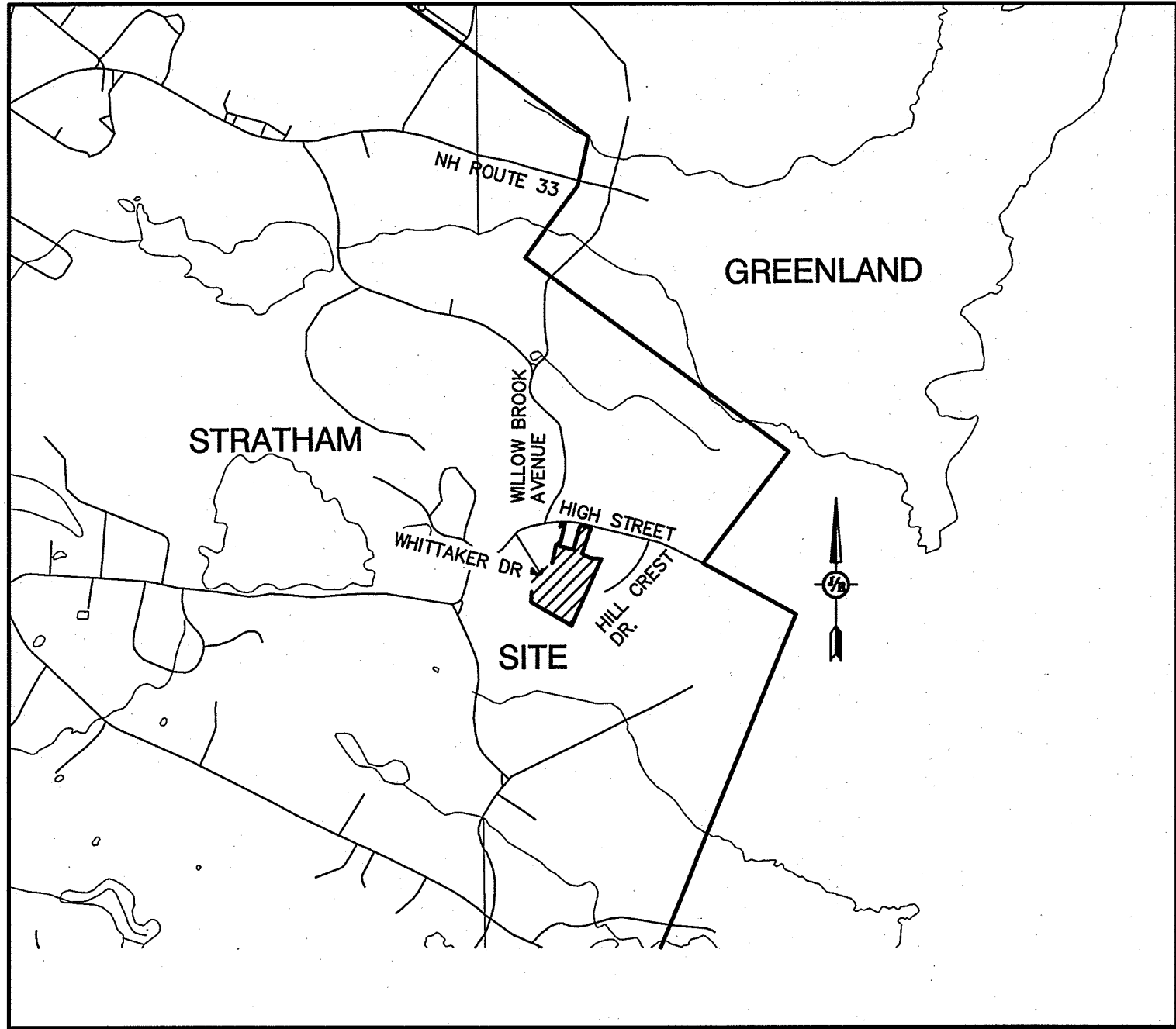


SULLIVAN SUBDIVISION PLAN
TAX MAP 19 AND LOT 68
8 WHITTAKER DRIVE, STRATHAM, NH 03885

GENERAL LEGEND

EXISTING	PROPOSED	DESCRIPTION
---	---	PROPERTY LINES
---	---	SETBACK LINES
---	---	CENTERLINE
---	---	FRESHWATER WETLANDS LINE
---	---	TREE LINE
---	---	STONEWALL
---	---	BARBED WIRE
---	---	FENCE
---	---	STOCKADE FENCE
---	---	SOIL BOUNDARY
---	---	FLOOD PLAIN LINE
---	---	EASEMENT
---	---	MAJOR CONTOUR
---	---	MINOR CONTOUR
---	---	EDGE OF PAVEMENT
---	---	SILT FENCE
---	---	DRAINAGE LINE
---	---	OVERHEAD ELECTRIC
---	---	UNDERGROUND ELECTRIC
---	---	GUARDRAIL
---	---	IRON PIPE/IRON ROD
---	---	DRILL HOLE
---	---	IRON ROD/DRILL HOLE
---	---	STONE/GRANITE BOUND
---	---	SPOT GRADE
---	---	PAVEMENT SPOT GRADE
---	---	CURB SPOT GRADE
---	---	BENCHMARK (TBM)
---	---	DOUBLE POST SIGN
---	---	SINGLE POST SIGN
---	---	WELL
---	---	TEST PIT
---	---	FAILED TEST PIT
---	---	MONITORING WELL
---	---	PERC TEST
---	---	PHOTO LOCATION
---	---	TREES AND BUSHES
---	---	UTILITY POLE
---	---	LIGHT POLES
---	---	DRAIN MANHOLE
---	---	SINGLE GRATE CATCH BASIN
---	---	DOUBLE GRATE CATCH BASIN
---	---	TRANSFORMER
---	---	CULVERT W/WINGWALLS
---	---	CULVERT W/FLARED END SECTION
---	---	CULVERT W/STRAIGHT HEADWALL
---	---	STONE CHECK DAM
---	---	DRAINAGE FLOW DIRECTION
---	---	4K SEPTIC AREA
---	---	VEGETATED FILTER STRIP
---	---	RIPRAP
---	---	FRESHWATER WETLANDS
---	---	STABILIZED CONSTRUCTION ENTRANCE
---	---	CONCRETE
---	---	GRAVEL
---	---	SNOW STORAGE



LOCUS MAP
SCALE 1" = 2000'

SHEET INDEX

CS	COVER SHEET
A1	SUBDIVISION PLAN
C1	EXISTING CONDITIONS PLAN
C2	GRADING AND DRAINAGE PLAN
P1	PLAN AND PROFILE
D1-D2	DETAIL SHEETS
E1	EROSION AND SEDIMENT CONTROL DETAILS

CIVIL ENGINEER/WETLANDS
JONES & BEACH ENGINEERS, INC.
85 PORTSMOUTH AVENUE
PO BOX 219
STRATHAM, NH 03885
(603) 772-4746
CONTACT: JONATHAN RING, PE.
EMAIL: JRING@JONESANDBEACH.COM

OWNER OF RECORD
ROBIN SULLIVAN
8 WHITTAKER DRIVE
STRATHAM, NH 03885

SOIL CONSULTANT
GOVE ENVIRONMENTAL SERVICES, INC.
8 CONTINENTAL DRIVE, UNIT H
EXETER, NH 03833-7507
(603) 778-0644
CONTACT: JIM GOVE

SURVEYOR
JAMES VERRA AND ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801
(603) 436-3557
CONTACT: JAMES VERRA
EMAIL: JAMESV@JVASURVEYORS.COM

ELECTRIC
UNITIL
6 LIBERTY LANE WEST
HAMPTON, NH 03842
(800) 852-7276

TELEPHONE
FAIRPOINT COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, NH 03840
(603) 427-5525
CONTACT: JOE CONSIDINE

CABLE TV
COMCAST COMMUNICATION CORPORATION
334-B CALEF HIGHWAY
EPPING, NH 03042-2325
(603) 679-5695

PROJECT PARCEL
TOWN OF STRATHAM, NH
MAP 19, LOT 68

APPLICANT/OWNER
ROBIN SULLIVAN
8 WHITTAKER DRIVE
STRATHAM, NH 03885
BK 4199 PG 2969

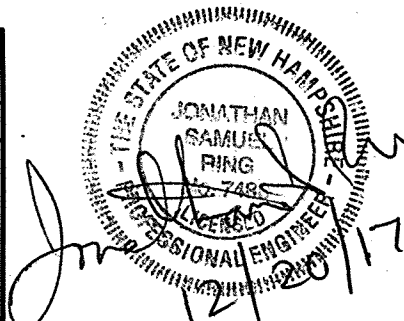
TOTAL LOT AREA
14.99 ACRES

APPROVED - STRATHAM, NH
PLANNING BOARD

DATE:

Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: AS NOTED Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN
PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE).
ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE
AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.



5	12/20/17	REVISED PER PLANNING BOARD	PLB
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
3	10/5/17	REVISED PER PLANNING BOARD	PLB
2	8/16/17	REVISED PER PLANNING BOARD	LAZ
1	7/5/17	REVISED PER TOWN PLANNER	RMN
REV.	DATE	REVISION	BY

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 FAX: 603-772-0227
Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	COVER SHEET
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN SULLIVAN 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.	CS
SHEET 1 OF 8 JBE PROJECT NO. 13070.1	

19/62	19/78 (CL HIGH ST)
KENT & ELIZABETH ANSON	PEAR TREE ASSOCIATION
1 HILLCREST DR.	7 BARTLETT RD
STRATHAM, NH 03885	STRATHAM, NH 03885
5604/2025 (03/27/15)	

19/63
TILTON REVOCABLE TRUST
MARION E. TILTON, TRUSTEE
3 HILLCREST DR.
STRATHAM, NH 03885
5804/0476 (03/15/17)

19/71
MORRISSETTE—LONGWELL
REVOCABLE TRUST
SCOTT LONGWELL &
ROBIN MORRISSETTE TRUSTEES
1 WHITTAKER DR.
STRATHAM, NH 03885
5760/1328 (10/07/16)

19/74
RUSS REVOCABLE TRUST
BRADLEY & LYNN RUSS
TRUSTEES
2 WHITTAKER DR.
STRATHAM, NH 03885
3354/2460 (12/28/98)

BOUNDARY LINE TABLE		
LINE	BEARING	DISTANCE
1	N 90°07'21"E	129.728
2	N 72°03'24"E	29.777
3	N 63°32'42"E	66.80
4	E 62°25'46"E	62.58
5	N 60°57'42"E	66.30
6	N 60°07'30"E	70.191
7	N 62°03'27"E	192.46
8	N 61°01'26"E	144.44
9	S 27°33'01"E	43.93
10	S 89°28'03"E	143.54
11	S 12°11'21"E	611.45
12	S 89°04'34"E	143.54
13	S 12°21'17"E	524.04
14	S 77°46'53"E	191.08
15	N 14°44'22"E	333.05
16	S 77°28'18"E	150.97
17	S 89°04'34"E	143.54
18	S 18°37'14"E	364.78
19	S 63°09'29"E	128.61
20	S 86°04'20"E	143.87
21	S 124°02'28"E	53.26
22	S 71°03'21"E	34.22
23	N 71°31'25"E	34.42 (TIE)
24	S 89°26'20"E	112.43
25	N 12°31'28"E	51.19

CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH
C1	154.36	60.00	147°24'03"	N 78°45'26" E	115.18
C2	56.06	60.00	53°31'52"	N 21°42'31" W	54.04

1. MINOR SUBDIVISION OF LAND, HIGH STREET, STRATHAM, NEW HAMPSHIRE, FOR TIERRA REALTY TRUST, DATED 3/1/1995, REVISED 2/29/1996, RCRD PLAN # 0-24555.
2. SUBDIVISION OF LAND FOR V.E.T. DEVELOPMENT, STRATHAM, NH DATED 8/3/1987, REVISED 10/16/1987, RCRD PLAN # 0-17330.
3. FINAL SUBDIVISION PLAN, HILLCREST DRIVE SUBDIVISION, STRATHAM, NH DATED 11/25/1986, REVISED 12/3/1986, RCRD PLAN # 0-15688.
4. PEAR TREE, STRATHAM, NEW HAMPSHIRE, SUBDIVISION PLAN DATED 6/6/1989, REVISED. 7/28/1989, RCRD PLAN # 0-19852.

STATE OF NEW HAMPSHIRE
 No. 625
 JAMES VERRA
 LICENSED LAND SURVEYOR
 JAMES VERRA
 SIGNATURE
 12/31/97

JAMES VERRA AND ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801-7876
PROJECT NUMBER: 20391-B

1. THE INTENT OF THIS PLAN IS TO SUBDIVIDE MAP 19, LOT 68 INTO FIVE (5) SINGLE FAMILY RESIDENTIAL LOTS WITH ONSITE WATER, SEPTIC, PLUS EXISTING HOUSE. COMPLETE EIGHT (8) SHEET PLAN SET IS ON FILE AT THE PLANNING BOARD OFFICE.
2. ZONING DISTRICT: RESIDENTIAL AGRICULTURAL
LOT AREA MINIMUM = 2 ACRE
LOT FRONTAGE MINIMUM = 200'
BUILDING SETBACKS (MINIMUM):
 FRONT SETBACK = 30'
 SIDE SETBACK = 20'
 REAR SETBACK = 200'
 WETLAND SETBACK = 50'
MAX BUILDING HEIGHT = 35'

3. WITH APPROVAL OF THIS PLAN BY THE PLANNING BOARD, THE FOLLOWING WAIVERS ARE GRANTED TO THE "SUBDIVISION REGULATIONS":

- A) SECTION 3.3.2 & 3.3.3 - PLAN SCALE TO ALLOW 1" = 60'.
- B) SECTION 4.4.2 TO ALLOW CUL-DE-SAC.
- C) SECTION 4.4.3.g.i. DEAD-END STREET
- D) SECTION 4.4.3.g.ii. DEAD-END OVER 800 L.F.
- E) SECTION 4.5.1.f. SIDE SLOPES 3:1
- F) SECTION ADDENDUM TABLE 1-ROAD WIDTH 22'.

4. NHDES APPROVAL FOR SUBDIVISION PERMIT NO. _____, DATED _____.

5. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SURFACE OR SUBSURFACE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.

6. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0285E, DATED MAY 17, 2005.

7. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL TIMES AND UPDATED AS REQUIRED.

8. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.

9. ALL CONSTRUCTION MUST CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.

10. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.

11. GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY, AND AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED.

12. THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY CHRISTOPHER ALBERT OF JONES & BEACH ENGINEERS, INC., DURING WINTER, 2016.

13. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.

14. UPON APPROVAL BY THE TOWN, THE PROPOSED ROAD WILL BE CONVEYED TO THE TOWN.

15. ALL UTILITIES SHALL BE INSTALLED UNDERGROUND.

16. ALL LOTS ARE SUBJECT TO A 20' WIDE EASEMENT ALONG FRONTAGE FOR SLOPE, GRADING, DRAINAGE AND UTILITIES.

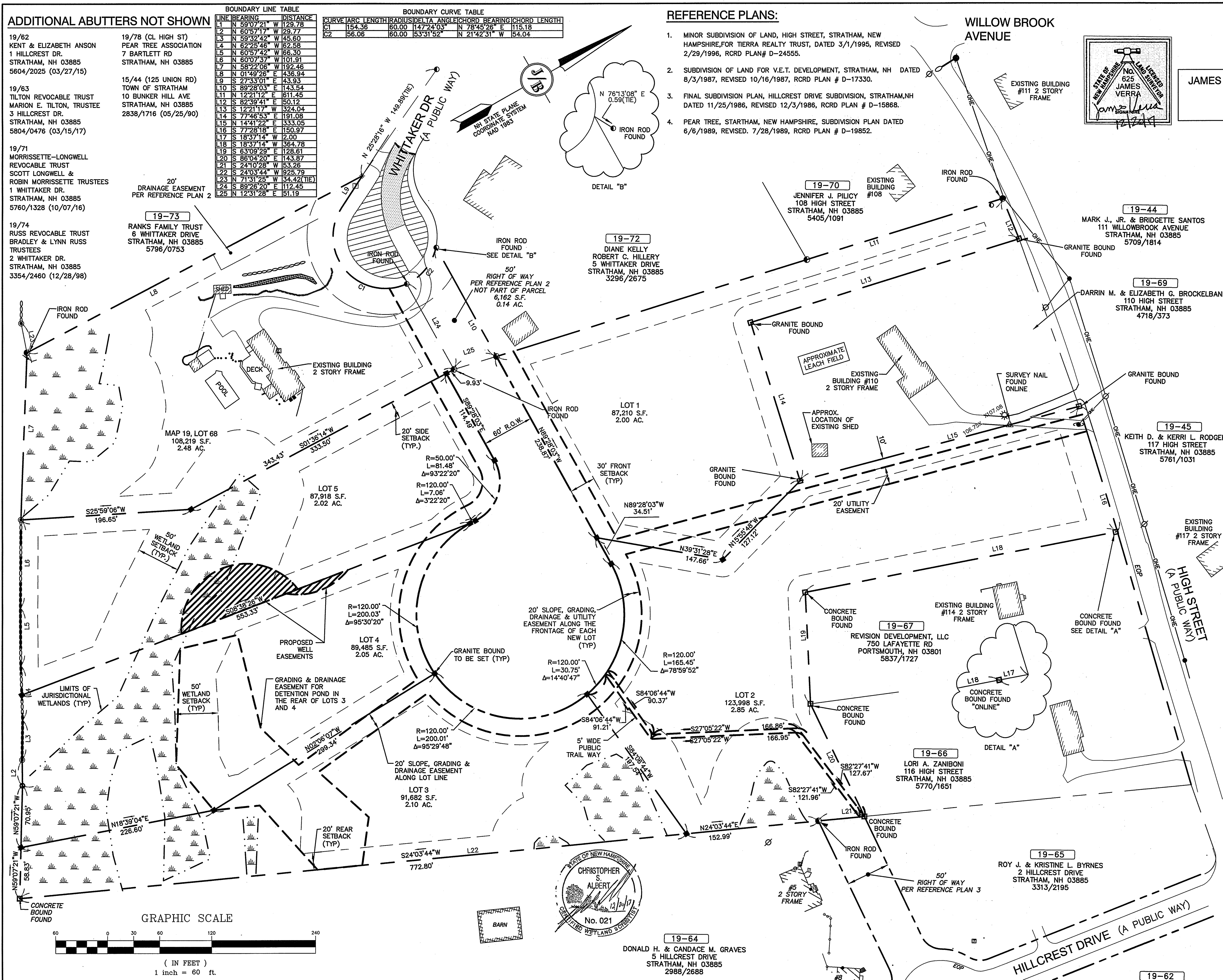
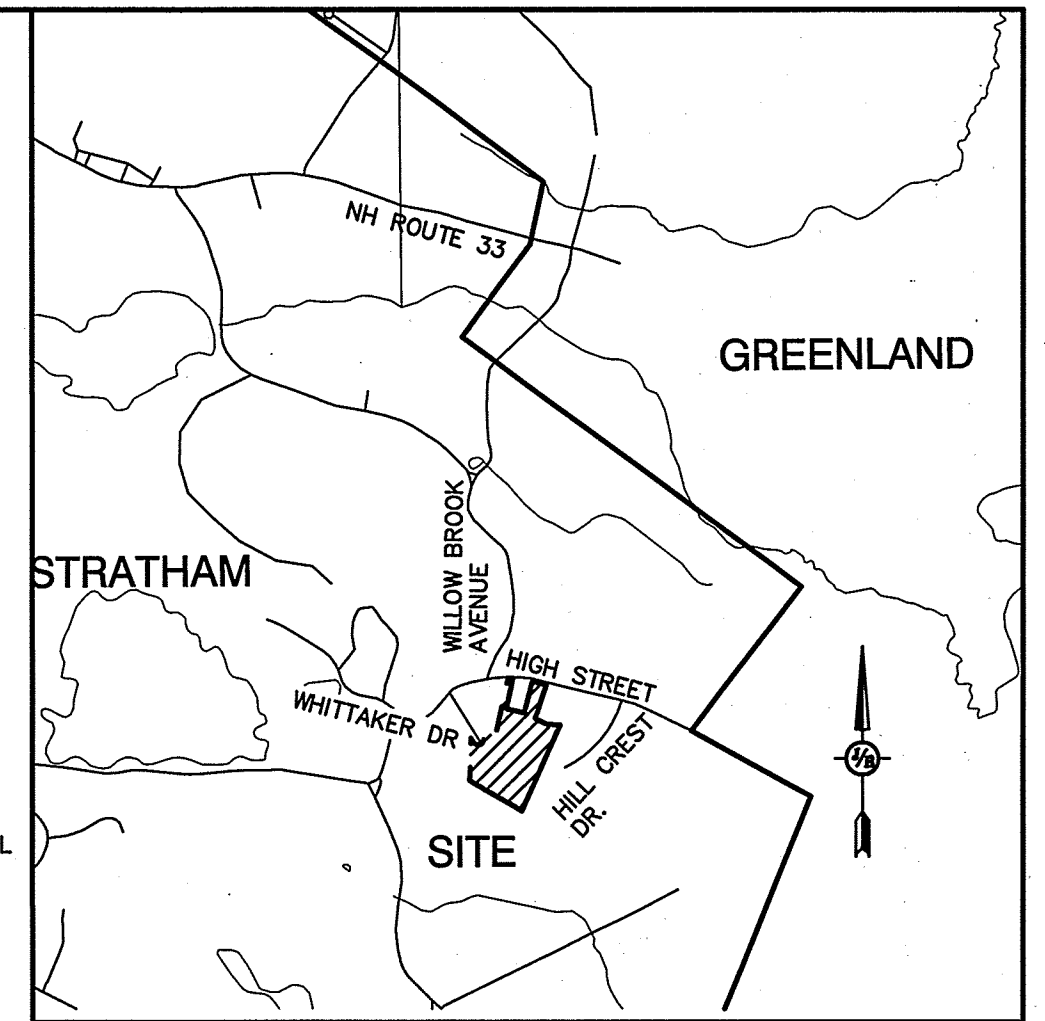
17. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

18. THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF STRATHAM TAX RECORDS AND ARE SUBJECT TO CHANGE.

19. RESEARCH WAS PERFORMED AT THE TOWN OF STRATHAM ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.

20. HORIZONTAL DATUM: NAD 1983 ESTABLISHED BY SURVEY GRADE GPS OBSERVATION AND NGS "OPUS" SOLUTION. REFERENCE FRAME: NAD83 (2011)(EPOCH:2010.0000), US SURVEY FOOT. VERTICAL DATUM: NAVD 1988. PRIMARY BENCHMARK: NHDOT 345-0070.

21. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.

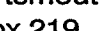


<p>APPROVED - STRATHAM, NH PLANNING BOARD</p>	<p><u>PROJECT PARCEL</u> TOWN OF STRATHAM, NH MAP 19, LOT 68</p>
<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p><u>APPLICANT/OWNER</u> ROBIN SULLIVAN 8 WHITTAKER DRIVE STRATHAM, NH 03885 BK 4199 PG 2969</p>
<p>_____</p> <p>DATE: _____</p>	<p><u>TOTAL LOT AREA</u> 14.99 ACRES</p>

Design: JSR	Draft: PLB	Date: 6/26/13
Checked: JSR	Scale: AS NOTED	Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg		

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5	12/20/17	REVISED PER PLANNING BOARD	PLB
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
3	10/5/17	REVISED PER PLANNING BOARD	PLB
2	8/16/17	REVISED PER PLANNING BOARD	LAZ
1	7/5/17	REVISED PER TOWN PLANNER	RMN
REV.	DATE	REVISION	BY


 Designed and Produced in NH
Jones & Beach Engineers, Inc.

 85 Portsmouth Ave. *Civil Engineering Services* 603-772-4746
 PO Box 219 FAX: 603-772-0227
 Stratham, NH 03885 E-MAIL: JBE@JONESANDBEACH.COM

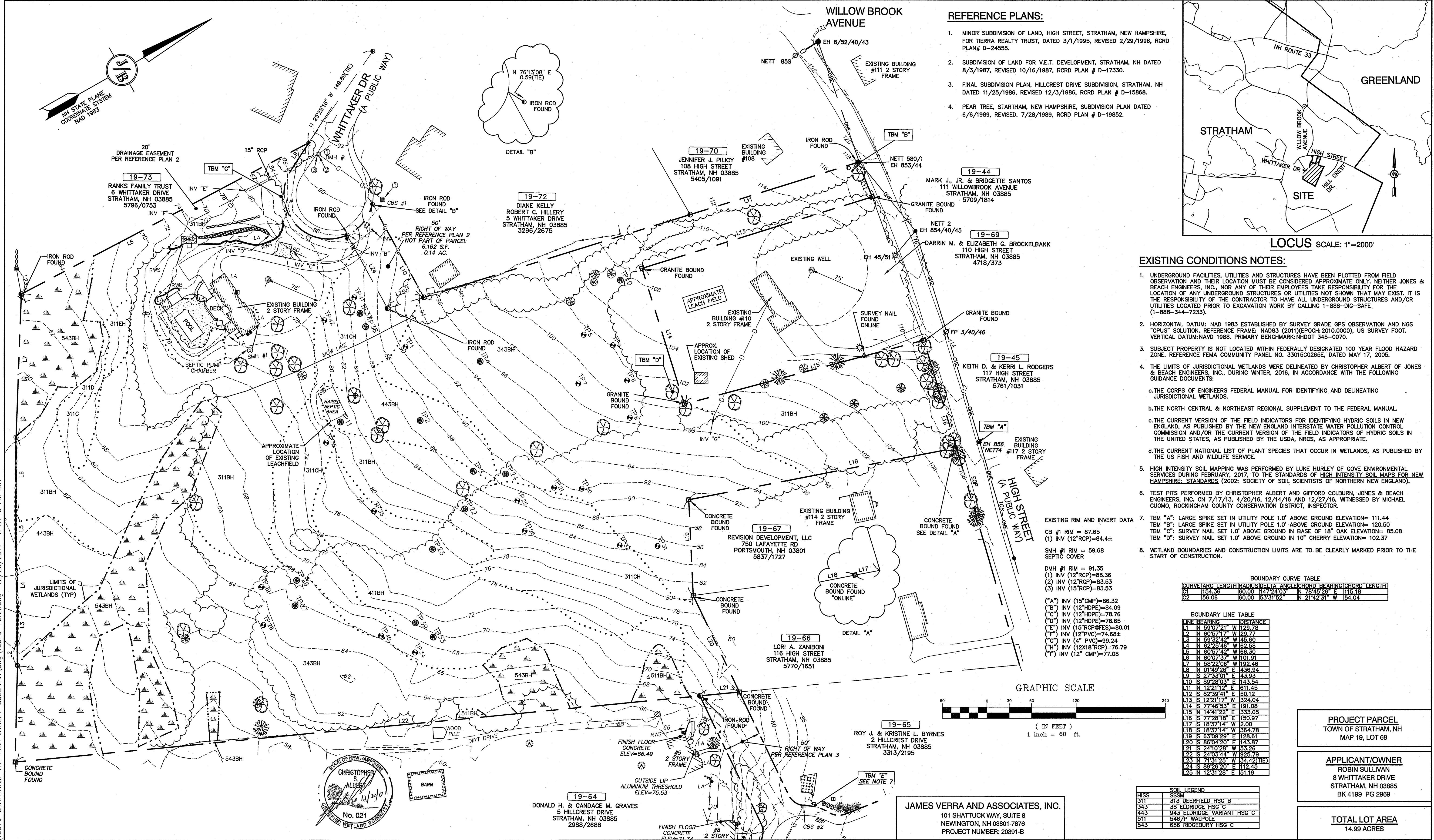
Plan Name:	SUBDIVISION PLAN MAP 19, LOT 68
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN SULLIVAN 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.

