

MAR 25 2024

TOWN OF WOODSTOCK
INLAND WETLANDS AND WATERCOURSES AGENCY

TOWN OF WOODSTOCK
LAND USE DEPT.

APPLICATION FOR PERMISSION TO CONDUCT A REGULATED ACTIVITY WITHIN AN INLAND WETLAND OR WATER COURSE AREA IN THE TOWN OF WOODSTOCK, CONNECTICUT.

(In accordance with the Woodstock Inland Wetlands and Watercourses Regulations, and the regulations of the Connecticut Department of Environmental Protection)

INSTRUCTIONS: All applicants must complete Section 1 of this application form for preliminary review. The Agency will then notify the applicant of any additional information that may be required and will schedule a public hearing, if necessary. In addition to the information supplied in Section 1, the applicant should submit other supporting facts or documents which may assist the Agency in its evaluation of this proposal.

NO PERMIT SHALL BE TRANSFERRED WITHOUT PERMISSION OF AGENCY.

SECTION I

(if not applicant)

1. Name of Applicant Town of Woodstock Name of Property Owner _____
Address 415 Route 169 Address _____
Woodstock, CT 06281
Telephone # (860) 974-0330 Telephone # _____

2. Attach a written consent to the proposed activity by the owner, if applicant is not the property owner.

3. Street Location of the Property: Paine Road, west of Peckham Brook
Specific directions: _____

Utility Pole Number if present: Snet 627

(Use an additional sheet, if necessary, to draw a sketch showing the property in relation to surrounding roads.)

4. Purpose and Description of Activity for which Authorization is Requested

a. Proposed activity will involve the following: (Check appropriate activity):

Alteration _____ Construction Deposition or _____ Removal of material _____ Waste Disposal _____

b. Attach a general description of the proposal and identification of each regulated activity for which permit is sought. Include nature, area and a volume of material to be placed, removed or transferred. Lineal measurements of affected watercourses or wetlands must also be given.

c. A detailed site plan of the proposal must be included.

d. Purpose of the proposed activity (i.e., a new dwelling, addition to existing dwelling, new business, driveway, etc.):

Proposed construction of a sediment basin and relocation of barway and culvert to help erosion problem along Paine Road. Permit to include maintenance/ authorization of existing culverts. JS

5. Attach a copy of soils map section and copy of U.S. Geological survey map section which contains the proposed activity if any watercourses are altered in any way.

6. Names and Addresses of Adjacent Property Owners (attach separate sheet).

The undersigned applicant hereby consents to necessary and proper inspections of the above-mentioned property by Agents of the Inland Wetlands and Watercourses Agency, at reasonable times, both before and after the permit in question has been granted by the Agency. In evaluating this application, the Agency has relied on information provided by the applicant and, if such information subsequently proves to be false, deceptive, incomplete and/or inaccurate, this permit may be modified, suspended or revoked.

The undersigned swears that the information supplied in the complete application is accurate to the best of his/her knowledge and belief.

Jay Swan _____ Date 3/26/24

SECTION II

TO BE FILLED IN BY AGENCY

Date Filed 03-25-24 Application # 03-24-10 Fee: φ - Town Project

Approved with the following conditions: All erosion controls required are to be inspected and approved by the Enforcement Officer prior to the start of the approved activity. Failure to arrange for the inspection and secure approval may VOID the permit.

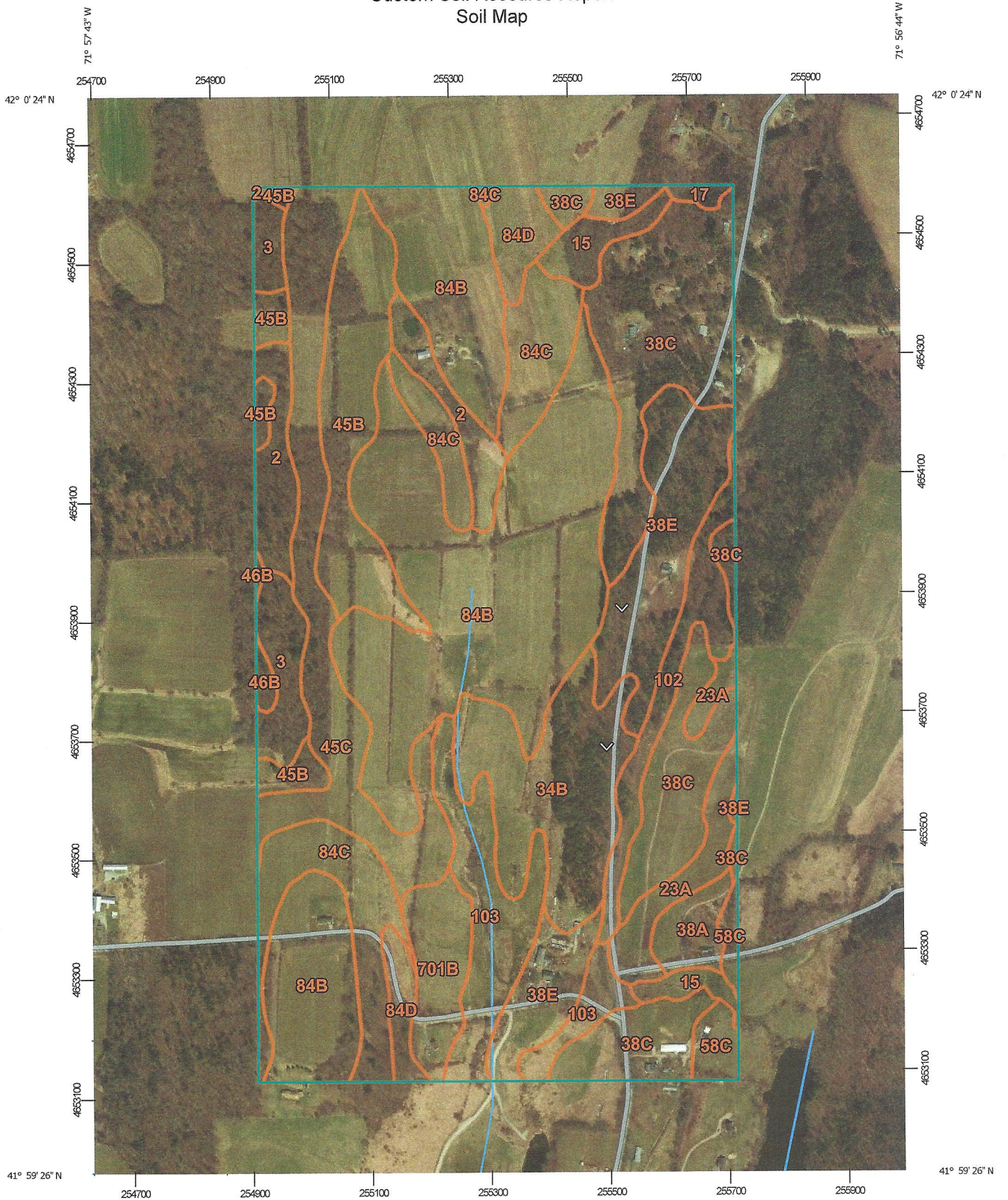
This approval covers only specific activities described in this application.

