



**TOWN OF WINDHAM
AMENDED SUBDIVISION PLAN
APPLICATION**

**for
The Heights at Colley Wright Brook
Cooper Ridge Road**

**Applicant:
Scott & Lea Henniger
65 Albion Road
Windham, ME 04062**

**Prepared by:
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106**

October 2025

250555

Amended Subdivision Plan Application

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October 6, 2025
250555

Ms. Amanda Lessard, Senior Planner/Project Manager
Town of Windham
8 School Road
Windham, ME 04062

RE: Amended Subdivision Plan Application, The Heights at Colley Wright Brook, Cooper Ridge Road

Dear Ms. Lessard:

On behalf of the Scott and Lea Henniger, we have prepared the following Amended Subdivision Plan Application for review by Town staff, and for Planning Board approval. The proposed project is a six (6) lot conservation subdivision that was originally approved by the Planning Board in June 2022. Since then, the construction of the private roadway serving the subdivision is nearing completion, and the construction of the individual residences has recently begun.

In the original subdivision application, site plans were provided showing the approximate locations of the proposed dwellings, driveways, water supply wells, and wastewater disposal areas on each of the 6 lots. These site plans were not intended to show the exact locations of these structures, but they were intended to demonstrate that each of the proposed 6 lots is suitable for the development of a single-family residential dwelling in accordance with the Land Use Ordinance standards. Small variations in the size and locations of the improvements on each lot were anticipated, as is typical with the development of most single-family residential subdivisions. However, the proposed layout changes to the lot improvements as described herein are deemed significant enough to warrant additional review and approval by the Town. Furthermore, the applicant is also proposing a change to the boundary lines of one of the lots which requires approval of an amended subdivision plan.

The original 2022 site plans depicted the water supply wells towards the front of each lot with the wastewater disposal areas located towards the rear of each lot, and the proposed dwellings located near the center of each lot. With the proposed changes, Lots 1 through 5 will locate the water supply wells towards the rear of the lots with the wastewater disposal areas towards the front of the lots. In addition, the proposed dwellings and driveways will be larger than anticipated in some of the lots resulting in additional impervious areas on the site. Lot 6 will substantially conform with the original layout with regards to the well and disposal area locations and structure sizes. However, the lot boundaries are proposed to be modified in the front of Lot 6 to accommodate the proposed driveway location and site grading. More specifically, both of the front corners of Lot 6 are proposed to be shifted southwesterly along the road right-of-way by 50 feet, with the rear lot corners remaining in their original location. The topography in the area to the southwest of Lot 6 will better accommodate the

development of this lot with less fill material required. Otherwise, the proposed well and disposal area locations and the overall development of Lot 6 will remain approximately the same as shown on the original approved plan.

Based on our email correspondence and meetings on this matter, we have prepared the following narratives and attachments including updated site plans that demonstrate compliance with the applicable Land Use Ordinance standards.

- [120-911B\(3\)\(a\)\[3\]](#) **Well setback from traveled way of any street:** As depicted on the updated site plans included with this application, the revised proposed well locations are more than 100 feet from the traveled way of any street. Therefore, the amended subdivision plan complies with this ordinance standard. Refer to Exhibit 5 of this application for the updated project plans.
- [120-911H\(1\)\(b\)](#) **Hydrogeological evaluation of nitrate nitrogen levels at property boundary:** The ordinance requirement is to control nitrate nitrogen levels at the overall project property boundaries. Based on the information contained in the hydrogeologic assessment prepared by Marcotte Environmental dated April 9, 2022 and the peer review letter prepared by Haley Ward dated May 29, 2025, we have estimated the 10 milligrams nitrogen per liter (mg-N/L) groundwater plume for each of the proposed wastewater disposal areas. Please note that a new hydrogeologic assessment has not been conducted, and the estimated groundwater plumes were determined based on the previous studies referenced above. However, given that the revised disposal areas are located a significant distance from the downhill gradient subdivision boundary, it is apparent that the revised disposal areas will not cause the groundwater plumes to reach the property boundary. Therefore, a new hydrogeologic assessment is not necessary, and the amended subdivision plan complies with this ordinance standard. Refer to Exhibit 3 of this application for copies of the hydrogeologic reports.
- [120-911K\(4\)\(f\)](#) **Conservation subdivision location of disposal field and well on each lot as elements of the subdivision plan:** As depicted on the updated site plans enclosed herewith, the revised proposed disposal field and well locations are shown on each lot with more than 100 feet of separation provided. Therefore, the amended subdivision plan complies with this ordinance standard.
- [120-911J](#) **Stormwater management – if the developed or impervious areas on any of the lots are increased then evidence that the approved management system is designed to handle the increase, or a design for additional BMPs to manage the increased stormwater. Amended DEP permits, if applicable:** The proposed changes are estimated to increase the overall impervious area on the site by approximately 5,000 square feet. However, the overall developed area that is either impervious or landscaped is estimated to remain approximately the same. Two (2) stone berm level spreaders draining to a stormwater buffer are currently in place to treat stormwater runoff from a majority of the project's impervious and developed areas. The stone

berm level spreaders were designed in accordance with DEP Chapter 500 standards. The sizing calculations for the level spreaders have been updated to reflect the increases in impervious areas. The updated calculations demonstrate that the stone berm level spreaders, as constructed, are sufficient in size to handle the additional runoff from the increase in impervious areas and still meet Chapter 500 standards. Therefore, the approved stormwater management system was designed and constructed to handle the increase. Refer to Exhibit 4 of this application for copies of the stone berm level spreader sizing calculations from the original application dated June 6, 2022, and the updated sizing calculations reflecting the proposed changes dated September 9, 2025.

The proposed changes will have no impact on the DEP permits. A Stormwater Permit-by-Rule was required by the DEP for the road construction, and no changes to the approved road design are proposed. In addition, since the applicant is selling the individual lots, the DEP has ruled that the impervious and disturbed areas associated with the construction of the single family detached residences are exempt under the Stormwater Law. Therefore, since all of the proposed changes are located within the residential lots, no new or amended DEP permits are required.

As discussed above, the lot boundaries are proposed to be modified in the front of Lot 6 to better accommodate the proposed driveway location and site grading, reducing the amount of fill material needed to develop the lot. However, the proposed well and disposal area locations in Lot 6 will remain essentially the same, and no impacts are anticipated from this minor change.

