City of Biddeford
Planning Board
September 20, 2023 6:00 PM City Hall
Council Chambers, & Zoom
https://biddeford.zoom.us/j/94983531202?pwd=Q3ZyejcyUVpBaUVVMHduYXJhSzB4UT09
Webinar ID 949 8353 1202; Passcode 223739

STATUS: Planning Board Meeting, Wednesday, September 20, 2023, 6:00 PM, City Council Chambers & Zoom

1. PLEDGE OF ALLEGIANCE

2. DECLARATION OF QUORUM/VOTING MEMBERS

3. ADJUSTMENTS TO THE AGENDA

4. PLANNER'S BUSINESS

5. CONSENT AGENDA

5.A. Approval of Meeting Minutes from September 6, 2023
PB Minutes 090623-DRAFT.pdf

6. UNFINISHED BUSINESS

7. NEW BUSINESS

7.A. 2023.42 The Planning Board will Workshop the possibility of reducing the Front Setback in certain zones from 100' to 90'.

2023.24 Back Lot Planning Board Workshop Memo 6-21-2023 PDF .pdf
BIDDEFORD CODE Table B - Proposed Ordinance Amendments PB 9-20-2023.pdf
Table B Complete with table and proposed Ord Mod. 9-13-23.pdf
City Council Information Sheet Frontage Reduction Ordinance Amendment 9-5-23.pdf
Frontage Reduction Ordinance Amendment Council Order to Planning Board.pdf

7.B. 2023.33 The Planning Board will review and take questions and comments regarding an application for Preliminary Approval submitted by Longboard Ridge Subdivision. The proposed project is an 8 lot single family subdivision at 781 Pool Street also described as Lot 17-2 on Biddeford Tax Map 5 in the Coastal Residential Zone. This parcel is 25 acres and owned by 781 Pool Street, LLC.
781 Pool St. - Staff Review 9_12_2023_PRELIM.pdf
Tom Saucier Comments_9_13_23.pdf
2023.08.16 Longboard Ridge Subdivision Preliminary Application.pdf
2023.08.16 Longboard Ridge Subdivision Preliminary Plan Set.pdf
2023.08.16 Longboard Ridge Subdivision Attachment 6 Stormwater Report.pdf

7.C. 2023.47 The Planning Board will discuss & take questions regarding the proposed Inclusionary Zoning Ordinance.
IZ Ordinance Regulations with edits based upon August 2023 Planning Board Comments
DCMG GAM Edits 9-14-23.pdf
Planning Board.pdf

7.D. 2023.40 The Planning Board will discuss and take comments and questions regarding a Subdivision Amendment Application submitted by Walsh Engineering on behalf of Ginger

Hill properties to reduce side setbacks in their Windward Hill Subdivision from 25' to 15'. The proposed project is located at #s 4,6,9,11,15 & 16 Windward Ridge further described as lots 48-11 to 48-16 on Biddeford Tax Map 4 in the Coastal Residential & Rural Farm Zones.

2021.31 Ginger Hill Design - 918 Pool Street Minor Amendment 2 Request PB Report 9-20-2023 DCMG.pdf

2023-07-27 Amended Subdivision Application - No Plans.pdf

2023-07-27 Amended Subdivision App Plans 1 of 2.pdf

2023-07-27 Amended Subdivision App Plans 2 of 2.pdf

7.E. 2023.44 The Planning Board will discuss and take comments and questions regarding a proposed 10 Unit Multifamily by Terradyn Consultants for the benefit of Everybody Loves Rayment Street, LP. The proposed project is located at 27-81 Raymond Street, further described as Lot 108 on Biddeford Tax Map 29 in the R-2 Zone. This property is owned by Berry Park Apartments, LLC.

Berry Park Raymond Street - Sketch Plan Package Submission to Biddeford Planning Dept 08-23-23.pdf

Archetype - 10-Unit Bldg Colored Ext Rendering 08-11-23 (002).pdf

Archetype - 10-Unit Bldg Colored Ext Rendering 08-11-23.pdf

Terradyne - Concept Site Plan 10.7.21.pdf

Berry Park Apartments Sketch Plan Planning Board Report 9-20-23 PDF .pdf

8. OTHER BUSINESS

9. ADJOURN

The Board reserves the right to halt official business at 9:30 p.m. Items not heard at tonight's meeting shall be rescheduled to the next meeting of the Board. All materials pertaining to items on the agenda are available for public review at the Biddeford Planning Department, second floor, Biddeford City Hall during normal business hours.

CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

Planning Board
Meeting Minutes

DRAFT

Date: September 6, 2023
Time: 6:00 PM
Location: Council Chambers & Zoom

1. **Pledge of Allegiance**
2. **Declaration of Quorum/Voting Members**
   Quorum Present: Larry Patoine (Chair), Susan Deschambault, Roch Angers, Sean Tarpey, Alexa Plotkin, & Steve Beaudette (Alternate Member)
   Staff Present: Eric Freeman & Nan Whitten
   Chair Patoine opened the meeting at 6:00 PM
3. **Adjustments to the Agenda-None**
4. **Planner's Business-None**
5. **Consent Agenda**
   5. A. Approval of Meeting Minutes from August 16, 2023
   MOTIONS: 6:02 PM
   Deschambault-Motion-To approve the Meeting Minutes from August 16, 2023 as presented
   Angers-Second Motion passed unanimously
6. **Unfinished Business-None**
7. **New Business**
   7. A. 2023.38 Review and take public comments regarding a Shoreland Zoning Permit Application for Flycatcher LLC for the benefit of Melinda Anderson. The applicant would like to replace an existing 4' x 264' pile supported pier that includes an 8' x 10' bump out. The existing pier was destroyed in a storm in December of 2022. The applicant intends to rebuild the pier in the same footprint as it was originally built. The location of the property is 148 Hills Beach Road, Tax Map 55, Lot 68 in the Coastal Residential and Shoreland Zones.
   - **Lisa Vickers from Flycatcher LLC represented the applicant**
   - **She talked about the deck being built in 1968**
   - **They will be using something called Helix Anchors**
   - **Permit by Rule by the DEP has been approved**
   - **They have obtained approval by the Army Corp of Engineers.**
   - **The float will be the same as previously built in the same spot as before.**
   - **Mr. Tarpey asked if it would be in the middle of the channel as before.**
   - **Mr. Tarpey asked if the applicant has applied to the Harbor Commission.**

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- **Ms. Vickers replied that the dock is going back to where it was before and they will only be applying to the Harbor Commission if required.**
- **Ms. Deschambault mentioned that the Planning Board has received letters of support from the abutters.**

  MOTIONS: 6:13 PM

  Deschambault-Motion- To approve the Shoreland Zoning Permit Application for the proposed dock / pier to be located at 148 Hills Beach Road (Tax Map 55, Lot 68), within the Coastal Residential and Shoreland Zones, as presented with the adoption of the Findings of Fact (FOF) and Conditions of Approval (COA).

  Angers-Second Motion passed unanimously

2023.16 Preliminary Application request to review and take comments for a change of use application for Jason Jirele of Woodhull. Mr. Jirele proposes to turn the Odd Fellows Hall at 25 Alfred Street into a 30-room boutique hotel. The property is located on Tax Map 38, Lot 402 and is in the MSRD-1 Zone.

- **Jason Jirele from Woodhull represented the applicants along with Tyler Cao and Niko Gaillonsis from Sullivan Capital**
- **Mr. Jirele told the Board that the first floor would be the lobby (2) and the restaurant and bar for the hotel.**
- **The second & third floors were the Laconia Lodge 30 years ago and have been vacant.**
- **The electricity will be upgraded and will be underground.**
- **The applicant is working with the Engineering Department & Maine Water for other issues.**
- **The hotel will be completely sprinkled.**
- **The applicants will be working with a private trash hauler**
- **There will be a roof top deck and bar.**
- **There were no public comments**
- **Chair Patoine complimented the applicants on the plans being very well done.**
- **Ms. Deschambault asked about the party wall. The response was that a Party Wall is a shared wall between two buildings.**
- **A portion of the party wall and the stairs around it will be demolished.**
- **The applicant is working with Premium Parking to make sure there is enough parking for their clients**
- **Mr. Angers asked how often the trash will be removed. It will be on a case by case basis.**
- **The restaurant will be small but elegant with 65 seats.**
- **Mr. Cao is working with Chefs to ensure the food will be very high quality.**
- **Mr. Angers stated that he is not in favor of the parking waiver; he feels that the clients of the hotel will take parking from the downtown workers and clients.**
- **Mr. Cao spoke about their relationship with Premium Parking who have done a study on the downtown-parking situation and they believe there is ample parking.**
- **The applicant maintains that the hotel will bring people to the businesses in the area. The hotel patrons will go to the hotel amenities once during their stay and visit the area business 4 or 5 times.**

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- **Ms. Plotkin asked about loading and unloading. There are two areas for loading and unloading depending upon the size of the load.**
- **Mr. Beaudette asked if the applicants had looked into dedicated parking spaces elsewhere and the applicants are in the process of researching it.**
- **Ms. Plotkin asked about the lofted rooms. They were created to preserve the integrity of the interior this being the best use with the large windows.**
  MOTIONS: 6:51 PM
  Deschambault-Motion-To approve the waiver request for Sullivan Capital for Parking requirements for 25 Alfred Street.
  Tarpey-Second Motion Passed 3-1 (Deschambault, Tarpey, Plotkin in favor, Angers against)
  Plotkin-Motion- To approve the preliminary Site Plan approval of Case # 2023.16 Site Plan (SP) Preliminary Plan Review for the Sullivan Group for a Change of Use to construct a 30 room boutique hotel to be located at 25 Alfred Street (Tax Map 38, Lots 402).
  Tarpey-Second Motion passed unanimously

2023.36 Review and Discuss a Final Site Plan application for Steve Liautaud, Freddy LLC to have a Food Truck Court & Community Events at 64 Alfred Street (Tax Map 38, Lot 361) in the MSRD 1 Zone.

- **Leah Schaffer & Steve Liautaud presented the application.**
- **Ms. Schaffer talked about the aesthetic changes made to the plan resulting from Board and staff comments.**
- **At this time, there will be no bike racks.**
- **The maintenance and landscaping will be done after business hours.**
- **The changes have reduced impervious surface by 800 sf.**
- **Public Comments:**
  Holly from Ward 6, Director of Community Gardens
  Katie Brown from Youthful Maine sent a message of support
  Anne Thompson-Ward 1
  Julian Schlaver-Ward 5, City Counselor
- **Mr. Angers & Ms. Deschambault both said they were not enthused by the project but the enthusiasm and community support have turned them around.**
- **The Board talked about changes to the project coming down the road. Mr. Freeman said they would be taken on a case-by-case basis for procedure and approvals.**
  MOTIONS: 7:33 PM
  Plotkin-Motion- To approve the Final Site Plan application for the proposal located at 64 Alfred Street (Tax Map 38, Lot 361), within the MSRD-1 zoning district, as presented with the adoption of the Conditions of Approval (COA).
  Angers-Second Motion Passed Unanimously

8. **Adjourn**
   Meeting adjourned at 7:50 PM

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Planning Board Chair/Vice Chair **Date**

These minutes are summary and are not intended to be verbatim. Archived meetings are viewable on the City's website: www.biddefordmaine.org.

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CITY OF BIDDEFORD
PLANNING DEPARTMENT

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Planning Board Memorandum

TO: Chair Patoine and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Deputy Director / City Planner

DATE: September 13, 2023

RE: Case # 2023.42 Frontage Reduction Ordinance Amendment / Draft Ordinance Language / Discussion Item

MEETING DATE: September 20, 2023

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1. INTRODUCTION:

At the July 18th City Council meeting there was a Committee of the Whole discussion item presented, related to reducing frontage requirements, from 100-ft to 90-ft, in certain areas of the City, to allow increased housing stock. This item was again discussed at the City Council meeting of September 5, 2023 where Staff presented draft Ordinance language which resulted in the Council forwarding the item to the Planning Board. This is the first time this item has come before the Planning Board.