By: _____ Date Approved _____ Expires: _____
Chairperson

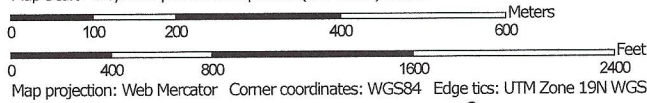
Erosion controls inspected on _____ by _____
Date

Bonding (if required) posted on _____ by _____ release date _____
Date

Custom Soil Resource Report Soil Map

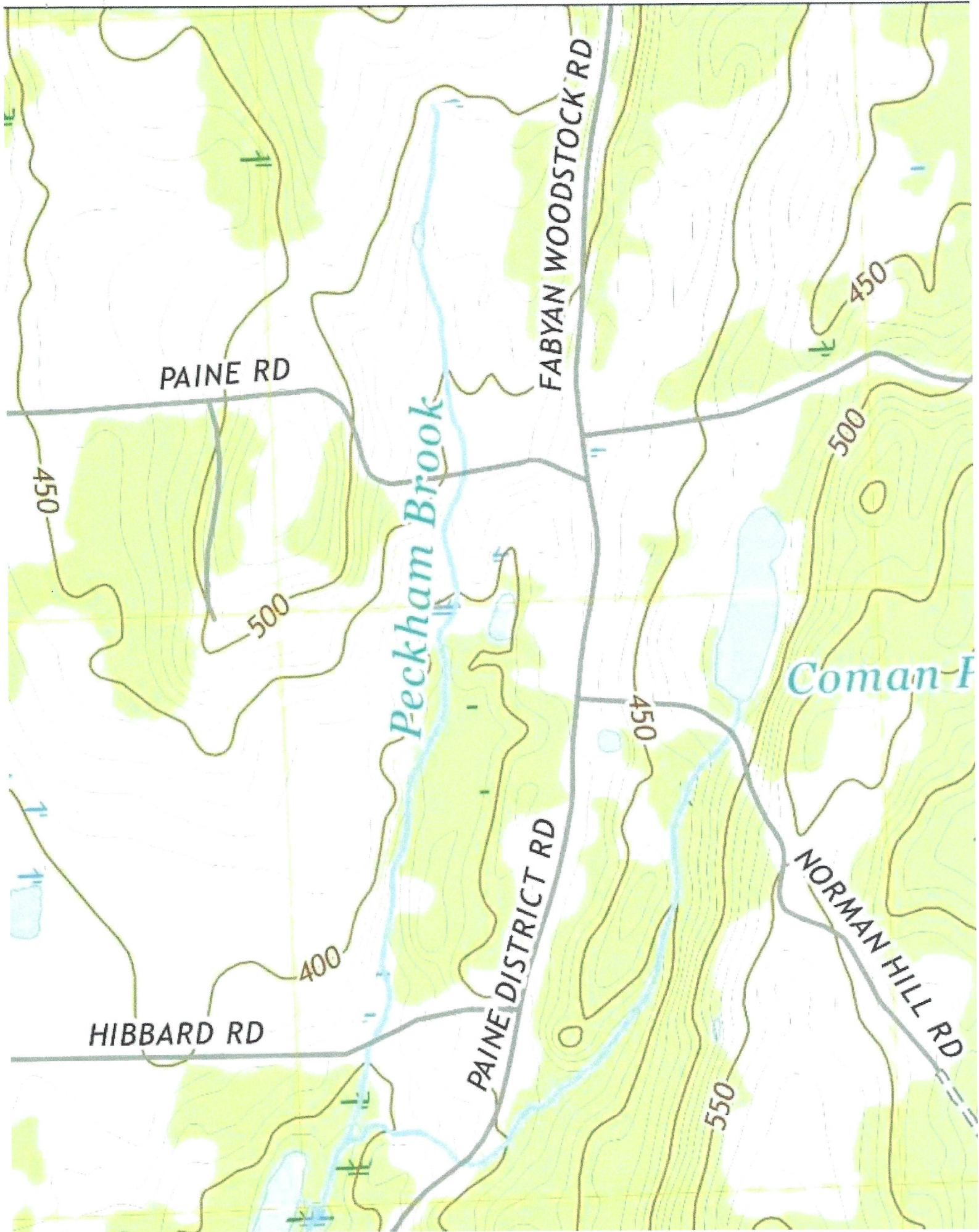


Map Scale: 1:8,790 if printed on A portrait (8.5" x 11") sheet.



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PAINE RD

FABYAN WOODSTOCK RD

Peckham Brook

Coman F

HIBBARD RD

PAINÉ DISTRICT RD

NORMAN HILL RD

450

500

400

450

500

450

550

Lot 4 - 4 and 4 - 7 Abutters

Map/Block/Lot	Property Address	Owner Name	Owner Address	City	State	Zip
5165/07/07	160 Paine Rd	Butts Jonathan F & Suzanne M	160 Paine Rd	Woodstock	CT	06281
5165/08/04-3	165 Paine Rd	Britt Zachary + Katheryn	165 Paine Rd	Woodstock	CT	06281
5165/08/04-5	155 Paine Rd	Petro Ronald L & Stacy E	155 Paine Rd	Woodstock	CT	06281
5165/08/04-6	Paine Rd	Petro Stacy E	155 Paine Rd	Woodstock	CT	06281
5165/08/04A	135 Paine Rd	Davies Richard W + Diane L	PO BOX 284	Dudley	MA	01571
5165/08/05	311 Dugg Hill Rd	Morse Jared G & Megan Bard	311 Dugg Hill Rd	Woodstock	CT	06281
5165/08/07	32 Hibbard Rd	Hibbard Donald A & Susan Z	24 Hibbard Rd	Woodstock	CT	06281



Statewide Inland Wetlands & Watercourses Activity Reporting Form

Please complete this form in accordance with the instructions on pages 2 and 3 and mail to:

DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106

Incomplete or incomprehensible forms will be mailed back to the inland wetlands agency.