We trust that the information provided herein fully demonstrates that the amended subdivision plan, including proposed changes described above, still conforms with the Town's Land Use Ordinance standards for a conservation subdivision. We appreciate your attention to this matter, and if you or the staff have any comments on this application or require additional information, please do not hesitate to contact me at bgerrish@sebagotechnics.com or 207-482-6340.

Sincerely,

SEBAGO TECHNICS, INC.



William A. Gerrish, PE, PLS
Senior Project Manager

Enc.

cc: Scott & Lea Henniger

Exhibit 1

Application Form and Agent Authorization



AMENDED SUBDIVISION APPLICATION

FEES FOR AMENDED SUBDIVISION		APPLICATION FEE: ☐ \$350.00 (Each lot/Revision)		REVIEW ESCROW: ☐ \$250.00		AMOUNT PAID: \$ _____ DATE: _____			
NAME OF ORIGINAL SUBDIVISION BEING REVISED OR AMENDED:		The Heights at Colley Brook				Office Use:		Office Stamp:	
PROPERTY DESCRIPTION	Parcel ID	Map #	10	Lot(s) #	block 23	Zoning District(s)	F	Total Land Area SF	
	Physical Address	Cooper Ridge Road				Watershed	Colley Wright Brook (tributary of Presumpscot River)		
PROPERTY OWNER'S INFORMATION	Name	Scott & Lea Hennigar				Name of Business			
	Phone	207-318-4181				Mailing Address	65 Albion Road Windham, ME 04062		
	Fax or Cell								
	Email	sctlea@myfairpoint.net							
APPLICANT'S INFORMATION (IF DIFFERENT FROM OWNER)	Name	same as owner				Name of Business			
	Phone					Mailing Address			
	Fax or Cell								
	Email								
APPLICANT'S AGENT INFORMATION	Name	Bill Gerrish, PE, PLS				Name of Business	Sebago Technics, Inc		
	Phone	207-482-6340				Mailing Address	75 John Roberts Road Suite 4A South Portland, ME 04106		
	Fax or Cell								
	Email	bgerrish@sebagotechnics.com							
PROJECT INFORMATION	Existing Land Use (Use extra paper, if necessary): The subject site is a residential subdivision that has been partially developed.								
	Provide a narrative description of the proposed changes to the approved plan (Use extra paper, if necessary): Please see attached.								
	Provide a narrative description of construction constraints (wetlands, shoreland zone, flood plain, non- conformance, etc. Use extra paper, if necessary): Please see attached.								

AMENDED SUBDIVISION REVIEW APPLICATION REQUIREMENTS

[Section 120-913](#) of the Land Use Ordinance

The submission shall contain, three (3) copies of following information, including full plan sets. Along with one (1) electronic version of the entire submission.

The Subdivision Plan document/map:

- A) Plan size: 24" X 36"
- B) Plan Scale: No greater 1":100'
- C) Title block: Applicant's name and address

- Name of preparer of plans with professional information
- Parcel's tax map identification (map and lot) and street address, if available

- Complete application submission deadline: three (3) weeks prior to the desired Planning Board or Staff Review Committee meeting.
 - 3 copies of application and plans
 - Application Payment and Review Escrow
- Contact information:
 - Windham Planning Department (207) 894-5960, ext. 2
 - Steve Puleo, Planning Director sipuleo@windhammaine.us
 - Amanda Lessard, Senior Planner allessard@windhammaine.us

APPLICANT/PLANNER'S CHECKLIST FOR AMENDED SUBDIVISIONS

The following checklist only includes items required by Windham's LAND USE ORDINANCE, [Section 120-913](#) for revisions to approved plans.

Please refer to [Section 120-910](#) for submission requirements for new developments, and [Section 120-911](#) for subdivision performance and design standards to determine additional information that may be required to support the application.

SUBMITTALS THAT THE TOWN PLANNER DEEMS INCOMPELTE IN CONTENT WILL NOT BE SCHEDULED FOR PLANNING BOARD REVIEW.

Per [SECTION 120-913B\(4\)](#), the Board's scope of review shall be limited to those portion of the plan which are proposed to be changed.

Submission Requirements:	Applicant	Staff
Completed Application form	☒	☐
Evidence of right, title, or interest in the property	☒	☐
Evidence of payment of fees	☒	☐
Original Subdivision Plan	☒	☐
Proposed Amended Subdivision Plan. The revised plan shall indicate that it is a revision of a previously approved and recorded plan and shall show the title of subdivision and the book and page or cabinet and sheet on which the original plan is recorded at the Registry of Deeds	☒	☐
Any additional supporting information to allow the Planning Board to make a determination that the proposed revisions meet the standards of Article 9 Section 120-911 of the Land Use Ordinance and the criteria of the state statute	☒	☐

The undersigned hereby makes an application to the Town of Windham for approval of the proposed project and declares the foregoing to be true and accurate to the best of his/her knowledge.



APPLICANT OR AGENT'S SIGNATURE

10-02-2025

DATE

William Gerrish, P.E. PLS

PLEASE TYPE OR PRINT THE NAME

AGENT AUTHORIZATION

APPLICANT/ OWNER	Name	Scott and Lea Henniger		
PROPERTY DESCRIPTION	Physical Address	The Heights at Colley Wright Brook Cooper Ridge Road, Windham, ME	Map	10
			Lot	23
APPLICANT'S AGENT INFORMATION	Name	William A. Gerrish, PE		
	Phone	(207) 482-6340	Business Name & Mailing Address	SEBAGO TECHNICS, INC 75 John Roberts Road, Suite 4A South Portland, ME 04106

APPLICANT SIGNATURE

DATE

Scott Henniger 9/26/2025

PLEASE TYPE OR PRINT NAME HERE

SCOTT Henniger, owner

APPLICANT'S AGENT SIGNATURE

DATE

W. A. Gerrish

09/23/2025

PLEASE TYPE OR PRINT NAME HERE

William A. Gerrish, PE

Exhibit 2

Right, Title, or Interest

WARRANTY DEED**Maine Statutory Short Form**

KNOW ALL MEN BY THESE PRESENTS, That We, LEON C. COOPER, JR., JEAN K. REEVES, and JOHN L. COOPER, with a mailing address of 384 Gray Road, Windham, Maine 04062 (hereinafter "Grantor"), for consideration paid, grant to SCOTT E. HENNIGAR and LEA M. HENNIGAR individuals both with a mailing address of 65 Albion Road, Windham, ME 04062 (hereinafter "Grantee"), with WARRANTY COVENANTS, and as JOINT TENANTS, the land in the Town of Windham, County of Cumberland, and State of Maine, described as follows:

See attached Exhibit A.