The purpose of the proposed Ordinance would allow existing lots with excess frontage to create an additional residential lot providing the parent parcel and the divided parcel each provide 90% of the required frontage. As an example, if a property is required under the City's dimensional standards to have 100 feet of frontage and the lot had 180 + feet of frontage the property could be divided, to create an additional buildable lot, providing each of the lots has a minimum of 90 feet of frontage. This frontage reduction, and lot creation, would be permitted on existing lots of record, and not permitted in subdivisions creating more than one new lot. As drafted, the proposed Ordinance amendment would apply to lots within the Suburban Residential 1 (SR1), R1-A, R1-B, R-2 and R-3 zoning districts. As currently drafted, Staff is recommending an amendment to Table B of the City's Land Use Ordinance which would include new text, which would include the following underlined language, which is highlighted in blue:

T. Street Frontage Reduction Ordinance: Street frontage requirements may be relaxed in the Suburban Residential 1 (SR1), R1-A, R1B, R-2 and R-3 Zoning Districts providing the following:
   1. Existing lots of record in existence prior to (insert date) may be divided, one time, to create an additional buildable lot providing both lots meet at least 90% of the required street frontage requirements for the particular zoning district.
   2. Both properties shall meet all other dimensional requirements within the particular zoning district where the lot is located.

3. This Ordinance does not apply to any new subdivisions where 3 or more lots are being created.

Staff Recommendation:

At this time Staff is seeking input and direction from the Planning Board regarding the attached Ordinance amendment, and any specific items that the Board and Staff should consider within the Ordinance development.

The attached Ordinance has been modified to include the comments originally discussed by the City Council. This document includes deleted text in ~~red strikethrough~~ or new text as blue underlined. At this time the proposed Amendment is being brought before the Board as a "discussion item", with a public hearing on the item scheduled for October 4, 2023. Staff is seeking feedback on these new proposed changes.

ATTACHMENTS

1. Attachment # 1: City of Biddeford – Frontage Reduction Ordinance, Amendments to table B - Draft # 1 (proposed changes)
2. Attachment # 2: City Council Information Sheet
3. City Council Order to Planning Board September 5, 2023

BIDDEFORD CODE NOTES for Table B:

N/A: Not allowed.

* A new structure may be permitted to be built with less than the required setback, provided that the following are met:

1. The setback will be equal to the average front yard setback of the existing houses on the immediately adjacent lots; and
2. The setback shall be-at least 15 feet; and
3. These provisions shall apply only along existing residential streets which were developed prior to the enactment of the present front yard setback requirements.

** The Building Inspector may allow a lessening of setback requirement for access structures, as necessary, to facilitate reasonable handicapped accessibility. This provision shall apply to existing structures only. Any access structure built under this provision shall be temporary to facilitate the handicapped or disabled occupant and shall be removed when no longer needed.

+ Maximum height is exclusive of chimneys, antennae, and roof-mounted, building-integrated, building-mounted or architectural wind systems when attached to a structure. Chimneys and antennae shall not be higher than 12 feet above the structure. Roof-mounted, building-integrated, building-mounted or architectural wind systems shall not be higher than 15 feet above the maximum allowed building height in the zone.

A. Minimum land area per dwelling unit.

B. In order to promote condominium forms of housing and affordable housing in close proximity to downtown and services, in the R-1-A, R-1-B, R-2, R-3, OR, and MSRD-2 Zoning Districts, the density requirements may be relaxed as follows:

1. Redevelopment of existing structures:

   a. The Planning Board, or other appropriate approval authority, shall consider granting a density bonus of one residential unit for every 650 square feet of living space within an existing structure, provided the applicant presents redevelopment/renovation plans to the Code Enforcement Officer demonstrating how the redevelopment project will result in the number of residential units with two or more bedrooms being at least, if not more than, the number of units with two or more bedrooms before the density bonus was granted.

   b. If the project is provided a density bonus, the Code Enforcement Officer shall document the allowable density and number of units, in writing, for the Code Enforcement Office files.

   c. An applicant provided a density bonus for rental housing shall enter into a contractual agreement with the City of Biddeford requiring that at least 30% of the additional units created shall be leased such that they do not exceed 80% of the fair market rent (FMR) per bedroom size, as established annually by the U.S. Department of Housing and Urban Development (HUD). The contractual agreement shall be recorded at the York County Registry of Deeds, a copy of which shall be provided to the Code Enforcement Office prior to the issuance of any building permits. Rent-

restricted units will be annually monitored by the Planning and Development Department for contract compliance.

2. Condominium conversions/development:

a. A property may be proposed for redevelopment/renovation from apartments into condominiums in accordance with 1 above.

b. An applicant provided a density bonus for condominiums shall enter into a contractual agreement with the City of Biddeford obligating them to complete the project as condominiums to be offered for sale upon or before completion of the project in return for receiving the density bonus. The contractual agreement shall be recorded at the York County Registry of Deeds, a copy of which shall be provided to the Code Enforcement Office prior to the issuance of any building permits.

c. The applicant agrees that if the project is converted to condominiums, said units shall not be sold for a price that exceeds 125% of the York County median home price affordable to median-income households as set annually by HUD for the City of Biddeford.

C. Applies only to dwelling units. All other uses shall have a minimum of 10,000 square feet.

D. (Reserved)

E. All buildings and structures shall be set back at least 50 feet from any zone in which residential dwellings are an allowed use, except as otherwise provided in this table.

F. (Reserved)

G. (Reserved)

H. Roadside stands may be 10 feet from the major access road.

I. This is the density limit for the expansion of existing residential dwelling units.

J. Applies to all uses.

K. Hospital height limit shall be 110 feet.

L. Does not apply to cluster development.

M. The number of accessory structures shall meet setback requirements; and shall be limited to no more than three per lot; and shall not exceed the height of the primary structure; and any plumbing, if necessary, shall be limited to a utility sink. Structures associated with bona fide working agricultural uses are not subject to these limits.

N. Any use not serviced by a public water supply must show evidence that it is serviced by a potable water supply meeting minimum state standards for safe drinking water.

O. Any residential structures in existence prior to December 20, 1990, may be expanded or added to as long as they meet minimum setbacks (from major access, 40 feet; from other streets, 25 feet; from side and rear property lines, 10 feet).

P. The location of new or expanded buildings and structures including the replacement of existing buildings in the Institutional Zone shall conform to the approved Institutional Master Plan and the following dimensional standards:

1. Maximum height. The maximum height of buildings in the Institutional Zone shall be 35 feet, 50 feet, or 65 feet depending upon in which building height subdistrict the building is located. The building height subdistricts and maximum building heights are shown on the Institutional Zone Subdistrict Map dated September 6, 2001, and described in boundary descriptions prepared by an independent registered land surveyor licensed to practice in the State of Maine which are made a part of this ordinance. Notwithstanding the maximum building height provision, the tallest point of any building or structure, including appurtenant structures, in the Institutional Zone shall not exceed 115 feet above sea level based upon the national geodetic vertical datum (NGVD), unless a higher elevation is mandated as part of a state or federal environmental approval or permit.

2. Minimum building setbacks from public streets. All buildings in the Institutional Zone shall conform to the following minimum setbacks from public streets:

- South side of Hills Beach Road from intersection with Old Pool Road east to a point 250 feet west of the zone boundary/property line: 25 feet.
- South side of Hills Beach Road from a point 250 feet west of the zone boundary/property line east to the zone boundary: 50 feet with a provision that it can be reduced to 25 feet if replacement buildings at the housing park are located further from the wetland.
- North side of Hills Beach Road from intersection with Old Pool Road east to the zone boundary: 50 feet.
- Both sides of Hills Beach Road from intersection with Old Pool Road west to the zone boundary at Route 9: 50 feet with a provision that it can be reduced to 25 feet when a Hills Beach bypass is built that conforms to the following standards and is approved as part of the Institutional Master Plan.
- Both sides of Old Pool Road: 50 feet.
- Both sides of Pool Road (Route 9): 50 feet.
- Both sides of Newtown Road: 40 feet.
- Both sides of the Hills Beach bypass road when built: 50 feet.

The reduced setback along the westerly portion of Hills Beach Road shall be effective only if a Hills Beach bypass road has been constructed that meets the following standards:

a. The road shall be designed and located to allow traffic to Hills Beach to travel directly from Route 9 to the approximate vicinity of the intersection of Old Pool Road and Hills Beach Road without using campus roads.

b. The intersection with Route 9 will be located at an appropriate location for this use.

c. The road shall be designed as a limited access facility with not more than one curb cut on each side providing campus access through internal campus streets. These curb cuts shall be in addition to any intersections with public streets or roads.

d. No buildings or parking lots shall have direct access to or from the bypass road.

e. A landscaped street buffer shall be established as provided for in Section 43 of Article VI.

3. Minimum building setback from the perimeter of the Institutional Zone. All buildings shall be setback a minimum of 50 feet from the external boundary of the Institutional Zone where such zone boundary abuts a Suburban Residential (SR-1), Coastal Residential (CR), or Rural-Farm (R-F) Zone. The area along the zone boundary shall be maintained as a landscaped buffer in accordance with the provisions of Article VI, Section 12.

4. Maximum lot coverage. The maximum lot coverage shall be as follows:

a. Within the area south of Route 9 and west of the Newtown Road: 10%.

b. Within the area South of Route 9 and east of the Newtown Road: 30%.

c. Within the area North of Route 9: No maximum except as provided for in 5, Restricted Development Areas.

5. Restricted development areas. Within the areas identified as "No Build Zones" on the Institutional Zone Subdistrict Map dated September 6, 2001, and described in boundary descriptions prepared by an independent registered land surveyor licensed to practice in the State of Maine which are made a part of this ordinance, the following additional requirements shall apply:

a. No new buildings, parking, roads, or access drives shall be constructed except for the construction of a Hills Beach bypass road and connections to the bypass road from existing public streets.

b. Existing buildings, parking, roads, and access drives may be maintained and may be improved with Planning Board approval but may not be relocated or expanded except as provided for in a.

c. The existing student housing park located on the south side of the Hills Beach Road may be replaced with new low-impact academic or support facilities. Lowimpact is defined as meeting the following standards:

- The replacement has been approved as part of the institutional master plan.
- The total footprint area of all replacement buildings and structures shall not exceed 14,400 square feet.
- The amount of non-vegetated area after redevelopment shall be not more than the amount of non-vegetated area existing at the time of adoption of this provision.
- No buildings, structures, parking, or other impervious surfaces shall be located closer to any adjacent wetland or the external boundary of the Institutional Zone than the existing facilities being replaced and, where possible, the setback from wetlands shall be increased.

- The architectural design of the low-impact academic or support facilities shall be compatible with the adjacent residential character, consistent with the approved University Master Plan Architectural Design Standards, and shall be limited to a maximum height of 35 feet.
- The low-impact academic or support facilities shall have no greater impact on the adjacent wetlands, than did the development existing at the time of the approval of the 2003-2007 Master Plan (approved May 7, 2003), as demonstrated by a wetlands delineation plan and stormwater management plan submitted as part of the application for site plan approval.
- The low-impact academic or support facilities shall have no greater light intrusion, noise or traffic impact (both vehicular and pedestrian) on adjacent residential properties, than did the development existing on the site at the time of the approval of the 2003-2007 Master Plan (approved May 7, 2003), as demonstrated by a noise mitigation plan and traffic study submitted as part of the application for site plan approval.

d. No new athletic fields or athletic facilities shall be constructed.

e. Existing athletic fields may be maintained and improved but may not be expanded. Improvements to the existing fields shall be limited to items such as fencing, buffering, portable grandstands, scoreboards, lighting, temporary rest room facilities, storage sheds with less than 300 square feet of floor area, and similar facilities.

f. The areas not currently used for athletic fields, parking or the student housing park shall be maintained as naturally vegetated areas and shall not be converted to lawns or other improved open space. Existing vegetation shall be maintained subject to sound management practices relative to cutting, thinning, pruning, and similar activities.

Q. Existing nonconforming lots or structures may be considered for conversion to nonresidential uses allowed in the OR Zone, provided that neither structure nor lot are made more nonconforming as a result of the conversion.

R. The setback may be reduced to the average of the lots immediately adjacent to the lot, as determined by the Code Enforcement Officer.

S. The Building Inspector may allow a lessening of setback requirements, to no less than 10 feet, for utility buildings and structures to facilitate utility infrastructure improvements. Any such buildings or structures built under this provision shall be removed when no longer used for such necessary utility infrastructure.

