TOWN of WESTON, CONNECTICUT

Incorporated 1787

Conservation Commission

INLAND WETLANDS AND WATERCOURSES APPLICATION

This Application is for a five-year permit to conduct a regulated activity or activities pursuant to the Inland Wetlands and Watercourses Regulations of the Town of Weston ("The Regulations")

PROPERTY ADDRESS: 20 Martin Road, Weston, CT

Assessor's Map # 17 **Block #** 2 **Lot #** 38

PROJECT DESCRIPTION *(general purpose)* Construction of new pool and hardscape with associated stormwater management, grading and erosion controls.

Total Acres 2.03 Acres Total Acres of Wetlands and Watercourses 0.2 Acres

Acreage of Wetlands and Watercourses Altered 0 Upland Area Altered 0.1 Acres

Acres Linear Feet of Stream Alteration 0 Total Acres Proposed Open Space 0

OWNER(S) OF RECORD: *(Please list all owners, attach extra sheet if necessary)*

Name: Mary Chen Phone:

Address: 20 Martin Road, Weston, CT 06883

Email: Marychenchen@gmail.com

APPLICANT/AUTHORIZED AGENT:

Name: Harry Rocheville (McChord Engineering Associates, Inc.) Phone: (203) 834-0569

Address: 1 Grumman Hill Road, Wilton, CT 06897

Email: hrocheville@mcchordengineering.com

CONSULTANTS: *(Please provide, if applicable)*

Engineer: McChord Engineering Associates, Inc. Phone: (203)834-0569

Address: 1 Grumman Hill Road, Wilton, CT 06897 Email: hrocheville@mcchordengineering.com

Soil Scientist: Connsoil Phone:

Address: _____ Email: _____

Legal Counsel: _____ Phone: _____

Address: _____ Email: _____

Surveyor: Brautigam Land Surveyors, P.C. Phone: (203) 270-7810

Address: 90 S. Main St., Newtown, CT 06470 Email: Steve@Brautigamland.com

PROPERTY INFORMATION

Property Address: 20 Martin Road, Weston, CT

Existing Conditions *(Describe existing property and structures)*: Developed with single-family residence, driveway, and hardscape. Dense woodland separates the development portion of the property down to the Saugatuck River.

Provide a detailed description and purpose of proposed activity *(attach sheet with additional information if needed)*: Proposed pool with associated hardscape. A stormwater management system is proposed to control runoff. Minimal grading is proposed. Existing wooded buffer to remain undisturbed. See Site Development Plan and Stormwater Management Report.

Is this property within a subdivision *(circle)*: Yes or (No)

Square feet of proposed impervious surfaces *(roads, buildings, parking, etc.)*: 3560 sq-ft

Subject property to be affected by proposed activity contains:

- ☒ wetlands soils
- ☐ swamp
- ☒ floodplain
- ☐ marsh
- ☐ bog
- ☐ lake or pond
- ☒ stream or river
- ☐ other _____

The proposed activity will involve the following within wetlands, watercourse, and/or review area:

- ☒ Alteration
- ☐ Discharge to
- ☒ Removal of Materials
- ☒ Construction
- ☐ Discharge from
- ☒ Deposition of Materials
- ☐ Pollution
- ☐ Bridge or Culvert
- ☐ Other _____

Amount, type, and location of materials to be removed, deposited, or stockpiled:

Material will be removed for the pool and stormwater management system excavation. Material will be temporarily stockpiled near the existing driveway and then hauled off site. Minimal filling is proposed as the pool and patio are designed to work with existing grade.

Description, work sequence, and duration of activities:

Removal of existing patios and subsequent construction of the proposed pool and patios. Disturbance will be minimal as majority of the proposed development will occur in areas that were already developed with hardscape. Permanent stormwater management improvements will be installed and erosion and sediment controls will be employed during construction. Duration of construction anticipated will be approx. 6 months.

Describe alternatives considered and why the proposal described herein was chosen:

Various alternatives were explored, but this proposal was chosen because it is in generally the same area of the existing hardscape that is to be removed. Also, this area is essentially the only viable location on-site due to existing site utilities. The proposed development will also maintain a similar distance from the inland wetlands and maintains the existing wooded buffer.

Does the proposed activity involve the installation and/or repair of an existing septic system(s) *(circle)*: (Yes) or No B100a only, Application has been submitted to Health District.

The Westport/Weston Health District Approval: _____

ADJOINING MUNICIPALITIES AND NOTICE:

If any of the situations below apply, the applicant is required to give written notice of his/her application to the Inland Wetlands Agency of the adjoining municipality, on the same day that he/she submits this application. Notification must be sent by Certified Mail with Return Receipt Requested.

The property is located within 500 feet of any town boundary line;
A significant portion of the traffic to the completed project will use streets within the adjoining municipality to enter or exit the site;

A portion of the water drainage from the project site will flow through and significantly impact the sewage system or drainage systems within the adjoining municipality; or
Water runoff from the improved site will impact streets or other municipal or private property within the adjoining municipality

AQUARION WATER COMPANY

Pursuant to Section 8.4 of the Weston regulations, the Aquarion Water Company must be notified of any regulated activity proposed within its watersheds. Maps showing approximate watershed boundaries are available at the office of the Commission. If the project site lies within these boundaries, send notice, site plan, and grading and erosion control plan via certified mail, return receipt requested, within seven (7) days of submitting application to the Commission, to:

George S. Logan, Director – Environmental Management
Aquarion Water Company
714 Black Rock Turnpike
Easton, CT 06612

The Commissioner of the Connecticut Department of Public Health must also be notified in the same manner in a format prescribed by that commissioner.

The undersigned, as owner(s) of the property, hereby consents to necessary and proper inspections of the above mentioned property by Commissioners and agents of the Conservation Commission, Town of Weston, at reasonable times, both before and after a final decision has been issued by the Commission.

The undersigned hereby acknowledges to have read the "Application Requirements and Procedures" in completing this application.

The undersigned hereby certifies that the information provided in this application, including its supporting documentation is true and he/she is aware of the penalties provided in Section 22a-376 of the Connecticut General Statues for knowingly providing false or misleading information.

See attached Letter of Authorization

Signature of Owner(s) of Record — Date

Harry Rudolf — 12-6-23

Signature of Authorized Agent — Date

FOR OFFICE USE ONLY

Administrative Approval

Initials — Date

McChord Engineering Associates, Inc.
Civil Engineers and Land Planners

1 Grumman Hill Road
Wilton, CT 06897
(203) 834-0569

Mary Chen
20 Martin Road
Weston, CT 06883

November 30, 2023

Town of Weston Conservation Commission
Town Hall Annex – 24 School Road
Weston, CT 06883

Re: Proposed Site Development
20 Martin Road
Map 17, Block 2, Lot 38

Dear Commissioners,

I hereby authorize McChord Engineering Associates, Inc. (MEA), to act as agent in regard to the referenced Conservation Commission application and authorize all subject property activities associated with the proposed site development at the subject property.

I hereby consent to all necessary and proper inspections of the property by the Town of Weston Conservation Commissioners at all reasonable times, both before and after the applied permit has been granted, and until the permitted activity has been completed in accordance with the conditions of the permit and verified by the Planning and Zoning Department.

Sincerely,

Mary Chen

Adjacent Property Owners within 100' of Property

20 Martin Road
Weston, CT 06883
Map 17, Block 2, Lot 38

M-B-L	Property Owner	Mailing Address
17-2-36	Ruby Ethan & Julie Rosenthal	24 Martin Road Weston, CT 06883
18-1-34	David & Romilly Hodges	45 Hemlock Ridge Road Weston, CT 06883
17-2-10	Samual W. Martin	16 Martin Road Weston, CT 06883
18-3-33	Hillary Williams	87 Valley Forge Road Weston, CT 06883
18-1-22	Steven Tr. Stockman	80 Valley Forge Road Weston, CT 06883

#07493-1

ConnSoil
Soil & Enviromental Evaluations • Landscape Design • Nursery Products

March 23, 2005

Mr. Steven A. McAllister, PE, LS
McChord Engineering Associates, Inc.
78 Danbury Road, Suite 202
Wilton, CT. 06897

Re: Martin property, Lot B, Martin Road,
Weston, Connecticut

Dear Mr. McAllister:

Thank you for your enquiry regarding the site inspection and wetland delineation at the above-referenced site.

I visited the property on 12/14/04 and conducted a thorough inspection of the parcel, including areas beyond the proposed parcel limits. I paid particular attention to shallow depressional areas observed at the site, noted as "low area" on the map you faxed me and also similar low spots closer to the steep cliff.

None of these low areas are wetlands. The edge of the river is the only wetland boundary identified at the site.

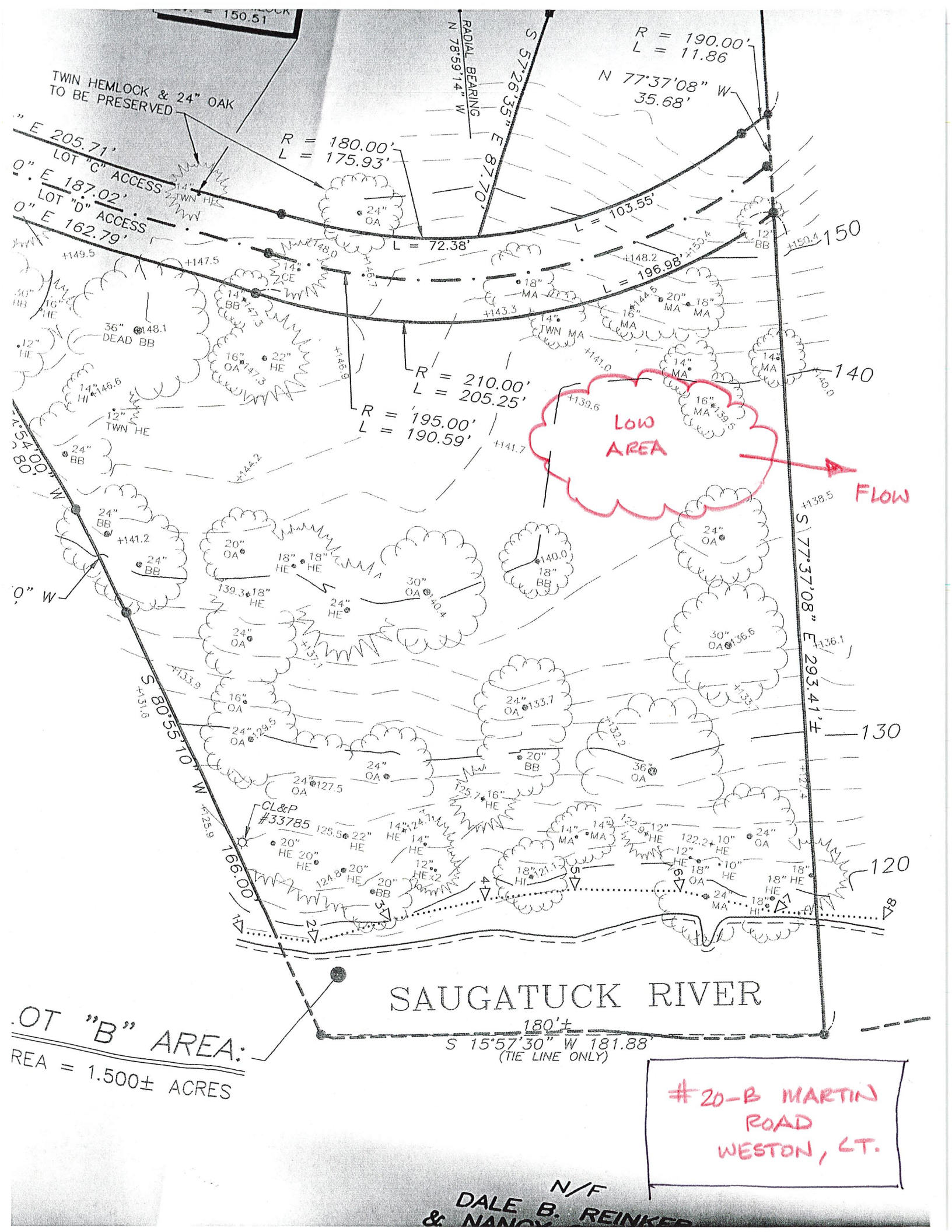
If there are any other questions, please call.