WITNESS our hands and seals this 23rd day of the month of

April, 2012.

SIGNED, SEALED AND DELIVERED in the presence of:

J. R. M. Mundy
Witness

Leon C. Cooper, Jr.
Leon C. Cooper, Jr.

J. R. M. Mundy
Witness

Jean K. Reeves
Jean K. Reeves

J. R. M. Mundy
Witness

John L. Cooper
John L. Cooper

MAINE REAL ESTATE TAX PAID

State of Maine)
)
Cumberland County) ss.

4/23, 2012

Then personally appeared the above-named Leon C. Cooper, Jr., Jean K. Reeves, and John L. Cooper and acknowledged the foregoing instrument to be their free act and deed.

Before me,


~~Notary Public~~/Attorney at Law
LAURENCE P. MINOTT JR
Print Name

LCC
JKR
JKR

Exhibit A

Beginning at a no. 5 rebar located at the intersection of the easterly sideline of Route 302 (a/k/a Roosevelt Trail) and the southerly sideline of a 50-foot private way known as Cooper Ridge Road;

Thence north 29°-07'-22" west along the easterly sideline of Route 302, 53.00 feet to a point at land now or formerly of Frank as described in Deed Book 14574, Page 16 recorded in Cumberland County Registry of Deeds;

Thence north 41°-30'-21" east along land now or formerly of Frank and the northerly sideline of Cooper Ridge Road, 379.08 feet to a point;

Thence continuing along land now or formerly of Frank and the northerly sideline of Cooper Ridge Road on a curve to the left with a radius of 375.00 feet, an arc distance of 108.48 feet to a point;

Thence north 24°-55'-53" east continuing along land now or formerly of Frank, land now or formerly of Jackson as described in Deed Book 21327, Page 83 recorded in Cumberland County Registry of Deeds and the northerly sideline of Cooper Ridge Road, 209.29 feet to a 5/8" rebar;

Thence north 51°-54'-34" east continuing along land now or formerly of Jackson and the northerly sideline of Cooper Ridge Road, 288.88 feet to a 5/8" rebar;

Thence north 38°-08'-15" west continuing along land now or formerly of Jackson, 183.90 feet to a 5/8" rebar at land now or formerly of Melanson as described in Deed Book 7372, Page 180 recorded in Cumberland County Registry of Deeds;

Thence north 54°-54'-34" east along land now or formerly of Melanson, 1010.00 feet to a no. 5 rebar at land now or formerly of Vozzella as described in Deed Book 3663, Page 185 Cumberland County Registry of Deeds;

Thence south 36°-26'-15" east along land now or formerly of Vozzella and a wire fence line, 508.74 feet to a no. 5 rebar at land now or formerly of Avery as described in Deed Book 3615, Page 111 recorded in Cumberland County Registry of Deeds;

Thence south 52°-37'-22" west along land now or formerly of Avery and portions of a stone wall, 1106.23 feet to a no. 5 rebar; thence north 42°-42'-19" west across land of Grantor herein, 314.73 feet to a no. 5 rebar located on the southerly sideline of Cooper Ridge Road;

Thence south 51°-54'-34" west along the southerly sideline of Cooper Ridge Road, 139.21 feet to a no. 5 rebar;

Thence south 24°-55'-53" west continuing along the southerly sideline of Cooper Ridge Road, 197.29 feet to a point;

LCC
He
JKR

Thence continuing along the southerly sideline of Cooper Ridge Road on a curve to the right with a radius of 425.00 feet, an arc distance of 122.94 feet to a point;

Thence south 41°-30'-21" west continuing along the southerly sideline of Cooper Ridge Road, 396.66 feet to the point of beginning.

Said parcel contains 14.20 acres and is a portion of land described in Deed Book 1771, Page 75 recorded in Cumberland County Registry of Deeds. Bearings herein are magnetic of the year 2002. Parcel is subject to easements and right-of-ways of record.

Reference is hereby made to the Discharge of Life Estate recorded at the Cumberland County Registry of Deeds in Book 24680, page 23.

Meaning and intending to convey and hereby conveying the same parcel conveyed to the Grantors herein by Warranty Deed of Leon C. Cooper a/k/a Leon C. Cooper, Sr., and Myrle E. Cooper dated October 25, 2004, and recorded at said Registry in Book 21954, Page 141.

Received
Recorded Register of Deeds
Apr 24, 2012 02:48:42P
Cumberland County
Pamela E. Lovley

LCC
JL
JKR

AM:Meddel - Myrle E. Cooper
APR 24 2012
SAVED FROM meddel

Exhibit 3

Hydrogeologic Evaluations

- **Marcotte Environmental**
 - **Haley Ward**

MARCOTTE ENVIRONMENTAL

Wastewater ♦ Groundwater ♦ Permitting ♦ Environmental Compliance

April 9, 2022

PN: #22013

Northeast Civil Solutions
391 Payne Road
Scarborough, ME 04074
Attn: Bill Gerrish

REFERENCE: Hydrogeologic Assessment
The Heights at Colley Brook Subdivision - Cooper Ridge Road, Windham, Maine

Dear Bill:

A groundwater impact assessment for the above referenced residential development was prepared to estimate the impact to groundwater posed by the proposed subsurface wastewater disposal fields (leachfields). The proposed development included six (6) house lots and a road on 14.2-acres of forestland at the end of Cooper Ridge Road. Over half of the property (7.2-acres) is proposed to be dedicated open space.

Information used to complete the analysis includes a plan set provided by Northeast Civil Solutions dated January March 23, 2022; soil test pit logs provided by Albert Frick Associates, Inc. (AFA); and published geologic maps and literature.

WATER SUPPLY AND WASTEWATER DISPOSAL

Properties in the site vicinity are assumed to be served by individual onsite water supply wells and subsurface wastewater disposal fields (leachfields).

