Residential Development
Definitive Subdivision Application

Five Paths
Tax Map 39, Parcel 15A
Wayland, MA

July 2019

Submitted to:
Wayland Planning Board
41 Cochituate Road
Wayland, MA 01778

Owner & Applicant:
Ross C. Wilkinson, Personal Representative,
Estate of Paula D. Wilkinson
P.O. Box 98
Wilton, NH 03086

Prepared by:
Goldsmith, Prest & Ringwall, Inc.
39 Main Street, Suite 301
Ayer, MA 01432

Project No:
171053

GPR Engineering Solutions for Land & Structures

Table of Contents

Attachments

Five Paths Residential Development Definitive Subdivision Plans
(24" x 36" plan set, attached separately)

Form C (Page 1 of 3)

APPLICATION FOR APPROVAL OF DEFINITIVE PLAN

File one completed form with the Planning Board and one copy with the Town Clerk, in accordance with the requirements of Mass. G. L. 41. Separate paragraphs are used to indicate alternative provisions. The applicant should select and complete the paragraph or paragraphs pertinent to his case.

Wayland, Massachusetts

JULY 26, 20 19.

TO THE WAYLAND PLANNING BOARD:

1. The undersigned, being the owner* of all land including within a proposed subdivision shown on the accompanying plan entitled FIVE PATHS RESIDENTIAL SUBDIVISION DEFINITIVE PLAN and dated JULY, 20 19, submits such plan as a definitive plan of the proposed subdivision and makes application to the Board for final approval thereof.

2. The land within the proposed subdivision is subject to the following easements and restrictions:
   BUILDING SETBACKS, NEW ROADWAY RIGHT-OF-WAY FOR FIVE PATHS COURT, ACCESS EASEMENTS, STORMWATER MANAGEMENT & MAINTENANCE EASEMENTS

3. There are appurtenant to the land within the proposed subdivision the following easements and restrictions over the land of others:
   25' RIGHT OF WAY "A" (PLAN 1166 OF 1950), 25' RIGHT OF WAY "B" (PLAN 739 OF 1951 & 1166 OF 1950) ALTERNATE RIGHT OF WAY (PLAN 740 OF 1951)

4. A preliminary plan of the proposed subdivision has not been submitted to the Board.

   A preliminary plan of the proposed subdivision, to which the accompanying plan conforms, was approved by the Board on _____, 20 _____.

   A preliminary plan of the proposed subdivision was approved by the Board on JANUARY 22, 2019, 20, with modifications, which modifications have been incorporated in the accompanying plan.

5. This applicant agrees, if the definitive plan is approved, to perform and complete all work on the ground within the proposed subdivision required by the Rules and Regulations of the Wayland Planning Board as in force on the date of this application (or if applicable on the date of an application of a Preliminary Plan) and as modified and supplemented by the work specifications and other requirements of the Board set forth in the statements attached hereto.

6. The applicant further agrees to complete all said required work on the ground within two years from the date of final approval of the definitive plan by the Board, unless a new application is filed with and approved by the Board extending such time.

7. The applicant further agrees, if the definitive plan is approved, to cause said plan to be recorded or registered in the Middlesex District Registry of Deeds within thirty (30) days after the return of said plan to the applicant by the Board, and agrees not to sell, or to offer to sell, any of the lots within the subdivision until said plan is so recorded or registered.

8. The applicant further agrees, if the definitive plan is approved, to convey to the Town, promptly, at any time thereafter when requested so to do by the Board, in form satisfactory to the Board, title to the water mains and sewers and the prescribed easements therefor.

9a. The applicant further agrees, before final approval of the definitive plan, to cause to be filed within the Board a bond, in form satisfactory to the Board, conditioned on the completion of all required work on the ground in the time and manner prescribed, in a penal sum sufficient, in the opinion of the Board, to cover the cost of such work, and executed by the applicant as principal and an indemnity or surety company authorized to do business in the Commonwealth and satisfactory to the Board as surety, or secured by the deposit with the Town Treasurer of cash or United States Government Bonds in an amount equal to the penal sum of the bond.

or

9b. The applicant requests the Board to approve the definitive plan on condition that no lot in the subdivision shall be sold and no building shall be erected or placed on any lot until the required work on the ground necessary to serve such lot adequately has been completed to the satisfaction of the Board.

10. This application is accompanied by an original drawing of the proposed definitive plan in accordance with the requirements of the Rules and Regulations of the Board, a designer's certificate, and approved cost estimates for all work to be covered by bond.

FORM C (Page 3 of 3)

11. The owner's title to the land is derived under deed from ESTATE OF PAULA D. WILKINSON dated 12/31/1986 20, _____, and recorded in Middlesex District Registry of Deeds, Book 17629, Page 27, or under Certificate of Title No. _____ registered in Middlesex Land Registry District, Book _____, Page _____.

Kyle Burchard
GPR, AS AGENT
(KYLE BURCHARD)

ROSS C. WILKINSON, PERSONAL REPRESENTATIVE,
ESTATE OF PAULA D. WILKINSON
Applicant
PO BOX 98, WILTON, NH 03086
Address

*If there is more than one owner, all must sign.

Note: This application is not deemed to have been submitted until the following endorsement has been completed by a member of the Planning Board.

Accepted this _____, day of _____, 20 _____, as duly submitted under the Rules and Regulation of the Wayland Planning Board.

Wayland Planning Board

By_____

FORM D

DESIGNER'S CERTIFICATE

Wayland, Massachusetts

JULY 26, 2019.

TO THE WAYLAND PLANNING BOARD:

I hereby certify that the accompanying plan, entitled FIVE PATHS RESIDENTIAL SUBDIVISION DEFINITIVE PLAN

and dated JULY, 20 19, is true and correct to the accuracy required by the Rules and Regulations of the Board.

Nicholas Pantuosco, PE
Registered Professional Engineer
Or Registered Land Surveyor

GPR, Inc. 39 Main Street Suite 301
Address Ayer, MA 01432

FORM I (Page 1 of 2)

APPROVAL WITH COVENANT CONTRACT

Know all by these present that whereas the undersigned has submitted an application dated JULY 26, 2019, to the Wayland Planning Board for application of a definitive plan of a certain subdivision entitled FIVE PATHS RESIDENTIAL SUBDIVISION DEFINITIVE PLAN and dated JULY, 2019, 20_____, and has requested the Board to approve such plan without requiring a performance bond,

NOW THEREFORE, THIS AGREEMENT WITNESSETH that in consideration of the Wayland Planning Board approving said plan without requiring a performance bond, and in consideration of one dollar in hand paid, receipt whereof is hereby acknowledged, the undersigned covenants and agrees with the Town of Wayland as follows:

1. The undersigned will not sell any lot in the subdivision or erect or place any permanent building on any such lot until the work on the ground necessary to serve adequately such lot has been completed in the manner specified in the aforesaid application, and in accordance with the covenants, conditions, agreements, terms and provisions thereof.

2. This agreement shall be binding upon the executors, administrators, devisees, heirs, successors and assigns of the undersigned.

   It is the intention of the undersigned and it is hereby understood and agreed that this contract shall constitute a covenant running with the land included in the aforesaid subdivision and shall operate as restrictions upon said land.

   It is understood and agreed that lots within the subdivision shall, respectively, be released from the foregoing conditions upon the recording of a certificate of performance executed by a majority of said Planning Board and enumerating the specific lots to be so released.

3. The undersigned represents and covenants that undersigned is the owner* in fee simple of all the land included in the aforesaid subdivision and that there are no mortgages of record or otherwise on any of said land, except such as are described below and subordinated to this contract, and the present holders of said mortgage have assented to this contract prior to its execution by the undersigned.

*If there is more than one owner, all must sign.

FORM I (page 2 of 2)

IN WITNESS WHEREOF the undersigned, applicant as aforesaid, does hereunto set his hand and seal this _____ day of _____, 20_____.

ROSS C. WILKINSON, PERSONAL REPRESENTATIVE,
ESTATE OF PAULA D. WILKINSON
Applicant

PO BOX 98, WILTON, NH 03086
Address

Description of Mortgages: NO MORTGAGES ON SUBJECT PROPERTY.

(Give complete name and Registry of Deeds reference.)

Assents of mortgages:

COMMONWEALTH OF MASSACHUSETTS

_____,SS. _____, 20____.

Then personally appeared the above named _____ and acknowledged the foregoing instrument to be _____ free act and deed, before me.

Notary Public

My commission expires:

LETTERS OF AUTHORITY FOR PERSONAL REPRESENTATIVE	Docket No. MI13P0385EA	Commonwealth of Massachusetts The Trial Court Probate and Family Court

Estate of:
Paula D Wilkinson

Date of Death: 04/01/2012

Middlesex Probate and Family Court
208 Cambridge Street
Cambridge, MA 02141
(617)768-5800

To:

Ross C Wilkinson
695 John Muir Drive # 416
San Francisco, CA 94132

You have been appointed and qualified as Personal Representative in ☐ Supervised ☒ Unsupervised administration of this estate on February 14, 2013 (date).

These letters are proof of your authority to act pursuant to G.L. c. 190B, except for the following restrictions if any:

☐ The Personal Representative was appointed before March 31, 2012 as Executor or Administrator of the estate.

(Do Not Write Below This Line-For Court Use Only)

CERTIFICATION

I certify that it appears by the records of this Court that said appointment remains in full force and effect. IN TESTIMONY WHEREOF I have hereunto set my hand and affixed the seal of said Court.

Date **February 15, 2013**

Tara E. DeCristofaro, Register of Probate

COMMONWEALTH OF MASSACHUSETTS PROBATE COURT MIDDLESEX COUNTY

July 22, 2019

Subject: **Wilkinson Property off Shaw Drive, Wayland, MA**
Town of Wayland Assessor Tax Map 39, Parcel ID 039-15A

To Whom It May Concern:

I hereby authorize Goldsmith, Prest & Ringwall, Inc., 39 Main Street, Suite 301, Ayer, MA, 978.772.1590, to act as my agent in administrative and civil engineering matters pertaining to the proposed Definitive Subdivision, Subsurface Sewage Disposal Systems, and Land Disturbance at the subject site. This authorization covers the execution of application forms, presentation of plans and designs, and communication with involved parties.

Respectfully,

Ross Wilkinson
695 John Muir Drive, F416
San Francisco, CA 94132

Copy: Goldsmith, Prest & Ringwall, Inc.
File #171053

Town of Wayland
Assessing Department
41 COCHITUATE ROAD
WAYLAND MASSACHUSETTS 01778
www.wayland.ma.us TEL. 508-358-3788

OFFICE STAFF
Ellen M. Brideau, MAA, Director of Assessing
Denise Ellis, MAA, Assistant Assessor
Jessica Marchant, MAA, Administrative Assessor
Sevibi Ramgoolam, Department Assistant

BOARD OF ASSESSORS
Susan M. Rufo, Chair
Jayson Brodie, Vice Chair
Zachariah L. Ventress
David Hill
Cheryl Kane

Certification of Abutters

Date of request 12/6/18

Please plan your submission accordingly. The Assessors' office has 10 business days to certify an abutters list Per MGL Ch. 66, S.10

Address to be certified 57 Shaw Dr. Parcel ID 39-15A (Map/Lot)

Owner's Name (PLEASE PRINT) Wilkinson, W. Floyd & Paula c/o Ross Wilkinson

Owner's Mailing Address P.O. Box 98 Wilton, NH 03086

Name of Applicant (PLEASE PRINT) Goldsmith, Prest & Ringwall, Inc. Telephone: 978-772-1590

39 Main St., Suite 301 Ayer MA 01451
Mailing Address of Applicant City/Town State Zip

Signature of Applicant Vicki Riley For GPR, Inc.

Reason for List (check one) ☐ Conservation ☐ Health ☒ Planning ☐ Zoning

**Please check with the Board/Commission for their guidelines regarding the number of feet required for notification. Each Board/Commission has its own regulations for their abutters listing. There's no fee for certification, however the list/s of abutters must be provided by the person or company requesting certification. Please submit by mail, in person or fax to 508 358 0061.

For use by Assessors

This is to certify that at the time of the last assessment for taxation made by the Town of Wayland, the names and addresses are the assessed owners to these parcels.

Certified By: Bruce Morgan 7/31/19 Date: 12/7/18

CC: ☐ Conservation ☐ Health ☒ Planning ☐ Zoning

Abutterrequestform.doc

300 foot Abutters List Report

Wayland, MA
December 06, 2018

Subject Property:

Parcel Number:	39-015A	Mailing Address:	WILKINSON W.FLOYD & PAULA % ROSS WILKINSON
CAMA Number:	39-015A		PO BOX 98
Property Address:	57 SHAW DR		WILTON, NH 03086

Abutters:

Parcel Number:	35-031A	Mailing Address:	HAMLEN MM/MOONEY ME TRUSTEES %M E MOONEY TR NUTTER
CAMA Number:	35-031A		MCCLENNEN & FISH
Property Address:	81 OLD CONNECTICUT PATH		155 SEAPORT BLVD
			BOSTON, MA 02110-2604
Parcel Number:	39-004	Mailing Address:	RENNEKER TODD M RENNEKER HEIDI J T/E
CAMA Number:	39-004		36 WOODRIDGE RD
Property Address:	36 WOODRIDGE RD		WAYLAND, MA 01778
Parcel Number:	39-005	Mailing Address:	MORRIS EDWARD W JOHNSON KIPLEE A T/E
CAMA Number:	39-005		34 WOODRIDGE RD
Property Address:	34 WOODRIDGE RD		WAYLAND, MA 01778
Parcel Number:	39-006	Mailing Address:	SHOYER STEVEN HORWITZ DEBORAH S
CAMA Number:	39-006		32 WOODRIDGE RD
Property Address:	32 WOODRIDGE RD		WAYLAND, MA 01778
Parcel Number:	39-007	Mailing Address:	BOLIVAR RENEE M & CRAIG W
CAMA Number:	39-007		28 WOODRIDGE RD
Property Address:	28 WOODRIDGE RD		WAYLAND, MA 01778
Parcel Number:	39-008	Mailing Address:	RADMER CATHERINE A
CAMA Number:	39-008		22 WOODRIDGE RD
Property Address:	22 WOODRIDGE RD		WAYLAND, MA 01778
Parcel Number:	39-009	Mailing Address:	WOLFSON JAMES R WOLFSON BARBARA G
CAMA Number:	39-009		18 WOODRIDGE RD
Property Address:	18 WOODRIDGE RD		WAYLAND, MA 01778
Parcel Number:	39-010	Mailing Address:	BOLIVAR RONALD & JOAN TRSTS
CAMA Number:	39-010		BOLIVAR REALTY TRUST Bolivar Ronald + Joan
Property Address:	5 FOX MEADOW LN		5 FOX MEADOW LN 5753 HWY 55 N #4025
			WAYLAND, MA 01778 Crestview, FL 32536
Parcel Number:	39-011	Mailing Address:	PRATT JOSHUA D & KRISTA GREEN T/E
CAMA Number:	39-011		11 FOX MEADOW LN
Property Address:	11 FOX MEADOW LN		WAYLAND, MA 01778
Parcel Number:	39-012	Mailing Address:	KING BROOKS C KING ALICE LAU T/E
CAMA Number:	39-012		15 FOX MEADOW LN
Property Address:	15 FOX MEADOW LN		WAYLAND, MA 01778

300 foot Abutters List Report

Wayland, MA
December 06, 2018

Parcel Number:	39-013	Mailing Address:	RADOFF PHILLIP L RADOFF NORMA L
CAMA Number:	39-013		21 FOX MEADOW LN
Property Address:	21 FOX MEADOW LN		WAYLAND, MA 01778
Parcel Number:	39-014	Mailing Address:	THORNFELDT BRIAN P THORNFELDT
CAMA Number:	39-014		SUZANNE S T/E
Property Address:	47 SHAW DR		47 SHAW DR
			WAYLAND, MA 01778
Parcel Number:	39-015	Mailing Address:	CASTLE ROBERT L CASTLE CAROL E
CAMA Number:	39-015		57 SHAW DRIVE
Property Address:	57 SHAW DR		WAYLAND, MA 01778
Parcel Number:	39-015B	Mailing Address:	CASTLE ROBERT L CASTLE CAROL E
CAMA Number:	39-015B		57 SHAW DRIVE
Property Address:	57 SHAW DR		WAYLAND, MA 01778
Parcel Number:	39-015C	Mailing Address:	CASTLE ROBERT L CASTLE CAROL E
CAMA Number:	39-015C		57 SHAW DRIVE
Property Address:	57 SHAW DR		WAYLAND, MA 01778
Parcel Number:	39-016	Mailing Address:	MENDLER WOODS ECO-DEVELOPMENT
CAMA Number:	39-016		LLC
Property Address:	60 SHAW DR		60 SHAW DR
			WAYLAND, MA 01778
Parcel Number:	39-016A	Mailing Address:	MENDLER WOODS ECO-DEVELOPMENT
CAMA Number:	39-016A		LLC
Property Address:	60 SHAW DR		60 SHAW DR
			WAYLAND, MA 01778
Parcel Number:	39-017	Mailing Address:	GIUDICE PHILIP M GIUDICE MARCIA L
CAMA Number:	39-017		T/E
Property Address:	7 DEER RUN		7 DEER RUN
			WAYLAND, MA 01778
Parcel Number:	39-018	Mailing Address:	LOVE JOHN N LOVE DIANE I
CAMA Number:	39-018		3 DEER RUN
Property Address:	3 DEER RUN		WAYLAND, MA 01778
Parcel Number:	39-028	Mailing Address:	LOCKE STEVEN E M.D. & JOANNE C
CAMA Number:	39-028		TRUSTEES STEVEN E REV TR &
Property Address:	10 DEER RUN		JOANNE C LOCK REV TRST
			10 DEER RUN
			WAYLAND, MA 01778
Parcel Number:	39-029	Mailing Address:	MOORES CHARLES W & HARRIET K
CAMA Number:	39-029		TRSTS MOORES REALTY TRUST
Property Address:	4 DEER RUN		4 DEER RUN
			WAYLAND, MA 01778
Parcel Number:	39-030	Mailing Address:	ISENBURG JONATHAN PATEL MEETA
CAMA Number:	39-030		42 SHAW DR
Property Address:	42 SHAW DR		WAYLAND, MA 01778