Yours sincerely,

Cynthia M. Rabinowitz

Cynthia M. Rabinowitz
Soil Scientist

P. O. Box 365 • Bethlehem, CT • 06751 • Tel. 203.266.5595 • Fax. 203.266.6227 • email: ConnSoil@aol.com


TWIN HEMLOCK & 24" OAK TO BE PRESERVED
RADIAL BEARING N 78°59'14" W
S 57°26'35" E 87.70'
R = 190.00'
L = 11.86
N 77°37'08" W 35.68'
R = 180.00'
L = 175.93'
" E 205.71'
LOT "C" ACCESS
0". E 187.02'
LOT "D" ACCESS
0" E 162.79'
L = 72.38'
L = 103.55'
L = 196.98'
R = 210.00'
L = 205.25'
R = 195.00'
L = 190.59'
LOW AREA
FLOW
S 77°37'08" E 293.41'±
S 80°55'10" W 166.00'
0" W
'54'00" W 80'
SAUGATUCK RIVER
180'±
S 15°57'30" W 181.88
(TIE LINE ONLY)
CL&P #33785
150
140
130
120
.OT "B" AREA:
REA = 1.500± ACRES
#20-B MARTIN ROAD WESTON, CT.
N/F
DALE B. REINKE
& NANC

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

GIS CODE #: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___
For DEEP Use Only

Statewide Inland Wetlands & Watercourses Activity Reporting Form

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

1. DATE ACTION WAS TAKEN: year: _____ month: _____
2. ACTION TAKEN (see instructions, only use one code): _____
3. WAS A PUBLIC HEARING HELD (check one)? yes ☐ no ☐
4. NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
   (print name) _____ (signature) _____

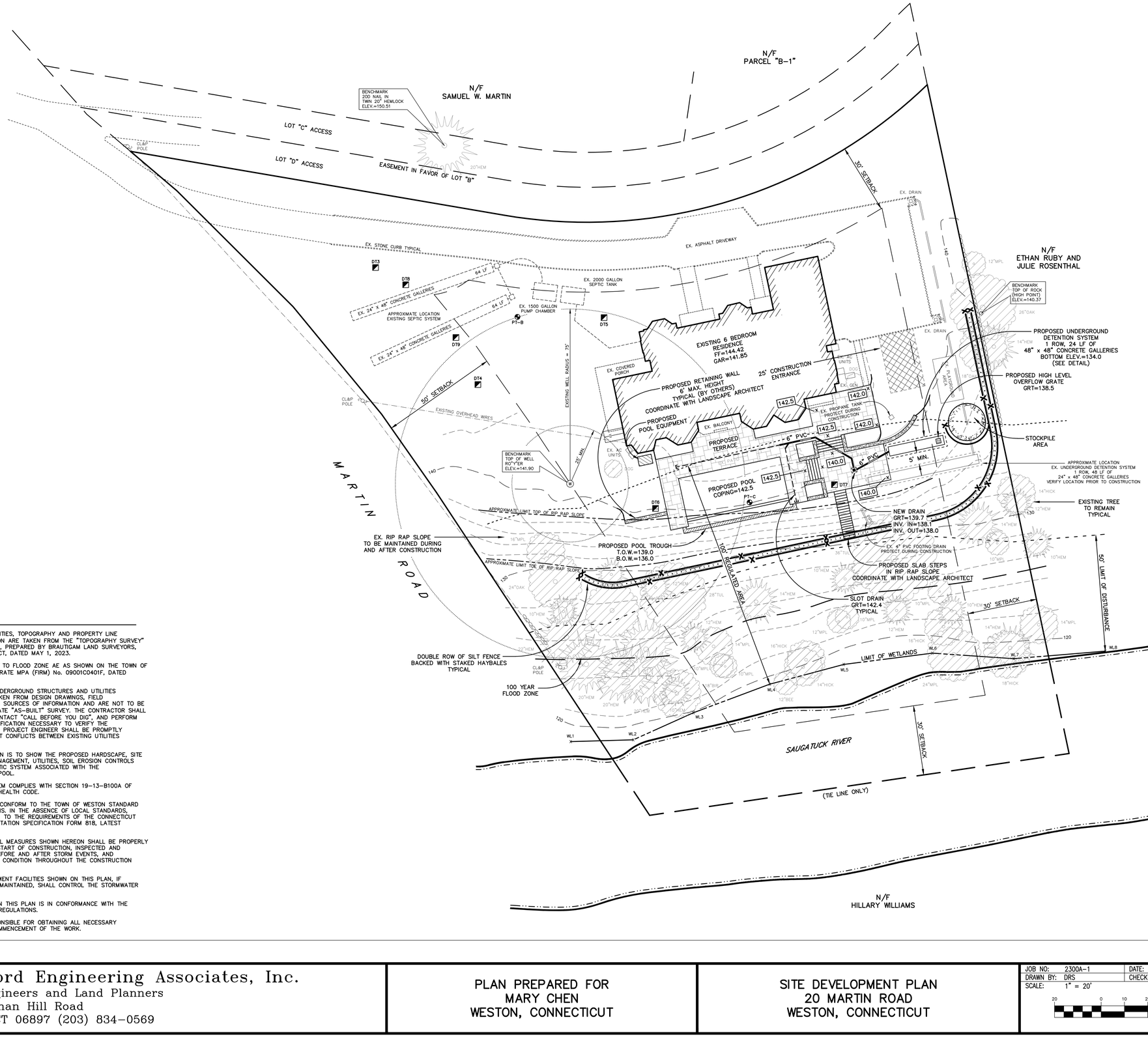
PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

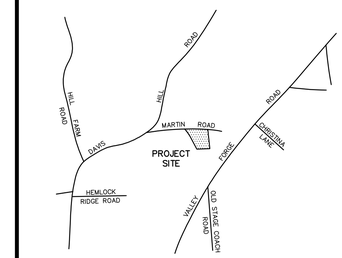
5. TOWN IN WHICH THE ACTION IS OCCURRING (print name): **Weston**
   does this project cross municipal boundaries (check one)? yes ☐ no ☒
   if yes, list the other town(s) in which the action is occurring (print name(s)): _____, _____
6. LOCATION (see instructions for information): USGS quad name: **Westport** or number: **108**
   subregional drainage basin number: **7200**
7. NAME OF APPLICANT, VIOLATOR OR PETITIONER (print name): **Mary Chen**
8. NAME & ADDRESS / LOCATION OF PROJECT SITE (print information): **20 Martin Road**
   briefly describe the action/project/activity (check and print information): temporary ☐ permanent ☒ description:
   Construction of new pool and hardscape with associated stormwater management, grading and erosions controls.
9. ACTIVITY *PURPOSE* CODE (see instructions, only use one code): **A**
10. ACTIVITY *TYPE* CODE(S) (see instructions for codes): **2**, **10**, **12**, **14**
11. WETLAND / WATERCOURSE AREA ALTERED (must provide acres or linear feet):
    wetlands: **0** acres open water body: **0** acres stream: **0** linear feet
12. UPLAND AREA ALTERED (must provide acres): **0.1** acres
13. AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (must provide acres): **0** acres

PART III: To Be Completed By The DEEP

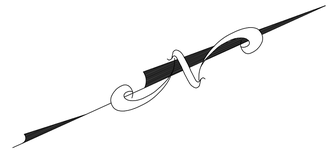
DATE RECEIVED: DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO FORM CORRECTED / COMPLETED: YES NO





ORIENTATION



LEGEND

EXISTING	ITEM	PROPOSED
	DRAIN	
	STORM SEWER	
N.A.	DEEP TEST	
N.A.	PERCOLATION TEST	
440	CONTOUR	440
× 337.9	SPOT ELEVATION	× 439.5
N.A.	SILT FENCE	X
N.A.	DOUBLE SILT FENCE	XX
	TREE TO REMAIN	N.A.
	POLE	N.A.

AREA = 2.026 ACRES

NOTES:

1. EXISTING STRUCTURES, UTILITIES, TOPOGRAPHY AND PROPERTY LINE INFORMATION SHOWN HEREON ARE TAKEN FROM THE "TOPOGRAPHY SURVEY" PREPARED FOR MARY CHEN, PREPARED BY BRAUTIGAM LAND SURVEYORS, P.C. OF SOUTH NEWTOWN, CT, DATED MAY 1, 2023.
2. THE PROPERTY IS SUBJECT TO FLOOD ZONE AE AS SHOWN ON THE TOWN OF DARIEN FLOOD INSURANCE RATE MPA (FIRM) No. 09001C0401F, DATED JUNE 18, 2010.
3. LOCATIONS OF EXISTING UNDERGROUND STRUCTURES AND UTILITIES INDICATED HEREON ARE TAKEN FROM DESIGN DRAWINGS, FIELD OBSERVATIONS, AND OTHER SOURCES OF INFORMATION AND ARE NOT TO BE CONSTRUED AS AN ACCURATE "AS-BUILT" SURVEY. THE CONTRACTOR SHALL EXCAVATE TEST HOLES, CONTACT "CALL BEFORE YOU DIG", AND PERFORM WHATEVER ADDITIONAL VERIFICATION NECESSARY TO VERIFY THE EXISTING INFORMATION. THE PROJECT ENGINEER SHALL BE PROMPTLY NOTIFIED OF ANY APPARENT CONFLICTS BETWEEN EXISTING UTILITIES AND PROPOSED WORK.
4. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED HARDSCAPE, SITE GRADING, STORMWATER MANAGEMENT, UTILITIES, SOIL EROSION CONTROLS AND CODE COMPLIANT SEPTIC SYSTEM ASSOCIATED WITH THE CONSTRUCTION OF A NEW POOL.
5. THE EXISTING SEPTIC SYSTEM COMPLIES WITH SECTION 19-13-B100A OF THE CONNECTICUT PUBLIC HEALTH CODE.
6. ALL CONSTRUCTION SHALL CONFORM TO THE TOWN OF WESTON STANDARD DETAILS AND SPECIFICATIONS. IN THE ABSENCE OF LOCAL STANDARDS, THE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CONNECTICUT DEPARTMENT OF TRANSPORTATION SPECIFICATION FORM 818, LATEST REVISION.
7. SOIL AND EROSION CONTROL MEASURES SHOWN HEREON SHALL BE PROPERLY INSTALLED PRIOR TO THE START OF CONSTRUCTION, INSPECTED AND REPAIRED WEEKLEY AND BEFORE AND AFTER STORM EVENTS, AND MAINTAINED IN FUNCTIONAL CONDITION THROUGHOUT THE CONSTRUCTION PERIOD.
8. THE STORMWATER MANAGEMENT FACILITIES SHOWN ON THIS PLAN, IF PROPERLY INSTALLED AND MAINTAINED, SHALL CONTROL THE STORMWATER RUNOFF FROM THE SITE.
9. SITE GRADING INDICATED ON THIS PLAN IS IN CONFORMANCE WITH THE TOWN OF WESTON ZONING REGULATIONS.
10. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO THE COMMENCEMENT OF THE WORK.

NO.	DATE	REVISIONS AND SUBMISSIONS
1	12-6-23	ISSUED FOR MUNICIPAL APPROVAL

SIGNATURE:

STATE OF CONNECTICUT
THOMAS S. NIELSEN
No. 26585
LICENSED PROFESSIONAL ENGINEER

DRAWING NO: SE1

SHEET 1 OF 2

McChord Engineering Associates, Inc.
Civil Engineers and Land Planners
1 Grumman Hill Road
Wilton, CT 06897 (203) 834-0569

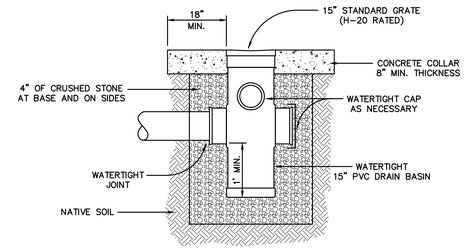
PLAN PREPARED FOR
MARY CHEN
WESTON, CONNECTICUT

SITE DEVELOPMENT PLAN
20 MARTIN ROAD
WESTON, CONNECTICUT

JOB NO: 2300A-1	DATE: DECEMBER 6, 2023
DRAWN BY: DRS	CHECKED BY: TSN, HMR
SCALE: 1" = 20'	

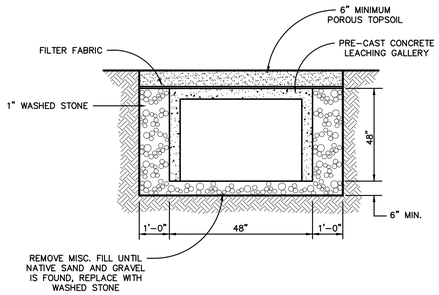
20 0 10 20 40

file: 2300se1



WATERTIGHT DRAIN DETAIL (RATED H-20)

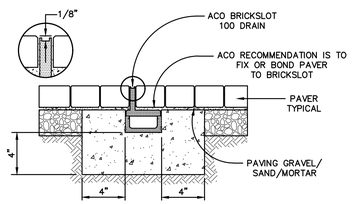
N.T.S.