PART I: Must Be Completed By The Inland Wetlands Agency

- DATE ACTION WAS TAKEN: year: _____ month: _____
- ACTION TAKEN (see instructions - one code only): _____
- WAS A PUBLIC HEARING HELD (check one)? yes no
- NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
(print name) _____ (signature) _____

PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

- TOWN IN WHICH THE ACTIVITY IS OCCURRING (print name): WOODSTOCK
does this project cross municipal boundaries (check one)? yes no
if yes, list the other town(s) in which the activity is occurring (print name(s)): _____
- LOCATION (see instructions for information): USGS quad name: PUTNAM or number: _____
subregional drainage basin number: 3708
- NAME OF APPLICANT, VIOLATOR OR PETITIONER (print name): TOWN OF WOODSTOCK
- NAME & ADDRESS OF ACTIVITY / PROJECT SITE (print information): 155 PAWE ROAD
briefly describe the action/project/activity (check and print information): temporary permanent description: SEDIMENT BASIN CONSTRUCTION
- ACTIVITY PURPOSE CODE (see instructions - one code only): E
- ACTIVITY TYPE CODE(S) (see instructions for codes): 10, 12, _____, _____
- WETLAND / WATERCOURSE AREA ALTERED (see instructions for explanation, must provide acres or linear feet):
wetlands: 0 acres open water body: 0 acres stream: 0 linear feet
- UPLAND AREA ALTERED (must provide acres): 0.23 acres
- AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (must provide acres): 0 acres

DATE RECEIVED:

PART III: To Be Completed By The DEEP

DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO

FORM CORRECTED / COMPLETED: YES NO

J & D CIVIL
ENGINEERS, LLC

401 Ravenelle Road
N. Grosvenordale, CT 06255
www.jdcivilengineers.com
(860) 923-2920

March 26, 2024

Putnam Water Pollution Control Authority
200 School St, Putnam CT 06260

Notification to the Putnam Water Pollution Control Authority

Re: Paine Rd- Woodstock CT –
Job No.: 21170

To Whom It May Concern:

This letter is provided in accordance with Public Act No. 06-53 concerning the protection of the Public Water Supply Sources sections 8-3i and 22a-42f. Please use this as written notice of the Town of Woodstock submitting an Inland Wetland Permit Application for a proposed construction project of a sediment basin located within the watershed of the Putnam WPCA.

The proposed project is located on Paine Rd in Woodstock CT on the west side of the Peckham Brook. The Woodstock Inland Wetland Commission meeting is scheduled for April 1, 2024 and there is no public hearing required for the project.

Please don't hesitate to contact me if you have any questions.

Very Truly Yours,

J & D Civil Engineers LLC



Janet J. Blanchette, PE

SURVEY NOTES:

- THIS MAP HAS BEEN PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTIONS 20-300b-1 THROUGH 20-300b-20 AND THE "STANDARDS AND SUGGESTED METHODS AND PROCEDURES FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON AUGUST 29, 2019.
- THE SURVEY TYPE IS TOPOGRAPHIC, PERFORMED IN SEPTEMBER 28, 2023 AND IS INTENDED TO BE USED FOR THE DESIGN OF A STORMWATER SEDIMENT BASIN.
- PROPERTY LINES DO NOT EXPRESS A BOUNDARY OPINION.
- UTILITY LOCATIONS HAVE BEEN COMPILED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. THIS INFORMATION IS TO BE CONSIDERED APPROXIMATE AND J & D CIVIL ENGINEERS DOES NOT TAKE RESPONSIBILITY FOR SUBSEQUENT ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THIS PLAN AS A RESULT.
- REFERENCE PLAN: SUBDIVISION PLAN, PAINE DISTRICT ESTATES, PREPARED FOR JOHN HEALY, PAINE ROAD / PAINE DISTRICT ROAD, WOODSTOCK, CT, PREPARED BY MESSIER AND ASSOCIATES, PREPARED ON JULY 2004, SCALED 1" = 60', ON FILE WITH THE TOWN CLERK'S OFFICE AS MAP NUMBER #1976.

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

D. Blanchette 3/5/24 12107
DENNIS R. BLANCHETTE DATE LICENSE NUMBER

THIS MAP IS NOT VALID WITHOUT A LIVE SIGNATURE
© 2024 J&D CIVIL ENGINEERS, LLC

SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

THE PURPOSE OF THIS PROJECT IS TO CONSTRUCT A SEDIMENT BASIN TO REDUCE THE AMOUNT OF ERODED PAINE ROAD GRAVEL FROM ENTERING PECKHAM BROOK.

ATTENTION SHALL BE GIVEN TO THE INSTALLATION AND MAINTENANCE OF EROSION CONTROL MEASURES. NO ERODED SEDIMENT SHALL BE PERMITTED TO FLOW OFF THE SITE TO PECKHAM BROOK. IF FIELD CONDITIONS WARRANT IT OR THE TOWN REQUESTS IT, ADDITIONAL E & S CONTROL MEASURES, BEYOND WHAT IS SHOWN ON THE PLAN, SHALL BE INSTALLED.