T. Street Frontage Reduction Ordinance: Street frontage requirements may be relaxed in the Suburban Residential 1 (SR1), R1-A, R1-B, R-2 and R-3 Zoning Districts providing the following:

1. Existing lots of record in existence prior to (insert date) may be divided, one time, to create an additional buildable lot providing both lots meet at least 90% of the required street frontage requirements for the particular zoning district.
2. Both properties shall meet all other dimensional requirements within the particular zoning district where the lot is located.
3. This Ordinance does not apply to any new subdivisions where 3 or more lots are being created.

V Attachment 2

City of Biddeford

Table B
Dimensional Requirements
[Amended 4-16-2013 by Ord. No. 2013.24; 1-16-2018 by Ord. No. 2018.2; 10-2-2018 by Ord. No. 2018.110; 11-8-2018 by Ord. No. 2018.123; 3-5-2019 by Ord. No. 2019.13; 6-1-2021 by Ord. No. 2021.43]

Zoning District	Minimum Lot Size, Square Feet Per Unit A				Frontage			Minimum Setback, Feet**				Maximum Heights+	
	Water and Sewer	Water, No Sewer	Sewer, No Water	Neither Water Nor Sewer	Water and Sewer	Water or Sewer	Neither Water Nor Sewer	From Major R.O.W.	From Other R.O.W	Side	Rear	Stories	Feet
SR-1	15,000 C	20,000 C	20,000 C	40,000 C	100	100	200	40	25	10	10	3	35
CR	See Table C below				150	150	150	40	25	25	25	3	35
R-1-A	10,000 B	20,000	10,000	20,000	100	100	100	40	25	10	10	3	35
R-1-B	5,000 B	20,000	5,000	20,000	50	50	50	25	10	5	5	3	35
R-2	4,500 B	N/A	N/A	N/A	45	N/A	N/A	25	15	5	5	3	35
R-3, single-family	10,000	20,000	20,000	40,000	100	120	200	40	25	10	10	3	35
R-3, duplex	7,500 B	30,000	N/A	N/A	120	120	120	40	25	15	15	3	35
R-3, multifamily	15,000 1st 2 units, then 6,000/unit D	N/A	N/A	N/A	150	N/A	N/A	40	40	25	25	3	35
R-3, all other	10,000	N/A	N/A	N/A	100	120	200	40	25	10	10	3	35

Zoning District	Minimum Lot Size, Square Feet Per Unit A				Frontage			Minimum Setback, Feet**				Maximum Heights+	
	Water and Sewer	Water, No Sewer	Sewer, No Water	Neither Water Nor Sewer	Water and Sewer	Water or Sewer	Neither Water Nor Sewer	From Major R.O.W.	From Other R.O.W	Side	Rear	Stories	Feet
B-1 O	1,000	N/A	N/A	N/A	None	N/A	N/A	10	10	10	10	6	60
B-2 O	10,000 J	20,000	20,000	40,000	150	150	150	30	25	10	10	3	35
I-1 O	None	None	None	N/A	50	50	N/A	40 S	30 S	25 E, S	25 E, S	6	60
I-2 O	None	None	None	N/A	50	50	N/A	40 S	30 S	25 E, S	25 E, S	6	60
I-3 O	None	None	None	N/A	50	50	N/A	40 S	30 S	25 E, S	25 E, S	6	60
W-1	15,000 C	20,000 C	20,000 C	40,000 C	100	100	100	40	25	25	25	3	35
W-2	7,000	N/A	N/A	N/A	50	50	50	0	0	10	10	3	35
R-F, single-family M	20,000	20,000	20,000	40,000	120	120	200	40 H	25 H	25	25	3	35
R-F, duplex M	20,000	20,000	20,000	40,000	120	120	200	40 H	25 H	25	25	3	35
R-F, all other	40,000	40,000	40,000	40,000	200	200	200	40 H	25 H	25	25	3	35
Medical	10,000	10,000	10,000	10,000	100	100	100	40	40	25	25	6	60 K
LR-F	80,000	80,000	80,000 *N	80,000 *N	100	100	100	40	30	25	25	6	60
Institutional	See Note P				See Note P			See Note P				See Note P	
OR Q	4,500 B	N/A	N/A	N/A	75	N/A	N/A	10	10	10	10	3	35

ESTABLISHMENT OF ZONES

Zoning District	Minimum Lot Size, Square Feet Per Unit A				Frontage			Minimum Setback, Feet**				Maximum Heights+	
	Water and Sewer	Water, No Sewer	Sewer, No Water	Neither Water Nor Sewer	Water and Sewer	Water or Sewer	Neither Water Nor Sewer	From Major R.O.W.	From Other R.O.W	Side	Rear	Stories	Feet
MSRD-1	None	N/A	N/A	N/A	None	None	None	None	None	None	None	Min. 2 stories or 26 feet; Max. 60 feet	
MSRD-2	2,000 B	N/A	N/A	N/A	50	N/A	N/A	15 R	15 R	10	10	3	35
MSRD-3	None	N/A	N/A	N/A	None	None	None	None	None	None	None	Min. 2 stories or 26 feet	

BIDDEFORD CODE NOTES for Table B:

N/A: Not allowed.

* A new structure may be permitted to be built with less than the required setback, provided that the following are met:

1. The setback will be equal to the average front yard setback of the existing houses on the immediately adjacent lots; and
2. The setback shall be-at least 15 feet; and
3. These provisions shall apply only along existing residential streets which were developed prior to the enactment of the present front yard setback requirements.

** The Building Inspector may allow a lessening of setback requirement for access structures, as necessary, to facilitate reasonable handicapped accessibility. This provision shall apply to existing structures only. Any access structure built under this provision shall be temporary to facilitate the handicapped or disabled occupant and shall be removed when no longer needed.

+ Maximum height is exclusive of chimneys, antennae, and roof-mounted, building-integrated, building-mounted or architectural wind systems when attached to a structure. Chimneys and antennae shall not be higher than 12 feet above the structure. Roof-mounted, building-integrated, building-mounted or architectural wind systems shall not be higher than 15 feet above the maximum allowed building height in the zone.

A. Minimum land area per dwelling unit.

B. In order to promote condominium forms of housing and affordable housing in close proximity to downtown and services, in the R-1-A, R-1-B, R-2, R-3, OR, and MSRD-2 Zoning Districts, the density requirements may be relaxed as follows:

1. Redevelopment of existing structures:

   a. The Planning Board, or other appropriate approval authority, shall consider granting a density bonus of one residential unit for every 650 square feet of living space within an existing structure, provided the applicant presents redevelopment/renovation plans to the Code Enforcement Officer demonstrating how the redevelopment project will result in the number of residential units with two or more bedrooms being at least, if not more than, the number of units with two or more bedrooms before the density bonus was granted.

   b. If the project is provided a density bonus, the Code Enforcement Officer shall document the allowable density and number of units, in writing, for the Code Enforcement Office files.

   c. An applicant provided a density bonus for rental housing shall enter into a contractual agreement with the City of Biddeford requiring that at least 30% of the additional units created shall be leased such that they do not exceed 80% of the fair market rent (FMR) per bedroom size, as established annually by the U.S. Department of Housing and Urban Development (HUD). The contractual agreement shall be recorded at the York County Registry of Deeds, a copy of which shall be provided to the Code Enforcement Office prior to the issuance of any building permits. Rent-

restricted units will be annually monitored by the Planning and Development Department for contract compliance.

2. Condominium conversions/development:

a. A property may be proposed for redevelopment/renovation from apartments into condominiums in accordance with 1 above.

b. An applicant provided a density bonus for condominiums shall enter into a contractual agreement with the City of Biddeford obligating them to complete the project as condominiums to be offered for sale upon or before completion of the project in return for receiving the density bonus. The contractual agreement shall be recorded at the York County Registry of Deeds, a copy of which shall be provided to the Code Enforcement Office prior to the issuance of any building permits.

c. The applicant agrees that if the project is converted to condominiums, said units shall not be sold for a price that exceeds 125% of the York County median home price affordable to median-income households as set annually by HUD for the City of Biddeford.

C. Applies only to dwelling units. All other uses shall have a minimum of 10,000 square feet.

D. (Reserved)

E. All buildings and structures shall be set back at least 50 feet from any zone in which residential dwellings are an allowed use, except as otherwise provided in this table.

F. (Reserved)

G. (Reserved)

H. Roadside stands may be 10 feet from the major access road.

I. This is the density limit for the expansion of existing residential dwelling units.

J. Applies to all uses.

K. Hospital height limit shall be 110 feet.

L. Does not apply to cluster development.

M. The number of accessory structures shall meet setback requirements; and shall be limited to no more than three per lot; and shall not exceed the height of the primary structure; and any plumbing, if necessary, shall be limited to a utility sink. Structures associated with bona fide working agricultural uses are not subject to these limits.

N. Any use not serviced by a public water supply must show evidence that it is serviced by a potable water supply meeting minimum state standards for safe drinking water.

O. Any residential structures in existence prior to December 20, 1990, may be expanded or added to as long as they meet minimum setbacks (from major access, 40 feet; from other streets, 25 feet; from side and rear property lines, 10 feet).

P. The location of new or expanded buildings and structures including the replacement of existing buildings in the Institutional Zone shall conform to the approved Institutional Master Plan and the following dimensional standards:

1. Maximum height. The maximum height of buildings in the Institutional Zone shall be 35 feet, 50 feet, or 65 feet depending upon in which building height subdistrict the building is located. The building height subdistricts and maximum building heights are shown on the Institutional Zone Subdistrict Map dated September 6, 2001, and described in boundary descriptions prepared by an independent registered land surveyor licensed to practice in the State of Maine which are made a part of this ordinance. Notwithstanding the maximum building height provision, the tallest point of any building or structure, including appurtenant structures, in the Institutional Zone shall not exceed 115 feet above sea level based upon the national geodetic vertical datum (NGVD), unless a higher elevation is mandated as part of a state or federal environmental approval or permit.

2. Minimum building setbacks from public streets. All buildings in the Institutional Zone shall conform to the following minimum setbacks from public streets:

- South side of Hills Beach Road from intersection with Old Pool Road east to a point 250 feet west of the zone boundary/property line: 25 feet.
- South side of Hills Beach Road from a point 250 feet west of the zone boundary/property line east to the zone boundary: 50 feet with a provision that it can be reduced to 25 feet if replacement buildings at the housing park are located further from the wetland.
- North side of Hills Beach Road from intersection with Old Pool Road east to the zone boundary: 50 feet.
- Both sides of Hills Beach Road from intersection with Old Pool Road west to the zone boundary at Route 9: 50 feet with a provision that it can be reduced to 25 feet when a Hills Beach bypass is built that conforms to the following standards and is approved as part of the Institutional Master Plan.
- Both sides of Old Pool Road: 50 feet.
- Both sides of Pool Road (Route 9): 50 feet.
- Both sides of Newtown Road: 40 feet.
- Both sides of the Hills Beach bypass road when built: 50 feet.

The reduced setback along the westerly portion of Hills Beach Road shall be effective only if a Hills Beach bypass road has been constructed that meets the following standards:

a. The road shall be designed and located to allow traffic to Hills Beach to travel directly from Route 9 to the approximate vicinity of the intersection of Old Pool Road and Hills Beach Road without using campus roads.

b. The intersection with Route 9 will be located at an appropriate location for this use.

c. The road shall be designed as a limited access facility with not more than one curb cut on each side providing campus access through internal campus streets. These curb cuts shall be in addition to any intersections with public streets or roads.

d. No buildings or parking lots shall have direct access to or from the bypass road.

e. A landscaped street buffer shall be established as provided for in Section 43 of Article VI.

3. Minimum building setback from the perimeter of the Institutional Zone. All buildings shall be setback a minimum of 50 feet from the external boundary of the Institutional Zone where such zone boundary abuts a Suburban Residential (SR-1), Coastal Residential (CR), or Rural-Farm (R-F) Zone. The area along the zone boundary shall be maintained as a landscaped buffer in accordance with the provisions of Article VI, Section 12.

4. Maximum lot coverage. The maximum lot coverage shall be as follows:

a. Within the area south of Route 9 and west of the Newtown Road: 10%.

b. Within the area South of Route 9 and east of the Newtown Road: 30%.

c. Within the area North of Route 9: No maximum except as provided for in 5, Restricted Development Areas.