48" x 48" UNDERGROUND DETENTION GALLERY DETAIL

N.T.S.

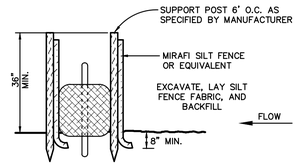
NOTE: COORDINATE INSTALLATION WITH PROJECT ENGINEER.



SLOT DRAIN DETAIL

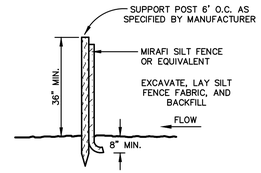
N.T.S.

NOTE: REFER TO MANUFACTURER SPECIFICATIONS FOR ADDITIONAL INFORMATION.



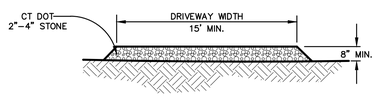
DOUBLE ROW SILT FENCE BACKED WITH STAKED HAYBALE DETAIL

N.T.S.



SILT FENCE DETAIL

N.T.S.



CONSTRUCTION ENTRANCE DETAIL

N.T.S.

DESIGN CRITERIA – EXISTING SEPTIC SYSTEM:

1. PERCOLATION RATE: PT-B = 1:10
   A. DESIGN RATE FOR PRIMARY SYSTEM: 1:10
2. MINIMUM LEACHING SYSTEM SPREAD (MLSS): N/A, RESTRICTIVE > 60"
3. SYSTEM DESCRIPTION:
   A. NUMBER OF BEDROOMS: 6
   B. REQUIRED LEACHING AREA: 742.5 SF @ 6.8 SF/LF = 109.2 LF
   C. SYSTEM COMPONENTS: EX. 2000 GALLON SEPTIC TANK, EX. 1500 GALLON PUMP CHAMBER AND EX. 24" x 48" CONCRETE GALLERIES.
   D. TOTAL FIELDS PROVIDED:
      1) PRIMARY SYSTEM: 2 x 64 LF = 128 LF @ 6.8 SF/LF = 870.4 SF
4. THE EXISTING SEPTIC SYSTEM IS CODE COMPLIANT.

DEEP TEST AND PERCOLATION TEST DATA:

DEEP TEST 3

0"– 9" TOPSOIL
9"–34" RED-BROWN FINE SANDY LOAM
34"–76" SAND & GRAVEL WITH SMALL TO MEDIUM COBBLES

NO MOTTLING
NO LEDGE
NO GROUNDWATER
ROOTS TO 44"

DEEP TEST 4

0"– 6" TOPSOIL
6"–15" RED-BROWN FINE SANDY LOAM
15"–77" SAND & GRAVEL WITH SMALL TO MEDIUM COBBLES

NO MOTTLING
NO LEDGE
NO GROUNDWATER
ROOTS TO 43"

DEEP TEST 5

0"– 3" LEAF LITTER
3"–33" RED-BROWN FINE SANDY LOAM
33"–80" SAND & GRAVEL WITH SMALL TO MEDIUM COBBLES

NO MOTTLING
NO LEDGE
NO GROUNDWATER
ROOTS TO 33"

DEEP TEST 6

0"– 3" LEAF LITTER
3"–18" RED-BROWN FINE SANDY LOAM
18"–38" SAND & GRAVEL
38"–60" HARDPAN

NO MOTTLING
NO LEDGE
NO GROUNDWATER
ROOTS TO 38"

DEEP TEST 7

0"– 3" LEAF LITTER
3"–21" RED-BROWN FINE SANDY LOAM
21"–45" SAND & GRAVEL
45"–69" COMPACT SAND & GRAVEL

NO MOTTLING
NO LEDGE
NO GROUNDWATER
ROOTS TO 45"

DEEP TEST 8

0"–120" NO RESTRICTIVE LAYER

NOTE: FOR LEDGE VERIFICATION

DEEP TEST 9

0"–90" NO RESTRICTIVE LAYER

NOTE: FOR LEDGE VERIFICATION

PERCOLATION TEST B

PRESOAK: 12:50 PM
DEPTH: 29"
DIAMETER: 9"

TIME	DEPTH	DROP
1:54	11"	–
2:04	17 1/4"	6 1/4"
2:14	19 3/4"	2 1/2"
2:24	21 1/2"	1 3/4"
2:34	22 3/4"	1 1/4"
2:44	23 3/4"	1"
2:54	24 3/4"	1"
3:04	26"	1 1/4"

DESIGN RATE 1:10

PERCOLATION TEST C

PRESOAK: 12:50 PM
DEPTH: 20"
DIAMETER: 11"

TIME	DEPTH	DROP
1:56	7 3/4"	–
2:06	10 3/4"	3"
2:16	12 1/4"	1 1/2"
2:26	13 3/4"	1 1/2"
2:36	14 3/4"	1"
2:46	15 3/4"	1"
2:56	16 3/8"	5/8"
3:06	17"	5/8"

DESIGN RATE 1:20

NOTE: ALL DEEP AND PERCOLATION TESTS WERE PERFORMED BY McCHORD ENGINEERING ASSOCIATES, INC. IN FEBRUARY 2005. SINCE THE TESTING AND DEVELOPMENT OF THE SITE APPROXIMATELY 4' OF MISC. FILL WAS DEPOSITED ATOP DT6 AND DT7.

NO.	DATE	REVISIONS AND SUBMISSIONS
1	12-6-23	ISSUED FOR MUNICIPAL APPROVAL

SIGNATURE:

STATE OF CONNECTICUT THOMAS S. NELSON No. 20595 REGISTERED PROFESSIONAL ENGINEER

DRAWING NO:

SE2

SHEET 2 OF 2

McChord Engineering Associates, Inc.
Civil Engineers and Land Planners
1 Grumman Hill Road
Wilton, CT 06897 (203) 834-0569

PLAN PREPARED FOR
MARY CHEN
WESTON, CONNECTICUT

CONSTRUCTION NOTES AND DETAILS
20 MARTIN ROAD
WESTON, CONNECTICUT

JOB NO: 2300A-1	DATE: DECEMBER 6, 2023
DRAWN BY: DRS	CHECKED BY: TSN, HMR
SCALE: AS SHOWN	

file: 2300se2

McChord Engineering Associates, Inc.
Civil Engineers and Land Planners

1 Grumman Hill Road
Wilton, CT 06897
(203) 834-0569

STORMWATER MANAGEMENT REPORT

Prepared For

PROPOSED SITE DEVELOPMENT

20 MARTIN ROAD, WESTON, CT

December 6, 2023

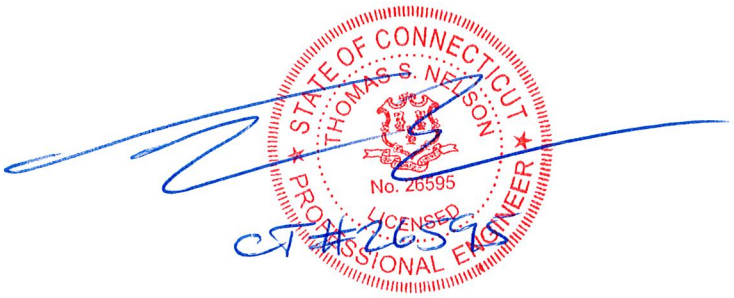


Table of Contents

1. Introduction

McChord Engineering Associates, Inc. has been commissioned by Mary Chen to perform stormwater management computations for the proposed site development at 20 Martin Road in Weston, Connecticut. The property consists of 2.03-acres and is located on the east side of Martin Road. It is in the Saugatuck River watershed basin and outside of any public water supply watersheds. Figure 1 shows the location of the property on the United States Geological Survey (USGS) map.

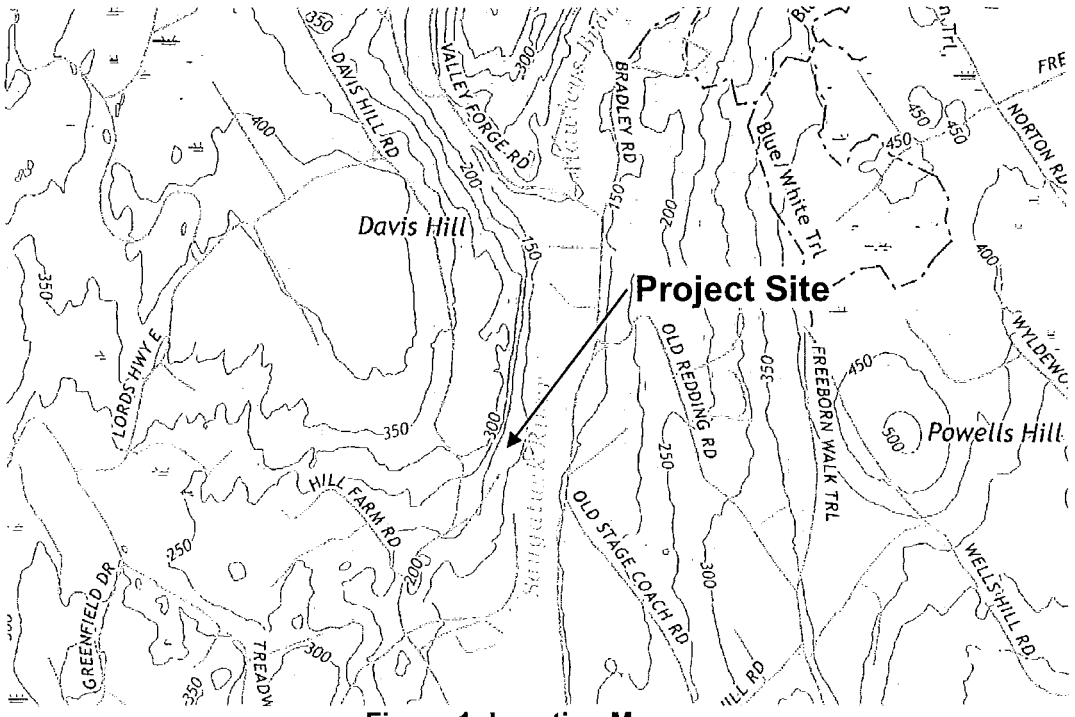


Figure 1: Location Map

The property is currently developed with a single-family residence, driveway, patios, woodland and lawn. The edges of the property are the Saugatuck River to the east and adjacent residences in all other directions. The eastern portion of the lot is comprised of woodland that provides a buffer between the developed portion of the lot and river. There is also a rip rap slope that provides a distinct delineation between the developed portion of the lot and the woodlands. Inland wetlands border the river to the west. The topography on-site consists of gradual slopes that generally drain east towards the Saugatuck River. The property is currently served by an on-site stormwater management system, septic system and private well.

The proposed site development includes the construction of a new pool and hardscape. The existing patios and retaining walls will be reconstructed to fit the new development. Retaining walls are proposed to the east to minimize earthwork. A portion of the existing rip rap slope will be temporarily disturbed to construct the walls, but a majority will remain intact during and following construction. Stormwater management measures are proposed to control runoff from the proposed development. Soil and erosion controls in the form of silt fences and staked haybales will be employed to protect the inland wetlands and Saugatuck River during construction.

2. Scope of Study

This stormwater management report contains studies comparing peak rate of runoff between the existing conditions and the proposed conditions to ensure that the proposed development will have no adverse impact on adjoining property owners, inland wetlands, downstream drainage systems and watercourses. The site will be developed with its own on-site stormwater management system capable of controlling the increase in peak runoff.

3. Analysis Methodology

Runoff was modeled with HydroCAD 8.50 software produced by HydroCAD Software Solutions LLC. This software uses the NRCS TR-20 method for analyzing stormwater runoff. Soil characteristics, cover conditions, slope, time of concentration, and historical rainfall data are all parameters that are utilized by this method. The analysis considered the 2, 10, 25 and 50-year storm events. Precipitation depth for each storm event was taken from the National Oceanic and Atmospheric Administration's (NOAA) Atlas 14 Point Precipitation Frequency Estimates specific to the subject property.

