWALL	INTERMEDIATE	n/a	2
42	HFR 60510	R 24.6	DRN-17	375	119.380	375mm RCCE	MODIFIED	Preformed Scour Hole	2
43	HFR 60624.4	L 16.7	DRN-17	750	112.584	ENDWALL	STANDARD	n/a	26
47	SR 5287.7	R 30.8	DRN-11	1200	135.000	1200MM RCCE	MODIFIED	Preformed Scour Hole	14
49	HFR 65305	L 29	DRN-6	900	113.779	ENDWALL	MODIFIED	Preformed Scour Hole	14
50	PRE 50209	L 25.4	DRN-7	900	114.800	ENDWALL	STANDARD	n/a	8
50A	PRE 50293.8	L 15.9	DRN-7	750	117.500	1200mm RCCE	MODIFIED	n/a	14
51	PR 70080.7	R 12.4	DRN-17	600	112.500	600mm RCCE	MODIFIED	Preformed Scour Hole	2
52	HA 25327.1	R 34.8	DRN-3	450	113.000	450mm RCCE	MODIFIED	Preformed Scour Hole	4
55	EB 3732.5	R 25.7	DRN-10	375	135.520	375mm RCCE	MODIFIED	Riprap Swale	2
57	EB 4468.1	R 15.9	DRN-13	1200	139.500	1050mm RCCE	MODIFIED	Preformed Scour Hole	18
59	W24 12334	R 8	DRN-6	375	116.445	375mm MCE	INTERMEDIATE	n/a	3
60	W23 21526.5	L 24.3	DRN-3	1200	104.793	ENDWALL	STANDARD	Riprap Swale	13
61	E24 10897.5	R 18.5	DRN-4	750	105.100	ENDWALL	MODIFIED	Riprap Swale	0
62	WB 5012	L 25.5	DRN-15	375	unknown	ENDWALL (a)	N/A	n/a	0
63	WB 5063	L 28.5	DRN-15	1200	138.200	ENDWALL (a)	N/A	n/a	0
65	WB 2324.6	L 19.3	DRN-6	375	112.932	375mm RCCE	STANDARD	n/a	2
66	RD 11078.5	L 12.5	DRN-9	375	129.316	ENDWALL	HEAVY	n/a	0
67	RD 11154	L 22.2	DRN-9	0	131.600	450mm MCE	MODIFIED	Riprap Swale	0
68	PRE 50970.7	R 29.6	DRN-9	0	129.623	ENDWALL	MODIFIED	Riprap Swale	13
69	RD 11237.5	L 21.4	DRN-9	450	132.345	450mm RCCE	MODIFIED	Riprap Swale	0
70	RD 10538	L 11.5	DRN-7	375	116.928	ENDWALL	INTERMEDIATE	n/a	0
71	EB 3413.9	R 14.7	DRN-9	600	129.000	ENDWALL	HEAVY	n/a	9
72	RD 10637.5	L 11	DRN-8	450	119.536	ENDWALL (a)	N/A	n/a	1
73	RD 10725	L 10	DRN-8	375	122.739	ENDWALL (a)	N/A	n/a	1
74	RD 10838	L 11.5	DRN-8	0	125.442	ENDWALL (a)	N/A	n/a	0
75	RD 10925.5	L 12.8	DRN-8	0	126.471	ENDWALL (a)	N/A	n/a	1
76	RD 11000	L 13.7	DRN-9	375	125.793	ENDWALL (a)	N/A	n/a	0
77	RD 11366.5	L 21.5	DRN-10	0	133.600	375mm RCCE	MODIFIED	Riprap Apron	0
78	PR 70025	R 21	DRN-12	0	unknown	ENDWALL (a)	INTERMEDIATE	Preformed Scour Hole	0

* Outfalls listed as N/A receive Riprap Outlet Protection as part of the Mad River or Beaver Pond Brook Channel Stabilization

APPENDIX

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	E2	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

Sheet flow (Applicable to T_c only)		Segment ID	A-B					
1	Surface description (Table 6.C.1)		dense grasses					
2	Manning's roughness coeff., n (Table 6.C.1)		0.240	0.000				
3	Flow length, L (See Section 6.C.4)	ft	50					
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in	3.3					
5	Land slope, s	ft/ft	0.010					
6	Travel Time, T_t (Equation 6.C.2)	h	0.18	+	0.00	=	0.18	
Shallow concentrated flow		Segment ID	B-C					
7	Surface description (paved or unpaved)		paved	unpaved				
8	Flow length, L	ft	800					
9	Watercourse slope, s	ft/ft	0.055					
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s	4.8	0.0				
11	Travel Time, T_t (Equation 6.C.3)	h	0.05	+	0.00	=	0.05	
Channel flow		Segment ID	C-D	D-E				
12	Cross sectional flow area, a	ft^2						
13	Wetted perimeter, p_w	ft	0					
14	Hydraulic radius, $r=a/p_w$	ft	0.00	0.00				
15	Channel slope, s	ft/ft						
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)		0.012					
17	Average velocity, v (Equation 6.C.6)	ft/s	2.0					
18	Flow length, L	ft	2600					
19	Travel Time, T_t (Equation 6.C.3)	h	0.36	+	0.00	=	0.36	

Time of Concentration = 0.59 hours
= 35 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	E3	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

	Sheet flow (Applicable to T_c only)		Segment ID				
			A-B				
1	Surface description (Table 6.C.1)		dense grasses				
2	Manning's roughness coeff., n (Table 6.C.1)		0.240	0.000			
3	Flow length, L (See Section 6.C.4)	ft	50				
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in	3.3				
5	Land slope, s	ft/ft	0.010				
6	Travel Time, T_t (Equation 6.C.2)	h	0.18	+ 0.00	=	0.18	

	Shallow concentrated flow		Segment ID				
			B-C				
7	Surface description (paved or unpaved)		paved	unpaved			
8	Flow length, L	ft	630				
9	Watercourse slope, s	ft/ft	0.045				
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s	4.3	0.0			
11	Travel Time, T_t (Equation 6.C.3)	h	0.04	+ 0.00	=	0.04	

	Channel flow		Segment ID				
			C-D	D-E			
12	Cross sectional flow area, a	ft^2					
13	Wetted perimeter, p_w	ft					
14	Hydraulic radius, $r=a/p_w$	ft	0.00	0.00			
15	Channel slope, s	ft/ft					
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)		0.012				
17	Average velocity, v (Equation 6.C.6)	ft/s	2.0				
18	Flow length, L	ft	2470				
19	Travel Time, T_t (Equation 6.C.3)	h	0.34	+ 0.00	=	0.34	

Time of Concentration = 0.56 hours
= 34 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	E4	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

	Sheet flow (Applicable to T_c only)	Segment ID	A-B			
1	Surface description (Table 6.C.1)		dense grasses			
2	Manning's roughness coeff., n (Table 6.C.1)		0.240	0.000		
3	Flow length, L (See Section 6.C.4)	ft	50			
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in	3.3			
5	Land slope, s	ft/ft	0.010			
6	Travel Time, T_t (Equation 6.C.2)	h	0.18	+ 0.00	=	0.18

	Shallow concentrated flow	Segment ID	B-C			
7	Surface description (paved or unpaved)		unpaved	paved		
8	Flow length, L	ft	460	430		
9	Watercourse slope, s	ft/ft	0.010	0.010		
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s	1.6	2.0		
11	Travel Time, T_t (Equation 6.C.3)	h	0.08	+ 0.06	=	0.14

	Channel flow	Segment ID	C-D	D-E		
12	Cross sectional flow area, a	ft^2				
13	Wetted perimeter, p_w	ft				
14	Hydraulic radius, $r=a/p_w$	ft	0.00	0.00		
15	Channel slope, s	ft/ft				
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)		0.012	0.040		
17	Average velocity, v (Equation 6.C.6)	ft/s	1.5	3.0		
18	Flow length, L	ft	2260	2950		
19	Travel Time, T_t (Equation 6.C.3)	h	0.42	+ 0.27	=	0.69

Time of Concentration = 1.01 hours
= 61 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	E5	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

	Sheet flow (Applicable to T_c only)		Segment ID	A-B			
1	Surface description (Table 6.C.1)			dense grasses			
2	Manning's roughness coeff., n (Table 6.C.1)			0.240	0.000		
3	Flow length, L (See Section 6.C.4)	ft		70			
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in		3.3			
5	Land slope, s	ft/ft		0.025			
6	Travel Time, T_t (Equation 6.C.2)	h		0.16	+ 0.00	=	0.16

	Shallow concentrated flow		Segment ID	B-C			
7	Surface description (paved or unpaved)			unpaved	unpaved		
8	Flow length, L	ft		1300			
9	Watercourse slope, s	ft/ft		0.088			
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s		4.8	0.0		
11	Travel Time, T_t (Equation 6.C.3)	h		0.08	+ 0.00	=	0.08

	Channel flow		Segment ID	C-D	D-E		
12	Cross sectional flow area, a	ft^2					
13	Wetted perimeter, p_w	ft					
14	Hydraulic radius, $r=a/p_w$	ft		0.00	0.00		
15	Channel slope, s	ft/ft					
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)			0.040			
17	Average velocity, v (Equation 6.C.6)	ft/s		2.0			
18	Flow length, L	ft		700			
19	Travel Time, T_t (Equation 6.C.3)	h		0.10	+ 0.00	=	0.10

Time of Concentration = 0.34 hours
= 20 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	E6	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

Sheet flow (Applicable to T_c only)		Segment ID	A-B		B-C		
1	Surface description (Table 6.C.1)		dense grasses		smooth asphalt		
2	Manning's roughness coeff., n (Table 6.C.1)		0.240		0.011		
3	Flow length, L (See Section 6.C.4)	ft	100		50		
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in	3.3		3.3		
5	Land slope, s	ft/ft	0.100		0.230		
6	Travel Time, T_t (Equation 6.C.2)	h	0.12	+	0.00	=	0.12

Shallow concentrated flow		Segment ID	C-D		D-E		
7	Surface description (paved or unpaved)		unpaved		unpaved		
8	Flow length, L	ft	300		1900		
9	Watercourse slope, s	ft/ft	0.150		0.150		
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s	6.2		6.2		
11	Travel Time, T_t (Equation 6.C.3)	h	0.01	+	0.08	=	0.09

Channel flow		Segment ID	E-F				
12	Cross sectional flow area, a	ft^2	0.96				
13	Wetted perimeter, p_w	ft	2.51				
14	Hydraulic radius, $r=a/p_w$	ft	0.38		0.00		
15	Channel slope, s	ft/ft	0.030				
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)		0.012				
17	Average velocity, v (Equation 6.C.6)	ft/s	11.3				
18	Flow length, L	ft	100				
19	Travel Time, T_t (Equation 6.C.3)	h	0.00	+	0.00	=	0.00

Time of Concentration = 0.21 hours
= 13 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	E7	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

	Sheet flow (Applicable to T_c only)		Segment ID				
			A-B				
1	Surface description (Table 6.C.1)		dense grasses				
2	Manning's roughness coeff., n (Table 6.C.1)		0.240	0.000			
3	Flow length, L (See Section 6.C.4)	ft	50				
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in	3.3				
5	Land slope, s	ft/ft	0.020				
6	Travel Time, T_t (Equation 6.C.2)	h	0.13	+ 0.00	=	0.13	