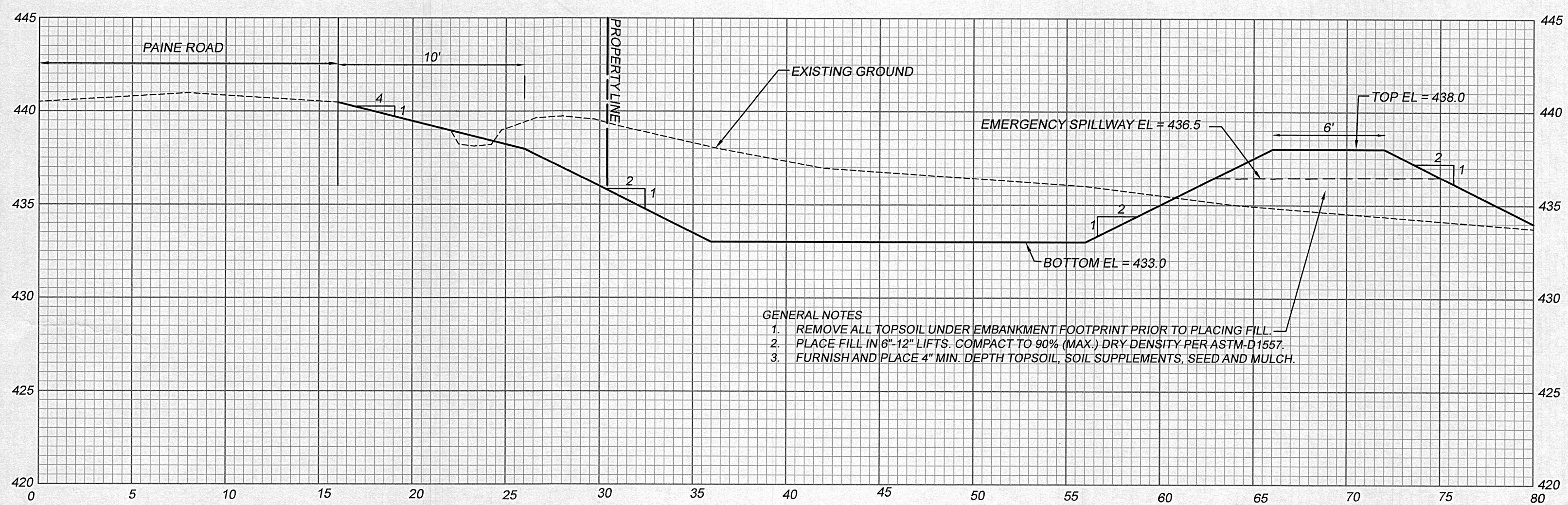
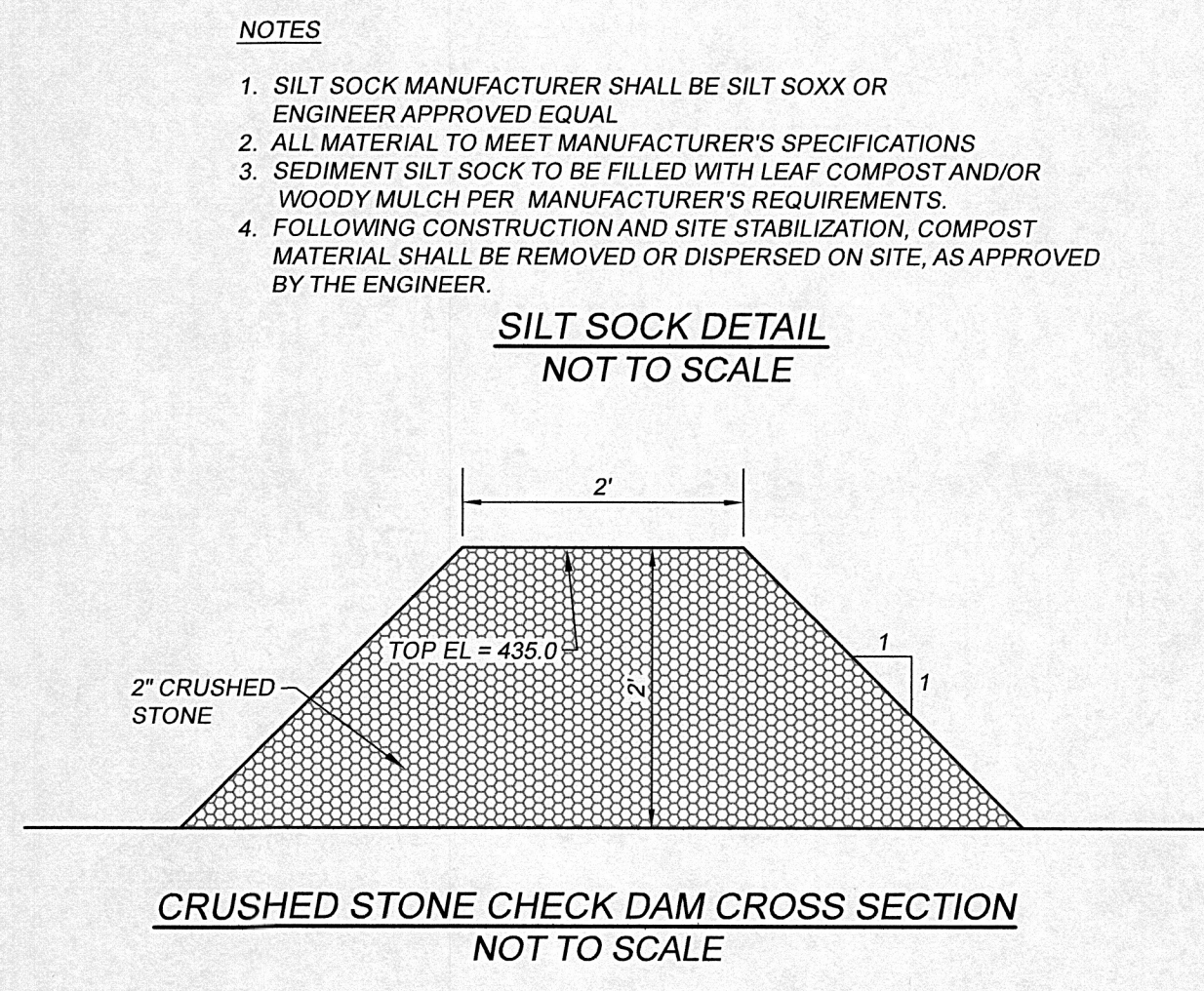
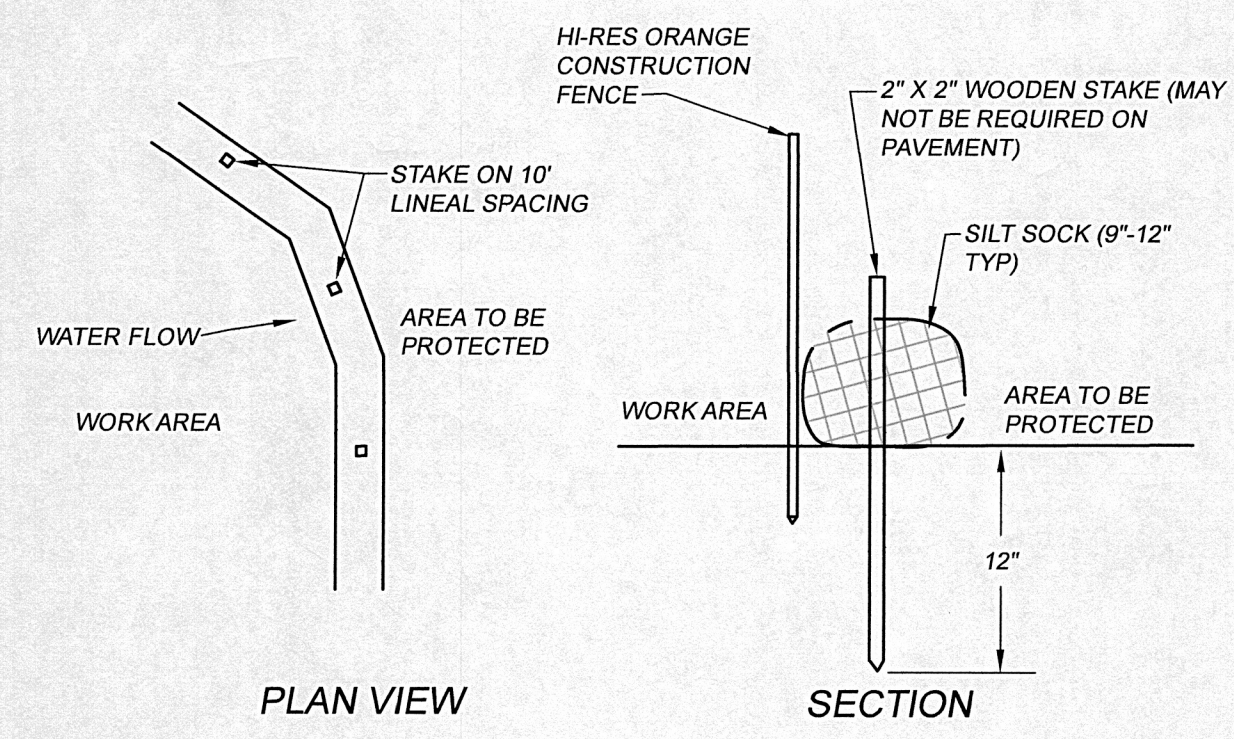
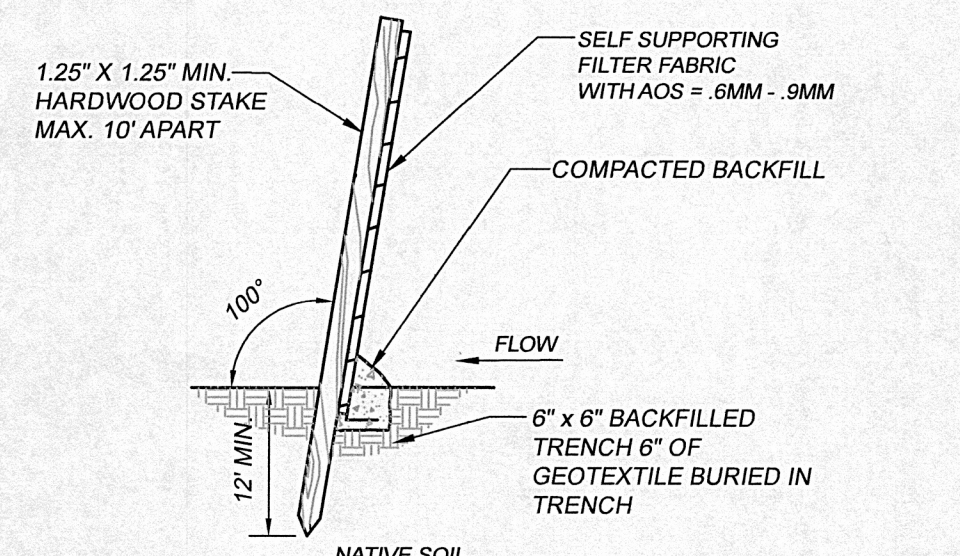
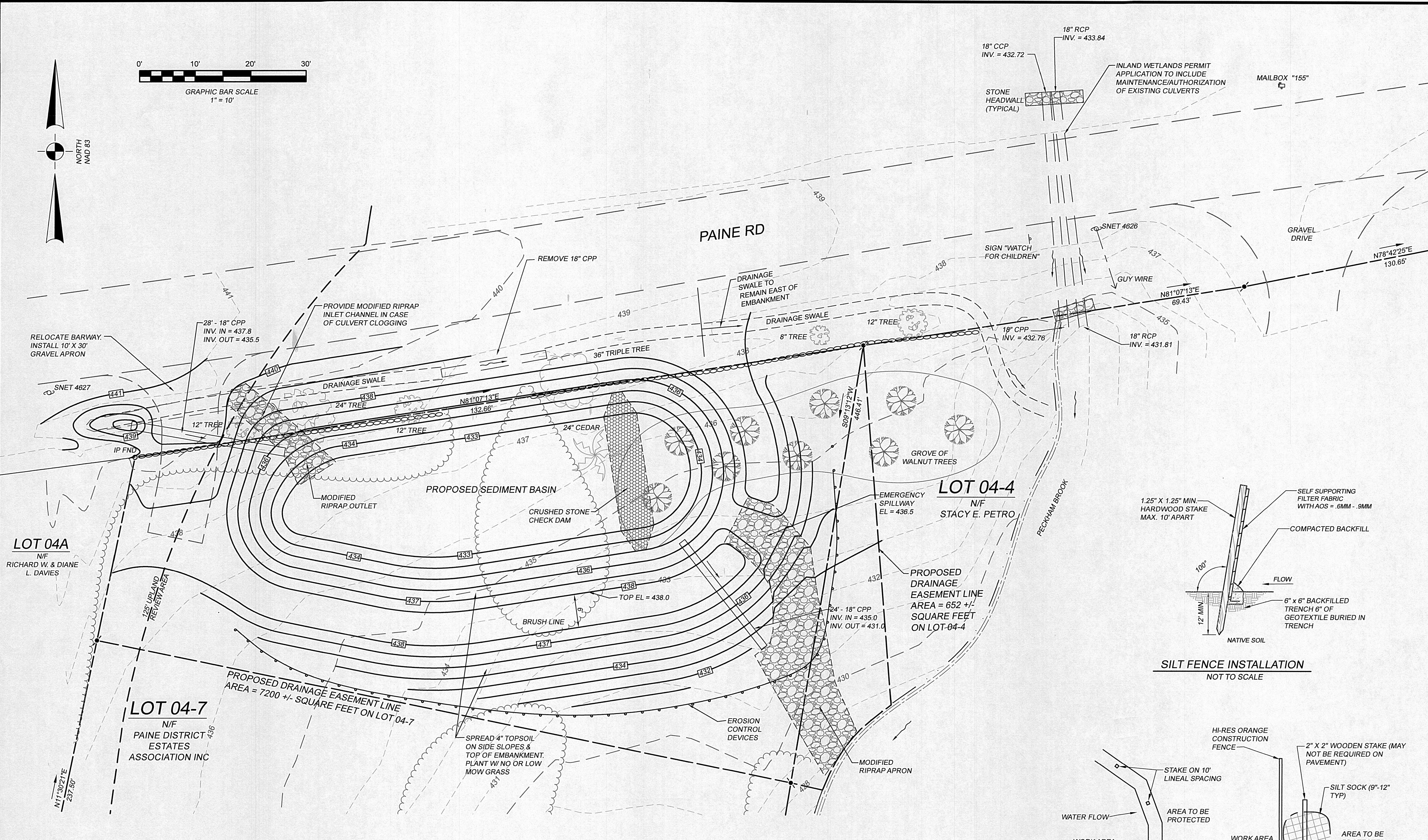
SEDIMENT AND EROSION CONTROL DEVICES WILL BE INSTALLED AS DETAILED ON THIS SHEET AND CHECKED REGULARLY FOR REPLACEMENT AND AFTER EVERY RAIN FOR REMOVAL OF DEPOSITED MATERIALS. RESPONSIBILITY FOR COMPLIANCE WITH THIS PLAN SHALL BELONG TO THE CONTRACTOR. THE CONTRACTOR SHALL BE THE DESIGNATED ON-SITE AGENT RESPONSIBLE FOR ENSURING TO THE TOWN THAT E & S CONTROL MEASURES ARE STRICTLY ENFORCED.