300 foot Abutters List Report

Wayland, MA
December 06, 2018

GW Neumann Trustee - GW Neumann Rev Trst
KR Neumann Trustee - KR Neumann Rev trst
37 Woodridge Rd Wayland, MA 01778

Parcel Number:	39-049	**Mailing Address:**	NEUMAN KARIN ROSEMARIE
CAMA Number:	39-049		37 WOODRIDGE RD
Property Address:	37 WOODRIDGE RD		WAYLAND, MA 01778

Parcel Number:	44-104A	**Mailing Address:**	SUDBURY VALLEY TRUSTEES INC
CAMA Number:	44-104A		18 WOLBACH RD
Property Address:	0 WOODRIDGE RD		SUDBURY, MA 01776

Rights of Way
from Applicant's Property to Woodridge Road
Five Paths
Residential Subdivision
Wayland, MA
Tax Map 39, Parcel 15A

The Applicant, Ross C. Wilkinson Personal Representative of the Estate of Paula D. Wilkinson, inherited the land which is the subject of this application from his parents. Specifically, Roger D. and Anna E. Ela sold a 19.40-acre parcel to Floyd and Paula D. Wilkinson (the "Wilkinsons") on October 31, 1969 in a Deed recorded in the Middlesex South Registry of Deeds at Book 11761, Page 265 (the "Wilkinson Deed"). (See, attached **Ex. A**.) The Wilkinson Deed is, among other things, "subject to rights, easements and agreements set forth… in the deed… to Edward C. Mendler, Jr. and Anne R. Mendler…" and further "subject to and with the benefit of, all other rights, easements, restrictions, reservations, covenants and agreements of record, insofar as now in force and applicable."

Several deeds into the Wilkinsons' predecessors-in-title describe their rights to use and refer to recorded plans showing the same two rights of ways shown on the subdivision plans ("Right-of-Way A" and "Right-of-Way B"). (See attached **Exs. B and C**.) The same two rights of way are also shown on the plan referenced in the Wilkinson Deed itself. (See attached **Ex. D**.)

Later, in 1992 and 1993, the Wilkinsons transferred three parcels of land in the middle of their property to Robert Castle and his wife. The Applicant's remaining land surrounds Castle's land and is commonly referred to having two sides, the east side closest to the Mendler land and the west side nearest to Fox Meadow Lane. In this subdivision application, the Applicant seeks only to develop the west side of his land.

<u>Contacts with Abutters After Preliminary and Before Definitive Plan Application:</u>

- April 16, 2019 – Letter from Applicant to Horwitz/Shayer with copies to Radmer and Bolivar (1) enclosing copies of recorded right of way ("ROW") plans and subdivision conceptual plan, (2) notifying them of planned subdivision application and plan to exercise rights to use ROW, (3) inviting any questions, comments or discussion and (4) providing Applicant's address, phone and email address.

- No response received from abutters.

- April 23, 2019 – (Letter dated April 15, 2019) Letters from Applicant's surveyor, GPR, mailed to Radmer, Bolivar and Horwitz/Shayer providing notice of upcoming survey activity.
    - No response received from abutters.

- May 14, 2019 – Letter from Applicant to Horwitz/Shayer with copies to Radmer and Bolivar (1) enclosing draft subdivision plan created from recent survey work, (2) noting portion of existing driveway outside ROW and (3) inquiring regarding modification of ROW to use driveway outside of ROW to decrease disturbance.
    - No response received from abutters.

- July 2, 2019 – Applicant's counsel calls and speaks with Deborah Horwitz regarding subdivision application. Applicant's proposed ROW modification was declined.

FIVE PATHS
EXHIBT A,
PG.1

MASSACHUSETTS QUITCLAIM DEED LONG FORM—INDIVIDUAL BK 11761 PG 265

Q7-285-

We, ROGER E. ELA and ANNA D. ELA, husband and wife,

of Wayland, Middlesex County, Massachusetts,

~~for consideration~~ $125,000. for consideration paid, grant to W. FLOYD WILKINSON and PAULA D. WILKINSON, husband and wife, as tenants by the entirety, both of 40 Woodridge Road in said Wayland,

with ~~quitclaim covenants~~

A certain parcel of land with the buildings thereon situated in said Wayland, shown as Parcel 1 on a plan entitled "Compiled Plan of Land Wayland Mass. Owned by Roger E. & Anna D. Ela," dated June 30, 1969, by Veo & Wheeler, Inc., to be recorded herewith, and bounded and described as follows:

NORTHERLY by Shaw Drive by four lines together measuring four hundred and seven and 92/100 (407.92) feet;

NORTHWESTERLY by Shaw Drive, twenty-five and 00/100 (25.00) feet;

NORTHEASTERLY, EASTERLY and SOUTHEASTERLY by land shown on said plan as of Edward C. Jr. & Ann P. Mendler by nine (9) lines together measuring one thousand forty-five and 92/100 (1,045.92) feet;

SOUTHEASTERLY by said land of Mendler and land shown on said plan as of Sudbury Valley Trustees Inc., two hundred twenty-four and 78/100 (224.78) feet;

SOUTHEASTERLY and SOUTHERLY by said land of Sudbury Valley Trustees Inc. and land shown on said plan as of Glen H. & Shirley C. Sacra by three (3) lines together measuring six hundred and nine and 95/100 (609.95) feet;

WESTERLY, NORTHWESTERLY and SOUTHWESTERLY by lands shown on said plan as of Charles N. & Georgia K. Gillispie and of E. Nevin & June W. Kather by seven (7) lines together measuring nine hundred and seven and 55/100 (907.55) feet;

NORTHWESTERLY by land shown on said plan as of Roland W. & Joan L. Bolivar, forty-five and 15/100 (45.15) feet;

SOUTHWESTERLY by said land of Bolivar, twenty and 00/100 (20.00) feet;

NORTHWESTERLY by land shown on said plan as of John G. & Evangeline Karagianis one hundred ninety-six and 28/100 (196.28) feet;

NORTHEASTERLY by land shown on said plan as of Herbert A. & Margaret J. Bing, twenty and 00/100 (20.00) feet; and

NORTHWESTERLY by said land of Bing and lands shown on said plan as of Arthur W. & Lena F. Mayer and of Kenneth C. & Josephine A. Demick by two (2) lines together measuring six hundred seventy-seven and 19/100 (677.19) feet;

Containing nineteen and 40/100 (19.40) acres of land, according to said plan.

For title see the following deeds from Wayland Real Estate Company to the Grantors herein:

Date	Recording Reference
May 19, 1950	Book 7582 Page 93
May 19, 1950	Book 7582 Page 104

(*Individual—Joint Tenants—Tenants in Common—Tenants by the Entirety.)

SEE PLAN IN RECORD BOOK 11761 PAGE 265

CHAPTER 183 SEC. 6 AS AMENDED BY CHAPTER 381 OF 1967

Every deed presented for record shall contain or have endorsed upon it the full name, residence and post office address of the grantee. Failure to comply with this section shall not affect the validity of any deed. No register of deeds shall accept a deed for recording unless it is in compliance with the requirements of this section.

FIVE PATHS EXHIBIT A, PG.2

Date	Recording Reference
May 16, 1951	Book 7743 Page 56
April 5, 1951	Book 7743 Page 100
March 10, 1955	Book 8429 Page 269

Said premises are hereby conveyed subject to the instrument of dedication to public use relating to the Roadway Easement shown on said plan, dated June 6, 1955 and recorded with Middlesex South District Deeds in Book 8550 page 98; subject to rights, easements and agreements set forth or referred to in the deed from the Grantors herein to Edward C. Mendler, Jr. and Anne R. Mendler dated August 19, 1955 recorded with said Deeds in Book 8550 page 100; subject to the instrument of release executed by the Grantors herein to Edward C. Mendler Jr. of even delivery and record herewith; and subject to and with the benefit of, all other rights, easements, restrictions, reservations, covenants and agreements of record, insofar as now in force and applicable.

~~husband~~ wife of said grantor

~~release to said grantee all rights of homestead and other interests therein~~

Witness our hands and seal this 31st day of October 19 69

Roger E. Ela

Anne R. Ela

The Commonwealth of Massachusetts

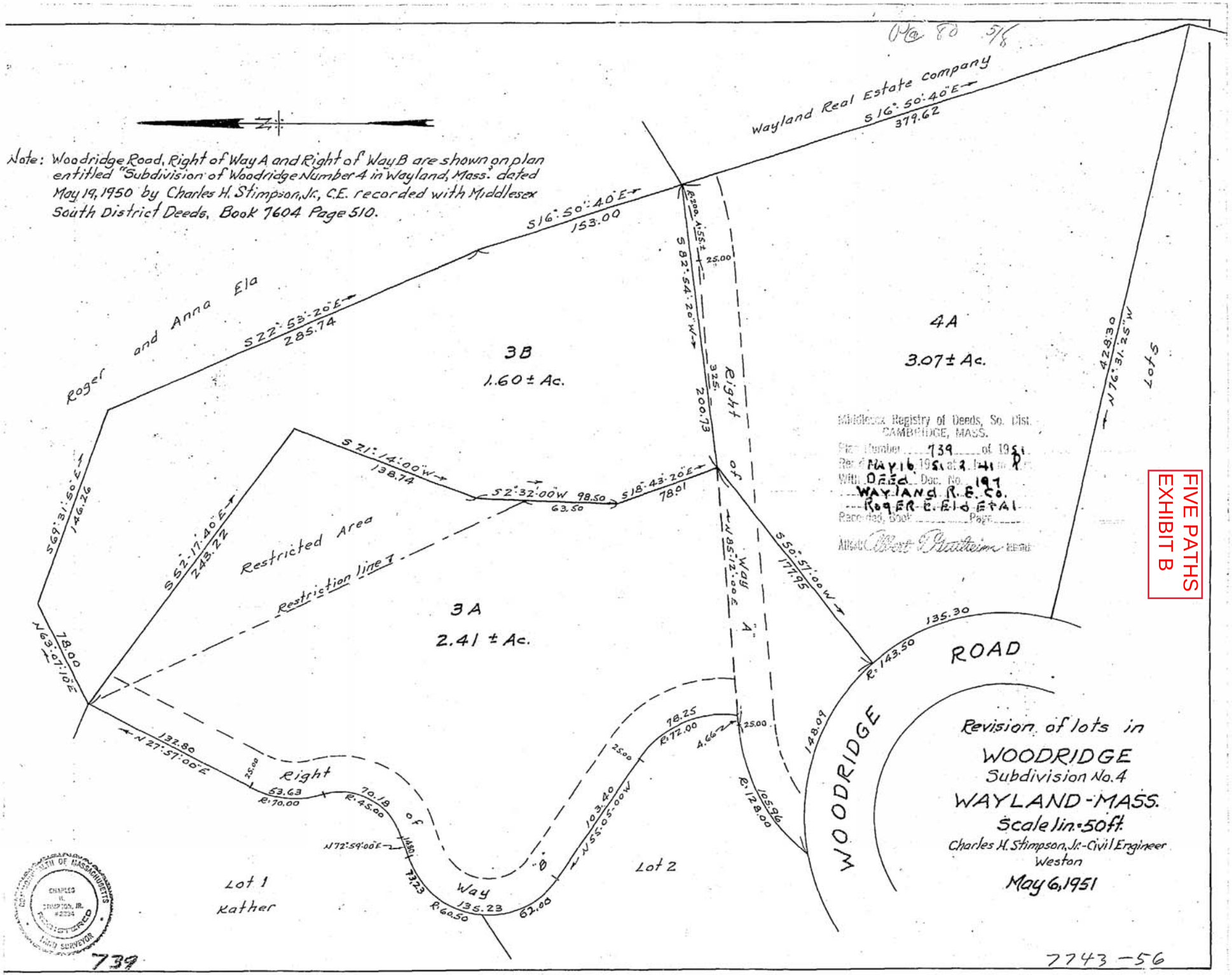
Suffolk ss. October 31, 1969

Then personally appeared the above named Roger E. Ela

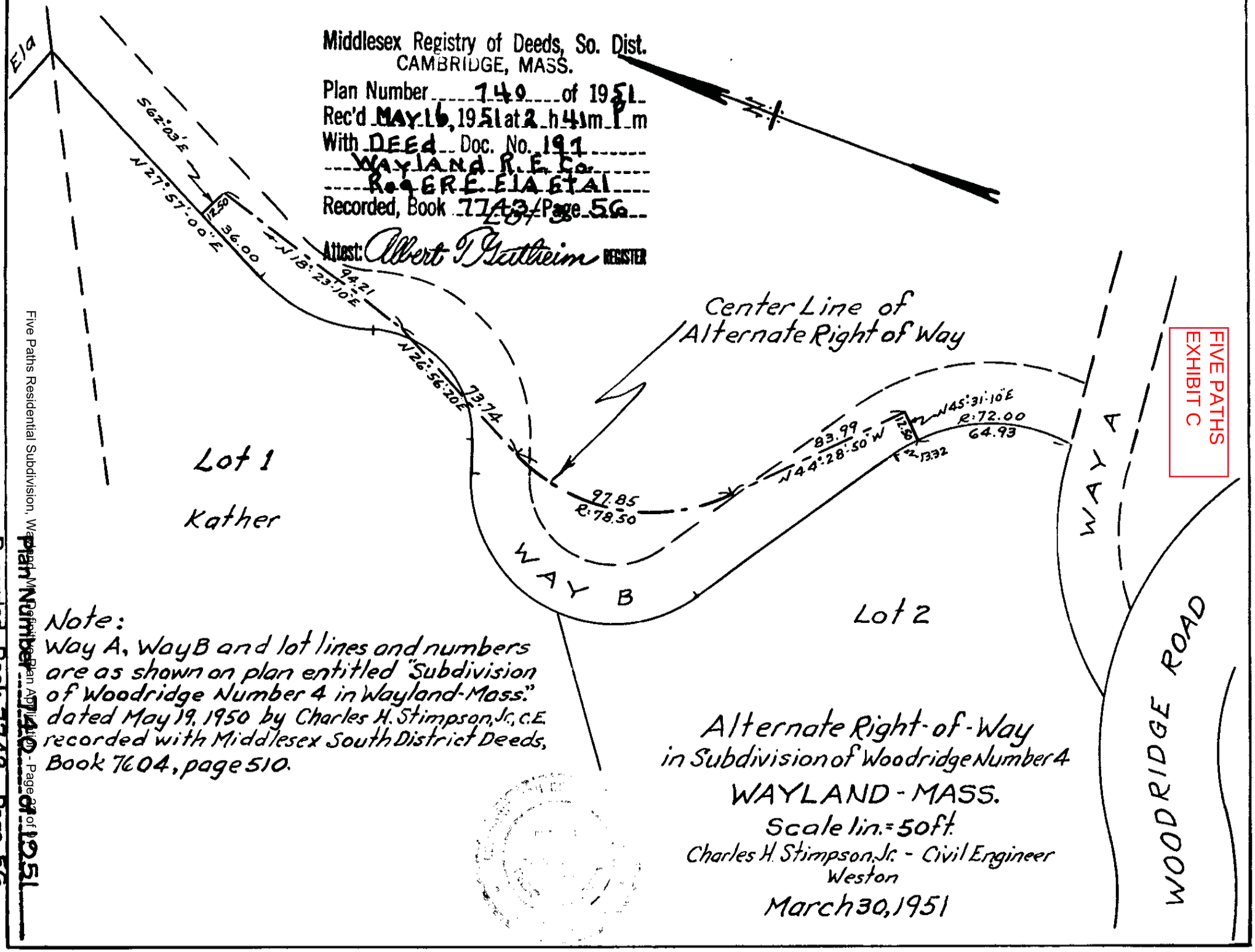
and acknowledged the foregoing instrument to be his free act and deed, before me