4. Stormwater Management Strategy

Currently, rooftop runoff from the existing house is captured by roof leaders and conveyed to an existing underground detention system to the northeast of the house. Driveway runoff is captured by driveway drains and conveyed to the existing detention system. The existing underground detention system consists of six (6) units of 24" high x 48" wide x 96" long precast concrete galleries surrounded by crushed stone. Runoff from the remainder of the property sheet flows east through the woods to the Saugatuck River following the topography. The existing rip rap slope helps to dissipate energy from runoff that is not captured.

The proposed stormwater management plan maintains existing drainage patterns on the site. Runoff from a portion of the proposed pool patio will be captured by slot drains and conveyed to the proposed underground detention system. Runoff from the lower patio will be captured by an area drain and conveyed to the proposed underground detention system. The proposed underground detention system consists of three (3) units of 48" high x 48" wide x 96" long precast concrete galleries surrounded by crushed stone with a storage capacity of approximately 422 cubic feet. During typical storm events, stormwater will infiltrate into the underlying soils and there will be no surface discharge from the detention system. A high-level overflow grate will provide relief during extreme storm events. Runoff from the remainder of the property, including a portion of the proposed patios, will continue to the sheet flow east to the Saugatuck River conforming to existing conditions.

Detailed information on the size and configuration of the proposed stormwater management measures is available on the most recent revision of the "Site Development Plan" prepared by this office. A Stormwater Facilities Maintenance Plan is also included in Appendix C.

5. Analysis & Results

Runoff from the property was analyzed under existing and proposed conditions. The existing and proposed conditions analyses modeled the entire property as a whole. The analyses divided the property into areas that are detained by the detention systems and undetained areas. The runoff that is not detained will sheet flow east through woodland to the inland wetlands and Saugatuck River.

Using the NRCS TR-20 method, the peak rate of runoff for the 2, 10, 25 and 50-year storm events was computed for the site. Soils on the property were determined using the NRCS Web Soil Survey. Cover conditions were derived from site observations and the "Site Development Plan" prepared by this office, dated December 6, 2023. Soil testing was previously performed on the property in the area of the underground detention systems and confirmed there would be suitable infiltration rates. The resulting peak flow rates under both the existing and proposed conditions are summarized in Table 1. For detailed computations see Appendix A.

Table 1: Peak Flows

Storm Event	Existing		Proposed	
	Rate (cfs)	Volume (ft^3)	Rate (cfs)	Volume (ft^3)
2-year	1.11	3,857	1.09	3,727
10-year	2.58	9,469	2.53	9,252
25-year	3.66	13,589	3.58	13,386
50-year	4.52	16,872	4.42	16,562

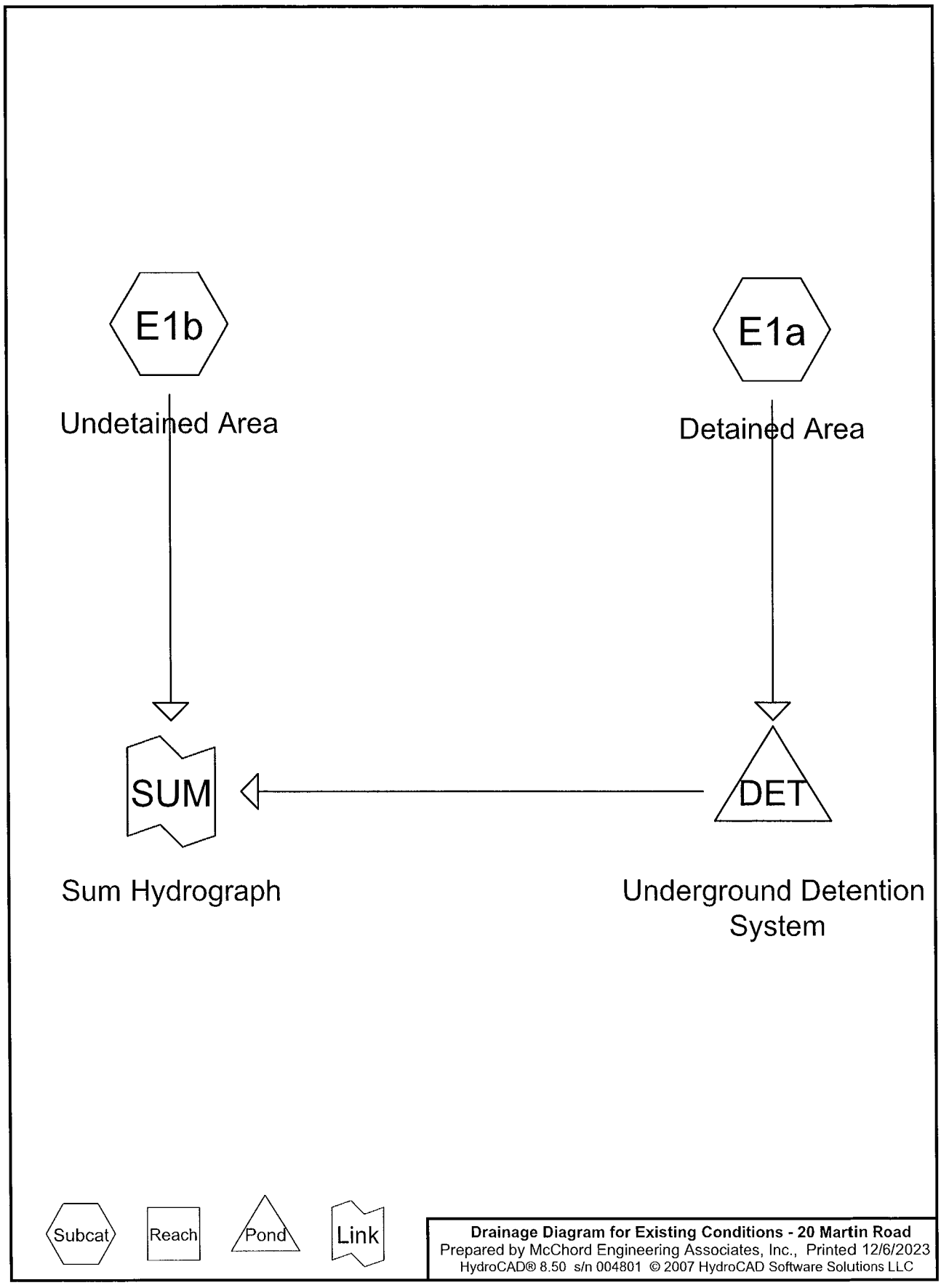
The analysis shows that there is no increase in the peak rate of runoff from the property during any of the analyzed storm events. The underground detention system also accommodates the first 1" of runoff from the impervious surfaces that drain to it. The runoff from the initial 1" of runoff, also known as the "first flush", is generally considered to contain the majority of pollutants. Collecting the first flush and allowing it to infiltrate into the soils provides filtration of the runoff and is an effective means of stormwater renovation. For detailed computations see Appendix B.

6. Conclusions

Based on our analysis, McChord Engineering Associates, Inc. has demonstrated that the proposed stormwater management system will adequately control the increase in runoff from the proposed development at 20 Martin Road in Weston, Connecticut. It is the opinion of this office and the conclusion of this report that the proposed site development will have no adverse impacts to the adjoining property owners, inland wetlands, watercourses or any downstream drainage systems.

APPENDIX A:

PEAK FLOW COMPUTATIONS



Drainage Diagram for Existing Conditions - 20 Martin Road
Prepared by McChord Engineering Associates, Inc., Printed 12/6/2023

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
15,400	55	Woods, Good, HSG B (E1b)
29,650	61	>75% Grass cover, Good, HSG B (E1b)
6,020	98	Existing Driveway (E1a)
2,070	98	Existing Patio & Covered Porch (E1b)
4,840	98	Existing Residence (E1a)
395	98	Existing Walkways (E1b)
58,375		**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentE1a: Detained Area Runoff Area=10,860 sf 100.00% Impervious Runoff Depth=7.25"
Tc=5.0 min CN=98 Runoff=1.90 cfs 6,562 cf

SubcatchmentE1b: Undetained Area Runoff Area=47,515 sf 5.19% Impervious Runoff Depth=3.06"
Flow Length=203' Tc=11.5 min CN=61 Runoff=3.19 cfs 12,119 cf

Pond DET: Underground Detention System Peak Elev=134.67' Storage=440 cf Inflow=1.90 cfs 6,562 cf
Discarded=0.02 cfs 1,761 cf Primary=1.88 cfs 4,753 cf Outflow=1.90 cfs 6,514 cf

Link SUM: Sum Hydrograph Inflow=4.52 cfs 16,872 cf
Primary=4.52 cfs 16,872 cf

Total Runoff Area = 58,375 sf Runoff Volume = 18,681 cf Average Runoff Depth = 3.84"
77.17% Pervious = 45,050 sf 22.83% Impervious = 13,325 sf

Summary for Subcatchment E1a: Detained Area

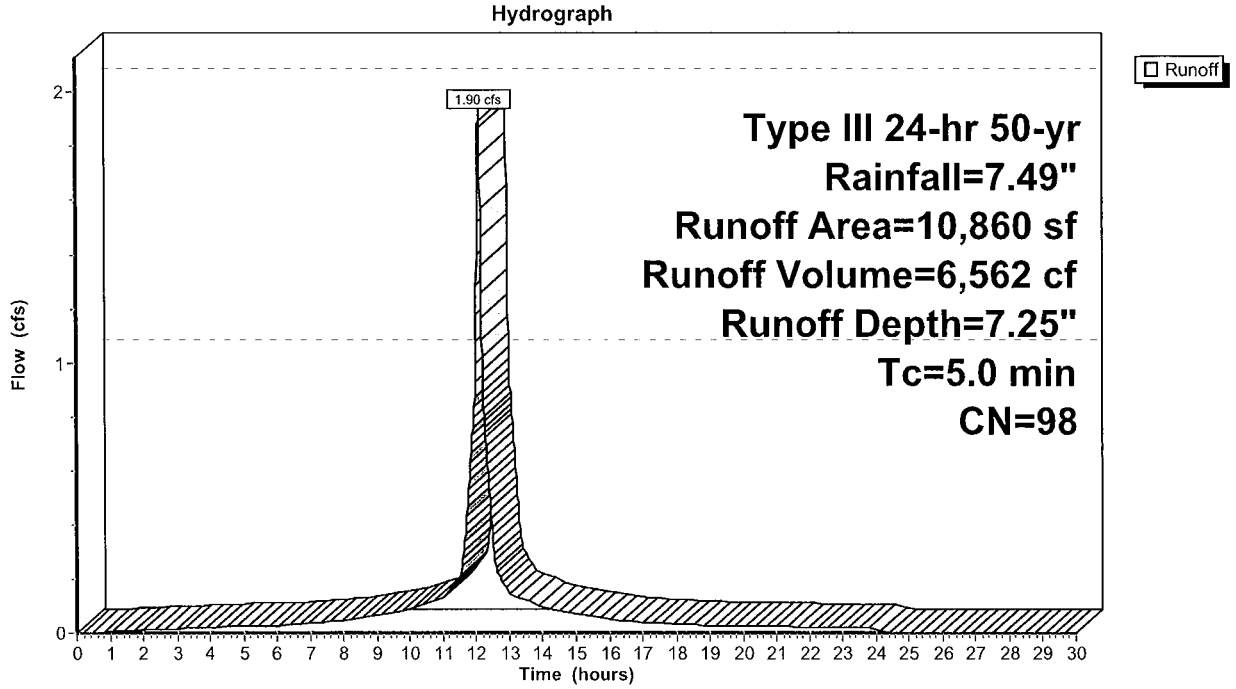
Runoff = 1.90 cfs @ 12.07 hrs, Volume= 6,562 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	4,840	98	Existing Residence
*	6,020	98	Existing Driveway
	10,860	98	Weighted Average
	10,860		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, AB**