A1

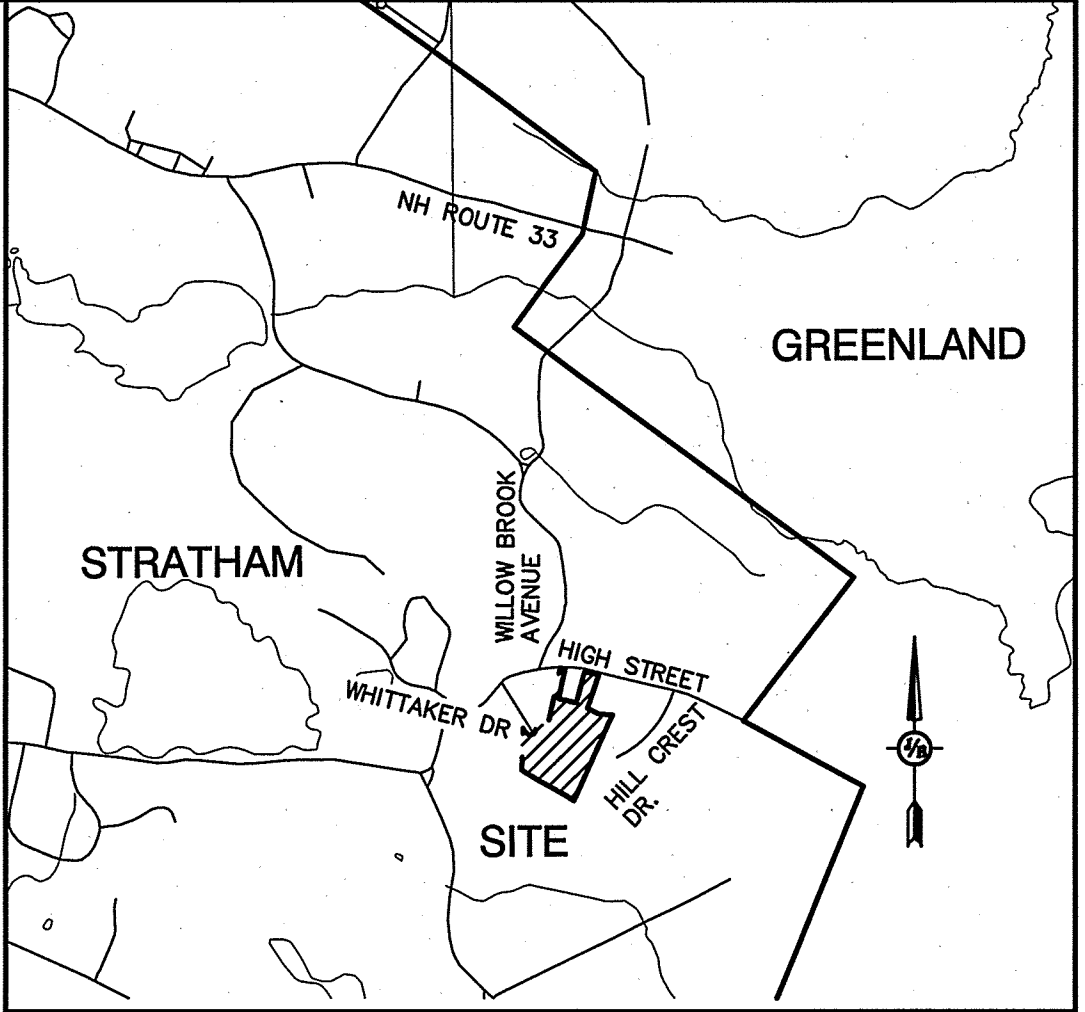
SHEET 2 OF 8

JBE PROJECT NO. 13070.1



REFERENCE PLANS:

- MINOR SUBDIVISION OF LAND, HIGH STREET, STRATHAM, NEW HAMPSHIRE, FOR TERRA REALTY TRUST, DATED 3/1/1995, REVISED 2/29/1996, RCRD PLAN# D-24555.
- SUBDIVISION OF LAND FOR V.E.T. DEVELOPMENT, STRATHAM, NH DATED 8/3/1987, REVISED 10/16/1987, RCRD PLAN # D-17330.
- FINAL SUBDIVISION PLAN, HILLCREST DRIVE SUBDIVISION, STRATHAM, NH DATED 11/25/1986, REVISED 12/3/1986, RCRD PLAN # D-15868.
- PEAR TREE, STRATHAM, NEW HAMPSHIRE, SUBDIVISION PLAN DATED 6/6/1989, REVISED 7/28/1989, RCRD PLAN # D-19852.



LOCUS SCALE: 1"=2000'

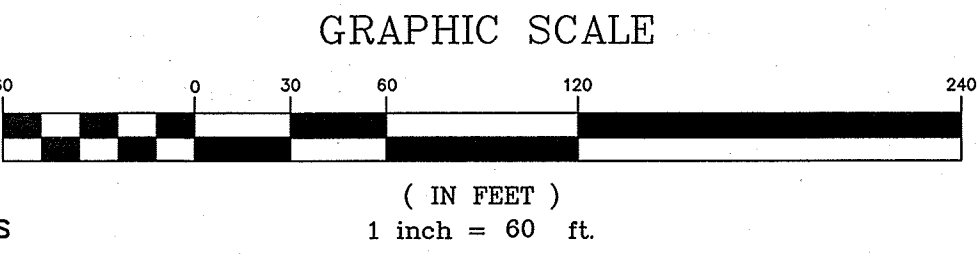
EXISTING CONDITIONS NOTES:

- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC., NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 1-888-DIG-SAFE (1-888-344-7233).
- HORIZONTAL DATUM: NAD 1983 ESTABLISHED BY SURVEY GRADE GPS OBSERVATION AND NGS "OPUS" SOLUTION. REFERENCE FRAME: NAD83 (2011) (EPOCH: 2010.0000), US SURVEY FOOT. VERTICAL DATUM: NAVD 1988. PRIMARY BENCHMARK: NHD01 345-0070.
- SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0265E, DATED MAY 17, 2005.
- THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY CHRISTOPHER ALBERT OF JONES & BEACH ENGINEERS, INC., DURING WINTER, 2016, IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
 - THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
 - THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
 - THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
 - THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
- HIGH INTENSITY SOIL MAPPING WAS PERFORMED BY LUKE HURLEY OF GOVE ENVIRONMENTAL SERVICES DURING FEBRUARY, 2017, TO THE STANDARDS OF HIGH INTENSITY SOIL MAPS FOR NEW HAMPSHIRE. STANDARDS (2002): SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND.
- TEST PITS PERFORMED BY CHRISTOPHER ALBERT AND GIFFORD COLBURN, JONES & BEACH ENGINEERS, INC. ON 7/17/13, 4/20/16, 12/14/16 AND 12/27/16, WITNESSED BY MICHAEL CUOMO, ROCKINGHAM COUNTY CONSERVATION DISTRICT, INSPECTOR.
 - TBM "A": LARGE SPIKE SET IN UTILITY POLE 1.0' ABOVE GROUND ELEVATION= 111.44
 - TBM "B": LARGE SPIKE SET IN UTILITY POLE 1.0' ABOVE GROUND ELEVATION= 120.50
 - TBM "C": SURVEY NAIL SET 1.0' ABOVE GROUND IN BASE OF 18" OAK ELEVATION= 85.08
 - TBM "D": SURVEY NAIL SET 1.0' ABOVE GROUND IN 10" CHERRY ELEVATION= 102.37
- WETLAND BOUNDARIES AND CONSTRUCTION LIMITS ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION.

BOUNDARY CURVE TABLE				
CURVE	ARC LENGTH	RADIUS	DELTA ANGLE	CHORD BEARING
C1	154.36	60.00	147°24'03"	N 78°45'26" E 115.18
C2	56.06	60.00	53°31'52"	N 21°42'31" W 54.04

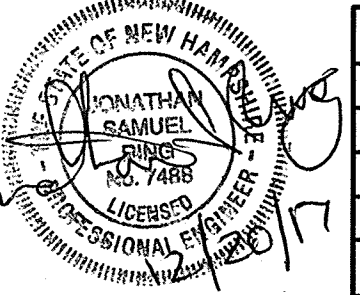
BOUNDARY LINE TABLE		
LINE	BEARING	DISTANCE
L1	N 59°07'21" W	129.78
L2	N 60°57'17" W	129.77
L3	N 58°32'42" W	145.80
L4	N 62°25'46" W	162.58
L5	N 60°57'42" W	166.30
L6	N 60°07'37" W	101.91
L7	N 58°22'09" W	1192.46
L8	N 01°49'26" E	436.94
L9	S 27°33'01" E	43.93
L10	S 89°28'03" E	143.54
L11	N 12°21'12" E	611.45
L12	S 82°39'41" E	60.12
L13	S 12°21'17" W	324.04
L14	S 77°46'53" E	191.08
L15	N 14°41'02" E	333.05
L16	S 77°28'18" E	150.97
L17	S 18°37'14" W	2.00
L18	S 18°37'14" W	564.78
L19	S 63°09'29" E	128.61
L20	S 86°04'20" E	143.67
L21	S 24°10'28" W	153.26
L22	S 24°03'44" W	825.79
L23	N 71°31'25" W	34.42 (TIE)
L24	S 89°26'20" E	112.45
L25	N 12°31'28" E	51.19

SOIL LEGEND	
311	313 DEERFIELD HSG B
343	38 ELDRIDGE HSG C
443	943 ELDRIDGE VARIANT HSG C
511	546/7 WALPOLE
543	656 RIDGEBURY HSG C



Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: AS NOTED Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg

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REV.	DATE	REVISION	BY
5	12/20/17	REVISED PER PLANNING BOARD	PLB
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2	8/16/17	REVISED PER PLANNING BOARD	LAZ
1	7/5/17	REVISED PER TOWN PLANNER	RMN

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 Stratham, NH 03885 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

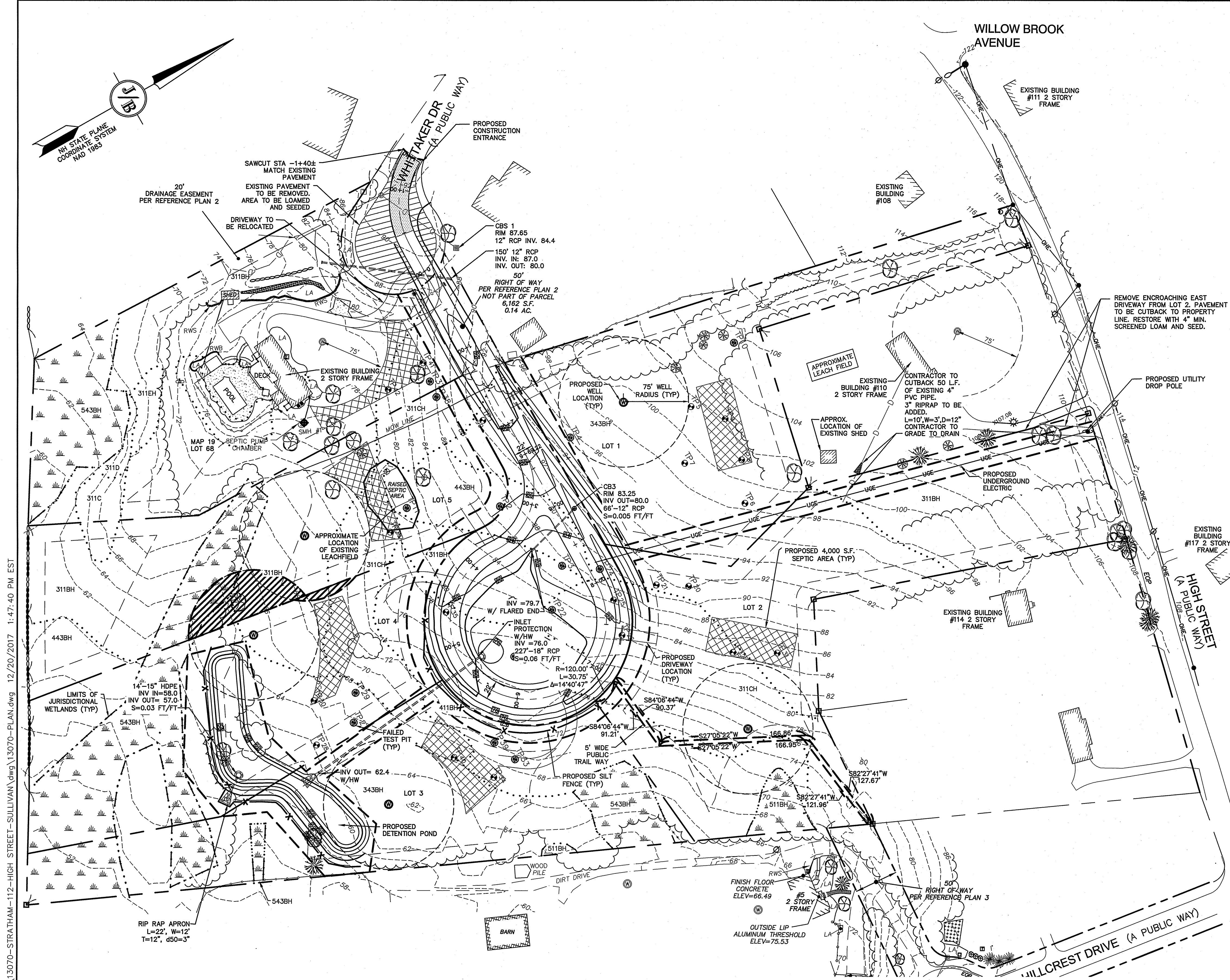
Plan Name: **EXISTING CONDITIONS PLAN**

Project: **SULLIVAN SUBDIVISION
8 WHITTAKER DRIVE, STRATHAM, NH 03885**

Owner of Record: **ROBIN SULLIVAN
8 WHITTAKER DRIVE, STRATHAM, NH 03885**

DRAWING No. **C1**

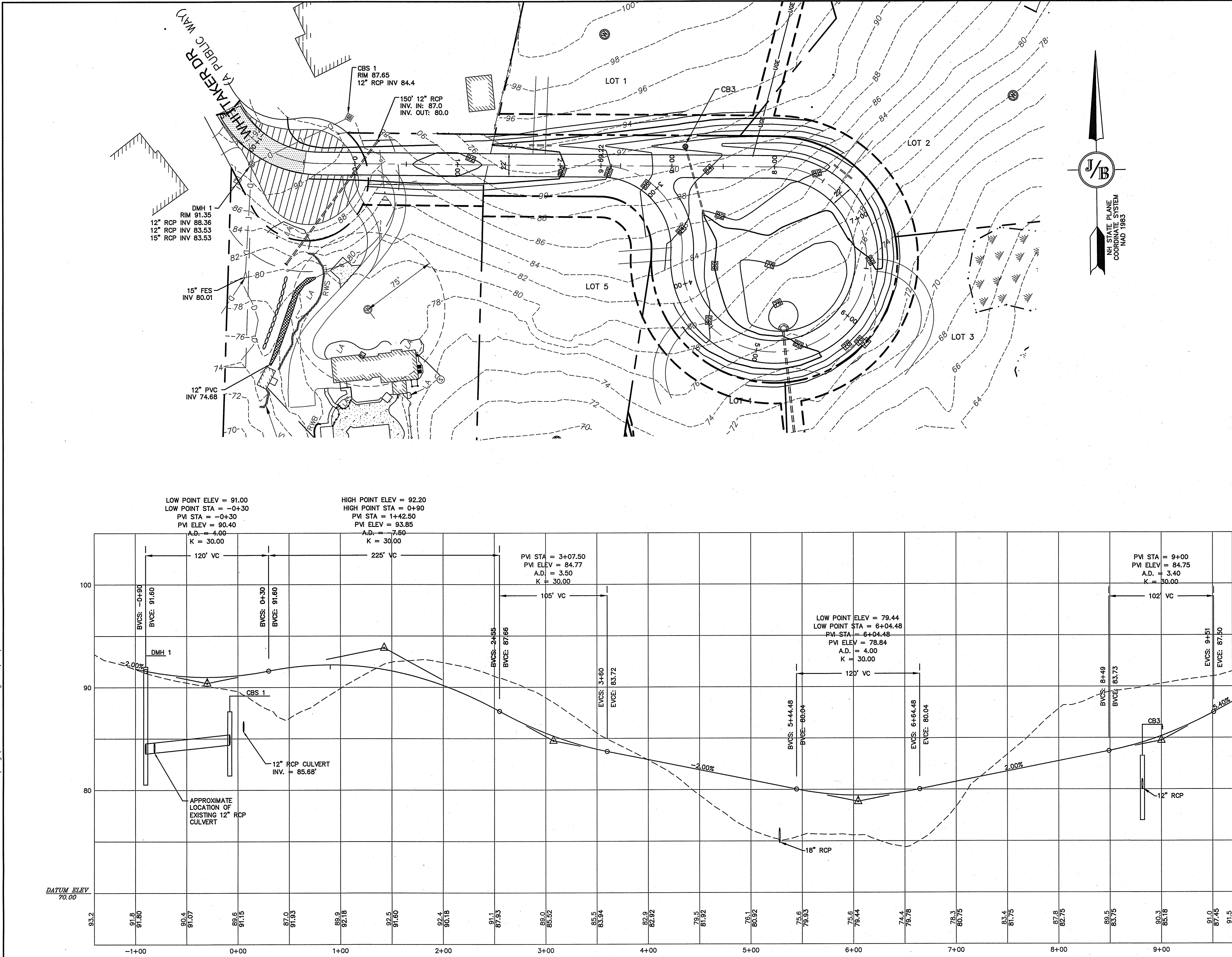
SHEET 3 OF 8
JBE PROJECT NO. 13070.1



GRADING AND DRAINAGE NOTES:

- UNDERGROUND FACILITIES, UTILITIES AND STRUCTURES HAVE BEEN PLOTTED FROM FIELD OBSERVATION AND THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. NEITHER JONES & BEACH ENGINEERS, INC. NOR ANY OF THEIR EMPLOYEES TAKE RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND STRUCTURES AND/OR UTILITIES NOT SHOWN THAT MAY EXIST. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE ALL UNDERGROUND STRUCTURES AND/OR UTILITIES LOCATED PRIOR TO EXCAVATION WORK BY CALLING 888-DIG-SAFE (888-344-7233).
- ALL BENCHMARKS AND TOPOGRAPHY SHOULD BE FIELD VERIFIED BY THE CONTRACTOR.
- SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED. SEE CONSTRUCTION SEQUENCE ON SHEET E1.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR IS REQUIRED TO HAVE THE PROJECT'S LAND SURVEYOR STAKE OR FLAG CLEARING LIMITS. A MINIMUM OF 48 HOURS NOTICE IS REQUIRED.
- ALL SWALES AND ANY SLOPES GREATER THAN 3:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER), UNLESS OTHERWISE SPECIFIED.
- ALL DRAINAGE STRUCTURES AND STORM SEWER PIPES SHALL MEET HEAVY DUTY TRAFFIC H20 LOADING AND SHALL BE INSTALLED ACCORDINGLY.
- IN AREAS WHERE CONSTRUCTION IS PROPOSED ADJACENT TO ABUTTING PROPERTIES, THE CONTRACTOR SHALL INSTALL ORANGE CONSTRUCTION FENCING ALONG PROPERTY LINES IN ALL AREAS WHERE SILT FENCING IS NOT REQUIRED.
- ALL DRAINAGE PIPE SHALL BE NON-PERFORATED ADS N-12 OR APPROVED EQUAL.
- LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY ALL GOVERNING AUTHORITIES. THE GENERAL CONTRACTOR SHALL STRICTLY ADHERE TO THE EPA SWPPP DURING CONSTRUCTION OPERATIONS.
- NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
- ALL EXPOSED AREAS SHALL BE SEEDED AS SPECIFIED WITHIN 3 DAYS OF FINAL GRADING.
- SHOULD CONSTRUCTION STOP FOR LONGER THAN 3 DAYS, THE SITE SHALL BE SEEDED AS SPECIFIED.
- MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN EVENT OF 0.25" OR GREATER IN A 24 HOUR PERIOD AND AT LEAST ONCE A WEEK.
- THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE, AS THE GENERAL CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SEDIMENT FROM LEAVING THE SITE.
- CONSTRUCTION VEHICLES SHALL UTILIZE THE STABILIZED CONSTRUCTION ENTRANCE TO THE EXTENT POSSIBLE THROUGHOUT CONSTRUCTION.
- IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
- SEDIMENT SHALL BE REMOVED FROM ALL SEDIMENT BASINS BEFORE THEY ARE 25% FULL.
- ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH PROJECT SPECIFICATIONS.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED, IF DEEMED NECESSARY BY ON-SITE INSPECTION BY ENGINEER AND/OR REGULATORY OFFICIALS.
- SEE ALSO EROSION AND SEDIMENT CONTROL SPECIFICATIONS ON SHEET E1.
- EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE DETAILS ON SHEET D2. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.

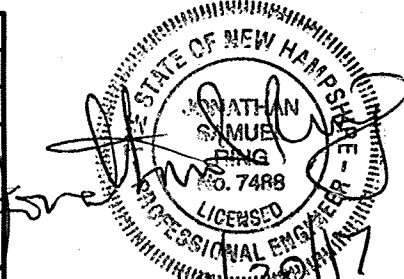
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NOTES:

- THIS SITE WILL REQUIRE A USEPA NPDES PERMIT FOR STORMWATER DISCHARGE FOR THE CONSTRUCTION SITE. THE CONSTRUCTION SITE OPERATOR SHALL DEVELOP AND IMPLEMENT A CONSTRUCTION STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WHICH SHALL REMAIN ON SITE AND BE MADE ACCESSIBLE TO THE PUBLIC. THE CONSTRUCTION SITE OPERATOR SHALL SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA REGIONAL OFFICE SEVEN DAYS PRIOR TO COMMENCEMENT OF ANY WORK ON SITE. EPA WILL POST THE NOI AT [HTTP://CFPUB.EPA.GOV/NPDES/STORMWATER/NOI/NOISEARCH.CFM](http://cfpub.epa.gov/npdes/stormwater/NOI/NOISEARCH.CFM). AUTHORIZATION IS GRANTED UNDER THE PERMIT ONCE THE NOI IS SHOWN IN "ACTIVE" STATUS ON THIS WEBSITE. A COMPLETED NOTICE OF TERMINATION SHALL BE SUBMITTED TO THE NPDES PERMITTING AUTHORITY WITHIN 30 DAYS AFTER EITHER OF THE FOLLOWING CONDITIONS HAVE BEEN MET:
 - FINAL STABILIZATION HAS BEEN ACHIEVED ON ALL PORTIONS OF THE SITE FOR WHICH THE PERMITTEE IS RESPONSIBLE; OR
 - ANOTHER OPERATOR/PERMITTEE HAS ASSUMED CONTROL OVER ALL AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED. PROVIDE DPW WITH A COPY OF THE NOTICE OF TERMINATION (NOT).
- ALL ROAD AND DRAINAGE WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR THE TOWN, AND NHDOT SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- AS-BUILT PLANS TO BE SUBMITTED TO THE TOWN PRIOR TO ACCEPTANCE OF THE ROADWAY.
- DEVELOPER IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING ANY PERMITTING AND SETBACK REQUIREMENTS REQUIRED UNDER THESE REGULATIONS.
- CONTRACTOR TO COORDINATE AND COMPLETE ALL WORK REQUIRED FOR THE RELOCATION AND/OR INSTALLATION OF ELECTRIC, CATV AND TELEPHONE PER UTILITY DESIGN AND STANDARDS. LOCATIONS SHOWN ARE APPROXIMATE. LOW PROFILE STRUCTURES SHALL BE USED TO THE GREATEST EXTENT POSSIBLE.
- THIS PLAN HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC. FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA SHOWN ON THE DESIGN PLANS. THIS INCLUDES ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS OF THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- SILTATION AND EROSION CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION, SHALL BE MAINTAINED DURING CONSTRUCTION, AND SHALL REMAIN UNTIL SITE HAS BEEN STABILIZED WITH PERMANENT VEGETATION. SEE DETAIL SHEET E1 FOR ADDITIONAL NOTES ON EROSION CONTROL.
- ALL DISTURBED AREAS NOT STABILIZED BY NOVEMBER 1st SHALL BE COVERED WITH AN EROSION CONTROL BLANKET. PRODUCT TO BE SPECIFIED BY THE ENGINEER.
- FINAL DRAINAGE, GRADING AND EROSION PROTECTION MEASURES SHALL CONFORM TO REGULATIONS OF THE PUBLIC WORKS DEPARTMENT.
- CONTRACTOR TO VERIFY EXISTING UTILITIES AND TO NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
- 6" PERFORATED ADS UNDER DRAIN PLACEMENT TO BE DETERMINED BY THE ENGINEER DURING TIME OF SUBGRADE INSPECTION. CONTRACTOR TO ADJUST LOCATION IN THE FIELD ONLY WITH PRIOR APPROVAL OF PROJECT ENGINEER OR PUBLIC WORKS DEPARTMENT. CONTRACTOR TO INCLUDE 1000 LF IN BID PRICE.
- ALL DRIVEWAYS TO BE CONSTRUCTED MAXIMUM 10% SLOPE. SEE DETAIL SHEET. ALL DRIVEWAYS TO HAVE CULVERTS UNLESS APPROVED BY THE TOWN ROAD AGENT.
- DRAINAGE INSPECTION AND MAINTENANCE SCHEDULE: SILT FENCING WILL BE INSPECTED DURING AND AFTER STORM EVENTS TO ENSURE THAT THE FENCE STILL HAS INTEGRITY AND IS NOT ALLOWING SEDIMENT TO PASS. SEDIMENT BUILD UP IN SWALES WILL BE REMOVED IF IT IS DEEPER THAN SIX INCHES, AND IS TO BE REMOVED FROM SUMPS BELOW THE INLET OF CULVERTS SEMIANNUALLY, AS WELL AS FROM CATCH BASINS.
- ALL DRAINAGE INFRASTRUCTURE SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING ANY RUNOFF TO IT.
- DETENTION PONDS REQUIRE TIMELY MAINTENANCE AND SHOULD BE INSPECTED AFTER EVERY MAJOR STORM EVENT, AS WELL AS FREQUENTLY DURING THE FIRST YEAR OF OPERATION, AND ANNUALLY THEREAFTER. EVERY FIVE YEARS, THE SERVICES OF A PROFESSIONAL ENGINEER SHOULD BE RETAINED TO PERFORM A THOROUGH INSPECTION OF THE DETENTION POND AND ITS INFRASTRUCTURE. ANY DEBRIS AND SEDIMENT ACCUMULATIONS SHOULD BE REMOVED FROM THE OUTLET STRUCTURE(S) AND EMERGENCY SPILLWAY(S) AND DISPOSED OF PROPERLY. DETENTION POND BERMS SHOULD BE MOWED AT LEAST ONCE ANNUALLY SO AS TO PREVENT THE ESTABLISHMENT OF WOODY VEGETATION. TREES SHOULD NEVER BE ALLOWED TO GROW ON A DETENTION POND BERM, AS THEY MAY DESTABILIZE THE STRUCTURE AND INCREASE THE POTENTIAL FOR FAILURE. AREAS SHOWING SIGNS OF EROSION OR THIN OR DYING VEGETATION SHOULD BE REPAIRED IMMEDIATELY BY WHATEVER MEANS NECESSARY, WITH THE EXCEPTION OF FERTILIZER. RODENT BORROWS SHOULD BE REPAIRED IMMEDIATELY AND THE ANIMALS SHOULD BE TRAPPED AND RELOCATED IF THE PROBLEM PERSISTS.
- THE DETENTION PONDS ARE TO BE CONSTRUCTED PRIMARILY THROUGH EXCAVATION. IN THOSE AREAS WHERE THE BERMS MUST BE CONSTRUCTED BY THE PLACEMENT OF FILL, THE ENTIRE EMBANKMENT AREA OF THE DETENTION PONDS SHALL BE EXCAVATED TO PROPOSED GRADE, STRIPPED OF ALL ORGANIC MATERIALS, COMPACTED TO AT LEAST 95% AND SCARIFIED PRIOR TO THE PLACEMENT OF THE EMBANKMENT MATERIAL. IN THE EVENT THE FOUNDATION MATERIAL EXPOSED DOES NOT ALLOW THE SPECIFIED COMPACTION, AN ADDITIONAL ONE FOOT (1') OF EXCAVATION AND THE PLACEMENT OF A ONE FOOT (1') THICK, TWELVE FOOT (12') WIDE PAD OF THE MATERIAL DESCRIBED IN THE NOTE BELOW, COMPACTED TO 95% OF ASTM D-1557 MAY BE NECESSARY. PLACEMENT AND COMPACTION SHOULD OCCUR AT A MOISTURE CONTENT OF OPTIMUM PLUS OR MINUS 3% AND NO FROZEN OR ORGANIC MATERIAL SHOULD BE PLACED WITHIN FOR ANY REASON.
- COMPACTION TESTING SERVICES (I.E. NUCLEAR DENSITY TESTS) ARE TO BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER RETAINED BY THE CONTRACTOR FOR ROADWAY CONSTRUCTION AND ON EVERY LIFT OF NEWLY PLACED MATERIAL.
- NO IRRIGATION PIPES OR SPRINKLER HEADS SHALL BE LOCATED WITHIN TOWN RIGHT OF WAY.
- EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE DETAILS ON SHEET D2. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.

Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: AS NOTED Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg
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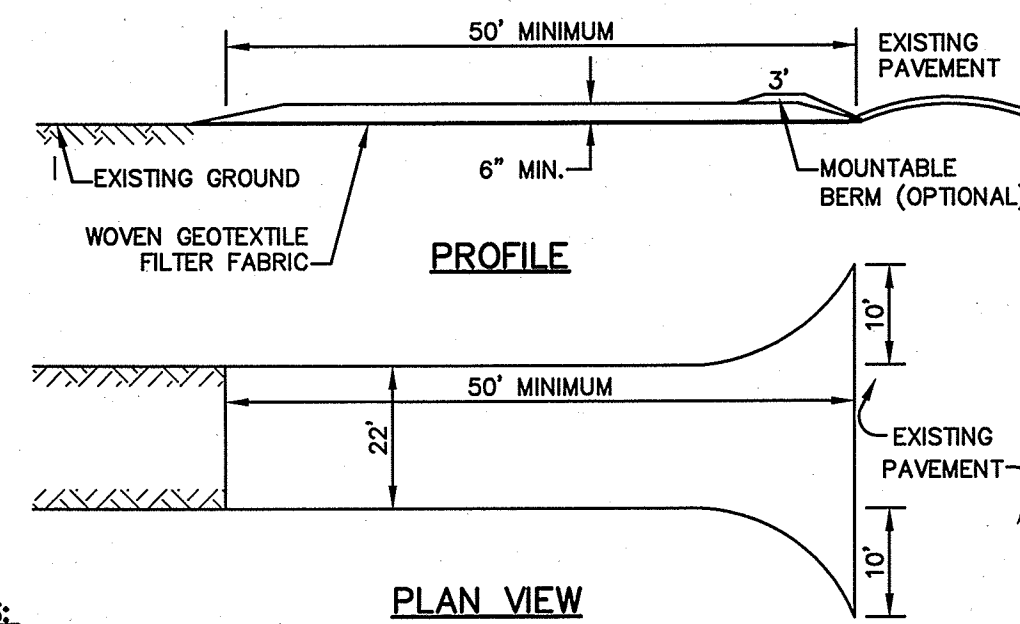


REV.	DATE	REVISION	BY
5	12/20/17	REVISED PER PLANNING BOARD	PLB
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
3	10/5/17	REVISED PER PLANNING BOARD	PLB
2	8/16/17	REVISED PER PLANNING BOARD	LAZ
1	7/5/17	REVISED PER TOWN PLANNER	RMN

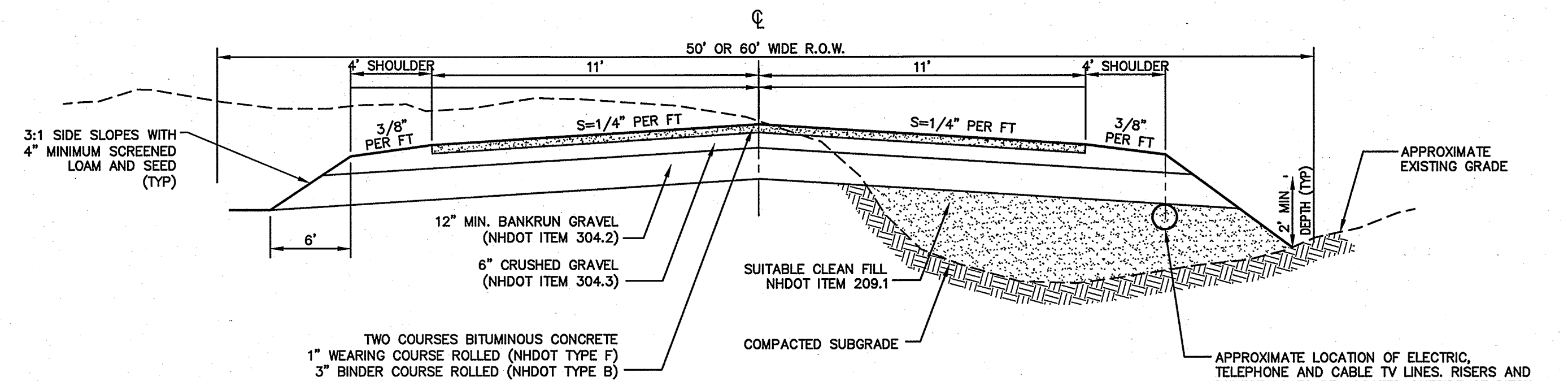
J/B Jones & Beach Engineers, Inc.
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Civil Engineering Services
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Plan Name: **PLAN AND PROFILE**
Project: **SULLIVAN SUBDIVISION**
8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record: **ROBIN SULLIVAN**
8 WHITTAKER DRIVE, STRATHAM, NH 03885

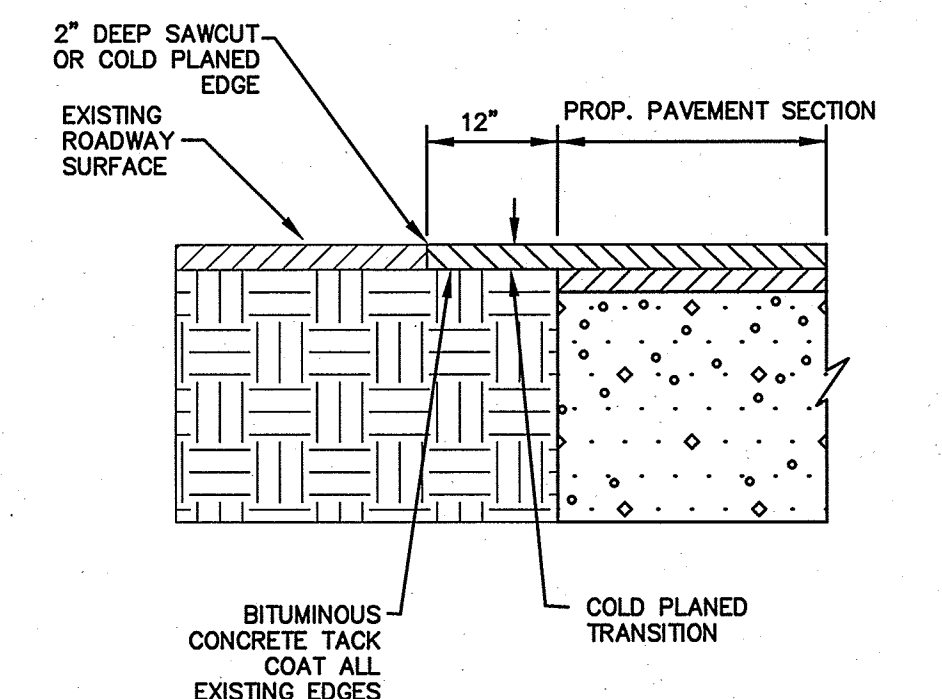
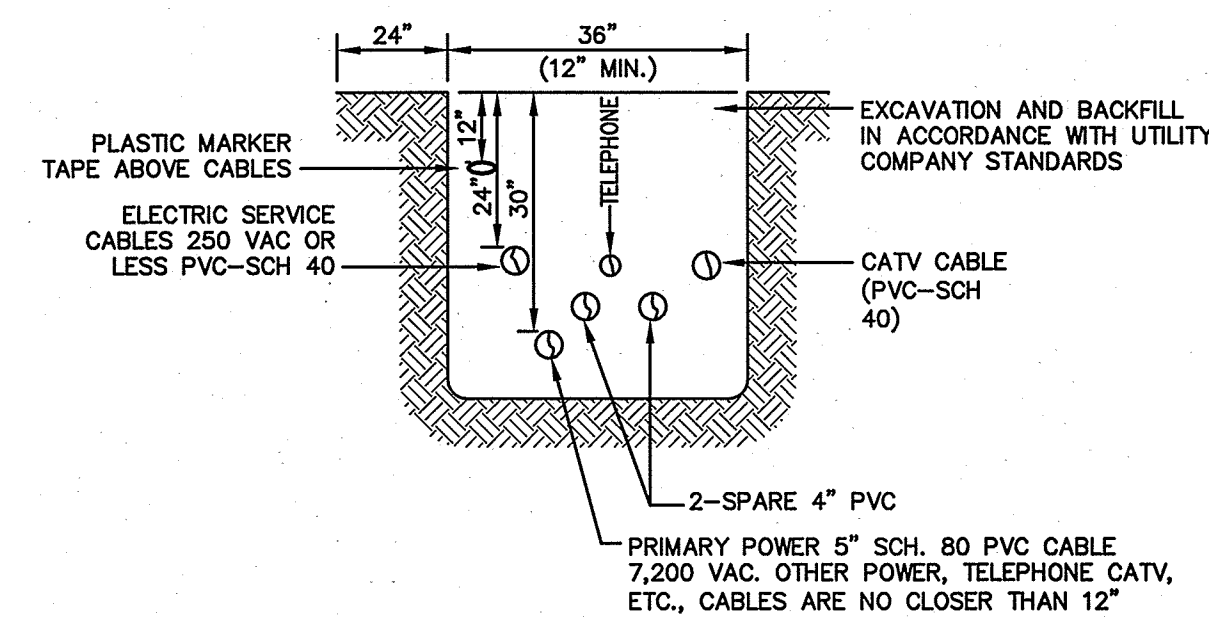
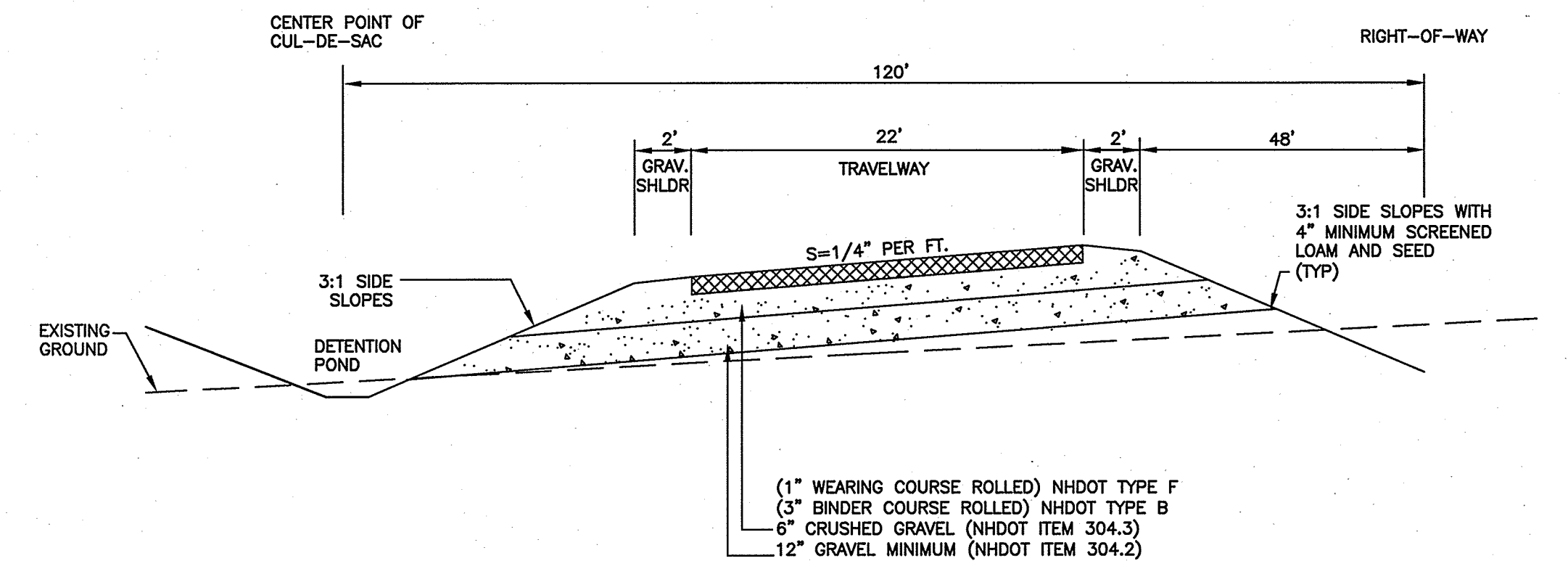
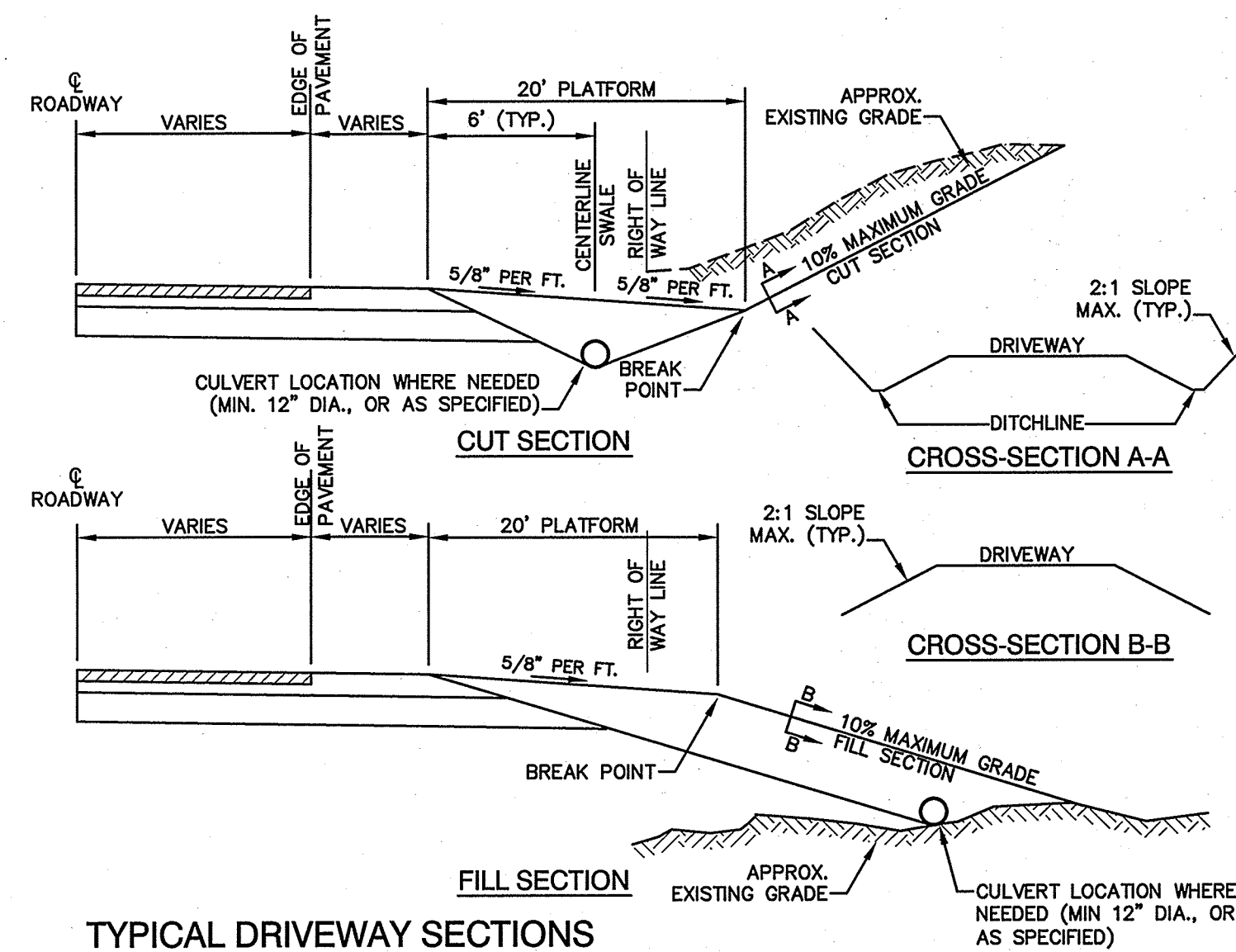
DRAWING No. **P1**
SHEET 5 OF 8
JBE PROJECT NO. 13070.1



- NOTES:**
- PLAN VIEW**
1. STONE FOR STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET, EXCEPT FOR A SINGLE TRUCK LOT WHICH MAY BE LESS THAN 50 FEET.
3. THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS, OR 10 FEET, WHICHEVER IS GREATER.
5. GEOTEXTILE FILTER FABRIC SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER FABRIC IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENTIAL LOT.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A STONE BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO THE PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO THE PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.



- NOTES:**
1. REMOVE ALL ORGANICS, TOPSOIL AND MATERIAL YIELDING TO A 10 TON ROLLER. SUBBASE AREAS THAT CONTAIN UNDESIRABLE MATERIALS MAY BE EXCAVATED TO A DEPTH NO LESS THAN 36" BELOW FINISH GRADE AND BE REPLACED WITH GRAVEL COMPACTED TO 95%.
 2. ALL MATERIALS TO BE AS SPECIFIED PER TOWN STANDARDS AND NHDOT, WHICHEVER IS MOST STRINGENT. GRADATION AND COMPACTION TEST RESULTS (95% MIN.) SHALL BE SUBMITTED FOR REVIEW AND APPROVAL.
 3. TOWN MAY REQUIRE UNDERDRAIN, ADDITIONAL GRAVEL AND/OR ADDITIONAL DRAINAGE IF SOIL CONDITIONS WARRANT.



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Drawing Name: 13070-PLAN.dwg		

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REV.	DATE	REVISION	BY

Designed and Produced in NH

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Plan Name:	DETAIL SHEET
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN SULLIVAN 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.

D1

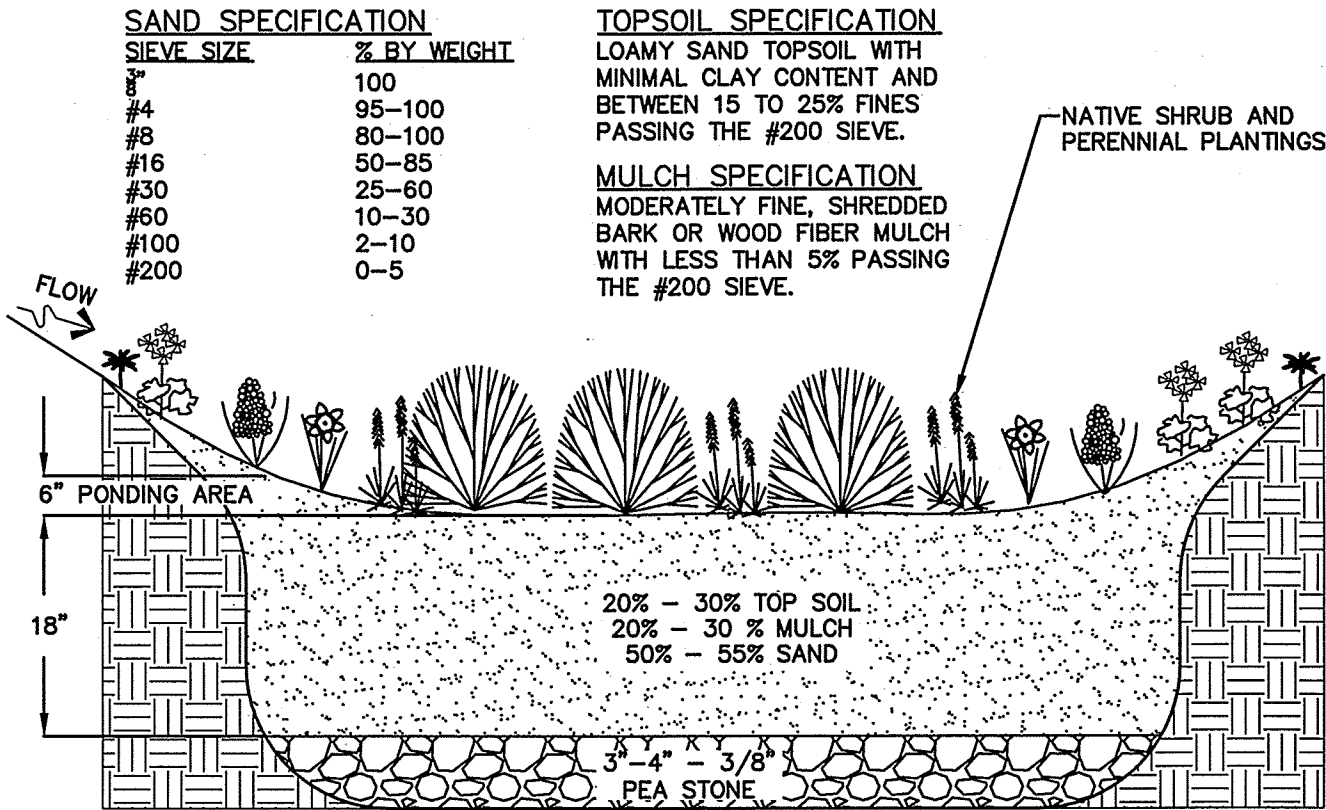
SHEET 6 OF 8
JBE PROJECT NO. 13070.1

TYPICAL RAIN GARDEN PLANTINGS

BOTANICAL NAME	COMMON NAME	SIZE
PERENNIALS		
"ANNABELLE" HYDRANGEA	HYDRANGEA	1 GAL.
HEMEROCALLIS 'STELLA D'ORO'	DAYLILY	1 GAL.
VIBURNUM TRILOBUM	AMERICAN CRANBERRY	1 GAL.
AUREA BOWLES' GOLDEN SEDGE	SEDGE GRASS	1 GAL.
SPIREA	BRIDLE VEIL	1 GAL.

DECIDUOUS SHRUBS:

VIBURNUM DENTATUM	ARROWOOD VIBURNUM
ALNUS INCANA	SPECKLED ALDER
CORNUS STOLONIFERA	REDOSIER DOGWOOD
VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY
LLEX VERTICILLATA	WINTERBERRY



DESIGN CONSIDERATIONS

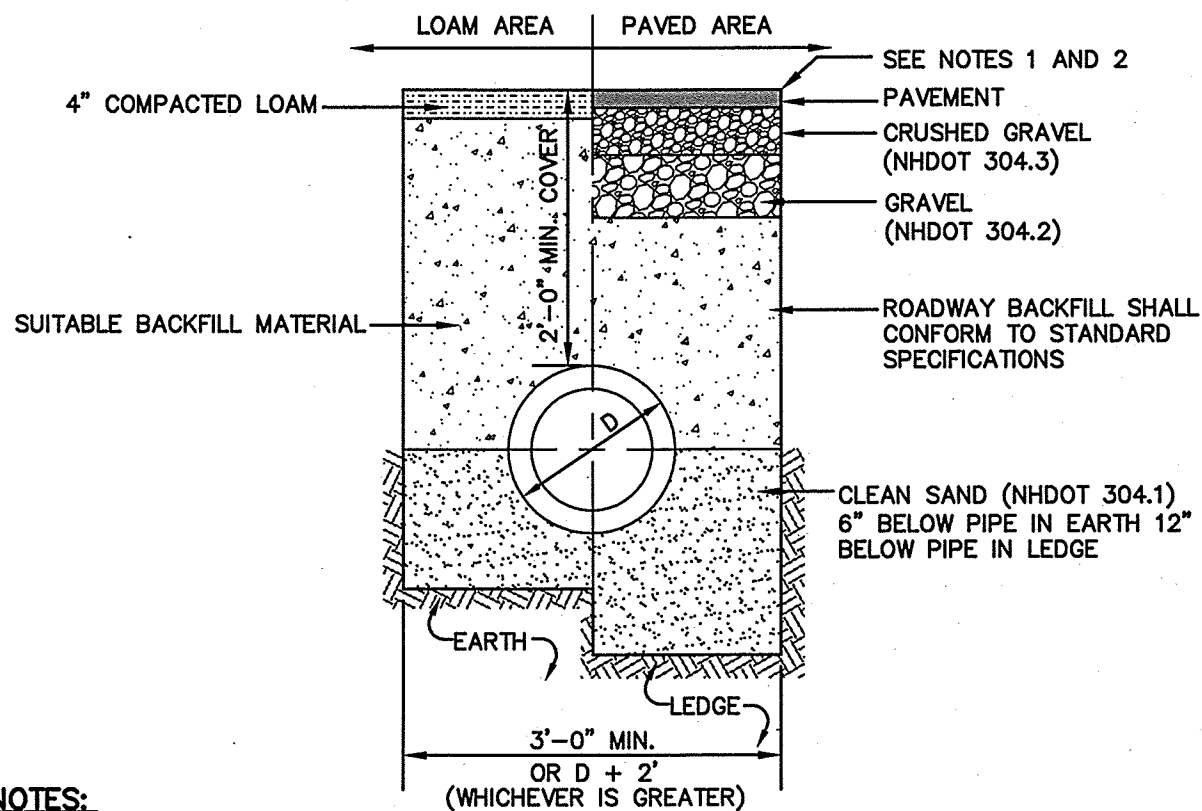
- DO NOT DIRECT RUNOFF TO THE BIORETENTION SYSTEMS UNTIL IT HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
- DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUN-OFF, WATER FROM EXCAVATIONS) TO THE BIORETENTION AREA DURING ANY STAGE OF CONSTRUCTION.
- DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.
- PLANT LAYOUT WITHIN INDIVIDUAL RAIN GARDENS MAY VARY BETWEEN HOMES HOWEVER ALL RAIN GARDENS ARE TO BE PLANTED FROM EDGE TO EDGE WITH A 1' MAXIMUM SPACING BETWEEN PERENNIALS. LEAVE ENOUGH ROOM BETWEEN SHRUBS FOR FULL GROW-OUT OF EACH SPECIES USED.

MAINTENANCE REQUIREMENTS:

- VEGETATION SHOULD BE INSPECTED AT LEAST ANNUALLY, AND MAINTAINED IN HEALTHY CONDITION, INCLUDING PRUNING, REMOVAL AND REPLACEMENT OF DEAD OR DISEASED VEGETATION, AND REMOVAL OF INVASIVE SPECIES.

RAIN GARDEN (with open side and bottom) - HOUSE LOTS

NOT TO SCALE

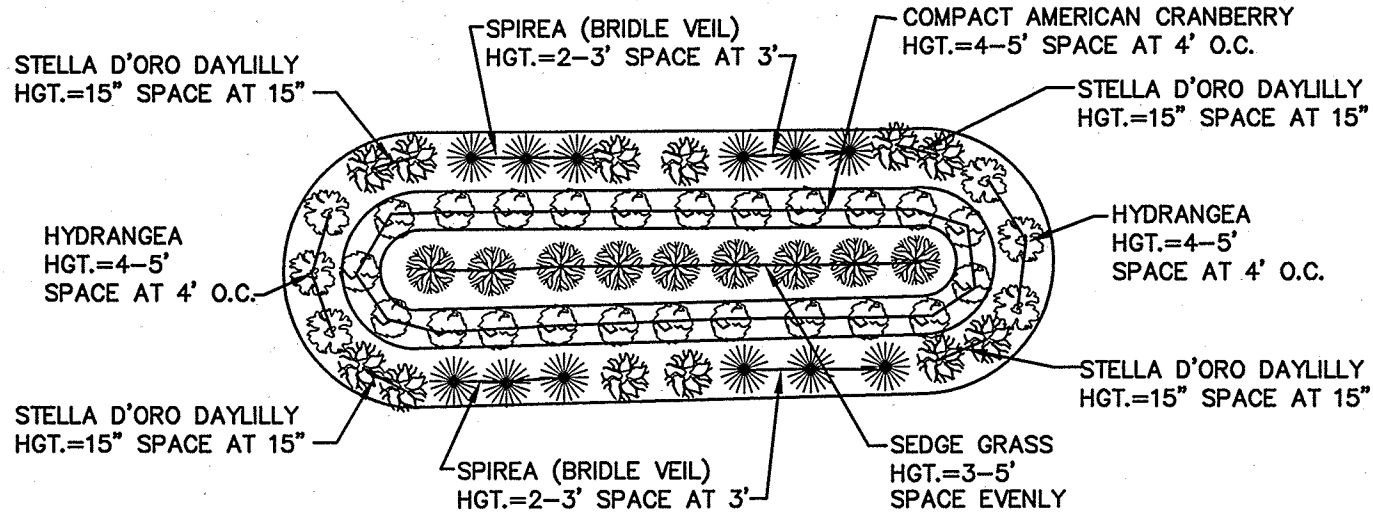


NOTES:

- PAVEMENT REPAIR IN EXISTING ROADWAYS SHALL CONFORM TO STREET OPENING REGULATIONS.
- NEW ROADWAY CONSTRUCTION SHALL CONFORM WITH PROJECT AND TOWN SPECIFICATIONS.
- ALL MATERIALS ARE TO BE COMPACTED TO 95% OF ASTM D-1557.

