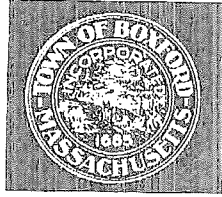


MEETING
MARCH 25, 2015



TOWN OF BOXFORD
PLANNING BOARD

7A Spofford Road
Boxford, Massachusetts 01921
Phone: (978) 887-6000 x 191 Fax: (978) 887-0758
Email: rpovenmire@town.boxford.ma.us

APPLICATION FOR DRIVEWAY PERMIT

The purpose of this permit is to provide safe and adequate access for emergency and other vehicles from the public way to residential dwellings. It has been developed in accordance with §196-29 of the Boxford Zoning Bylaw. The applicant shall read the bylaw on the back of this page.

Name MATT + KATIE FOTES Date 2/20/15

Driveway location/address 16 WOOD HILL LANE, BOXFORD

Required Design Criteria	Compliance - Yes	No
1. Finished driveway width shall be no less than 9 feet	X	_____
2. Grade for the first 25 feet of driveway from the public way - 3% or less	N/A	_____
3. 12% maximum slope along the centerline	X	_____
4. Any slope over 8% shall be paved	X	_____
5. Driveway apron should be 90° to the road	N/A	_____
6. Driveway apron should have curved flare radii of 6'	N/A	_____
7. No physical barriers on inside of driveway curves	X	_____
8. Rate of post-development runoff should not exceed pre-development runoff	X	_____
9. Water shall not flow from driveway onto road	N/A	_____
10. Sight distance shall exceed 50' in both directions	X	_____
11. Driveways longer than 500' shall have a turn-around	X	_____
12. No cut or fill shall exceed 8' from the natural topography	X	_____
13. Shared driveways shall be no closer than 100' apart	N/A	_____
14. Shared portion of a driveway shall be no less than 12 feet	N/A	_____

The Superintendent of Public Works and Fire Chief may impose other conditions at their discretion to ensure safe access and to prevent any damage or dangerous situation(s) because of drainage, icing, etc. onto public roads. These conditions are indicated below.

Applicant Signature [Signature] Date 3-2-15

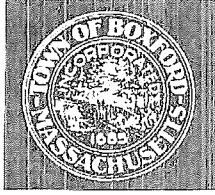
Planning Board Approval _____ Date _____

Conditions:

§196-29. Driveways

It shall be unlawful to install, construct, reconstruct or relocate any driveway without first obtaining a driveway permit from the Planning Board. Normal maintenance such as repairs and repaving shall be exempt provided repairs and repaving do not increase water runoff onto the public way or abutting lots..

- A. **Driveways for detached single-family houses** shall comply with the following:
1. Layouts and configurations shall avoid excessive curves, switchbacks, and slopes to provide optimal safety for access to and from the dwelling site.
 2. To the extent possible, the driveway apron shall be aligned at ninety degrees (90°) to the road and have curved flare radii of six feet (6') between the road and drive.
 3. No person or persons shall cut or destroy any tree on Town property (right-of-way along side of the road), without first obtaining the approval of the Boxford Planning Board and the Boxford Tree Warden. No person or persons shall remove, alter, or destroy any stone wall on or bordering Town property (right-of-way along side of the road) without first obtaining the approval of the Boxford Planning Board in accordance with the Scenic Road bylaw.
- B. **Single driveways** shall meet the following standards.
1. All single driveways shall have a finished width no less than nine feet (9').
 2. The first twenty five feet (25') in from the paved portion of the public way shall have a maximum slope of three percent (3%); the maximum driveway slope along the centerline shall be twelve percent (12%); any slopes over eight percent (8%) shall be paved. To preserve the stability of the existing natural topography, no cut or fill in excess of eight feet (8') of the natural topography shall be allowed within the limits of the driveway cross section.
 3. The slope grade shall allow rapid emergency access during normal weather conditions. No physical barrier shall be located on the inside of the curves that could impede fire truck or emergency vehicle access.
 4. The rate of runoff during construction and post-development shall not exceed the rate of pre-development runoff.
 5. After driveway completion, water runoff from the new driveway shall not be allowed to enter onto the public right-of-way and abutting property at any time.
 6. The Planning Board may impose conditions on the construction, re-construction or relocation of a driveway at their discretion to ensure safe access onto public roads and to prevent any damage or dangerous situation(s) due to drainage, icing, or other hazards. The conditions may incorporate recommendations made by the Fire Chief, Police Chief and Superintendent of Public Works.
 7. The Superintendent of Public Works and Fire Chief may impose other conditions at their discretion to ensure safe access and to prevent any damage or dangerous situation(s) because of drainage, icing, etc. onto public roads.
 8. Sight distance entering the public way, shall be fifty feet (50') in either direction to the best extent possible.
 9. During construction, no debris shall be left on the road or shoulder; nor shall drainage structures, culverts, or ditches be blocked or impeded at any time.
 10. All driveways longer than five hundred feet (500') shall have a turn-around location within twenty five feet (25') of the dwelling for large vehicle turnaround.
 11. Driveways shall conform to all other rules and regulations of the Town of Boxford.
- C. **Shared Driveways** shall conform to all the regulations as set forth in Subsection B and §196-13B (11)(m) of the Zoning Bylaw, plus the following:
1. The shared driveway shall not enter the roadway at a point separated by less than one hundred feet (100') (centerline to centerline) from any other driveway or intersection.
 2. The shared portion of the driveway shall have a finished width no less than twelve feet (12') plus a one foot (1') level shoulder on either side.
- D. **Application**
1. The driveway location, layout, slopes, drainage, and associated improvements, shall be shown on a plan prepared by a professional architect, engineer, or landscape architect. The Planning Board at its sole discretion may waive the requirements for a driveway site plan.
 2. Four copies of the plan shall be submitted to the Planning Board for review. The Planning Board may circulate the copies to the Fire Chief, Police Chief, and the Superintendent of Public Works.
 3. The Fire Chief, Police Chief, and the Superintendent of Public Works may return recommendations within 14 days to the Planning Board. If no recommendations are received within 14 days to the Planning Board, the official failing to submit a report shall be deemed to have approved the proposed work on the driveway.