- OPERATIONS AND MAINTENANCE**
- ALL PROPOSED WORK SHALL CONFORM TO "2023 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" AND TOWN REGULATIONS.
 - DURING CONSTRUCTION THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT THE GOALS OF THIS EROSION CONTROL PLAN ARE MET BY WHATEVER MEANS ARE NECESSARY. THE CONTRACTOR SHALL PLAN ALL LAND DISTURBING ACTIVITIES IN A MANNER AS TO MINIMIZE THE EXTENT OF DISTURBED AREAS.
 - PRIOR TO CONSTRUCTION OR EXCAVATION, SEDIMENT BARRIERS SHALL BE INSTALLED IN LOCATIONS AS SHOWN ON THE PLAN.
 - UPON FINAL GRADING, DISTURBED AREAS SHALL COVERED WITH A MINIMUM OF 6" LOAM AND SEEDING WITH PERENNIAL GRASSES AS SPECIFIED FOR THE PROJECT. IMMEDIATELY AFTER SEEDING, MULCH THE SEEDING AREA. NOT COVERED WITH EROSION CONTROL BLANKET, WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE. SEEDING DATES ARE TO BE BETWEEN APRIL 1 THRU JUNE 15 AND AUGUST 15 THRU OCTOBER 15.
 - EROSION AND SEDIMENT CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS HAVE BEEN STABILIZED AND VEGETATIVE COVER HAS BEEN ESTABLISHED, AT WHICH TIME THEY SHALL BE REMOVED.
 - THE TOWN PUBLIC WORKS DEPARTMENT SHALL BE RESPONSIBLE FOR LONG TERM MAINTENANCE OF THE SEDIMENT BASIN. THE BASIN SHALL BE INSPECTED AFTER HEAVY RAINFALLS AND ANY EROSION AT THE OUTFALLS SHOULD BE REPAIRED.
 - THE TOWN SHALL REMOVE ACCUMULATED SEDIMENT AT LEAST TWICE PER YEAR OR WHEN THE SEDIMENT REACHES WITHIN 1' OF THE TOP OF THE STONE CHECK DAM.
 - THE TOWN SHALL MOW THE SIDES AND TOP OF THE EMBANKMENT AT LEAST TWICE PER YEAR TO PREVENT WOODY VEGETATION FROM GETTING ESTABLISHED.