Each home is assumed to be developed with a 4-bedroom home served by an individual onsite water supply well and subsurface wastewater disposal system. The design flow for each disposal system is 360 gallons per day (GPD), or 90 GPD per bedroom.

SITE SETTING

Topographic, geologic, and water well inventory maps showing the site and vicinity are provide as Attachment 2. The general direction of surface drainage is northwest toward Colley Wright Brook.

Surficial geology of the site and vicinity is mapped as glacial till on the northwest side of a glacially streamlined hill (drumlin). Glacial till (Pt) consists of poorly sorted, weakly to non-stratified mixture of silt, sand, pebble, cobbles, and boulders deposited by glacial ice, and is generally deposited directly on top of bedrock. No mapped significant sand and gravel aquifers are in the site vicinity.

Soil test pits complete by AFA for septic system suitability report lodgement till soils (soil profile 3) with a dense hardpan in the higher elevations of the property that transition downslope to water-worked till deposits with a thin fine-textured sediment cover (soil profile 7/8). Soils observed in test pits completed onsite by others are generally consistent with soils and geological maps.

Water well construction information from the Maine Geological Survey water well inventory is provided in Attachment 2. Water well yields and depths are typical for the area. Overburden thickness indicate competent bedrock is likely to be at a depth of 10 to 20 feet below the ground surface in the vicinity of the proposed disposal fields.

HYDROGEOLOGIC ASSESSMENT

The Town of Windham Subdivision Ordinance requires an assessment of the potential for adverse impacts to groundwater associated with nitrate-nitrogen in wastewater effluent discharged to the onsite subsurface wastewater disposal fields.

A nitrate-nitrogen assessment was performed to estimate the distance from the disposal fields at which the concentration in groundwater would reach the Federal National Primary Drinking Water Standard and the Maine Maximum Exposure Guideline of 10 milligrams nitrogen per liter (mg-N/L). The average concentration of nitrate-nitrogen in septic tank effluent used in this assessment is 40 mg-N/L. The background concentration of nitrate-nitrogen in groundwater and precipitation recharge area assumed to be 1 mg-N/L and 0.5 mg-N/L, respectively.

Based on our understanding of site geology, treated effluent will drain to the disposal fields and infiltrate downward and to the groundwater table. Thereupon, flow is predominately to the west-northwest toward Colley Wright Brook.

A simplified three-dimensional groundwater model was prepared using MODFLOW 6¹ and MT3D-USGS² to simulate the 10 mg-N/L groundwater plume length for the proposed disposal fields. Model boundaries and input parameters were assigned values based on topographic, geologic and soils information for the site and surrounding area, and best professional judgement. The model was setup and calibrated to simulate groundwater flow for a sloping site with an average surface slope of 4.5% and hydraulic gradient one-half of the ground surface slope. Model layers from top to bottom include 5 feet of till, 30 feet of dense till hardpan / low permeability bedrock, and 100 feet of very low permeability bedrock. Groundwater recharge from precipitation is assumed to be 7% of the annual average precipitation (typ. 44 - 46 inches/year). Hydraulic properties for subsurface materials are summarized below.

Model Layer	Thickness (feet)	Hydraulic Conductivity (feet / day)	Specific Yield / Effective Porosity (feet/feet)	Longitudinal Dispersivity (feet)
Till	5	1.5	0.15	20
Hard Pan / Upper Bedrock	30	0.05	0.03	10
Bedrock	100	0.001	0.001	1

The nitrate plume lengths were estimated using advective transport and dispersion calculations only. No allowance for nitrogen removal by soil microbes, vegetation or sorption is included in the plume length calculations as a conservative measure.

The estimated nitrate-nitrogen plume length for each of the disposal fields is 65 feet as depicted shown on Hydrogeologic Assessment Map provided as Attachment 2.

WATER SUPPLY WELLS

Individual water supply wells for each lot should be installed outside of the well exclusion area(s) shown on the Hydrogeology Assessment Map provided as Attachment 2. The well exclusion area includes the 10 mg-N/L plume area associated with each disposal field and 100-foot setback area around each disposal field. The well exclusion zones are approximate, as the location and size/type of disposal fields constructed may vary from those shown.

¹ MODFLOW 6.3.0, (3/4/2022), <https://www.usgs.gov/software/modflow-6-usgs-modular-hydrologic-model>

² MT3DMS-USGS 1.1, (6/28/2019), <https://www.usgs.gov/software/mt3d-usgs-groundwater-solute-transport-simulator-modflow>

CLOSURE

Results of this hydrogeologic assessment indicate the proposed subsurface wastewater disposal systems will not result in an increase of nitrate-nitrogen above 10 mg/L in groundwater at the property boundary. No adverse impacts to proposed on-site drinking water wells is anticipated, provided the proposed drinking water wells for each lot are constructed outside of the 100 foot well exclusion zones.

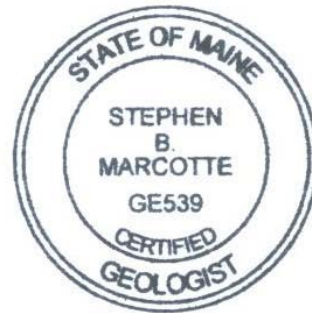
The findings herein are based on my interpretation of site conditions and the information provided to me. If there are significant changes the proposed septic system design flows, or disposal field locations, I request the opportunity to review the changes and conduct further analysis as necessary to confirm the changes do not alter our conclusions.