**TOWN OF BOXFORD
PLANNING BOARD**

7A Spofford Road
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Phone: (978) 887-6000 x 191 Fax: (978) 887-0758
Email: rpovenmire@town.boxford.ma.us

APPLICATION FOR DRIVEWAY PERMIT

Kerry Stickney
Gordon Russell
John Dold

The attached driveway permit has been submitted for review by the Planning Board. Could you please review the plans and send any comments and suggested conditions to me by: _____

Thanks,

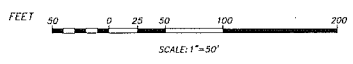
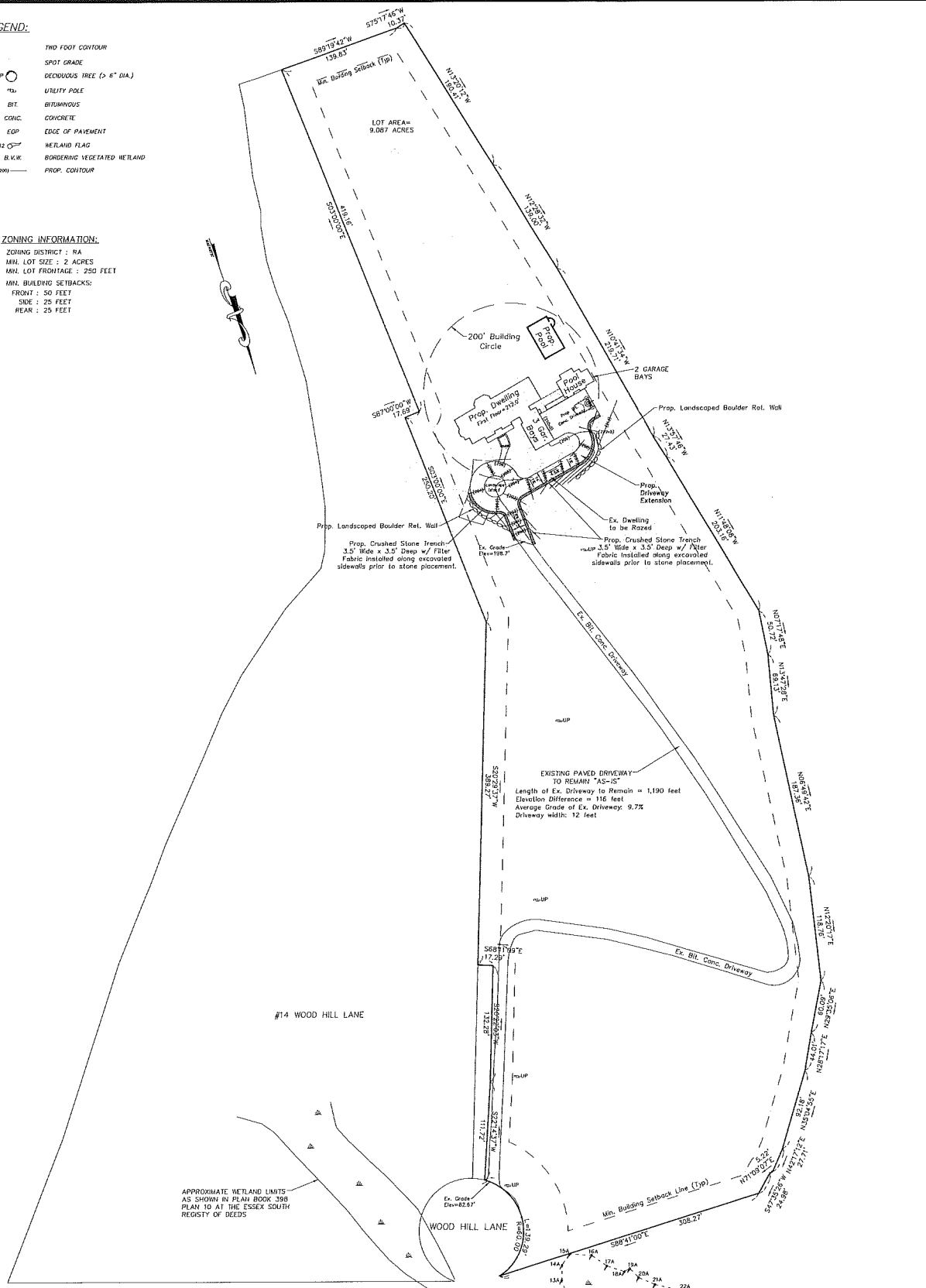
Ross Povenmire,
Boxford Planning Board Administrator