DRAINAGE TRENCH

NOT TO SCALE

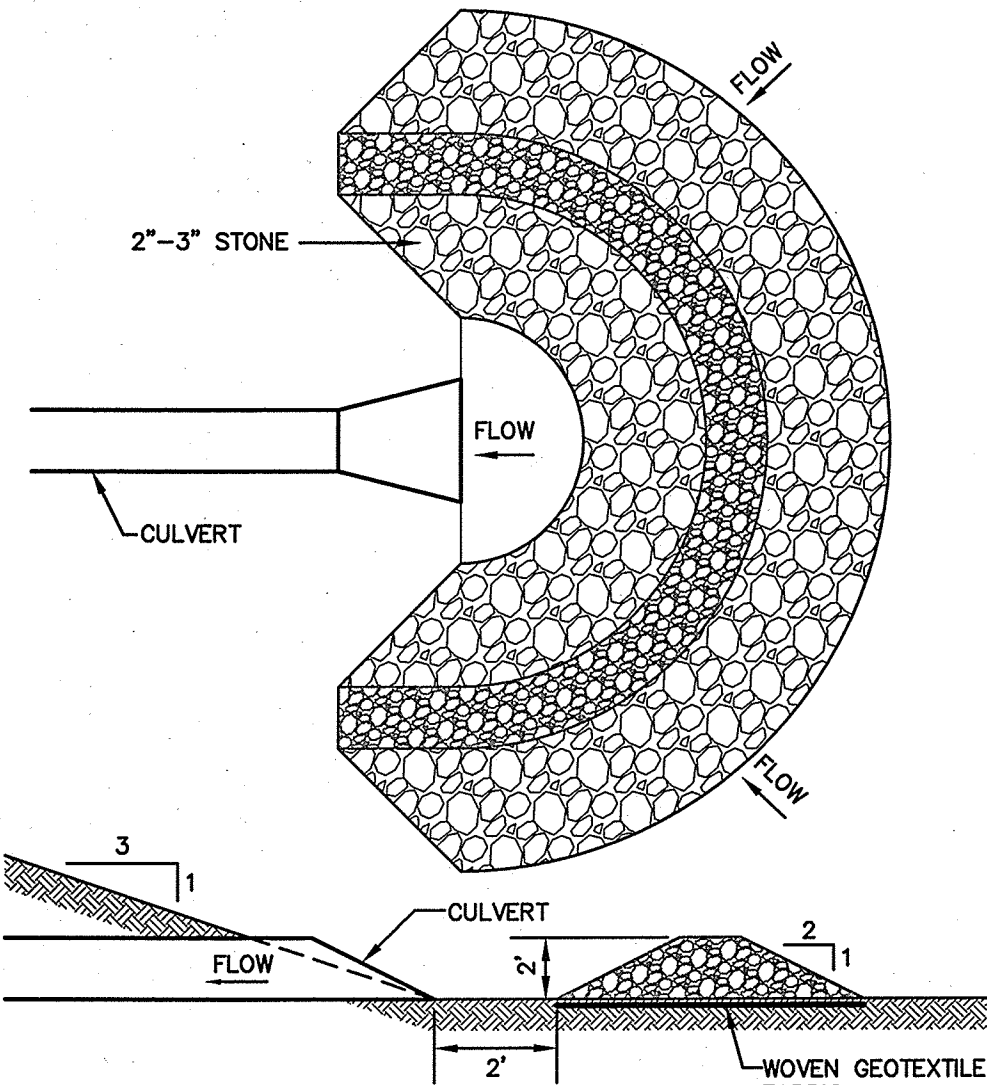


NOTES

- ELEVATIONS VARY BY LOT. CONTRACTOR TO PLACE RAIN GARDENS ON EACH RESIDENTIAL LOT AND PLANT AS SHOWN ABOVE. SHAPE AND DIMENSIONS MAY VARY DEPENDING ON SITE CONDITIONS.
- RAIN GARDENS TO BE 75' MINIMUM FROM SEPTIC SYSTEMS.
- DRIVEWAY RUNOFF SHALL BE DIRECTED INTO PROPOSED RAIN GARDENS TO EXTENT POSSIBLE.
- BOTTOM OF RAIN GARDEN TO BE A MINIMUM 1,000 S.F. SHAPE AND DIMENSIONS MAY VARY DUE TO SITE CONDITIONS.
- VEGETATION WITHIN EACH RAIN GARDEN MUST BE STABILIZED WITH GROWTH PRIOR TO DIRECTING RUNOFF INTO THE RAIN GARDEN.
- EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE DETAILS ON THIS SHEET. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.

TYPICAL RAIN GARDEN PLANTINGS - HOUSE LOTS

NOT TO SCALE

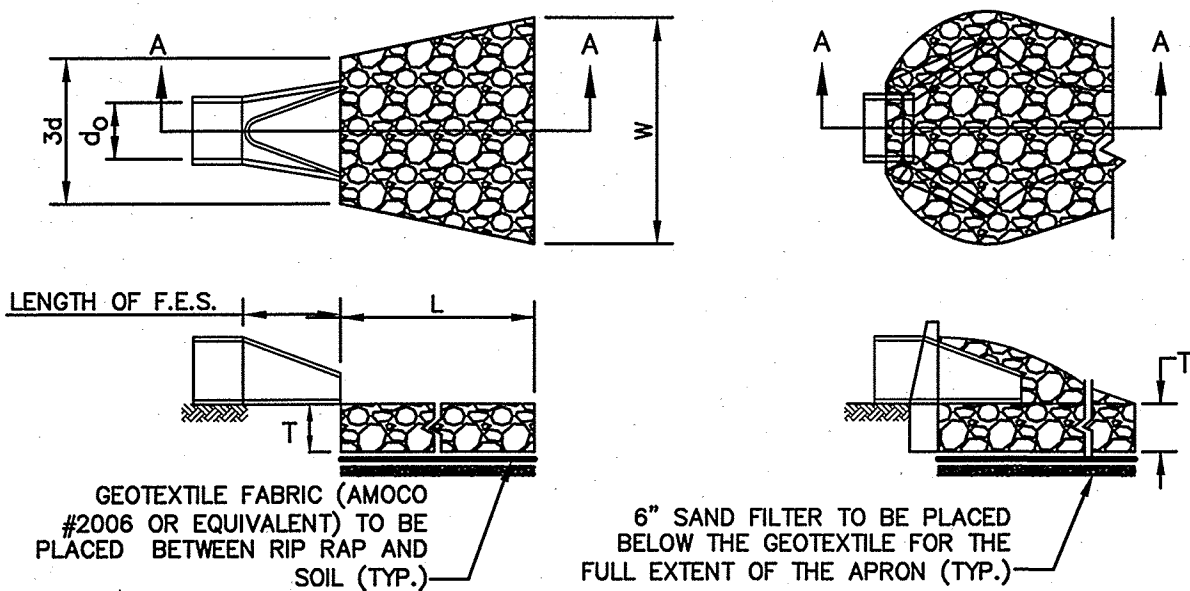


NOTES:

- TEMPORARY CULVERT INLET PROTECTION CHECK DAMS SHALL BE CONSTRUCTED OF 2"-3" STONE OVER WOVEN GEOTEXTILE FABRIC.
- INLET PROTECTION MEASURES SHALL BE INSTALLED AT THE OPENINGS OF ALL EXISTING AND PROPOSED CULVERTS LOCATED BELOW (DOWNSTREAM) FROM AND WITHIN 100' OF THE PROJECT SITE.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE STRUCTURE WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE STRUCTURE.
- STRUCTURES SHALL BE REMOVED WHEN THE SITE IS STABILIZED WITH VEGETATION AND THE CHANNEL SHALL BE SMOOTHED AND REVEGETATED.

TEMPORARY CULVERT INLET PROTECTION CHECK DAM

NOT TO SCALE



SECTION A-A

PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL

SECTION A-A

PIPE OUTLET TO WELL-DEFINED CHANNEL

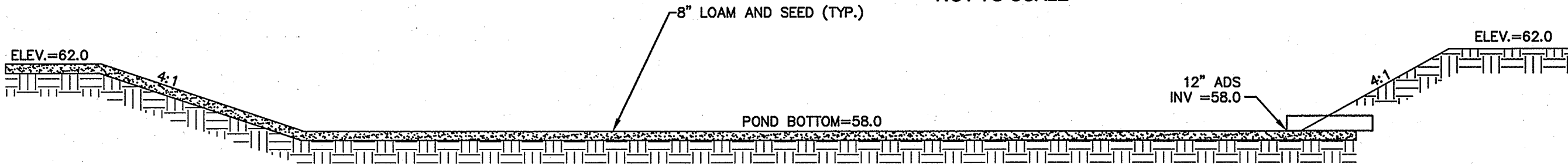
TABLE 7-24--RECOMMENDED RIP RAP GRADATION RANGES				
THICKNESS OF RIP RAP = 1.0 FEET				
d50 SIZE=	0.25	FEET	3	INCHES
% OF WEIGHT SMALLER THAN THE GIVEN d50 SIZE	SIZE OF STONE (INCHES) FROM		TO	
100%	5		6	
85%	4		5	
50%	3		5	
15%	1		2	

NOTES:

- THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIP RAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
- THE RIP RAP SHALL CONFORM TO THE SPECIFIED GRADATION.
- GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
- STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
- OUTLETS TO A DEFINED CHANNEL SHALL HAVE 2:1 OR FLATTER SIDE SLOPES AND SHOULD BEGIN AT THE TOP OF THE CULVERT AND TAPER DOWN TO THE CHANNEL BOTTOM THROUGH THE LENGTH OF THE APRON.
- MAINTENANCE: THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO OUTLET PROTECTION.

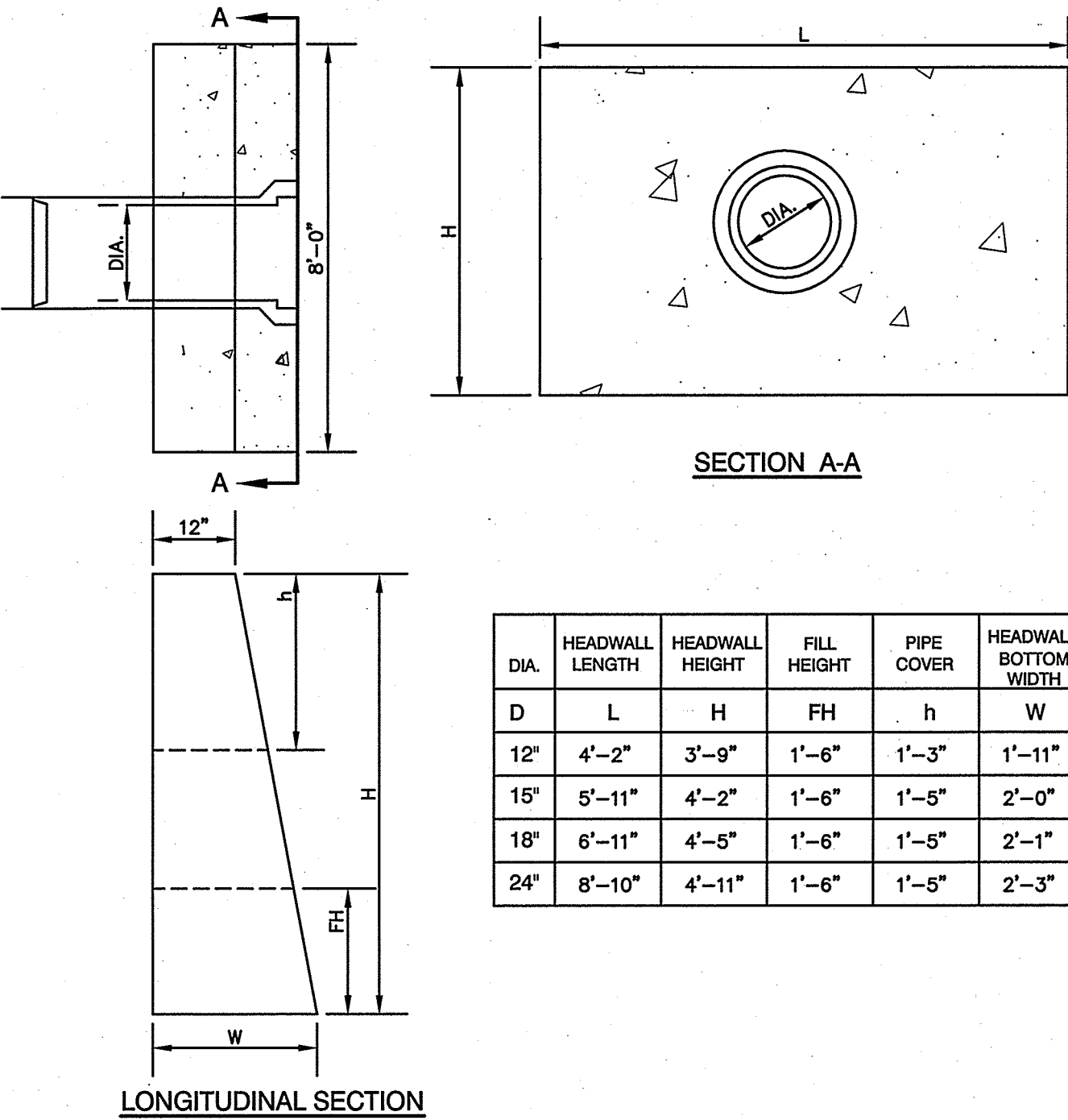
RIP RAP OUTLET PROTECTION APRON

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DETENTION POND SYSTEM SECTION

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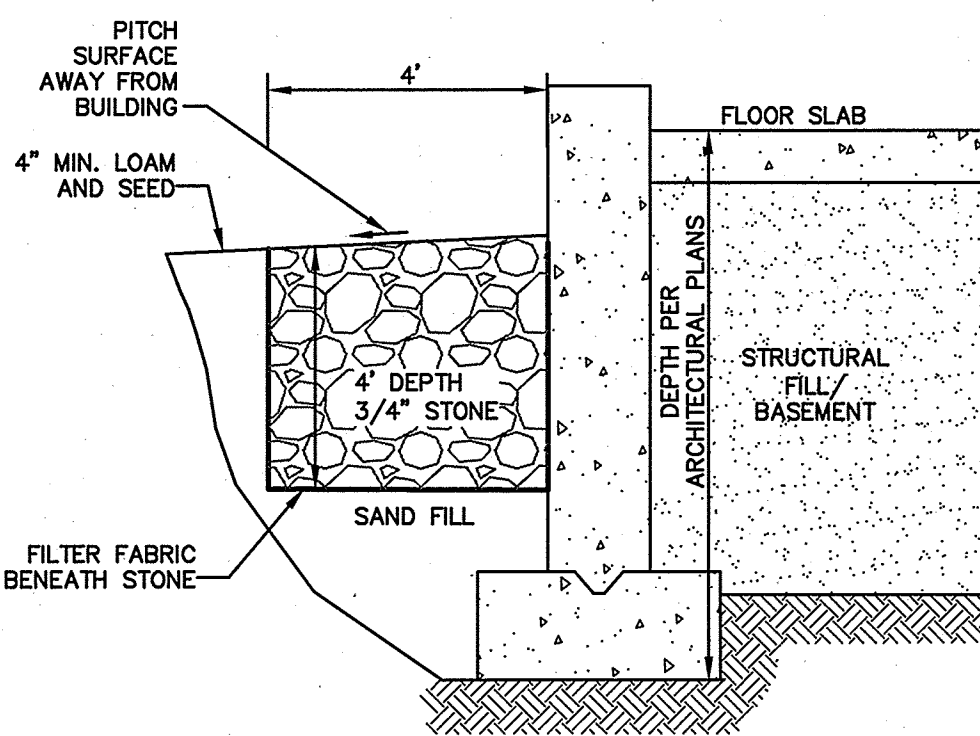


NOTES:

- ALL DIMENSIONS GIVEN IN FEET & INCHES.
- PROVIDE BELL END AT INLET HEADWALL, AND SPIGOT END AT OUTLET END HEADWALL.
- CONCRETE: 5,000 PSI MINIMUM AFTER 28 DAYS. CEMENT TO BE TYPE III PER ASTM C-150. REINFORCING TO MEET OR EXCEED ASTM A-615 GRADE 60 DEFORMED BARS.
- 1" THREADED INSERTS PROVED FOR FINAL ATTACHMENT IN FIELD BY OTHERS.

PRECAST CONCRETE HEADWALL

NOT TO SCALE



NOTES

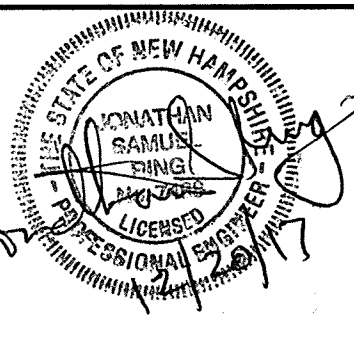
- EACH NEW LOT SHALL HAVE A STONE DRIP EDGE AROUND EACH HOUSE, AND A RAIN GARDEN AT DRIVEWAY LOW POINT. SEE THIS DETAIL. THESE FEATURES SHALL BE SHOWN ON THE SUBSURFACE EFFLUENT DISPOSAL SYSTEM PLAN PREPARED FOR EACH LOT PRIOR TO ISSUANCE OF A BUILDING PERMIT.

STONE DRIP EDGE DETAIL - HOUSE LOTS

NOT TO SCALE

Design: JSR	Draft: PLB	Date: 6/26/13
Checked: JSR	Scale: AS NOTED	Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg		

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.



5	12/20/17	REVISED PER PLANNING BOARD	PLB
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
3	10/5/17	REVISED PER PLANNING BOARD	PLB
2	8/16/17	REVISED PER PLANNING BOARD	LAZ
1	7/5/17	REVISED PER TOWN PLANNER	RMN
REV.	DATE	REVISION	BY

Designed and Produced in NH

J/B Jones & Beach Engineers, Inc.

85 Portsmouth Ave. PO Box 219 Stratham, NH 03885

Civil Engineering Services

603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	DETAIL SHEET
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN SULLIVAN 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.	D2
SHEET 7 OF 8	JBE PROJECT NO. 13070.1

F:\Land Projects\3\13070-STRATHAM-112-HIGH STREET-SULLIVAN.dwg 12/20/2017 1:47:40 PM EST

SEEDING SPECIFICATIONS

- GRADING AND SHAPING**
 - SLOPES SHALL NOT BE STEEPER THAN 2:1 WITHOUT APPROPRIATE EROSION CONTROL MEASURES AS SPECIFIED ON THE PLANS (3:1 SLOPES OR FLATTER ARE PREFERRED).
 - WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.
- SEEDBED PREPARATION**
 - SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
 - STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND FERTILIZER AND LIME MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.
- ESTABLISHING A STAND**
 - LIME AND FERTILIZER SHOULD BE APPLIED PRIOR TO OR AT THE TIME OF SEEDING AND INCORPORATED INTO THE SOIL. TYPES AND AMOUNTS OF LIME AND FERTILIZER SHOULD BE BASED ON AN EVALUATION OF SOIL TESTS. WHEN A SOIL TEST IS NOT AVAILABLE, THE FOLLOWING MINIMUM AMOUNTS SHOULD BE APPLIED:
AGRICULTURAL LIMESTONE, 2 TONS PER ACRE OR 100 LBS. PER 1,000 SQ.FT.
NITROGEN(N), 50 LBS. PER ACRE OR 1.1 LBS. PER 1,000 SQ.FT.
PHOSPHATE(P2O5), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
POTASH(K2O), 100 LBS. PER ACRE OR 2.2 LBS. PER 1,000 SQ.FT.
(NOTE: THIS IS THE EQUIVALENT OF 500 LBS. PER ACRE OF 10-20-20 FERTILIZER OR 1,000 LBS. PER ACRE OF 5-10-10.)
 - SEED SHOULD BE SPREAD UNIFORMLY BY THE METHOD MOST APPROPRIATE FOR THE SITE. METHODS INCLUDE BROADCASTING, DRILLING AND HYDROSEEDING. WHERE BROADCASTING IS USED, COVER SEED WITH 25 INCH OF SOIL OR LESS, BY CULTIPACKING OR RAKING.
 - REFER TO THE 'SEEDING GUIDE' AND 'SEEDING RATES' TABLES ON THIS SHEET FOR APPROPRIATE SEED MIXTURES AND RATES OF SEEDING. ALL LEGUMES (CROWN VETCH, BIRDSFOOT, TREFOLI AND FLATPEA) MUST BE INOCULATED WITH THEIR SPECIFIC INOCULANT PRIOR TO THEIR INTRODUCTION TO THE SITE.
 - WHEN SEEDED AREAS ARE MULCHED, PLANTINGS MAY BE MADE FROM EARLY SPRING TO EARLY OCTOBER. WHEN SEEDED AREAS ARE NOT MULCHED, PLANTINGS SHOULD BE MADE FROM EARLY SPRING TO MAY 20th OR FROM AUGUST 10th TO SEPTEMBER 1st.
- MULCH**
 - HAY, STRAW, OR OTHER MULCH, WHEN NEEDED, SHOULD BE APPLIED IMMEDIATELY AFTER SEEDING.
 - MULCH WILL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE BEST MANAGEMENT PRACTICE FOR MULCHING. HAY OR STRAW MULCH SHALL BE PLACED AT A RATE OF 90 LBS PER 1000 S.F.
- MAINTENANCE TO ESTABLISH A STAND**
 - PLANTED AREAS SHOULD BE PROTECTED FROM DAMAGE BY FIRE, GRAZING, TRAFFIC, AND DENSE WEED GROWTH.
 - FERTILIZATION NEEDS SHOULD BE DETERMINED BY ONSITE INSPECTIONS. SUPPLEMENTAL FERTILIZER IS USUALLY THE KEY TO FULLY COMPLETE THE ESTABLISHMENT OF THE STAND BECAUSE MOST PERENNIALS TAKE 2 TO 3 YEARS TO BECOME FULLY ESTABLISHED.
 - IN WATERWAYS, CHANNELS, OR SWALES WHERE UNIFORM FLOW CONDITIONS ARE ANTICIPATED, ANNUAL MOWING MAY BE NECESSARY TO CONTROL GROWTH OF WOODY VEGETATION.

USE	SEEDING MIXTURE 1/	DROUGHTY	WELL DRAINED	MODERATELY WELL DRAINED	POORLY DRAINED
STEEP CUTS AND FILLS, BORROW AND DISPOSAL AREAS	A	FAIR	GOOD	GOOD	FAIR
	B	POOR	GOOD	FAIR	FAIR
	C	POOR	GOOD	EXCELLENT	GOOD
	D	FAIR	EXCELLENT	EXCELLENT	POOR
WATERWAYS, EMERGENCY SPILLWAYS, AND OTHER CHANNELS WITH FLOWING WATER.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	EXCELLENT	EXCELLENT	FAIR
LIGHTLY USED PARKING LOTS, ODD AREAS, UNUSED LANDS, AND LOW INTENSITY USE RECREATION SITES.	A	GOOD	GOOD	GOOD	FAIR
	C	GOOD	GOOD	FAIR	POOR
PLAY AREAS AND ATHLETIC FIELDS. (TOPSOIL IS ESSENTIAL FOR GOOD TURF.)	E	FAIR	EXCELLENT	EXCELLENT	2/
	F	FAIR	EXCELLENT	EXCELLENT	2/
GRAVEL PIT. SEE NH-PM-24 IN APPENDIX FOR RECOMMENDATION REGARDING RECLAMATION OF SAND AND GRAVEL PITS.					
1/ REFER TO SEEDING MIXTURES AND RATES IN TABLE BELOW.					
2/ POORLY DRAINED SOILS ARE NOT DESIRABLE FOR USE AS PLAYING AREA AND ATHLETIC FIELDS.					

NOTE: TEMPORARY SEED MIX FOR STABILIZATION OF TURF SHALL BE WINTER RYE OR OATS AT A RATE OF 2.5 LBS. PER 1000 S.F. AND SHALL BE PLACED PRIOR TO OCTOBER 15th, IF PERMANENT SEEDING NOT YET COMPLETE.

SEEDING GUIDE

MIXTURE	POUNDS PER ACRE	POUNDS PER 1,000 Sq. Ft.
A. TALL FESCUE CREEPING RED FESCUE RED TOP TOTAL	20 20 2 42	0.45 0.45 0.05 0.95
B. TALL FESCUE CREEPING RED FESCUE CROWN VETCH OR FLAT PEA TOTAL	15 10 15 30 40 OR 55	0.35 0.25 0.35 0.75 0.95 OR 1.35
C. TALL FESCUE CREEPING RED FESCUE BIRDS FOOT TREFOLI TOTAL	20 20 8 48	0.45 0.45 0.20 1.10
D. TALL FESCUE FLAT PEA TOTAL	20 30 50	0.45 0.75 1.20
E. CREEPING RED FESCUE 1/ KENTUCKY BLUEGRASS 1/ TOTAL	50 50 100	1.15 1.15 2.30
	150	3.60

1/ FOR HEAVY USE ATHLETIC FIELDS CONSULT THE UNIVERSITY OF NEW HAMPSHIRE COOPERATIVE EXTENSION TURF SPECIALIST FOR CURRENT VARIETIES AND SEEDING RATES.

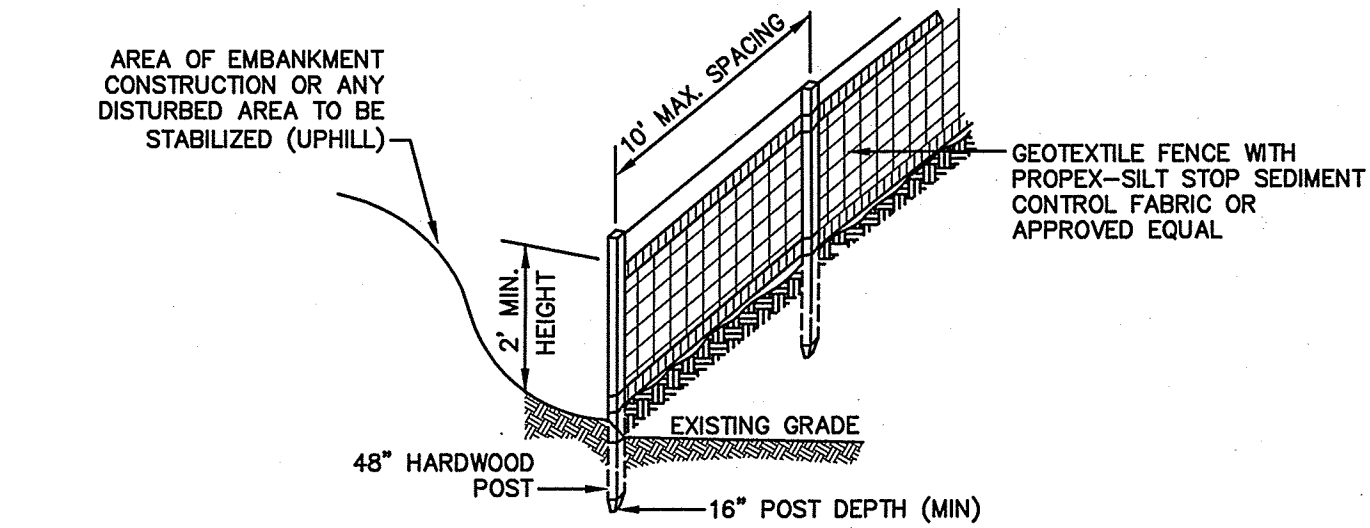
SEEDING RATES

TEMPORARY EROSION CONTROL NOTES

- THE SMALLEST PRACTICAL AREA OF LAND SHALL BE EXPOSED AT ANY ONE TIME. AT NO TIME SHALL AN AREA IN EXCESS OF 5 ACRES BE EXPOSED AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS AND AT LOCATIONS AS REQUIRED, DIRECTED BY THE ENGINEER.
- ALL DISTURBED AREAS (INCLUDING POND AREAS BELOW THE PROPOSED WATERLINE) SHALL BE RETURNED TO PROPOSED GRADES AND ELEVATIONS. DISTURBED AREAS SHALL BE LOAMED WITH A MINIMUM OF 6" OF SCREENED ORGANIC LOAM AND SEEDED WITH SEED MIXTURE "C" AT A RATE NOT LESS THAN 1.10 POUNDS OF SEED PER 1,000 S.F. OF AREA (48 LBS. / ACRE).
- SILT FENCES AND OTHER BARRIERS SHALL BE INSPECTED EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.25" OR GREATER. ALL DAMAGED AREAS SHALL BE REPAIRED, AND SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED OF.
- AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, THE TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED AND THE AREA DISTURBED BY THE REMOVAL SMOOTHED AND RE-VEGETATED.
- AREAS MUST BE SEEDED AND MULCHED OR OTHERWISE PERMANENTLY STABILIZED WITHIN 3 DAYS OF FINAL GRADING, OR TEMPORARILY STABILIZED WITHIN 14 DAYS OF THE INITIAL DISTURBANCE OF SOIL. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
- ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKETS (OR AN EQUIVALENT APPROVED IN WRITING BY THE ENGINEER) ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15th, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3" OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH STONE OR RIPRAP HAS BEEN INSTALLED; OR
 - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- FUGITIVE DUST CONTROL IS REQUIRED TO BE CONTROLLED IN ACCORDANCE WITH ENV-A 1000, AND THE PROJECT IS TO MEET THE REQUIREMENTS AND INTENT OF RSA 430:53 AND AGR 3800 RELATIVE TO INVASIVE SPECIES.
- PRIOR TO CONSTRUCTION, A PHASING PLAN THAT DELINEATES EACH PHASE OF THE PROJECT SHALL BE SUBMITTED. ALL TEMPORARY SEDIMENT BASINS THAT WILL BE NEEDED FOR DEWATERING WORK AREAS SHALL BE LOCATED AND IDENTIFIED ON THIS PLAN.