James W. Hackett
Notary Public

My Commission Expires November 20, 1975



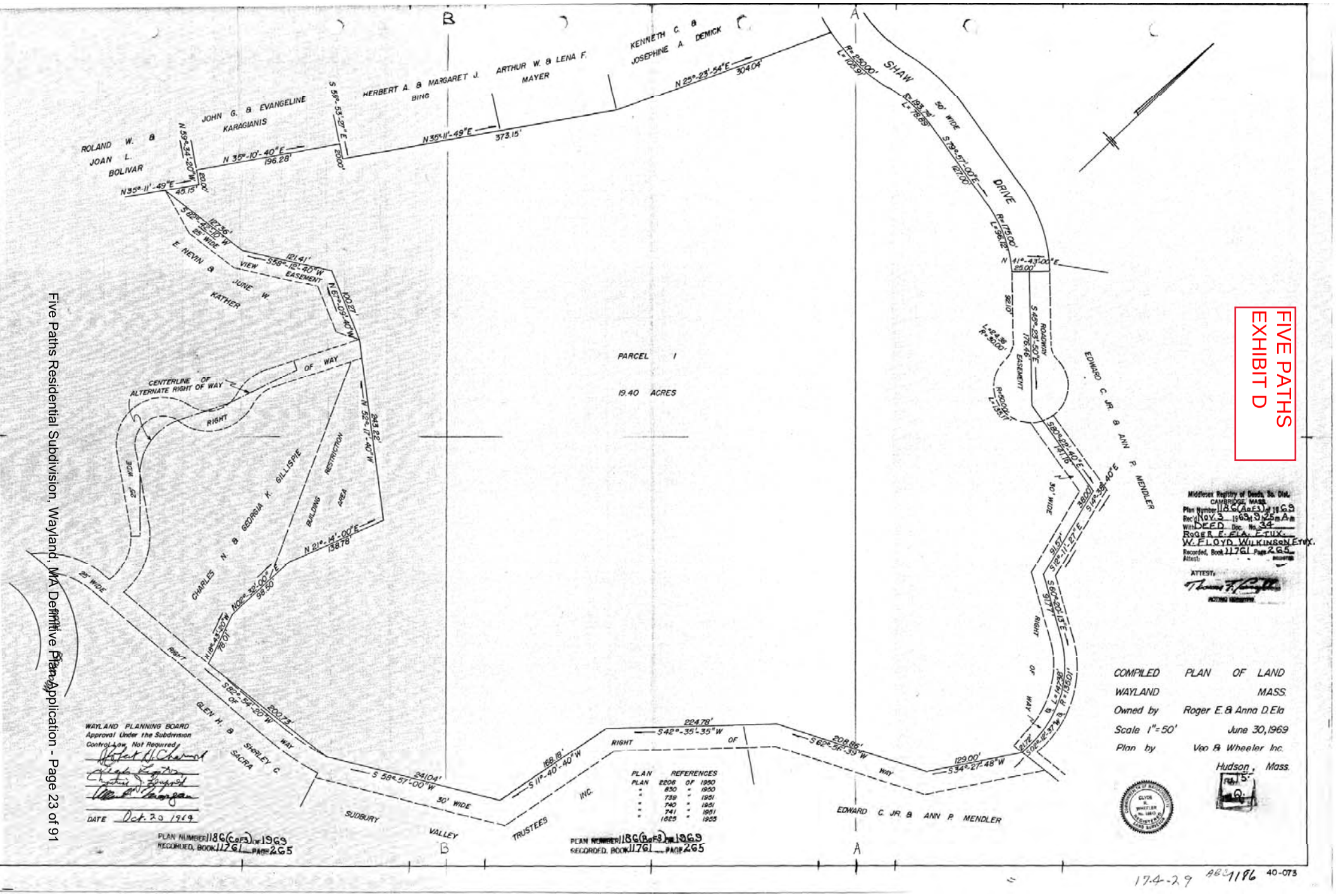
FIVE PATHS
EXHIBIT B



Note:
Way A, Way B and lot lines and numbers are as shown on plan entitled "Subdivision of Woodridge Number 4 in Wayland-Mass." dated May 19, 1950 by Charles H. Stimpson, Jr., C.E. recorded with Middlesex South District Deeds, Book 7604, page 510.

Alternate Right-of-Way
in Subdivision of Woodridge Number 4
WAYLAND - MASS.
Scale 1in. = 50ft.
Charles H. Stimpson Jr. - Civil Engineer
Weston
March 30, 1951

FIVE PATHS
EXHIBIT C



Five Paths Residential Subdivision, Wayland, MA Definitive Plan Application - Page 23 of 91

17-4-29 ABB 1196 40-073

Form O: Environmental Data Form

(Transcription and Responses to Form O)

IMPACT ON DRAINAGE:

1) How much run-off will be generated by the proposed development as compared to the run-off prior to development? Show as time-volumes and locations.

   Refer to "Drainage Plans" and Drainage Calculation attachment for the specific runoff generated, including runoff rates, volumes, and the specific analysis points.

2) Describe the proposed requirements for drainage and the system to collect and distribute drainage. Will the new system be tied into an existing system? Explain.

   Stormwater shall be conveyed from the various land cover areas into two (2) infiltration basins via multiple catch basins, drain manholes, outfalls, and swales in order to effectively handle the drainage under the various stormwater scenarios as required by the Wayland Regulations and the Massachusetts Stormwater Standards. Pursuant to the local Conservation Commissions Wetland and Water Resources Bylaw, chapter 194, Section 3, system conformance to the "Runoff Calculations" does not permit an increase in runoff rates or volumes as tabulated in the table below:

   Table 1: Events where post-development runoff increases are not allowed

Rainfall Event	Outflow Rate (cf)	Outflow Volume (cfs)
0.5"	X	X
1.0"	X	X
2-yr	X	X
10-yr	X	X
25-yr		X
100-yr		X

   The new system is not designed to tie into an existing drainage system, as the outflows are strategically delivered to various areas within the site boundaries.

   Basin No. 1 contains a secondary basin to further treat the runoff from impervious surfaces. This secondary basin outfall facilitates any runoff from subcatchment areas 1.1, 1.2, 1.3, 1.5, and 2.2.

3) Can the existing system adequately handle the additional drainage?

   Not Applicable. There is no existing drainage system on this property. All rainfall is conveyed over land into adjacent properties.

4) If not, what do you propose?

Not Applicable.

5) What is the destination(s) of run-off water (ponds, streams, reservoirs, etc?) Current and Proposed.

The runoff water currently flows towards and into multiple R-60 zoned and developed lots which abut the current parcel to the west and south. The proposed drainage system considers these existing destinations by re-directing treated stormwater while maintaining the natural path of the existing drainage to the extent possible.

6) Will these areas handle this additional run-off? Give specific reasons supporting your answer.

Yes. The drainage system has been designed to handle the increases in runoff through a combination of conveyance, pretreatment, infiltration, and outfall structures as indicated on the plans.

7) What is the average, maximum, and minimum depth to seasonal high water table on the site prior to development and projected after development?

No change to the depth of seasonal high-water table caused by the development is expected. Depths provided below are taken from soil investigations across the entire site and should not be construed as applicable for specific design analysis in a local area of the site. (Depth to water table according to the soil unit 106C/D is greater than 80", aligning with the site's soil data summary below).

ESHGW	PRE/POST (FT)
AVG	8.1
MAX	10.7
MIN	4.2

8) What pollution to groundwater or other effluent problems do you anticipate and how do you propose to deal with them?

No pollution to groundwater is anticipated. Drainage from all pavement areas is designed to be controlled by the system and infiltrated into the basins in order to properly treat this stormwater to 96% TSS. Additional runoff from the impervious roof areas is to be collected into a respective drywell and then exfiltrated.

IMPACT ON SEWAGE DISPOSAL:

1) What type of sewage disposal will be used (septic tank and leaching fields, sewage disposal system, etc)?

An on-site wastewater septic system is proposed for each of the three (3) lots being proposed. Since the site constraints require an infiltration basin on the east side of the proposed roadway

to process much of the site's drainage, it is anticipated that Lot 1 will require a pressurized configuration for their SDS. This would change in the alternative driveway scenario. Lot 2 and Lot 3 are currently designed as gravity systems for both driveway configurations. Final designs will be submitted for approval to the Wayland Board of Health per their regulations.

2) What is the hourly and daily capacity?

Hourly and daily capacity has not been calculated since the lots will be sold off. Specific site preferences and final lot conditions will be used to design capacity at that time. The preliminary design and layout are based on the demand from a 5-bedroom dwelling.

3) Where will it be located?

See Site Layout and Utilities plan for approximate locations. Minimum leaching areas of 1000 S.F. per local BOH regulations for 5-bedroom dwellings have been provided.

4) What is the expected daily and peak hour volumes of sewage?

165 gal/day per bedroom. Each lot is currently planned for a five (5) bedroom dwelling.

5) What is the expected content of the sewage effluent (human waste, pesticides, detergents, oils, heavy metals, other chemicals)?

All of the above. The content of the sewage effluent will be typical and within acceptable limits.

IMPACT ON SOILS:

1. What soils will be removed and/or dumped?

Rock and Ledge: It is anticipated that construction of the roadway will require varying degrees of drilling and blasting in order for the roadway design to comply with the local regulations. It is expected that a portion of this rock will be processed for gravel sub-base
Cut/Fill: It is anticipated that any excavated soils available due to proposed cuts will be used for mounding up the beginning section of the roadway. The balance of the fill required will be sourced off-site. No excavated materials are planned to be hauled off-site.

2. Where will the dumping material(s) come from? Where will the removed material(s) be placed?

Excavated material will be processed and stored in stockpile locations as indicated by the erosions and sediment control details.

3. What is the permeability of the soils?

The soils unit is a 106C/106D Narragansett-Hollis-Rock Outcrop Complex, 3-25% slope, comprised primarily of a gravely loamy sand. The soils are well drained and have a high saturated hydraulic conductivity rate (Ksat) range between .60 to 6.0 in/hr.

4. What is the rate of percolation of the water through the soils where development is proposed?

   The average percolation rate of the soils is 7.7 minutes per inch (MPI).

5. Describe the procedures and finding of the percolation tests, ground water feasibility tests, and other related tests.

   Standard percolation tests were performed in accordance with the Wayland Board of Health and MA 310 CMR 15.00 (Title 5) Regulations. See "Subsurface Conditions" Attachment.

IMPACT ON SCHOOLS:

1. What is the projected number and school level (elementary, junior high, high school) of school children?

   Unknown at this time.

2. What elementary school will they attend?

   Unknown at this time.

3. How will they get there – walk, bus?

   Unknown at this time.

IMPACT ON TRAFFIC:

1. What is the nearest intersection and it's distance to the proposed development?

   The nearest intersection it deer run, directly across from the proposed entrance on Shaw Drive.

2. What is the traffic flow (total number of cars/day, number of cares per hour throughout the day) now and after development on the nearest existing intersections of roads leading to the development?

   Less than 50 cars/day.

3. What is the average speed of cares at peak hour on the nearest existing roads now and after development?

   30 MPH.

4. Do all existing and proposed connecting roads provide visibility meeting current Planning Board standards. If not, what modifications are proposed?

   Yes.

5. What is the distance to the nearest public transportation? What mode is that transportation? How frequent is it?

   The nearest public transit is the Metro West Regional Transit Authority (MWRTA) bus route 10, which runs about every two hours.

6. What will the impact on commercial areas(identified by the Planning Board) be relative to: parking areas; traffic congestion; pollution from noise, air, etc.; market demand – where people will likely shop?

   None.

IMPACT ON WATER SUPPLY:

1) What is the source of water to be provided to the site?

   Town water is planned to be supplied. See "Site Layout and Utilities Plan" for proposed waterworks.

2) Will modifications, in the existing system be required (i.e. additional pumping, new pipes, etc.)? if so, explain.

   Yes, a 8" tee with (3) 8" gate valves are proposed in order to make the connection to the existing water main. Addition piping, valves, and appurtenances are proposed per the Site Layout and Utility plan.

3) What is the estimated daily peak hour volume of water needed to supply residents of the proposed development?

   The estimated daily peak hour volume of water needed to supply residents of the proposed development is as follows: (3 Lots/Site)(5 Bedrooms/Lot)*(100 GAL/DAY)= 1,500 GAL/DAY*
   Min. design pressure: 20 PSI
   Operating design pressure: 35-80 PSI

4) Are there any wet areas (ponds, streams, marshes, bogs, etc.) in or affected by the project area? Consult with the Wayland Conservation Commission, the Department of Natural Resources and the Massachusetts Audubon Society's Wetlands Project.

   No.

5) If so, describe and identify.

Not Applicable.

6) How will the proposed activity affect those wetlands? (Consider visual effects, cleanliness/pollution, changes in boundaries, water level, temperature changes potential effects on use as a scenic or recreational resource.)

Not Applicable.

7) Will the project involve construction in a flood plain? If so, what precautions are being taken to prevent flood damage?

Not Applicable.

IMPACT ON NATURAL AND CULTURAL FEATURES:

1) Are there any unusual or unique natural features (mineral resources, scenic views, geological occurrences, etc.)?

No.

2) If so, describe and identify.

Not Applicable.

3) How will they be affected by the proposed activity?

Not Applicable.

4) Are there any unusual plant specimens or historic sites, which will be affected? Can they be otherwise relocated?

Not Applicable.

5) What major vegetation/cover exists on the site and what will be removed?

The existing parcel is primarily a pine woodland, with 15-20% deciduous trees. Specific trees to be removed for both the definite and alternative driveway plan can be found in the Plan set.

6) What actions are proposed to minimize erosion on the site and what will be removed?

There are various actions being proposed to prevent erosion and sedimentation problems (See "Erosion & Sediment Control Plan").

IMPACT ON SLOPES:

1) What changes in topography are proposed and why?

A significant cut and fill operation is proposed in order to meet the roadway design regulations as per the Wayland Subdivision Rules & Regulations. Up to approximately station 3+50, the proposed roadway will be constructed on 10 vertical ft of fill, tapered on both sides. Thereafter, the roadway will then be cut approximately 10 feet into the existing ground, with a majority of the work being performed on the eastern side of the roadway.

2) What effect will these changes have on erosion, drainage, existing vegetation and on access ways?

These changes will alter the existing topography, require slope stabilization in order to preserve the undisturbed areas, satisfy structural requirements of the roadway, and prevent erosion, and control stormwater. All slopes at 2:1 shall have turf reinforcement matting installed. Select tree clearing will alter the existing ground conditions. Newly created open space shall conform to the control measures specified in the "Erosion & Sediment Control Plan"

Traffic Analyses

(Per Town of Wayland Subdivision Regulations Section B.5.a)

Five Paths

Residential Subdivision
Wayland, MA
Tax Map 39, Parcel 15A

The proposed Five Paths Court roadway connection to the existing intersection of Deer Run and Shaw Drive has been designed in accordance with the standards set forth by the American Association of State Highway and Transportation Officials (AASHTO), specifically "Guidelines for Geometric Design for Very Low-Volume Local Roads (ADT≤400)". Shaw Drive to the east of Deer Run is a fixed end generator serving two residential dwellings. Deer Run is a branching dead end road bringing an additional 17 residential dwellings to the intersection with Shaw Drive and the proposed Five Paths Court.

The Federal Highway Administration (FHWA) in 2010 cited the average number of vehicle trips per day per household to be 9.5, rounded to 10 trips per day per household. That is to say, 5 trips out, and 5 trips returning per household. (https://www.fhwa.dot.gov/policy/2010cpr/chap1.cfm)

Trip Generation : Definitive Plan

The current number of trips through the existing Shaw Drive/Deer Run intersection are 20 + 170 = 190: 20 total for the two existing residences at the end of Shaw Drive and 170 total for the existing residences on Deer Run and its tributaries.

With the three (3) additional dwellings proposed on Five Paths Court adding 30 new trips per day, the total proposed trips through this intersection becomes 20 + 170 + 30 = 220 vehicle trips per day, 110 vehicles entering and 110 vehicles exiting the intersection. The new trips represent an increase of (220-190)/190 = 16%.

Trip Generation: Alternate Plan

Vehicular access to the proposed subdivision lots is split in the Alternative Plan; Lot 1 accesses Shaw Drive (10 trips/day added) and Lots 2 & 3 access Woodridge Road (20 trips/day added). The Lot 1 Alternate driveway connects to Shaw Drive at Deer Run, adding 10 trips/day to the existing 190 trips/day, totaling (190 + 10=) 200 trips/day at

the intersection of Shaw Drive and Deer Run. These new trips represent an increase of (200-190)/190=5%.

The Alternate Plan would add 20 trips per day to Woodridge Road, for which there are no MassDOT counts on record. Two single-family residences currently use the existing driveway connection at 32 Woodridge Road. The proposed subdivision will utilize the existing upper portion of the paved driveway. At this existing driveway's intersection with Right of Way 'A', a proposed gravel driveway connection between the existing paved driveway and Woodridge Road will be constructed, to the west and adjacent to the existing 32 Woodridge Road driveway entrance.

Sight Distance: Definitive Plan

Adequate stopping sight distance varies according to AASHTO by speed and roadway slope (See Table T1).