- SEQUENCE OF CONSTRUCTION :**
- PUBLIC WORKS SHALL NOTIFY CALL BEFORE YOU DIG AS REQUIRED, AND IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL BURIED UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
 - INSTALL EROSION CONTROL DEVICES ALONG THE DOWNSLOPE SIDE OF CONSTRUCTION ACTIVITIES AS SHOWN ON THE DRAWINGS.
 - MAINTAIN DRAINAGE SWALE PARALLEL TO ROAD UNTIL SEDIMENT BASIN IS CONSTRUCTED AND TURF IS ESTABLISHED.
 - STRIP TOPSOIL FROM SITE. STOCKPILE SIDE SLOPES MUST BE 2:1 OR FLATTER. INSTALL FILTER SOCK BELOW TOPSOIL AND EXCESS MATERIAL STOCKPILES.
 - EARTHWORK (CUTS AND FILLS) TO CONSTRUCT SEDIMENT BASIN. COMPACT EMBANKMENT AS SPECIFIED.
 - INSTALL OUTLET PIPE AND EMERGENCY SPILLWAY.
 - FINE GRADE AND RESPREAD TOPSOIL ALL AREAS AND IMMEDIATELY PERMANENTLY SEED AND MULCH ALL DISTURBED AREAS.
 - AFTER TURF IS SUFFICIENTLY ESTABLISHED, INSTALL BARWAY, INLET CULVERT AND INLET MODIFIED RIPRAP.

LEGEND

	PROPERTY LINE
	PROPOSED EASEMENT LINE
	EXISTING CONTOUR LINE
	PROPOSED CONTOUR LINE
	EDGE OF WETLANDS
	WETLAND BUFFER/UPLAND REVIEW AREA
	EROSION CONTROL DEVICES
	STONEWALL
	UTILITIES
	TREE/BRUSH LINE



TYPICAL SEDIMENT TRAP CROSS SECTION
1" = 5'

- GENERAL NOTES**
- REMOVE ALL TOPSOIL UNDER EMBANKMENT FOOTPRINT PRIOR TO PLACING FILL.
 - PLACE FILL IN 6"-12" LIFTS. COMPACT TO 90% (MAX.) DRY DENSITY PER ASTM-D 1557.
 - FURNISH AND PLACE 4" MIN. DEPTH TOPSOIL, SOIL SUPPLEMENTS, SEED AND MULCH.

- NOTES**
- SILT SOCK MANUFACTURER SHALL BE SILT SOXX OR ENGINEER APPROVED EQUAL.
 - ALL MATERIAL TO MEET MANUFACTURER'S SPECIFICATIONS.
 - SEDIMENT SILT SOCK TO BE FILLED WITH LEAF COMPOST AND/OR WOODY MULCH PER MANUFACTURER'S REQUIREMENTS.
 - FOLLOWING CONSTRUCTION AND SITE STABILIZATION, COMPOST MATERIAL SHALL BE REMOVED OR DISPERSED ON SITE, AS APPROVED BY THE ENGINEER.

RECEIVED
MAR 25 2024
TOWN OF WOODSTOCK, LAND USE DEPT.
[IWA 03-24-10]

SEDIMENT BASIN PLAN
PREPARED FOR
TOWN OF WOODSTOCK
PAINE ROAD - WOODSTOCK, CT
MAP 5165 BLOCK 08 LOT 04-7

J&D CIVIL ENGINEERS, LLC
401 RAVENELLE ROAD
N. GROSVENORDALE, CT 06255
860-923-2920

DESIGNED: JJB
CHECKED: DRB

REVISIONS:

JOB NO: 21170
SCALE: 1" = 10'

DATE: MARCH 25, 2024
SHEET: 1 OF 1

Stormwater Report

Prepared For

Woodstock Public Works Department

Paine Road - Woodstock, CT

March 6, 2024

Prepared by:

**J & D Civil
Engineers, LLC**

401 Ravenelle Road
N. Grosvenordale, CT 06255

Project Description

Paine Road is a steep (10% - 12%) gravel road with an erosion problem. Approximately 4.8 acres of land drains to a drainage ditch on the west side of Paine Road. The ditch flows south and then east toward Peckham Brook. The gravel road bed continuously erodes into the ditch and the eroded gravel washes into Peckham Brook onto property owned by Ron and Stacy Petro. There are two culverts in the ditch and both have issues with sediment clogging them and the capacities being overwhelmed.

The town is looking for a solution to improve the situation. The goal is to significantly reduce the amount of eroded gravel that enters the brook. Currently, the best mechanism for that is for the Town to construct a sediment basin adjacent to the road upstream of the brook. This can be constructed on land (Map 5165, Block 8, Lot 4-7) owned by Paine District Estates. It is the Town's understanding that they can obtain a drainage easement over this property. The sediment basin will reduce the velocity of runoff allowing fine particles to settle out. The Town will have to remove accumulated sediment as needed, probably several times per year.

There are other long-term solutions that the Town could consider in the future to address the problems. The road could be paved which would eliminate gravel erosion. It is generally recommended that roads or driveways be paved if their slopes exceed 10% in order to eliminate erosion. Also, it would be very beneficial to install a few cross culverts under the road to drain water from the west side to the east side. Currently there are no cross culverts in over 1200' of road. Culverts could be installed every few hundred feet in the steep section which would greatly reduce the quantity of flow and sediment transport in the drainage ditch. The Public Works Department is currently looking into this.

Stormwater Management

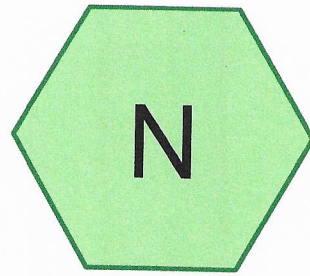
CT DEEP released new versions of the Stormwater Quality Manual and Soil Erosion and Sediment Control Guide in 2023. Typically, structural measures such as sediment traps or basins are meant for short term use during the duration of construction of a project. Although this is not a construction project, J & D recommends that a sediment basin be constructed as per the typical sections recommended by the E & S Guide. The reason is that the gravel eroding from the steep road is similar to sediment eroding from a construction site.