5. Restricted development areas. Within the areas identified as "No Build Zones" on the Institutional Zone Subdistrict Map dated September 6, 2001, and described in boundary descriptions prepared by an independent registered land surveyor licensed to practice in the State of Maine which are made a part of this ordinance, the following additional requirements shall apply:

a. No new buildings, parking, roads, or access drives shall be constructed except for the construction of a Hills Beach bypass road and connections to the bypass road from existing public streets.

b. Existing buildings, parking, roads, and access drives may be maintained and may be improved with Planning Board approval but may not be relocated or expanded except as provided for in a.

c. The existing student housing park located on the south side of the Hills Beach Road may be replaced with new low-impact academic or support facilities. Low impact is defined as meeting the following standards:

- The replacement has been approved as part of the institutional master plan.
- The total footprint area of all replacement buildings and structures shall not exceed 14,400 square feet.
- The amount of non-vegetated area after redevelopment shall be not more than the amount of non-vegetated area existing at the time of adoption of this provision.
- No buildings, structures, parking, or other impervious surfaces shall be located closer to any adjacent wetland or the external boundary of the Institutional Zone than the existing facilities being replaced and, where possible, the setback from wetlands shall be increased.

- The architectural design of the low-impact academic or support facilities shall be compatible with the adjacent residential character, consistent with the approved University Master Plan Architectural Design Standards, and shall be limited to a maximum height of 35 feet.
- The low-impact academic or support facilities shall have no greater impact on the adjacent wetlands, than did the development existing at the time of the approval of the 2003-2007 Master Plan (approved May 7, 2003), as demonstrated by a wetlands delineation plan and stormwater management plan submitted as part of the application for site plan approval.
- The low-impact academic or support facilities shall have no greater light intrusion, noise or traffic impact (both vehicular and pedestrian) on adjacent residential properties, than did the development existing on the site at the time of the approval of the 2003-2007 Master Plan (approved May 7, 2003), as demonstrated by a noise mitigation plan and traffic study submitted as part of the application for site plan approval.

d. No new athletic fields or athletic facilities shall be constructed.

e. Existing athletic fields may be maintained and improved but may not be expanded. Improvements to the existing fields shall be limited to items such as fencing, buffering, portable grandstands, scoreboards, lighting, temporary rest room facilities, storage sheds with less than 300 square feet of floor area, and similar facilities.

f. The areas not currently used for athletic fields, parking or the student housing park shall be maintained as naturally vegetated areas and shall not be converted to lawns or other improved open space. Existing vegetation shall be maintained subject to sound management practices relative to cutting, thinning, pruning, and similar activities.

Q. Existing nonconforming lots or structures may be considered for conversion to nonresidential uses allowed in the OR Zone, provided that neither structure nor lot are made more nonconforming as a result of the conversion.

R. The setback may be reduced to the average of the lots immediately adjacent to the lot, as determined by the Code Enforcement Officer.

S. The Building Inspector may allow a lessening of setback requirements, to no less than 10 feet, for utility buildings and structures to facilitate utility infrastructure improvements. Any such buildings or structures built under this provision shall be removed when no longer used for such necessary utility infrastructure.

T. Street Frontage Reduction Ordinance: Street frontage requirements may be relaxed in the Suburban Residential 1 (SR1), R1-A, R1-B, R-2 and R-3 Zoning Districts providing the following:

1. Existing lots of record in existence prior to (insert date) may be divided, one time, to create an additional buildable lot providing both lots meet at least 90% of the required street frontage requirements for the particular zoning district.
2. Both properties shall meet all other dimensional requirements within the particular zoning district where the lot is located.
3. This Ordinance does not apply to any new subdivisions where 3 or more lots are being created.

City Council Meeting

Meeting Date: September 5, 2023
Meeting Time: 6:00 pm

Agenda Item No: [match agenda item #]
Item Description: Frontage Reduction Ordinance Amendment

Submitted by: David C.M. Galbraith, Deputy Director / City Planner

Supporting Information/Documentation:

1. Attachment # 1: Frontage Reduction Ordinance Amendment City of Biddeford

Key Terms:

N/A

Executive Summary:

At the July 18th City Council meeting there was a Committee of the Whole discussion item presented, related to reducing frontage requirements, from 100-ft to 90-ft, in certain areas of the City, to allow increased housing stock.

Detailed Review:

The purpose of the proposed Ordinance would allow existing lots with excess frontage to create an additional residential lot providing the parent parcel and the divided parcel each provide 90% of the required frontage. As an example, if a property is required under the City's dimensional standards to have 100 feet of frontage and the lot had 180 + feet of frontage the property could be divided, to create an additional buildable lot, providing each of the lots has a minimum of 90 feet of frontage.

This frontage reduction, and lot creation, would be permitted on existing lots of record, and not permitted in subdivisions creating more than one new lot. If a frontage reduction Ordinance is desired by the Council, the details of such would need to be developed by Staff with Planning Board direction and oversight. The proposed Ordinance would apply to lots within the Suburban Residential 1 (SR1), R1-A, R1-B, R-2 and R-3 zoning districts.

Funding Source:

No additional funding is required beyond Staff time: If Staff is directed, by the City Council, to develop an Ordinance of this nature, it will be completed in-house with the assistance and direction of the Planning Board.

Staff Recommendation:

At this time Staff is seeking input and direction from the City Council regarding the attached Ordinance amendment, and any specific items that the Planning Board and Staff should consider within the Ordinance development.

2023.XX **IN BOARD OF CITY COUNCIL**

BE IT ORDERED, that the attached Frontage Reduction Ordinance, as written and attached, be forwarded to the Planning Board for Ordinance development, and then returned to the City Council with a recommendation for adoption. The amendment would, as proposed, allow for the reduction of the City's frontage requirements from 100-feet to 90 feet / 90%, in certain areas of the City, for increased lot creation and housing stock.

Attest by:_____

CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Patoine and Members of the Biddeford Planning Board

FROM: Eric Freeman, Assistant City Planner

DATE: September 12th, 2023.

RE: **2023.33 Sketch Plan Review** for Beachwood Development LLC, to create an 8-Lot residential single family home subdivision "Longboard Ridge" at 781 Pool Street (Tax Map 5, Lot 17-2) in the Costal Residential zone and shoreland overlay.

MEETING DATE: September 20th, 2023 at 6:00 PM

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1. INTRODUCTION

The Beachwood Development LLC would like to create an 8-lot single family residential subdivision, referred to as "Longboard Ridge" at 781 Pool Street (Tax Map 5, Lot 17-2), located within Coastal Residential zone and partially within the Limited Residential coastal overlay in the vicinity of Maddox Pond Rd. and Peter Pond Ln. Additionally, this parcel abuts a stream protection overlay although the overlay does not extend to the parcel itself.

This application would include a private street connected to Pool Street. The net residential area of the parcel is 8.93 acres with lot sizes ranging from 48,500 to 73,200 sq. ft. Lots will feature individual subsurface wastewater disposal fields and will be served by an extension of the Kennebunk, Kennebunkport, and Wells Water District's (KKWWD) water main in Pool Street. Electric and telecommunications services will be installed underground from Pool Street. At present the parcel consists mostly of undeveloped woodland interspersed with pockets of freshwater wetland. As part of this application, 10.86 acres will be preserved as open space.

The development triggers Maine Site Law Review, for which the City of Biddeford has Municipal Capacity Authority.

Case 2023.33: 781 Pool Street "Longboard Ridge" /Preliminary Plan Review, Subdivision (Tax Map 5, Lots 17-2) in the CR zone and Shoreland Overlay zone.
Planning Board Hearing date: September 20th, 2023.

The current site

2. PROJECT DATA/INFORMATION

1.	Applicant:	Beachwood Development LLC 92 York Street geoff@bowleybuilders.com
2.	Owner of Property:	Same as applicant
3.	Agent:	Michael Tadema-Wielandt PE 565 Congress Street, Suite 201 Portland, ME 04101
4.	Surveyor:	Same as above
5.	Project Location:	781 Pool Street
6.	Project Tax Map #/Lot #:	Tax Map 5, Lot 17-2
7.	Lot Size:	25.45 Acres
8.	Base Zoning:	CR
9.	Overlay Zoning:	LR (partial)
10.	Existing Use:	Undeveloped Woodland
11.	Proposed Use:	8-Lot Residential Single-Family Subdivision
12.	Approvals Required:	Sketch Plan Review
13.	Uses in the Vicinity:	Single-Family Residential. Resource Protection
14.	Waivers Needed:	a. None
18.	Waivers Granted:	a. None
22.	Other Non-City Permits Required:	DEP Stormwater Permit
23.	LDR Attachment A: Fees Paid:	Yes
25.	Planning Board Review History: Sketch Plan Review: June 21st, 2023	

3. REVIEW PROCESS

Per City ordinance, this application is subject to Site Plan (Land Development Regulations, Article XI) review and approval by the Planning Board.

4. Departmental Review Comments:

A. Planning:

1. Final application should show estimated building envelopes and driveway areas
2. Plans show a 20 ft. wide pedestrian access to Peter Pond Ln. Will this pedestrian access involve additional impervious surface? What materials will be used for the trail?
3. Final application should show approximate septic locations
4. An ability to serve letter from KKWWD would be beneficial
5. Who will own and maintain the open space?

B. Code Enforcement:

1. None

C. Public Works:

1. None

D. Engineering:

1. See comments from Peer Review Engineer.

E. Police:

1. None

F. Fire:

1. None

G. Engineering Peer Review:

See attached comments from Peer Review Engineer

1. STAFF REVIEW

- **APPLICATION COMPLETENESS:** The applicant has submitted a complete application, featuring all required elements as specified under Section 66-35 (Required Information for Final Plan Submissions). As part of the staff's review comments, we've identified aspects of the plan submission to be revised or clarified, which we suggest being made a condition of approval.

- **ZONING:** The proposed use (single family residential) is permitted uses within the Coastal Residential (CR) Zone. Similarly, with respect to applicable dimensional requirements, the project would comply with all applicable requirements, including building height, building setback, frontage, and lot coverage requirements.

- **REVIEW STANDARDS:**

  In general, staff found the application to satisfy City subdivision and site plan requirements. The major site details such as building, parking, natural resource features, landscaping, designs and locations have been finalized so the plan being reviewed the Board are what will be constructed on the face of the earth. However, City Staff and the City's third party civil engineer, identified technical plan elements which need to be addressed by the Applicant prior to Final Approval and an eventual Pre-construction meeting being scheduled by the City. However, the necessary engineering modifications are specialized in nature and are being addressed with the Applicant and Staff. These changes will be reflected in the final Conditions of Approval (COA)

- Maine DEP Stormwater Permit: The project requires a Maine DEP Stormwater Permit.

- WAIVERS: None Requested

2. STAFF RECOMMENDATION

Staff is comfortable moving forward with the Board's preliminary approval of the project, with the understanding that the remaining engineering issues will be resolved, to the satisfaction of the Public Works Director and Engineering Director, prior to a Preconstruction Meeting being scheduled.

3. SAMPLE MOTIONS

A. *Motion to Approve: I motion to APPROVE the Preliminary Site Plan application for the proposed 8-lot subdivision located at 781 Pool Street (Tax Map, Lot 17-2), within the Coastal Residential zoning district, as presented*

B. *Motion to Deny I motion to DENY the Preliminary Site Plan application for the proposed 8-lot subdivision located at 781 Pool Street (Tax Map, Lot 17-2), within the Coastal Residential zoning district, for the following reasons:*

   1) _____.
   2) _____.
   3) _____.

A. *Motion to Table: I motion to TABLE the Preliminary Site Plan application for the proposed 8-lot subdivision located at 781 Pool Street (Tax Map, Lot 17-2), within the Coastal Residential zoning district, for the following reasons:*

   1) _____.
   2) _____.
   _____.

Site Design Associates
Consulting Engineering and Land Planning

September 13, 2023

Mr. David Galbraith
Via email

RE: Longboard Ridge Subdivision
781 Pool Street

Dear David;

Per your request Site Design Associates has undertaken a review of the plans and the stormwater management analysis submitted in support of a preliminary subdivision application for the referenced project.