	Shallow concentrated flow		Segment ID				
			B-C				
7	Surface description (paved or unpaved)		paved	unpaved			
8	Flow length, L	ft	450				
9	Watercourse slope, s	ft/ft	0.018				
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s	2.7	0.0			
11	Travel Time, T_t (Equation 6.C.3)	h	0.05	+ 0.00	=	0.05	

	Channel flow		Segment ID				
			C-D	D-E			
12	Cross sectional flow area, a	ft^2					
13	Wetted perimeter, p_w	ft					
14	Hydraulic radius, $r=a/p_w$	ft	0.00	0.00			
15	Channel slope, s	ft/ft					
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)						
17	Average velocity, v (Equation 6.C.6)	ft/s	2.5	12.0			
18	Flow length, L	ft	900	300			
19	Travel Time, T_t (Equation 6.C.3)	h	0.10	+ 0.01	=	0.11	

Time of Concentration = 0.29 hours
= 17 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	G2-LAND	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

	Sheet flow (Applicable to T_c only)		Segment ID	A-B			
1	Surface description (Table 6.C.1)			dense grasses			
2	Manning's roughness coeff., n (Table 6.C.1)			0.240	0.000		
3	Flow length, L (See Section 6.C.4)	ft		100			
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in		3.3			
5	Land slope, s	ft/ft		0.100			
6	Travel Time, T_t (Equation 6.C.2)	h		0.12	+ 0.00	=	0.12

	Shallow concentrated flow		Segment ID	B-C			
7	Surface description (paved or unpaved)			unpaved	unpaved		
8	Flow length, L	ft		1600			
9	Watercourse slope, s	ft/ft		0.066			
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s		4.1	0.0		
11	Travel Time, T_t (Equation 6.C.3)	h		0.11	+ 0.00	=	0.11

	Channel flow		Segment ID	C-D	D-E		
12	Cross sectional flow area, a	ft^2					
13	Wetted perimeter, p_w	ft					
14	Hydraulic radius, $r=a/p_w$	ft		0.00	0.00		
15	Channel slope, s	ft/ft					
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)						
17	Average velocity, v (Equation 6.C.6)	ft/s		5.2			
18	Flow length, L	ft		4600			
19	Travel Time, T_t (Equation 6.C.3)	h		0.25	+ 0.00	=	0.25

Time of Concentration = 0.48 hours
= 29 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	G3-LEND	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

	Sheet flow (Applicable to T_c only)		Segment ID	A-B		
1	Surface description (Table 6.C.1)			dense grasses		
2	Manning's roughness coeff., n (Table 6.C.1)			0.240	0.000	
3	Flow length, L (See Section 6.C.4)	ft		200		
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in		3.3		
5	Land slope, s	ft/ft		0.250		
6	Travel Time, T_t (Equation 6.C.2)	h		0.15	+ 0.00	= 0.15

	Shallow concentrated flow		Segment ID	B-C		
7	Surface description (paved or unpaved)			unpaved	unpaved	
8	Flow length, L	ft		800		
9	Watercourse slope, s	ft/ft		0.180		
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s		6.8	0.0	
11	Travel Time, T_t (Equation 6.C.3)	h		0.03	+ 0.00	= 0.03

	Channel flow		Segment ID	C-D	D-E	
12	Cross sectional flow area, a	ft^2				
13	Wetted perimeter, p_w	ft				
14	Hydraulic radius, $r=a/p_w$	ft		0.00	0.00	
15	Channel slope, s	ft/ft				
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)					
17	Average velocity, v (Equation 6.C.6)	ft/s		6.0		
18	Flow length, L	ft		150		
19	Travel Time, T_t (Equation 6.C.3)	h		0.01	+ 0.00	= 0.01

Time of Concentration = 0.19 hours
= 11 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

Time of Concentration Worksheet

Project No.:	Waterbury	By:	KK	Date:	Nov.-02
Location:	G4-LEND	Checked:		Date:	

Circle one: ~~Present~~ **Developed**
Circle one: ~~metric units~~ **English units**

Sheet flow (Applicable to T_c only)		Segment ID	A-B			
1	Surface description (Table 6.C.1)		dense grasses			
2	Manning's roughness coeff., n (Table 6.C.1)		0.240	0.000		
3	Flow length, L (See Section 6.C.4)	ft	100			
4	Two-yr 24-hr rainfall, P_2 (Table B-1)	in	3.3			
5	Land slope, s	ft/ft	0.040			
6	Travel Time, T_t (Equation 6.C.2)	h	0.18	+ 0.00	=	0.18

Shallow concentrated flow		Segment ID	B-C			
7	Surface description (paved or unpaved)		unpaved	paved		
8	Flow length, L	ft	900	1200		
9	Watercourse slope, s	ft/ft	0.110	0.150		
10	Average velocity, V (Equation 6.C.4 or 6.C.5)	ft/s	5.4	7.9		
11	Travel Time, T_t (Equation 6.C.3)	h	0.05	+ 0.04	=	0.09

Channel flow		Segment ID	C-D	D-E		
12	Cross sectional flow area, a	ft^2				
13	Wetted perimeter, p_w	ft				
14	Hydraulic radius, r=a/p_w	ft	0.00	0.00		
15	Channel slope, s	ft/ft				
16	Manning's roughness coeff., n (Table 7-1 & Append. A, Ch. 8)					
17	Average velocity, v (Equation 6.C.6)	ft/s	8.0			
18	Flow length, L	ft	4000			
19	Travel Time, T_t (Equation 6.C.3)	h	0.14	+ 0.00	=	0.14

Time of Concentration = 0.41 hours
= 25 minutes

Channel Section ID _____
Schematic

Channel Section ID _____
Schematic

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA E_1

COVER DESCRIPTION			Hydrology Soil Group											Total
			A			B			C			D		
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E1	642.312	1.003													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	19.269	98	1888.396			0.000	1888.396
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	44.962	92	4136.487			0.000	4136.487
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	141.309	92	13000.389	77.077	94	7245.276			0.000	20245.665
Industrial		72			0.000			0.000	89.924	91	8183.051			0.000	8183.051
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	122.039	72	8786.824			0.000	38.539	86	3314.328	12101.153
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	70.654	60	4239.257			0.000	38.539	79	3044.557	7283.815
TOTAL AxCN															53838.567
TOTAL AREA			0.000			334.002			231.232			77.077			642.312
WEIGHTED CN															83.820

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA E_2

COVER DESCRIPTION			Hydrology Soil Group											Total
			A			B			C			D		
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E2 exist	307.546	0.4804													
PAVEMENT	1.137	0.0018													
TOTAL	**306.409**	0.4786													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	8.089	98	792.737			0.000	792.737
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	21.528	92	1980.594			0.000	1980.594
Urban Districts	Avg. % imperv														
Commercial & business	85				0.000	67.660	92	6224.725	36.905	94	3469.116			0.000	9693.841
Industrial	72				0.000			0.000	43.056	91	3918.133			0.000	3918.133
Residential districts	Avg. % imperv														
(by average lot size)															
1/3 acre	30				0.000	58.434	72	4207.226			0.000	18.453	86	1586.936	5794.161
OTHER AGRICULTURAL LANDS															
Woods	fair				0.000	33.830	60	2029.802			0.000	18.453	79	1457.767	3487.569
TOTAL AxCN															25667.035
TOTAL AREA			0.000			159.924			109.579			36.905			**306.409**
WEIGHTED CN															83.767

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA E_2

COVER DESCRIPTION			Hydrology Soil Group											Total
			A			B			C			D		
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E2 PROP	307.546	0.4804													
PAVEMENT	1.755	0.0027													
TOTAL	**305.791**	0.4776													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	7.471	98	732.195			0.000	732.195
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	21.528	92	1980.594			0.000	1980.594
Urban Districts	Avg. % imperv														
Commercial & business	85				0.000	67.660	92	6224.725	36.905	94	3469.116			0.000	9693.841
Industrial	72				0.000			0.000	43.056	91	3918.133			0.000	3918.133
Residential districts	Avg. % imperv														
(by average lot size)															
1/3 acre	30				0.000	58.434	72	4207.226			0.000	18.453	86	1586.936	5794.161
OTHER AGRICULTURAL LANDS															
Woods	fair				0.000	33.830	60	2029.802			0.000	18.453	79	1457.767	3487.569
TOTAL AxCN															25606.493
TOTAL AREA			0.000			159.924			108.961			36.905			**305.791**
WEIGHTED CN															83.739

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA E_3

COVER DESCRIPTION			Hydrology Soil Group											
			A			B			C			D			Total
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E3 exist	100.870	0.1576													
PAVEMENT	2.308	0.0036													
TOTAL	**98.562**	0.1540													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	0.718	98	70.339			0.000	70.339
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	7.061	92	649.603			0.000	649.603
Urban Districts	Avg. % imperv														
Commercial & business	85				0.000	22.191	92	2041.610	12.104	94	1137.814			0.000	3179.424
Industrial	72				0.000			0.000	14.122	91	1285.084			0.000	1285.084
Residential districts	Avg. % imperv														
(by average lot size)															
1/3 acre	30				0.000	19.165	72	1379.902			0.000	6.052	86	520.489	1900.392
OTHER AGRICULTURAL LANDS															
Woods	fair				0.000	11.096	60	665.742			0.000	6.052	79	478.124	1143.866
TOTAL AxCN															8228.708
TOTAL AREA			0.000			52.452			34.005			12.104			**98.562**
WEIGHTED CN															83.488

RUNOFF CURVE NUMBER COMPUTATION

PROPOSSED AREA E_3

COVER DESCRIPTION			Hydrology Soil Group											
			A			B			C			D			Total
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E3 PROP	100.870	0.1576													
PAVEMENT	5.273	0.0082													
TOTAL	**95.597**	0.1493													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	-2.247	98	-220.199			0.000	-220.199
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	7.061	92	649.603			0.000	649.603
Urban Districts	Avg. % imperv														
Commercial & business	85				0.000	22.191	92	2041.610	12.104	94	1137.814			0.000	3179.424
Industrial	72				0.000			0.000	14.122	91	1285.084			0.000	1285.084
Residential districts	Avg. % imperv														
(by average lot size)															
1/3 acre	30				0.000	19.165	72	1379.902			0.000	6.052	86	520.489	1900.392
OTHER AGRICULTURAL LANDS															
Woods	fair				0.000	11.096	60	665.742			0.000	6.052	79	478.124	1143.866
TOTAL AxCN															7938.170
TOTAL AREA			0.000			52.452			31.040			12.104			**95.597**
WEIGHTED CN															83.038

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA E_4

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E4 exist	266.890	0.4169													
PAVEMENT	3.595	0.0056													
TOTAL	**263.295**	0.4113													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	4.411	98	432.327			0.000	432.327
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	18.682	92	1718.771			0.000	1718.771
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	58.716	92	5401.851	32.027	94	3010.518			0.000	8412.369
Industrial		72			0.000			0.000	37.365	91	3400.177			0.000	3400.177
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	50.709	72	3651.054			0.000	16.013	86	1377.152	5028.205
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	29.358	60	1761.473			0.000	16.013	79	1265.058	3026.531
TOTAL AxCN															22018.380
TOTAL AREA			0.000			138.783			92.485			32.027			**263.295**
WEIGHTED CN															83.626