Sincerely yours,
Marcotte Environmental



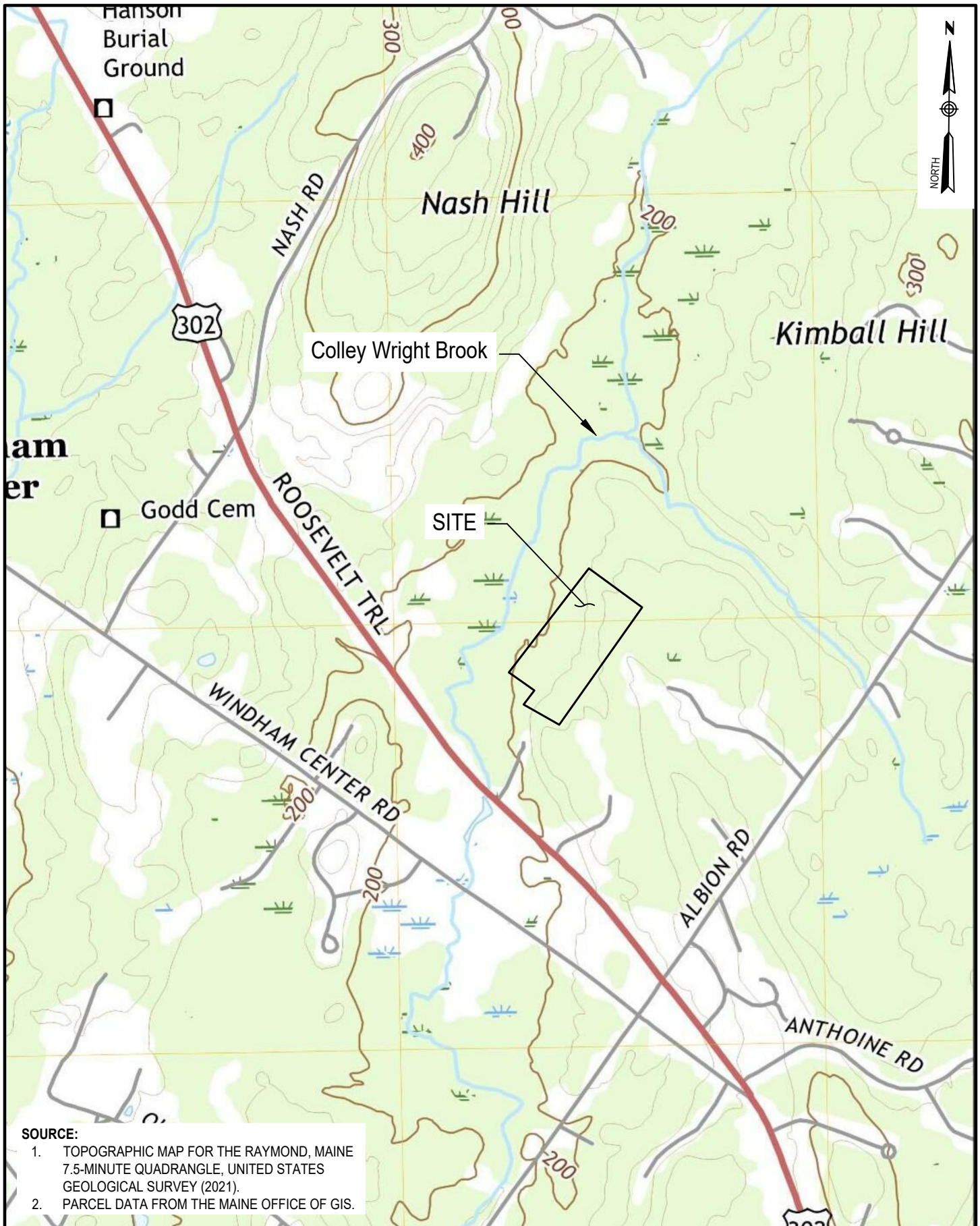
Stephen B. Marcotte, CG, LSE
Principal Hydrogeologist

Enclosures



ATTACHMENT 1

TOPOGRAPHIC & GEOLOGICAL MAPS



SOURCE:

1. TOPOGRAPHIC MAP FOR THE RAYMOND, MAINE 7.5-MINUTE QUADRANGLE, UNITED STATES GEOLOGICAL SURVEY (2021).
2. PARCEL DATA FROM THE MAINE OFFICE OF GIS.

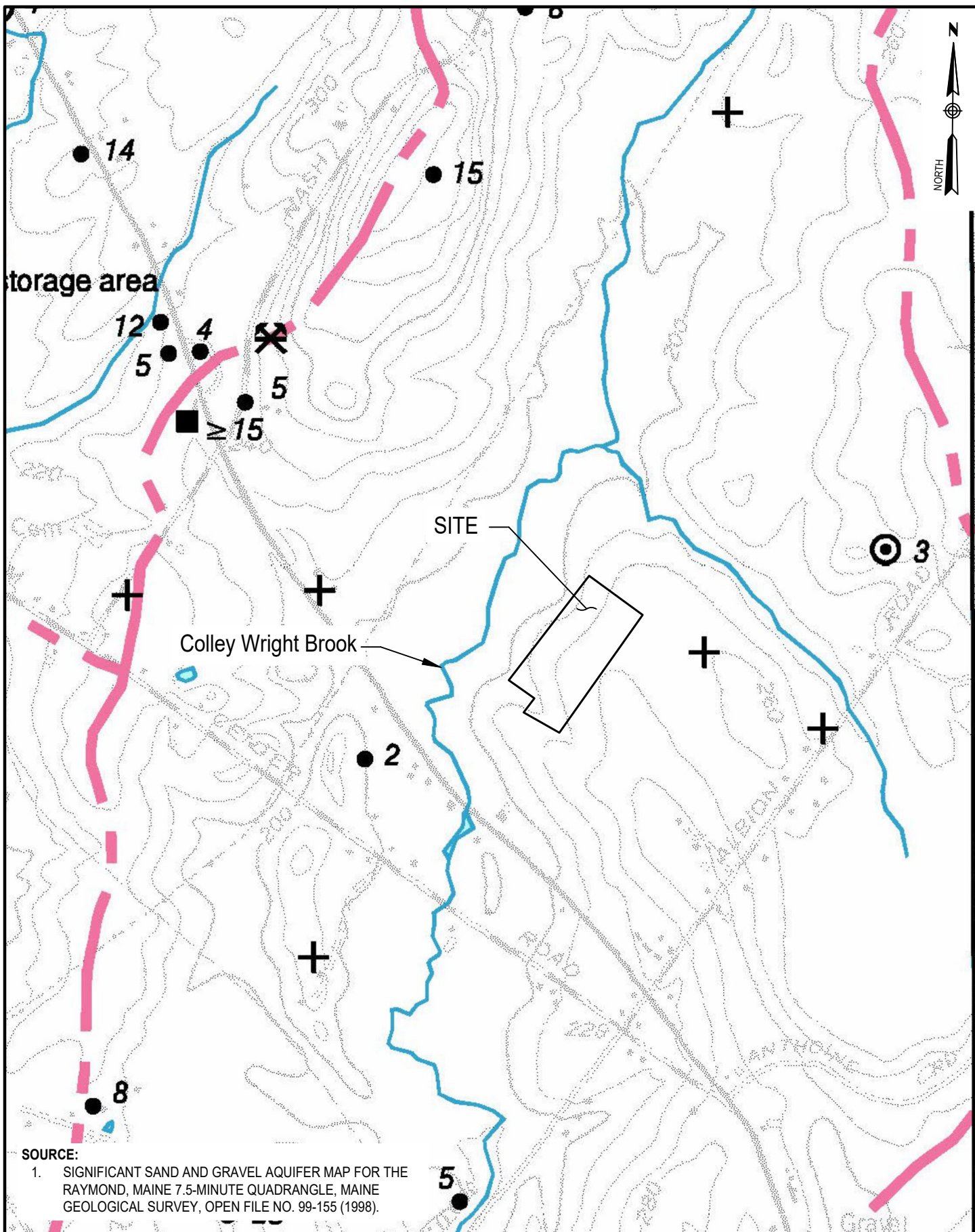
**MARCOTTE
ENVIRONMENTAL**
28 Lindan Lane - Gray, Maine