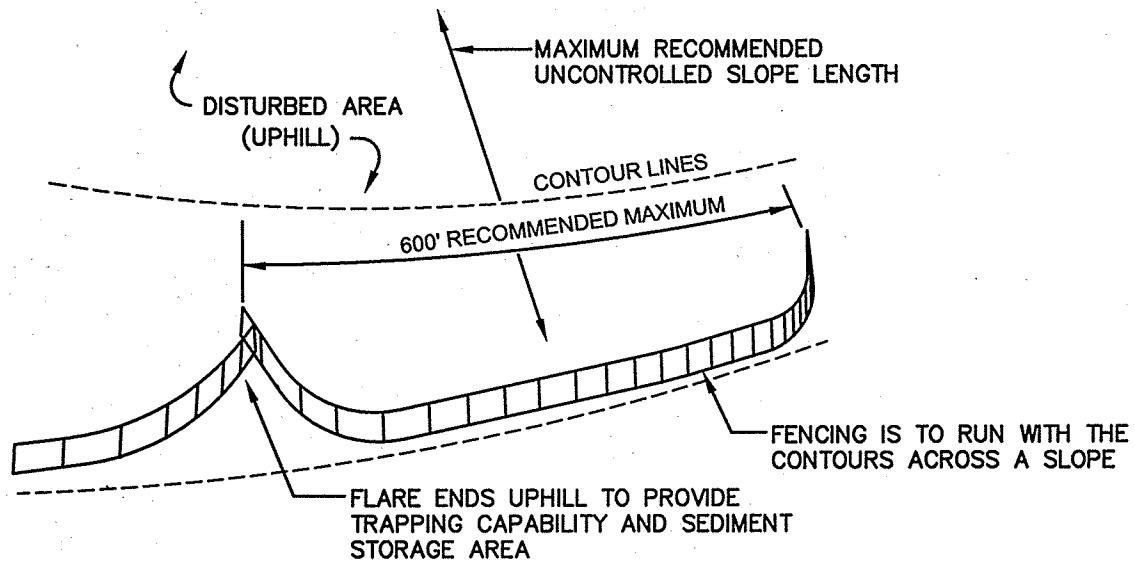
CONSTRUCTION SEQUENCE

- PRIOR TO THE START OF ANY ACTIVITY, IT IS THE RESPONSIBILITY OF THE SITE'S SITE DEVELOPER (OR OWNER) TO FILE A NOTICE OF INTENT (NOI) FORM WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) IN ORDER TO GAIN COVERAGE UNDER THE NPDES GENERAL PERMIT FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES. A PRE CONSTRUCTION MEETING IS TO BE HELD WITH ALL DEPARTMENT HEADS PRIOR TO THE START OF CONSTRUCTION.
- WETLAND BOUNDARIES ARE TO BE CLEARLY MARKED PRIOR TO THE START OF CONSTRUCTION. AT LEAST A TEMPORARY CULVERT OR ROADBED TO BE IN PLACE PRIOR TO THE START OF CONSTRUCTION.
- CUT AND REMOVE TREES IN CONSTRUCTION AREA AS REQUIRED OR DIRECTED.
- INSTALL SILT FENCING, HAY BALES AND CONSTRUCTION ENTRANCES PRIOR TO THE START OF CONSTRUCTION. THESE ARE TO BE MAINTAINED UNTIL THE FINAL PAVEMENT SURFACING AND LANDSCAPING AREAS ARE ESTABLISHED.
- CLEAR, CUT, GRUB AND DISPOSE OF DEBRIS IN APPROVED FACILITIES. THIS INCLUDES ANY REQUIRED DEMOLITION OF EXISTING STRUCTURES, UTILITIES, ETC.
- CONSTRUCT AND/OR INSTALL TEMPORARY OR PERMANENT SEDIMENT AND/OR DETENTION BASIN(S) AS REQUIRED. THESE FACILITIES SHALL BE INSTALLED AND STABILIZED PRIOR TO DIRECTING RUN-OFF TO THEM.
- STRIP LOAM AND PAVEMENT, OR RECLAIM EXISTING PAVEMENT WITHIN LIMITS OF WORK PER THE RECOMMENDATIONS OF THE PROJECT ENGINEER AND STOCKPILE EXCESS MATERIAL. STABILIZE STOCKPILE AS NECESSARY.
- PERFORM PRELIMINARY SITE GRADING IN ACCORDANCE WITH THE PLANS.
- PREPARE BUILDING PAD(S) TO ENABLE BUILDING CONSTRUCTION TO BEGIN.
- INSTALL THE DRAINAGE SYSTEMS FIRST, THEN ANY OTHER UTILITIES IN ACCORDANCE WITH THE PLAN AND DETAILS. ANY CONFLICTS BETWEEN UTILITIES ARE TO BE RESOLVED WITH THE INVOLVEMENT AND APPROVAL OF THE ENGINEER.
- ALL SWALES AND DRAINAGE STRUCTURES ARE TO BE CONSTRUCTED AND STABILIZED PRIOR TO HAVING RUN-OFF DIRECTED TO THEM.
- STORMWATER FLOWS ARE NOT TO BE DIRECTED TO TREATMENT PRACTICES UNTIL ALL CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
- DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINAGE DITCHES, CHECK DAMS, SEDIMENT TRAPS, ETC., TO PREVENT EROSION ON THE SITE AND PREVENT ANY SILTATION OF ADJUTING WATERS AND/OR PROPERTY.
- PERFORM FINAL FINE GRADING, INCLUDING PLACEMENT OF 'SELECT' SUBGRADE MATERIALS.
- PAVE ALL ROADWAYS WITH INITIAL 'BASE COURSE'.
- PERFORM ALL REMAINING SITE CONSTRUCTION (I.e. BUILDING, UTILITY CONNECTIONS, ETC.).
- LOAM AND SEED ALL DISTURBED AREAS AND INSTALL ANY REQUIRED SEDIMENT AND EROSION CONTROL FACILITIES (I.e. RIP RAP, EROSION CONTROL BLANKETS, ETC.).
- FINISH PAVING ALL ROADWAYS WITH 'FINISH' COURSE.
- ALL ROADWAYS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
- COMPLETE PERMANENT SEEDING AND LANDSCAPING.
- REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDING AREAS HAVE BEEN 75%-85% ESTABLISHED AND SITE IMPROVEMENTS ARE COMPLETE. SMOOTH AND RE-VEGETATE ALL DISTURBED AREAS.
- CLEAN SITE AND ALL DRAINAGE STRUCTURES, PIPES AND SUMPS OF ALL SILT AND DEBRIS.
- INSTALL ALL PAINTED PAVEMENT MARKINGS AND SIGNAGE PER THE PLANS AND DETAILS.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY QUARTER-INCH OF RAINFALL.
- UPON COMPLETION OF CONSTRUCTION, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ANY RELEVANT PERMITTING AGENCIES THAT THE CONSTRUCTION HAS BEEN FINISHED IN A SATISFACTORY MANNER.



CONSTRUCTION SPECIFICATIONS:

- WOVEN FABRIC FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH SHALL BE FASTENED TO WOVEN WIRE EVERY 24" AT TOP, MID AND BOTTOM AND EMBEDDED IN THE GROUND A MINIMUM OF 8" AND THEN COVERED WITH SOIL.
- THE FENCE POSTS SHALL BE A MINIMUM OF 48" LONG, SPACED A MAXIMUM 10' APART, AND DRIVEN A MINIMUM OF 16" INTO THE GROUND.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THE ENDS OF THE FABRIC SHALL BE OVERLAPPED 6", FOLDED AND STAPLED TO PREVENT SEDIMENT FROM BY-PASSING.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SEDIMENT REMOVED AND PROPERLY DISPOSED OF WHEN IT IS 6" DEEP OR VISIBLE 'BULGES' DEVELOP IN THE SILT FENCE.
- PLACE THE ENDS OF THE SILT FENCE UP CONTOUR TO PROVIDE FOR SEDIMENT STORAGE.



- SILT FENCES SHALL BE REMOVED WHEN NO LONGER NEEDED AND THE SEDIMENT COLLECTED SHALL BE DISPOSED AS DIRECTED BY THE ENGINEER. THE AREA DISTURBED BY THE REMOVAL SHALL BE SMOOTHED AND REVEGETATED.

MAINTENANCE:

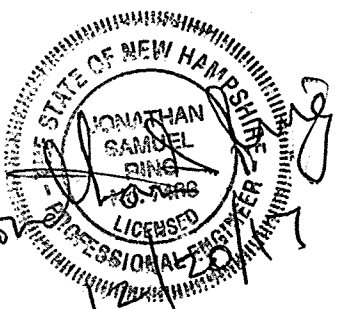
- SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REPAIRS THAT ARE REQUIRED SHALL BE DONE IMMEDIATELY.
- IF THE FABRIC ON A SILT FENCE SHOULD DECOMPOSE OR BECOME INEFFECTIVE DURING THE EXPECTED LIFE OF THE FENCE, THE FABRIC SHALL BE REPLACED PROMPTLY.
- SEDIMENT DEPOSITS SHOULD BE INSPECTED AFTER EVERY STORM EVENT. THE DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
- SEDIMENT DEPOSITS THAT ARE REMOVED, OR LEFT IN PLACE AFTER THE FABRIC HAS BEEN REMOVED, SHALL BE GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

SILT FENCE

NOT TO SCALE

Design: JSR	Draft: PLB	Date: 6/26/13
Checked: JSR	Scale: AS NOTED	Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg		

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REV.	DATE	REVISION	BY
5	12/20/17	REVISED PER PLANNING BOARD	PLB
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
3	10/5/17	REVISED PER PLANNING BOARD	PLB
2	8/16/17	REVISED PER PLANNING BOARD	LAZ
1	7/5/17	REVISED PER TOWN PLANNER	RMN

J/B
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885

Designed and Produced in NH
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name:	EROSION AND SEDIMENT CONTROL DETAILS
Project:	SULLIVAN SUBDIVISION 8 WHITTAKER DRIVE, STRATHAM, NH 03885
Owner of Record:	ROBIN SULLIVAN 8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.	E1
SHEET 8 OF 8 JBE PROJECT NO. 13070.1	



TOWN OF STRATHAM
10 Bunker Hill Avenue · Stratham, NH 03885
Phone: 603-772-7391 Fax (All Offices) 603-775-0517

SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:
Proposed Sullivan Subdivision

Street Address:
8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Section 3.3.2 & 3.3.3 Plan Scale 1" = 60' of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated December 20, 2017 for the property tax map(s) 19 and lot(s) 68 in the Town of Stratham, NH

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n) (For Subdivisions) OR RSA 674:44, III (e) (For Site-Plans). Without the Planning Board granting said waiver, strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations, **OR** the specific circumstances relative to the subdivision/site plan or conditions of the land in the subdivision/site plan indicate that the waiver will properly carry out the spirit and intent of the regulations.

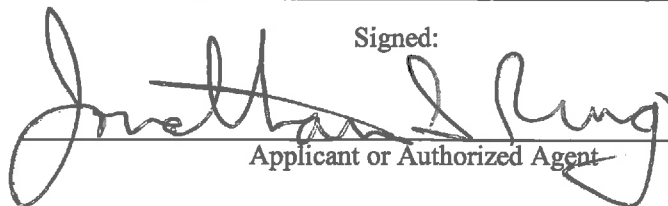
Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:

OR:

Specific circumstances relative to the subdivision or conditions of the land in the subdivision indicate that the waiver will properly carry out the spirit and intent of the regulations:

We respectfully request a waiver of plan scale to allow 1" = 60' scale to read the entire plan on one sheet without match lines.

Signed:


Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



TOWN OF STRATHAM
10 Bunker Hill Avenue · Stratham, NH 03885
Phone: 603-772-7391 Fax (All Offices) 603-775-0517

SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:
Proposed Sullivan Subdivision

Street Address:
8 Whittaker Drive Stratham, NH

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Section 4.4.3.a.i. Dead-end Street of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated December 20, 2017 for the property tax map(s) 19 and lot(s) 68 in the Town of Stratham, NH

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n) (For Subdivisions) OR RSA 674:44, III (e) (For Site-Plans). Without the Planning Board granting said waiver, strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations, **OR** the specific circumstances relative to the subdivision/site plan or conditions of the land in the subdivision/site plan indicate that the waiver will properly carry out the spirit and intent of the regulations.

Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:

OR:

Specific circumstances relative to the subdivision or conditions of the land in the subdivision indicate that the waiver will properly **carry out the spirit and intent of the regulations**:

We respectfully request approval to construct a dead-end street cul-de-sac for the road that will service 5 new house lots. Limited traffic will utilize the proposed roadway.... Please see attached paper for complete Waiver Request.



Signed:

Jonathan S. Ring
Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____

We respectfully request approval to construct a dead-end street cul-de-sac for the road that will service 5 new house lots. Limited traffic will utilize the proposed roadway. No new dead-end street will be created; rather, the proposed road extends the existing Whittaker Drive, which minimizes disruption to the neighborhood and potential impact to direct abutters on any new through road. The new cul-de-sac is a "loop" road, rather than a "bubble", which will be easier to plow than the current Whittaker Drive dead-end. To promote connectivity, we have included a possible 5' wide public trail way between the proposed Whittaker Drive extension and Hillcrest Drive.



TOWN OF STRATHAM
10 Bunker Hill Avenue • Stratham, NH 03885
Phone: 603-772-7391 Fax (All Offices) 603-775-0517

SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:

Proposed Sullivan Subdivision

Street Address:

8 Whittaker Drive Stratham, NH

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Section 4.4.3.a.ii. Dead-end Street length over 800 L.F. of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated December 20, 2017 for the property tax map(s) 19 and lot(s) 68 in the Town of Stratham, NH

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n) (For Subdivisions) OR RSA 674:44, III (e) (For Site-Plans). Without the Planning Board granting said waiver, strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations, **OR** the specific circumstances relative to the subdivision/site plan or conditions of the land in the subdivision/site plan indicate that the waiver will properly carry out the spirit and intent of the regulations.

Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:


OR:

Specific circumstances relative to the subdivision or conditions of the land in the subdivision indicate that the waiver will properly carry out the spirit and intent of the regulations:

We respectfully request approval to construct an extension to the existing dead-end for the road that will service 5-lots. Limited traffic will utilize the proposed roadway. The proposed road accesses off Whittaker Drive, and

would be increased in length from current 660 L.F. by 300 L.F. to the proposed new dead-end. The total length would be 960 L.F. to the beginning of the cul-de-sac loop.

Signed:


Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



TOWN OF STRATHAM
10 Bunker Hill Avenue · Stratham, NH 03885
Phone: 603-772-7391 Fax (All Offices) 603-775-0517

SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:
Proposed Sullivan Subdivision

Street Address:
8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Section 4.5.1.f. Side Slopes 3:1 of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated December 20, 2017 for the property tax map(s) 19 and lot(s) 68 in the Town of Stratham, NH

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n) (For Subdivisions) OR RSA 674:44, III (e) (For Site-Plans). Without the Planning Board granting said waiver, strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations, **OR** the specific circumstances relative to the subdivision/site plan or conditions of the land in the subdivision/site plan indicate that the waiver will properly carry out the spirit and intent of the regulations.

Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:

OR:

Specific circumstances relative to the subdivision or conditions of the land in the subdivision indicate that the waiver will properly carry out the spirit and intent of the regulations:

We respectfully request a waiver to allow 3:1 side slopes from the road to reduce affect on the lots adjacent on this sloping land parcel.

Signed:

Jonathan S. Ring
Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



TOWN OF STRATHAM
10 Bunker Hill Avenue · Stratham, NH 03885
Phone: 603-772-7391 Fax (All Offices) 603-775-0517

SITE PLAN REVIEW / SUBDIVISION WAIVER REQUEST FORM

Name of Subdivision/Site Plan:
Proposed Sullivan Subdivision

Street Address:
8 Whittaker Drive

I Robin Sullivan hereby request that the Planning Board waive the requirements of item(s) Addendum A, Table 1. Roadway Pavement Width of 24' of the Subdivision/Site Plan Checklist in reference to a plan presented by Jones & Beach Engineers, Inc., Attn. Jonathan S. Ring, P.E. (name of surveyor and engineer) dated December 20, 2017 for the property tax map(s) 19 and lot(s) 68 in the Town of Stratham, NH

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n) (For Subdivisions) OR RSA 674:44, III (e) (For Site-Plans). Without the Planning Board granting said waiver, strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations, **OR**, the specific circumstances relative to the subdivision/site plan or conditions of the land in the subdivision/site plan indicate that the waiver will properly carry out the spirit and intent of the regulations.

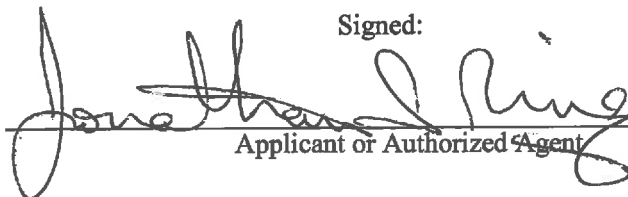
Strict conformity would cause an unnecessary hardship to the applicant and waiver would not be contrary to the spirit and intent of the regulations:

OR:

Specific circumstances relative to the subdivision or conditions of the land in the subdivision indicate that the waiver will properly carry out the spirit and intent of the regulations:

We respectfully request a waiver from the 24' roadway width. In lieu of a 24' wide roadway, we propose a 22' wide roadway due to the limited number of lots that will access through the proposed roadway. Therefore, limited traffic will utilize the proposed roadway.

Signed:


Applicant or Authorized Agent

Planning Board Action:

Waiver Granted _____

Waiver Not Granted _____



12/21/2017
ALewy

TOWN OF STRATHAM
Incorporated 1716
10 Bunker Hill Avenue · Stratham, NH 03885
Town Clerk/Tax Collector 603-772-4741
Selectmen's Office/ Administration/ Assessing 603-772-7391
Code Enforcement/ Building Inspections/ Planning 603-772-7391
Fax (All Offices) 603-775-0517

**Stratham Planning Department
Department Head/Commission Project Review Form**

Departments:

<input checked="" type="checkbox"/> Assessing Department <u>Andrea Lewy</u>	<input type="checkbox"/> Police Department _____
<input type="checkbox"/> Building Department _____	<input type="checkbox"/> Public Works Dept. _____
<input type="checkbox"/> Conservation Commission _____	<input type="checkbox"/> Recreation Department _____
<input type="checkbox"/> Fire Department _____	<input type="checkbox"/> Town Administrator _____
<input type="checkbox"/> Heritage Commission _____	<input type="checkbox"/> Town Clerk _____
<input type="checkbox"/> Planning Department _____	<input type="checkbox"/> Other _____

Project Information:

Project Name: Sullivan Subdivision

Location: 8 Whittaker Drive - Map 19 Lot 68

Project Description: 6-Lot Subdivision Application to create five (5) new building lots at 8 Whittaker Drive, Stratham NH 03885

Planning Board Hearing Date: 1/3/2017 **Please return to Planner No Later Than:** _____

Comments: Please provide your written comments. If you have no comment and/or all issues have been addressed/provided, please write "No Comments".

Plan received 12/20/2017 - appears to have the same acreage as the 10/18/2017 PB meeting. Lot numbering should be the same as April/May & October plans submitted. See attached:

Lot 100 = 10 Whittaker Drive

Lot 101 = 12 Whittaker Drive

Lot 102 = 14 Whittaker Drive

Lot 103 = 9 Whittaker Drive

Lot 104 = 7 Whittaker Drive

ADDITIONAL ABUTTERS NOT SHOWN

19/62
KENT & ELIZABETH ANSON
1 HILLCREST DR.
STRATHAM, NH 03885
5604/2025 (03/27/15)

19/63
TILTON REVOCABLE TRUST
MARION E. TILTON, TRUSTEE
3 HILLCREST DR.
STRATHAM, NH 03885
5804/0476 (03/15/17)

19/71
MORRISSETTE-LONGWELL
REVOCABLE TRUST
SCOTT LONGWELL &
ROBIN MORRISSETTE TRUSTEES
1 WHITTAKER DR.
STRATHAM, NH 03885
5760/1328 (10/07/16)

19/74
RUSS REVOCABLE TRUST
BRADLEY & LYNN RUSS
TRUSTEES
2 WHITTAKER DR.
STRATHAM, NH 03885
3354/2480 (12/28/98)

19/78 (CL HIGH ST)
PEAR TREE ASSOCIATION
7 BARTLETT DR
STRATHAM, NH 03885

15/44 (125 UNION RD)
TOWN OF STRATHAM
10 BUNKER HILL AVE
STRATHAM, NH 03885
2838/1716 (05/25/90)

19-73
RANKS FAMILY TRUST
8 WHITTAKER DRIVE
STRATHAM, NH 03885
5796/0753

LINE	BEARING	DISTANCE
1	N 89°07'21" W	129.78
2	N 80°57'17" W	29.77
3	N 59°32'42" W	45.66
4	N 62°25'28" W	62.58
5	N 62°25'28" W	62.58
6	N 80°07'37" W	101.91
7	N 58°22'06" W	102.45
8	N 01°49'28" E	436.84
9	N 72°43'01" E	63.93
10	N 82°28'03" E	143.94
11	N 12°21'12" E	611.45
12	N 62°39'41" E	50.12
13	N 12°11'17" W	324.04
14	N 77°46'53" E	101.08
15	N 14°41'22" E	333.05
16	N 77°28'18" E	150.97
17	N 18°17'14" W	2.00
18	N 18°37'14" W	564.78
19	N 63°09'29" E	128.61
20	N 63°04'20" E	143.87
21	N 24°10'28" W	83.78
22	N 24°03'44" W	825.79
23	N 71°31'25" W	54.42 (TIE)
24	N 69°28'20" E	112.45
25	N 12°31'28" E	91.19

LINE	BEARING	DISTANCE
1	N 89°07'21" W	129.78
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23	N 71°31'25" W	54.42 (TIE)
24	N 69°28'20" E	112.45
25	N 12°31'28" E	91.19

REFERENCE PLANS:

- MINOR SUBDIVISION OF LAND, HIGH STREET, STRATHAM, NEW HAMPSHIRE, FOR TERRA REALTY TRUST, DATED 3/1/1995, REVISED 2/29/1996, RCRD PLAN # D-24555.
- SUBDIVISION OF LAND FOR V.E.T. DEVELOPMENT, STRATHAM, NH DATED 8/3/1987, REVISED 10/16/1987, RCRD PLAN # D-17330.
- FINAL SUBDIVISION PLAN, HILLCREST DRIVE SUBDIVISION, STRATHAM, NH DATED 11/25/1986, REVISED 12/3/1986, RCRD PLAN # D-15868.
- PEAR TREE, STRATHAM, NEW HAMPSHIRE, SUBDIVISION PLAN DATED 6/8/1989, REVISED 7/28/1989, RCRD PLAN # D-18852.