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA E_4

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E4 PROP	266.890	0.4169													
PAVEMENT	4.979	0.0078													
TOTAL	261.911	0.4091													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	3.028	98	296.716			0.000	296.716
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	18.682	92	1718.771			0.000	1718.771
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	58.716	92	5401.851	32.027	94	3010.518			0.000	8412.369
Industrial		72			0.000			0.000	37.365	91	3400.177			0.000	3400.177
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	50.709	72	3651.054			0.000	16.013	86	1377.152	5028.205
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	29.358	60	1761.473			0.000	16.013	79	1265.058	3026.531
TOTAL AxCN															21882.770
TOTAL AREA			0.000			138.783			91.101			32.027			261.911
WEIGHTED CN															83.550

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA E_5

COVER DESCRIPTION			Hydrology Soil Group											Total
			A			B			C			D		
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E5 exist	91.863	0.1435													
PAVEMENT	10.175	0.0159													
TOTAL	**81.688**	0.1276													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	-7.419	98	-727.034			0.000	-727.034
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	6.430	92	591.597			0.000	591.597
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	20.210	92	1859.305	11.024	94	1036.213			0.000	2895.518
Industrial		72			0.000			0.000	12.861	91	1170.333			0.000	1170.333
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	17.454	72	1256.684			0.000	5.512	86	474.013	1730.697
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	10.105	60	606.295			0.000	5.512	79	435.430	1041.725
TOTAL AxCN															6702.836
TOTAL AREA			0.000			47.769			22.896			11.024			**81.688**
WEIGHTED CN															82.054

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA E_5

COVER DESCRIPTION			Hydrology Soil Group											Total
			A			B			C			D		
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E5 PROP	91.863	0.1435													
PAVEMENT	10.521	0.0164													
TOTAL	81.342	0.1271													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	-7.765	98	-760.960			0.000	-760.960
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	6.430	92	591.597			0.000	591.597
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	20.210	92	1859.305	11.024	94	1036.213			0.000	2895.518
Industrial		72			0.000			0.000	12.861	91	1170.333			0.000	1170.333
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	17.454	72	1256.684			0.000	5.512	86	474.013	1730.697
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	10.105	60	606.295			0.000	5.512	79	435.430	1041.725
TOTAL AxCN															6668.911
TOTAL AREA			0.000			47.769			22.550			11.024			81.342
WEIGHTED CN															81.986

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA E_6

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E6 exist	83.738	0.1308													
PAVEMENT	5.772	0.0090													
TOTAL	77.966	0.1218													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	-3.260	98	-319.488			0.000	-319.488
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	5.862	92	539.275			0.000	539.275
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	18.422	92	1694.865	10.049	94	944.569			0.000	2639.434
Industrial		72			0.000			0.000	11.723	91	1066.827			0.000	1066.827
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	15.910	72	1145.541			0.000	5.024	86	432.090	1577.631
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	9.211	60	552.673			0.000	5.024	79	396.920	949.593
TOTAL AxCN															6453.272
TOTAL AREA			0.000			43.544			24.374			10.049			77.966
WEIGHTED CN															82.770

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA E_6

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E6 PROP	83.738	0.1308													
PAVEMENT	7.996	0.0125													
TOTAL	**75.742**	0.1183													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	-5.484	98	-537.411			0.000	-537.411
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	5.862	92	539.275			0.000	539.275
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	18.422	92	1694.865	10.049	94	944.569			0.000	2639.434
Industrial		72			0.000			0.000	11.723	91	1066.827			0.000	1066.827
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	15.910	72	1145.541			0.000	5.024	86	432.090	1577.631
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	9.211	60	552.673			0.000	5.024	79	396.920	949.593
TOTAL AxCN															6235.349
TOTAL AREA			0.000			43.544			22.150			10.049			**75.742**
WEIGHTED CN															82.323

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA E_7

COVER DESCRIPTION			Hydrology Soil Group											Total
			A			B			C			D		
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E7 exist	31.147	0.0487													
PAVEMENT	1.459	0.0023													
TOTAL	29.689	0.0464													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	-0.524	98	-51.371			0.000	-51.371
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	2.180	92	200.590			0.000	200.590
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	6.852	92	630.425	3.738	94	351.344			0.000	981.768
Industrial		72			0.000			0.000	4.361	91	396.819			0.000	396.819
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	5.918	72	426.097			0.000	1.869	86	160.721	586.818
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	3.426	60	205.573			0.000	1.869	79	147.639	353.212
TOTAL AxCN															2467.836
TOTAL AREA			0.000			16.197			9.754			3.738			29.689
WEIGHTED CN															83.123

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA E_7

COVER DESCRIPTION			Hydrology Soil Group											
			A			B			C			D			Total
Area	ac	mil2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
E7 PROP	31.147	0.0487													
PAVEMENT	2.003	0.0031													
TOTAL	**29.144**	0.0455													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Impervious Area															
Paved parking lots, roofs driveways					0.000			0.000	-1.069	98	-104.726			0.000	-104.726
Streets and roads															
Paved, open ditches (w/right-of way)					0.000			0.000	2.180	92	200.590			0.000	200.590
Urban Districts		Avg. % imperv													
Commercial & business		85			0.000	6.852	92	630.425	3.738	94	351.344			0.000	981.768
Industrial		72			0.000			0.000	4.361	91	396.819			0.000	396.819
Residential districts		Avg. % imperv													
(by average lot size)															
1/3 acre		30			0.000	5.918	72	426.097			0.000	1.869	86	160.721	586.818
OTHER AGRICULTURAL LANDS															
Woods		fair			0.000	3.426	60	205.573			0.000	1.869	79	147.639	353.212
TOTAL AxCN															2414.482
TOTAL AREA			0.000			16.197			9.210			3.738			**29.144**
WEIGHTED CN															82.845

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA G_1

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
G1	1253.608	1.958													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Open space (Lawns, parks etc.)															
Poor condition; grass cover <50%				**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
Fair condition; grass cover 50% to 75%				**49**	0.00	275.79	**69**	19029.77	50.14	**79**	3961.40		**84**	0.00	22991.17
Good condition; grass cover>75%				**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Impervious Area															
Paved parking lots, roofs driveways				**98**	0.00	125.36	**98**	12285.36		**98**	0.00		**98**	0.00	12285.36
					0.00			0.00			0.00			0.00	0.00
Streets and roads					0.00			0.00			0.00			0.00	0.00
Paved; curbs and storm sewers				**98**	0.00	62.68	**98**	6142.68		**98**	0.00		**98**	0.00	6142.68
Paved, open ditches (w/right-of way)				**83**	0.00		**89**	0.00		**92**	0.00		**93**	0.00	0.00
Gravel (w/right-of way)				**76**	0.00		**85**	0.00		**89**	0.00		**91**	0.00	0.00
Dirt (w/right-of way)				**72**	0.00		**82**	0.00		**87**	0.00		**89**	0.00	0.00
Urban Districts		Avg. % imperv													
Commercial & business		85	12.536	**89**	1115.71	100.29	**92**	9226.55		**94**	0.00		**95**	0.00	10342.26
Industrial		72		**81**	0.00	75.22	**88**	6619.05		**91**	0.00		**93**	0.00	6619.05
Residential districts		Avg. % imperv													
(by average lot size)															
1/8acre		65		**77**	0.00		**85**	0.00		**90**	0.00		**92**	0.00	0.00
1/4 acre		38		**61**	0.00		**75**	0.00		**83**	0.00		**87**	0.00	0.00
1/3 acre		30	12.536	**57**	714.56	50.14	**72**	3610.39	62.68	**81**	5077.11		**86**	0.00	9402.06
1/2 acre		25		**54**	0.00		**70**	0.00		**80**	0.00		**85**	0.00	0.00
1 acre		20		**51**	0.00		**68**	0.00		**79**	0.00		**84**	0.00	0.00
2 acre		12		**46**	0.00		**65**	0.00		**77**	0.00		**82**	0.00	0.00
OTHER AGRICULTURAL LANDS															
Pasture ,grassland or range		poor		**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
		fair		**49**	0.00		**69**	0.00		**79**	0.00		**84**	0.00	0.00
		good		**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Medow-cont.grass (non grazed)				**30**	0.00		**58**	0.00		**71**	0.00		**78**	0.00	0.00
Brush- brush, weed grassmix		poor		**48**	0.00		**67**	0.00		**77**	0.00		**83**	0.00	0.00
		fair		**35**	0.00		**56**	0.00		**70**	0.00		**77**	0.00	0.00
		good		**30**	0.00		**48**	0.00		**65**	0.00		**73**	0.00	0.00
Woods- grass combination		poor		**59**	0.00	275.79	**73**	20132.94	37.61	**82**	3083.88		**86**	0.00	23216.82
		fair		**43**	0.00		**65**	0.00		**76**	0.00		**82**	0.00	0.00
		good		**32**	0.00		**58**	0.00		**72**	0.00		**79**	0.00	0.00
Woods		poor		**45**	0.00	100.29	**66**	6619.05		**77**	0.00	12.54	**83**	1040.49	7659.54
		fair		**36**	0.00		**60**	0.00		**73**	0.00		**79**	0.00	0.00
		good		**30**	0.00		**55**	0.00		**70**	0.00		**77**	0.00	0.00
TOTAL AxCN															98658.94
					1830.27			83665.79			12122.39			1040.49	98658.94
TOTAL AREA			25.072			1065.57			150.43		0.00	12.54			1253.61
WEIGHTED CN															78.70