SITE LOCATION MAP

The Heights at Colley Brook - Cooper Ridge Road, Windham, Maine
For Northeast Civil Solutions

BY: SBM
DATE: 4/9/2022
JN: 22013
SCALE: 1" = 1000'

1 INCH = 1000 FEET
0 500 1000 2000

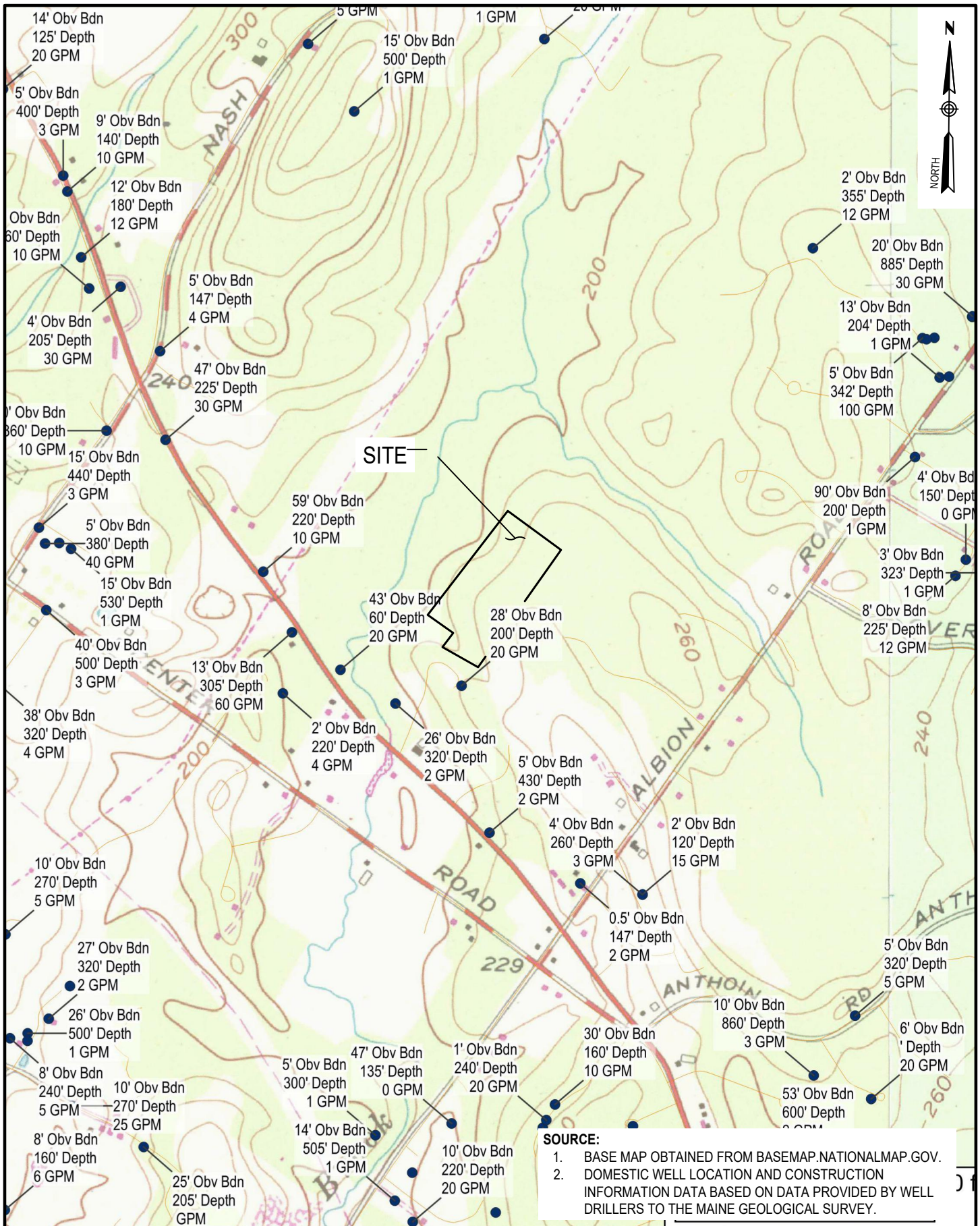


**MARCOTTE
ENVIRONMENTAL**
28 Lindan Lane - Gray, Maine

SIGNIFICANT SAND & GRAVEL AQUIFER MAP
The Heights at Colley Brook - Cooper Ridge Road, Windham, Maine
For Northeast Civil Solutions

BY: SBM
DATE: 4/9/2022
JN: 22013
SCALE: 1" = 1000'