Structural measures are sized based upon a certain volume of storage required per acre of the watershed assuming that that land within the watershed will be disturbed by construction and subject to erosion. Sediment traps have pervious berms, similar to check dams, for outlets. Sediment basins have a soil berm with a principal spillway and an emergency spillway. The size of the drainage area is small enough (<5 acres) that a sediment trap could be considered for this site. However, the structure is not temporary and the pervious outlet would clog too fast. Therefore a sediment basin is proposed.

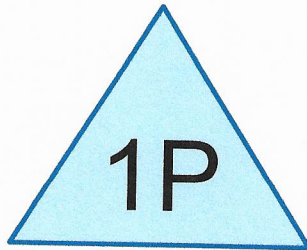
Sediment Basin Design

The sediment basin was designed using guidance from the CT E&S Standards. Sizing was based upon the percent of the drainage area that is eroding as per sediment basin sizing guidelines. Calculations are attached. Hydraulic calculations for the 10 and 50 year storm were performed. The 50 year storm can pass through the emergency spillway with 1' of freeboard.

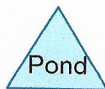
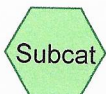
The Woodstock Public Works Department will be responsible for constructing and maintaining the sediment basin. The owner has agreed to grant a drainage easement to the Town over the land the basin will be constructed on. Although a larger basin would provide more settling time, the sediment basin proposed was designed to fit into the size of the area available as per the agreement between the Town and property owner. Its construction should significantly reduce the amount of gravel eroding into Peckham Brook.



DA



Prop basin



Routing Diagram for 21170 Woodstock-Petro sed basin
Prepared by J & D Civil Engineers, LLC, Printed 3/7/2024
HydroCAD® 10.10-7a s/n 02673 © 2021 HydroCAD Software Solutions LLC

21170 Woodstock-Petro sed basin

21170 Paine Road Sed Basin

Prepared by J & D Civil Engineers, LLC

Printed 3/7/2024

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	CT 10-year	NOAA 24-hr	D	Default	24.00	1	5.23	2

21170 Woodstock-Petro sed basin

Prepared by J & D Civil Engineers, LLC

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21170 Paine Road Sed Basin
NOAA 24-hr D CT 10-year Rainfall=5.23"

Printed 3/7/2024

Page 3

Summary for Subcatchment N: DA

Runoff = 7.88 cfs @ 12.37 hrs, Volume= 0.979 af, Depth= 2.46"
Routed to Pond 1P : Prop basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D CT 10-year Rainfall=5.23"

Area (sf)	CN	Description
141,371	74	Pasture/grassland/range, Good, HSG C
56,297	65	Brush, Good, HSG C
10,096	96	Gravel surface, HSG C
207,764	73	Weighted Average
207,764		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.2	300	0.0200	0.21		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 3.72"
1.4	960	0.1000	11.11	16.66	Channel Flow, Area= 1.5 sf Perim= 4.0' r= 0.38' n= 0.022 Earth, clean & straight
25.6	1,260	Total			

Summary for Pond 1P: Prop basin

Inflow Area = 4.770 ac, 0.00% Impervious, Inflow Depth = 2.46" for CT 10-year event
Inflow = 7.88 cfs @ 12.37 hrs, Volume= 0.979 af
Outflow = 7.01 cfs @ 12.48 hrs, Volume= 0.900 af, Atten= 11%, Lag= 6.7 min
Primary = 7.01 cfs @ 12.48 hrs, Volume= 0.900 af
Routed to nonexistent node 4R

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 436.55' @ 12.48 hrs Surf.Area= 2,726 sf Storage= 7,131 cf

Plug-Flow detention time= 76.0 min calculated for 0.900 af (92% of inflow)
Center-of-Mass det. time= 34.0 min (900.7 - 866.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	433.00'	11,558 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
433.00	1,349	167.0	0	0	1,349
434.00	1,705	180.0	1,524	1,524	1,748
435.00	2,081	193.0	1,890	3,413	2,176
436.00	2,483	207.0	2,279	5,692	2,665
437.00	2,932	220.0	2,704	8,397	3,155
438.00	3,397	234.0	3,162	11,558	3,710

21170 Woodstock-Petro sed basin

Prepared by J & D Civil Engineers, LLC

HydroCAD® 10.10-7a s/n 02673 © 2021 HydroCAD Software Solutions LLC

21170 Paine Road Sed Basin
NOAA 24-hr D CT 10-year Rainfall=5.23"

Printed 3/7/2024

Page 4

Device	Routing	Invert	Outlet Devices
#1	Primary	436.50'	10.0' long + 0.5 ' SideZ x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Primary	435.00'	18.0" Round Culvert L= 26.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 435.00' / 431.00' S= 0.1538 ' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=7.01 cfs @ 12.48 hrs HW=436.55' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 0.28 cfs @ 0.54 fps)

2=Culvert (Inlet Controls 6.72 cfs @ 3.81 fps)

21170 Woodstock-Petro sed basin

21170 Paine Road Sed Basin

Prepared by J & D Civil Engineers, LLC

Printed 3/7/2024

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	CT 50-year	NOAA 24-hr	D	Default	24.00	1	7.28	2

21170 Woodstock-Petro sed basin

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21170 Paine Road Sed Basin
NOAA 24-hr D CT 50-year Rainfall=7.28"

Printed 3/7/2024

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Summary for Subcatchment N: DA

Runoff = 13.45 cfs @ 12.37 hrs, Volume= 1.661 af, Depth= 4.18"
Routed to Pond 1P : Prop basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NOAA 24-hr D CT 50-year Rainfall=7.28"

Area (sf)	CN	Description
141,371	74	Pasture/grassland/range, Good, HSG C
56,297	65	Brush, Good, HSG C
10,096	96	Gravel surface, HSG C
207,764	73	Weighted Average
207,764		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.2	300	0.0200	0.21		Sheet Flow,
					Cultivated: Residue>20% n= 0.170 P2= 3.72"
1.4	960	0.1000	11.11	16.66	Channel Flow,
					Area= 1.5 sf Perim= 4.0' r= 0.38'
					n= 0.022 Earth, clean & straight
25.6	1,260	Total			

Summary for Pond 1P: Prop basin

Inflow Area = 4.770 ac, 0.00% Impervious, Inflow Depth = 4.18" for CT 50-year event
 Inflow = 13.45 cfs @ 12.37 hrs, Volume= 1.661 af
 Outflow = 13.27 cfs @ 12.40 hrs, Volume= 1.582 af, Atten= 1%, Lag= 1.6 min
 Primary = 13.27 cfs @ 12.40 hrs, Volume= 1.582 af
 Routed to nonexistent node 4R

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
 Peak Elev= 436.86' @ 12.40 hrs Surf.Area= 2,866 sf Storage= 7,983 cf

Plug-Flow detention time= 52.5 min calculated for 1.582 af (95% of inflow)
 Center-of-Mass det. time= 25.9 min (875.7 - 849.8)

Volume #1	Invert	Avail.Storage	Storage Description			
	433.00'	11,558 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
433.00	1,349	167.0	0	0	1,349	
434.00	1,705	180.0	1,524	1,524	1,748	
435.00	2,081	193.0	1,890	3,413	2,176	
436.00	2,483	207.0	2,279	5,692	2,665	
437.00	2,932	220.0	2,704	8,397	3,155	
438.00	3,397	234.0	3,162	11,558	3,710	