TABLE T1: Stopping Sight Distance on Grades
[From AASHTO (2004, portion of Exhibit 3-2)]

Speed	Downgrade					Upgrade	
	3%	4.50%	6%	7.50%	9%	3%	9%
20	116	118	120	123	126	109	104
25	158	162	165	169	173	147	140
30	205	210	215	221	227	200	179
35	257	264	271	279	287	237	222
40	315	224	333	244	354	289	269

Speed limits are restricted to 20 mph on Shaw Drive and Deer Run and proposed signage on Five Paths Court will stop all vehicles at Shaw Drive before entering the intersection. The alignment of Five Paths Court with Deer Run allows clear view up the hill at this stop, and the nearly perpendicular connection to Shaw Drive provides adequate views up and down Shaw Drive. The stopping sight distance at the proposed Five Paths Court/Shaw Drive/Deer Run intersection is compliant with AASHTO standards (See Table T2).

TABLE T2: Five Paths Stopping Sight Distances at Shaw Drive/Five Paths Court

Five Paths Court	SSD Provided	SSD Min.	Max. Safe Speed (appox.)
Western approach, 7.5% downgrade =	260'	123'	33 mph
Eastern approach, 9% upgrade =	234'	104'	36 mph

Sight Distance: Alternate Plan

At the Shaw Drive/Deer Run intersection, Lot 1 in the Alternate Plan will have the same adequate sight distance as in the Definitive Plan since the Lot 1 driveway connects to this existing intersection at the same point as the Definitive Plan roadway.

At Woodridge Road in the Alternate Plan, the proposed driveway entrance connection to Woodridge Road via ROW 'A' also provides adequate sight distance according to AASHTO (See Table T1 above and Table T3 below).

TABLE T3: Five Paths Stopping Sight Distances provided onto Woodridge Road			
New ROW 'A' Driveway	SSD Provided	SSD Min.	Max. Safe Speed (appox.)
Western approach, 4.5% downgrade=	153'	118'	24 mph
Eastern approach, 2% upgrade =	171'	109'	27 mph

Also shown in Table T3 are interpolated maximum safe speeds on Woodridge Road based on the available sight distance. Additional safety measures can and should be applied to the tight Woodridge Road curve in the way of signage to further caution drivers to the alignment and driveway entrances, particularly in the eastbound direction, west of the 32 Woodridge Road driveway entrance.

Figure T1 depicts the sight distances the proposed driveway connection via ROW 'A', and recommended additional signage near the driveway of 36 Woodridge Road to slow westbound motorists rounding the bend.

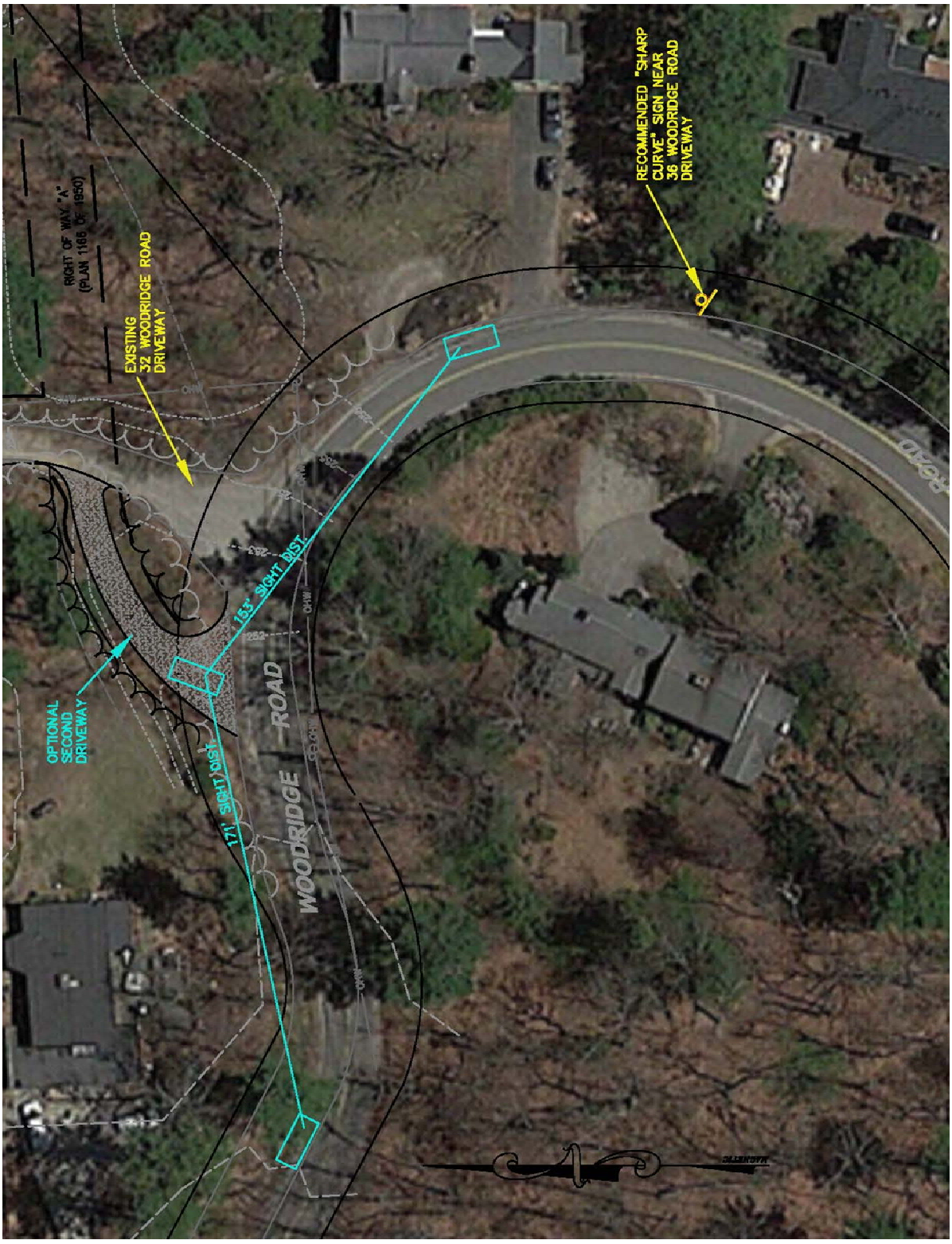


Figure T1: Woodridge Road Sight Distance

Plan for Obtaining Local, State and Federal Permits

(Per Town of Wayland Subdivision Regulations Sections B.3.x and B.5.d)

Five Paths

Residential Subdivision
Wayland, MA
Tax Map 39, Parcel 15A

The Five Paths 3-lot definitive residential subdivision is being proposed with an alternate configuration of driveways providing access to the lots and allowing the 'paper street' of Five Paths Court to function as a corridor for utility line installations, access and maintenance. Other local, state and federal permits are not being pursued until Definitive Plan approval, but subsequent permit approvals will be required. Prior to the start of any construction, the following permit approvals will be sought and obtained in a timely fashion for the development of the subdivision. The timeframes for each permit may vary and this Plan may not occur in the sequence listed:

1. Town of Wayland DPW Water Division Permit
2. Town of Wayland DPW Highway Division Trench Permit
3. Town of Wayland Conservation Commission Land Disturbance & Stormwater Management Permit (SMLDP)
4. Town of Wayland Board of Health Septic Permits
5. Town of Wayland Fire Department Blasting Detail

Wayland Water Division Flow Testing and Proposed System Validation: The Town of Wayland Water Division is in the midst of a system upgrade design project which may result in the need to change line sizes in this subdivision. At the time that a watermain connection to Shaw Drive is ready to proceed, flow testing by the Water Division, and confirmation of adequate pressure and flow to each house lot will be required prior to construction. Proposed water mains and service line adjustments may be required as a result of the flow testing. The Water Department will confirm at the time of flow testing that the proposed system upgrades will not further diminish water supply to the subdivision.

Wayland Highway Division Trench Permit: The subdivision requires excavation in Shaw Drive to make water and gas utility connections. Telephone and electric service connections could also require excavation within the right-of-way of Shaw

Drive. Prior to the development of any lot in the Five Paths subdivision, a Trench Permit and subsequent utility installations shall be made.

Wayland Conservation Commission: There are no MassDEP jurisdictional resource areas within or adjacent to the proposed subdivision. However, the Wayland Conservation Commission is the permitting authority for a Land Disturbance and Stormwater Management Permit (SMLDP), in which detailed drainage calculations and land disturbing activities are fully reviewed. Both the Definitive Plan and Alternate Driveway plan drainage systems have been designed in accordance with the MassDEP Stormwater Management Handbook and Town of Wayland Bylaws, Chapter 193. Generally at the time of final architectural designs and resulting site adjustments, full SMLDP application(s) will be filed as appropriate. There may be only one SMLDP filed for the whole project, or several SMLDP's filed, depending upon the configuration of approvals and sequence of lot development.

Wayland Board of Health: Deep hole test pits and percolation testing witnessed by the Wayland Board of Health are included in the application materials, and to inform the preliminary onsite sewage disposal system designs depicted in the plans. Final septic designs will be submitted and approved for each lot prior to construction.

Wayland Fire Department: Explosive blasting of bedrock or "ledge" requires a Fire Department detail to be present at all times, as well as prior correspondence and coordination with the Fire Department to ensure that blasting procedures conform to Fire Department safety rules, requirements and practices.

Drainage Summary Narrative

(Per Town of Wayland Subdivision Regulations Section B.3.o.)

Five Paths

Residential Subdivision
Wayland, MA
Tax Map 39, Parcel 15A

Introduction and Methodology

This drainage narrative is intended to accompany plans for the proposed residential subdivision named Five Paths, located between Shaw Drive and Woodridge Road in Wayland, MA. Drainage has been evaluated to comply with the Massachusetts Stormwater Management Handbook and the Town of Wayland Bylaws. Site specific information has been evaluated under three scenarios, "pre-development," "post-development DEFSUB" and "post-development ALTERNATE" to match the Definitive Plan and Alternate Plan layouts respectively, as designed on the accompanying drawings.

Evaluations of these conditions have been done so that potential impacts due to the project can be identified, quantified and mitigated to the extents practicable. Summary data and calculations are provided herein and on drawings entitled "Drainage Plan" and "Alternate Drainage Plan" reflecting the hydrologic and hydraulic modeling of the stormwater management system that has been completed for the project. A comprehensive Drainage Report shall be filed with future submittal(s) of the required Stormwater Management and Land Disturbance Permits (SMLDP) when filed with the Wayland Conservation Commission under Wayland Bylaws Chapter 193.

The final design intent seeks to meet the following interrelated goals:

1. Limit post-development peak stormwater runoff rates for the 0.5", 1.0", 2-year, and 10-year storm events to existing (pre-development) levels.

2. Limit post-development peak stormwater runoff volumes for the 0.5", 1.0", 2-year, 10-year storm, 25-year, and 100-year storm events to existing (pre-development) levels.

3. Evaluate potential on- and off-site flooding during the 100-year storm event due to proposed development, and depict overland relief pathways;

4. Maintain or increase the volume of stormwater recharged per storm event to those of existing (pre-development) levels;

5. Prevent appreciable sediment and other suspended solids and contaminants transport by trapping them on site via Best Management Practices;

6. Provide adequate drainage for new surfaces;

7. Maintain existing drainage patterns while providing a cost-effective

engineering solution that addresses regulatory as well as real-world constraints.

8. Protect final graded surfaces and outfalls with adequate energy dissipation and erosion control.

Site Description

This proposed residential subdivision is located off Shaw Drive in southern Wayland. The project site area is a 6.5± acre portion of a 13.7± acre parcel currently identified on Wayland Assessor's Map 39, Parcel 015A. The 7.2± acres of Parcel 39-015A not being developed for subdivision are designated as "Remaining Lands of Wilkinson." None of Parcel 39-15A is currently developed, and the parcel consists primarily of mixed evergreen and deciduous forest with some large rock outcrops.

The site is located on rolling terrain, rising in elevation 54± vertical feet from the lowest point in the northwest corner at Shaw Drive to the highest point at the southern limit of the subdivision. The land has a primary ridge running from southwest to northeast, splitting into two main watersheds draining generally west and south. A topographic saddle point at the southern end of the subject property, along with some bedrock ledge outcrops, creates several smaller sub-watersheds. The land typically slopes at approximately 10% to 16%, with internal undulations creating some leveling areas containing lesser slopes ranging between 3% to 5%.

Available NRCS soils mapping for the project and surrounding areas shows consistent soils, ranging from Hydrologic Soil Group (HSG) A & D. 45% of the soils consists of gravelly Narragansett loamy sand, which has a Hydraulic soil group of A. The remainder of the is a mixture of Hollis rock complex and ledge, both classified as a HSG D. Onsite soil evaluations done during subsurface sewage design were comprised of a gravelly sandy loam and loamy sand base with less than 15% cobble and boulders. These soil classifications, along with other listed characteristics in the logs reveal that the overall mapping is consistent with the field evaluation.

When determining the most appropriate HSG for overall hydrologic analysis, HSG C was selected on the basis that the results be conservative in nature, yet provide as realistic a characterization of the hydraulic conductivity of the soils as possible. The NRCS soil map unit data was considered along with the Part 630, Chapter 7 "Hydrologic Soil Groups" of the National Engineering Handbook (NEH). According to this handbook, the range of saturated hydraulic conductivity of the least impermeable layer placed the soil map's conductivity range between HSG B and HSG C. Since the lower end of the Narragansett's conductivity range is less than the lower limit of the HSG B from the NEH, and the fact that there was a noticeable amount of cobbles and boulders, HSG C was selected for analysis.

Test holes dug in stormwater retention and infiltration basins revealed deeper sand and loamy sand deposits that are more consistent the HSG A characteristics of Narragansett. The localized pockets of HSG A soils are consistent with an overall HSG C for the whole site due to the other aspects observed. HSG A infiltration rate of 2.41 in/hr per the Rawl's Chart for drainage have therefore been applied within stormwater infiltration areas.

To evaluate the site drainage conditions from pre-development to post-development, the project site has been divided into five (5) analysis points (AP-1, AP-2, AP-3, AP-4 and AP-5), the first four of which are at the property boundaries to the west and south, and one at the Alternate Driveway connection to Woodridge Road.

Project Description

This purpose of this project is to create a residential subdivision with 3 lots. Each lot will be serviced by an onsite subsurface sewage disposal system and a public water supply. The development includes the construction of the three (3) 5-bedroom single-family dwellings, supporting utilities, stormwater management system, and associated clearing, grading and grubbing. Access to the proposed dwellings is provided under two schemes, the Definitive Plan, and the Alternate Plan.

The paved roadway, Five Paths Court, is designed to comply with Wayland Subdivision Rules and Regulations to the extents possible, and has drainage provided under the Definitive Plan in the drainage scenario, “Five Paths Post-Defsub.” The preferred Alternate Plan, consisting of a single paved driveway connection off Shaw Drive, and a paved driveway extension via ROW ‘B’, with a gravel connection to Woodridge Road via ROW ‘A’ has drainage provided under the “Five Paths Post-ALT” drainage scenario.

Definitive Plan Drainage

The proposed development of the subdivision road (Five Paths Court) provides access to all three (3) proposed residential lots. It starts at Shaw Drive and terminates at a cul-de-sac. Stormwater collected from the paved surfaces via curbing directs the runoff to deep sump catch basins with double grate inlets. Pipes from the catch basins direct runoff through a closed pipe system that discharges into Drainage Basin No. 2.

A grassed channel on the east side of the road, south of the Lot 1 driveway, collects drainage upslope of the road, and conveys it to Drainage Basin No. 2 via the driveway culvert at the Lot 1 driveway. This grassed channel also features check dams to slow the velocity of concentrated flow, and to promote the release of suspended solids. The combination of deep sumps and the grassed swale provides pre-treatment ahead of Drainage Basin No. 2.

Drainage Basin No.2 features retention storage volume for groundwater recharge, and additional capacity for peak flow attenuation. Drainage Basin No. 2 discharges through a 12” culvert under Five Paths Court into Drainage Basin No.1, that also provides stormwater management for peak flow attenuation and recharge infiltration.

Drainage Basin No.1 has a primary piped outlet control culvert and an earthen emergency spillway. The two Drainage Basin No. 1 outlets flow through an energy dissipator and level spreader before discharging to AP-1. Stormwater Maintenance Easements are proposed to be conveyed to the Wayland DPW for the maintenance and upkeep of Stormwater Basins Nos. 1 & 2 and their connecting infrastructure. These basins are of a scale that are anticipated to be beyond the regular maintenance and upkeep capabilities of the homeowners or their assigns, unlike the

remainder of the proposed basins which are not within proposed easements. The remainder of the proposed basins are to be privately maintained.

Drainage Basin No.3 collects and mitigates discharges and volumes from the Lot 2 driveway and cleared areas, discharging towards ROW 'B' to the south, to AP-3.

Drainage Basin No.4 near the cul-de-sac provides a small amount of detention and retention needed to compensate for the change in land cover from land cleared for the development of Lot 3, discharging to AP-2. A stone diaphragm further mitigates drainage towards AP-2 from the Lot 3 clearing. Lot 3 drainage towards AP-4 flows through a shallow micropool to further mitigate rate and volumetric discharge for change of land cover resulting from land clearing.

The proposed BMP's have been designed in accordance with the Massachusetts Stormwater Standards, and the Town of Wayland Bylaws Chapter 193 to attenuate peak flows, retain runoff volumes, treat runoff from impervious surfaces and maintain groundwater recharge to pre-development conditions.