LEGEND:

- TWO FOOT CONTOUR
- SPOT GRADE
- DECIDUOUS TREE (> 6" DIA.)
- UTILITY POLE
- BIT. BITUMINOUS
- CONC. CONCRETE
- EQP. EDGE OF PAVEMENT
- WETLAND FLAG
- B.V.K.W. BORDERING VEGETATED WETLAND
- (---) PROP. CONTOUR

ZONING INFORMATION:

- ZONING DISTRICT: RA
- MIN. LOT SIZE: 2 ACRES
- MIN. LOT FRONTAGE: 250 FEET
- MIN. BUILDING SETBACKS:
- FRONT: 50 FEET
- SIDE: 25 FEET
- REAR: 25 FEET



16 WOOD HILL LANE

DRIVEWAY PERMIT PLAN

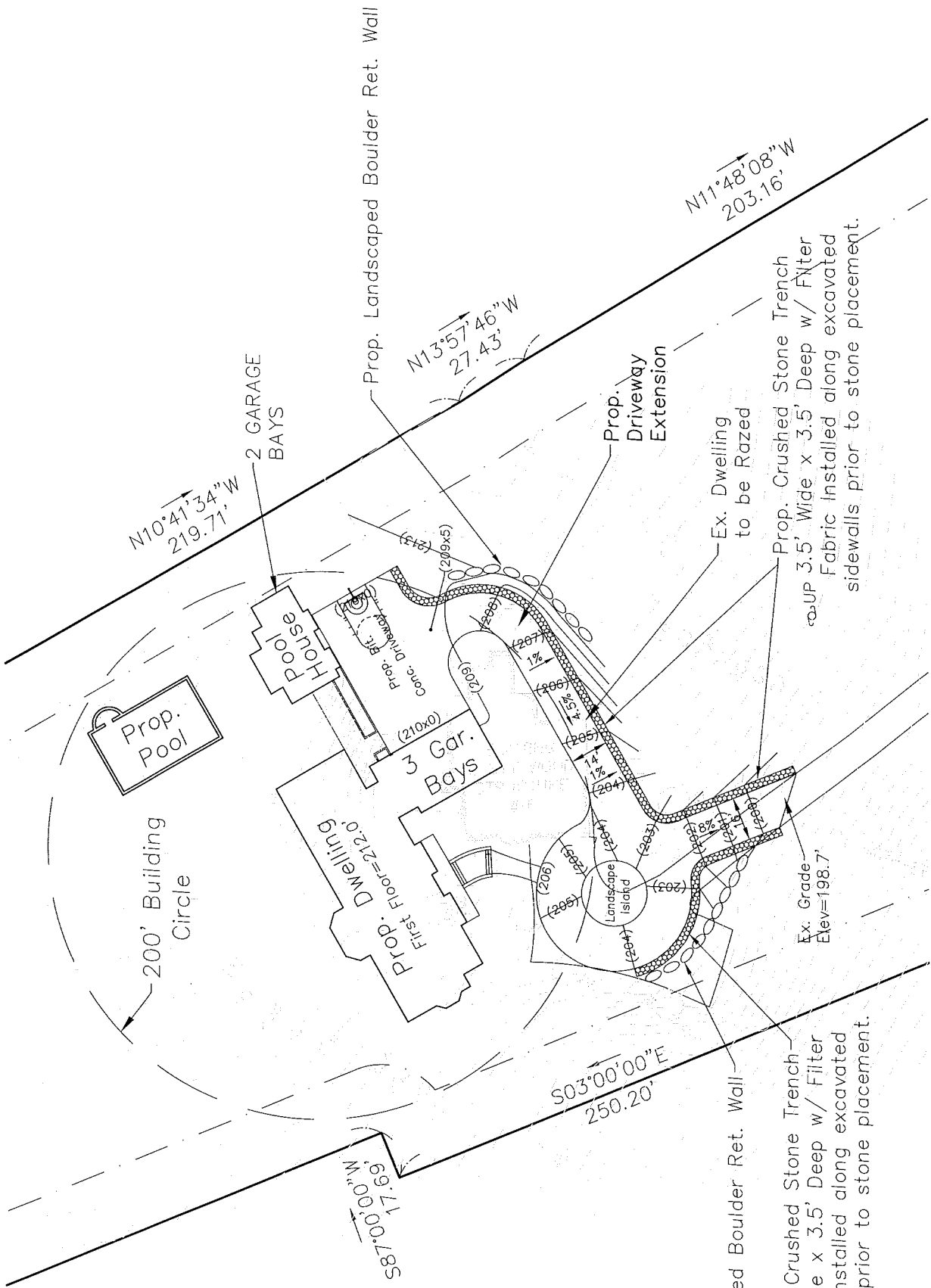
LOCATED IN
BOXFORD, MASSACHUSETTS
(ESSEX COUNTY)