1 INCH = 1000 FEET
0 500 1000 2000

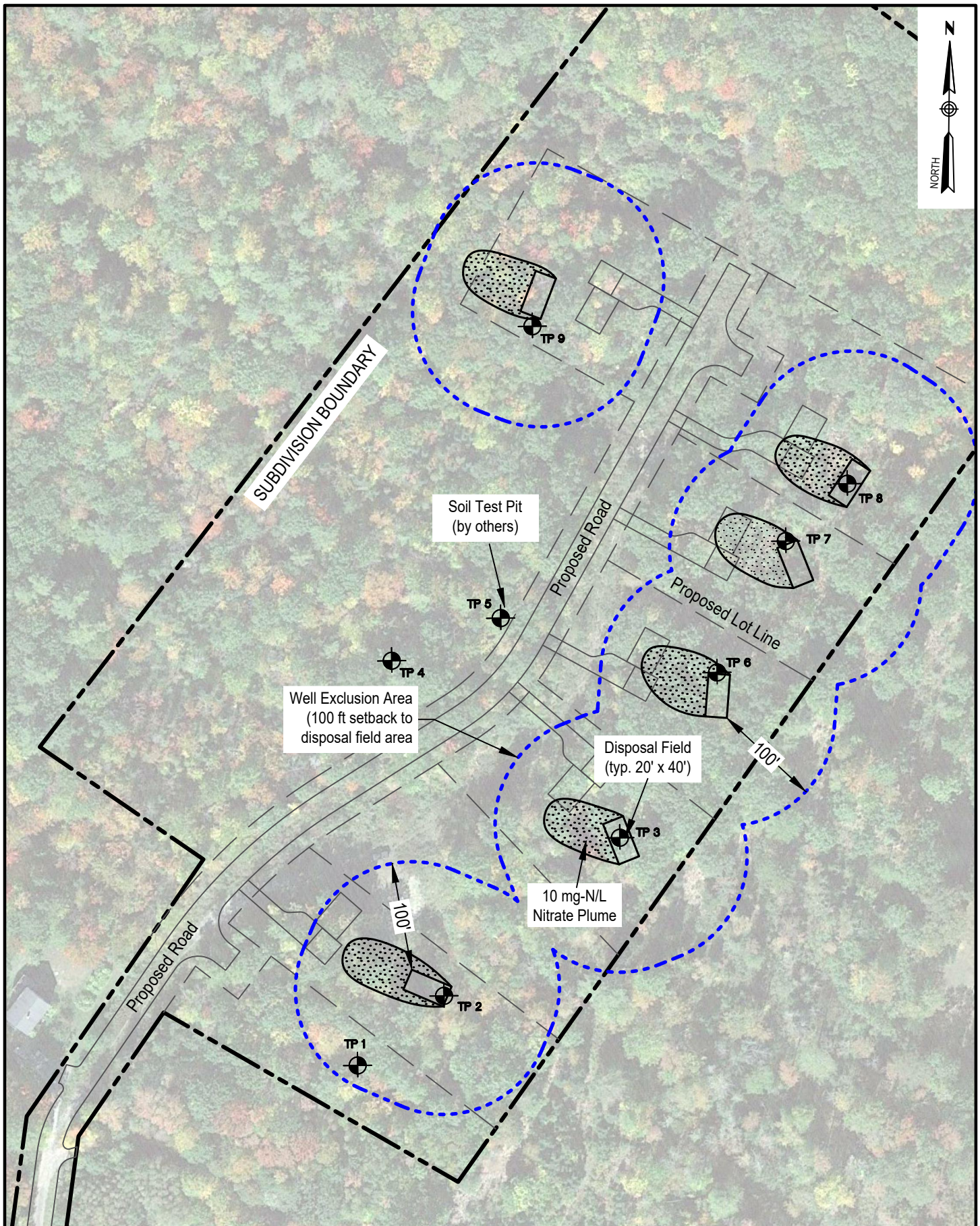


SOURCE:

1. BASE MAP OBTAINED FROM BASEMAP.NATIONALMAP.GOV.
2. DOMESTIC WELL LOCATION AND CONSTRUCTION INFORMATION DATA BASED ON DATA PROVIDED BY WELL DRILLERS TO THE MAINE GEOLOGICAL SURVEY.

ATTACHMENT 2

NITRATE-NITROGEN GROUNDWATER ASSESSMENT MAP



MARCOTTE ENVIRONMENTAL 28 Lindan Lane - Gray, Maine	HYDROGEOLOGIC ASSESSMENT MAP The Heights at Colley Brook - Cooper Ridge Road, Windham, Maine For Northeast Civil Solutions	BY: SBM DATE: 4/9/2022 JN: 22013 SCALE: 1" = 120'	1 INCH = 120 FEET
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May 29, 2025

HBD Properties LLC.
Attn: Riley Dow Hackett
37 Shaw Acres Extension
Standish, ME 04084
rileydow94@gmail.com
bhackett323@gmail.com

Re: Hydrogeologic Evaluation Peer Review | Lot #1 - The Heights at Colley Write Brook Subdivision | Windham, Maine

Dear Riley:

In response to HBD Properties, LLC.'s (HBD's) request, Haley Ward, Inc. (Haley Ward) has reviewed a hydrogeologic assessment completed by Marcotte Environmental in April 2022 for the Heights at Colley Write Brook Subdivision located off of Cooper Ridge Road in Windham, Maine (the Site). A review of the hydrogeologic assessment was requested as relocation of previously reviewed locations is proposed for the on-site drinking water well and subsurface wastewater disposal system at Lot #1 within the Heights at Colley Write Brook Subdivision.

The purpose of this peer review is to determine if Haley Ward is in agreement with the findings of the April 2022 hydrogeologic assessment along with determining if the newly proposed location of the subsurface wastewater disposal system will adversely impact groundwater quality in the on-site drinking water well or at the project boundaries as stipulated by the Town of Windham's Subdivision Review.

The Town of Windham's Article 9 Subdivision Review states *"No subdivision shall increase any contaminant at concentrations in the groundwater at any subdivision water supply well or any project boundary to more than the primary drinking water standards. No subdivision shall increase contaminant concentration in the groundwater at said locations to more than the secondary drinking water standards. A hydrogeologic evaluation shall demonstrate that the groundwater concentrations of nitrate as nitrogen meet the maximum contaminant level of 10 mg/L of the EPA's National Primary Drinking Water Regulations at the project boundaries."*

HYDROGEOLOGIC ASSESSMENT REVIEW

HBD provided Haley Ward with a copy of a hydrogeologic assessment prepared by Marcotte Environmental dated April 9, 2022, for the Heights at Colley Write Brook Subdivision located off of Cooper Ridge Road in Windham, Maine.