Subcatchment E1a: Detained Area



Summary for Subcatchment E1b: Undetained Area

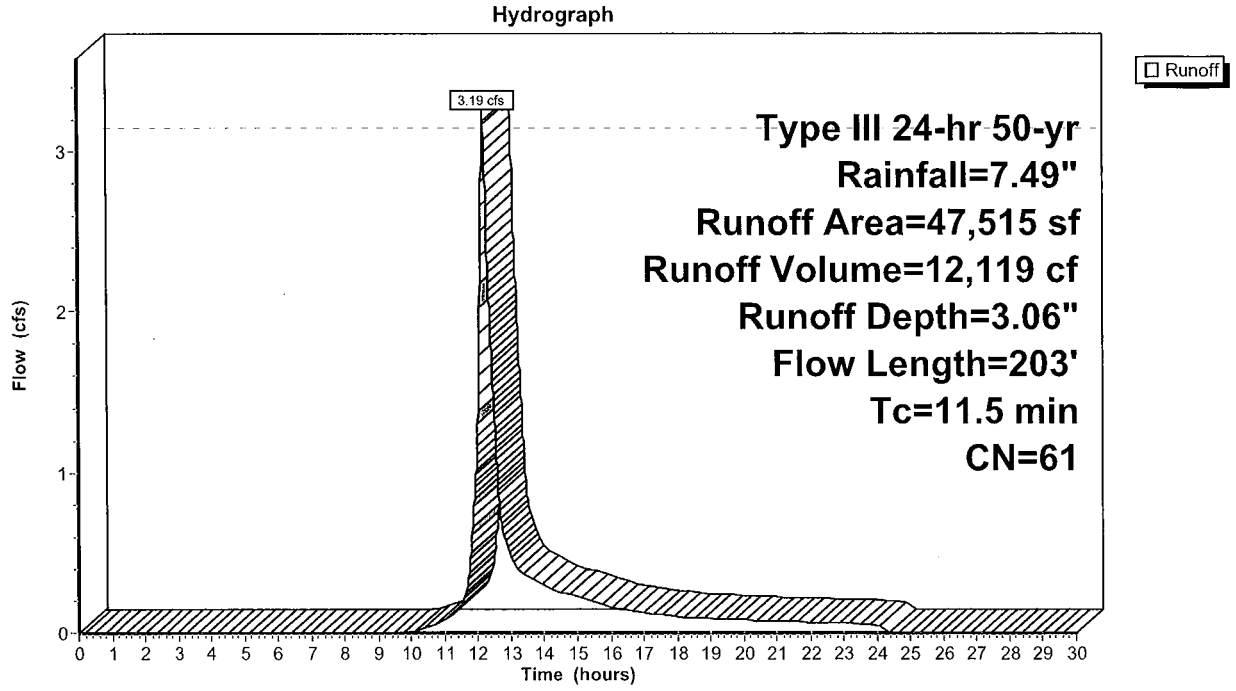
Runoff = 3.19 cfs @ 12.17 hrs, Volume= 12,119 cf, Depth= 3.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	2,070	98	Existing Patio & Covered Porch
*	395	98	Existing Walkways
	29,650	61	>75% Grass cover, Good, HSG B
	15,400	55	Woods, Good, HSG B
	47,515	61	Weighted Average
	45,050		Pervious Area
	2,465		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	129	0.1160	0.26		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.45"
2.7	21	0.1430	0.13		**Sheet Flow, BC** Woods: Light underbrush n= 0.400 P2= 3.45"
0.5	53	0.1320	1.82		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
11.5	203	Total			

Subcatchment E1b: Undetained Area



Summary for Pond DET: Underground Detention System

Inflow Area = 10,860 sf,100.00% Impervious, Inflow Depth = 7.25" for 50-yr event
Inflow = 1.90 cfs @ 12.07 hrs, Volume= 6,562 cf
Outflow = 1.90 cfs @ 12.07 hrs, Volume= 6,514 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.02 cfs @ 3.47 hrs, Volume= 1,761 cf
Primary = 1.88 cfs @ 12.07 hrs, Volume= 4,753 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 134.67' @ 12.07 hrs Surf.Area= 300 sf Storage= 440 cf

Plug-Flow detention time= 73.0 min calculated for 6,512 cf (99% of inflow)
Center-of-Mass det. time= 68.2 min (809.3 - 741.1)

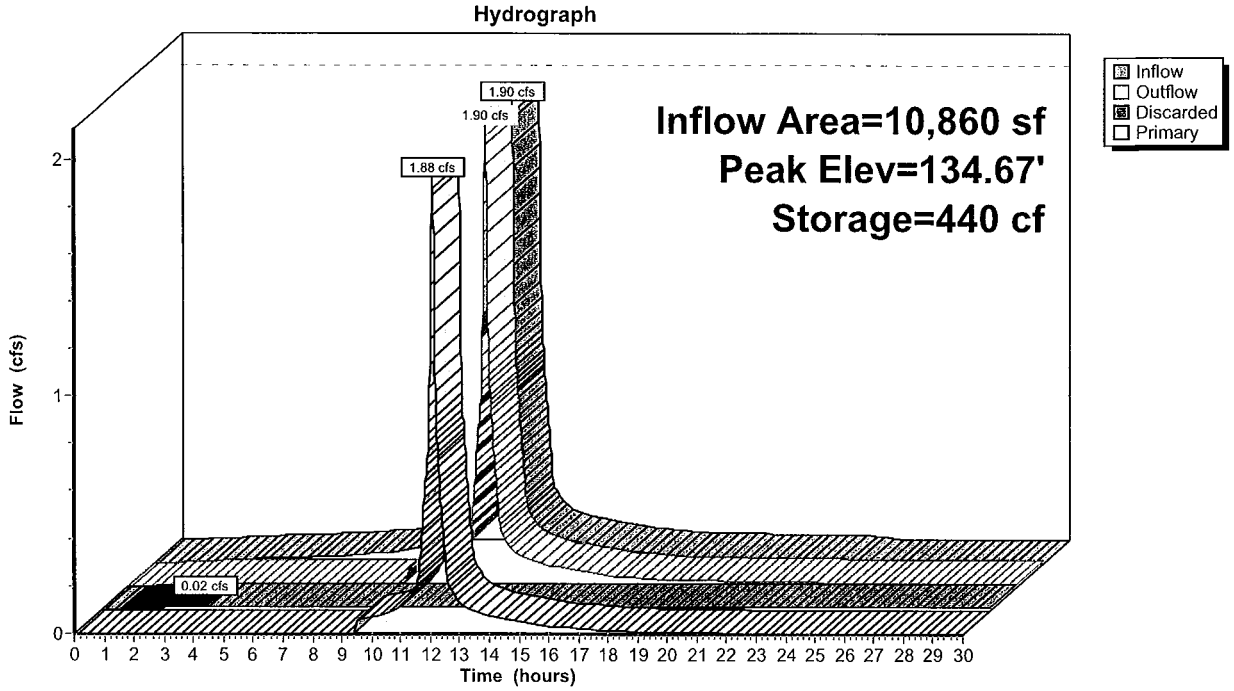
Volume	Invert	Avail.Storage	Storage Description
#1	132.00'	172 cf	**6.00'W x 50.00'L x 2.70'H Gravel Bed** 810 cf Overall - 380 cf Embedded = 430 cf x 40.0% Voids
#2	132.50'	272 cf	**48.0"W x 24.0"H x 48.00'L Galley 4x8x2**Inside #1
		444 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	132.00'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	134.50'	**2.00' x 2.00' Horiz. Orifice/Pipe** Limited to weir flow C= 0.600

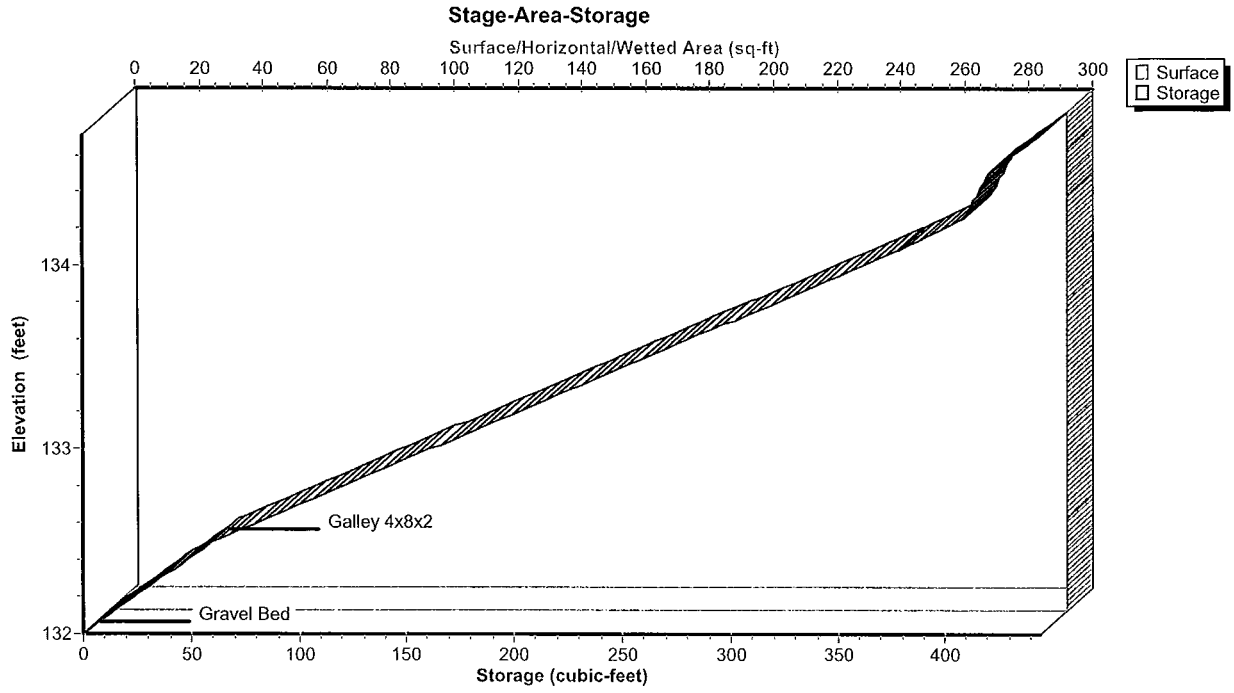
Discarded OutFlow Max=0.02 cfs @ 3.47 hrs HW=132.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.88 cfs @ 12.07 hrs HW=134.67' (Free Discharge)
↑—**2=Orifice/Pipe** (Weir Controls 1.88 cfs @ 1.36 fps)