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA G_2

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
G2	308.023	0.481													
PAVEMENT	1.217	0.0019													
TOTAL	**306.806**	0.4792													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Open space (Lawns, parks etc.)															
Poor condition; grass cover <50%				**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
Fair condition; grass cover 50% to 75%				**49**	0.00	67.77	**69**	4675.79	12.32	**79**	973.35		**84**	0.00	5649.15
Good condition; grass cover>75%				**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Impervious Area															
Paved parking lots, roofs driveways				**98**	0.00	29.59	**98**	2899.34		**98**	0.00		**98**	0.00	2899.34
					0.00			0.00			0.00			0.00	0.00
Streets and roads					0.00			0.00			0.00			0.00	0.00
Paved; curbs and storm sewers				**98**	0.00	15.40	**98**	1509.31		**98**	0.00		**98**	0.00	1509.31
Paved, open ditches (w/right-of way)				**83**	0.00		**89**	0.00		**92**	0.00		**93**	0.00	0.00
Gravel (w/right-of way)				**76**	0.00		**85**	0.00		**89**	0.00		**91**	0.00	0.00
Dirt (w/right-of way)				**72**	0.00		**82**	0.00		**87**	0.00		**89**	0.00	0.00
Urban Districts	Avg. % imperv														
Commercial & business	85		3.080	**89**	274.14	24.64	**92**	2267.05		**94**	0.00		**95**	0.00	2541.19
Industrial	72			**81**	0.00	18.48	**88**	1626.36		**91**	0.00		**93**	0.00	1626.36
Residential districts	Avg. % imperv														
(by average lot size)															
1/8acre	65			**77**	0.00		**85**	0.00		**90**	0.00		**92**	0.00	0.00
1/4 acre	38			**61**	0.00		**75**	0.00		**83**	0.00		**87**	0.00	0.00
1/3 acre	30		3.080	**57**	175.57	12.32	**72**	887.11	15.40	**81**	1247.49		**86**	0.00	2310.17
1/2 acre	25			**54**	0.00		**70**	0.00		**80**	0.00		**85**	0.00	0.00
1 acre	20			**51**	0.00		**68**	0.00		**79**	0.00		**84**	0.00	0.00
2 acre	12			**46**	0.00		**65**	0.00		**77**	0.00		**82**	0.00	0.00
OTHER AGRICULTURAL LANDS															
Pasture ,grassland or range	poor			**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
	fair			**49**	0.00		**69**	0.00		**79**	0.00		**84**	0.00	0.00
	good			**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Medow-cont.grass (non grazed)				**30**	0.00		**58**	0.00		**71**	0.00		**78**	0.00	0.00
Brush- brush, weed grassmix	poor			**48**	0.00		**67**	0.00		**77**	0.00		**83**	0.00	0.00
	fair			**35**	0.00		**56**	0.00		**70**	0.00		**77**	0.00	0.00
	good			**30**	0.00		**48**	0.00		**65**	0.00		**73**	0.00	0.00
Woods- grass combination	poor			**59**	0.00	67.77	**73**	4946.85	9.24	**82**	757.74		**86**	0.00	5704.59
	fair			**43**	0.00		**65**	0.00		**76**	0.00		**82**	0.00	0.00
	good			**32**	0.00		**58**	0.00		**72**	0.00		**79**	0.00	0.00
Woods	poor			**45**	0.00	24.64	**66**	1626.36		**77**	0.00	3.08	**83**	255.66	1882.02
	fair			**36**	0.00		**60**	0.00		**73**	0.00		**79**	0.00	0.00
	good			**30**	0.00		**55**	0.00		**70**	0.00		**77**	0.00	0.00
TOTAL AxCN															24122.14
					449.71			20438.19			2978.58			255.66	24122.14
TOTAL AREA			6.160			260.60			36.96			3.08			306.81
WEIGHTED CN															78.62

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA G_2

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
G2 PROP.	308.023	0.481													
PAVEMENT	1.192	0.0019													
TOTAL	306.831	0.4793													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Open space (Lawns, parks etc.)															
Poor condition; grass cover <50%				**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
Fair condition; grass cover 50% to 75%				**49**	0.00	67.77	**69**	4675.79	12.32	**79**	973.35		**84**	0.00	5649.15
Good condition; grass cover>75%				**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Impervious Area															
Paved parking lots, roofs driveways				**98**	0.00	29.61	**98**	2901.78		**98**	0.00		**98**	0.00	2901.78
					0.00			0.00			0.00			0.00	0.00
Streets and roads					0.00			0.00			0.00			0.00	0.00
Paved; curbs and storm sewers				**98**	0.00	15.40	**98**	1509.31		**98**	0.00		**98**	0.00	1509.31
Paved, open ditches (w/right-of way)				**83**	0.00		**89**	0.00		**92**	0.00		**93**	0.00	0.00
Gravel (w/right-of way)				**76**	0.00		**85**	0.00		**89**	0.00		**91**	0.00	0.00
Dirt (w/right-of way)				**72**	0.00		**82**	0.00		**87**	0.00		**89**	0.00	0.00
Urban Districts		Avg. % imperv													
Commercial & business		85	3.080	**89**	274.14	24.64	**92**	2267.05		**94**	0.00		**95**	0.00	2541.19
Industrial		72		**81**	0.00	18.48	**88**	1626.36		**91**	0.00		**93**	0.00	1626.36
Residential districts		Avg. % imperv													
(by average lot size)															
1/8acre		65		**77**	0.00		**85**	0.00		**90**	0.00		**92**	0.00	0.00
1/4 acre		38		**61**	0.00		**75**	0.00		**83**	0.00		**87**	0.00	0.00
1/3 acre		30	3.080	**57**	175.57	12.32	**72**	887.11	15.40	**81**	1247.49		**86**	0.00	2310.17
1/2 acre		25		**54**	0.00		**70**	0.00		**80**	0.00		**85**	0.00	0.00
1 acre		20		**51**	0.00		**68**	0.00		**79**	0.00		**84**	0.00	0.00
2 acre		12		**46**	0.00		**65**	0.00		**77**	0.00		**82**	0.00	0.00
OTHER AGRICULTURAL LANDS															
Pasture ,grassland or range		poor		**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
		fair		**49**	0.00		**69**	0.00		**79**	0.00		**84**	0.00	0.00
		good		**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Medow-cont.grass (non grazed)				**30**	0.00		**58**	0.00		**71**	0.00		**78**	0.00	0.00
Brush- brush, weed grassmix		poor		**48**	0.00		**67**	0.00		**77**	0.00		**83**	0.00	0.00
		fair		**35**	0.00		**56**	0.00		**70**	0.00		**77**	0.00	0.00
		good		**30**	0.00		**48**	0.00		**65**	0.00		**73**	0.00	0.00
Woods- grass combination		poor		**59**	0.00	67.77	**73**	4946.85	9.24	**82**	757.74		**86**	0.00	5704.59
		fair		**43**	0.00		**65**	0.00		**76**	0.00		**82**	0.00	0.00
		good		**32**	0.00		**58**	0.00		**72**	0.00		**79**	0.00	0.00
Woods		poor		**45**	0.00	24.64	**66**	1626.36		**77**	0.00	3.08	**83**	255.66	1882.02
		fair		**36**	0.00		**60**	0.00		**73**	0.00		**79**	0.00	0.00
		good		**30**	0.00		**55**	0.00		**70**	0.00		**77**	0.00	0.00
TOTAL AxCN															24124.58
					449.71			20440.62			2978.58			255.66	24124.58
TOTAL AREA			6.160			260.63			36.96			3.08			306.83
WEIGHTED CN															78.63

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA G_3

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
G3	60.665	0.095													
PAVEME	3.959	0.0062													
TOTAL	**56.706**	0.0886													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Open space (Lawns, parks etc.)															
Poor condition; grass cover <50%				**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
Fair condition; grass cover 50% to 75%				**49**	0.00	13.35	**69**	920.90	2.43	**79**	191.70		**84**	0.00	1112.60
Good condition; grass cover>75%				**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Impervious Area															
Paved parking lots, roofs driveways				**98**	0.00	2.11	**98**	206.56		**98**	0.00		**98**	0.00	206.56
					0.00			0.00			0.00			0.00	0.00
Streets and roads					0.00			0.00			0.00			0.00	0.00
Paved; curbs and storm sewers				**98**	0.00	3.03	**98**	297.26		**98**	0.00		**98**	0.00	297.26
Paved, open ditches (w/right-of way)				**83**	0.00		**89**	0.00		**92**	0.00		**93**	0.00	0.00
Gravel (w/right-of way)				**76**	0.00		**85**	0.00		**89**	0.00		**91**	0.00	0.00
Dirt (w/right-of way)				**72**	0.00		**82**	0.00		**87**	0.00		**89**	0.00	0.00
Urban Districts		Avg. % imperv													
Commercial & business		85	0.607	**89**	53.99	4.85	**92**	446.50		**94**	0.00		**95**	0.00	500.49
Industrial		72		**81**	0.00	3.64	**88**	320.31		**91**	0.00		**93**	0.00	320.31
Residential districts		Avg. % imperv													
(by average lot size)															
1/8acre		65		**77**	0.00		**85**	0.00		**90**	0.00		**92**	0.00	0.00
1/4 acre		38		**61**	0.00		**75**	0.00		**83**	0.00		**87**	0.00	0.00
1/3 acre		30	0.607	**57**	34.58	2.43	**72**	174.72	3.03	**81**	245.69		**86**	0.00	454.99
1/2 acre		25		**54**	0.00		**70**	0.00		**80**	0.00		**85**	0.00	0.00
1 acre		20		**51**	0.00		**68**	0.00		**79**	0.00		**84**	0.00	0.00
2 acre		12		**46**	0.00		**65**	0.00		**77**	0.00		**82**	0.00	0.00
OTHER AGRICULTURAL LANDS															
Pasture ,grassland or rang		poor		**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
		fair		**49**	0.00		**69**	0.00		**79**	0.00		**84**	0.00	0.00
		good		**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Medow-cont.grass (non grazed)				**30**	0.00		**58**	0.00		**71**	0.00		**78**	0.00	0.00
Brush- brush, weed grassm		poor		**48**	0.00		**67**	0.00		**77**	0.00		**83**	0.00	0.00
		fair		**35**	0.00		**56**	0.00		**70**	0.00		**77**	0.00	0.00
		good		**30**	0.00		**48**	0.00		**65**	0.00		**73**	0.00	0.00
Woods- grass combination		poor		**59**	0.00	13.35	**73**	974.28	1.82	**82**	149.24		**86**	0.00	1123.52
		fair		**43**	0.00		**65**	0.00		**76**	0.00		**82**	0.00	0.00
		good		**32**	0.00		**58**	0.00		**72**	0.00		**79**	0.00	0.00
Woods		poor		**45**	0.00	4.85	**66**	320.31		**77**	0.00	0.61	**83**	50.35	370.66
		fair		**36**	0.00		**60**	0.00		**73**	0.00		**79**	0.00	0.00
		good		**30**	0.00		**55**	0.00		**70**	0.00		**77**	0.00	0.00
TOTAL AxCN															4386.40
					88.57			3660.84			586.63			50.35	4386.40
TOTAL AREA			1.213			47.61			7.28			0.61		0.00	56.71
WEIGHTED CN															77.35