Upon Haley Ward's review of the hydrogeologic assessment, Haley Ward finds that the assessment provides a thorough evaluation of the Site's hydrogeologic conditions. The review of publicly available information and review of soils data collected on-Site, along with the interpretation of results are appropriate. Haley Ward supports the conclusions drawn by the author, as they are consistent with the evidence presented and align with standard hydrogeologic principles. A copy of Marcotte Environmental's April 9, 2022, Hydrogeologic Assessment is provided as **Attachment A**.

UPDATED NITRATE ANALYSIS

HBD provided Haley Ward with a Site Layout and Utility Plan for the Heights at Colley Wright Brook Subdivision prepared by Northeast Civil Solutions of Scarborough, Maine. The Site plan depicts the locations of the six lots to be developed along with the location of the proposed dwellings, drinking water wells, subsurface wastewater disposal systems, and the inferred nitrate plumes developed during the hydrogeologic assessment. This Site plan also depicts the newly proposed locations of the drinking water well and subsurface wastewater disposal system to be relocated on Lot #1. A copy of this Site plan is provided in **Attachment B**.

As previously discussed, Haley Ward agrees with the findings of the previous hydrogeologic assessment prepared by Marcotte Environmental in April 2022. The methodology used in calculating the nitrate groundwater plume length follows a conservative approach and does not take into account factors including denitrification or sorption. According to the hydrogeologic assessment, overburden groundwater likely flows west-northwest toward Colley Wright Brook, as such, the newly proposed locations for the drinking water well and subsurface wastewater disposal system are appropriate as the well will be located upgradient of the wastewater disposal system and the calculated nitrate plume is not expected to extend beyond the boundaries of Lot#1 and is therefore unlikely to impact groundwater conditions at neighboring properties.

CONCLUSION

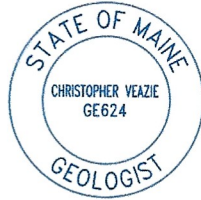
Based on our review of the previously completed hydrogeologic assessment and a review of the newly proposed locations for the on-site drinking water well and subsurface wastewater disposal system, Haley Ward draws the following conclusions:

- Haley Ward concurs with the findings of the April 2022 Hydrogeologic Assessment prepared by Marcotte Environmental.
- The newly proposed location of the on-site drinking water well for Lot #1 is appropriate as it will be located upgradient of the subsurface wastewater disposal system.
- Adverse impacts to on-site or off-site drinking water wells from the newly proposed location of the subsurface wastewater disposal system are not anticipated to occur.



If you have any questions regarding the information in this letter, please feel free to contact us at (207) 283-9151 or via email at cveazie@haleyward.com.

Sincerely,
Haley Ward, Inc.



Chris Veazie, L.G.
Senior Project Hydrogeologist &
Project Manager

CMV/JAG/lmb
Attachments



ATTACHMENT A

PREVIOUS HYDROGEOLOGIC ASSESSMENT

Exhibit 4

Stormwater Calculations

- **Level Spreader Sizing Calculations 6/6/2022**
- **Level Spreader Sizing Calculations Revised 9/9/2025**

NORTHEAST CIVIL SOLUTIONS, INC.

Surveying - Engineering - Land Planning
381 Payne Road, Scarborough, Maine 04074
Tel: 207-883-1000 Fax: 207-883-1001

Project: 42369 Heights at CWB
Sheet No. 1 Of 2
Calc by: APM Date: 6/6/2022
Check by: BAG Date: 6/6/2022
Scale: _____

Southerly Stone Bermed Level Lip Spreader

Soil Group D

Length per acre of impervious area 150

Length per acre of lawn 45

Impervious Area: 6352 sf

Landscaped Area: 24805 sf

Berm Length = Imp area (ac) x 150 + Land area (ac) x 45

0.15 x 150 + 0.57 x 45

21.9 + 25.6

Berm Length = 47.5 feet

Berm Provided = 100 feet ✓

NORTHEAST CIVIL SOLUTIONS, INC.

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Sheet No. 2 Of 2
Calc by: APM Date: 6/6/2022
Check by: BAG Date: 6/6/2022
Scale: _____

Northerly Stone Bermed Level Lip Spreader

Soil Group D

Length per acre of impervious area 150

Length per acre of lawn 45

Impervious Area: 18585 sf

Landscaped Area: 68830 sf

Berm Length = Imp area (ac) x 150 + Land area (ac) x 45

0.43 x 150 + 1.58 x 45

64.0 + 71.1

Berm Length = 135.1 feet

Berm Provided = **135** feet ✓

2025 Updates by Sebago Technics

NORTHEAST CIVIL SOLUTIONS, INC.

Surveying - Engineering - Land Planning
381 Payne Road, Scarborough, Maine 04074
Tel: 207-883-1000 Fax: 207-883-1001

Project: 42369 Heights at CWB
Sheet No. 1 Of 2
Calc by: SCK Date: 9/9/2025
Check by: BAG Date: 9/22/2025
Scale: _____

Southerly Stone Bermed Level Lip Spreader

Soil Group D

Length per acre of impervious area 150

Length per acre of lawn 45

Impervious Area: 9178 sf

Landscaped Area: 24764 sf

Berm Length =	Imp area (ac)	x	150	+	Land area (ac)	x	45
	0.21	x	150	+	0.57	x	45
	31.6			+	25.6		

Berm Length = 57.2 feet

Berm Provided = 100 feet ✓

2025 Updates by Sebago Technics

NORTHEAST CIVIL SOLUTIONS, INC.

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Check by: BAG Date: 9/22/2025
Scale: _____

Northerly Stone Bermed Level Lip Spreader

Soil Group D

Length per acre of impervious area 150

Length per acre of lawn 45

Impervious Area: 20769 sf

Landscaped Area: 62698 sf

Berm Length = Imp area (ac) x 150 + Land area (ac) x 45

0.48 x 150 + 1.44 x 45

71.5 + 64.8

Berm Length = 136.3 feet

Berm Provided = 135 feet ✓

Exhibit 5

Project Plans

- Original Subdivision Plan
 - Proposed Amended Subdivision Plan
- Revised Site Layout & Utility Plans (2 Sheets)
- Revised Grading & Drainage Plans (2 Sheets)
- Revised Proposed Conditions Stormwater Plan