Pond DET: Underground Detention System



Pond DET: Underground Detention System

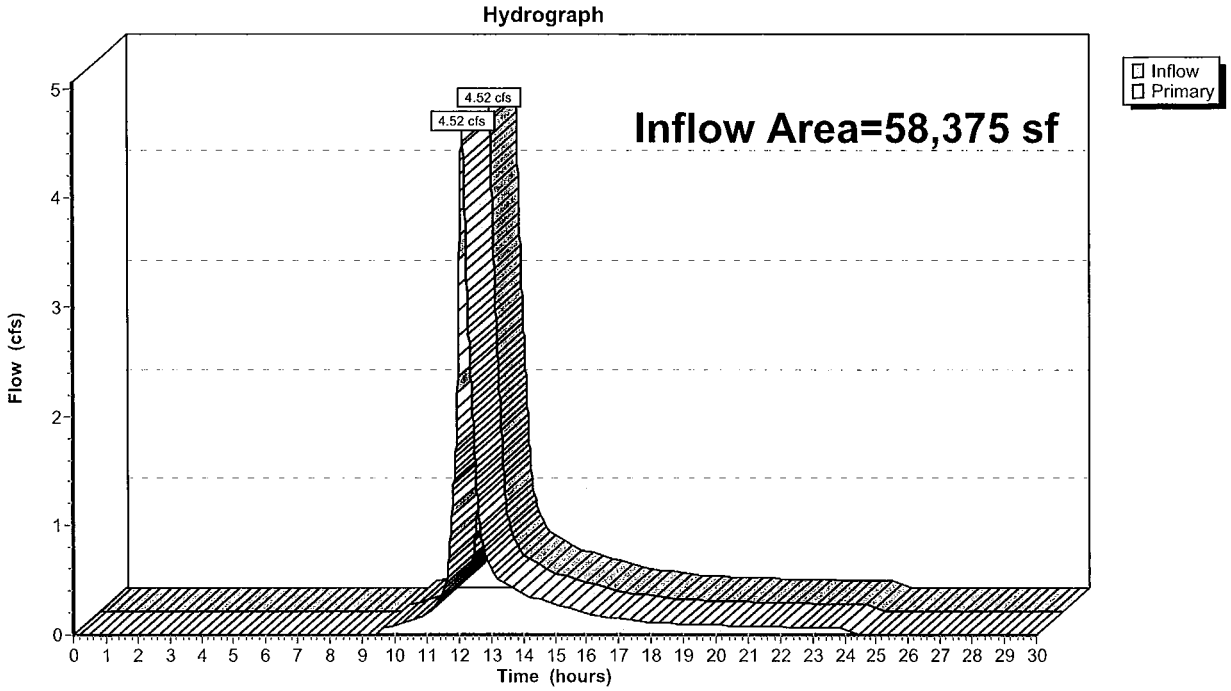


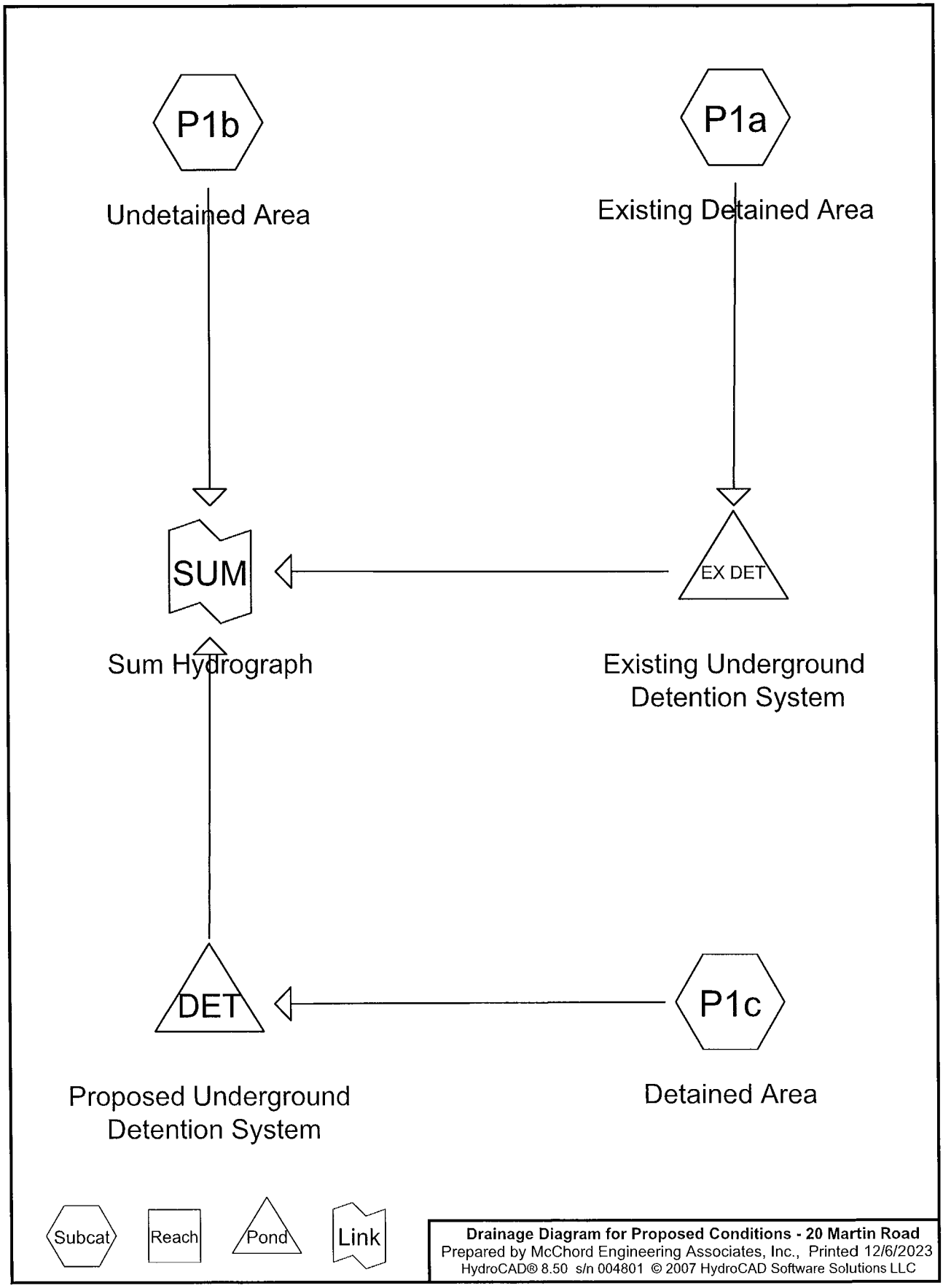
Summary for Link SUM: Sum Hydrograph

Inflow Area = 58,375 sf, 22.83% Impervious, Inflow Depth = 3.47" for 50-yr event
Inflow = 4.52 cfs @ 12.12 hrs, Volume= 16,872 cf
Primary = 4.52 cfs @ 12.12 hrs, Volume= 16,872 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link SUM: Sum Hydrograph





Drainage Diagram for Proposed Conditions - 20 Martin Road
Prepared by McChord Engineering Associates, Inc., Printed 12/6/2023

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
15,400	55	Woods, Good, HSG B (P1b)
27,870	61	>75% Grass cover, Good, HSG B (P1b)
290	98	Existing Covered Porch (P1b)
6,020	98	Existing Driveway (P1a)
4,840	98	Existing Residence (P1a)
395	98	Existing Walkway (P1b)
2,480	98	Proposed Patio (P1b,P1c)
1,080	98	Proposed Pool (P1b)
58,375		**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentP1a: Existing Detained Runoff Area=10,860 sf 100.00% Impervious Runoff Depth=7.25"
Tc=5.0 min CN=98 Runoff=1.90 cfs 6,562 cf

SubcatchmentP1b: Undetained Area Runoff Area=45,915 sf 5.76% Impervious Runoff Depth=3.06"
Flow Length=203' Tc=11.5 min CN=61 Runoff=3.09 cfs 11,711 cf

SubcatchmentP1c: Detained Area Runoff Area=1,600 sf 100.00% Impervious Runoff Depth=7.25"
Tc=5.0 min CN=98 Runoff=0.28 cfs 967 cf

Pond DET: Proposed Underground Detention Peak Elev=138.01' Storage=416 cf Inflow=0.28 cfs 967 cf
Discarded=0.01 cfs 794 cf Primary=0.06 cfs 98 cf Outflow=0.07 cfs 892 cf

Pond EX DET: Existing Underground Peak Elev=134.67' Storage=440 cf Inflow=1.90 cfs 6,562 cf
Discarded=0.02 cfs 1,761 cf Primary=1.88 cfs 4,753 cf Outflow=1.90 cfs 6,514 cf

Link SUM: Sum Hydrograph Inflow=4.42 cfs 16,562 cf
Primary=4.42 cfs 16,562 cf

Total Runoff Area = 58,375 sf Runoff Volume = 19,240 cf Average Runoff Depth = 3.96"
74.12% Pervious = 43,270 sf 25.88% Impervious = 15,105 sf

Summary for Subcatchment P1a: Existing Detained Area

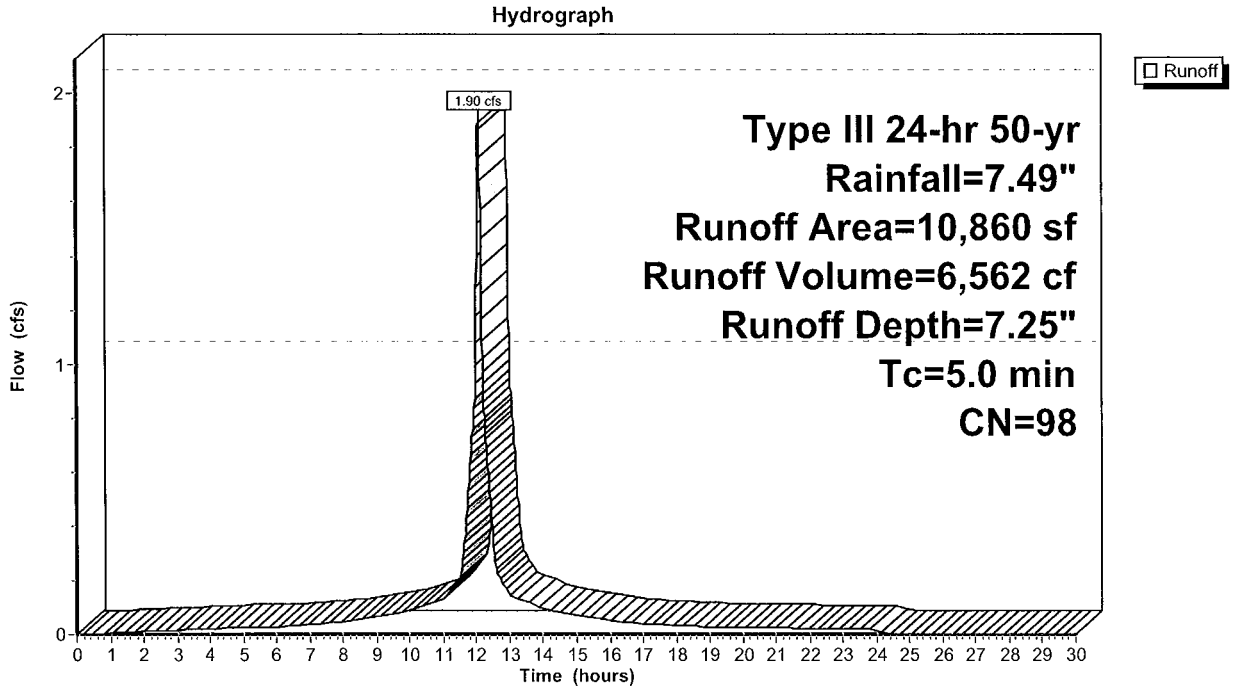
Runoff = 1.90 cfs @ 12.07 hrs, Volume= 6,562 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	4,840	98	Existing Residence
*	6,020	98	Existing Driveway
	10,860	98	Weighted Average
	10,860		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, AB**

Subcatchment P1a: Existing Detained Area



Summary for Subcatchment P1b: Undetained Area

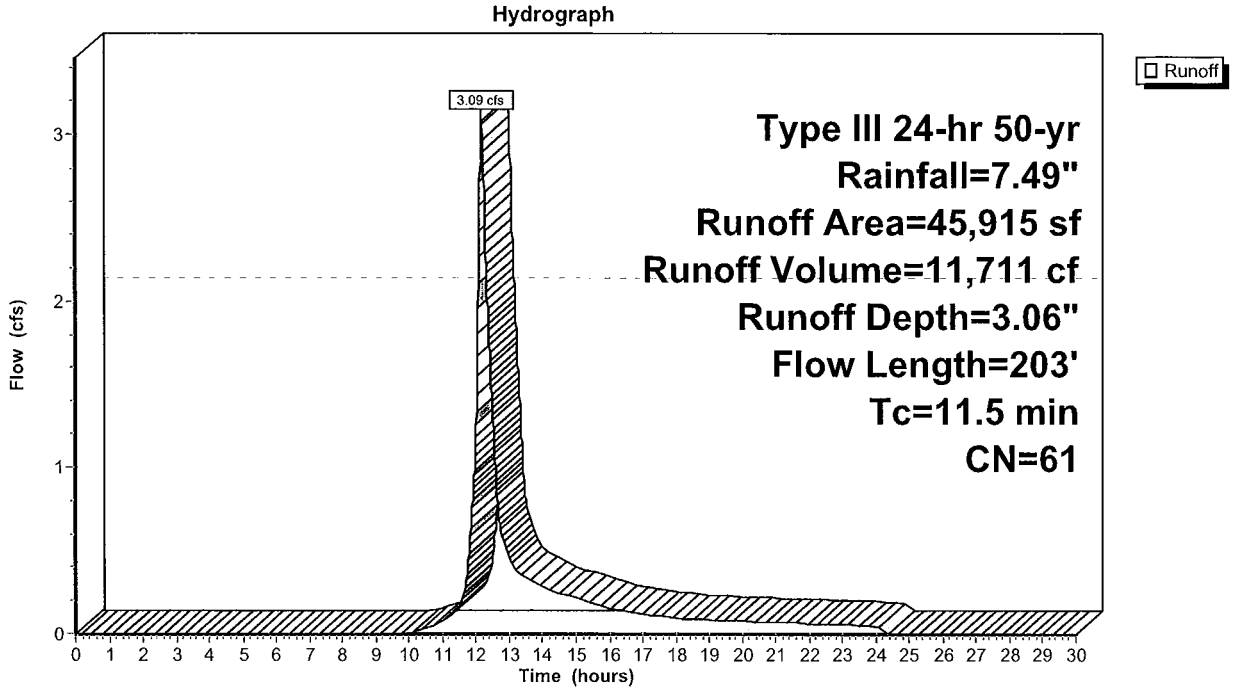
Runoff = 3.09 cfs @ 12.17 hrs, Volume= 11,711 cf, Depth= 3.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	395	98	Existing Walkway
*	290	98	Existing Covered Porch
*	880	98	Proposed Patio
*	1,080	98	Proposed Pool
	27,870	61	>75% Grass cover, Good, HSG B
	15,400	55	Woods, Good, HSG B
	45,915	61	Weighted Average
	43,270		Pervious Area
	2,645		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	129	0.1160	0.26		**Sheet Flow, AB** Grass: Dense n= 0.240 P2= 3.45"
2.7	21	0.1430	0.13		**Sheet Flow, BC** Woods: Light underbrush n= 0.400 P2= 3.45"
0.5	53	0.1320	1.82		**Shallow Concentrated Flow, CD** Woodland Kv= 5.0 fps
11.5	203	Total			