PREPARED FOR
MATT & KATIE FATES

SCALE: 1" = 50' DATE: MARCH 2, 2015

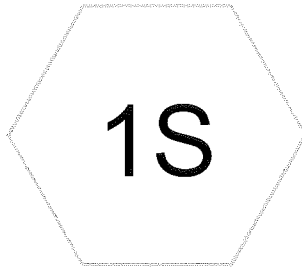
PREPARED BY
SULLIVAN ENGINEERING GROUP, LLC
22 MOUNT VERNON ROAD
BOXFORD, MA 01921
(978) 352-7871

SHEET No. 1 OF 1

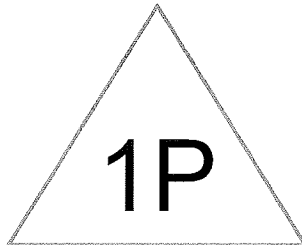


Prop. Landscaped Boulder Ret. Wall
 Prop. Crushed Stone Trench 3.5' Wide x 3.5' Deep w/ Filter Fabric Installed along excavated sidewalls prior to stone placement.

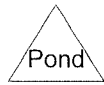
Ex. Dwelling to be Razed
 Prop. Crushed Stone Trench 3.5' Wide x 3.5' Deep w/ Filter Fabric Installed along excavated sidewalls prior to stone placement.



Drainage Area to
Crushed Stone Trench



Crushed Stone Trench



16 Wood Hill

Type III 24-hr 2 Year Storm Rainfall=3.20"

Prepared by Sullivan Engineering Group, LLC

Page 2

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3/2/2015

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Drainage Area to Crushed Stone Trench Runoff Area=6,942 sf Runoff Depth=2.77"

Tc=6.0 min CN=98 Runoff=0.48 cfs 0.037 af

Pond 1P: Crushed Stone Trench

Peak Elev=101.14' Storage=452 cf Inflow=0.48 cfs 0.037 af

Outflow=0.08 cfs 0.037 af

Total Runoff Area = 0.159 ac Runoff Volume = 0.037 af Average Runoff Depth = 2.77"

16 Wood Hill

Type III 24-hr 2 Year Storm Rainfall=3.20"