Overland relief has been evaluated for the condition that piped conveyances are clogged, or if a rainfall event far exceeds the 100-year event. In such a condition, water ponding in Drainage Basin No. 2 would overflow Five Paths Court near the Lot 1 driveway at approximate elevation 294, while the lowest openings into the Lot 1 house and septic chambers would be at approximate elevation 295. The flooding waters over Five Paths Court would flow towards Drainage Basin No. 1, forced in that direction by the slightly raised grade of the gravel pond access driveway. Overflowing waters would then be routed through Drainage Basin No. 1 and drain towards AP-1.

The watershed to AP-1 is the only one with the potential of flooding a proposed dwelling, the dwelling on Lot 1. Overland relief to the other analysis points AP-2, AP-3 and AP-4 would not affect the other proposed dwellings.

Alternate Plan Drainage

The Five Paths Court roadway results in additional land clearing and impervious area that is not necessary with the proposed Alternate Plan for the development of the 3-lot Five Paths subdivision. The Alternate Plan drainage systems are more disconnected and more in keeping with low impact development (LID) design principles, such that the Alternate Plan is a much preferred development option. A waiver of the construction of Five Paths Court is requested in order to build the more sustainable system of driveways and drainage depicted in the Alternate Plan. The following is a description of the project drainage under the Alternate Plan.

The Alternate Plan drainage system is more compact and maintainable by the prospective group of new homeowners or their assigns than is the Definitive Plan and therefore no drainage easements are proposed. A Private Stormwater Maintenance Agreement to service and maintain the various proposed onsite stormwater facilities is recommended for each new homeowner.

The drainage features for Lot 1 are a sediment forebay and 18" driveway culvert conveying discharges to Alternate Drainage Basin No.1, which infiltrates and detains runoff before discharging to a level spreader at AP-1.

Lots 2 and 3 share a common driveway that is extended through an existing 25' right-of-way. The driveway is extended up through a narrow existing valley at the south end of the property, at the outfall numbered AP-3. Alternate Drainage Basins No. 2 & 3 mitigate for drainage to AP-3. Three culverts and three deep sump catch basins capture and convey runoff into these stormwater management basins, providing pre-treatment and groundwater recharge.

A small portion of Lot 3 drains to the west towards AP-2. The roof of the house is the only proposed impervious cover heading towards AP-2, so mitigation for peak flow and volume is required primarily for changes in land cover from forest to lawn. Three (3) proposed disconnected stormwater measures are used to mitigate peak flow and volumetric increases:

1. A drywell recharge chamber for roof water
2. Alternate Drainage Basin No. 4 providing recharge and detention from overland flow, and
3. Stone diaphragm, receiving the back yard, and possible overflows from the dry well.

An even smaller portion of Lot 3 drains towards AP-4 to the south. At this location a small micropool, receiving backyard lawn area is proposed to mitigate peak flow and volume with the additional benefits of providing additional groundwater recharge.

The existing common driveway extending northwards from Woodridge Road will be extended under the Alternate Plan to serve the additional two (2) new proposed dwellings. This existing driveway functions as a watershed divide between east and west. AP-3 drains towards the east divide, and AP-4 drains to the west divide.

The proposed gravel driveway connection to Woodridge Road is within the western watershed of the existing driveway, receiving drainage that is evaluated at AP-4. This AP-4 drainage and the small area of work to make the gravel driveway connection in Right-of-Way 'A' (ROW 'A') is evaluated at the edge of Woodridge Road as AP-5.

The proposed gravel driveway connection within ROW 'A' consists of a 12' gravel driveway and apron connection to Woodridge Road, flanked by two narrow stone diaphragms positioned along the edge of the proposed driveway and inside the existing 25' right of way. These measures provide low impact element sufficient to treat and mitigate flows and discharges from the proposed driveway at AP-5 in conjunction with mitigations at AP-4.

Overland relief at Lot 1 in the event of a complete failure of the primary drainage system or in the case of excessive flooding greater than the 100-year storm would overtop the proposed driveway access prior to inundating the dwelling, and be routed through Alternate Drainage Basin No. 1. All other overland relief pathways would likewise not impact other proposed or existing dwellings.

Culvert calculations at the 25-year storm event are provided to assist the Board in determinations of adequacy. Summaries are provided for both the Definitive Plan and the Alternate Plan in summary charts herein and on the Drainage Plans.

FIVE PATHS STORMWATER OUTFLOWS FOR DEFINITIVE PLAN

	Peak Flow Discharge(cfs)			Volumetric Discharge(cf)		
	PRE	POST	NET	PRE	POST	NET
AP1						
0.5in	0.0	0.0	**0.0**	0	0	**0**
1.0in	0.0	0.0	**0.0**	215	15	**(200)**
2-Year	4.6	0.2	**-4.4**	16,217	1,036	**(15,181)**
10-Year	10.7	3.5	**-7.2**	36,240	22,871	**(13,369)**
25-Year	16.0	5.4	**-10.6**	54,080	44,583	**(9,497)**
100-Year	27.6	8.7	**-18.9**	93,948	92,609	**(1,339)**
AP2						
0.5in	0.0	0.0	**0.0**	0	0	**0**
1.0in	0.0	0.0	**0.0**	53	0	**(53)**
2-Year	0.9	0.0	**-0.9**	4,002	0	**(4,002)**
10-Year	2.2	0.0	**-2.2**	8,944	0	**(8,944)**
25-Year	3.4	0.0	**-3.4**	13,347	0	**(13,347)**
100-Year	5.8	1.5	**-4.3**	23,186	1,711	**(21,475)**
AP3						
0.5in	0.0	0.0	**0.0**	0	0	**0**
1.0in	0.0	0.0	**0.0**	137	50	**(87)**
2-Year	3.0	2.5	**-0.5**	14,929	11,134	**(3,795)**
10-Year	7.3	6.1	**-1.2**	33,982	26,004	**(7,978)**
25-Year	11.1	9.1	**-2.0**	51,088	39,257	**(11,831)**
100-Year	19.5	15.8	**-3.7**	89,523	68,882	**(20,641)**
AP4						
0.5in	0.0	0.0	**0.0**	1	0	**(1)**
1.0in	0.0	0.0	**0.0**	123	0	**(123)**
2-Year	0.4	0.0	**-0.4**	1,802	0	**(1,802)**
10-Year	0.8	0.0	**-0.8**	3,488	0	**(3,488)**
25-Year	1.2	0.0	**-1.2**	4,902	0	**(4,902)**
100-Year	1.9	0.1	**-1.8**	7,933	184	**(7,749)**
AP5						
0.5in	0.0	0.0	**0.0**	1	0	**(1)**
1.0in	0.0	0.0	**0.0**	238	115	**(123)**
2-Year	1.1	0.8	**-0.3**	5,866	4,064	**(1,802)**
10-Year	2.4	1.7	**-0.7**	12,113	8,625	**(3,488)**
25-Year	3.4	2.5	**-0.9**	17,502	12,600	**(4,902)**
100-Year	5.7	4.2	**-1.5**	29,282	21,533	**(7,749)**

FIVE PATHS STORMWATER OUTFLOWS FOR ALTERNATIVE DRIVEWAY PLAN

	Peak Flow Discharge(cfs)			Volumetric Discharge(cf)		
	PRE	POST	NET	PRE	POST	NET
AP1						
0.5in	0.0	0.0	**0.0**	0	0	**0**
1.0in	0.0	0.0	**0.0**	215	127	**(88)**
2-Year	4.6	2.1	**-2.4**	16,217	11,582	**(4,635)**
10-Year	10.7	5.6	**-5.1**	36,240	32,404	**(3,836)**
25-Year	16.0	8.3	**-7.7**	54,080	50,867	**(3,213)**
100-Year	27.6	24.4	**-3.1**	93,948	93,167	**(781)**
AP2						
0.5in	0.0	0.0	**0.0**	0	0	**0**
1.0in	0.0	0.0	**0.0**	53	0	**(53)**
2-Year	0.9	1.0	**0.0**	4,002	2492	**(1,510)**
10-Year	2.2	1.9	**-0.4**	8,944	5318	**(3,626)**
25-Year	3.4	2.6	**-0.7**	13,347	8309	**(5,038)**
100-Year	5.8	6.9	**1.1**	23,186	17,197	**(5,989)**
AP3						
0.5in	0.0	0.0	**0.0**	0	0	**0**
1.0in	0.0	0.0	**0.0**	137	50	**(87)**
2-Year	3.0	1.8	**-1.2**	14,929	7,991	**(6,938)**
10-Year	7.3	6.9	**-0.4**	33,982	24,957	**(9,025)**
25-Year	11.1	10.6	**-0.6**	51,088	40,534	**(10,554)**
100-Year	19.5	18.6	**-1.0**	89,523	75,555	**(13,968)**
AP4						
0.5in	0.0	0.0	**0.0**	1	0	**(1)**
1.0in	0.0	0.0	**0.0**	123	0	**(123)**
2-Year	0.4	0.0	**-0.4**	1,802	0	**(1,802)**
10-Year	0.8	0.0	**-0.8**	3,488	0	**(3,488)**
25-Year	1.2	0.0	**-1.1**	4,902	605	**(4,297)**
100-Year	1.9	0.5	**-1.3**	7,933	1,996	**(5,937)**
AP5						
0.5in	0.0	0.0	**0.0**	1	0	**(1)**
1.0in	0.0	0.0	**0.0**	238	115	**(123)**
2-Year	1.1	0.8	**-0.4**	5,866	4,064	**(1,802)**
10-Year	2.4	1.7	**-0.7**	12,113	8,625	**(3,488)**
25-Year	3.4	2.5	**-0.9**	17,502	13,204	**(4,298)**
100-Year	5.7	4.6	**-1.1**	29,282	23,344	**(5,938)**

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VOICE: 978.772.1600 FAX: 978.772.1691
www.gpr-inc.com

GRAPHIC SCALE

DEFINITIVE RESIDENTIAL SUBDIVISION

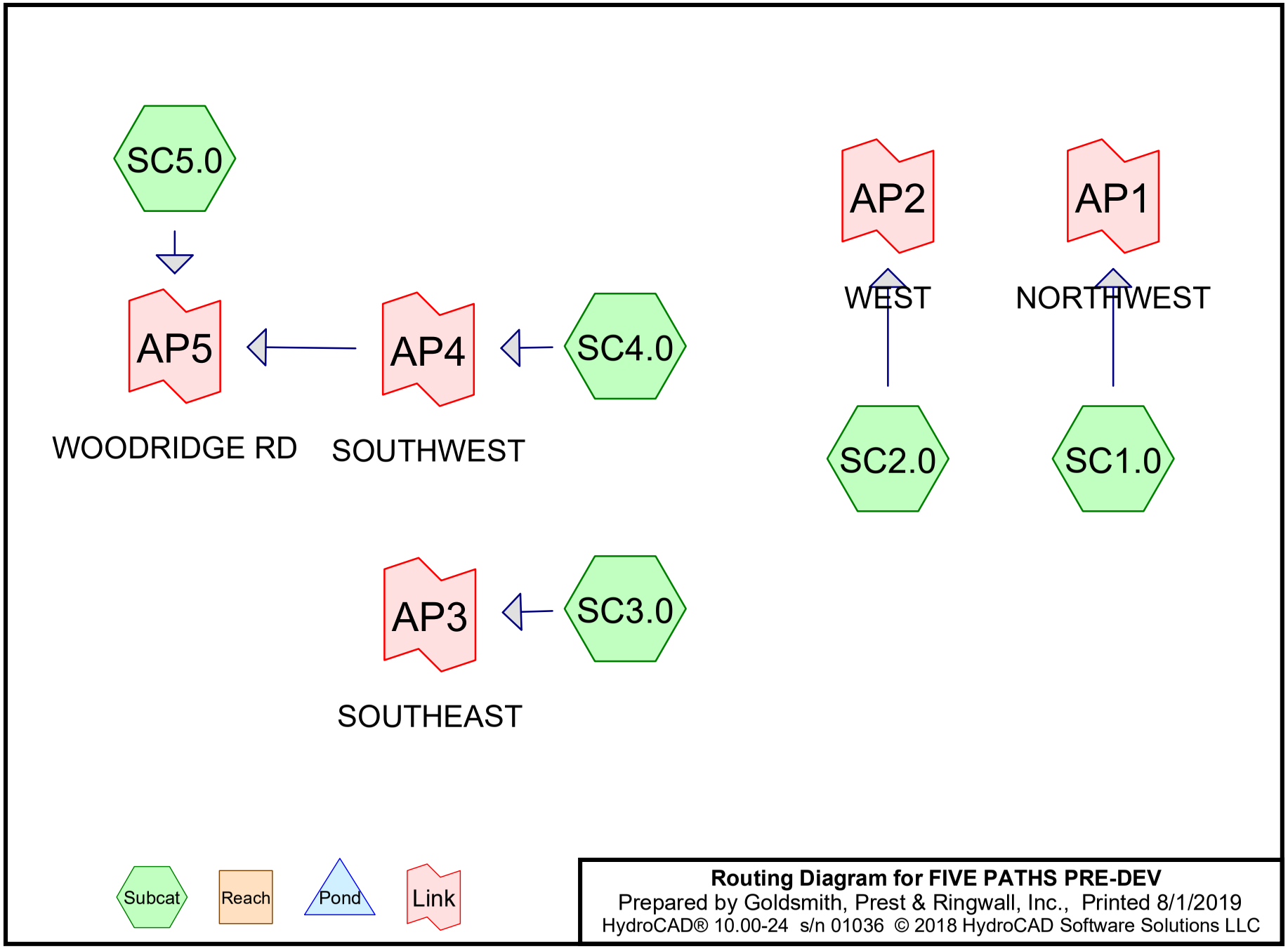
PRE DEVELOPMENT CONDITIONS

FIVE PATHS
ASSESSORS MAP#39 PARCEL 15A
WAYLAND, MA

PREPARED FOR:
ROSS WILKINSON
695 JOHN MUIR DRIVE, F416
SAN FRANCISCO, CA 94132

PRE-DEV

DES. BY: MPB	DATE: JULY 2019	JOB 171053	
CHK. BY: KPB			



Routing Diagram for FIVE PATHS PRE-DEV
Prepared by Goldsmith, Prest & Ringwall, Inc., Printed 8/1/2019
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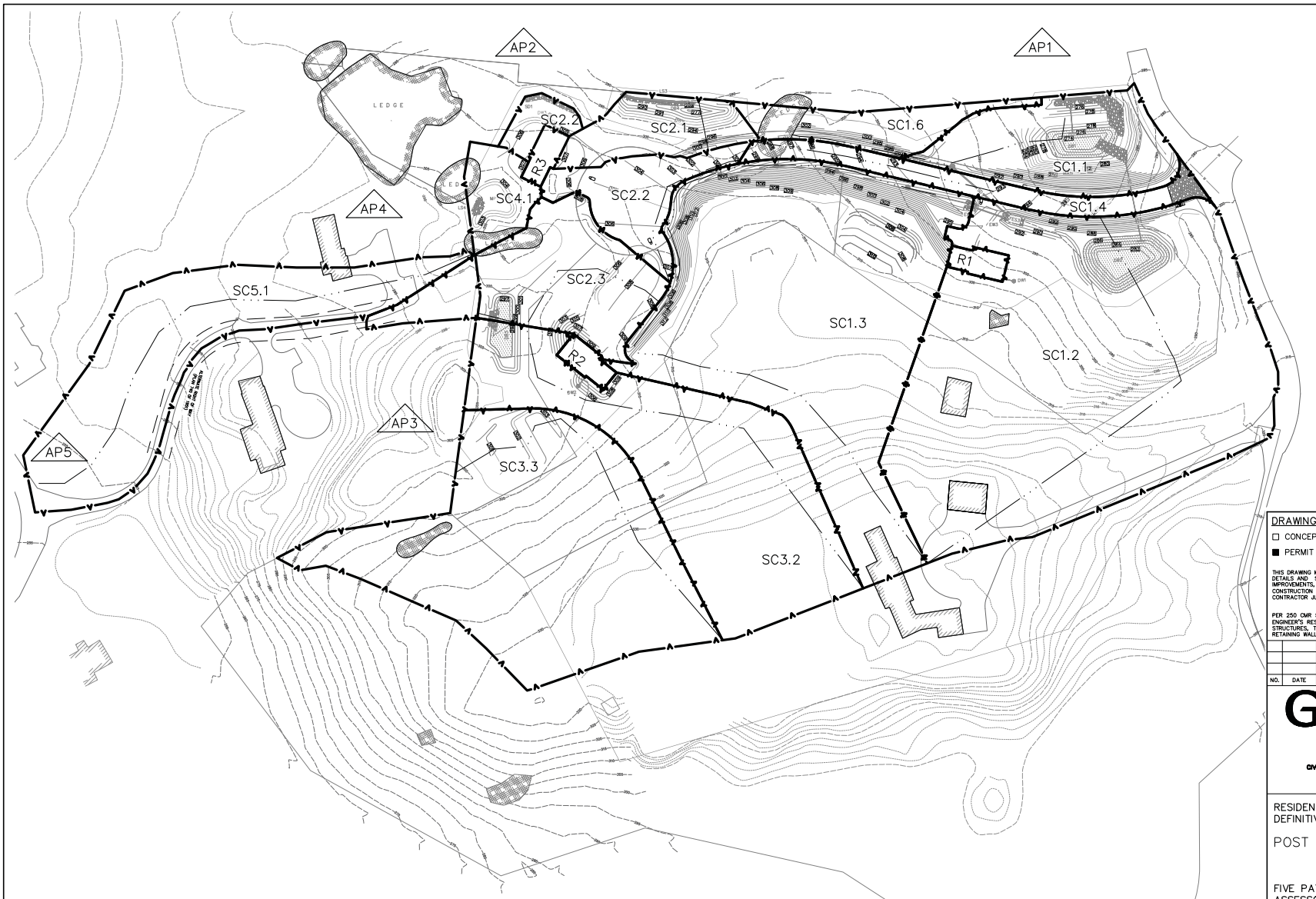