Our review was based on preliminary civil engineering plans dated 08-16-23 and the stormwater management report. Based on the disturbed area of over one acre proposed, it appears the project will require that a stormwater PBR be filed with the DEP.

We are aware that the plans are preliminary, and may not contain the detail one would expect in the final documents. Our comments include some items that may be closer associated with final documents, in order for the applicant to consider them prior to the final plan submission.

Based on our review we offer the following comments for your, the planning board's, and the applicant's consideration:

A. General

1. Who will own the open space?
2. The application form indicates that the proposed road is to remain private. We reviewed the road design in that context.
3. The Stormwater Inspection and Maintenance Plan refers to a homeowners association as the responsible party for inspection and maintenance. Have proposed HOA documents been submitted? Also, Article VI, Section 51.D.6. requires that a maintenance agreement be prepared and recorded at the registry. This should include the post construction inspection and maintenance plan.
4. Per Article VI, Section 51.D.4. a note should be added to the subdivision plan regarding the private way status .
5. Documentation requirements, and an inspection form for each BMP should be included in the inspection and maintenance plan.
6. The narrative indicates that the topography shown on the drawings is a combination of on the ground survey and LIDAR data. Which portions of the topography are based on the field survey data.

23 Whitney Way Topsham, Maine 04086
Phone: (207) 449-4275 email: info@sitedesignassociates.biz

7. The application refers to wetland and vernal pool, studies. Typically, the city requires copies of those to be submitted with the applications.
8. The application materials state that the applicant is not responsible for development of individual lots. Therefore, the lot development is not included in the impervious area and developed area calculations for DEP permitting purposes. These areas were included for evaluating the stormwater runoff based on city code.

B. Drainage Plans and Calculations

1. The drainage plans should be updated to include contour labels. It is difficult to review the plans and modelling without that information
2. The stormwater management report indicates that the impervious and developed areas on the site will increase, but the rate of stormwater runoff from the site will remain the same or be less than existing conditions. Based on our review of the report, plans and modeling, we offer the following comments which may affect that conclusion:

    a. The model utilizes times of concentration for subcatchments 10 and 30 higher than the times for subcatchments 1 and 3. Modeling should be based on the hydrologically most distant point in each watershed. Therefore, the times for subcatchments 10 and 30 should be utilized for subcatchments 1 and 3 in the model.
    b. The post-development drainage plan delineates separate subcatchments for lots 1 and 2, which is inconsistent with the pre-development modeling.
    c. The pre-development drainage plan indicates that the southerly portion of Lot 2 drains to the south, while the post-development drainage plan indicates that this area drains to the northwest, with no regrading shown.
    d. Similarly, the plans indicate that subcatchment 52 drains to the south across the topography, while this area is part of subcatchment 1 in the pre-development condition, which is supported by the topography.
    e. Why is subcatchment 51 routed through pond 50?
    f. Are the analysis points located at existing culverts under Peter Pond Lane and Maddox Pond Road?
    g. The time of concentration calculations used in the model use sheet flow components of 150 ft. Based on the topographic mapping, this does not appear to accurately reflect the conditions on site.
    h. Times of concentration of 5 minutes were utilized for subcatchments 52 and 53, while this does not seem to be supported by the topography and cover types.

3. The stormwater report assumes a maximum of 5,000 sf of new impervious surface and 20,000 sf of new landscaped area on each lot. Since this is the basis for any conclusions reached relative to stormwater impacts, we suggest

these should be included on the subdivision plan as limits of development on each lot.

4. Calculations should be provided which support the sizing of each of the culverts under the proposed road.

C. Drawings

1. Sheet C-2.0 – Subdivision Plan
   a. Private street notes required under Article VI. Section 51.D.4. should be include on the plan.
   b. No test pits are shown on lots 1, 2, and 7.
   c. The freshwater wetlands on the site extend into some building windows. Since no wetland permits are being sought, the wetlands should be shown as no disturbance areas.
   d. Transformer pad easements should be shown on the final plan.
   e. The plan shows iron rods to be set at the end of the road right of way, while the code requires granite monuments.
   f. A note should be added to the plan which reinforces Article VI. Section 51.D.11, which prohibits driveways on either end of a turnaround.

2. Sheet C-3.0 – Plan and Profile

   a. A drainage easement should be provided across lots 1 and 2, below the 15" culvert, and should be shown on the subdivision plan.
   b. The culvert inverts shown on the drawing conflict with those used in the modeling.
   c. A sawcut and butt joint should be called for at Pool Street.
   d. Has the fire chief reviewed the hydrant location, located more than 500 ft from the end of the road?
   e. Spot grades should be provided on the ends of the turnaround.
   f. The grading does not reflect the ditch elevation shown in the typical section.
   g. The turnaround should be dimensioned.
   h. Note 2 should indicate smooth bore polyethylene storm drain.
   i. A note should be added specifying a minimum driveway culvert size of 15 inch diameter.
   j. A note should be added to the plan that the entire road right of way will be cleared and grubbed.

3. Sheet C-4.0 – Site Details

   a. The trail cross section note 1 suggests that standard trail building practices shall be used. These practices should be noted on the drawings.
   b. Note 1 on the typical trench detail references ASTM D2321 for pipe installation. Any applicable requirements should be shown on the drawing.
   c. A culvert trench detail should be provided.

d. The typical pavement joint detail should include a requirement to tack coat the binder prior to final paving.
e. Road typical cross section:

- The roadside ditch should be noted to be a minimum of 6" below the subgrade.
- Note 1 should reference the city of Biddeford.
- Variable depth grubbing should be specified below the subbase gravel.
- Fill material below the subbase gravel should be specified a either MDOT 703.19 or 703.20.
- In the interest of simplifying the construction, it may be preferable for the depth of the shoulder gravel to match the depth of the base gravel and pavement combined.

4. Sheet C-4.1 – Erosion and Sediment Control details

a. The inspection and maintenance plan for during construction should be updated per chapter 500 and include wet weather inspection and documentation requirements.

We do not believe that these comments will significantly impact the overall design concept, and that they could be satisfactorily addressed at the time of the final plan submission, if the planning board and you concur. If you have any questions, or require additional information, please do not hesitate to contact me.

Sincerely,
Site Design Associates

Tom Saucier, P.E.
President

TERRADYN
CONSULTANTS, LLC

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www.terradynconsultants.com

August 16, 2023 Project #23-023

David Galbraith, City Planner; Director of Planning & Development
City of Biddeford
205 Main Street
Biddeford, ME 04005

SUBJECT: PRELIMINARY SUBDIVISION APPLICATION
LONGBOARD RIDGE SUBDIVISION
CASE #2023.33

Dear David:

On behalf of Beachwood Development Fund LP, attached is a Preliminary Subdivision Plan application for a proposed 8-lot single-family residential subdivision located at 781 Pool Street in Biddeford. We met with the planning board for a pre-application sketch plan review on June 21, 2023 and have revised the plans in response to feedback from the board and members of the public. The preliminary subdivision application form is included in Attachment 1, and the current deed for the property is provided in Attachment 2. The applicant and owner of the property is Beachwood Development Fund LP.

EXISTING PROJECT SITE

The project site is approximately 25.45 acres in size and is identified as Lot 17-2 on Biddeford Tax Map 5. The site is located in the Coastal Residential District with small areas in the Stream Protection and Limited Residential Overlay Zones.

The parcel is mostly undeveloped woodland with pockets of freshwater wetlands. Peter Pond Lane, a private road, is located on the site, following the southern property boundary. It is used to access abutting residential properties south of the site.

A wetland and vernal pool study was conducted on the site by Longview Partners in the spring of 2022. Longview mapped approximately 3.8 acres of forested freshwater wetlands on the site and identified seven potential vernal pools. The potential vernal pools were studied in accordance with Maine Department of Environmental Protection guidelines and were found to not meet the state's biological criteria standards for exceptional wildlife use. More information on the vernal pools is provided in Attachment 5.

An unnamed stream enters the site from the north side of Pool Street and flows south along the site's western boundary before crossing under Peter Pond Lane towards Etherington Pond.

Longview Partners also conducted test pits to determine the suitability of soils to support subsurface wastewater disposal. Test pit locations are shown on the attached plans and logs are provided in Attachment 4.

The net residential area of the parcel was calculated to be 8.93 acres. The minimum lot size within the CR district is based on Chart 9B1, which characterizes minimum lot size based on soil profile and condition. Conservatively this gives a minimum lot size of 40,000 sf. The test pit analysis of the site shows all soil profiles are between 2-3 with a soil condition ranging from All to All/C. According to these calculations, which are provided directly on the attached sketch plan, the site can support up to 9 lots.

The project site is not located within a mapped significant sand and gravel aquifer or in an area of flood hazard, according to the Federal Insurance Rate Map FM2301450011B. The following existing conditions figures with the project site identified are provided in Attachment 4.

Pool Street Subdivision Existing Conditions Figures	
Figure 1	USGS Topo Map
Figure 2	Aerial Photo
Figure 3	NRCS Medium Intensity Soil Survey
Figure 4	FEMA Flood Insurance Rate Map
Figure 5	Maine Significant Aquifer Map

PROPOSED PROJECT

The applicant is proposing to develop an eight-lot single-family residential subdivision on the site. The proposed lots and infrastructure will be located in the eastern part of the site, away from the forested wetlands and stream located to the west. Proposed lots range in size from 1.11 acres (Lot 2) to 2.14 acres (Lot 8), and 10.86 acres will be preserved as open space. The proposed lots will be accessed off Pool Street, via a new 937 linear-foot road named Longboard Lane, designed to meet the town's minor nonurban street standard, with 10' paved lanes and a 2' gravel shoulder.

Lots will feature individual subsurface wastewater disposal fields and will be served by an extension of the Kennebunk, Kennebunkport, and Wells Water District's (KKWWD) water main in Pool Street. Electric and telecommunications services will be installed underground from Pool Street.

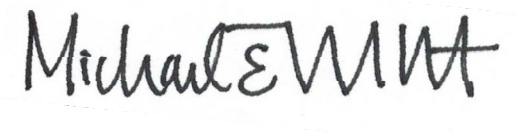
The project was designed to meet the stormwater performance standards of the City of Biddeford Subdivision Regulations. Stormwater runoff from the new roadway will be collected in vegetated roadside ditches and directed west, ultimately draining to the existing stream and Etherington Pond. The design reduces the total area draining towards the eastern part of the site, where neighboring property owners expressed concerns about flooding. Peak rates of stormwater runoff from the site will be limited to pre-development levels. More information on stormwater runoff is provided in the Stormwater Management Report located in Attachment 6.

In addition to subdivision approval, the project will require a Stormwater Permit-By-Rule from the Maine Department of Environmental Protection (MDEP) and an entrance permit from the Maine Department of Transportation (MaineDOT). These applications will be submitted to the applicable state agencies prior to submitting the project for final approval.

CLOSURE

In addition to the information provided above, the materials listed below are attached to meet the submission requirements of the Biddeford Subdivision Regulations. We request to be added to the Planning Board's September 6th meeting agenda to present this information to the Board and begin review of the project. If you have any questions or require additional information, please contact me at 207-632-9010 or mtw@terradynconsultants.com.