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA G_3

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
G3	60.665	0.095													
PAVEME	7.394	0.0115													
TOTAL	53.272	0.0832													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Open space (Lawns, parks etc.)															
Poor condition; grass cover <50%				**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
Fair condition; grass cover 50% to 75%				**49**	0.00	13.35	**69**	920.90	2.43	**79**	191.70		**84**	0.00	1112.60
Good condition; grass cover>75%				**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Impervious Area															
Paved parking lots, roofs driveways				**98**	0.00	-1.33	**98**	-130.05		**98**	0.00		**98**	0.00	-130.05
					0.00			0.00			0.00			0.00	0.00
Streets and roads					0.00			0.00			0.00			0.00	0.00
Paved; curbs and storm sewers				**98**	0.00	3.03	**98**	297.26		**98**	0.00		**98**	0.00	297.26
Paved, open ditches (w/right-of way)				**83**	0.00		**89**	0.00		**92**	0.00		**93**	0.00	0.00
Gravel (w/right-of way)				**76**	0.00		**85**	0.00		**89**	0.00		**91**	0.00	0.00
Dirt (w/right-of way)				**72**	0.00		**82**	0.00		**87**	0.00		**89**	0.00	0.00
Urban Districts		Avg. % imperv													
Commercial & business		85	0.607	**89**	53.99	4.85	**92**	446.50		**94**	0.00		**95**	0.00	500.49
Industrial		72		**81**	0.00	3.64	**88**	320.31		**91**	0.00		**93**	0.00	320.31
Residential districts		Avg. % imperv													
(by average lot size)															
1/8acre		65		**77**	0.00		**85**	0.00		**90**	0.00		**92**	0.00	0.00
1/4 acre		38		**61**	0.00		**75**	0.00		**83**	0.00		**87**	0.00	0.00
1/3 acre		30	0.607	**57**	34.58	2.43	**72**	174.72	3.03	**81**	245.69		**86**	0.00	454.99
1/2 acre		25		**54**	0.00		**70**	0.00		**80**	0.00		**85**	0.00	0.00
1 acre		20		**51**	0.00		**68**	0.00		**79**	0.00		**84**	0.00	0.00
2 acre		12		**46**	0.00		**65**	0.00		**77**	0.00		**82**	0.00	0.00
OTHER AGRICULTURAL LANDS															
Pasture ,grassland or rang		poor		**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
		fair		**49**	0.00		**69**	0.00		**79**	0.00		**84**	0.00	0.00
		good		**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Medow-cont.grass (non grazed)				**30**	0.00		**58**	0.00		**71**	0.00		**78**	0.00	0.00
Brush- brush, weed grassm		poor		**48**	0.00		**67**	0.00		**77**	0.00		**83**	0.00	0.00
		fair		**35**	0.00		**56**	0.00		**70**	0.00		**77**	0.00	0.00
		good		**30**	0.00		**48**	0.00		**65**	0.00		**73**	0.00	0.00
Woods- grass combination		poor		**59**	0.00	13.35	**73**	974.28	1.82	**82**	149.24		**86**	0.00	1123.52
		fair		**43**	0.00		**65**	0.00		**76**	0.00		**82**	0.00	0.00
		good		**32**	0.00		**58**	0.00		**72**	0.00		**79**	0.00	0.00
Woods		poor		**45**	0.00	4.85	**66**	320.31		**77**	0.00	0.61	**83**	50.35	370.66
		fair		**36**	0.00		**60**	0.00		**73**	0.00		**79**	0.00	0.00
		good		**30**	0.00		**55**	0.00		**70**	0.00		**77**	0.00	0.00
TOTAL AxCN															4049.79
					88.57			3324.24			586.63			50.35	4049.79
TOTAL AREA			1.213			44.17			7.28			0.61		0.00	53.27
WEIGHTED CN															76.02

RUNOFF CURVE NUMBER COMPUTATION

EXISTING AREA G_4

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
G4	218.583	0.341													
PAVEME	12.470	0.0195													
TOTAL	**206.113**	0.3219													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Open space (Lawns, parks etc.)															
Poor condition; grass cover <50%				**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
Fair condition; grass cover 50% to 75%				**49**	0.00	48.09	**69**	3318.09	8.74	**79**	690.72		**84**	0.00	4008.81
Good condition; grass cover>75%				**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Impervious Area															
Paved parking lots, roofs driveways				**98**	0.00	9.39	**98**	920.09		**98**	0.00		**98**	0.00	920.09
					0.00			0.00			0.00			0.00	0.00
Streets and roads					0.00			0.00			0.00			0.00	0.00
Paved; curbs and storm sewers				**98**	0.00	10.93	**98**	1071.06		**98**	0.00		**98**	0.00	1071.06
Paved, open ditches (w/right-of way)				**83**	0.00		**89**	0.00		**92**	0.00		**93**	0.00	0.00
Gravel (w/right-of way)				**76**	0.00		**85**	0.00		**89**	0.00		**91**	0.00	0.00
Dirt (w/right-of way)				**72**	0.00		**82**	0.00		**87**	0.00		**89**	0.00	0.00
Urban Districts		Avg. % imperv													
Commercial & business		85	2.186	**89**	194.54	17.49	**92**	1608.77		**94**	0.00		**95**	0.00	1803.31
Industrial		72		**81**	0.00	13.11	**88**	1154.12		**91**	0.00		**93**	0.00	1154.12
Residential districts		Avg. % imperv													
(by average lot size)															
1/8acre		65		**77**	0.00		**85**	0.00		**90**	0.00		**92**	0.00	0.00
1/4 acre		38		**61**	0.00		**75**	0.00		**83**	0.00		**87**	0.00	0.00
1/3 acre		30	2.186	**57**	124.59	8.74	**72**	629.52	10.93	**81**	885.26		**86**	0.00	1639.37
1/2 acre		25		**54**	0.00		**70**	0.00		**80**	0.00		**85**	0.00	0.00
1 acre		20		**51**	0.00		**68**	0.00		**79**	0.00		**84**	0.00	0.00
2 acre		12		**46**	0.00		**65**	0.00		**77**	0.00		**82**	0.00	0.00
OTHER AGRICULTURAL LANDS															
Pasture ,grassland or rang		poor		**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
		fair		**49**	0.00		**69**	0.00		**79**	0.00		**84**	0.00	0.00
		good		**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Medow-cont.grass (non grazed)				**30**	0.00		**58**	0.00		**71**	0.00		**78**	0.00	0.00
Brush- brush, weed grassm		poor		**48**	0.00		**67**	0.00		**77**	0.00		**83**	0.00	0.00
		fair		**35**	0.00		**56**	0.00		**70**	0.00		**77**	0.00	0.00
		good		**30**	0.00		**48**	0.00		**65**	0.00		**73**	0.00	0.00
Woods- grass combination		poor		**59**	0.00	48.09	**73**	3510.44	6.56	**82**	537.71		**86**	0.00	4048.16
		fair		**43**	0.00		**65**	0.00		**76**	0.00		**82**	0.00	0.00
		good		**32**	0.00		**58**	0.00		**72**	0.00		**79**	0.00	0.00
Woods		poor		**45**	0.00	17.49	**66**	1154.12		**77**	0.00	2.19	**83**	181.42	1335.54
		fair		**36**	0.00		**60**	0.00		**73**	0.00		**79**	0.00	0.00
		good		**30**	0.00		**55**	0.00		**70**	0.00		**77**	0.00	0.00
TOTAL AxCN															15980.46
					319.13			13366.20			2113.70			181.42	15980.46
TOTAL AREA			4.372			173.33			26.23			2.19		0.00	206.11
WEIGHTED CN															77.53

RUNOFF CURVE NUMBER COMPUTATION

PROPOSED AREA G_4

COVER DESCRIPTION			Hydrology Soil Group												Total
			A			B			C			D			
Area	ac	mil^2	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	Area	CN	AxCN	AxCN
G4 PROP	218.583	0.341													
PAVEME	18.672	0.0292													
TOTAL	**199.911**	0.3123													
FULLY DEVELOPED URBAN AREAS (Veg estab.)															
Open space (Lawns, parks etc.)															
Poor condition; grass cover <50%				**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
Fair condition; grass cover 50% to 75%				**49**	0.00	48.09	**69**	3318.09	8.74	**79**	690.72		**84**	0.00	4008.81
Good condition; grass cover>75%				**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Impervious Area															
Paved parking lots, roofs driveways				**98**	0.00	3.19	**98**	312.23		**98**	0.00		**98**	0.00	312.23
					0.00			0.00			0.00			0.00	0.00
Streets and roads					0.00			0.00			0.00			0.00	0.00
Paved; curbs and storm sewers				**98**	0.00	10.93	**98**	1071.06		**98**	0.00		**98**	0.00	1071.06
Paved, open ditches (w/right-of way)				**83**	0.00		**89**	0.00		**92**	0.00		**93**	0.00	0.00
Gravel (w/right-of way)				**76**	0.00		**85**	0.00		**89**	0.00		**91**	0.00	0.00
Dirt (w/right-of way)				**72**	0.00		**82**	0.00		**87**	0.00		**89**	0.00	0.00
Urban Districts		Avg. % imperv													
Commercial & business		85	2.186	**89**	194.54	17.49	**92**	1608.77		**94**	0.00		**95**	0.00	1803.31
Industrial		72		**81**	0.00	13.11	**88**	1154.12		**91**	0.00		**93**	0.00	1154.12
Residential districts		Avg. % imperv													
(by average lot size)															
1/8acre		65		**77**	0.00		**85**	0.00		**90**	0.00		**92**	0.00	0.00
1/4 acre		38		**61**	0.00		**75**	0.00		**83**	0.00		**87**	0.00	0.00
1/3 acre		30	2.186	**57**	124.59	8.74	**72**	629.52	10.93	**81**	885.26		**86**	0.00	1639.37
1/2 acre		25		**54**	0.00		**70**	0.00		**80**	0.00		**85**	0.00	0.00
1 acre		20		**51**	0.00		**68**	0.00		**79**	0.00		**84**	0.00	0.00
2 acre		12		**46**	0.00		**65**	0.00		**77**	0.00		**82**	0.00	0.00
OTHER AGRICULTURAL LANDS															
Pasture ,grassland or rang		poor		**68**	0.00		**79**	0.00		**86**	0.00		**89**	0.00	0.00
		fair		**49**	0.00		**69**	0.00		**79**	0.00		**84**	0.00	0.00
		good		**39**	0.00		**61**	0.00		**74**	0.00		**80**	0.00	0.00
Medow-cont.grass (non grazed)				**30**	0.00		**58**	0.00		**71**	0.00		**78**	0.00	0.00
Brush- brush, weed grassm		poor		**48**	0.00		**67**	0.00		**77**	0.00		**83**	0.00	0.00
		fair		**35**	0.00		**56**	0.00		**70**	0.00		**77**	0.00	0.00
		good		**30**	0.00		**48**	0.00		**65**	0.00		**73**	0.00	0.00
Woods- grass combination		poor		**59**	0.00	48.09	**73**	3510.44	6.56	**82**	537.71		**86**	0.00	4048.16
		fair		**43**	0.00		**65**	0.00		**76**	0.00		**82**	0.00	0.00
		good		**32**	0.00		**58**	0.00		**72**	0.00		**79**	0.00	0.00
Woods		poor		**45**	0.00	17.49	**66**	1154.12		**77**	0.00	2.19	**83**	181.42	1335.54
		fair		**36**	0.00		**60**	0.00		**73**	0.00		**79**	0.00	0.00
		good		**30**	0.00		**55**	0.00		**70**	0.00		**77**	0.00	0.00
TOTAL AxCN															15372.60
					319.13			12758.35			2113.70			181.42	15372.60
TOTAL AREA			4.372			167.12			26.23			2.19		0.00	199.91
WEIGHTED CN															76.90