Prepared by Sullivan Engineering Group, LLC

Page 3

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3/2/2015

Subcatchment 1S: Drainage Area to Crushed Stone Trench

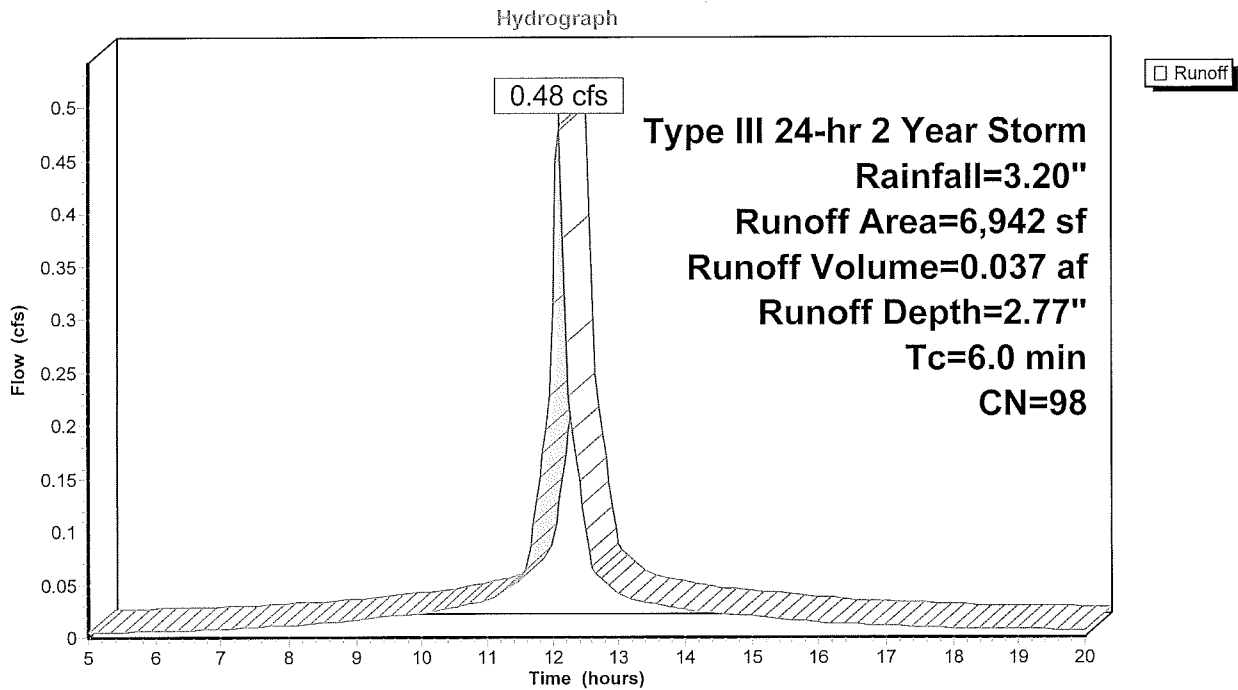
Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 2.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2 Year Storm Rainfall=3.20"

Area (sf)	CN	Description
6,942	98	Driveway Area

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

Subcatchment 1S: Drainage Area to Crushed Stone Trench



16 Wood Hill

Type III 24-hr 2 Year Storm Rainfall=3.20"

Prepared by Sullivan Engineering Group, LLC

Page 4

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3/2/2015

Pond 1P: Crushed Stone Trench

Inflow Area = 0.159 ac, Inflow Depth = 2.77" for 2 Year Storm event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.037 af
Outflow = 0.08 cfs @ 11.70 hrs, Volume= 0.037 af, Atten= 83%, Lag= 0.0 min
Discarded = 0.08 cfs @ 11.70 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 101.14' @ 12.55 hrs Surf.Area= 991 sf Storage= 452 cf
Plug-Flow detention time= 33.0 min calculated for 0.037 af (100% of inflow)
Center-of-Mass det. time= 32.5 min (771.0 - 738.6)

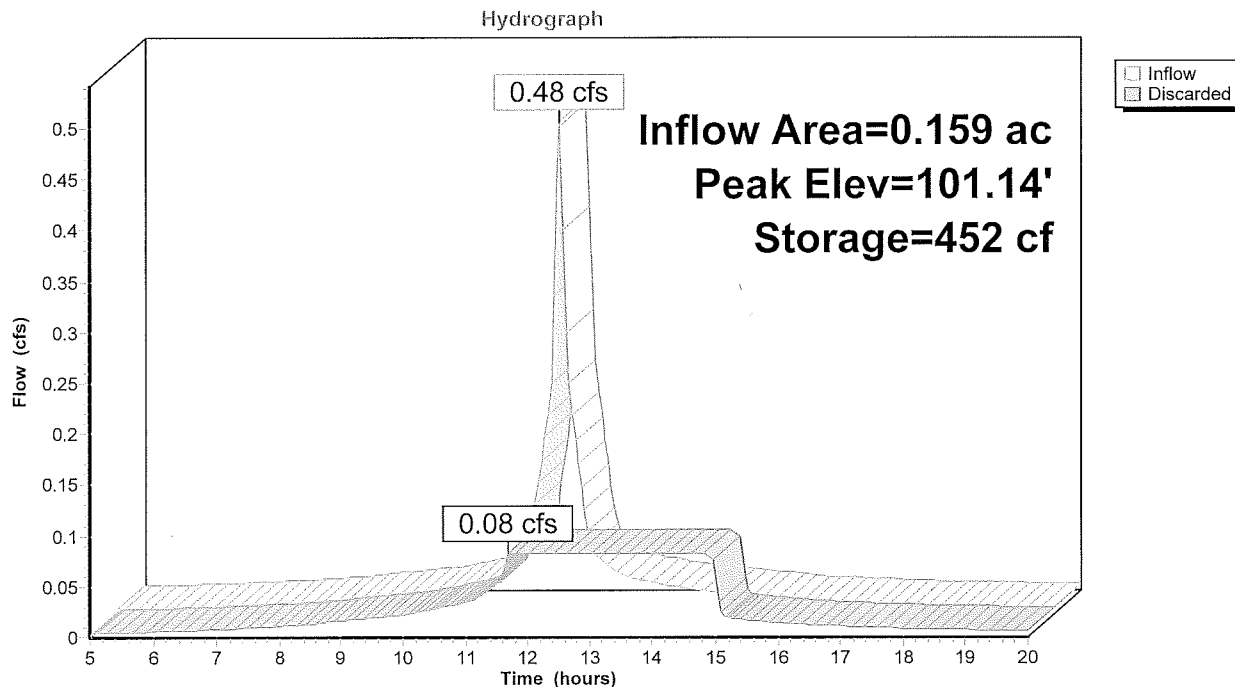
#	Invert	Avail.Storage	Storage Description
1	100.00'	1,387 cf	3.50'W x 283.00'L x 3.50'H Prismatic 3,467 cf Overall x 40.0% Voids