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RESIDENTIAL SUBDIVISION
DEFINITIVE PLAN

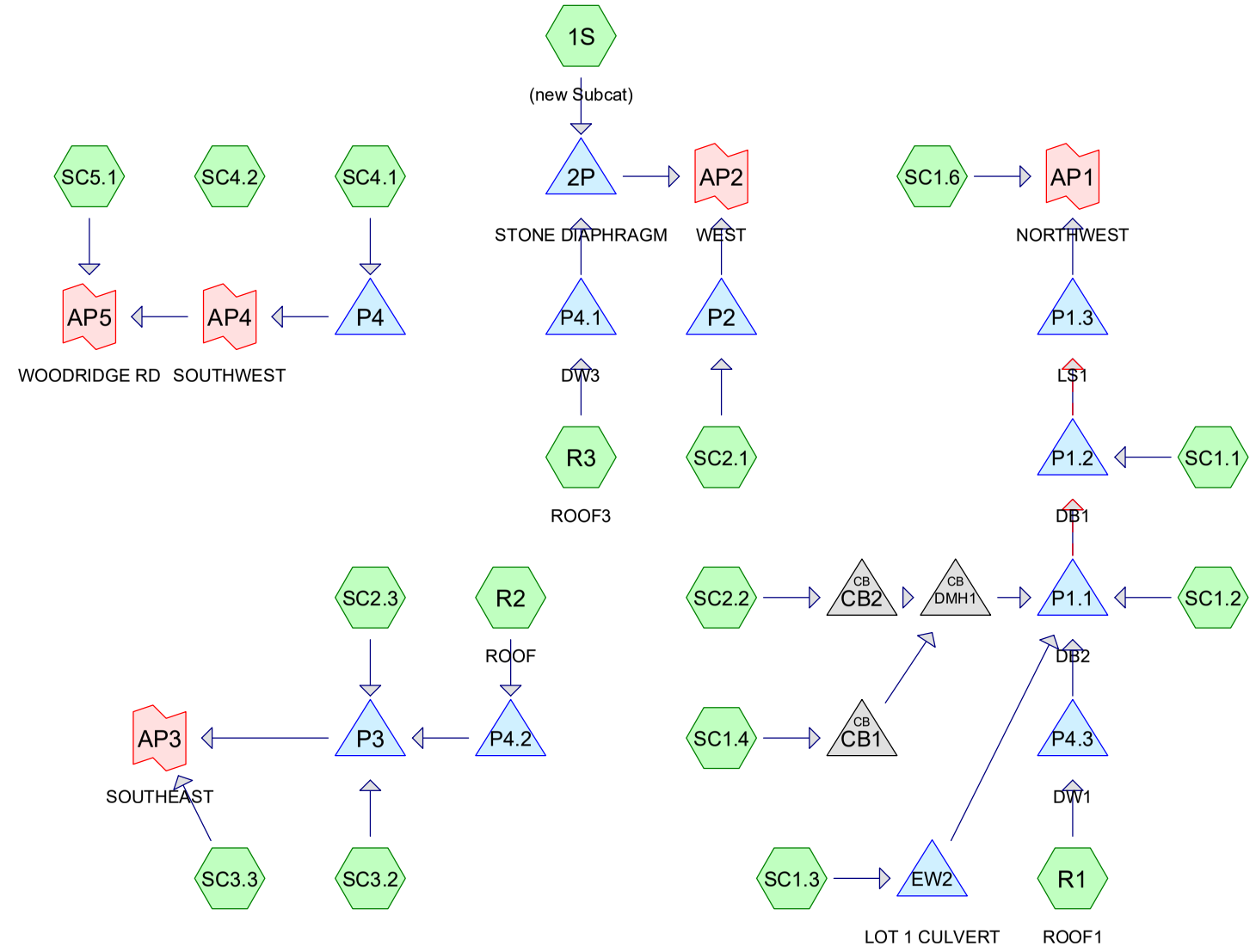
POST DEVELOPMENT CONDITIONS

FIVE PATHS
ASSESSORS MAP#39 PARCEL 15A
WAYLAND, MA

PREPARED FOR:
ROSS WILKINSON
695 JOHN MUIR DRIVE, F416
SAN FRANCISCO, CA 94132

POST-DEFSUB

DES. BY: MPB	DATE: JULY 2019	JOB 171053
CHK. BY: KPB		



Routing Diagram for FIVE PATHS POST-DEFSUB
Prepared by Goldsmith, Prest & Ringwall, Inc., Printed 8/1/2019
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Time span=0.10-30.00 hrs, dt=0.01 hrs, 2991 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

Pond CB1: Peak Elev=290.60' Inflow=1.5 cfs 0.129 af
12.0" Round Culvert n=0.011 L=6.0' S=0.0050 '/' Outflow=1.5 cfs 0.129 af

Pond CB2: Peak Elev=291.32' Inflow=1.6 cfs 0.126 af
12.0" Round Culvert n=0.011 L=128.0' S=0.0050 '/' Outflow=1.6 cfs 0.126 af

Pond EW2: LOT 1 CULVERT Peak Elev=292.10' Storage=1,266 cf Inflow=6.0 cfs 0.574 af
12.0" Round Culvert n=0.011 L=30.0' S=0.0333 '/' Outflow=4.8 cfs 0.574 af

Pond P1.1: DB2 Peak Elev=287.81' Storage=18,331 cf Inflow=16.8 cfs 1.560 af
Discarded=0.4 cfs 0.330 af Primary=5.7 cfs 1.150 af Outflow=6.2 cfs 1.480 af

Pond P1.2: DB1 Peak Elev=278.17' Storage=7,391 cf Inflow=7.0 cfs 1.297 af
Discarded=0.2 cfs 0.235 af Primary=4.3 cfs 0.928 af Secondary=1.6 cfs 0.084 af Outflow=6.1 cfs 1.248 af

Summary for Pond CB1:

Inflow Area = 0.267 ac,100.00% Impervious, Inflow Depth = 5.79" for 25-Year event
Inflow = 1.5 cfs @ 12.12 hrs, Volume= 0.129 af
Outflow = 1.5 cfs @ 12.12 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
Primary = 1.5 cfs @ 12.12 hrs, Volume= 0.129 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 290.60' @ 12.13 hrs
Flood Elev= 292.34'

Device	Routing	Invert	Outlet Devices
#1	Primary	289.69'	**12.0" Round Culvert** L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 289.69' / 289.66' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.5 cfs @ 12.12 hrs HW=290.59' TW=290.42' (Dynamic Tailwater)
1=Culvert (Outlet Controls 1.5 cfs @ 2.62 fps)

Summary for Pond CB2:

Inflow Area = 0.290 ac, 81.14% Impervious, Inflow Depth = 5.21" for 25-Year event
Inflow = 1.6 cfs @ 12.12 hrs, Volume= 0.126 af
Outflow = 1.6 cfs @ 12.12 hrs, Volume= 0.126 af, Atten= 0%, Lag= 0.0 min
Primary = 1.6 cfs @ 12.12 hrs, Volume= 0.126 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 291.32' @ 12.12 hrs
Flood Elev= 294.68'

Device	Routing	Invert	Outlet Devices
#1	Primary	290.58'	**12.0" Round Culvert** L= 128.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 290.58' / 289.94' S= 0.0050 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.6 cfs @ 12.12 hrs HW=291.31' TW=290.42' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.6 cfs @ 3.57 fps)

Summary for Pond EW2: LOT 1 CULVERT

Inflow Area = 2.213 ac, 1.79% Impervious, Inflow Depth = 3.11" for 25-Year event
Inflow = 6.0 cfs @ 12.20 hrs, Volume= 0.574 af
Outflow = 4.8 cfs @ 12.28 hrs, Volume= 0.574 af, Atten= 21%, Lag= 5.0 min
Primary = 4.8 cfs @ 12.28 hrs, Volume= 0.574 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs

Peak Elev= 292.10' @ 12.28 hrs Surf.Area= 1,089 sf Storage= 1,266 cf

Plug-Flow detention time= 3.3 min calculated for 0.574 af (100% of inflow)
Center-of-Mass det. time= 3.3 min (864.5 - 861.2)

Volume	Invert	Avail.Storage	Storage Description
#1	290.00'	6,603 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)
290.00	190	108.0	0	0	190
291.00	549	164.0	354	354	1,410
292.00	1,089	271.0	804	1,158	5,120
297.00	1,089	271.0	5,445	6,603	6,475

Device	Routing	Invert	Outlet Devices
#1	Primary	290.00'	**12.0" Round Culvert** L= 30.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 290.00' / 289.00' S= 0.0333 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=4.8 cfs @ 12.28 hrs HW=292.10' TW=287.70' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 4.8 cfs @ 6.09 fps)

Summary for Pond P1.1: DB2

Inflow Area = 5.659 ac, 11.41% Impervious, Inflow Depth = 3.31" for 25-Year event
Inflow = 16.8 cfs @ 12.13 hrs, Volume= 1.560 af
Outflow = 6.2 cfs @ 12.45 hrs, Volume= 1.480 af, Atten= 63%, Lag= 19.5 min
Discarded = 0.4 cfs @ 12.45 hrs, Volume= 0.330 af
Primary = 5.7 cfs @ 12.45 hrs, Volume= 1.150 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 287.81' @ 12.45 hrs Surf.Area= 8,033 sf Storage= 18,331 cf

Plug-Flow detention time= 106.0 min calculated for 1.479 af (95% of inflow)
Center-of-Mass det. time= 77.1 min (921.1 - 844.0)

Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	44,004 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)
282.00	1,199	145.0	0	0	1,199
283.00	1,729	169.8	1,456	1,456	1,840
284.00	2,346	195.4	2,030	3,486	2,606
285.00	2,961	214.3	2,648	6,133	3,255
286.00	3,634	233.1	3,292	9,425	3,961
287.00	4,354	251.9	3,989	13,413	4,726
288.00	9,085	426.0	6,576	19,990	14,124
289.00	12,082	584.0	10,548	30,538	26,833
290.00	14,901	615.0	13,467	44,004	29,851

Device	Routing	Invert	Outlet Devices
#1	Primary	285.00'	**12.0" Round RCP_Round 12"** L= 89.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 285.00' / 281.00' S= 0.0449 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Discarded	282.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.4 cfs @ 12.45 hrs HW=287.81' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=5.7 cfs @ 12.45 hrs HW=287.81' TW=278.16' (Dynamic Tailwater)
↑└**1=RCP_Round 12"** (Inlet Controls 5.7 cfs @ 7.31 fps)

Summary for Pond P1.2: DB1

Inflow Area = 6.210 ac, 10.40% Impervious, Inflow Depth = 2.51" for 25-Year event
Inflow = 7.0 cfs @ 12.16 hrs, Volume= 1.297 af
Outflow = 6.1 cfs @ 12.56 hrs, Volume= 1.248 af, Atten= 13%, Lag= 24.1 min
Discarded = 0.2 cfs @ 12.56 hrs, Volume= 0.235 af
Primary = 4.3 cfs @ 12.56 hrs, Volume= 0.928 af
Secondary = 1.6 cfs @ 12.56 hrs, Volume= 0.084 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 278.17' @ 12.56 hrs Surf.Area= 4,174 sf Storage= 7,391 cf

Plug-Flow detention time= 71.5 min calculated for 1.248 af (96% of inflow)
Center-of-Mass det. time= 50.7 min (924.4 - 873.8)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	47,129 cf	**Custom Stage Data (Irregular)**Listed below (Recalc)

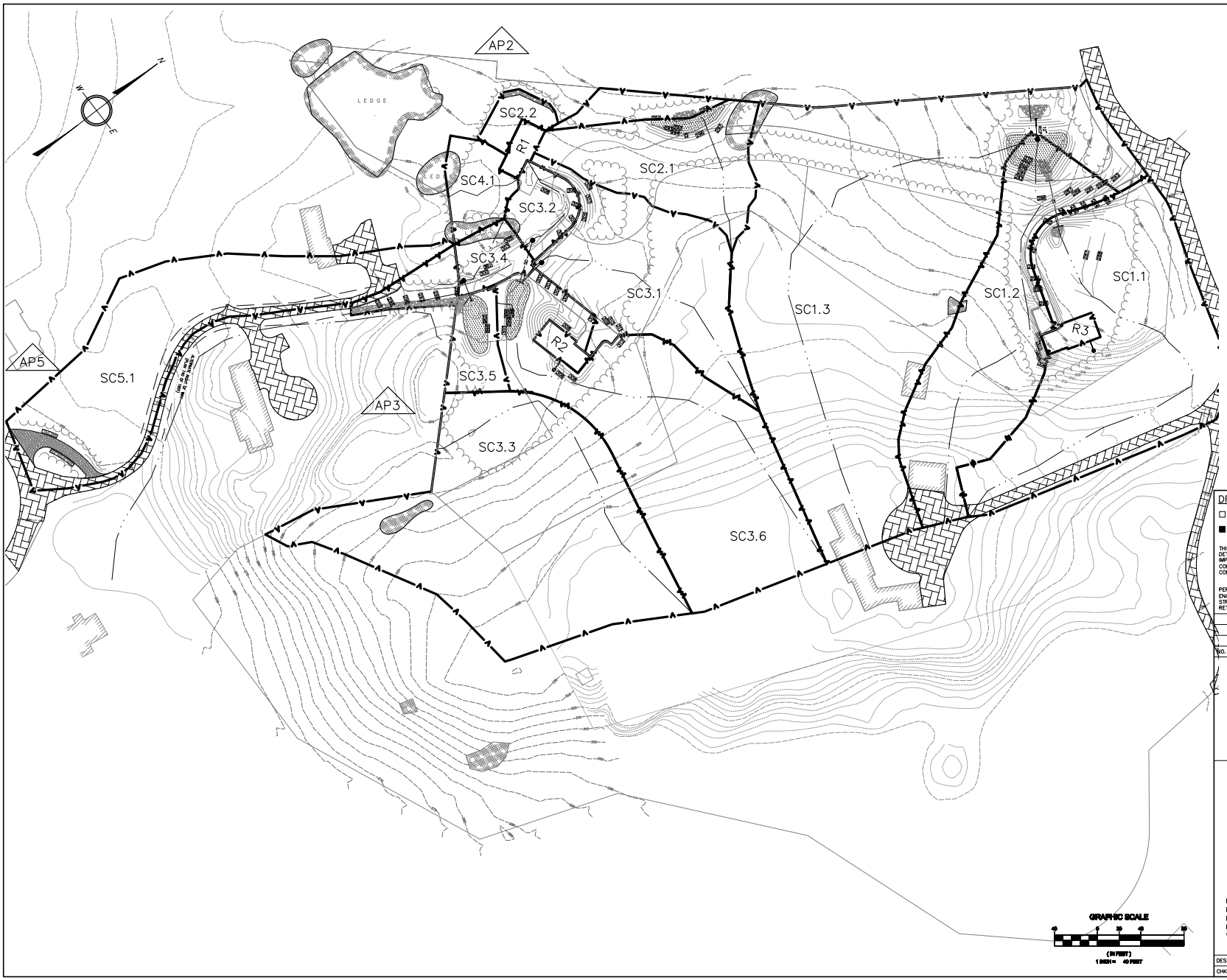
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
274.00	483	99.5	0	0	483
275.00	845	129.4	656	656	1,040
276.00	1,473	162.3	1,145	1,800	1,817
277.00	2,214	196.1	1,831	3,631	2,798
278.00	4,039	338.6	3,081	6,712	8,867
279.00	4,891	222.6	4,458	11,170	14,055
279.10	6,005	300.0	544	11,714	17,274
285.00	6,000	330.0	35,415	47,129	19,665

Device	Routing	Invert	Outlet Devices
#1	Primary	276.33'	**12.0" Round RCP_Round 12"** L= 28.4' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 276.33' / 276.19' S= 0.0049 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Secondary	278.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#3	Discarded	274.00'	**2.410 in/hr Exfiltration over Surface area**
#4	Device 1	277.33'	**48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.2 cfs @ 12.56 hrs HW=278.17' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=4.3 cfs @ 12.56 hrs HW=278.17' TW=276.13' (Dynamic Tailwater)
└**1=RCP_Round 12"** (Barrel Controls 4.3 cfs @ 5.42 fps)
└**4=Orifice/Grate** (Passes 4.3 cfs of 31.4 cfs potential flow)