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
1	SCS Runoff	659.64	2	768	130.318	------	------	------	EXISTING-L (100)
2	Reservoir	28.68	2	1304	106.352	1	840.79	105	CEDAR SWAMP POND
3	Reach	28.17	2	1494	105.132	2	------	------	100-101
4	SCS Runoff	1885.68	2	866	800.721	------	------	------	EXISTING-K (102)
5	Combine	1895.32	2	866	905.854	3, 4	------	------	EXISTING-103
6	Reservoir	1144.10	2	1006	902.850	5	527.42	312	WOODTICK RESERVOIR
7	Reach	1142.05	2	1016	902.761	6	------	------	103-104
8	SCS Runoff	799.27	2	738	91.430	------	------	------	EXISTING-F (105)
9	Reservoir	42.12	2	964	89.603	8	620.63	63.9	HITCHCOCK LAKE
10	Reach	40.97	2	1070	89.493	9	------	------	105-106
11	SCS Runoff	1521.41	2	804	432.517	------	------	------	EXISTING-H (107)
12	Combine	1542.52	2	804	522.009	10, 11	------	------	EXISTING-108
13	Combine	1684.72	2	812	1424.771	7, 12	------	------	EXISTING -109
14	Reach	1666.71	2	824	1424.658	13	------	------	109-110
15	SCS Runoff	764.56	2	782	174.845	------	------	------	EXISTING-J (111)
16	Reservoir	121.27	2	980	174.632	15	635.24	104	CHESTNUT HILL RESERVOI
17	Reach	119.11	2	1036	174.617	16	------	------	111-112
18	SCS Runoff	738.34	2	796	193.471	------	------	------	EXISTING-I (113)
19	Combine	765.08	2	798	368.088	17, 18	------	------	EXISTING-114
20	Combine	2382.36	2	816	1792.745	14, 19	------	------	EXISTING-115
21	Reach	2240.44	2	844	1792.469	20	------	------	115-116
22	SCS Runoff	1242.52	2	784	291.420	------	------	------	EXISTING-G1 (117)
23	Combine	3083.25	2	822	2083.890	21, 22	------	------	EXISTING -118
24	Reach	3042.51	2	834	2083.752	23	------	------	118-119
25	SCS Runoff	597.53	2	740	71.630	------	------	------	G2-LAND 120
26	SCS Runoff	4.998	2	728	0.498	------	------	------	G2-PAVED 120
27	Combine	600.29	2	740	72.128	25, 26	------	------	G2-EXISTING (120)
28	Combine	3117.52	2	834	2155.881	24, 27	------	------	Mad River--EXISTING-121
30	SCS Runoff	1007.21	2	760	175.053	------	------	------	BEG. Beaver Pond Brk. EX.-E1 (201)
31	SCS Runoff	439.69	2	768	85.741	------	------	------	EXISTING-C (202)
32	Combine	1431.75	2	762	260.794	30, 31	------	------	EXISTING-203
33	Reach	1416.14	2	768	260.794	32	------	------	203-205
34	SCS Runoff	627.98	2	744	82.558	------	------	------	E2-LAND-204

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
35	SCS Runoff	5.360	2	724	0.423	------	------	------	E2-PAVED-204
36	Combine	629.38	2	744	82.981	34, 35	------	------	E2-EXISTING (204)
37	Combine	1843.57	2	760	343.775	33, 36	------	------	EXISTING-205
38	Reach	1812.14	2	766	343.775	37	------	------	205-207
39	SCS Runoff	196.40	2	744	25.774	------	------	------	E3-LAND-206
40	SCS Runoff	8.443	2	730	0.893	------	------	------	E3-PAVED-206
41	Combine	200.89	2	744	26.667	39, 40	------	------	E3-EXISTING (206)
42	Combine	1939.84	2	764	370.442	38, 41	------	------	EXISTING-207
43	Reach	1920.49	2	770	370.442	42	------	------	207-209
44	SCS Runoff	400.52	2	762	72.229	------	------	------	E4-LAND-208
45	SCS Runoff	14.76	2	728	1.472	------	------	------	E4-PAVED-208
46	Combine	402.84	2	762	73.701	44, 45	------	------	E4-EXISTING (208)
47	Combine	2312.15	2	768	444.143	43, 46	------	------	EXISTING-209
48	Reach	2291.29	2	774	444.142	47	------	------	209-215
49	SCS Runoff	206.19	2	732	20.960	------	------	------	E5-LAND-210
50	SCS Runoff	43.89	2	728	4.375	------	------	------	E5-PAVED-210
51	Combine	245.99	2	732	25.335	49, 50	------	------	E5-EXISTING-210
52	Combine	2332.72	2	774	469.478	48, 51	------	------	EXISTING-215A
53	SCS Runoff	200.71	2	782	45.900	------	------	------	EXISTING-B (211)
54	Reservoir	65.92	2	866	45.900	53	741.78	20.4	#2 Waterbury
55	Reach	65.40	2	884	45.897	54	------	------	211-212
56	SCS Runoff	609.47	2	782	140.026	------	------	------	EXISTING-D (213)
57	Combine	634.98	2	784	185.923	55, 56	------	------	EXISTING-212
58	Combine	2947.19	2	774	655.402	52, 57	------	------	EXISTING- 215
59	Reach	2943.82	2	778	655.401	58	------	------	215-221
60	SCS Runoff	241.09	2	728	21.267	------	------	------	E6-LAND-216
61	SCS Runoff	25.63	2	726	2.291	------	------	------	E6-PAVED-216
62	Combine	265.42	2	728	23.558	60, 61	------	------	E6-EXISTING-216
63	Combine	2977.31	2	778	678.960	59, 62	------	------	EXISTING-221A
64	SCS Runoff	233.79	2	770	46.230	------	------	------	EXISTING-A (211)
65	Reservoir	0.875	2	1520	5.579	64	690.75	45.5	EAST MOUNTAIN
66	Reach	0.874	2	1558	5.552	65	------	------	217-218
67	SCS Runoff	161.32	2	758	27.006	------	------	------	EXISTING-M (219)
68	Combine	161.37	2	758	32.558	66, 67	------	------	EXISTING-220

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
69	Combine	3109.18	2	778	711.517	63, 68	------	------	EXISTING-221
70	Reach	3108.80	2	780	711.514	69	------	------	221-223
71	SCS Runoff	77.17	2	732	7.853	------	------	------	E7- LAND-222
72	SCS Runoff	6.480	2	726	0.579	------	------	------	E7-PAVED-222
73	Combine	81.75	2	732	8.432	71, 72	------	------	E7-EXISTING-222
74	Combine	3121.36	2	780	719.946	70, 73	------	------	END Beaver Pond Brook--EXISTING-
76	Combine	5421.47	2	792	2875.833	28, 74,	------	------	Mad River & Beaver Pond Brook--EXI
77	Reach	5396.75	2	800	2875.750	76	------	------	122-123
78	SCS Runoff	145.00	2	728	12.782	------	------	------	G3-LAND-124
79	SCS Runoff	16.26	2	728	1.621	------	------	------	G3-PAVED-124
80	Combine	161.26	2	728	14.403	78, 79	------	------	G3-EXISTING -124
81	Combine	5413.70	2	800	2890.156	77, 80	------	------	EXISTING-125
82	Reach	5394.45	2	806	2890.083	81	------	------	125-126
83	SCS Runoff	405.64	2	738	45.849	------	------	------	G4-LAND-127
84	SCS Runoff	45.61	2	730	4.826	------	------	------	G4-PAVED-127
85	Combine	441.13	2	736	50.675	83, 84	------	------	G4-EXISTING-127
86	Combine	5455.44	2	806	2940.755	82, 85	------	------	Mad River & Beaver Pond Brook--EXI

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cms)	Time interval (min)	Time to Peak (min)	Hyd. volume (cum)	Inflow hyd(s)	Maximum elevation (m)	Total strge used (cum)	Hydrograph Description
1	SCS Runoff	18.68	2	768	160,745.7	------	------	------	EXISTING-L (100)
2	Reservoir	0.812	2	1304	131,184.4	1	256.27	4,569,341	CEDAR SWAMP POND
3	Reach	0.798	2	1494	129,679.5	2	------	------	100-101
4	SCS Runoff	53.40	2	866	987,680.4	------	------	------	EXISTING-K (102)
5	Combine	53.67	2	866	1,117,360.0	3, 4	------	------	EXISTING-103
6	Reservoir	32.40	2	1006	1,113,654.6	5	160.76	13,587,066	WOODTICK RESERVOIR
7	Reach	32.34	2	1016	1,113,545.5	6	------	------	103-104
8	SCS Runoff	22.63	2	738	112,778.4	------	------	------	EXISTING-F (105)
9	Reservoir	1.193	2	964	110,524.4	8	189.17	2,782,099	HITCHCOCK LAKE
10	Reach	1.160	2	1070	110,388.3	9	------	------	105-106
11	SCS Runoff	43.08	2	804	533,504.5	------	------	------	EXISTING-H (107)
12	Combine	43.68	2	804	643,892.8	10, 11	------	------	EXISTING-108
13	Combine	47.71	2	812	1,757,438.5	7, 12	------	------	EXISTING -109
14	Reach	47.20	2	824	1,757,299.9	13	------	------	109-110
15	SCS Runoff	21.65	2	782	215,669.5	------	------	------	EXISTING-J (111)
16	Reservoir	3.434	2	980	215,406.3	15	193.62	4,544,610	CHESTNUT HILL RESERVOI
17	Reach	3.373	2	1036	215,388.4	16	------	------	111-112
18	SCS Runoff	20.91	2	796	238,644.2	------	------	------	EXISTING-I (113)
19	Combine	21.66	2	798	454,032.8	17, 18	------	------	EXISTING-114
20	Combine	67.46	2	816	2,211,331.0	14, 19	------	------	EXISTING-115
21	Reach	63.44	2	844	2,210,990.0	20	------	------	115-116
22	SCS Runoff	35.18	2	784	359,463.2	------	------	------	EXISTING-G1 (117)
23	Combine	87.31	2	822	2,570,454.5	21, 22	------	------	EXISTING -118
24	Reach	86.15	2	834	2,570,284.5	23	------	------	118-119
25	SCS Runoff	16.92	2	740	88,355.1	------	------	------	G2-LAND 120
26	SCS Runoff	0.142	2	728	614.5	------	------	------	G2-PAVED 120
27	Combine	17.00	2	740	88,969.6	25, 26	------	------	G2-EXISTING (120)
28	Combine	88.28	2	834	2,659,254.3	24, 27	------	------	Mad River--EXISTING-121
30	SCS Runoff	28.52	2	760	215,925.3	------	------	------	BEG. Beaver Pond Brk. EX.-E1 (201)
31	SCS Runoff	12.45	2	768	105,760.8	------	------	------	EXISTING-C (202)
32	Combine	40.54	2	762	321,686.0	30, 31	------	------	EXISTING-203
33	Reach	40.10	2	768	321,685.8	32	------	------	203-205
34	SCS Runoff	17.78	2	744	101,834.6	------	------	------	E2-LAND-204