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.005000 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.08 cfs @ 11.70 hrs HW=100.04' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.08 cfs)

Pond 1P: Crushed Stone Trench



16 Wood Hill

Type III 24-hr 10 Year Storm Rainfall=4.80"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Drainage Area to Crushed Stone Trench Runoff Area=6,942 sf Runoff Depth=4.24"

Tc=6.0 min CN=98 Runoff=0.73 cfs 0.056 af

Pond 1P: Crushed Stone Trench

Peak Elev=102.10' Storage=833 cf Inflow=0.73 cfs 0.056 af

Outflow=0.08 cfs 0.056 af

Total Runoff Area = 0.159 ac Runoff Volume = 0.056 af Average Runoff Depth = 4.24"

16 Wood Hill

Type III 24-hr 10 Year Storm Rainfall=4.80"

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Subcatchment 1S: Drainage Area to Crushed Stone Trench

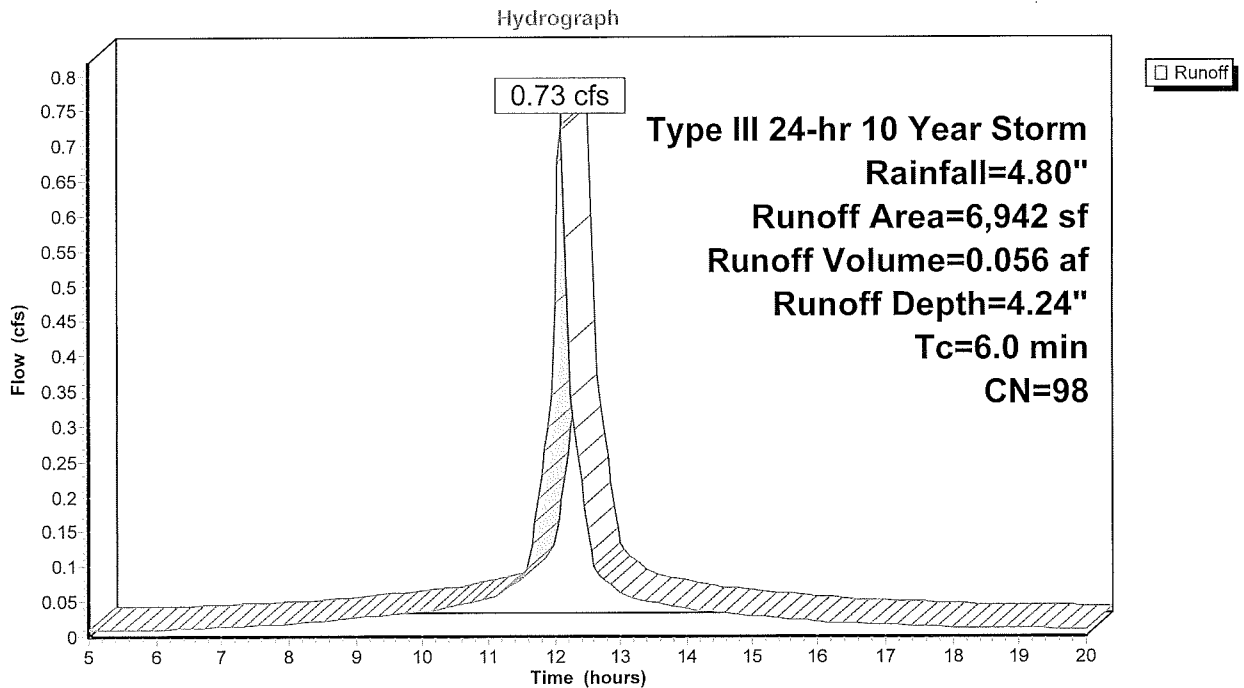
Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10 Year Storm Rainfall=4.80"