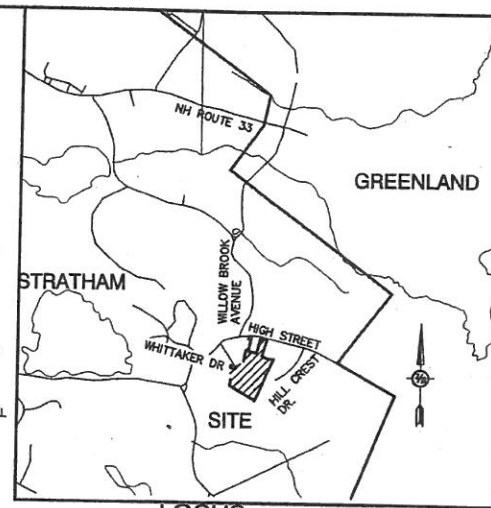
WILLOW BROOK AVENUE



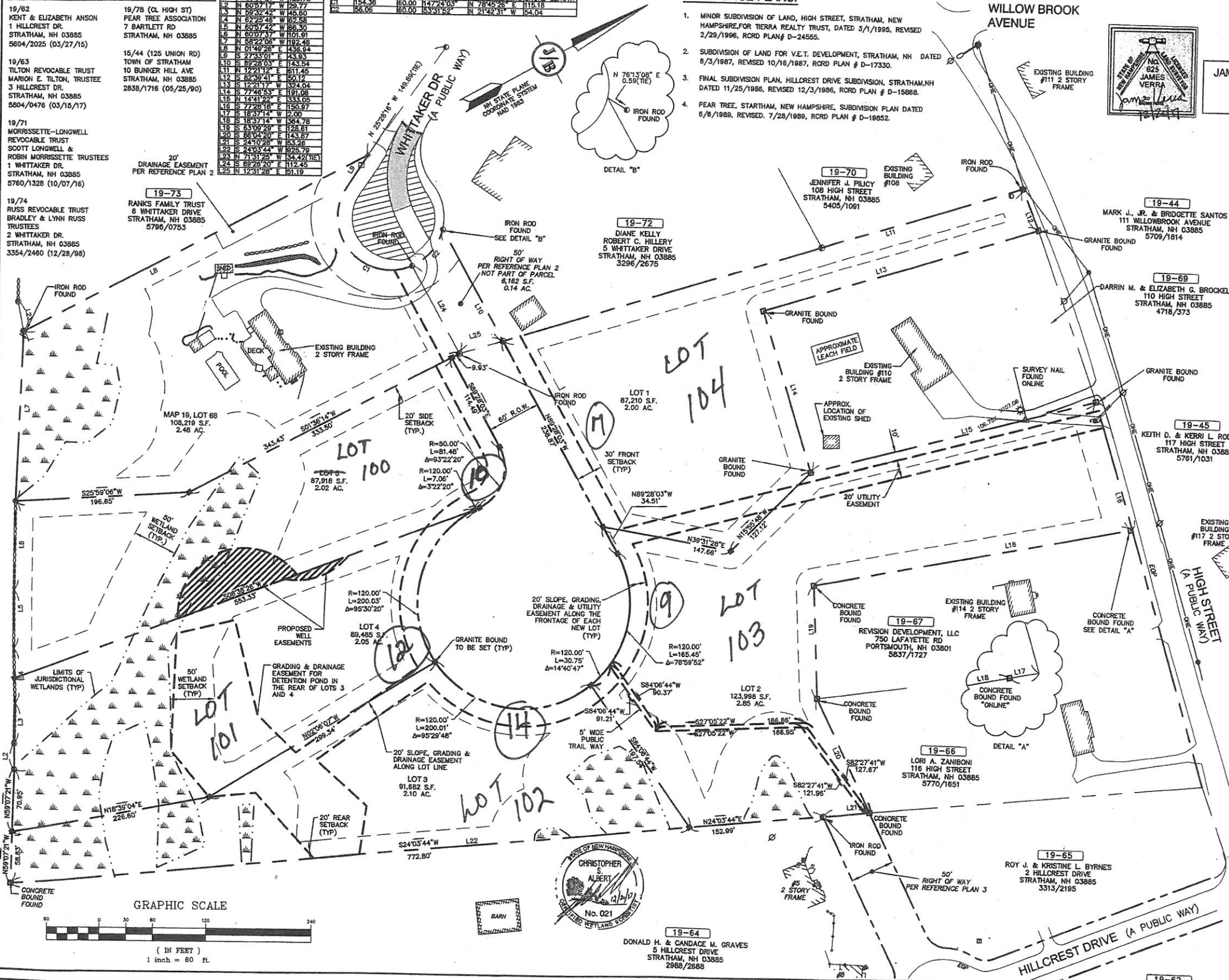
JAMES VERRA AND ASSOCIATES, INC.
101 SHATTUCK WAY, SUITE 8
NEWINGTON, NH 03801-7878
PROJECT NUMBER: 20391-B

SUBDIVISION NOTES:

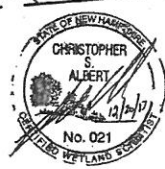
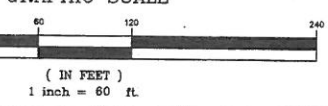
- THE INTENT OF THIS PLAN IS TO SUBDIVIDE MAP 19, LOT 68 INTO FIVE (5) SINGLE FAMILY RESIDENTIAL LOTS WITH ON-SITE WATER, SEPTIC, PLUS EXISTING HOUSE, COMPLETE EIGHT (8) SHEET PLAN SET IS ON FILE AT THE PLANNING BOARD OFFICE.
- ZONING DISTRICT: RESIDENTIAL AGRICULTURAL LOT AREA MINIMUM = 2 ACRES LOT FRONTAGE MINIMUM = 200' BUILDING SETBACKS (MINIMUM): FRONT SETBACK = 30' SIDE SETBACK = 20' REAR SETBACK = 20' WETLAND SETBACK = 50' MAX BUILDING HEIGHT = 35'
- WITH APPROVAL OF THIS PLAN BY THE PLANNING BOARD, THE FOLLOWING WAIVERS ARE GRANTED FROM THE "SUBDIVISION REGULATIONS":
A) SECTION 3.3.2 & 3.3.3 - PLAN SCALE TO ALLOW 1" = 60'.
B) SECTION 4.4.3 TO ALLOW CUL-DE-SAC.
C) SECTION 4.4.3.1, DEAD-END STREET.
D) SECTION 4.4.3.1.1, DEAD-END OVER 800 LF.
E) SECTION 4.5.1.1, SIDE SLOPES 3:1.
F) SECTION ADDENDUM TABLE 1-ROAD WIDTH 22'.
- NOTES APPROVAL FOR SUBDIVISION PERMIT NO. _____ DATED _____
- THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED.
- SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED 100 YEAR FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0265E, DATED MAY 17, 2005.
- ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.). THIS DOCUMENT IS TO BE KEPT ON-SITE AT ALL TIMES AND UPDATED AS REQUIRED.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY LOCAL PERMITS, FEES AND BONDS.
- ALL CONSTRUCTION WILL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE STRINGENT.
- ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.
- GRANITE BOUNDS TO BE SET AT ALL ROADWAY POINTS OF CURVATURE AND TANGENCY, AND AT ALL PROPERTY CORNERS AND ANGLE POINTS, UNLESS OTHERWISE INDICATED.
- THE LIMITS OF JURISDICTIONAL WETLANDS WERE DELINEATED BY CHRISTOPHER ALBERT OF JONES & BEACH ENGINEERS, INC., DURING WINTER, 2016.
- LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS.
- UPON APPROVAL BY THE TOWN, THE PROPOSED ROAD WILL BE CONVEYED TO THE TOWN.
- ALL UTILITIES SHALL BE INSTALLED UNDERGROUND.
- ALL LOTS ARE SUBJECT TO A 20' WIDE EASEMENT ALONG FRONTAGE FOR SLOPE, GRADING, DRAINAGE AND UTILITIES.
- ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- THE TAX MAP AND LOT NUMBERS AND ABUTTING OWNERS ARE BASED ON THE TOWN OF STRATHAM TAX RECORDS AND ARE SUBJECT TO CHANGE.
- RESEARCH WAS PERFORMED AT THE TOWN OF STRATHAM ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- HORIZONTAL DATUM: NAD 1983 ESTABLISHED BY SURVEY GRADE GPS OBSERVATION AND NGS "OPUS" SOLUTION. REFERENCE FRAME: NAD83 (2011) (EPOCH: 2010.0000), US SURVEY FOOT. VERTICAL DATUM: NAVD 1988. PRIMARY BENCHMARK: NHDOT 345-0070.
- ANY USE OF THIS PLAN AND/OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.



LOCUS SCALE: 1"=2000'



GRAPHIC SCALE



DONALD H. & CANDACE M. GRAVES
5 HILLCREST DRIVE
STRATHAM, NH 03885
2986/2888

Design: JSR | Draft: PLB | Date: 6/26/13
Checked: JSR | Scale: AS NOTED | Project No.: 13070.1
Drawing Name: 13070-PLAN.dwg
THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.

REV.	DATE	REVISION	BY
5	12/20/17	REVISED PER PLANNING BOARD	PLB
4	11/16/17	REVISED PER PLANNING BOARD	LAZ
3	10/5/17	REVISED PER PLANNING BOARD	PLB
2	8/16/17	REVISED PER PLANNING BOARD	LAZ
1	7/5/17	REVISED PER TOWN PLANNER	RMN

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
85 Portsmouth Ave. Civil Engineering Services 603-772-4746
PO Box 219 Stratham, NH 03885 FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **SUBDIVISION PLAN**
Project: **MAP 19, LOT 68**
Owner of Record: **SULLIVAN SUBDIVISION**
8 WHITTAKER DRIVE, STRATHAM, NH 03885
ROBIN SULLIVAN
8 WHITTAKER DRIVE, STRATHAM, NH 03885

DRAWING No.
A1
SHEET 2 OF 8
JBE PROJECT NO. 13070.1

APPROVED - STRATHAM, NH PLANNING BOARD	PROJECT PARCEL TOWN OF STRATHAM, NH MAP 19, LOT 68
APPLICANT/OWNER ROBIN SULLIVAN 8 WHITTAKER DRIVE STRATHAM, NH 03885 BK 4199 PG 2969	TOTAL LOT AREA 14.99 ACRES
DATE:	

To: Stratham Planning Board

From: Stratham Conservation Commission

Date: December 19, 2017

Subject: Sullivan Subdivision

The Stratham Conservation Commission discussed the proposed Sullivan subdivision at its meeting on December 13, 2017, with input from abutters and from Town Planner Tavis Austin.

The Commission is very concerned about conflicting wetland delineations for the project. In particular, a survey done in the 1980s indicates wetlands in different and possible broader areas than those flagged by the developer. Recent observations from wetland scientist Mark West also indicate that several areas not flagged as wetlands might in fact be such. The Commission believes these inconsistencies could satisfactorily be resolved by a delineation done by an independent wetland scientist, such as Lenny Lord from the Rockingham County Conservation District. Given the concerns of abutters and plans for stormwater management in the subdivision, it is crucial that the wetlands are properly identified. We strongly encourage the Planning Board insist on a third party wetland delineation to clarify the current situation.

The Commission would like to reserve the right to make additional comments based on any future changes in the subdivision's plans. As always, thank you for your consideration of the Conservation Commission concerns and for including us in the process.

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

December 20, 2017

Town of Stratham Planning Board
Attn. Robert Baskerville, PE, Chairman
10 Bunker Hill Avenue
Stratham, NH 03885

**RE: Sullivan Subdivision Application
8 Whittaker Drive
Tax Map 19, Lot 68
JBE Project No. 13070.1**

Dear Chairman Baskerville and Members of the Board,

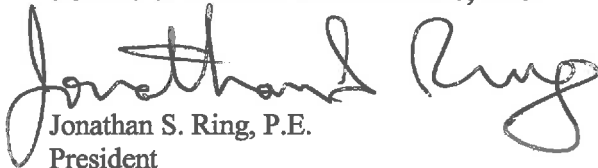
Jones & Beach Engineers, Inc. respectfully submits an amendment to an existing Application for Subdivision for the above-referenced parcel on behalf of property owner Robin Sullivan. The intent of this project is to construct a 5-lot residential subdivision, with 970 L.F. of roadway cul-de-sac extension from Whittaker Drive. This project will be serviced with on-site wells and septic systems. To the extent necessary, the applicant waives the 65-day clock.

The following items are provided in support of this Subdivision Application:

1. Six (6) Completed Subdivision Waiver Request Forms.
2. Three (3) bound copies of drainage analysis.
3. Nine (9) complete reduced-size (11"x17") plan sets.
4. Six (6) complete full-size plan sets.

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours,
JONES & BEACH ENGINEERS, INC.



Jonathan S. Ring, P.E.
President

cc: Robin Sullivan, Brian Sullivan and Kevin Baum

JONES & BEACH ENGINEERS INC.

85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

LETTER OF TRANSMITTAL

Date:	12/20/2017	JBE Project No:	13070.1
Company:	Stratham Planning Board	RE:	Sullivan Subdivision
Attn:	Tavis Austin, Planner		8 Whittaker Drive
	10 Bunker Hill Avenue Stratham, NH 03885		Stratham, NH Tax Map 19, Lot 68

Delivery Type: Delivery

We are sending you ☒ Attached ☐ Under separate cover via the following:

<u>COPIES</u>	<u>DOC. DATE</u>	<u>NO.</u>	<u>DESCRIPTION</u>
1	12/20/17	2	Town of Stratham Cover Letter
1	12/20/17	4	Town of Stratham Subdivision Waiver Request Forms
3	12/20/17	9	Drainage Analysis / Stormwater Management Report
9	12/20/17	10	Reduced-Size (11"x17") Plan Sets
6	12/20/17	11	Full-Size Plan Sets

THESE ARE TRANSMITTED as checked below:

☒ For approval

☒ For your use

☒ As requested

☒ For review/comment

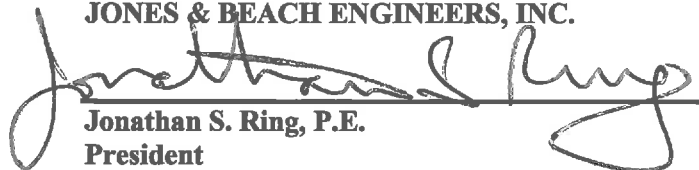
COMMENTS:

Tavis,

The enclosed materials are provided to the Board for Planning Board Meeting, which we understand would be on January 3, 2018. Please call me with any questions you may have. Thank you very much for your time.

Signed:

JONES & BEACH ENGINEERS, INC.



Jonathan S. Ring, P.E.
President

CC: Robin Sullivan (Application with attachments and Plan via email)
Brian Sullivan (Application with attachments and Plan via email)
Kevin Baum, HPGR (Application with attachments and Plan via email)

JONES & BEACH ENGINEERS INC.

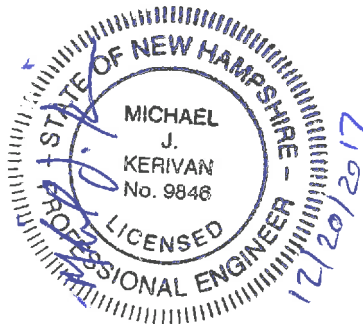
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

DRAINAGE ANALYSIS

SEDIMENT AND EROSION CONTROL PLAN

Prepared for:

**Sullivan Subdivision
Tax Map 19, Lot 68
High Street
Stratham, NH 03885**



**June 29, 2017
Revised August 16, 2017
Revised October 5, 2017
Revised December 20, 2017
JBE Project No. 13070**

EXECUTIVE SUMMARY

Robin Sullivan proposes to construct a 5-lot subdivision on a ± 14.99 -acre parcel of land located on the south side of High Street in Stratham, NH. A drainage analysis of the entire site and its offsite contributing watershed areas was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. The analysis was conducted using data for the 2 Year – 24 Hour (3.71"), 10 Year – 24 Hour (5.65"), 25 Year – 24 Hour (7.18"), 50 Year – 24 Hour (8.60") and 100 Year – 24 Hour (10.32") storm events using the USDA SCS TR-20 method within the HydroCAD Stormwater Modeling System environment. A summary of the existing and proposed conditions peak rates of runoff is as follows:

COMPONENT	ANALYSIS	PEAK RATE OF RUNOFF (CUBIC FEET/SECOND)				
		2 Year	10 Year	25 Year	50 Year	100 Year
Analysis Point #1	Existing	6.93	17.32	26.57	35.59	46.83
	Proposed	5.73	15.90	24.95	33.57	44.80
Analysis Point #2	Existing	7.35	18.85	29.19	39.30	51.94
	Proposed	7.06	17.71	27.15	36.36	48.03
Analysis Point #3	Existing	1.46	3.07	4.43	5.72	7.29
	Proposed	1.49	3.14	4.54	5.86	7.46

The project site is located in the Rural Residential Zone. The subject parcel consists primarily of woodland and grass. The site is primarily undeveloped with the exception of an existing house in the western corner adjacent to Whittaker Drive. The existing topography is such that the existing conditions site analysis requires three (3) subcatchments. The site and contributing off-site runoff drains to two wetlands, one located in the southeast corner (Analysis Point #1) and one located on the eastern property line approximately 450' northeast of the southeast corner wetland (Analysis Point #2). The northwest portion of the watershed drains to a driveway culvert at the end of Whittaker Drive (Analysis Point #3).

The proposed site development consists of the aforementioned 5-lot subdivision, featuring single-family dwellings. The construction of approximately 969 feet of roadway, driveways, and homes, in addition to site grading, divides the existing drainage basins into four (4) subcatchments. The runoff from these subcatchments has increased from that of the existing conditions due to the addition of the impervious buildings and paving. The runoff from the roadway will be directed via site grading and swales to a detention pond. Stormwater from the houses and driveways will be directed to drip edges. As shown in the above table, the proposed peak rates of stormwater runoff will be reduced from that of existing conditions for all analyzed storm events, with the exception of Analysis Point #3. An increase of under 3% occurs at Analysis Point #3, however this increase will be mitigated downstream by the removal of pavement from the Whittaker Drive (1,303 s.f. of pavement is proposed versus 5,722 s.f. of pavement being removed).

In addition, the potential for increased erosion and sedimentation is handled by way of erosion control blankets, vegetated treatment, and riprap inlet and outlet protection aprons. All land disturbed during construction will be stabilized within thirty days of groundbreaking, and existing wetlands and abutting property owners will suffer minimal adversity resultant of this development.

TABLE OF CONTENTS

Executive Summary

USGS Quadrangle

1.0	Rainfall Characteristics	Page 1
2.0	Existing Conditions Analysis	Page 2
3.0	Proposed Conditions Analysis	Pages 3-4
4.0	Conclusion	Page 5

Appendix I Existing Conditions Analysis

- 2 Year - 24 Hour Summary
- 10 Year - 24 Hour Summary
- 25 Year - 24 Hour Complete
- 50 Year - 24 Hour Summary
- 100 Year - 24 Hour Complete

Appendix II Proposed Conditions Analysis

- 2 Year - 24 Hour Summary
- 10 Year - 24 Hour Summary
- 25 Year - 24 Hour Complete
- 50 Year - 24 Hour Summary
- 100 Year - 24 Hour Complete

Appendix III Charts, Graphs, and Calculations

Enclosed:	Sheet W1	Existing Conditions Watershed Plan
	Sheet W2	Proposed Conditions Watershed Plan

1.0 RAINFALL CHARACTERISTICS

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (3.71"), 10 Year – 24 Hour (6.65"), 25 Year – 24 Hour (7.18"), 50 Year – 24 Hour (8.60") and 100 Year – 24 Hour (10.32") storm events. The rainfall amounts were derived using the 'Extreme Precipitation in New York and New England' values and adjusting them up by 15% due to the project being in the coastal zone.

As the table in the Executive Summary demonstrates, the proposed peak rates of runoff will be reduced from the existing conditions of the site, thereby minimizing any potential for a negative impact on abutting properties or infrastructure by allowing for better control of peak rates of stormwater runoff.

2.0 EXISTING CONDITIONS ANALYSIS

The subject parcel consists primarily of woodland and grass. The site is primarily undeveloped with the exception of an existing house in the western corner adjacent to Whittaker Drive. The topography of the site varies from flat to steep throughout the site, with few slopes exceeding 15%.

Classified through the use of Natural Resources Conservation Service's Web Soil Survey, the land of the site is composed of a variety of soil types. The in-situ soils are categorized into Hydrologic Soil Groups (HSG) B and C (see appendix for soil types and HSG designations).

The site and contributing off-site runoff drains to two wetlands, one located in the southeast corner (Analysis Point #1) and one located on the eastern property line approximately 450' northeast of the southeast corner wetland (Analysis Point #2).

3.0 PROPOSED CONDITIONS ANALYSIS

The proposed site development consists of the aforementioned 5-lot subdivision, featuring single-family dwellings. The construction of approximately 969 feet of roadway, driveways, and homes, in addition to site grading, divides the existing drainage basins into four (4) subcatchments. The runoff from these subcatchments has increased from that of the existing conditions due to the addition of the impervious buildings and paving.

The runoff from the roadway will be directed via site grading and swales to a detention pond. Stormwater from the houses and driveways will be directed to drip edges. As shown in the above table, the proposed peak rates of stormwater runoff will be reduced from that of existing conditions for all analyzed storm events.

4.0 CONCLUSION

This proposed site development located south of High Street in Stratham, NH will have minimal adverse effect on abutting infrastructures or properties by way of stormwater runoff or siltation. The post-construction peak rates of runoff for the site will be lower than the existing conditions for all analyzed storm events. Appropriate steps will be taken to eliminate erosion and sedimentation; these will be accomplished through the construction of a drainage system consisting of site grading, jute matting, vegetated swales, detention ponds, and riprap outlet protection aprons.

A site specific, terrain alteration permit (RSA 485:A-17) is not required for this site plan due to the area of disturbance being less than 100,000 square-feet.

Respectfully Submitted,
JONES & BEACH ENGINEERS, INC.

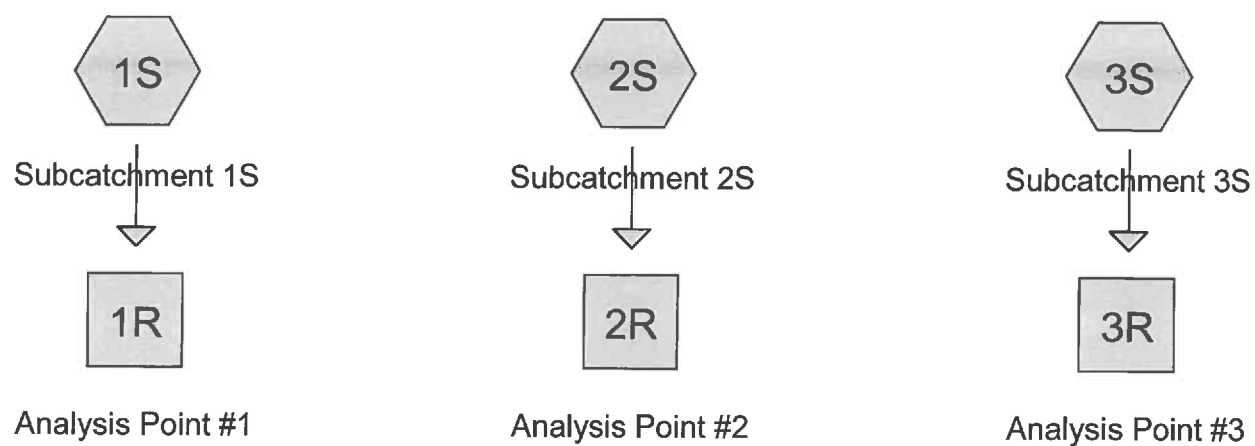


Michael Kerivan, P.E.
Project Engineer

APPENDIX I

EXISTING CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Summary 10 YEAR
Complete 25 YEAR
Summary 50 YEAR
Complete 100 YEAR



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.808	61	>75% Grass cover, Good, HSG B (1S, 2S)
5.046	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S)
0.153	98	Paved roads w/curbs & sewers, HSG B (2S)
0.222	98	Paved roads w/curbs & sewers, HSG C (1S, 2S)
0.318	98	Roofs, HSG B (1S, 2S)
0.163	98	Roofs, HSG C (1S, 2S, 3S)
2.521	55	Woods, Good, HSG B (1S, 2S)
5.846	70	Woods, Good, HSG C (1S, 2S)
19.078	68	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
7.801	HSG B	1S, 2S
11.276	HSG C	1S, 2S, 3S
0.000	HSG D	
0.000	Other	
19.078		TOTAL AREA

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1SRunoff Area=375,235 sf 3.57% Impervious Runoff Depth>1.02"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=6.93 cfs 0.733 af**Subcatchment 2S: Subcatchment 2S**Runoff Area=410,294 sf 5.51% Impervious Runoff Depth>0.97"
Flow Length=904' Tc=14.1 min CN=67 Runoff=7.35 cfs 0.759 af**Subcatchment 3S: Subcatchment 3S**Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>1.45"
Flow Length=660' Tc=11.0 min CN=75 Runoff=1.46 cfs 0.126 af**Reach 1R: Analysis Point #1**Inflow=6.93 cfs 0.733 af
Outflow=6.93 cfs 0.733 af**Reach 2R: Analysis Point #2**Inflow=7.35 cfs 0.759 af
Outflow=7.35 cfs 0.759 af**Reach 3R: Analysis Point #3**Inflow=1.46 cfs 0.126 af
Outflow=1.46 cfs 0.126 af**Total Runoff Area = 19.078 ac Runoff Volume = 1.618 af Average Runoff Depth = 1.02"**
95.51% Pervious = 18.221 ac 4.49% Impervious = 0.856 ac

13070_EX CONDITION*Type III 24-hr 10-YR STORM Rainfall=5.65"*

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1S Runoff Area=375,235 sf 3.57% Impervious Runoff Depth>2.35"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=17.32 cfs 1.685 af

Subcatchment 2S: Subcatchment 2S Runoff Area=410,294 sf 5.51% Impervious Runoff Depth>2.26"
Flow Length=904' Tc=14.1 min CN=67 Runoff=18.85 cfs 1.776 af

Subcatchment 3S: Subcatchment 3S Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>2.98"
Flow Length=660' Tc=11.0 min CN=75 Runoff=3.07 cfs 0.259 af

Reach 1R: Analysis Point #1 Inflow=17.32 cfs 1.685 af
Outflow=17.32 cfs 1.685 af

Reach 2R: Analysis Point #2 Inflow=18.85 cfs 1.776 af
Outflow=18.85 cfs 1.776 af

Reach 3R: Analysis Point #3 Inflow=3.07 cfs 0.259 af
Outflow=3.07 cfs 0.259 af

Total Runoff Area = 19.078 ac Runoff Volume = 3.720 af Average Runoff Depth = 2.34"
95.51% Pervious = 18.221 ac 4.49% Impervious = 0.856 ac

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1S Runoff Area=375,235 sf 3.57% Impervious Runoff Depth>3.55"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=26.57 cfs 2.545 af

Subcatchment 2S: Subcatchment 2S Runoff Area=410,294 sf 5.51% Impervious Runoff Depth>3.44"
Flow Length=904' Tc=14.1 min CN=67 Runoff=29.19 cfs 2.701 af

Subcatchment 3S: Subcatchment 3S Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>4.30"
Flow Length=660' Tc=11.0 min CN=75 Runoff=4.43 cfs 0.374 af

Reach 1R: Analysis Point #1 Inflow=26.57 cfs 2.545 af
Outflow=26.57 cfs 2.545 af

Reach 2R: Analysis Point #2 Inflow=29.19 cfs 2.701 af
Outflow=29.19 cfs 2.701 af

Reach 3R: Analysis Point #3 Inflow=4.43 cfs 0.374 af
Outflow=4.43 cfs 0.374 af

Total Runoff Area = 19.078 ac Runoff Volume = 5.621 af Average Runoff Depth = 3.54"
95.51% Pervious = 18.221 ac 4.49% Impervious = 0.856 ac

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 26.57 cfs @ 12.22 hrs, Volume= 2.545 af, Depth> 3.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
2,206	98	Roofs, HSG C
7,767	98	Paved roads w/curbs & sewers, HSG C
96,134	61	>75% Grass cover, Good, HSG B
98,463	74	>75% Grass cover, Good, HSG C
33,890	55	Woods, Good, HSG B
133,362	70	Woods, Good, HSG C
375,235	68	Weighted Average
361,849		96.43% Pervious Area
13,386		3.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
10.4	1,025	0.0550	1.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
15.6	1,470	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 29.19 cfs @ 12.20 hrs, Volume= 2.701 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
10,444	98	Roofs, HSG B
3,571	98	Roofs, HSG C
6,684	98	Paved roads w/curbs & sewers, HSG B
1,907	98	Paved roads w/curbs & sewers, HSG C
113,323	61	>75% Grass cover, Good, HSG B
77,154	74	>75% Grass cover, Good, HSG C
75,937	55	Woods, Good, HSG B
121,274	70	Woods, Good, HSG C
410,294	67	Weighted Average
387,688		94.49% Pervious Area
22,606		5.51% Impervious Area

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.92		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.3	37	0.0400	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
1.4	120	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	125	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.2	184	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
4.9	425	0.0850	1.46		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	904	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 4.43 cfs @ 12.16 hrs, Volume= 0.374 af, Depth> 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
44,179	74	>75% Grass cover, Good, HSG C
45,492	75	Weighted Average
44,179		97.11% Pervious Area
1,313		2.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.614 ac, 3.57% Impervious, Inflow Depth > 3.55" for 25-YR STORM event
 Inflow = 26.57 cfs @ 12.22 hrs, Volume= 2.545 af
 Outflow = 26.57 cfs @ 12.22 hrs, Volume= 2.545 af, Atten= 0%, Lag= 0.0 min

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.419 ac, 5.51% Impervious, Inflow Depth > 3.44" for 25-YR STORM event
Inflow = 29.19 cfs @ 12.20 hrs, Volume= 2.701 af
Outflow = 29.19 cfs @ 12.20 hrs, Volume= 2.701 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.044 ac, 2.89% Impervious, Inflow Depth > 4.30" for 25-YR STORM event
Inflow = 4.43 cfs @ 12.16 hrs, Volume= 0.374 af
Outflow = 4.43 cfs @ 12.16 hrs, Volume= 0.374 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1SRunoff Area=375,235 sf 3.57% Impervious Runoff Depth>4.73"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=35.59 cfs 3.396 af**Subcatchment 2S: Subcatchment 2S**Runoff Area=410,294 sf 5.51% Impervious Runoff Depth>4.61"
Flow Length=904' Tc=14.1 min CN=67 Runoff=39.30 cfs 3.620 af**Subcatchment 3S: Subcatchment 3S**Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>5.58"
Flow Length=660' Tc=11.0 min CN=75 Runoff=5.72 cfs 0.485 af**Reach 1R: Analysis Point #1**Inflow=35.59 cfs 3.396 af
Outflow=35.59 cfs 3.396 af**Reach 2R: Analysis Point #2**Inflow=39.30 cfs 3.620 af
Outflow=39.30 cfs 3.620 af**Reach 3R: Analysis Point #3**Inflow=5.72 cfs 0.485 af
Outflow=5.72 cfs 0.485 af**Total Runoff Area = 19.078 ac Runoff Volume = 7.501 af Average Runoff Depth = 4.72"**
95.51% Pervious = 18.221 ac 4.49% Impervious = 0.856 ac

13070_EX CONDITION*Type III 24-hr 100-YR STORM Rainfall=10.32"*

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatchment 1S Runoff Area=375,235 sf 3.57% Impervious Runoff Depth>6.23"
Flow Length=1,470' Tc=15.6 min CN=68 Runoff=46.83 cfs 4.471 af

Subcatchment 2S: Subcatchment 2S Runoff Area=410,294 sf 5.51% Impervious Runoff Depth>6.10"
Flow Length=904' Tc=14.1 min CN=67 Runoff=51.94 cfs 4.785 af

Subcatchment 3S: Subcatchment 3S Runoff Area=45,492 sf 2.89% Impervious Runoff Depth>7.16"
Flow Length=660' Tc=11.0 min CN=75 Runoff=7.29 cfs 0.623 af