Subcatchment P1b: Undetained Area



Summary for Subcatchment P1c: Detained Area

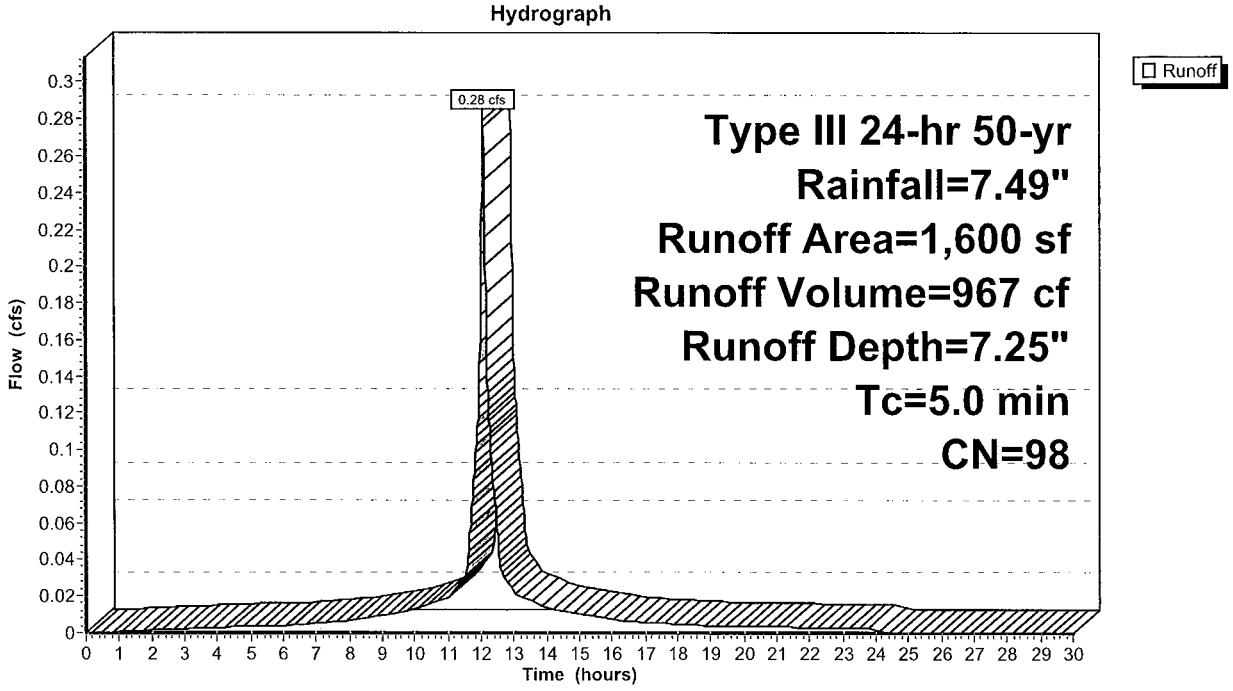
Runoff = 0.28 cfs @ 12.07 hrs, Volume= 967 cf, Depth= 7.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.49"

	Area (sf)	CN	Description
*	1,600	98	Proposed Patio
	1,600		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, AB**

Subcatchment P1c: Detained Area



Summary for Pond DET: Proposed Underground Detention System

Inflow Area = 1,600 sf,100.00% Impervious, Inflow Depth = 7.25" for 50-yr event
Inflow = 0.28 cfs @ 12.07 hrs, Volume= 967 cf
Outflow = 0.07 cfs @ 12.43 hrs, Volume= 892 cf, Atten= 75%, Lag= 21.8 min
Discarded = 0.01 cfs @ 8.83 hrs, Volume= 794 cf
Primary = 0.06 cfs @ 12.43 hrs, Volume= 98 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 138.01' @ 12.43 hrs Surf.Area= 156 sf Storage= 416 cf

Plug-Flow detention time= 329.2 min calculated for 892 cf (92% of inflow)
Center-of-Mass det. time= 287.6 min (1,028.7 - 741.1)

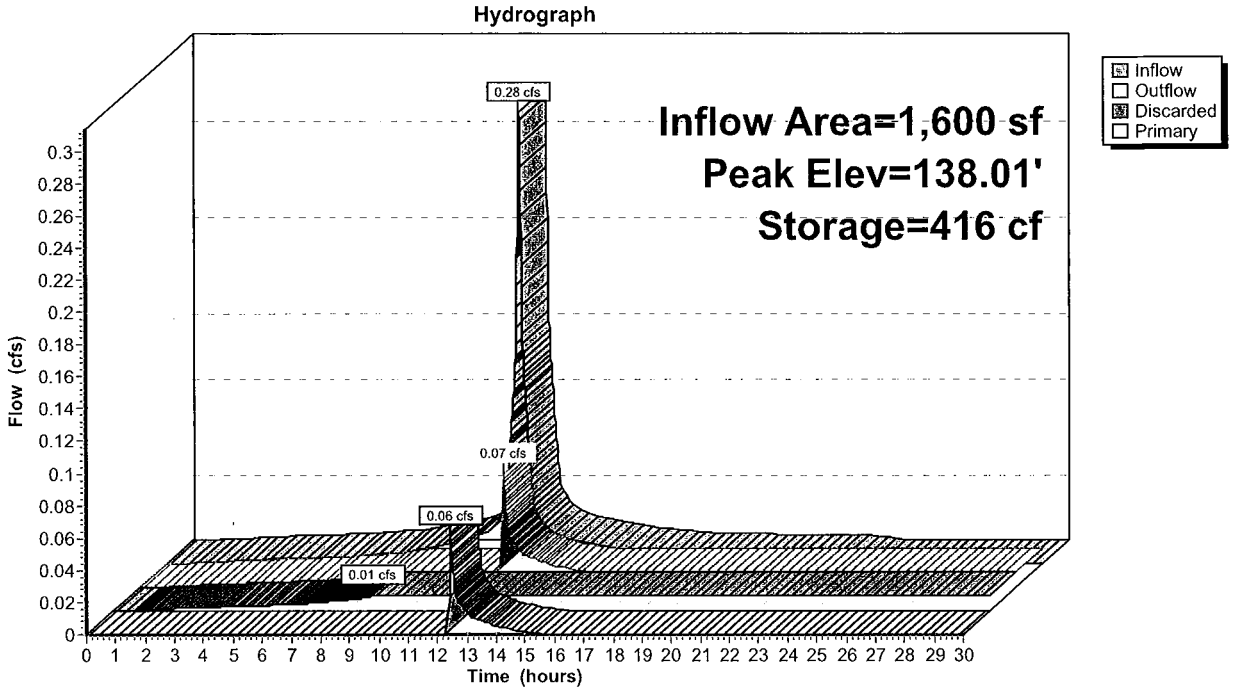
Volume	Invert	Avail.Storage	Storage Description
#1	133.50'	141 cf	**6.00'W x 26.00'L x 4.60'H Gravel Bed** 718 cf Overall - 365 cf Embedded = 353 cf x 40.0% Voids
#2	134.00'	281 cf	**52.8"W x 48.0"H x 24.00'L Galley 4x8x4**Inside #1
		422 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	133.50'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	138.00'	**2.00' x 2.00' Horiz. Highlevel Overflow Grate** Limited to weir flow C= 0.600

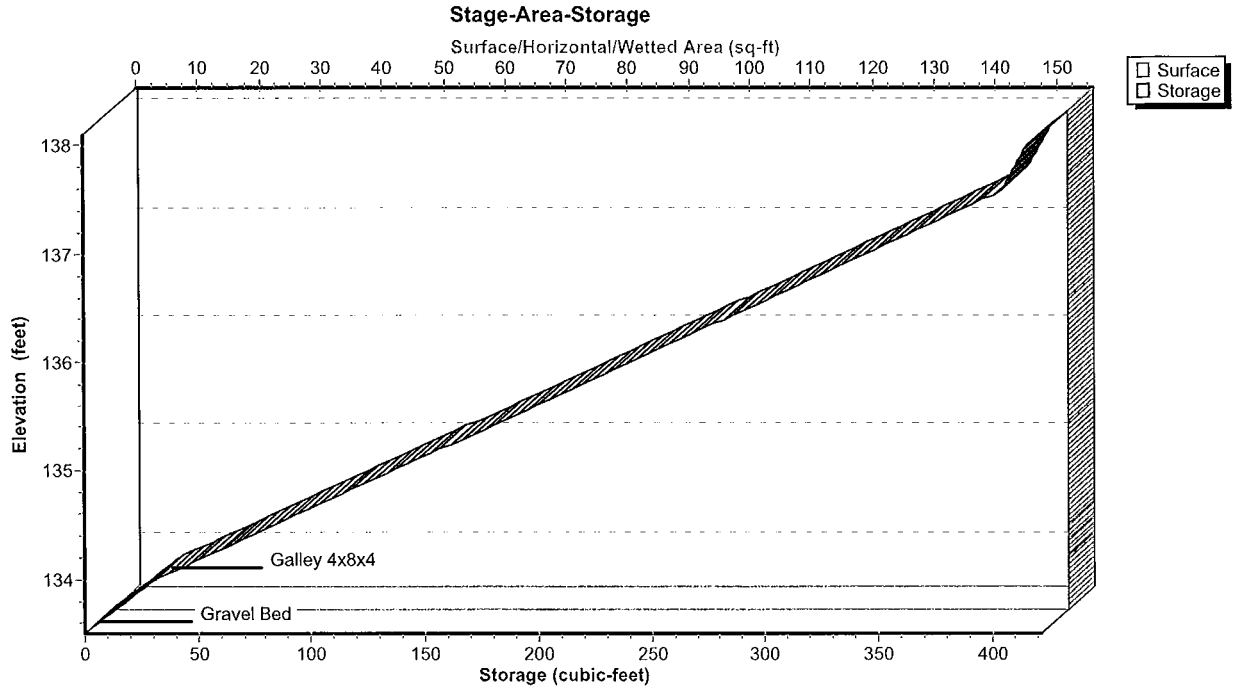
Discarded OutFlow Max=0.01 cfs @ 8.83 hrs HW=133.55' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.04 cfs @ 12.43 hrs HW=138.01' (Free Discharge)
↑—**2=Highlevel Overflow Grate** (Weir Controls 0.04 cfs @ 0.39 fps)

Pond DET: Proposed Underground Detention System



Pond DET: Proposed Underground Detention System



Summary for Pond EX DET: Existing Underground Detention System

Inflow Area = 10,860 sf,100.00% Impervious, Inflow Depth = 7.25" for 50-yr event
Inflow = 1.90 cfs @ 12.07 hrs, Volume= 6,562 cf
Outflow = 1.90 cfs @ 12.07 hrs, Volume= 6,514 cf, Atten= 0%, Lag= 0.1 min
Discarded = 0.02 cfs @ 3.47 hrs, Volume= 1,761 cf
Primary = 1.88 cfs @ 12.07 hrs, Volume= 4,753 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 134.67' @ 12.07 hrs Surf.Area= 300 sf Storage= 440 cf

Plug-Flow detention time= 73.1 min calculated for 6,514 cf (99% of inflow)
Center-of-Mass det. time= 68.2 min (809.3 - 741.1)