Area (sf)	CN	Description
6,942	98	Driveway Area

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

Subcatchment 1S: Drainage Area to Crushed Stone Trench



16 Wood Hill

Type III 24-hr 10 Year Storm Rainfall=4.80"

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Pond 1P: Crushed Stone Trench

Inflow Area = 0.159 ac, Inflow Depth = 4.24" for 10 Year Storm event
 Inflow = 0.73 cfs @ 12.09 hrs, Volume= 0.056 af
 Outflow = 0.08 cfs @ 11.55 hrs, Volume= 0.056 af, Atten= 89%, Lag= 0.0 min
 Discarded = 0.08 cfs @ 11.55 hrs, Volume= 0.056 af

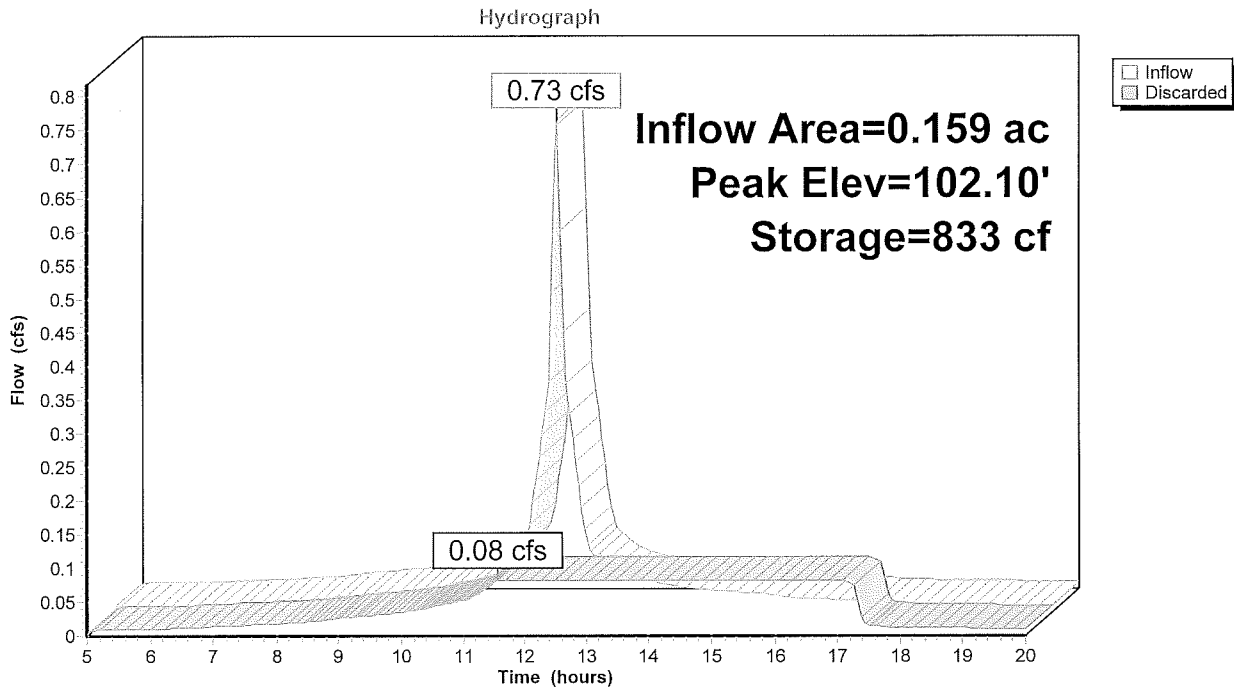
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 102.10' @ 12.73 hrs Surf.Area= 991 sf Storage= 833 cf
 Plug-Flow detention time= 69.6 min calculated for 0.056 af (100% of inflow)
 Center-of-Mass det. time= 69.1 min (804.4 - 735.4)

#	Invert	Avail.Storage	Storage Description
1	100.00'	1,387 cf	3.50'W x 283.00'L x 3.50'H Prismatic 3,467 cf Overall x 40.0% Voids

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.005000 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.08 cfs @ 11.55 hrs HW=100.04' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.08 cfs)

Pond 1P: Crushed Stone Trench



16 Wood Hill

Type III 24-hr 100 Year Storm Rainfall=6.40"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Drainage Area to Crushed Stone Trench Runoff Area=6,942 sf Runoff Depth=5.69"