Sincerely,
TERRADYN CONSULTANTS, LLC



Michael Tadema-Wielandt, P.E.
Vice President

cc. Geoff Bowley, Beachwood Development Fund LP

Attachments:
1 – Application Forms & Agent Authorization Letter
2 – Current Property Deed
3 – Existing Conditions Figures
4 – Test Pit Logs
5 – Vernal Pool Assessment
6 – Stormwater Management Report
7 – Site Photographs
8 – Financial Capability
9 – Correspondence with State Agencies

Attachment 1

Application Form & Agent Authorization Letter

City of Biddeford – Planning Department
Planning Board Application
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Type of Application:

__ Shoreland Zoning Permit __ Site Plan Review __ Extraction
__ Conditional Use Permit ✓ Subdivision __ Private Way
__ Other: _____

Applicant Information:

Name: Beachwood Development LLC
Mailing Address: 92 York Street
Telephone: (207) 985-3646
Email: geoff@bowleybuilders.com
What is your legal interest in the property?
✓ Owner __ Potential Buyer with Contract __ Lease/Rental Agreement

Owner's Information:

Name: Beachwood Development LLC
Mailing Address: 92 York Street
Telephone: (207) 985-3646
Email: geoff@bowleybuilders.com

Agent's Information:

Name: Michael Tadema-Wielandt, P.E.
Mailing Address: 565 Congress Street Suite 201
Telephone: 207-632-9010
Email: mtw@terradynconsultants.com

Engineer/Surveyor's Information:

Name: Michael Tadema-Wielandt, P.E.
Mailing Address: 565 Congress Street Suite 201
Telephone: 207-632-9010
Email: mtw@terradynconsultants.com

Project Location and Lot Information:

Street Address: 781 Pool Street Drainage Watershed: Etherington Pond
Tax Map: 5 Lot: 17-2
Current Zoning: Coastal Residential Shoreland Zoning: Stream Protection, Limited Residential
Size of Lot: 25.45 (✓ acres ( )s.f. Lot Frontage: 1,066 ft Pool Street
Existing Use of Property: Undeveloped Woodland

Property currently serviced by:

✓ City Road __ Public Sewer __ Public Water __ Public Trash
__ Private Road __ Septic System __ Private Well __ Private Hauler

Slope Conditions in Area of Construction (if applicable):
__Flat (0-3% slope) ✓ Rolling (3-8% slope) __Hilly (8-15% slope) __Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? ✓ (Yes)__(No) if yes attach information
Is the project within the 100-year floodplain? __ (Yes) ✓ (No) if yes attach information
Do you plan to bring fill onto the lot? __(Yes) ✓ (No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:

Undeveloped Woodland

Property to be Serviced by:

__ City Road __ Public Sewer ✓ Public Water __ Public Trash

✓ Private Road ✓ Septic System __ Private Well ✓ Private Hauler

Limits of Disturbance: 4.84 (✓)acres ( )s.f.

Net change in impervious cover: 1.47 (✓)acres ( )s.f.

Is this project part of a larger project? __(Yes) ✓(No)

Is the project proposing a new Private or Public Road? ✓(Yes, Private) __(Yes, Public) __(No)

Is this project within the Urbanized Area/MS4 (*see City Drainage Map*) __(Yes) ✓(No)

Is the project proposing any Stormwater facilities/BMPs? ✓(Yes) __(No)

Will a Traffic Movement Permit (TMP) be required?: __(Yes) ✓(No)

__ **If in a Shoreland Zone:**

Percent of residential lot coverage (Max 20%): _____

Percent of structure expansion (Max 30%): _____

✓ **If Subdivision Review, number of lots proposed:** 8

✓ **If a Private Way is proposed, number of lots served:** 8

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure: _____

Total new square feet paving/parking: _____

Waiver Requests (attach details):

1. _____
2. _____
3. _____
4. _____
5. _____

Required Submittal Attachments:

A. Letters of Approval
   - __ Fire Department – Contact Chief or Deputy Chief – 282-9986
   - __ Ability to Serve for Water Service – Maine Water – 282-1543
   - __ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118
   - __ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127

B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of Site.

D. Architectural renderings/drawings of proposed buildings, as required.

E. Engineering Plans, as required.

F. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- $75 Nonrefundable Administration Fee is required for every application.
- Refer to "Attachment A Fees and Charges" of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance?: ✓(Yes) __(No)

- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

Signature of Applicant: _____ **Date** 8/16/2023

Signature of Property Owner: _____ **Date** 8/16/2023

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVDUAL DRAWING NAME.pdf'

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- All drawings & CAD reference files must be to-scale and within the following coordinate systems:

- MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIUDAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

August 4, 2023

Michael Tadema-Wielandt, P.E.
Terradyn Consultants, LLC
565 Congress Street, Suite 201
Portland, ME 04101

Agent Authorization for Local, State and Federal Permitting
Pool Street Subdivision, Biddeford, Maine

Dear Mike,

On behalf of Beachwood Development Fund LP, I hereby authorize Terradyn Consultants, LLC to act on my behalf as my agent in the processing of the required local, state, and federal permit applications related to the proposed subdivision of Pool Street in Biddeford and to furnish, upon request, supplemental information in support of these applications.

Sincerely,

Geoff Bowley
Beachwood Development Fund LP

Attachment 2

Current Property Deed

NANCY E HAMMOND, REGISTER OF DEEDS
E-RECORDED **Bk 19226 PG 730**
Instr # 2023010584
04/24/2023 01:22:54 PM
Pages 5 YORK CO

1002340232460

After recording return to:
Woodman Edmands, PA
234 Main St., PO Box 468
Biddeford ME 04005

Maine R.E. Transfer Tax Paid

---------- (Space Above This Line For Recording Data) ----------

WARRANTY DEED

KNOW ALL PERSONS BY THESE PRESENTS, **KINGFISHER BEACH LLC**, a Maine limited liability company duly organized and existing under the laws of the State of Maine, FOR CONSIDERATION PAID, hereby grants to **BEACHWOOD DEVELOPMENT FUND,** a Maine limited partnership duly organized, with a mailing address of PO Box 261, Kennebunk ME 04043, with Warranty Covenants, a certain lot or parcel of land, together with any improvements thereon and all rights appurtenant thereto, located in the City of Biddeford, York County, Maine; being more particularly described as follows:

SEE EXHIBIT A ATTACHED HERETO AND
INCORPORATED HEREIN BY REFERENCE

{SIGNATURE PAGE FOLLOWS}

IN WITNESS WHEREOF, **KINGFISHER BEACH LLC** has caused this instrument to be executed by Anette L. Gosnell, the Manager, thereunto duly authorized as of this 24 day of April, 2023

KINGFISHER BEACH LLC

WITNESS

Annette L. Gosnell, Manager
thereunto duly authorized

STATE OF Maine
York County, ss.

Date: April 24, 2023

Personally appeared the above-named Annette L. Gosnell, Manager **KINGFISHER BEACH LLC** and acknowledged the foregoing instrument to be her free act and deed duly authorized in said capacity.

Before me,

Attorney at Law/Notary Public
Print: _____
[SEAL]

JEFFREY S. ZDUNCZYK
Notary Public, State of Maine
My Commission Expires Mar. 20, 2030

Exhibit A

A certain lot or parcel of land, situated in the City of Biddeford, County of York and State of Maine, bounded and described as follows:

Beginning at an iron rod driven into the ground on the southeasterly side of the Pool Road (also known as State Route #9) as shown on a 'Maine State Highway Commission, Right-of-Way Map, State Aid Highway '2", sheet 2 of 5 M.S.H.C. file #16-137 dated December 1961 and recorded at the YCRD in Plan Book 39, Page 8 at the westerly corner of land described in a deed to James C. Lauzier dated March 31, 1977 and recorded at said Registry in Book 2177, Page 222; said iron rod bears South 45^0-23' West, a distance of 115.83 feet from a granite highway monument found set in the ground at M.S.H.C. Station 274 + 50 (said course is shown as South 47^0-46' West on said M.S.H.C. Plan);

Thence by said land, now or formerly, of James C. Lauzier by the following five (5) courses and distances; South 89^0-37' -15" East, a distance of 146.43 feet to the westerly end of a stonewall;

Thence South 83^0-44' East, by said stonewall, 59.85 feet;

Thence South 89^0-26' -15" East, by said stonewall, 161.35 feet;

Thence North 87^0-06' -30" East, by said stonewall, 151.26 feet;

Thence South 85^0-09' -15" East, by said stonewall, 99.26 feet to an iron pipe found driven into the ground;

Thence South 88^0-39' East, by land described in a deed to John W. Fowler, dated July 24, 1986 and recorded at said Registry in Book 3939, Page 53 and by said stonewall, 200 feet to an iron rod with survey cap driven into the ground;

Thence South 06^0-04' East, by the westerly side of the Maddox Road (also known as the Old Pool Road) and by a stonewall, 165.00 feet to a drilled hole set in said stonewall;

Thence South 12^0- 03' -30" West, by said westerly side of the Maddox Road and said stonewall, 100.32 feet to an iron pipe found driven into the ground;

Thence North 77^0-40' -30" West, by land described in the deed to Carol A. Reidy et al dated September I l, 1967 and recorded at said Registry in Book 1782, Page 778 and shown as lot on a 'Plan Showing Lots Belonging to L. Gordon Adamson Et Al', dated January 16, 1967 made by Libby & Dow Engineers and recorded at said Registry in Plan Book 43, Page 26, a distance of 224.19 feet to an iron pipe found driven into the ground;

Thence South 05^0-52' -45" West, by said lot #5 and said land, now or formerly of Reidy, 109.72 feet to an iron pipe found driven into the ground;

Thence South 38^0-25' -45" West partly by said lot #5 and said land, now or formerly of Reidy and partly by lot #4 as shown on said Adamson Plan and described in a deed to Marjorie A. Jamback et al, dated September 11, 1967 and recorded at said Registry in Book 1782, Page 775, a distance of 161.38 feet to a drill hole set in ledge;

Thence South 9^0-10' West by the northwesterly side of lot #3 as shown on said Adamson Plan and land described in a deed to said Marjorie A. Jamback dated May 22, 1973 and Registry in Book 2102, Page 349, a distance of 230.92 feet to an iron pipe found driven into the ground;

Thence South 02^0-30' -30" East, by said lot #2 and land, now or formerly of Spear and partly by lot #1 as shown on said Adamson Plan and land described in a deed to Katherine B. Cox et al dated April 7, 1973 and recorded at said Registry in Book 1988, Page 71, a distance of 230.65 feet to an iron pipe found driven into the ground;

Thence North 55^0- 26' -45" East, by said lot #1 and land, now or formerly of Cox, 254.09 feet to an iron pipe found driven into the ground;

Thence South 28^0-50' -30" East, by said westerly side of the Maddox Road, 40.18 feet to an iron pipe found driven into the ground;

Thence South 55^0-26' -45" West, by land described in a deed to Pauline V. Natale dated May 29, 1969 and recorded at said Registry in Book 1840, Page 327, a distance of 250.00 feet to an iron pipe found driven into the ground,

Thence South 83^0-27' West, by land described in a deed to Dorothy hi. Matheson dated September 15, 1982 recorded at said Registry in Book 2981, Page 302, and partly by land described in a deed to said Dorothy H. Matheson dated October 25, 1985 and recorded at said Registry in Book 3673, Page 117, and shown as lot #2 on a 'Sketch Showing Land Surveyed for Richard Banfield, Jr.' dated September 18, 1981 last revised August 9, 1985 made by Dow & Coulombe, Inc. (said course being called South 83^0-52' -30" West in said Matheson deeds), a distance of 315.43 feet to an iron rod with survey cap driven into the ground;

Thence South 75" -42' West, by said land of Matheson and partly by land described in a deed to Arthur J. Gosnell et al dated May 24, 1986 and recorded at said Registry in Book 3787, Page 218 (said course being called South 76^0-09' West in said Matheson and Gosnell deeds) and by lot #1 shown on said 'Sketch Showing Land Surveyed for Richard Banfield, Jr.', 397.24 feet to an iron rod with survey cap driven into the ground;

Thence South 63^0-17' -15" West, by said land, now or formerly of Gosnell (said course being called South 63^0-44' West in said Gosnell deed), 144.76 feet to an iron pipe found driven into the ground;

Thence by land described in a deed to Thomas L. Parks et al dated June 16, 1983 recorded at said Registry in book 3109, page 19 and shown on a 'Plan Showing Land Conveyed by Linnell T. Madden' dated December 3, 1970 made by Libby & Dow Engineers by the following two (2) courses and distances; South 61 ^{0}- 13' West (said course being called South 62^0-35' West in said Parks deed and I,innell to Madden plan), 108.62 feet to an iron pipe found driven into the ground;

Thence South 84^0-45' -30" West (said course being called South 85^0-59' West in said Parks deed to Linnell to Madden Plan) 76.69 feet to a iron rod with survey cap driven into the ground;

Thence by remaining land of this grantor by the following three (3) courses and distances; North 69^0-20' West, a distance of 61.71 feet;

Thence North 13^0-01' West, a distance of 236.46 fcct;

Thence North 24^0-10' -30" West, a distance of 257.85 feet;

Thence North 45^0-23' East, by said southeasterly side of the Pool Road as shown on said M.S.H.C. Plan, 1,034.84 feet to the point of beginning. Containing 25.30 acres.