Secondary OutFlow Max=1.6 cfs @ 12.56 hrs HW=278.17' TW=276.13' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.6 cfs @ 0.95 fps)



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RESIDENTIAL SUBDIVISION
DEFINITIVE PLAN–ALTERNATE

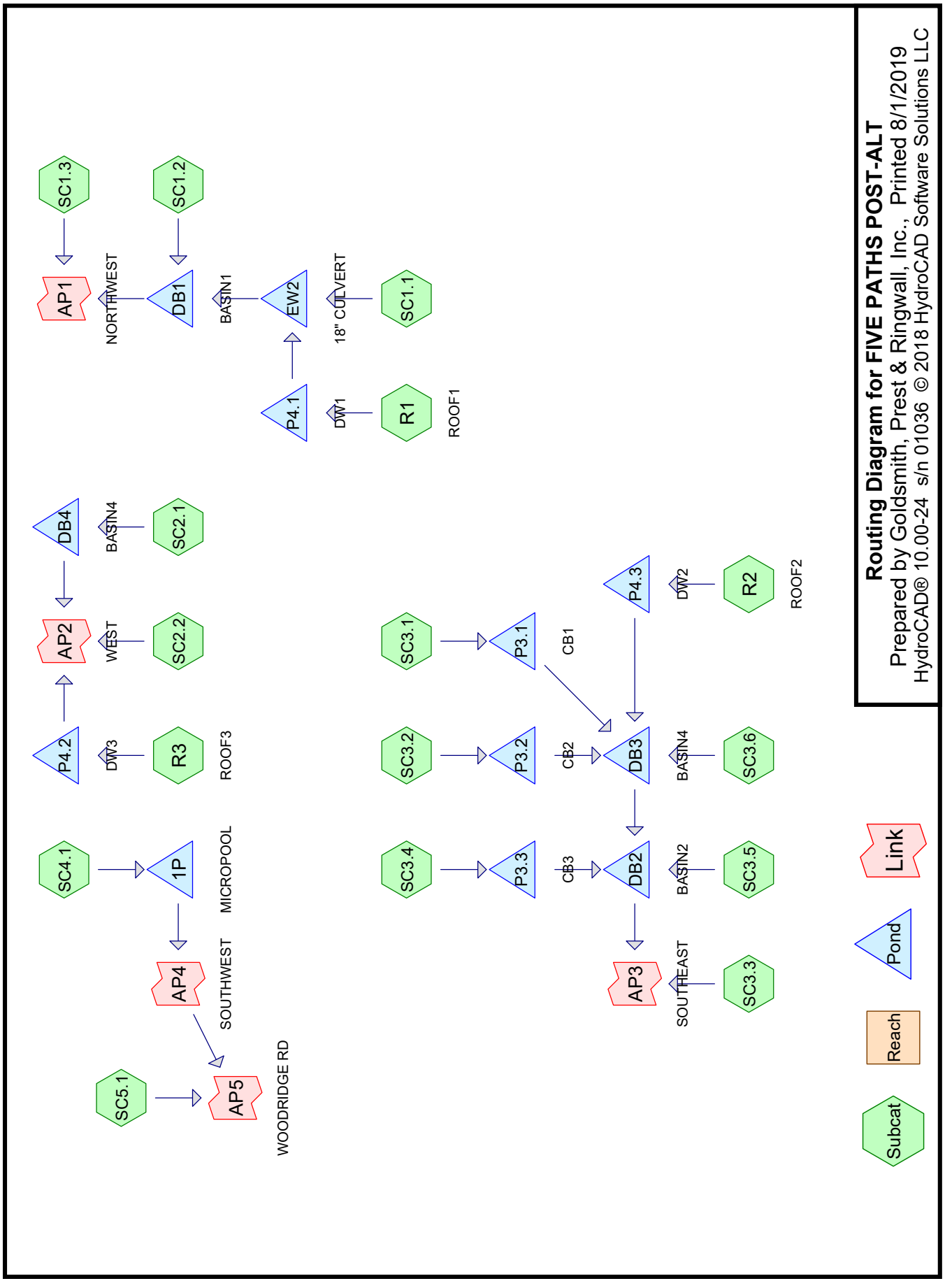
POST–DEVELOPMENT DRAINAGE

FIVE PATHS
ASSESSORS MAP#39 PARCEL 15A
WAYLAND, MA

RECORD OWNER & APPLICANT:
ROSS C. WILKINSON, PERSONAL REPRESENATIVE,
ESTATE OF PAULA D. WILKINSON
PO BOX 98
WILTON, NH 03086

POST–ALT

DES. BY: MPB	DATE: JULY 2019	JOB 171053
CHK. BY: KPB		


Routing Diagram for FIVE PATHS POST-ALT
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SC1.3
SC1.2
AP1
NORTHWEST
DB1
BASIN1
EW2
18" CULVERT
SC1.1
P4.1
DW1
R1
ROOF1
DB4
BASIN4
SC2.1
AP2
WEST
SC2.2
P4.2
DW3
R3
ROOF3
SC4.1
1P
MICROPOOL
AP4
SOUTHWEST
SC5.1
AP5
WOODRIDGE RD
SC3.1
P3.1
CB1
P4.3
DW2
R2
ROOF2
SC3.2
P3.2
CB2
DB3
BASIN4
SC3.6
SC3.4
P3.3
CB3
DB2
BASIN2
SC3.5
AP3
SOUTHEAST
SC3.3
Subcat
Reach
Pond
Link

Time span=0.10-30.00 hrs, dt=0.01 hrs, 2991 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

Pond DB1: BASIN1 Peak Elev=280.95' Storage=12,187 cf Inflow=8.07 cfs 29,334 cf
Discarded=0.18 cfs 8,813 cf Primary=0.78 cfs 19,197 cf Outflow=0.96 cfs 28,009 cf

Pond EW2: 18" CULVERT Peak Elev=285.47' Storage=73 cf Inflow=4.79 cfs 17,701 cf
18.0" Round Culvert n=0.011 L=60.0' S=0.0733 '/' Outflow=4.77 cfs 17,701 cf

Pond P3.1: CB1 Peak Elev=300.96' Storage=75 cf Inflow=2.62 cfs 8,551 cf
12.0" Round Culvert n=0.011 L=46.5' S=0.0430 '/' Outflow=2.58 cfs 8,551 cf

Pond P3.2: CB2 Peak Elev=300.43' Storage=21 cf Inflow=0.65 cfs 2,067 cf
12.0" Round Culvert n=0.011 L=28.5' S=0.0702 '/' Outflow=0.64 cfs 2,067 cf

Pond P3.3: CB3 Peak Elev=298.42' Storage=2 cf Inflow=0.53 cfs 1,674 cf
12.0" Round Culvert n=0.011 L=20.6' S=0.0049 '/' Outflow=0.53 cfs 1,674 cf

Summary for Pond DB1: BASIN1

Inflow Area = 105,842 sf, 12.27% Impervious, Inflow Depth = 3.33" for 25-Year event
Inflow = 8.07 cfs @ 12.14 hrs, Volume= 29,334 cf
Outflow = 0.96 cfs @ 13.09 hrs, Volume= 28,009 cf, Atten= 88%, Lag= 57.1 min
Discarded = 0.18 cfs @ 12.22 hrs, Volume= 8,813 cf
Primary = 0.78 cfs @ 13.09 hrs, Volume= 19,197 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 280.95' @ 13.09 hrs Surf.Area= 3,204 sf Storage= 12,187 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 158.6 min (1,008.0 - 849.4)

Volume	Invert	Avail.Storage	Storage Description
#1	275.00'	12,358 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)
275.00	697	111.0	0	0	697
276.00	1,079	135.0	881	881	1,183
277.00	1,529	158.4	1,297	2,179	1,748
278.00	2,032	178.2	1,775	3,953	2,305
279.00	2,594	197.1	2,307	6,260	2,900
280.00	3,204	215.0	2,894	9,154	3,522
281.00	3,204	215.0	3,204	12,358	3,737

Device	Routing	Invert	Outlet Devices
#1	Primary	275.90'	**12.0" Round Culvert** L= 20.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 275.90' / 275.50' S= 0.0200 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Discarded	275.00'	**2.410 in/hr Exfiltration over Surface area**
#3	Device 1	277.50'	**4.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.18 cfs @ 12.22 hrs HW=280.05' (Free Discharge)
↑└**2=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=0.78 cfs @ 13.09 hrs HW=280.95' TW=0.00' (Dynamic Tailwater)
↑└**1=Culvert** (Passes 0.78 cfs of 9.83 cfs potential flow)
↑└**3=Orifice/Grate** (Orifice Controls 0.78 cfs @ 8.94 fps)

Summary for Pond EW2: 18" CULVERT

Inflow Area = 63,640 sf, 11.89% Impervious, Inflow Depth = 3.34" for 25-Year event
Inflow = 4.79 cfs @ 12.16 hrs, Volume= 17,701 cf
Outflow = 4.77 cfs @ 12.17 hrs, Volume= 17,701 cf, Atten= 0%, Lag= 0.5 min
Primary = 4.77 cfs @ 12.17 hrs, Volume= 17,701 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs

Peak Elev= 285.47' @ 12.17 hrs Surf.Area= 198 sf Storage= 73 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (850.1 - 850.0)

Volume	Invert	Avail.Storage	Storage Description
#1	285.00'	12,226 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)
285.00	115	56.0	0	0	115
286.00	317	90.0	208	208	517
287.00	2,039	194.0	1,053	1,261	2,871
288.00	4,000	258.0	2,965	4,226	5,184
290.00	4,000	258.0	8,000	12,226	5,700

Device	Routing	Invert	Outlet Devices
#1	Primary	284.40'	**18.0" Round Culvert** L= 60.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 284.40' / 280.00' S= 0.0733 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=4.77 cfs @ 12.17 hrs HW=285.47' TW=279.72' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 4.77 cfs @ 3.53 fps)

Summary for Pond P3.1: CB1

Inflow Area = 34,001 sf, 0.00% Impervious, Inflow Depth = 3.02" for 25-Year event
Inflow = 2.62 cfs @ 12.13 hrs, Volume= 8,551 cf
Outflow = 2.58 cfs @ 12.14 hrs, Volume= 8,551 cf, Atten= 1%, Lag= 0.6 min
Primary = 2.58 cfs @ 12.14 hrs, Volume= 8,551 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 300.96' @ 12.14 hrs Surf.Area= 129 sf Storage= 75 cf

Plug-Flow detention time= 1.0 min calculated for 8,548 cf (100% of inflow)
Center-of-Mass det. time= 1.0 min (859.5 - 858.5)

Volume	Invert	Avail.Storage	Storage Description
#1	300.00'	1,053 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)
300.00	37	30.0	0	0	37
301.00	134	46.0	80	80	141
305.00	372	99.0	972	1,053	818

Device	Routing	Invert	Outlet Devices
#1	Primary	300.00'	**12.0" Round RCP_Round 12"** L= 46.5' RCP, sq.cut end projecting, Ke= 0.500

Inlet / Outlet Invert= 300.00' / 298.00' S= 0.0430 '/' Cc= 0.900
n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.58 cfs @ 12.14 hrs HW=300.96' TW=300.12' (Dynamic Tailwater)
1=RCP_Round 12" (Inlet Controls 2.58 cfs @ 3.33 fps)

Summary for Pond P3.2: CB2

Inflow Area = 6,179 sf, 36.37% Impervious, Inflow Depth = 4.01" for 25-Year event
Inflow = 0.65 cfs @ 12.12 hrs, Volume= 2,067 cf
Outflow = 0.64 cfs @ 12.13 hrs, Volume= 2,067 cf, Atten= 1%, Lag= 0.3 min
Primary = 0.64 cfs @ 12.13 hrs, Volume= 2,067 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 300.43' @ 12.13 hrs Surf.Area= 68 sf Storage= 21 cf

Plug-Flow detention time= 1.8 min calculated for 2,067 cf (100% of inflow)
Center-of-Mass det. time= 1.7 min (827.5 - 825.7)

Volume	Invert	Avail.Storage	Storage Description
#1	300.00'	626 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)
300.00	31	29.0	0	0	31
301.00	137	57.0	78	78	227
305.00	137	57.0	548	626	455

Device	Routing	Invert	Outlet Devices
#1	Primary	300.00'	**12.0" Round RCP_Round 12"** L= 28.5' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 300.00' / 298.00' S= 0.0702 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.64 cfs @ 12.13 hrs HW=300.43' TW=300.11' (Dynamic Tailwater)
1=RCP_Round 12" (Outlet Controls 0.64 cfs @ 2.88 fps)

Summary for Pond P3.3: CB3

Inflow Area = 5,137 sf, 35.00% Impervious, Inflow Depth = 3.91" for 25-Year event
Inflow = 0.53 cfs @ 12.12 hrs, Volume= 1,674 cf
Outflow = 0.53 cfs @ 12.12 hrs, Volume= 1,674 cf, Atten= 0%, Lag= 0.1 min
Primary = 0.53 cfs @ 12.12 hrs, Volume= 1,674 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.10-30.00 hrs, dt= 0.01 hrs
Peak Elev= 298.42' @ 12.12 hrs Surf.Area= 9 sf Storage= 2 cf

Plug-Flow detention time= 0.1 min calculated for 1,674 cf (100% of inflow)
Center-of-Mass det. time= 0.1 min (829.3 - 829.1)

Volume	Invert	Avail.Storage	Storage Description
#1	298.00'	174 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)
298.00	2	7.0	0	0	2
299.00	27	20.3	12	12	34
305.00	27	20.3	162	174	156

Device	Routing	Invert	Outlet Devices
#1	Primary	298.00'	**12.0" Round RCP_Round 12"** L= 20.6' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 298.00' / 297.90' S= 0.0049 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.12 hrs HW=298.42' TW=297.52' (Dynamic Tailwater)
↑—**1=RCP_Round 12"** (Barrel Controls 0.53 cfs @ 2.44 fps)

FORM 11 - SOIL EVALUATOR FORM

No. 171053 Date: 8/31/18

Commonwealth of Massachusetts
Wayland Massachusetts

Soil Suitability Assessment for On-Site Sewage Disposal

Performed by: Jude Gauvin, GPR Date: 4/26/18
Witnessed by: Darren MacCaughney, RS, WBOH

Location Address:	Owner's Name: Ross Wilkinson
or Lot No. 57 Shaw Dr Wayland, MA	Address: 29 Collins Rd Wilton, NH 03086
	Telephone No.

New Construction ☑ Upgrade ☐ Repair ☐

Office Review

Published Soil Survey Available: No ☑ Yes ☐

Year Published Internet Publication Scale na Soil Map Unit 106 C/D
Soil Name Narragansett-Hollis-rock-outcrop Soil Limitations Depth to restrictive features, well drained
Soil Name Soil Limitations
Soil Name Soil Limitations

Surficial Geologic Report Available: No ☑ Yes ☐

Year Published MASS GIS Publication Scale
Geologic Material(Map Unit) Glacial Till
Landform Ground Morraine

Flood Insurance Rate Map: 25017C0528F

Above 500 Year Flood Boundary	No ☐	Yes ☑
Within 500 Year Flood Boundary	No ☑	Yes ☐
Within 100 Year Flood Boundary	No ☑	Yes ☐
Within Velocity Zone	No ☑	Yes ☐

Wetland Area:

National Wetlands Inventory Map (map unit) N/A
Wetlands Conservancy Program Map (map unit) N/A

Current Water Resource Conditions (USGS): Month May

Range: Above Normal ☐ Normal ☑ Below Normal ☐
Other Reference Reviewed USGS

Site Info.