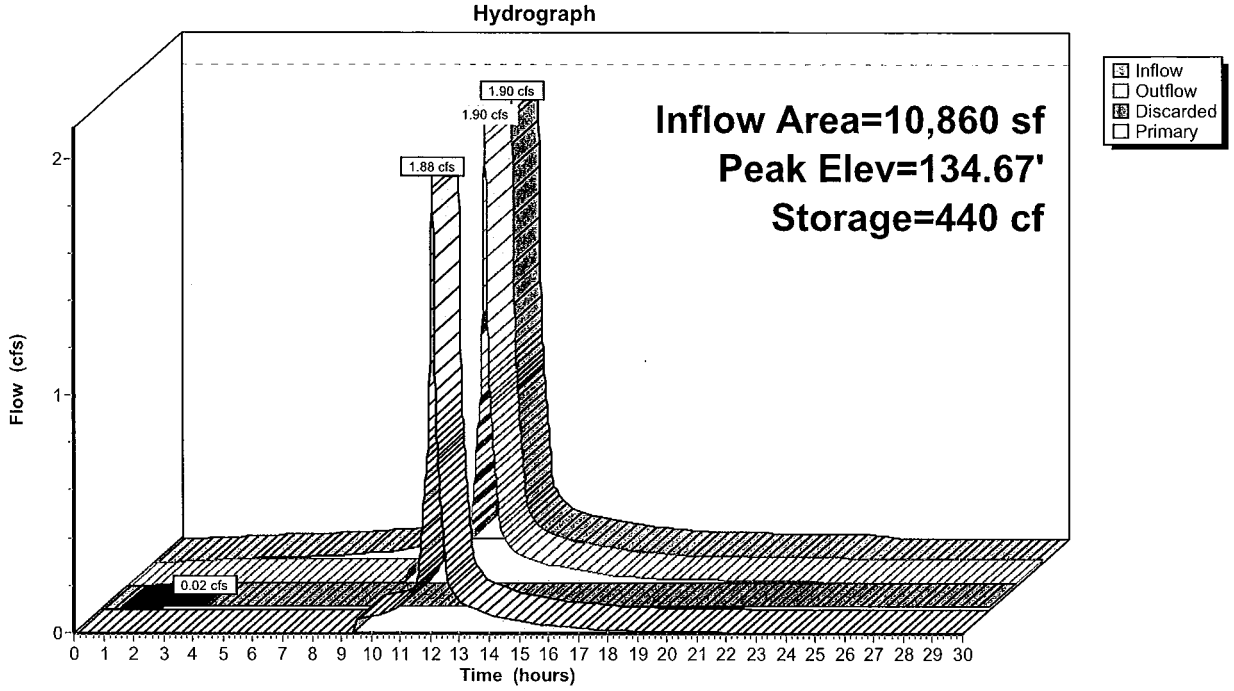
Volume	Invert	Avail.Storage	Storage Description
#1	132.00'	172 cf	**6.00'W x 50.00'L x 2.70'H Gravel Bed** 810 cf Overall - 380 cf Embedded = 430 cf x 40.0% Voids
#2	132.50'	272 cf	**48.0"W x 24.0"H x 48.00'L Galley 4x8x2**Inside #1
		444 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	132.00'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	134.50'	**2.00' x 2.00' Horiz. Orifice/Grate** Limited to weir flow C= 0.600

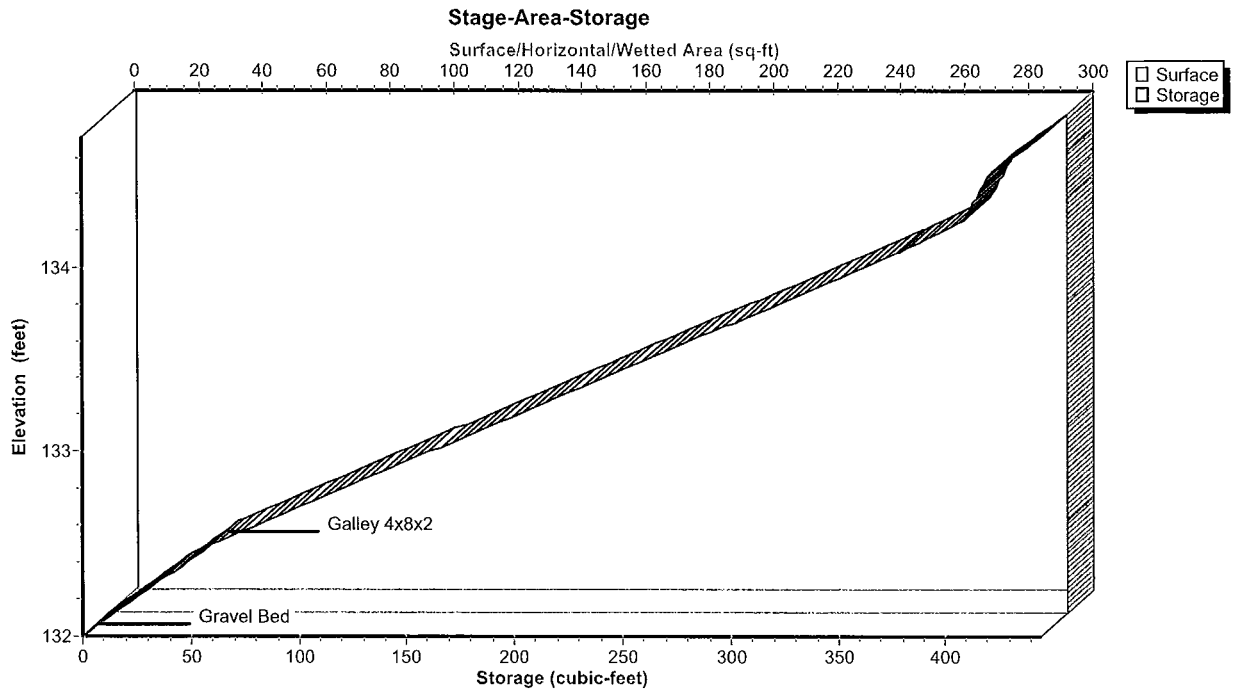
Discarded OutFlow Max=0.02 cfs @ 3.47 hrs HW=132.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=1.88 cfs @ 12.07 hrs HW=134.67' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 1.88 cfs @ 1.36 fps)

Pond EX DET: Existing Underground Detention System



Pond EX DET: Existing Underground Detention System

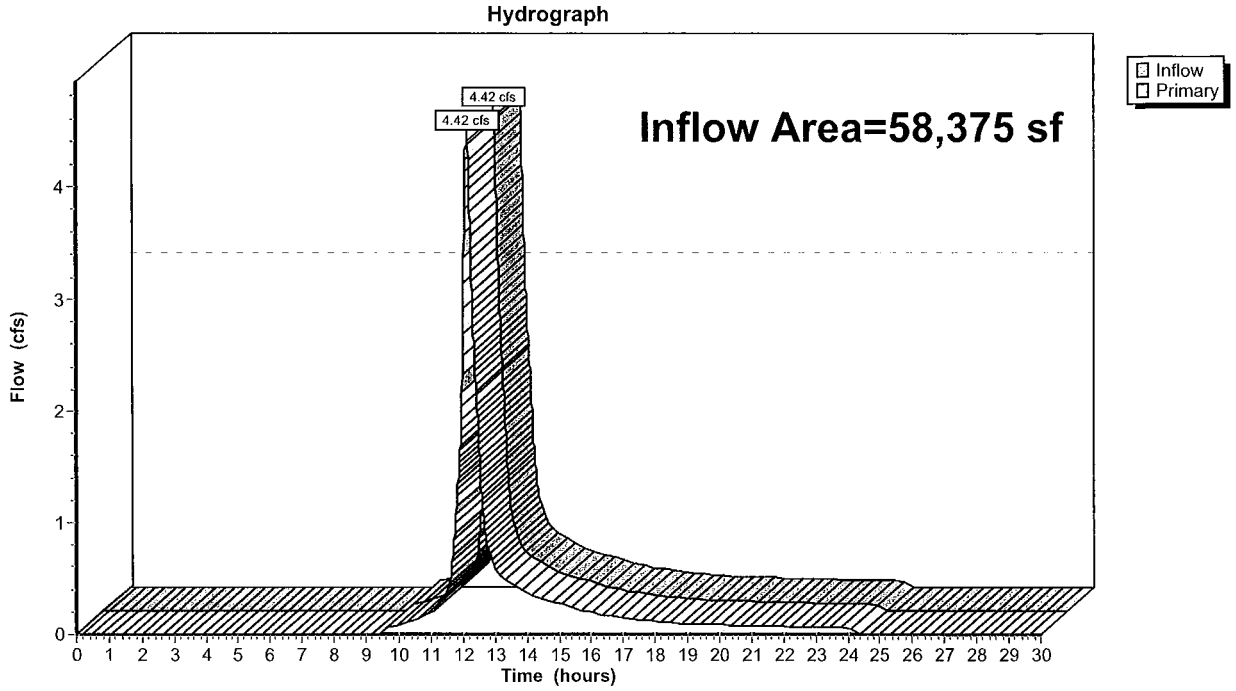


Summary for Link SUM: Sum Hydrograph

Inflow Area = 58,375 sf, 25.88% Impervious, Inflow Depth = 3.40" for 50-yr event
Inflow = 4.42 cfs @ 12.12 hrs, Volume= 16,562 cf
Primary = 4.42 cfs @ 12.12 hrs, Volume= 16,562 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link SUM: Sum Hydrograph



APPENDIX B:

WATER QUALITY VOLUME COMPUTATIONS

Water Quality Volume Computation

20 Martin Road, Weston, CT

AREA TO BE CAPTURED	
Description	**Area, (ft^2)**
Proposed Patio	1,600

Location	A Area (ft^2)	Imperv. Area (ft^2)	I % Imperv.	R Runoff Coeff.	WQV (ft^3)
Proposed Development	1,600	1,600	100.0	0.950	127

Location	System Description	Volume Provided Below Overflow Grate (ft^3)
Proposed Detention System	Three (3) units of 4'x8'x4' Concrete Galleries	422

$$WQV = \frac{(1")(R)(A)}{12}$$

where:
- WQV = water quality volume (ac-ft)
- R = volumetric runoff coefficient = 0.05+0.009(I)
- I = percent impervious cover
- A = site area in acres

APPENDIX C:

STORMWATER FACILITIES MAINTENANCE PLAN

Stormwater Facilities Maintenance Plan

20 Martin Road, Weston, CT
Map 17, Block 2, Lot 38

Scope:

The purpose of the Stormwater Facilities Maintenance Plan is to ensure that the proposed stormwater components installed for 20 Martin Road are maintained in operational condition throughout the life of the home. The service procedures associated with this plan shall be performed as required by the parties legally responsible for their maintenance.

Description of Stormwater Facilities:

The proposed stormwater facilities are designed to collect and the runoff from the site in order to minimize adverse impacts to any downstream drainage systems, inland wetlands or adjoining properties. A description of the stormwater facilities are as follows:

1. Slot/Area Drains: Slot and area drains will collect runoff from the hardscape and convey it to the underground detention system. All drains are equipped with a sump designed to capture sediment and debris from the runoff.

2. Underground Detention System: The underground detention system consists of a series of concrete galleries which provide storage volume for stormwater runoff. Stormwater in the underground detention system is designed to infiltrate into the underlying soils. The detention chambers are designed to overflow from a grate at ground surface.

Recommended Frequency of Service:

All of the stormwater components installed for this property should be checked periodically and kept in full working order. Ultimately the frequency of inspection and service cleaning depends on the amount of runoff, pollutant loading and interference from debris (leaves, vegetation, trash, etc.); however it is recommended that each facility be inspected and cleaned a minimum of two times a year. The guidelines for the timing of service include early spring after the winter season and late fall after the leaves have fallen from the trees.

Service Procedures:

Service can be performed by the homeowner, landscape contractor or handyman since no specialzed equipment is required. Specific service procedures for the stormwater facilities are as follows:

1. Slot/Area Drains: All drains shall be inspected and cleaned twice a year during the spring and fall service inspections. The cleaning shall include both removal of sediment from the sumps and removal of any trash and/or debris from the grate.

2. Underground Detention Galleries: Functionality of the underground detention galleries ultimately depends on keeping sediment and debris out of the galleries. This is accomplished through proper maintenance of drains. These components should be maintained as described above, but more frequent maintenance may be required if excessive accumulation of debris is observed. Debris should be removed from the overflow grate during the spring and fall service inspections.