The above-described parcel is conveyed subject to easements and rights-of-way described in the following deeds:

Book 2981, Page 302; Book 3673, Page 117; Rook 3787, Page 218; Book 3109, Page 19; Book 2352, Page 142; Book 1256, Page 417; Book 3622, Page 123; Book 4598, Page 131; Book 3832, Page. 230 and Book 2016, Page 42.

Subject to mineral rights reservations and utility easements appearing of record.

The above courses are magnetic and of the year 1973.

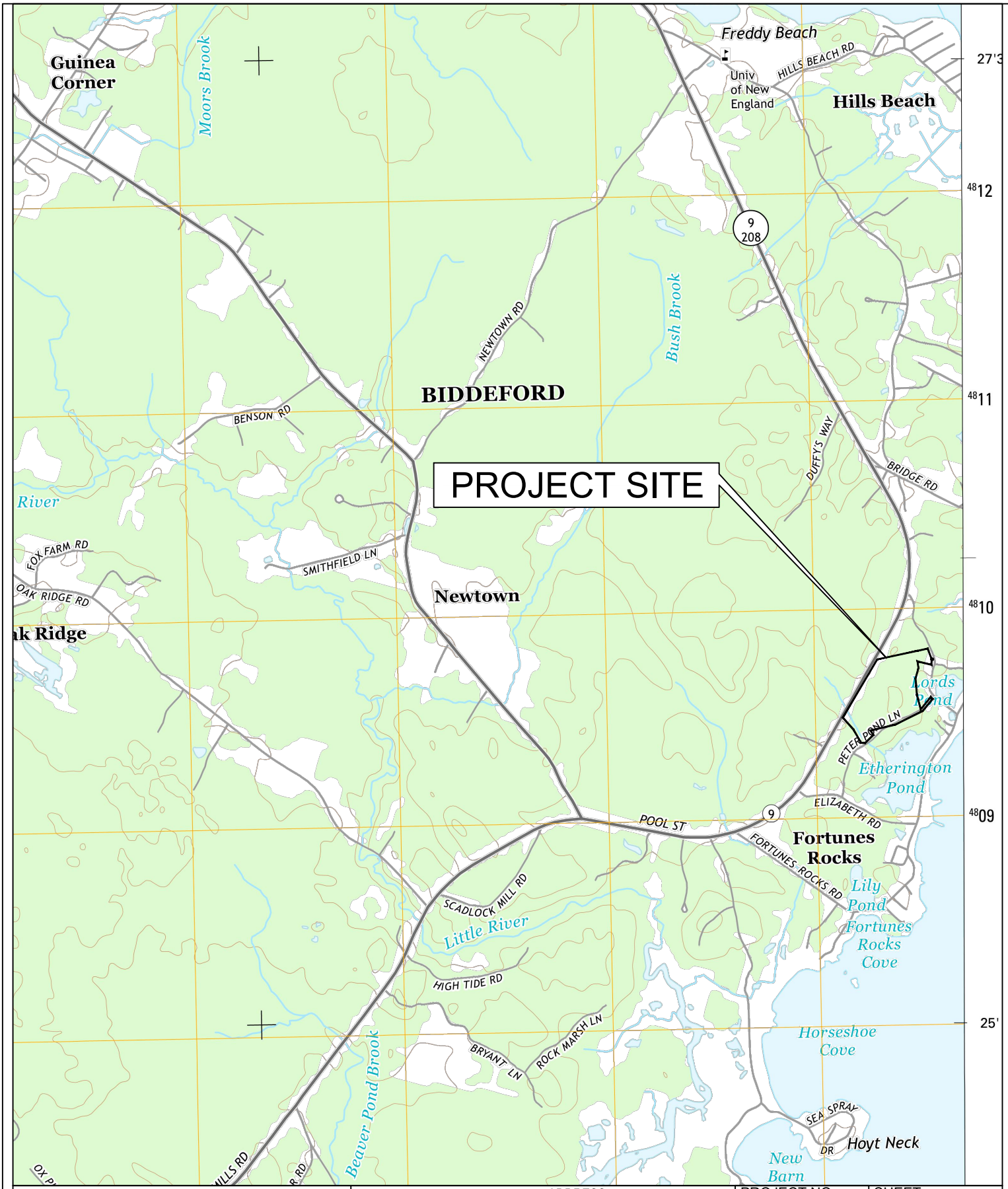
Reference is made to a plan entitled 'Peter Pond, Phase 2', Plan Showing a Standard Boundary Survey made for Richard W. Banfield: dated April 3, 1989 revised August 3, 1989 made by Libby & Coulombe, Inc.

Also conveying herewith all Grantor's right, title and interest in and to that six (6) foot wide pedestrian easement as described in deed to Arthur J. Gosnell and Margaret C. Gosnell, recorded in the York Registry of Deeds in Book 3787, Page 218.

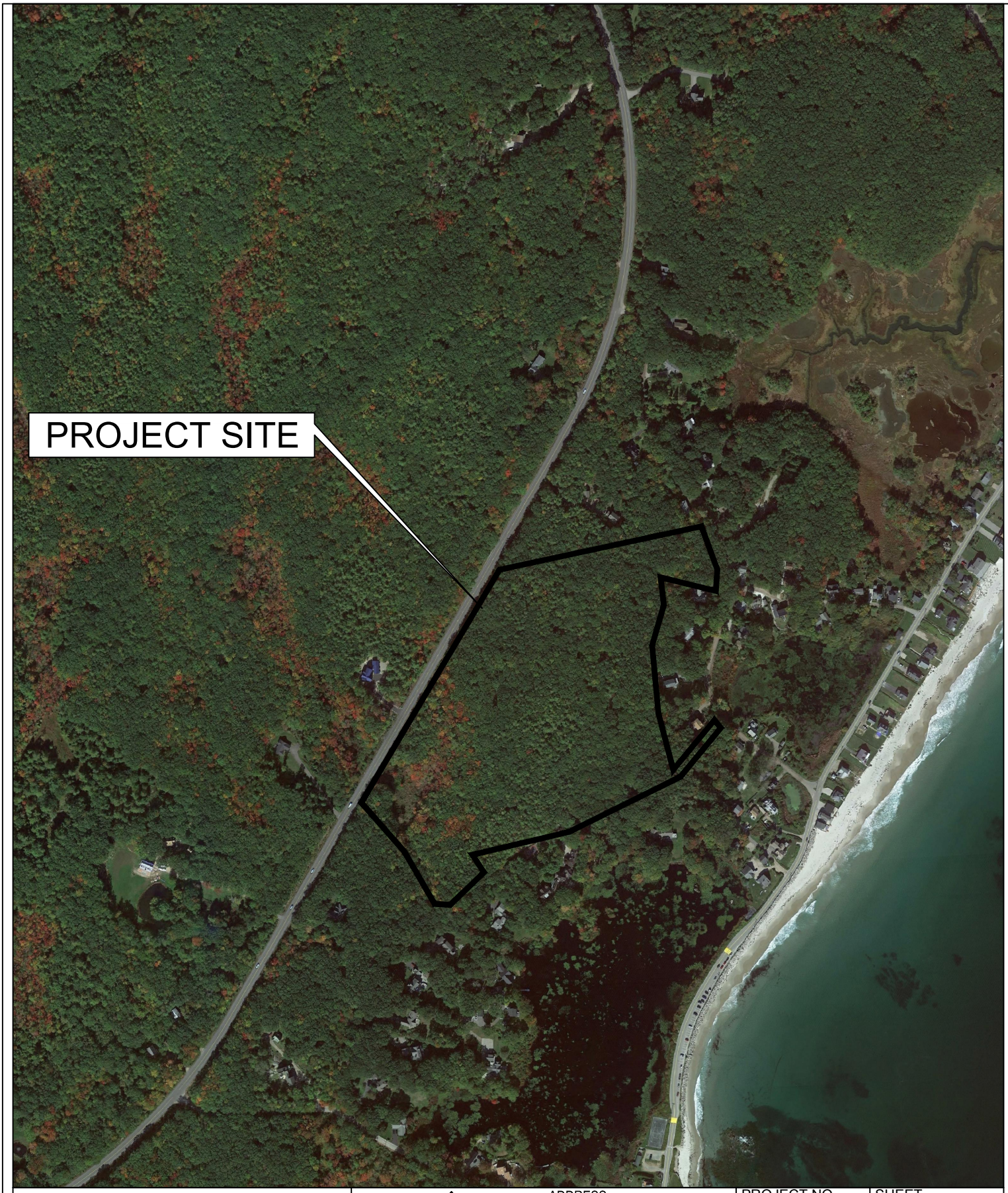
Being the premises conveyed to the within Grantor by deed of Annette L. Gosnell, Judith G. Kempe, Gretchen G. Wood, and Cary L. Harrison dated January 17, 2007 and recorded in York Registry of Deeds in Book 15090, Page 867.

Attachment 3

Existing Conditions Figures



USGS BIDDEFORD QUADRANGLE MAP	TERRADYN CONSULTANTS, LLC	ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260	PROJECT NO. 22-023	SHEET 1
PROJECT: POOL STREET SUBDIVISION BIDDEFORD MAINE		PHONE: (207) 926-5111	DATE 5/16/2023	OF 5
PREPARED FOR: BEACHWOOD DEVELOPMENT FUND 92 YORK STREET KENNEBUNK, MAINE 04043		WEB SITE: www.terradynconsultants.com	SCALE 1" = 2,000'	
	Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting			



AERIAL MAP

PROJECT:
POOL STREET SUBDIVISION
BIDDEFORD MAINE

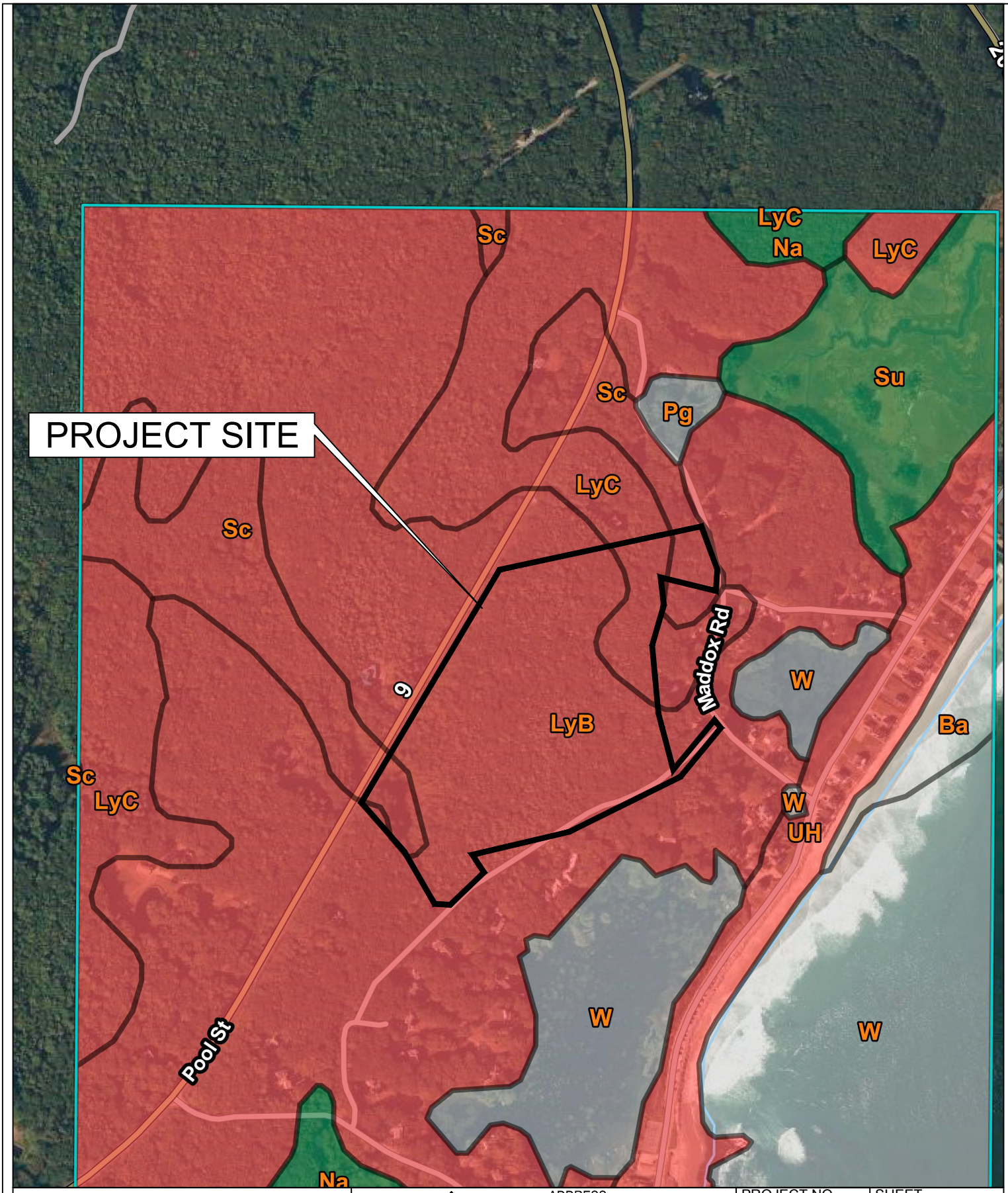
PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, MAINE 04043