Reach 1R: Analysis Point #1 Inflow=46.83 cfs 4.471 af
Outflow=46.83 cfs 4.471 af

Reach 2R: Analysis Point #2 Inflow=51.94 cfs 4.785 af
Outflow=51.94 cfs 4.785 af

Reach 3R: Analysis Point #3 Inflow=7.29 cfs 0.623 af
Outflow=7.29 cfs 0.623 af

Total Runoff Area = 19.078 ac Runoff Volume = 9.879 af Average Runoff Depth = 6.21"
95.51% Pervious = 18.221 ac 4.49% Impervious = 0.856 ac

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Type III 24-hr 100-YR STORM Rainfall=10.32"

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Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 46.83 cfs @ 12.21 hrs, Volume= 4.471 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
2,206	98	Roofs, HSG C
7,767	98	Paved roads w/curbs & sewers, HSG C
96,134	61	>75% Grass cover, Good, HSG B
98,463	74	>75% Grass cover, Good, HSG C
33,890	55	Woods, Good, HSG B
133,362	70	Woods, Good, HSG C
375,235	68	Weighted Average
361,849		96.43% Pervious Area
13,386		3.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
10.4	1,025	0.0550	1.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
15.6	1,470	Total			

Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 51.94 cfs @ 12.20 hrs, Volume= 4.785 af, Depth> 6.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
10,444	98	Roofs, HSG B
3,571	98	Roofs, HSG C
6,684	98	Paved roads w/curbs & sewers, HSG B
1,907	98	Paved roads w/curbs & sewers, HSG C
113,323	61	>75% Grass cover, Good, HSG B
77,154	74	>75% Grass cover, Good, HSG C
75,937	55	Woods, Good, HSG B
121,274	70	Woods, Good, HSG C
410,294	67	Weighted Average
387,688		94.49% Pervious Area
22,606		5.51% Impervious Area

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Type III 24-hr 100-YR STORM Rainfall=10.32"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	13	0.0200	0.92		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.3	37	0.0400	0.18		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
1.4	120	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.1	125	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
2.2	184	0.0400	1.40		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
4.9	425	0.0850	1.46		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
14.1	904	Total			

Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 7.29 cfs @ 12.15 hrs, Volume= 0.623 af, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
1,313	98	Roofs, HSG C
44,179	74	>75% Grass cover, Good, HSG C
45,492	75	Weighted Average
44,179		97.11% Pervious Area
1,313		2.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.614 ac, 3.57% Impervious, Inflow Depth > 6.23" for 100-YR STORM event
 Inflow = 46.83 cfs @ 12.21 hrs, Volume= 4.471 af
 Outflow = 46.83 cfs @ 12.21 hrs, Volume= 4.471 af, Atten= 0%, Lag= 0.0 min

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.419 ac, 5.51% Impervious, Inflow Depth > 6.10" for 100-YR STORM event
Inflow = 51.94 cfs @ 12.20 hrs, Volume= 4.785 af
Outflow = 51.94 cfs @ 12.20 hrs, Volume= 4.785 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

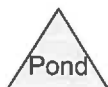
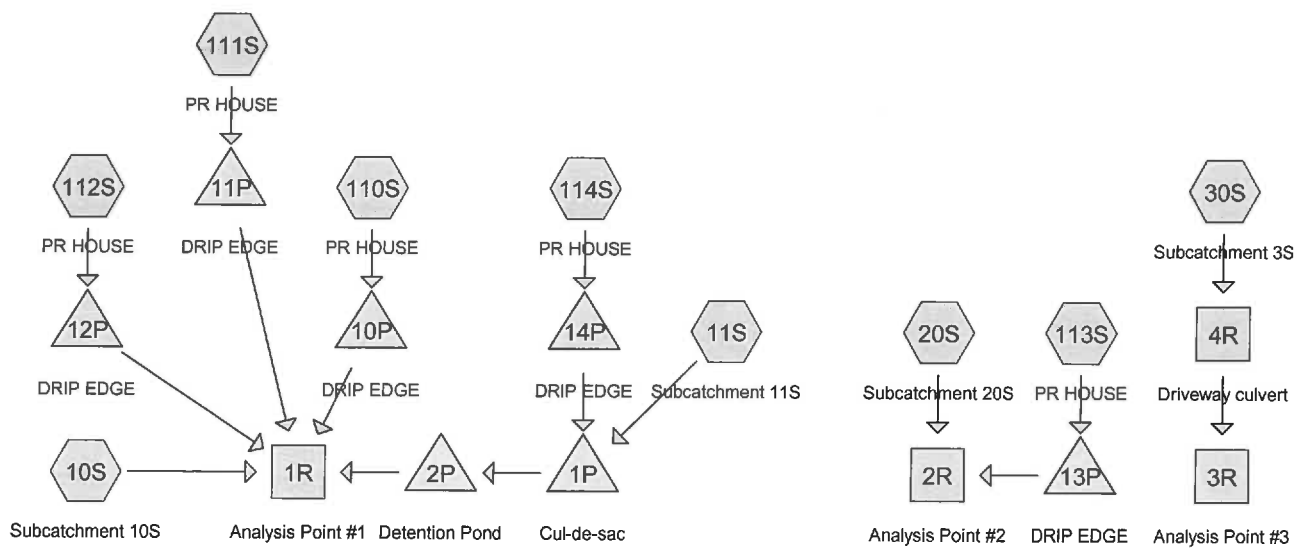
Inflow Area = 1.044 ac, 2.89% Impervious, Inflow Depth > 7.16" for 100-YR STORM event
Inflow = 7.29 cfs @ 12.15 hrs, Volume= 0.623 af
Outflow = 7.29 cfs @ 12.15 hrs, Volume= 0.623 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

APPENDIX II

PROPOSED CONDITIONS DRAINAGE ANALYSIS

Summary 2 YEAR
Summary 10 YEAR
Complete 25 YEAR
Summary 50 YEAR
Complete 100 YEAR



Routing Diagram for 13070_PR CONDITION

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.594	61	>75% Grass cover, Good, HSG B (10S, 11S, 20S)
5.802	74	>75% Grass cover, Good, HSG C (10S, 11S, 20S, 30S)
0.034	98	Paved parking, HSG B (110S, 111S, 113S)
0.023	98	Paved parking, HSG C (112S, 114S)
0.175	98	Paved roads w/curbs & sewers, HSG B (10S, 11S, 20S)
0.448	98	Paved roads w/curbs & sewers, HSG C (10S, 11S, 20S, 30S)
0.453	98	Roofs, HSG B (10S, 20S, 110S, 111S, 113S)
0.227	98	Roofs, HSG C (20S, 30S, 112S, 114S)
1.546	55	Woods, Good, HSG B (10S, 11S, 20S)
4.776	70	Woods, Good, HSG C (10S, 11S, 20S)
19.078	69	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
7.801	HSG B	10S, 11S, 20S, 110S, 111S, 113S
11.276	HSG C	10S, 11S, 20S, 30S, 112S, 114S
0.000	HSG D	
0.000	Other	
19.078		TOTAL AREA

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Type III 24-hr 2-YR STORM Rainfall=3.71"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Subcatchment 10S	Runoff Area=276,177 sf 2.24% Impervious Runoff Depth>0.91" Flow Length=850' Tc=9.0 min CN=66 Runoff=5.32 cfs 0.483 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=145,536 sf 11.41% Impervious Runoff Depth>1.38" Flow Length=675' Tc=11.6 min CN=74 Runoff=4.34 cfs 0.385 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=347,744 sf 5.42% Impervious Runoff Depth>1.02" Flow Length=860' Tc=11.9 min CN=68 Runoff=7.06 cfs 0.680 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>1.45" Flow Length=660' Tc=11.0 min CN=75 Runoff=1.49 cfs 0.129 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>3.48" Tc=0.0 min CN=98 Runoff=0.28 cfs 0.020 af
Reach 1R: Analysis Point #1	Inflow=5.73 cfs 0.846 af Outflow=5.73 cfs 0.846 af
Reach 2R: Analysis Point #2	Inflow=7.06 cfs 0.680 af Outflow=7.06 cfs 0.680 af
Reach 3R: Analysis Point #3	Inflow=1.49 cfs 0.129 af Outflow=1.49 cfs 0.129 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.30' Max Vel=7.56 fps Inflow=1.49 cfs 0.129 af 12.0" Round Pipe n=0.013 L=150.0' S=0.0467 ' Capacity=7.70 cfs Outflow=1.49 cfs 0.129 af
Pond 1P: Cul-de-sac	Peak Elev=76.91' Storage=1,322 cf Inflow=4.34 cfs 0.385 af 18.0" Round Culvert n=0.013 L=265.0' S=0.0566 ' Outflow=3.68 cfs 0.383 af
Pond 2P: Detention Pond	Peak Elev=58.68' Storage=4,636 cf Inflow=3.68 cfs 0.383 af 15.0" Round Culvert n=0.013 L=30.0' S=0.0333 ' Outflow=1.89 cfs 0.363 af
Pond 10P: DRIP EDGE	Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af Outflow=0.00 cfs 0.000 af

13070_PR CONDITION*Type III 24-hr 2-YR STORM Rainfall=3.71"*

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Pond 11P: DRIP EDGEPeak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af**Pond 12P: DRIP EDGE**Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af**Pond 13P: DRIP EDGE**Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af**Pond 14P: DRIP EDGE**Peak Elev=88.50' Storage=869 cf Inflow=0.28 cfs 0.020 af
Outflow=0.00 cfs 0.000 af**Total Runoff Area = 19.078 ac Runoff Volume = 1.778 af Average Runoff Depth = 1.12"**
92.87% Pervious = 17.718 ac 7.13% Impervious = 1.360 ac

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Type III 24-hr 10-YR STORM Rainfall=5.65"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Subcatchment 10S	Runoff Area=276,177 sf 2.24% Impervious Runoff Depth>2.18" Flow Length=850' Tc=9.0 min CN=66 Runoff=14.01 cfs 1.152 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=145,536 sf 11.41% Impervious Runoff Depth>2.89" Flow Length=675' Tc=11.6 min CN=74 Runoff=9.34 cfs 0.804 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=347,744 sf 5.42% Impervious Runoff Depth>2.35" Flow Length=860' Tc=11.9 min CN=68 Runoff=17.71 cfs 1.563 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>2.98" Flow Length=660' Tc=11.0 min CN=75 Runoff=3.14 cfs 0.265 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>5.41" Tc=0.0 min CN=98 Runoff=0.44 cfs 0.031 af
Reach 1R: Analysis Point #1	Inflow=15.90 cfs 1.926 af Outflow=15.90 cfs 1.926 af
Reach 2R: Analysis Point #2	Inflow=17.71 cfs 1.563 af Outflow=17.71 cfs 1.563 af
Reach 3R: Analysis Point #3	Inflow=3.14 cfs 0.265 af Outflow=3.14 cfs 0.265 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.45' Max Vel=9.30 fps Inflow=3.14 cfs 0.265 af 12.0" Round Pipe n=0.013 L=150.0' S=0.0467 '/' Capacity=7.70 cfs Outflow=3.14 cfs 0.265 af
Pond 1P: Cul-de-sac	Peak Elev=77.46' Storage=3,107 cf Inflow=9.34 cfs 0.804 af 18.0" Round Culvert n=0.013 L=265.0' S=0.0566 '/' Outflow=7.22 cfs 0.801 af
Pond 2P: Detention Pond	Peak Elev=59.22' Storage=8,785 cf Inflow=7.22 cfs 0.801 af 15.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=4.59 cfs 0.774 af
Pond 10P: DRIP EDGE	Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af Outflow=0.00 cfs 0.000 af

13070_PR CONDITION*Type III 24-hr 10-YR STORM Rainfall=5.65"*

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Pond 11P: DRIP EDGEPeak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 12P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 13P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Pond 14P: DRIP EDGE**Peak Elev=89.90' Storage=1,353 cf Inflow=0.44 cfs 0.031 af
Outflow=0.00 cfs 0.000 af**Total Runoff Area = 19.078 ac Runoff Volume = 3.939 af Average Runoff Depth = 2.48"**
92.87% Pervious = 17.718 ac 7.13% Impervious = 1.360 ac

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Subcatchment 10S Runoff Area=276,177 sf 2.24% Impervious Runoff Depth>3.34"
Flow Length=850' Tc=9.0 min CN=66 Runoff=21.88 cfs 1.765 af

Subcatchment 11S: Subcatchment 11S Runoff Area=145,536 sf 11.41% Impervious Runoff Depth>4.19"
Flow Length=675' Tc=11.6 min CN=74 Runoff=13.59 cfs 1.167 af

Subcatchment 20S: Subcatchment 20S Runoff Area=347,744 sf 5.42% Impervious Runoff Depth>3.55"
Flow Length=860' Tc=11.9 min CN=68 Runoff=27.15 cfs 2.361 af

Subcatchment 30S: Subcatchment 3S Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>4.30"
Flow Length=660' Tc=11.0 min CN=75 Runoff=4.53 cfs 0.383 af

Subcatchment 110S: PR HOUSE Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94"
Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af

Subcatchment 111S: PR HOUSE Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94"
Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af

Subcatchment 112S: PR HOUSE Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94"
Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af

Subcatchment 113S: PR HOUSE Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94"
Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af

Subcatchment 114S: PR HOUSE Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>6.94"
Tc=0.0 min CN=98 Runoff=0.56 cfs 0.040 af

Reach 1R: Analysis Point #1 Inflow=24.95 cfs 2.928 af
Outflow=24.95 cfs 2.928 af

Reach 2R: Analysis Point #2 Inflow=27.15 cfs 2.368 af
Outflow=27.15 cfs 2.368 af

Reach 3R: Analysis Point #3 Inflow=4.54 cfs 0.383 af
Outflow=4.54 cfs 0.383 af

Reach 4R: Driveway culvert Avg. Flow Depth=0.55' Max Vel=10.19 fps Inflow=4.53 cfs 0.383 af
12.0" Round Pipe n=0.013 L=150.0' S=0.0467 ' Capacity=7.70 cfs Outflow=4.54 cfs 0.383 af

Pond 1P: Cul-de-sac Peak Elev=77.92' Storage=5,422 cf Inflow=13.59 cfs 1.175 af
18.0" Round Culvert n=0.013 L=265.0' S=0.0566 ' Outflow=9.21 cfs 1.171 af

Pond 2P: Detention Pond Peak Elev=59.67' Storage=12,466 cf Inflow=9.21 cfs 1.171 af
15.0" Round Culvert n=0.013 L=30.0' S=0.0333 ' Outflow=6.03 cfs 1.140 af

Pond 10P: DRIP EDGE Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
Outflow=0.03 cfs 0.008 af

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Pond 11P: DRIP EDGEPeak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
Outflow=0.03 cfs 0.008 af**Pond 12P: DRIP EDGE**Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
Outflow=0.03 cfs 0.008 af**Pond 13P: DRIP EDGE**Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
Outflow=0.03 cfs 0.008 af**Pond 14P: DRIP EDGE**Peak Elev=90.00' Storage=1,392 cf Inflow=0.56 cfs 0.040 af
Outflow=0.03 cfs 0.008 af**Total Runoff Area = 19.078 ac Runoff Volume = 5.875 af Average Runoff Depth = 3.70"**
92.87% Pervious = 17.718 ac 7.13% Impervious = 1.360 ac

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 21.88 cfs @ 12.13 hrs, Volume= 1.765 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
1,347	98	Paved roads w/curbs & sewers, HSG B
1,413	98	Paved roads w/curbs & sewers, HSG C
113,081	61	>75% Grass cover, Good, HSG B
26,411	74	>75% Grass cover, Good, HSG C
22,924	55	Woods, Good, HSG B
107,588	70	Woods, Good, HSG C
276,177	66	Weighted Average
270,004		97.76% Pervious Area
6,173		2.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
3.8	405	0.0650	1.78		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
9.0	850	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 13.59 cfs @ 12.16 hrs, Volume= 1.167 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
4,989	98	Paved roads w/curbs & sewers, HSG B
11,621	98	Paved roads w/curbs & sewers, HSG C
19,970	61	>75% Grass cover, Good, HSG B
86,798	74	>75% Grass cover, Good, HSG C
1,385	55	Woods, Good, HSG B
20,773	70	Woods, Good, HSG C
145,536	74	Weighted Average
128,926		88.59% Pervious Area
16,610		11.41% Impervious Area

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.7	40	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.7	625	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.6	675	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 27.15 cfs @ 12.17 hrs, Volume= 2.361 af, Depth> 3.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
8,809	98	Roofs, HSG B
3,571	98	Roofs, HSG C
1,273	98	Paved roads w/curbs & sewers, HSG B
5,181	98	Paved roads w/curbs & sewers, HSG C
110,608	61	>75% Grass cover, Good, HSG B
95,589	74	>75% Grass cover, Good, HSG C
43,033	55	Woods, Good, HSG B
79,680	70	Woods, Good, HSG C
347,744	68	Weighted Average
328,910		94.58% Pervious Area
18,834		5.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.1	38	0.0500	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
8.6	810	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.9	860	Total			

Summary for Subcatchment 30S: Subcatchment 3S

Runoff = 4.53 cfs @ 12.16 hrs, Volume= 0.383 af, Depth> 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Area (sf)	CN	Description
1,303	98	Paved roads w/curbs & sewers, HSG C
1,313	98	Roofs, HSG C
43,948	74	>75% Grass cover, Good, HSG C
46,564	75	Weighted Average
43,948		94.38% Pervious Area
2,616		5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Subcatchment 110S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 111S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Summary for Subcatchment 112S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 113S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 114S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af, Depth> 6.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR STORM Rainfall=7.18"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.957 ac, 8.02% Impervious, Inflow Depth > 3.53" for 25-YR STORM event
Inflow = 24.95 cfs @ 12.14 hrs, Volume= 2.928 af
Outflow = 24.95 cfs @ 12.14 hrs, Volume= 2.928 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.052 ac, 6.23% Impervious, Inflow Depth > 3.53" for 25-YR STORM event
Inflow = 27.15 cfs @ 12.17 hrs, Volume= 2.368 af
Outflow = 27.15 cfs @ 12.17 hrs, Volume= 2.368 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 4.30" for 25-YR STORM event
Inflow = 4.54 cfs @ 12.16 hrs, Volume= 0.383 af
Outflow = 4.54 cfs @ 12.16 hrs, Volume= 0.383 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Driveway culvert

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 4.30" for 25-YR STORM event
Inflow = 4.53 cfs @ 12.16 hrs, Volume= 0.383 af
Outflow = 4.54 cfs @ 12.16 hrs, Volume= 0.383 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 10.19 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.88 fps, Avg. Travel Time= 0.6 min

Peak Storage= 67 cf @ 12.16 hrs

Average Depth at Peak Storage= 0.55'

Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.70 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 150.0' Slope= 0.0467 '/'

Inlet Invert= 87.00', Outlet Invert= 80.00'

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Type III 24-hr 25-YR STORM Rainfall=7.18"

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**Summary for Pond 1P: Cul-de-sac**

Inflow Area = 3.410 ac, 13.20% Impervious, Inflow Depth > 4.13" for 25-YR STORM event
 Inflow = 13.59 cfs @ 12.16 hrs, Volume= 1.175 af
 Outflow = 9.21 cfs @ 12.31 hrs, Volume= 1.171 af, Atten= 32%, Lag= 9.0 min
 Primary = 9.21 cfs @ 12.31 hrs, Volume= 1.171 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 77.92' @ 12.31 hrs Surf.Area= 5,916 sf Storage= 5,422 cf

Plug-Flow detention time= 8.2 min calculated for 1.169 af (100% of inflow)
 Center-of-Mass det. time= 6.5 min (832.8 - 826.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	76.00'	13,467 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)
76.00	624	88.7	0	0	624
78.00	6,244	330.0	5,895	5,895	8,675
79.00	8,984	359.6	7,573	13,467	10,335

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00'	18.0" Round Culvert L= 265.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 76.00' / 61.00' S= 0.0566 ' S= 0.0566 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.20 cfs @ 12.31 hrs HW=77.92' TW=59.28' (Dynamic Tailwater)

←1=Culvert (Inlet Controls 9.20 cfs @ 5.20 fps)

Summary for Pond 2P: Detention Pond

Inflow Area = 3.410 ac, 13.20% Impervious, Inflow Depth > 4.12" for 25-YR STORM event
 Inflow = 9.21 cfs @ 12.31 hrs, Volume= 1.171 af
 Outflow = 6.03 cfs @ 12.66 hrs, Volume= 1.140 af, Atten= 35%, Lag= 20.9 min
 Primary = 6.03 cfs @ 12.66 hrs, Volume= 1.140 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 59.67' @ 12.66 hrs Surf.Area= 8,525 sf Storage= 12,466 cf

Plug-Flow detention time= 48.4 min calculated for 1.137 af (97% of inflow)
 Center-of-Mass det. time= 33.2 min (866.0 - 832.8)

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Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	35,850 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)
58.00	6,473	611.2	0	0	6,473
60.00	8,968	636.4	15,373	15,373	9,269
62.00	11,564	661.5	20,477	35,850	12,168

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	15.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 57.00' S= 0.0333 ' S= 0.0333 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.03 cfs @ 12.66 hrs HW=59.67' TW=0.00' (Dynamic Tailwater)

←1=Culvert (Inlet Controls 6.03 cfs @ 4.91 fps)

Summary for Pond 10P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)
 Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

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Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=0.00' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 11P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)

Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices											
#1	Primary	90.00'	230.0' long x 1.0' 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									
			Coef. (English)	2.69	2.72	2.75	2.85	2.98	3.08	3.20	3.28	3.31		
				3.30	3.31	3.32								

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=0.00' (Dynamic Tailwater)

1=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 12P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

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Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)

Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=0.00' (Dynamic Tailwater)

└─1=Broad-Crested Rectangular Weir (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 13P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
 Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
 Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
 Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)

Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

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Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=0.00' (Dynamic Tailwater)

↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.10 fps)

Summary for Pond 14P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 6.94" for 25-YR STORM event
Inflow = 0.56 cfs @ 12.00 hrs, Volume= 0.040 af
Outflow = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af, Atten= 94%, Lag= 120.5 min
Primary = 0.03 cfs @ 14.01 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.00' @ 14.00 hrs Surf.Area= 864 sf Storage= 1,392 cf

Plug-Flow detention time= 590.4 min calculated for 0.008 af (20% of inflow)

Center-of-Mass det. time= 313.8 min (1,050.8 - 737.0)

Volume	Invert	Avail.Storage	Storage Description	
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.03 cfs @ 14.01 hrs HW=90.00' TW=76.47' (Dynamic Tailwater)

↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.10 fps)

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Subcatchment 10S	Runoff Area=276,177 sf 2.24% Impervious Runoff Depth>4.50" Flow Length=850' Tc=9.0 min CN=66 Runoff=29.61 cfs 2.376 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=145,536 sf 11.41% Impervious Runoff Depth>5.46" Flow Length=675' Tc=11.6 min CN=74 Runoff=17.63 cfs 1.519 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=347,744 sf 5.42% Impervious Runoff Depth>4.73" Flow Length=860' Tc=11.9 min CN=68 Runoff=36.36 cfs 3.149 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>5.58" Flow Length=660' Tc=11.0 min CN=75 Runoff=5.85 cfs 0.497 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>8.36" Tc=0.0 min CN=98 Runoff=0.67 cfs 0.048 af
Reach 1R: Analysis Point #1	Inflow=33.57 cfs 3.920 af Outflow=33.57 cfs 3.920 af
Reach 2R: Analysis Point #2	Inflow=36.36 cfs 3.165 af Outflow=36.36 cfs 3.165 af
Reach 3R: Analysis Point #3	Inflow=5.86 cfs 0.497 af Outflow=5.86 cfs 0.497 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.65' Max Vel=10.78 fps Inflow=5.85 cfs 0.497 af 12.0" Round Pipe n=0.013 L=150.0' S=0.0467 '/' Capacity=7.70 cfs Outflow=5.86 cfs 0.497 af
Pond 1P: Cul-de-sac	Peak Elev=78.35' Storage=8,206 cf Inflow=17.63 cfs 1.535 af 18.0" Round Culvert n=0.013 L=265.0' S=0.0566 '/' Outflow=10.75 cfs 1.531 af
Pond 2P: Detention Pond	Peak Elev=60.06' Storage=15,950 cf Inflow=10.75 cfs 1.531 af 15.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=7.09 cfs 1.496 af
Pond 10P: DRIP EDGE	Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af Outflow=0.21 cfs 0.016 af

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Pond 11P: DRIP EDGEPeak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af**Pond 12P: DRIP EDGE**Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af**Pond 13P: DRIP EDGE**Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af**Pond 14P: DRIP EDGE**Peak Elev=90.00' Storage=1,395 cf Inflow=0.67 cfs 0.048 af
Outflow=0.21 cfs 0.016 af**Total Runoff Area = 19.078 ac Runoff Volume = 7.781 af Average Runoff Depth = 4.89"**
92.87% Pervious = 17.718 ac 7.13% Impervious = 1.360 ac

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Type III 24-hr 100-YR STORM Rainfall=10.32"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: Subcatchment 10S	Runoff Area=276,177 sf 2.24% Impervious Runoff Depth>5.97" Flow Length=850' Tc=9.0 min CN=66 Runoff=39.29 cfs 3.153 af
Subcatchment 11S: Subcatchment 11S	Runoff Area=145,536 sf 11.41% Impervious Runoff Depth>7.03" Flow Length=675' Tc=11.6 min CN=74 Runoff=22.58 cfs 1.958 af
Subcatchment 20S: Subcatchment 20S	Runoff Area=347,744 sf 5.42% Impervious Runoff Depth>6.23" Flow Length=860' Tc=11.9 min CN=68 Runoff=47.82 cfs 4.146 af
Subcatchment 30S: Subcatchment 3S	Runoff Area=46,564 sf 5.62% Impervious Runoff Depth>7.16" Flow Length=660' Tc=11.0 min CN=75 Runoff=7.46 cfs 0.638 af
Subcatchment 110S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 111S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 112S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 113S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Subcatchment 114S: PR HOUSE	Runoff Area=3,000 sf 100.00% Impervious Runoff Depth>10.08" Tc=0.0 min CN=98 Runoff=0.80 cfs 0.058 af
Reach 1R: Analysis Point #1	Inflow=44.80 cfs 5.170 af Outflow=44.80 cfs 5.170 af
Reach 2R: Analysis Point #2	Inflow=48.03 cfs 4.172 af Outflow=48.03 cfs 4.172 af
Reach 3R: Analysis Point #3	Inflow=7.46 cfs 0.638 af Outflow=7.46 cfs 0.638 af
Reach 4R: Driveway culvert	Avg. Flow Depth=0.79' Max Vel=11.16 fps Inflow=7.46 cfs 0.638 af 12.0" Round Pipe n=0.013 L=150.0' S=0.0467 ' Capacity=7.70 cfs Outflow=7.46 cfs 0.638 af
Pond 1P: Cul-de-sac	Peak Elev=78.89' Storage=12,476 cf Inflow=22.78 cfs 1.984 af 18.0" Round Culvert n=0.013 L=265.0' S=0.0566 ' Outflow=12.44 cfs 1.979 af
Pond 2P: Detention Pond	Peak Elev=60.53' Storage=20,323 cf Inflow=12.44 cfs 1.979 af 15.0" Round Culvert n=0.013 L=30.0' S=0.0333 ' Outflow=8.16 cfs 1.940 af
Pond 10P: DRIP EDGE	Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af Outflow=0.51 cfs 0.026 af

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Pond 11P: DRIP EDGEPeak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
Outflow=0.51 cfs 0.026 af**Pond 12P: DRIP EDGE**Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
Outflow=0.51 cfs 0.026 af**Pond 13P: DRIP EDGE**Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
Outflow=0.51 cfs 0.026 af**Pond 14P: DRIP EDGE**Peak Elev=90.01' Storage=1,399 cf Inflow=0.80 cfs 0.058 af
Outflow=0.51 cfs 0.026 af**Total Runoff Area = 19.078 ac Runoff Volume = 10.184 af Average Runoff Depth = 6.41"**
92.87% Pervious = 17.718 ac 7.13% Impervious = 1.360 ac

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Type III 24-hr 100-YR STORM Rainfall=10.32"