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cms)	Time interval (min)	Time to Peak (min)	Hyd. volume (cum)	Inflow hyd(s)	Maximum elevation (m)	Total strge used (cum)	Hydrograph Description
35	SCS Runoff	0.152	2	724	521.9	------	------	------	E2-PAVED-204
36	Combine	17.82	2	744	102,356.4	34, 35	------	------	E2-EXISTING (204)
37	Combine	52.20	2	760	424,042.1	33, 36	------	------	EXISTING-205
38	Reach	51.31	2	766	424,042.3	37	------	------	205-207
39	SCS Runoff	5.561	2	744	31,792.2	------	------	------	E3-LAND-206
40	SCS Runoff	0.239	2	730	1,101.8	------	------	------	E3-PAVED-206
41	Combine	5.689	2	744	32,893.9	39, 40	------	------	E3-EXISTING (206)
42	Combine	54.93	2	764	456,936.1	38, 41	------	------	EXISTING-207
43	Reach	54.38	2	770	456,936.0	42	------	------	207-209
44	SCS Runoff	11.34	2	762	89,093.8	------	------	------	E4-LAND-208
45	SCS Runoff	0.418	2	728	1,815.1	------	------	------	E4-PAVED-208
46	Combine	11.41	2	762	90,909.0	44, 45	------	------	E4-EXISTING (208)
47	Combine	65.47	2	768	547,845.8	43, 46	------	------	EXISTING-209
48	Reach	64.88	2	774	547,844.1	47	------	------	209-215
49	SCS Runoff	5.839	2	732	25,854.2	------	------	------	E5-LAND-210
50	SCS Runoff	1.243	2	728	5,396.5	------	------	------	E5-PAVED-210
51	Combine	6.966	2	732	31,250.7	49, 50	------	------	E5-EXISTING-210
52	Combine	66.06	2	774	579,095.8	48, 51	------	------	EXISTING-215A
53	SCS Runoff	5.684	2	782	56,617.0	------	------	------	EXISTING-B (211)
54	Reservoir	1.867	2	866	56,616.6	53	226.10	888,750	#2 Waterbury
55	Reach	1.852	2	884	56,613.2	54	------	------	211-212
56	SCS Runoff	17.26	2	782	172,721.0	------	------	------	EXISTING-D (213)
57	Combine	17.98	2	784	229,333.8	55, 56	------	------	EXISTING-212
58	Combine	83.46	2	774	808,430.6	52, 57	------	------	EXISTING- 215
59	Reach	83.36	2	778	808,430.2	58	------	------	215-221
60	SCS Runoff	6.827	2	728	26,232.7	------	------	------	E6-LAND-216
61	SCS Runoff	0.726	2	726	2,826.0	------	------	------	E6-PAVED-216
62	Combine	7.516	2	728	29,058.8	60, 61	------	------	E6-EXISTING-216
63	Combine	84.31	2	778	837,489.4	59, 62	------	------	EXISTING-221A
64	SCS Runoff	6.620	2	770	57,024.1	------	------	------	EXISTING-A (211)
65	Reservoir	0.025	2	1520	6,881.1	64	210.54	1,980,859	EAST MOUNTAIN
66	Reach	0.025	2	1558	6,848.4	65	------	------	217-218
67	SCS Runoff	4.568	2	758	33,311.8	------	------	------	EXISTING-M (219)
68	Combine	4.570	2	758	40,160.2	66, 67	------	------	EXISTING-220

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cms)	Time interval (min)	Time to Peak (min)	Hyd. volume (cum)	Inflow hyd(s)	Maximum elevation (m)	Total strge used (cum)	Hydrograph Description
69	Combine	88.04	2	778	877,647.6	63, 68	------	------	EXISTING-221
70	Reach	88.03	2	780	877,644.6	69	------	------	221-223
71	SCS Runoff	2.185	2	732	9,686.6	------	------	------	E7- LAND-222
72	SCS Runoff	0.183	2	726	714.3	------	------	------	E7-PAVED-222
73	Combine	2.315	2	732	10,400.9	71, 72	------	------	E7-EXISTING-222
74	Combine	88.39	2	780	888,045.4	70, 73	------	------	END Beaver Pond Brook--EXISTING-
76	Combine	153.52	2	792	3,547,307.8	28, 74,	------	------	Mad River & Beaver Pond Brook--EXI
77	Reach	152.82	2	800	3,547,206.8	76	------	------	122-123
78	SCS Runoff	4.106	2	728	15,766.8	------	------	------	G3-LAND-124
79	SCS Runoff	0.460	2	728	1,998.9	------	------	------	G3-PAVED-124
80	Combine	4.566	2	728	17,765.7	78, 79	------	------	G3-EXISTING -124
81	Combine	153.30	2	800	3,564,974.0	77, 80	------	------	EXISTING-125
82	Reach	152.75	2	806	3,564,883.5	81	------	------	125-126
83	SCS Runoff	11.49	2	738	56,553.7	------	------	------	G4-LAND-127
84	SCS Runoff	1.292	2	730	5,952.8	------	------	------	G4-PAVED-127
85	Combine	12.49	2	736	62,506.5	83, 84	------	------	G4-EXISTING-127
86	Combine	154.48	2	806	3,627,388.8	82, 85	------	------	Mad River & Beaver Pond Brook--EXI

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
1	SCS Runoff	659.64	2	768	130.318	------	------	------	EXISTING-L (100)
2	Reservoir	28.68	2	1304	106.352	1	840.79	105	CEDAR SWAMP POND
3	Reach	28.17	2	1494	105.132	2	------	------	100-101
4	SCS Runoff	1885.68	2	866	800.721	------	------	------	EXISTING-K (102)
5	Combine	1895.32	2	866	905.854	3, 4	------	------	EXISTING-103
6	Reservoir	1144.10	2	1006	902.850	5	527.42	312	WOODTICK RESERVOIR
7	Reach	1142.05	2	1016	902.761	6	------	------	103-104
8	SCS Runoff	799.27	2	738	91.430	------	------	------	EXISTING-F (105)
9	Reservoir	42.12	2	964	89.603	8	620.63	63.9	HITCHCOCK LAKE
10	Reach	40.97	2	1070	89.493	9	------	------	105-106
11	SCS Runoff	1521.41	2	804	432.517	------	------	------	EXISTING-H (107)
12	Combine	1542.52	2	804	522.010	10, 11	------	------	EXISTING-108
13	Combine	1684.72	2	812	1424.771	7, 12	------	------	EXISTING -109
14	Reach	1666.72	2	824	1424.658	13	------	------	109-110
15	SCS Runoff	764.56	2	782	174.845	------	------	------	EXISTING- J (111)
16	Reservoir	121.27	2	980	174.632	15	635.24	104	CHESTNUT HILL RESERVOI
17	Reach	119.11	2	1036	174.617	16	------	------	111-112
18	SCS Runoff	738.34	2	796	193.471	------	------	------	EXISTING -I (113)
19	Combine	765.08	2	798	368.088	17, 18	------	------	EXISTING -114
20	Combine	2382.36	2	816	1792.745	14, 19	------	------	EXISTING -115
21	Reach	2240.44	2	844	1792.469	20	------	------	115-116
22	SCS Runoff	1242.52	2	784	291.420	------	------	------	EXISTING -G1 (117)
23	Combine	3083.25	2	822	2083.890	21, 22	------	------	EXISTING - 118
24	Reach	3042.51	2	834	2083.752	23	------	------	118-119
25	SCS Runoff	597.58	2	740	71.636	------	------	------	G2-LAND 120
26	SCS Runoff	4.895	2	728	0.488	------	------	------	G2-PAVED
27	Combine	600.28	2	740	72.124	25, 26	------	------	G2-PROPOSED (120)
28	Combine	3117.52	2	834	2155.876	24, 27	------	------	Mad River--PROPOSED-121
30	SCS Runoff	1007.21	2	760	175.053	------	------	------	BEG. Beaver Pond Brk--EX.-E1 (201)
31	SCS Runoff	439.69	2	768	85.741	------	------	------	EXISTING-C (202)
32	Combine	1431.75	2	762	260.794	30, 31	------	------	EXISTING-203
33	Reach	1416.14	2	768	260.794	32	------	------	203-205
34	SCS Runoff	626.72	2	744	82.392	------	------	------	E2-LAND-204

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
35	SCS Runoff	8.274	2	724	0.653	------	------	------	E2-PAVED-204
36	Combine	628.87	2	744	83.045	34, 35	------	------	E2-PROPOSED (204)
37	Combine	1842.91	2	760	343.838	33, 36	------	------	PROPOSED-205
38	Reach	1811.51	2	766	343.838	37	------	------	205-207
39	SCS Runoff	190.49	2	744	24.999	------	------	------	E3-LAND-206
40	SCS Runoff	19.29	2	730	2.041	------	------	------	E3-PAVED-206
41	Combine	200.75	2	744	27.040	39, 40	------	------	E3-PROPOSED (206)
42	Combine	1937.04	2	764	370.878	38, 41	------	------	PROPOSED-207
43	Reach	1917.88	2	770	370.878	42	------	------	207-209
44	SCS Runoff	398.41	2	762	71.850	------	------	------	E4-LAND-208
45	SCS Runoff	20.45	2	728	2.038	------	------	------	E4-PAVED-208
46	Combine	401.64	2	760	73.888	44, 45	------	------	E4-PROPOSED (208)
47	Combine	2308.09	2	768	444.766	43, 46	------	------	PROPOSED-209
48	Reach	2287.44	2	774	444.765	47	------	------	209-215
49	SCS Runoff	205.32	2	732	20.871	------	------	------	E5-LAND-210
50	SCS Runoff	43.21	2	728	4.307	------	------	------	E-5-PAVED-210
51	Combine	244.50	2	732	25.178	49, 50	------	------	E5-PROPOSED-210
52	Combine	2328.64	2	774	469.944	48, 51	------	------	PROPOSED-215A
53	SCS Runoff	200.71	2	782	45.900	------	------	------	EXISTING-B(211)
54	Reservoir	17.55	2	1114	43.909	53	742.25	32.6	#2 Waterbury
55	Reach	17.53	2	1136	43.882	54	------	------	211-212
56	SCS Runoff	609.47	2	782	140.026	------	------	------	EXISTING-D (213)
57	Combine	612.85	2	782	183.909	55, 56	------	------	EXISTING-212
58	Combine	2926.24	2	774	653.852	52, 57	------	------	PROPOSED- 215
59	Reach	2922.41	2	778	653.848	58	------	------	215-221
60	SCS Runoff	227.53	2	728	20.042	------	------	------	E-6-LAND-216
61	SCS Runoff	35.51	2	726	3.174	------	------	------	E-6-PAVED-216
62	Combine	261.23	2	728	23.216	60, 61	------	------	E6-PROPOSED-216
63	Combine	2955.46	2	778	677.064	59, 62	------	------	PROPOSED-221A
64	SCS Runoff	233.79	2	770	46.230	------	------	------	EXISTING-A (211)
65	Reservoir	0.875	2	1520	5.579	64	690.75	45.5	EAST MOUNTAIN
66	Reach	0.874	2	1558	5.552	65	------	------	217-218
67	SCS Runoff	161.32	2	758	27.006	------	------	------	EXISTING-M (219)
68	Combine	161.37	2	758	32.558	66, 67	------	------	EXISTING-220