Tc=6.0 min CN=98 Runoff=0.98 cfs 0.076 af

Pond 1P: Crushed Stone Trench

Peak Elev=103.19' Storage=1,263 cf Inflow=0.98 cfs 0.076 af

Outflow=0.08 cfs 0.076 af

Total Runoff Area = 0.159 ac Runoff Volume = 0.076 af Average Runoff Depth = 5.69"

16 Wood Hill

Type III 24-hr 100 Year Storm Rainfall=6.40"

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Subcatchment 1S: Drainage Area to Crushed Stone Trench

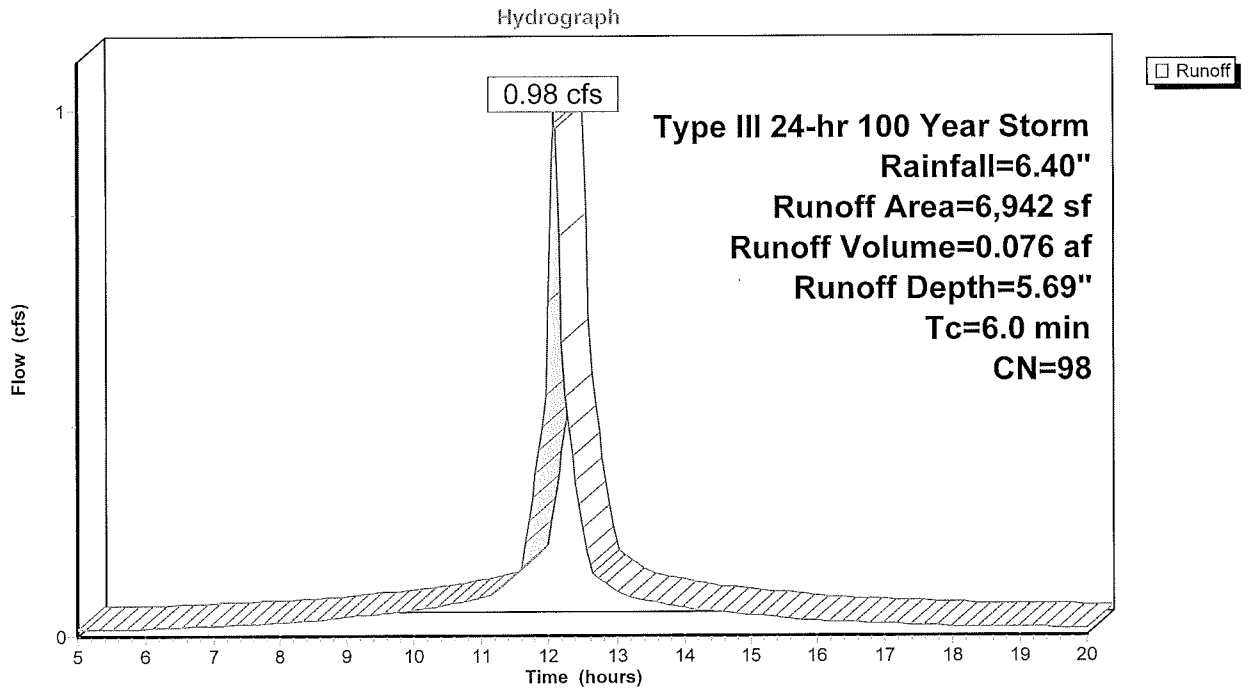
Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.076 af, Depth= 5.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Storm Rainfall=6.40"

Area (sf)	CN	Description
6,942	98	Driveway Area

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

Subcatchment 1S: Drainage Area to Crushed Stone Trench



Pond 1P: Crushed Stone Trench

Inflow Area = 0.159 ac, Inflow Depth = 5.69" for 100 Year Storm event
 Inflow = 0.98 cfs @ 12.09 hrs, Volume= 0.076 af
 Outflow = 0.08 cfs @ 11.25 hrs, Volume= 0.076 af, Atten= 92%, Lag= 0.0 min
 Discarded = 0.08 cfs @ 11.25 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 103.19' @ 13.01 hrs Surf.Area= 991 sf Storage= 1,263 cf
 Plug-Flow detention time= 116.0 min calculated for 0.076 af (100% of inflow)
 Center-of-Mass det. time= 115.4 min (849.3 - 733.9)

#	Invert	Avail.Storage	Storage Description
1	100.00'	1,387 cf	3.50'W x 283.00'L x 3.50'H Prismatic 3,467 cf Overall x 40.0% Voids

#	Routing	Invert	Outlet Devices
1	Discarded	0.00'	0.005000 fpm Exfiltration over entire Surface area

Discarded OutFlow Max=0.08 cfs @ 11.25 hrs HW=100.04' (Free Discharge)
 ←1=Exfiltration (Exfiltration Controls 0.08 cfs)

Pond 1P: Crushed Stone Trench