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Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 39.29 cfs @ 12.13 hrs, Volume= 3.153 af, Depth> 5.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
3,413	98	Roofs, HSG B
1,347	98	Paved roads w/curbs & sewers, HSG B
1,413	98	Paved roads w/curbs & sewers, HSG C
113,081	61	>75% Grass cover, Good, HSG B
26,411	74	>75% Grass cover, Good, HSG C
22,924	55	Woods, Good, HSG B
107,588	70	Woods, Good, HSG C
276,177	66	Weighted Average
270,004		97.76% Pervious Area
6,173		2.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
2.7	40	0.0800	0.25		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
3.8	405	0.0650	1.78		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.3	395	0.0350	2.81		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
9.0	850	Total			

Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 22.58 cfs @ 12.16 hrs, Volume= 1.958 af, Depth> 7.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
4,989	98	Paved roads w/curbs & sewers, HSG B
11,621	98	Paved roads w/curbs & sewers, HSG C
19,970	61	>75% Grass cover, Good, HSG B
86,798	74	>75% Grass cover, Good, HSG C
1,385	55	Woods, Good, HSG B
20,773	70	Woods, Good, HSG C
145,536	74	Weighted Average
128,926		88.59% Pervious Area
16,610		11.41% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0200	0.87		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.7	40	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.7	625	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.6	675	Total			

Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 47.82 cfs @ 12.17 hrs, Volume= 4.146 af, Depth> 6.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
8,809	98	Roofs, HSG B
3,571	98	Roofs, HSG C
1,273	98	Paved roads w/curbs & sewers, HSG B
5,181	98	Paved roads w/curbs & sewers, HSG C
110,608	61	>75% Grass cover, Good, HSG B
95,589	74	>75% Grass cover, Good, HSG C
43,033	55	Woods, Good, HSG B
79,680	70	Woods, Good, HSG C
347,744	68	Weighted Average
328,910		94.58% Pervious Area
18,834		5.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
3.1	38	0.0500	0.20		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
8.6	810	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.9	860	Total			

Summary for Subcatchment 30S: Subcatchment 3S

Runoff = 7.46 cfs @ 12.15 hrs, Volume= 0.638 af, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

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Area (sf)	CN	Description
1,303	98	Paved roads w/curbs & sewers, HSG C
1,313	98	Roofs, HSG C
43,948	74	>75% Grass cover, Good, HSG C
46,564	75	Weighted Average
43,948		94.38% Pervious Area
2,616		5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.90		Sheet Flow, Smooth surfaces n= 0.011 P2= 3.23"
4.5	38	0.0200	0.14		Sheet Flow, Grass: Short n= 0.150 P2= 3.23"
6.3	610	0.0530	1.61		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
11.0	660	Total			

Summary for Subcatchment 110S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 111S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

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Type III 24-hr 100-YR STORM Rainfall=10.32"

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Summary for Subcatchment 112S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 113S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG B
500	98	Paved parking, HSG B
3,000	98	Weighted Average
3,000		100.00% Impervious Area

Summary for Subcatchment 114S: PR HOUSE

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af, Depth>10.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR STORM Rainfall=10.32"

Area (sf)	CN	Description
2,500	98	Roofs, HSG C
500	98	Paved parking, HSG C
3,000	98	Weighted Average
3,000		100.00% Impervious Area

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Summary for Reach 1R: Analysis Point #1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 9.957 ac, 8.02% Impervious, Inflow Depth > 6.23" for 100-YR STORM event
Inflow = 44.80 cfs @ 12.13 hrs, Volume= 5.170 af
Outflow = 44.80 cfs @ 12.13 hrs, Volume= 5.170 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 2R: Analysis Point #2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.052 ac, 6.23% Impervious, Inflow Depth > 6.22" for 100-YR STORM event
Inflow = 48.03 cfs @ 12.17 hrs, Volume= 4.172 af
Outflow = 48.03 cfs @ 12.17 hrs, Volume= 4.172 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 3R: Analysis Point #3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 7.16" for 100-YR STORM event
Inflow = 7.46 cfs @ 12.16 hrs, Volume= 0.638 af
Outflow = 7.46 cfs @ 12.16 hrs, Volume= 0.638 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach 4R: Driveway culvert

[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.069 ac, 5.62% Impervious, Inflow Depth > 7.16" for 100-YR STORM event
Inflow = 7.46 cfs @ 12.15 hrs, Volume= 0.638 af
Outflow = 7.46 cfs @ 12.16 hrs, Volume= 0.638 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 11.16 fps, Min. Travel Time= 0.2 min

Avg. Velocity = 4.34 fps, Avg. Travel Time= 0.6 min

Peak Storage= 100 cf @ 12.16 hrs

Average Depth at Peak Storage= 0.79'

Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 7.70 cfs

12.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

Length= 150.0' Slope= 0.0467 '/'

Inlet Invert= 87.00', Outlet Invert= 80.00'

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**Summary for Pond 1P: Cul-de-sac**

Inflow Area = 3.410 ac, 13.20% Impervious, Inflow Depth > 6.98" for 100-YR STORM event
 Inflow = 22.78 cfs @ 12.16 hrs, Volume= 1.984 af
 Outflow = 12.44 cfs @ 12.38 hrs, Volume= 1.979 af, Atten= 45%, Lag= 13.0 min
 Primary = 12.44 cfs @ 12.38 hrs, Volume= 1.979 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 78.89' @ 12.38 hrs Surf.Area= 8,651 sf Storage= 12,476 cf

Plug-Flow detention time= 9.9 min calculated for 1.975 af (100% of inflow)
 Center-of-Mass det. time= 8.5 min (819.7 - 811.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	76.00'	13,467 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)
76.00	624	88.7	0	0	624
78.00	6,244	330.0	5,895	5,895	8,675
79.00	8,984	359.6	7,573	13,467	10,335

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00'	18.0" Round Culvert L= 265.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 76.00' / 61.00' S= 0.0566 ' S= 0.0566 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=12.43 cfs @ 12.38 hrs HW=78.88' TW=59.88' (Dynamic Tailwater)
 1=Culvert (Inlet Controls 12.43 cfs @ 7.03 fps)

Summary for Pond 2P: Detention Pond

Inflow Area = 3.410 ac, 13.20% Impervious, Inflow Depth > 6.97" for 100-YR STORM event
 Inflow = 12.44 cfs @ 12.38 hrs, Volume= 1.979 af
 Outflow = 8.16 cfs @ 12.88 hrs, Volume= 1.940 af, Atten= 34%, Lag= 30.2 min
 Primary = 8.16 cfs @ 12.88 hrs, Volume= 1.940 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 60.53' @ 12.88 hrs Surf.Area= 9,627 sf Storage= 20,323 cf

Plug-Flow detention time= 45.0 min calculated for 1.940 af (98% of inflow)
 Center-of-Mass det. time= 33.4 min (853.2 - 819.7)

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Volume	Invert	Avail.Storage	Storage Description
#1	58.00'	35,850 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)
58.00	6,473	611.2	0	0	6,473
60.00	8,968	636.4	15,373	15,373	9,269
62.00	11,564	661.5	20,477	35,850	12,168

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	15.0" Round Culvert L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 57.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.16 cfs @ 12.88 hrs HW=60.53' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 8.16 cfs @ 6.65 fps)

Summary for Pond 10P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)

Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

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Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=0.00' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 11P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)

Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices											
#1	Primary	90.00'	230.0' long x 1.0' 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									
			Coef. (English)	2.69	2.72	2.75	2.85	2.98	3.08	3.20	3.28	3.31		
				3.30	3.31	3.32								

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=0.00' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 12P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

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Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)

Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=0.00' (Dynamic Tailwater)↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.24 fps)**Summary for Pond 13P: DRIP EDGE**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)

Center-of-Mass det. time= 153.2 min (886.0 - 732.7)

Volume	Invert	Avail.Storage	Storage Description
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

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Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=0.00' (Dynamic Tailwater)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.24 fps)

Summary for Pond 14P: DRIP EDGE

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=3)

Inflow Area = 0.069 ac, 100.00% Impervious, Inflow Depth > 10.08" for 100-YR STORM event
 Inflow = 0.80 cfs @ 12.00 hrs, Volume= 0.058 af
 Outflow = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af, Atten= 36%, Lag= 6.4 min
 Primary = 0.51 cfs @ 12.11 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 90.01' @ 12.10 hrs Surf.Area= 864 sf Storage= 1,399 cf

Plug-Flow detention time= 302.5 min calculated for 0.026 af (45% of inflow)
 Center-of-Mass det. time= 153.2 min (886.0 - 732.7)


Volume	Invert	Avail.Storage	Storage Description	
#1	85.99'	1,823 cf	Custom Stage Data (Prismatic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
85.99	864	0.0	0	0
86.00	864	40.0	3	3
89.99	864	40.0	1,379	1,382
90.00	864	100.0	9	1,391
90.50	864	100.0	432	1,823

Device	Routing	Invert	Outlet Devices
#1	Primary	90.00'	230.0' long x 1.0' 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 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=90.01' TW=77.99' (Dynamic Tailwater)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.24 fps)

APPENDIX III

Charts, Graphs, and Calculations

Select Product ?	Select Location ? Double-click the map to place a marker, or enter address or latitude/longitude.									
Extreme Precipitation Tables - HTML ?	<table border="1"><thead><tr><th>Locate by Address ?</th><th>Locate by Lat/Lon ?</th><th>Locate by State/County ?</th></tr></thead><tbody><tr><td><input type="text"/></td><td><input type="text"/>°N <input type="text"/>°W</td><td><input type="text"/></td></tr></tbody></table>	Locate by Address ?	Locate by Lat/Lon ?	Locate by State/County ?	<input type="text"/>	<input type="text"/> °N <input type="text"/> °W	<input type="text"/>			
Locate by Address ?	Locate by Lat/Lon ?	Locate by State/County ?								
<input type="text"/>	<input type="text"/> °N <input type="text"/> °W	<input type="text"/>								
Extreme Precipitation Tables - Text/CSV ?										
Partial Duration Series - by Point ?										
Partial Duration Series - by Station ?										
Distribution Curves - Graphical ?										
Distribution Curves - Text/TBL ?										
Intensity Frequency Duration Graphs ?										
Precipitation Frequency Duration Graphs ?										
GIS Data Files ?										
Regional/State Maps ?										
	<table border="1"><thead><tr><th>Select Options ?</th></tr></thead><tbody><tr><td><table border="1"><thead><tr><th>Smoothing ?</th></tr><tr><td><input type="text" value="Yes"/></td></tr></thead></table></td><td><table border="1"><thead><tr><th>Delivery ?</th></tr><tr><td><input type="text" value="Popup"/></td></tr></thead></table></td></tr><tr><td colspan="2"><input type="button" value="Submit"/></td></tr></tbody></table>	Select Options ?	<table border="1"><thead><tr><th>Smoothing ?</th></tr><tr><td><input type="text" value="Yes"/></td></tr></thead></table>	Smoothing ?	<input type="text" value="Yes"/>	<table border="1"><thead><tr><th>Delivery ?</th></tr><tr><td><input type="text" value="Popup"/></td></tr></thead></table>	Delivery ?	<input type="text" value="Popup"/>	<input type="button" value="Submit"/>	
Select Options ?										
<table border="1"><thead><tr><th>Smoothing ?</th></tr><tr><td><input type="text" value="Yes"/></td></tr></thead></table>	Smoothing ?	<input type="text" value="Yes"/>	<table border="1"><thead><tr><th>Delivery ?</th></tr><tr><td><input type="text" value="Popup"/></td></tr></thead></table>	Delivery ?	<input type="text" value="Popup"/>					
Smoothing ?										
<input type="text" value="Yes"/>										
Delivery ?										
<input type="text" value="Popup"/>										
<input type="button" value="Submit"/>										

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.870 degrees West
Latitude	43.024 degrees North
Elevation	0 feet
Date/Time	Tue, 27 Jun 2017 15:12:58 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.66	0.82	1.04	1yr	0.71	0.99	1.22	1.57	2.04	2.68	2.93	1yr	2.38	2.82	3.23	3.95	4.57	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.52	1.94	2.50	3.23	3.59	2yr	2.86	3.45	3.96	4.70	5.35	2yr
5yr	0.37	0.58	0.73	0.97	1.25	1.61	5yr	1.08	1.46	1.89	2.44	3.16	4.10	4.61	5yr	3.63	4.43	5.07	5.98	6.75	5yr
10yr	0.41	0.65	0.82	1.11	1.45	1.89	10yr	1.25	1.72	2.23	2.90	3.77	4.91	5.57	10yr	4.35	5.36	6.12	7.17	8.05	10yr
25yr	0.48	0.76	0.97	1.33	1.77	2.34	25yr	1.53	2.14	2.78	3.65	4.77	6.24	7.16	25yr	5.52	6.89	7.85	9.13	10.17	25yr
50yr	0.54	0.86	1.10	1.54	2.07	2.76	50yr	1.79	2.52	3.29	4.34	5.71	7.48	8.67	50yr	6.62	8.33	9.49	10.96	12.14	50yr
100yr	0.59	0.96	1.24	1.77	2.42	3.26	100yr	2.08	2.97	3.91	5.19	6.83	8.97	10.49	100yr	7.94	10.09	11.46	13.16	14.50	100yr
200yr	0.67	1.10	1.42	2.04	2.82	3.84	200yr	2.44	3.51	4.63	6.17	8.16	10.77	12.70	200yr	9.53	12.21	13.85	15.82	17.33	200yr
500yr	0.80	1.31	1.71	2.48	3.47	4.77	500yr	3.00	4.38	5.78	7.76	10.33	13.70	16.35	500yr	12.12	15.72	17.81	20.18	21.94	500yr

24-HR
w/1570

3.71

5.65

7.18

8.60

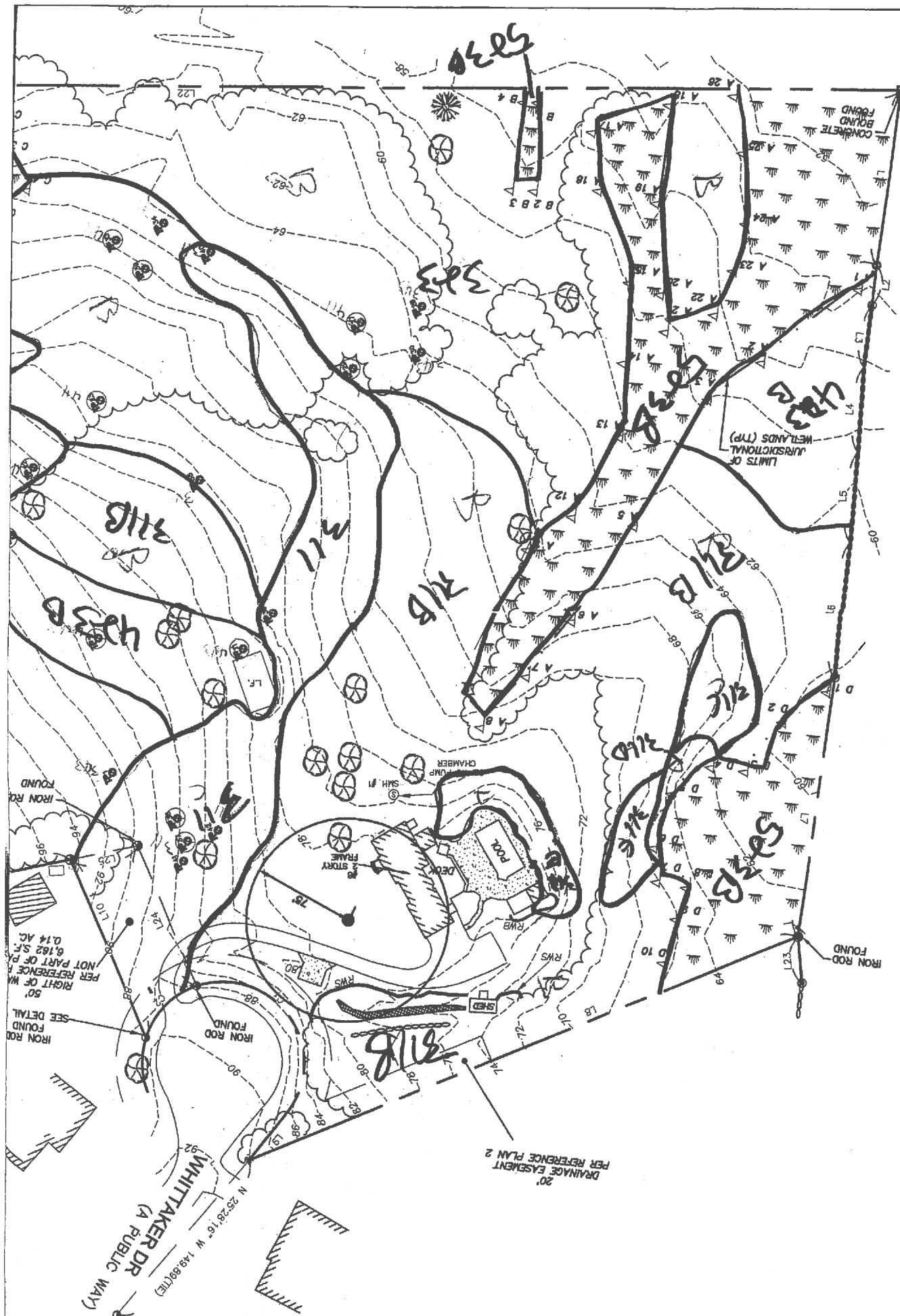
10.32

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.89	1yr	0.63	0.87	0.92	1.30	1.62	2.22	2.62	1yr	1.96	2.52	2.89	3.20	3.92	1yr
2yr	0.32	0.49	0.60	0.81	1.00	1.19	2yr	0.87	1.16	1.37	1.82	2.34	3.08	3.50	2yr	2.73	3.37	3.86	4.59	5.10	2yr
5yr	0.35	0.54	0.68	0.93	1.18	1.41	5yr	1.02	1.38	1.62	2.13	2.74	3.85	4.29	5yr	3.41	4.13	4.77	5.64	6.36	5yr
10yr	0.39	0.60	0.74	1.04	1.34	1.61	10yr	1.16	1.58	1.82	2.40	3.08	4.45	5.01	10yr	3.94	4.82	5.59	6.57	7.36	10yr
25yr	0.45	0.68	0.85	1.21	1.59	1.92	25yr	1.37	1.88	2.11	2.78	3.57	4.76	6.14	25yr	4.21	5.90	6.90	8.06	8.94	25yr
50yr	0.49	0.75	0.94	1.35	1.81	2.20	50yr	1.56	2.15	2.36	3.11	3.99	5.38	7.15	50yr	4.76	6.87	8.10	9.41	10.35	50yr
100yr	0.55	0.84	1.05	1.52	2.08	2.52	100yr	1.80	2.46	2.64	3.46	4.44	6.05	8.32	100yr	5.35	8.00	9.53	10.99	11.97	100yr
200yr	0.62	0.93	1.18	1.71	2.38	2.88	200yr	2.05	2.81	2.95	3.84	4.92	6.78	9.69	200yr	6.00	9.32	11.22	12.84	13.88	200yr
500yr	0.72	1.08	1.39	2.01	2.87	3.46	500yr	2.47	3.38	3.44	4.40	5.67	7.88	11.86	500yr	6.98	11.40	13.94	15.80	16.82	500yr

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.20	3.02	3.11	1yr	2.67	2.99	3.62	4.37	5.09	1yr
2yr	0.33	0.51	0.63	0.86	1.06	1.26	2yr	0.91	1.24	1.48	1.95	2.50	3.45	3.68	2yr	3.05	3.54	4.06	4.83	5.68	2yr
5yr	0.40	0.62	0.76	1.05	1.33	1.61	5yr	1.15	1.58	1.87	2.51	3.21	4.36	4.91	5yr	3.86	4.72	5.38	6.33	7.13	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.97	10yr	1.39	1.92	2.26	3.07	3.88	5.37	6.11	10yr	4.76	5.88	6.68	7.79	8.69	10yr
25yr	0.57	0.87	1.08	1.55	2.04	2.55	25yr	1.76	2.49	2.92	4.01	5.02	7.84	8.17	25yr	6.94	7.86	8.86	10.26	11.34	25yr
50yr	0.67	1.01	1.26	1.81	2.44	3.10	50yr	2.11	3.03	3.55	4.90	6.12	9.82	10.19	50yr	8.69	9.80	10.99	12.62	13.86	50yr
100yr	0.78	1.18	1.48	2.14	2.93	3.76	100yr	2.53	3.68	4.31	6.02	7.47	12.30	12.71	100yr	10.89	12.22	13.61	15.55	16.96	100yr
200yr	0.91	1.37	1.74	2.52	3.51	4.59	200yr	3.03	4.49	5.25	7.39	9.11	15.44	15.87	200yr	13.67	15.26	16.87	19.15	20.77	200yr
500yr	1.12	1.67	2.15	3.13	4.45	5.94	500yr	3.84	5.81	6.80	9.73	11.88	20.88	21.28	500yr	18.48	20.46	22.39	25.24	27.16	500yr



Michael Kerivan

From: Jonathan Ring
Sent: Monday, February 06, 2017 10:54 AM
To: Katelyn Joyal
Cc: Lynn Zebrowski; Paige Libbey; Patrick Bogle
Subject: JBE 13070.1: Sullivan HISS, High Street, Stratham
Attachments: Scanned image_copier@sbmweb.com_20170131_114946_0000f12e81b0.pdf

Kate - p/f/s/t. Jon

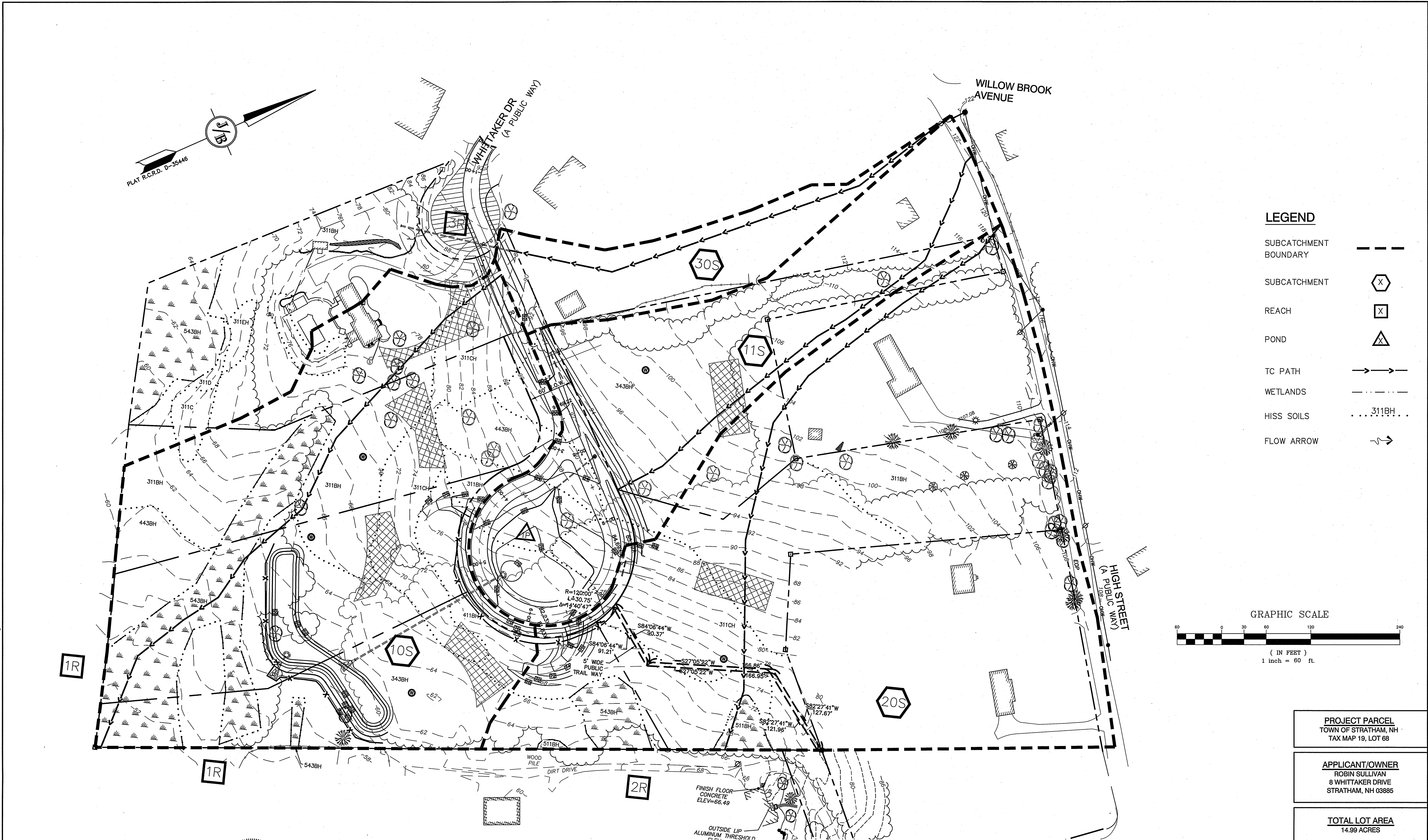
-----Original Message-----

From: Luke Hurley [<mailto:lhurley@gesinc.biz>]
Sent: Tuesday, January 31, 2017 11:07 AM
To: Jonathan Ring
Subject: RE: Sullivan HISS

Here is the soil map. Please note when you mark it up to change the 323 to 343:

HISS	SSSM
311	313 Deerfield HSG B
343	38 Eldridge HSG C
443	943 Eldridge Variant HSG C
523	656 Ridgebury HSG C

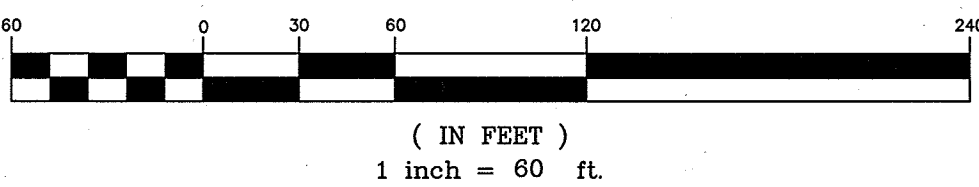
F:\Land Projects\313070-STRATHAM-112-HIGH STREET-SULLIVAN\DWG\13070-WATERSHED.dwg 12/20/2017 2:16:10 PM EST



LEGEND

SUBCATCHMENT BOUNDARY	---
SUBCATCHMENT	⬡
REACH	⬢
POND	⬡
TC PATH	→→→
WETLANDS	---
HISS SOILS	... 311BH ...
FLOW ARROW	→

GRAPHIC SCALE



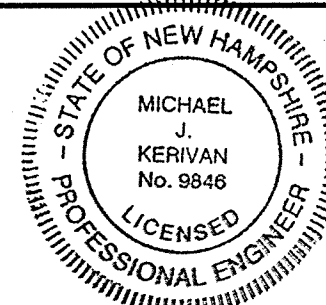
PROJECT PARCEL
TOWN OF STRATHAM, NH
TAX MAP 19, LOT 68

APPLICANT/OWNER
ROBIN SULLIVAN
8 WHITTAKER DRIVE
STRATHAM, NH 03885

TOTAL LOT AREA
14.99 ACRES

Design: JSR Draft: PLB Date: 6/26/13
Checked: JSR Scale: 1" = 60' Project No.: 13070
Drawing Name: 13070-WATERSHED.dwg

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM JONES & BEACH ENGINEERS, INC. (JBE). ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO JBE.



REV.	DATE	REVISION	BY
0	6/29/17	ISSUED FOR REVIEW	MJK

J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave. PO Box 219 Stratham, NH 03885
603-772-4746 FAX: 603-772-0227 E-MAIL: JBE@JONESANDBEACH.COM

Plan Name: **PROPOSED WATERSHED PLAN**
Project: **112 HIGH STREET
STRATHAM, NH 03885**
Owner of Record: **ROBIN SULLIVAN
8 WHITTAKER DRIVE, STRATHAM, NH 03885**

DRAWING No.

W2

SHEET 2 OF 2
JBE PROJECT NO. 13070

Tavis Austin

From: Jonathan Ring <jring@Jonesandbeach.com>
Sent: Sunday, December 17, 2017 3:21 PM
To: Tavis Austin
Cc: Brian Sullivan; Kevin Baum
Subject: Sullivan RCCD Wetland Review

Tavis,

Brian Sullivan and the Team have agreed that it is a good idea to put the wetland issue to rest before more snow hits us. Please schedule Mike Cuomo from RCCD in Brentwood to review the site with Chris Albert of our office.

Usually, Mike has test pits scheduled for Stratham on Wednesdays, so that might work. Thank you very much for your time.

Jonathan Ring
Jones & Beach Engineers, Inc.
Sent from my Phone