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (acft)	Hydrograph Description
69	Combine	3087.98	2	776	709.622	63, 68	------	------	PROPOSED-221
70	Reach	3087.09	2	780	709.617	69	------	------	221-223
71	SCS Runoff	75.75	2	732	7.709	------	------	------	E-7-LAND-222
72	SCS Runoff	8.896	2	726	0.795	------	------	------	E7-PAVED-222
73	Combine	82.04	2	732	8.504	71, 72	------	------	E7-PROPOSED-222
74	Combine	3099.65	2	780	718.120	70, 73	------	------	END Beaver Pond Brk--PROPOSED-
76	Combine	5394.62	2	792	2873.996	28, 74,	------	------	Mad River & Beaver Pond Brook--PR
77	Reach	5368.92	2	800	2873.914	76	------	------	122-123
78	SCS Runoff	131.45	2	728	11.608	------	------	------	G3-LAND-124
79	SCS Runoff	30.36	2	728	3.027	------	------	------	G3-PAVED-124
80	Combine	161.81	2	728	14.634	78, 79	------	------	G3-PROPOSED -124
81	Combine	5385.83	2	800	2888.548	77, 80	------	------	PROPOSED -125
82	Reach	5366.35	2	806	2888.466	81	------	------	125-126
83	SCS Runoff	380.25	2	738	43.014	------	------	------	G4 - LAND-127
84	SCS Runoff	68.30	2	730	7.226	------	------	------	G4- PAVED -127
85	Combine	434.90	2	736	50.240	83, 84	------	------	G4-PROPOSED- 127
86	Combine	5426.53	2	806	2938.706	82, 85	------	------	Mad River & Beaver Pond Brook--PR

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cms)	Time interval (min)	Time to Peak (min)	Hyd. volume (cum)	Inflow hyd(s)	Maximum elevation (m)	Total strge used (cum)	Hydrograph Description
1	SCS Runoff	18.68	2	768	160,745.7	------	------	------	EXISTING-L (100)
2	Reservoir	0.812	2	1304	131,184.4	1	256.27	4,569,341	CEDAR SWAMP POND
3	Reach	0.798	2	1494	129,679.5	2	------	------	100-101
4	SCS Runoff	53.40	2	866	987,680.6	------	------	------	EXISTING-K (102)
5	Combine	53.67	2	866	1,117,360.0	3, 4	------	------	EXISTING-103
6	Reservoir	32.40	2	1006	1,113,654.6	5	160.76	13,587,070	WOODTICK RESERVOIR
7	Reach	32.34	2	1016	1,113,545.5	6	------	------	103-104
8	SCS Runoff	22.63	2	738	112,778.4	------	------	------	EXISTING-F (105)
9	Reservoir	1.193	2	964	110,524.4	8	189.17	2,782,099	HITCHCOCK LAKE
10	Reach	1.160	2	1070	110,388.3	9	------	------	105-106
11	SCS Runoff	43.08	2	804	533,504.5	------	------	------	EXISTING-H (107)
12	Combine	43.68	2	804	643,892.6	10, 11	------	------	EXISTING-108
13	Combine	47.71	2	812	1,757,438.6	7, 12	------	------	EXISTING -109
14	Reach	47.20	2	824	1,757,299.9	13	------	------	109-110
15	SCS Runoff	21.65	2	782	215,669.5	------	------	------	EXISTING- J (111)
16	Reservoir	3.434	2	980	215,406.3	15	193.62	4,544,610	CHESTNUT HILL RESERVOI
17	Reach	3.373	2	1036	215,388.4	16	------	------	111-112
18	SCS Runoff	20.91	2	796	238,644.2	------	------	------	EXISTING -I (113)
19	Combine	21.66	2	798	454,032.8	17, 18	------	------	EXISTING -114
20	Combine	67.46	2	816	2,211,331.0	14, 19	------	------	EXISTING -115
21	Reach	63.44	2	844	2,210,990.0	20	------	------	115-116
22	SCS Runoff	35.18	2	784	359,463.4	------	------	------	EXISTING -G1 (117)
23	Combine	87.31	2	822	2,570,454.5	21, 22	------	------	EXISTING - 118
24	Reach	86.15	2	834	2,570,284.5	23	------	------	118-119
25	SCS Runoff	16.92	2	740	88,362.0	------	------	------	G2-LAND 120
26	SCS Runoff	0.139	2	728	601.9	------	------	------	G2-PAVED
27	Combine	17.00	2	740	88,963.9	25, 26	------	------	G2-PROPOSED (120)
28	Combine	88.28	2	834	2,659,249.0	24, 27	------	------	Mad River--PROPOSED-121
30	SCS Runoff	28.52	2	760	215,925.3	------	------	------	BEG. Beaver Pond Brk--EX.-E1 (201)
31	SCS Runoff	12.45	2	768	105,760.8	------	------	------	EXISTING-C (202)
32	Combine	40.54	2	762	321,685.9	30, 31	------	------	EXISTING-203
33	Reach	40.10	2	768	321,685.9	32	------	------	203-205
34	SCS Runoff	17.75	2	744	101,629.2	------	------	------	E2-LAND-204

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cms)	Time interval (min)	Time to Peak (min)	Hyd. volume (cum)	Inflow hyd(s)	Maximum elevation (m)	Total strge used (cum)	Hydrograph Description
35	SCS Runoff	0.234	2	724	805.6	------	------	------	E2-PAVED-204
36	Combine	17.81	2	744	102,434.7	34, 35	------	------	E2-PROPOSED (204)
37	Combine	52.19	2	760	424,120.4	33, 36	------	------	PROPOSED-205
38	Reach	51.30	2	766	424,120.4	37	------	------	205-207
39	SCS Runoff	5.394	2	744	30,835.8	------	------	------	E3-LAND-206
40	SCS Runoff	0.546	2	730	2,517.2	------	------	------	E3-PAVED-206
41	Combine	5.685	2	744	33,353.0	39, 40	------	------	E3-PROPOSED (206)
42	Combine	54.85	2	764	457,473.3	38, 41	------	------	PROPOSED-207
43	Reach	54.31	2	770	457,473.3	42	------	------	207-209
44	SCS Runoff	11.28	2	762	88,625.6	------	------	------	E4-LAND-208
45	SCS Runoff	0.579	2	728	2,513.9	------	------	------	E4-PAVED-208
46	Combine	11.37	2	760	91,139.5	44, 45	------	------	E4-PROPOSED (208)
47	Combine	65.36	2	768	548,613.6	43, 46	------	------	PROPOSED-209
48	Reach	64.77	2	774	548,612.8	47	------	------	209-215
49	SCS Runoff	5.814	2	732	25,744.7	------	------	------	E5-LAND-210
50	SCS Runoff	1.223	2	728	5,312.2	------	------	------	E-5-PAVED-210
51	Combine	6.923	2	732	31,056.9	49, 50	------	------	E5-PROPOSED-210
52	Combine	65.94	2	774	579,669.9	48, 51	------	------	PROPOSED-215A
53	SCS Runoff	5.684	2	782	56,617.0	------	------	------	EXISTING-B(211)
54	Reservoir	0.497	2	1114	54,160.7	53	226.24	1,418,210	#2 Waterbury
55	Reach	0.496	2	1136	54,128.6	54	------	------	211-212
56	SCS Runoff	17.26	2	782	172,721.0	------	------	------	EXISTING-D (213)
57	Combine	17.35	2	782	226,849.5	55, 56	------	------	EXISTING-212
58	Combine	82.86	2	774	806,519.4	52, 57	------	------	PROPOSED- 215
59	Reach	82.75	2	778	806,513.8	58	------	------	215-221
60	SCS Runoff	6.443	2	728	24,721.5	------	------	------	E-6-LAND-216
61	SCS Runoff	1.006	2	726	3,914.9	------	------	------	E-6-PAVED-216
62	Combine	7.397	2	728	28,636.4	60, 61	------	------	E6-PROPOSED-216
63	Combine	83.69	2	778	835,150.2	59, 62	------	------	PROPOSED-221A
64	SCS Runoff	6.620	2	770	57,024.1	------	------	------	EXISTING-A (211)
65	Reservoir	0.025	2	1520	6,881.1	64	210.54	1,980,859	EAST MOUNTAIN
66	Reach	0.025	2	1558	6,848.4	65	------	------	217-218
67	SCS Runoff	4.568	2	758	33,311.8	------	------	------	EXISTING-M (219)
68	Combine	4.570	2	758	40,160.2	66, 67	------	------	EXISTING-220

Hydrograph Summary Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2015 by Autodesk, Inc. v10.4

Hyd. No.	Hydrograph type (origin)	Peak flow (cms)	Time interval (min)	Time to Peak (min)	Hyd. volume (cum)	Inflow hyd(s)	Maximum elevation (m)	Total strge used (cum)	Hydrograph Description
69	Combine	87.44	2	776	875,311.1	63, 68	------	------	PROPOSED-221
70	Reach	87.42	2	780	875,304.0	69	------	------	221-223
71	SCS Runoff	2.145	2	732	9,508.8	------	------	------	E-7-LAND-222
72	SCS Runoff	0.252	2	726	980.7	------	------	------	E7-PAVED-222
73	Combine	2.323	2	732	10,489.4	71, 72	------	------	E7-PROPOSED-222
74	Combine	87.77	2	780	885,793.2	70, 73	------	------	END Beaver Pond Brk--PROPOSED-
76	Combine	152.76	2	792	3,545,042.0	28, 74,	------	------	Mad River & Beaver Pond Brook--PR
77	Reach	152.03	2	800	3,544,940.0	76	------	------	122-123
78	SCS Runoff	3.722	2	728	14,318.0	------	------	------	G3-LAND-124
79	SCS Runoff	0.860	2	728	3,733.3	------	------	------	G3-PAVED-124
80	Combine	4.582	2	728	18,051.3	78, 79	------	------	G3-PROPOSED -124
81	Combine	152.51	2	800	3,562,992.3	77, 80	------	------	PROPOSED -125
82	Reach	151.96	2	806	3,562,890.3	81	------	------	125-126
83	SCS Runoff	10.77	2	738	53,057.6	------	------	------	G4 - LAND-127
84	SCS Runoff	1.934	2	730	8,913.4	------	------	------	G4- PAVED -127
85	Combine	12.31	2	736	61,971.0	83, 84	------	------	G4-PROPOSED- 127
86	Combine	153.66	2	806	3,624,859.3	82, 85	------	------	Mad River & Beaver Pond Brook--PR

Appendix E - Stormwater Monitoring Report Form

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

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

SITE INFORMATION

Permittee: **State of Connecticut Department of Transportation**

Mailing Address: **2800 Berlin Turnpike, Newington, CT 06111**

Business Phone: **203 591-3640** ext.: _____ Fax: _____

Contact Person: **Kenneth E. Fragnoli** Title: **District 4 Engineer**

Site Name: **Reconstruction of I-84, Waterbury, State Project No. 151-273**

Site Address: **Waterbury**

Receiving Water (name, basin): **Naugatuck River**

Stormwater Permit No. GSN _____

SAMPLING INFORMATION (Submit a separate form for each outfall)

Outfall Designation: _____ Date/Time Collected: _____

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

Person Collecting Sample: _____

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

Size of Disturbed Area at any time: _____

MONITORING RESULTS

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

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

STATEMENT OF ACKNOWLEDGMENT

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

Authorized Official: _____

Signature: _____ Date: _____

Please send completed form to:

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

Appendix F - Notice of Termination Form

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

Notice of Termination Form

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

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

Part I: Registrant Information

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

   Registrant: **State of Connecticut Department of Transportation**
3. Site Address: **(Reconstruction of I-84, 151-273) 2800 Berlin Turnpike**

   City/Town: **Newington** State: **CT** Zip Code: **06111**
4. Date all storm drainage structures were cleaned of construction sediment:

   Date of Completion of Construction:

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

   ☐ Industrial ☐ Residential ☐ Commercial ☐ Capped Landfill

   ☒ Other (describe): **Transportation**

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