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-1 Date: 04/26/18 Time: 8:30 AM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body >100 feet
Possible Wet Area >100 feet
Drinking Water Well >100 feet
Drainage Way >100 feet
Property Line >50 feet
Other: feet

Deep Observation Hole Log

Hole # 418-1 NB 30/18 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-32	B	ls	10YR 5/6		roots, abk
32-88	C1	fsl	10YR 6/1	None	roots, loose
88-108	C2	ls	10YR5/4	@90	abk, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >108"
Depth to Groundwater: Standing Water in the Hole 98" Weeping from Pit Face: 90"
Estimated Seasonal High Groundwater in the Hole 90"
Aditional Notes

418-1

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-2 Date: 04/26/18 Time: 9:00 AM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	feet

Deep Observation Hole Log

Hole # 418-2 NB 30/18 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-24	B	ls	10YR 5/6		roots, abk
24-62	C1	fsl	10YR 6/1	None	roots, loose
62-112	C2	ls	10YR5/4	>112"	abk, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >112"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >112"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-3 Date: 04/26/18 Time: 10:45 AM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 418-3 NB 30/18 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-34	B	ls	10YR 5/6	@116	mvfr, roots, abk
34-116	C	ls	10YR 5/4		mvfr, abk

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: 116"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole 116"
Aditional Notes

418-3

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-4 Date: 04/26/18 Time: 10:30 AM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body >100 feet
Possible Wet Area >100 feet
Drinking Water Well >100 feet
Drainage Way >100 feet
Property Line >50 feet
Other: feet

Deep Observation Hole Log

Hole # 418-4 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-28	B	ls	10YR 5/6		roots, abk
28-56	C1	fsl	10YR 6/1		roots, loose
56-120	C2	ls	10YR5/4	@120	abk, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: 120"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole 120"
Additional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-5 Date: 04/26/18 Time: 2:15 PM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 418-5 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-28	B	ls	10YR 5/6		roots, mvfr
28-96	C	ls	10YR 5/4	@80"	mfr, 10% gravel

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >96"
Depth to Groundwater: Standing Water in the Hole 92" Weeping from Pit Face: 92"
Estimated Seasonal High Groundwater in the Hole 80"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-6 Date: 04/26/18 Time: 2:15 PM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 418-6 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-6	A	sl	10YR 3/2		loose, cr, roots
6-22	B	ls	10YR 5/6		roots, mvfr
22-96	C	ls	10YR 5/4	@80"	mfr, 10% gravel

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >96"
Depth to Groundwater: Standing Water in the Hole 92" Weeping from Pit Face: 92"
Estimated Seasonal High Groundwater in the Hole 80"
Aditional Notes

418-6

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-7 Date: 04/26/18 Time: 2:15 PM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 418-7 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-6	A	sl	10YR 3/2		loose, cr, roots
6-24	B	ls	10YR 5/6		roots, mvfr
24-78	C	ls	10YR 5/4	@50"	mfr, 10% gravel

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >78"
Depth to Groundwater: Standing Water in the Hole 56" Weeping from Pit Face: 56"
Estimated Seasonal High Groundwater in the Hole 80"
Additional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-8 Date: 04/26/18 Time: 2:15 PM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 418-8 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-48	B	ls	10YR 5/6		roots, mvfr
48-98	C	ls	10YR 5/4	@50"	mfr, 10% gravel

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >98"
Depth to Groundwater: Standing Water in the Hole 62" Weeping from Pit Face: 62"
Estimated Seasonal High Groundwater in the Hole 50"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-9 Date: 04/26/18 Time: 2:15 PM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 418-9 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-34	B	ls	10YR 5/6		roots, mvfr
34-84	C	ls	10YR 5/4	@50"	mfr, 10% gravel

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: 84"
Depth to Groundwater: Standing Water in the Hole 76" Weeping from Pit Face: 76"
Estimated Seasonal High Groundwater in the Hole 50"
Aditional Notes

418-9

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 418-10 Date: 04/26/18 Time: 2:15 PM Weather: Sunny 60°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 418-10 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-34	B	ls	10YR 5/6		roots, mvfr
34-64	C	ls	10YR 5/4	@50"	mfr, 10% gravel

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: 64"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole 50"
Aditional Notes

418-10

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot#: 57 Shaw Dr
Wayland, MA

Determination for Seasonal High Water Table

Method Used:

- ☐ Depth observed standing in observation hole ..... inches .....
- ☐ Depth weeping from side of observation hole ..... inches .....
- ☑ Depth to soil mottles * inches See individual Reports
- ☐ Ground water adjustment ..... feet .....

Index Well Number ..... Reading Date ..... Index Well Level .....

Adjustment Factor ..... Adjusted Ground Water Level .....

Depth of Naturally Occuring Pervious Material

Does at least four feet of naturally occuring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? Yes

If not, what is the depth of naturally occuring pervious material? _____ Feet

Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated, on the attached soil evaluation form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature _____ Date 8/31/18

Notes: _____

Signature

FORM 12 - PERCOLATION TEST

Location Address:	Owner's Name: Ross Wilkinson
or Lot # 57 Shaw Dr Wayland, MA	Address: 29 Collins Rd Wilton, NH 03086
	Telephone No.

	04/26/18 (Date) 1:51 PM (Time)	04/26/18 (Date) 1:52 PM (Time)
Observation Hole #	418-A	418-B
Depth of Perc	46"	46"
Start Pre-Soak	1:51 PM	1:52 PM
End Pre-Soak	2:06 PM	2:07 PM
Time @ 12"	2:06 PM	2:07 PM
Time @ 9"	2:16 PM	2:29 PM
Time @ 6"	2:23 PM	2:48 PM
Time (9"-6")	7	19
Rate (Min./Inch)	3	7
	Test Passed: ☑ Test Failed: ☐	Test Passed: ☑ Test Failed: ☐

Test performed By: Jude Gauvin, GPR

Witnessed By: Darren MacCaughney, RS WBOH

Comments:

418-AB

FORM 12 - PERCOLATION TEST

Location Address:	Owner's Name: Ross Wilkinson
or Lot # 57 Shaw Dr Wayland, MA	Address: 29 Collins Rd Wilton, NH 03086
	Telephone No.

	04/26/18 (Date) 2:41 PM (Time)	04/27/18 (Date) 10:40 AM (Time)
Observation Hole #	418-C	418-D
Depth of Perc	44"	58"
Start Pre-Soak	2:41 PM	10:40 AM
End Pre-Soak	2:56 PM	10:57 PM
Time @ 12"	2:56 PM	10:57 PM
Time @ 9"	3:15 PM	11:21 AM
Time @ 6"	3:40 PM	11:51 AM
Time (9"-6")	25	30
Rate (Min./Inch)	9	10
	Test Passed: ☑ Test Failed: ☐	Test Passed: ☑ Test Failed: ☐

Test performed By: Jude Gauvin, GPR

Witnessed By: Darren MacCaughney, RS WBOH

Comments:

418-CD

FORM 11 - SOIL EVALUATOR FORM

No. 171053 Date: 8/31/18

Commonwealth of Massachusetts
Wayland Massachusetts

Soil Suitability Assessment for On-Site Sewage Disposal

Performed by: Jude Gauvin, GPR Date: 5/31/18
Witnessed by: Darren MacCaughney, RS, WBOH

Location Address:	Owner's Name: Ross Wilkinson
or Lot No. 57 Shaw Dr Wayland, MA	Address: 29 Collins Rd Wilton, NH 03086
	Telephone No.

New Construction ☑ Upgrade ☐ Repair ☐

Office Review

Published Soil Survey Available: No ☑ Yes ☐
Year Published Internet Publication Scale na Soil Map Unit 106 C/D
Soil Name Narragansett-Hollis-rock-outcrop Soil Limitations Depth to restrictive features, well drained
Soil Name Soil Limitations
Soil Name Soil Limitations
Surficial Geologic Report Available: No ☑ Yes ☐
Year Published MASS GIS Publication Scale
Geologic Material(Map Unit) Glacial Till
Landform Ground Morraine

Flood Insurance Rate Map: 25017C0528F
Above 500 Year Flood Boundary No ☐ Yes ☑
Within 500 Year Flood Boundary No ☑ Yes ☐
Within 100 Year Flood Boundary No ☑ Yes ☐
Within Velocity Zone No ☑ Yes ☐

Wetland Area:
National Wetlands Inventory Map (map unit) N/A
Wetlands Conservancy Program Map (map unit) N/A

Current Water Resource Conditions (USGS): Month May
Range: Above Normal ☐ Normal ☑ Below Normal ☐
Other Reference Reviewed USGS

Site Info.

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 518-1 Date: 05/31/18 Time: 8:30 AM Weather: Sunny 76°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 518-1 NB 30/18 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-3	A	sl	10YR 3/2		loose, cr, roots
3-30	B	ls	10YR 5/6		mvfr, roots
30-92	C	ls	10YR 5/4		sabk, 20% gravel, vfirm

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >92"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >92"
Aditional Notes

518-1

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 518-2 Date: 05/31/18 Time: 9:00 AM Weather: Sunny 76°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 518-2 NB 30/18 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-3	A	sl	10YR 3/2		loose, cr, roots
3-30	B	ls	10YR 5/6		mvfr, roots
30-99	C	ls	10YR 5/4		sabk, 20% gravel, vfirm

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >99"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >99"
Additional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 518-3 Date: 05/31/18 Time: 10:45 AM Weather: Sunny 76°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 518-3 NB 30/18 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-3	A	sl	10YR 3/2		loose, cr, roots
3-30	B	ls	10YR 5/6		mvfr, roots
30-102	C	ls	10YR 5/4		sabk, 20% gravel, vfirm

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >102"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >102"
Aditional Notes

518-3

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 518-4 Date: 05/31/18 Time: 12:00 PM Weather: Sunny 76°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 518-4 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-3	A	sl	10YR 3/2		loose, cr, roots
3-36	B	ls	10YR 5/6		mvfr, roots
36-108	C	ls	10YR 5/4		sabk, 20% gravel, vfirm

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >108"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >108"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 518-5 Date: 05/31/18 Time: 2:15 PM Weather: Sunny 76°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 518-5 NB 30/20 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-3	A	sl	10YR 3/2		loose, cr, roots
3-20	B	ls	10YR 5/6		roots, mfr, abk
20-62	C1	fs	10YR 6/1		loose, roots
62-100	C2	ls	10YR 5/4	@66"	sabk, 20% gravel, vfirm

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >100"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole 66"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot#: 57 Shaw Dr
Wayland, MA

Determination for Seasonal High Water Table

Method Used:

- ☐ Depth observed standing in observation hole ..... inches .....
- ☐ Depth weeping from side of observation hole ..... inches .....
- ☑ Depth to soil mottles ..... * ..... inches ..... See individual Reports .....
- ☐ Ground water adjustment ..... feet .....

Index Well Number ..... Reading Date ..... Index Well Level .....

Adjustment Factor ..... Adjusted Ground Water Level .....

Depth of Naturally Occuring Pervious Material

Does at least four feet of naturally occuring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? Yes

If not, what is the depth of naturally occuring pervious material? _____ Feet

Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated, on the attached soil evaluation form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature _____ Date 8/31/18

Notes: _____

Signature

FORM 12 - PERCOLATION TEST

Location Address:	Owner's Name: Ross Wilkinson
or Lot # 57 Shaw Dr Wayland, MA	Address: 29 Collins Rd Wilton, NH 03086
	Telephone No.

	5/31/18 Date / 12:51 PM Time	5/31/18 Date / 12:58 PM Time
Observation Hole #	518-A	518-B
Depth of Perc	53"	46"
Start Pre-Soak	12:51 PM	12:52 PM
End Pre-Soak	1:06 PM	1:07 PM
Time @ 12"	1:06 PM	1:07 PM
Time @ 9"	1:11 PM	1:12 PM
Time @ 6"	1:23 PM	1:19 PM
Time (9"-6")	12	7
Rate (Min./Inch)	4	3
	Test Passed: ☑ Test Failed: ☐	Test Passed: ☑ Test Failed: ☐

Test performed By: Jude Gauvin, GPR

Witnessed By: Darren MacCaughney, RS WBOH

Comments:

518-AB

FORM 11 - SOIL EVALUATOR FORM

No. 171053 Date: 6/17/19

Commonwealth of Massachusetts
Wayland Massachusetts

Soil Suitability Assessment for On-Site Sewage Disposal

Performed by: Jude Gauvin, GPR Date: 6/12/19.
Witnessed by: Darren MacCaughney, RS, WBOH

Location Address:	Owner's Name: Ross Wilkinson
or Lot No. 57 Shaw Dr Wayland, MA	Address: 29 Collins Rd Wilton, NH 03086
	Telephone No.

New Construction ☑ Upgrade ☐ Repair ☐

Office Review

Published Soil Survey Available: No ☑ Yes ☐

Year Published Internet Publication Scale na Soil Map Unit 106 C/D

Soil Name Narragansett-Hollis-rock-outcrop Soil Limitations Depth to restrictive features, well drained

Soil Name _____ Soil Limitations _____

Soil Name _____ Soil Limitations _____

Surficial Geologic Report Available: No ☑ Yes ☐

Year Published MASS GIS Publication Scale _____

Geologic Material(Map Unit) Glacial Till

Landform Ground Morraine

Flood Insurance Rate Map: 25017C0528F

Above 500 Year Flood Boundary	No ☐	Yes ☑
Within 500 Year Flood Boundary	No ☑	Yes ☐
Within 100 Year Flood Boundary	No ☑	Yes ☐
Within Velocity Zone	No ☑	Yes ☐

Wetland Area:

National Wetlands Inventory Map (map unit) N/A

Wetlands Conservancy Program Map (map unit) N/A

Current Water Resource Conditions (USGS): Month June

Range: Above Normal ☐ Normal ☑ Below Normal ☐

Other Reference Reviewed USGS

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 619-1 Date: 06/12/19 Time: 9:00 AM Weather: Sunny 70°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 619-1 NB 30/108 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-31	B	sl	10YR 5/6		mvfr, roots
31-83	C	ls	10YR 5/4		sabk, 10% gravel, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >83"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >83"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 619-2 Date: 06/12/19 Time: 9:30 AM Weather: Sunny 70°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc...)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 619-2 NB 30/108 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-30	B	sl	10YR 5/6		mvfr, roots
30-82	C	ls	10YR 5/4		sabk, 10% gravel, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >82"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >82"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 619-3 Date: 06/12/19 Time: 10:00 AM Weather: Sunny 70°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body >100 feet
Possible Wet Area >100 feet
Drinking Water Well >100 feet
Drainage Way >100 feet
Property Line >50 feet
Other: feet

Deep Observation Hole Log

Hole # 619-3 NB 30/110 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-26	B	sl	10YR 5/6		mvfr, roots
26-120	C	ls	10YR 5/4		sabk, 10% gravel, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >120"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >120"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 619-4 Date: 06/12/19 Time: 10:30 AM Weather: Sunny 70°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 619-4 NB 30/110 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-25	B	sl	10YR 5/6		mvfr, roots
25-85	C	ls	10YR 5/4		sabk, 10% gravel, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >85"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >85"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 619-5 Date: 06/12/19 Time: 11:00 AM Weather: Sunny 70°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 619-5 NB 30/111 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-26	B	sl	10YR 5/6		mvfr, roots
26-90	C	ls	10YR 5/4		sabk, 10% gravel, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >90"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >90"
Aditional Notes B horizon had pockets of fls 2.5Y 7/3

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot #: 57 Shaw Dr
Wayland, MA

On-Site Review

Deep Hole #: 619-6 Date: 06/12/19 Time: 11:30 AM Weather: Sunny 70°
Location (identify on site plan) See Attached Sketch
Land Use Woodland Slope (%) 2%-6% Surfaces Stones none
(eg woodland, agricultural field, vacant lot etc…)
Vegatation mixed hardwoods and pines
Landform Ground Morraine
Position on landscape See attached Sketch
Distances from:

Open Water Body	>100 feet	Drainage Way	>100 feet
Possible Wet Area	>100 feet	Property Line	>50 feet
Drinking Water Well	>100 feet	Other:	
			feet

Deep Observation Hole Log

Hole # 619-6 NB 30/111 Suface El.

Depth from Surface (inches)	Soil Horizon	Soil Texture (USDA)	Soil Color (MUNSELL)	Soil Mottling	Other (Stucture, Stones, Boulders, Consistency, % Gravel)
0-4	A	sl	10YR 3/2		loose, cr, roots
4-30	B	ls	10YR 5/6		mvfr, roots
30-90	C	ls	10YR 5/4		sabk, 10% gravel, mvfr

*MINIMUM OF 2 HOLES REQUIRED AT EVERY PROPOSED DISPOSAL AREA

Parent Material (geologic) Glacial Till Depth to Bedrock: >90"
Depth to Groundwater: Standing Water in the Hole None Weeping from Pit Face: None
Estimated Seasonal High Groundwater in the Hole >90"
Aditional Notes

FORM 11 - SOIL EVALUATOR FORM

Location Address or Lot#: 57 Shaw Dr
Wayland, MA

Determination for Seasonal High Water Table

Method Used:

- ☐ Depth observed standing in observation hole _____ inches _____
- ☐ Depth weeping from side of observation hole _____ inches _____
- ☑ Depth to soil mottles * inches See individual Reports
- ☐ Ground water adjustment _____ feet _____

Index Well Number _____ Reading Date _____ Index Well Level _____

Adjustment Factor _____ Adjusted Ground Water Level _____

Depth of Naturally Occuring Pervious Material

Does at least four feet of naturally occuring pervious material exist in all areas observed throughout the area proposed for the soil absorption system? Yes

If not, what is the depth of naturally occuring pervious material? _____ Feet

Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated, on the attached soil evaluation form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature _____ Date 6/17/19

Notes: _____

Signature

FORM 12 - PERCOLATION TEST

Location Address: or Lot # 57 Shaw Dr Wayland, MA	Owner's Name: Ross Wilkinson Address: 29 Collins Rd Wilton, NH 03086 Telephone No.

	6/12/19 Date / 12:35 PM Time	6/12/19 Date / 12:36 PM Time
Observation Hole #	619-A	619-B
Depth of Perc	52"	52"
Start Pre-Soak	12:35 PM	12:36 PM
End Pre-Soak	12:50 PM	12:51 PM
Time @ 12"	12:50 PM	12:51 PM
Time @ 9"	12:53 PM	1:39 PM
Time @ 6"	12:58 PM	2:32 PM
Time (9"-6")	5	53
Rate (Min./Inch)	<2	18
	Test Passed: ☑ Test Failed: ☐	Test Passed: ☑ Test Failed: ☐

Test performed By: Jude Gauvin, GPR

Witnessed By: Darren MacCaughney, RS WBOH

Comments:

* over 24 gallons applied unable to soak