21170 Woodstock-Petro sed basin

Prepared by J & D Civil Engineers, LLC

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21170 Paine Road Sed Basin
NOAA 24-hr D CT 50-year Rainfall=7.28"

Printed 3/7/2024

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Device	Routing	Invert	Outlet Devices
#1	Primary	436.50'	10.0' long + 0.5 ' /' SideZ x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Primary	435.00'	18.0" Round Culvert L= 26.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 435.00' / 431.00' S= 0.1538 ' /' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=13.26 cfs @ 12.40 hrs HW=436.86' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 5.37 cfs @ 1.48 fps)

2=Culvert (Inlet Controls 7.90 cfs @ 4.47 fps)

JOB NO. 21170
DATE 3/6/24
BY JJB
CH'D BY _____

J & D CIVIL ENGINEERS LLC
401 Ravenelle Road
North Grosvenordale, CT 06255
(860) 923-2920 | www.jdcivilengineers.com

SHEET NO. 1
JOB PAINE ROAD
SUBJECT _____
CLIENT WOODSTOCK

DESIGN SEDIMENT BASIN USING DESIGN CRITERIA IN
2023 CT GUIDELINES FOR EROSION & SED CONTROL

TOTAL D.A. = 4.8 AC = 0.0075 MI²

Connecticut Guidelines for Soil Erosion & Sediment Control

Dams and Reservoirs, Technical Release 60 (TR-60) may be used to provide a more refined estimate of the actual trap efficiency⁶² of a specific sediment basin.

Sediment volume is calculated from the following formula:

$$V = \frac{(DA)(A)(DR)(TE)\left(\frac{2000\text{lbs}}{\text{ton}}\right)}{(\gamma)\left(43,560 \text{ sq} \frac{\text{ft}}{\text{acre}}\right)}$$

Where:

V = the volume of sediment trapped in ac. ft./yr.

DA = the total drainage area in acres

A = the average annual erosion in tons per acre per year using either values from the Universal Soil Loss Equation, the Revised Universal Soil Loss Equation, or the values in Table 5. 29 for the listed land use.

DR = the delivery ratio determined from Figure 5- 71. (DECIMAL)

TE = the trap efficiency as given above. (Use 0.8)

γ = the estimated sediment density in the sediment basin in lbs./cu. ft. (from Table 5. 30).

Wet Storage Volume: The volume of the wet storage shall be at least twice the volume of the sediment storage volume (see above) and shall be designed to a minimum depth of 2 feet.

Wet storage volume is the volume in the basin that is located below the invert of the lowest outlet structure for the basin. The wet storage may not provide permanent ponding of water depending on site conditions but will create a permanent pool for settling suspended sediment during a runoff event. The wet storage is intended to minimize the re-suspension of existing trapped sediments during a runoff event. To reduce sediment removal frequency, increase the volume of wet storage which will increase the sediment storage volume.

FOR A: GRAVEL ROAD = CONSTRUCTION AREA (0.23 AC)

• 0.23 AC x 50 TONS/YR = 11.5 TONS

WOODS/FIELDS = 4.57 AC

• 4.47 x 0.2 TONS/YR = 0.91 TONS

JOB NO. 21170
DATE 3/6/24
BY JJB
CH'D BY _____

J & D CIVIL ENGINEERS LLC
401 Ravenelle Road
North Grosvenordale, CT 06255
(860) 923-2920 | www.jdcivilengineers.com

SHEET NO. 2
JOB PAINE RD
SUBJECT _____
CLIENT WOODSTOCK

$$\therefore DA(A) = 11.5 + 0.9 = 12.4 \text{ TONS}$$

FOR DR: SEE FIG 5-71 - 45% = 0.45

TE: 80% USE 0.8

γ : DENSITY (TABLE 5.3) SAND+SILT = 85 LB/FT³

SOLVE FOR V (VOL SEDIMENT IN AC-FT/YR)

$$V = \frac{12.4 \text{ TONS} (0.45) (0.8) 2000 \text{ LB/TON}}{85 \text{ LB/FT}^3 (43560 \text{ FT}^2/\text{AC})} = 0.0024 \text{ AC-FT}$$

$$V = 0.0024 \text{ AC-FT} (43560 \text{ FT}^2/\text{AC}) = 105 \text{ FT}^3$$

SEDIMENT STORAGE VOLUME

WET VOLUME SHALL BE TWICE SED VOLUME
= 210 FT³

AS PER HYDROCAD STORAGE VOLUME =

- 1) BELOW PRINCIPAL SPILLWAY = 3400 FT³
- 2) BELOW EMERG SPILLWAY = 7040 FT³
- 3) TO TOP OF EMBANKMENT = 11,558 FT³

VOLUMES EXCEED WET VOLUME RE-
QUIREMENTS

GEOMETRY: MEETS STANDARDS:

6' EMBANKMENT WIDTH

2H:1V SIDE SLOPES

EMB HEIGHT = 538 - 534 = 4' < 15'

\therefore NOT A DAM

LENGTH > TWICE WIDTH

Date: March 11, 2024

To: Town of Woodstock

Jason Scranton, Director of Public Works

From: Stacy Petro, Owner

Map 5165, Block 8, Lot 04-04

Subj: Sediment Basin Plan for Paine Rd.


This notice is to inform the Town of Woodstock and Jason Scranton, Director of Public Works, that

I hereby authorize the Town of Woodstock and/or its' contractors, to commence any work in

conjunction with the Sediment Basin Plan for Paine Rd, as prepared for the town by J & D Civil

Engineers LLC, job #21170, dated March 6, 2-24, that requires access to property that I own on

Paine Rd. (Map 5165, Block 8, Lot 04-04).

A handwritten signature in black ink, appearing to read "Stacy Petro". The signature is stylized with a large loop for the letter 'y' and a long horizontal stroke for the 't'.

Stacy Petro

Date: March 11, 2024
To: Town of Woodstock
Jason Scranton, Director of Public Works
From: Stacy Petro, Owner
Map 5165, Block 8, Lot 04-04
Subj: Sediment Basin Plan for Paine Rd.

This notice is to inform the Town of Woodstock and Jason Scranton, Director of Public Works, that

I hereby authorize the Town of Woodstock and/or its' contractors, to commence any work in conjunction with the Sediment Basin Plan for Paine Rd, as prepared for the town by J & D Civil Engineers LLC, job #21170, dated March 6, 2-24, that requires access to property that I own on Paine Rd. (Map 5165, Block 8, Lot 04-04).

Rd., prepared for the town by J & D Civil Engineers LLC, job #21170, dated March 6, 2024.

PDEA authorizes the Town of Woodstock and/or its' contractors, to commence with the work as described in the plan prepared for the town by J & D, to include work to be done on PDEA property, (Map 5165, Block 8, Lot 04-07).

A handwritten signature in black ink, appearing to read 'Ronald Petro', with a stylized flourish at the end.

Ronald Petro
President, Paine District Estates Association