TERRADYN CONSULTANTS, LLC

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com

Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PROJECT NO.	SHEET
22-023	2
DATE	OF
5/16/2023	5
SCALE	
1" = 500'	



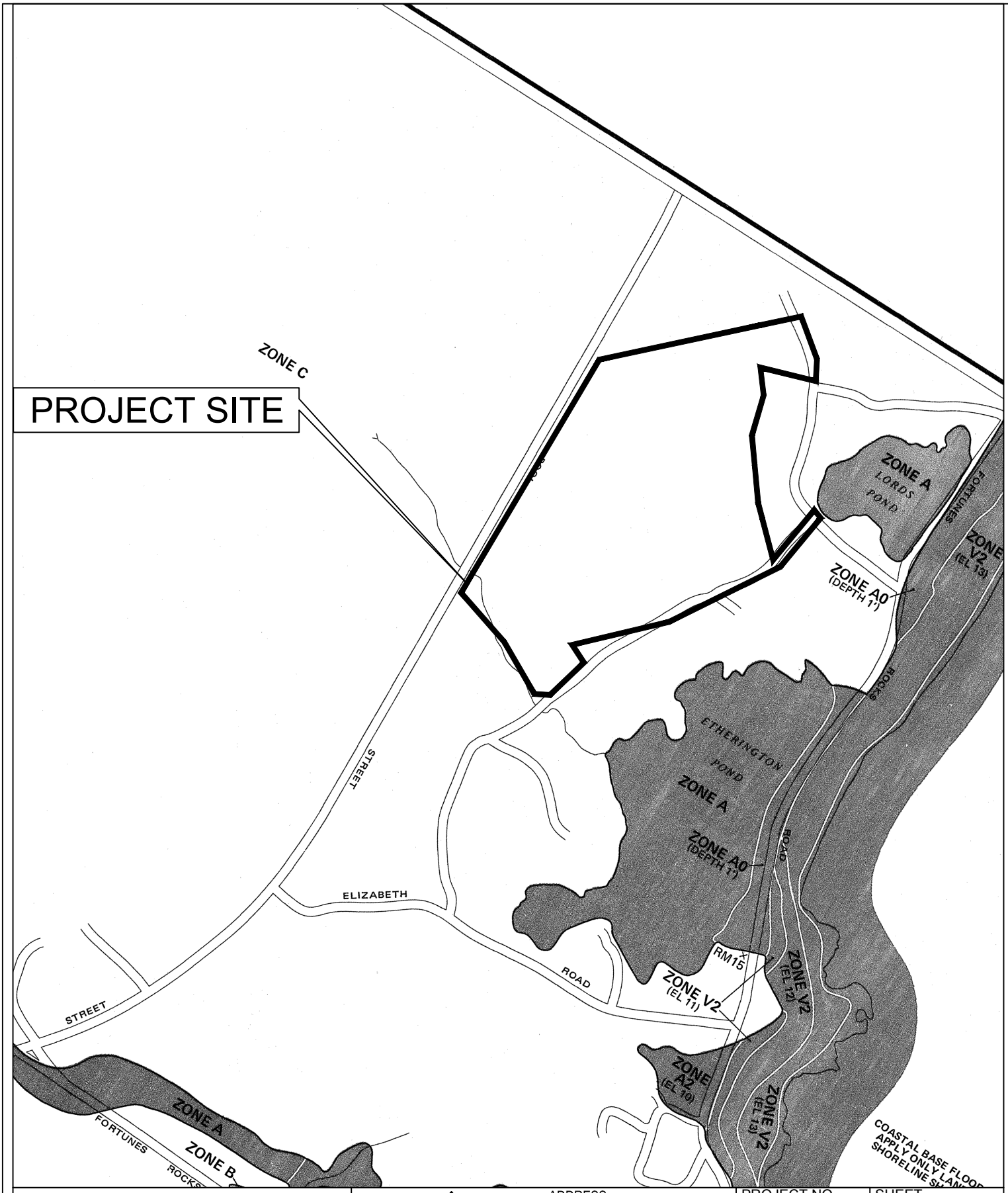
MEDIUM INTENSITY SOILS SURVEY

PROJECT:
POOL STREET SUBDIVISION
BIDDEFORD MAINE

PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, MAINE 04043

TERRADYN CONSULTANTS, LLC
ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PROJECT NO.	SHEET
22-023	3
DATE	OF
5/16/2023	5
SCALE	
1" = 500'	



FLOOD INSURANCE RATE MAP

PROJECT:
POOL STREET SUBDIVISION
BIDDEFORD MAINE

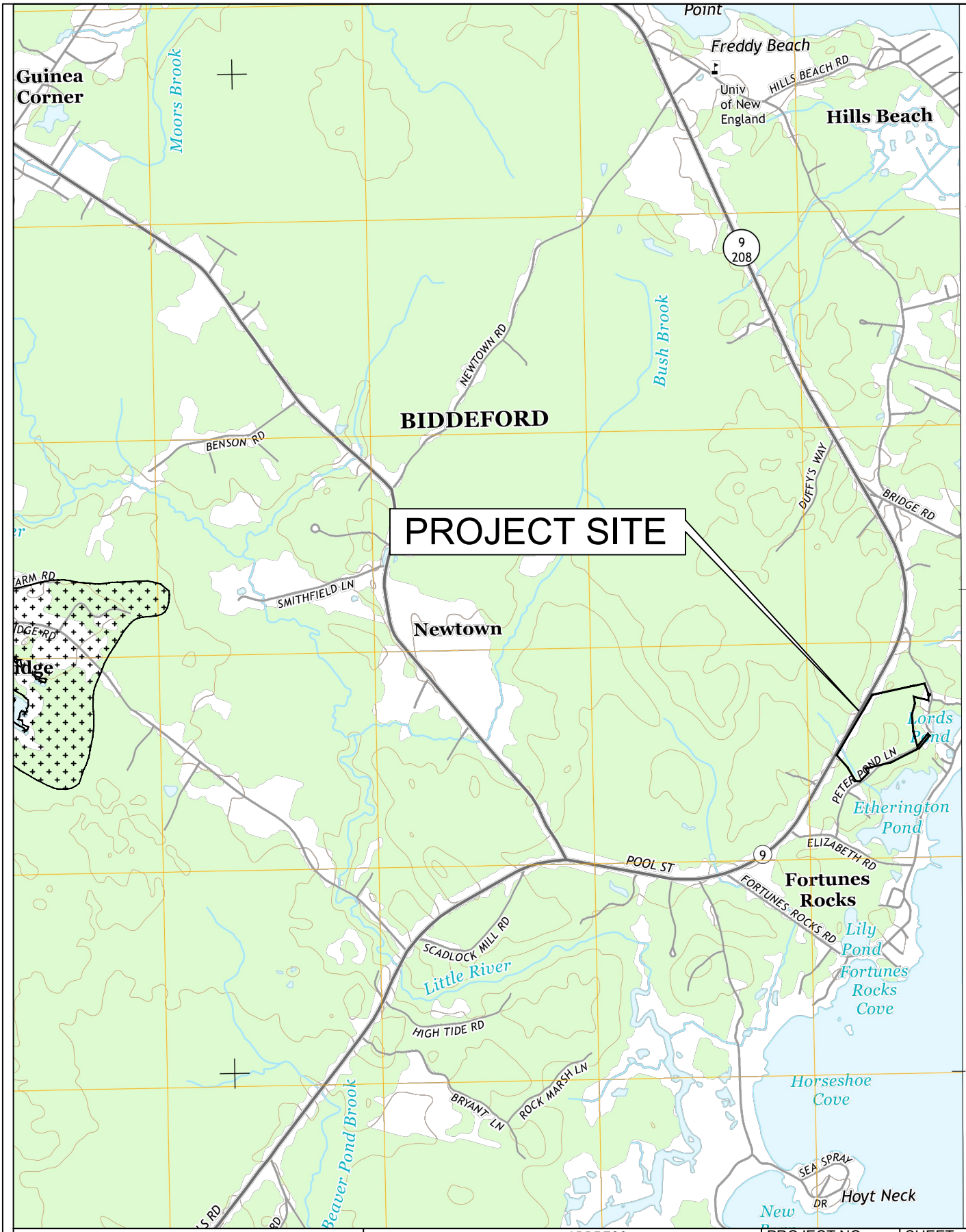
PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, MAINE 04043

TERRADYN CONSULTANTS, LLC

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com

Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PROJECT NO.	SHEET
22-023	4
DATE	OF
5/16/2023	5
SCALE	
1" = 500'	



SIGNIFICANT SAND & GRAVEL AQUIFER MAP	TERRADYN CONSULTANTS, LLC	ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260	PROJECT NO. 22-023	SHEET 5
PROJECT: POOL STREET SUBDIVISION BIDDEFORD MAINE		PHONE: (207) 926-5111	DATE 5/16/2023	OF 5
PREPARED FOR: BEACHWOOD DEVELOPMENT FUND 92 YORK STREET KENNEBUNK, MAINE 04043		WEB SITE: www.terradynconsultants.com	SCALE 1" = 2,000'	
	Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting			

Attachment 4

Test Pit Logs

POOL STREET

PETER POND LANE

POTENTIAL WASTEWATER DISPOSAL SITE (MIN. 35,000 SQ. FT. LOT SIZE REQUIRED)

POTENTIAL WASTEWATER DISPOSAL SITE (MIN. 30,000 SQ. FT. LOT SIZE REQUIRED)

TP 1 TP 2 TP 3 TP 4 TP 5 TP 6 TP 7 TP 8 TP 9 TP 10 TP 11 TP 12 TP 13 TP 14 TP 15

MDEP JURISDICTIONAL STREAM CHANNEL (75' SETBACKS FOR CONSTRUCTION/ SOIL DISTURBANCE)

DELINEATION NOTES:
WETLAND STUDY CONDUCTED APRIL 13, & 20, 2022

VERNAL POOL STUDY CONDUCTED APRIL 13 & 20, & MAY 9, 2022. NO "SIGNIFICANT" VERNAL POOL HABITAT WAS IDENTIFIED DURING 2022 STUDY

PLAN NOTES:
THIS PLAN IS A COMPOSITE OF PROPERTY BOUNDARY INFORMATION PER A SURVEY PLAN BY DOW & COULOMBE, INC. DATED APRIL 3, 1989, MAINE OFFICE OF GIS 2' TOPOGRAPHIC CONTOURS & AERIAL PHOTOGRAPH, AND SUBMETER GPS LOCATION OF WETLAND BOUNDARIES & OTHER SITE FEATURES AS DEPICTED BY LONGVIEW PARTNERS, LLC.

MAP IS FURNISHED FOR PLANNING PURPOSES ONLY AND SHALL NOT BE REPRODUCED OR UTILIZED BY ANYONE OTHER THAN THE PARTIES NAMED WITHOUT EXPRESS WRITTEN CONSENT OF LONGVIEW PARTNERS, LLC.

LEGEND:

- FRESHWATER WETLAND AREA (LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)
- VERNAL POOL EXTENTS (LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)
- SURFACE WATER RUNOFF (LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)
- MDEP JURISDICTIONAL STREAM CHANNEL (REQUIRES 75' SETBACK FOR CONSTRUCTION/SOIL DISTURBANCE)
- TP — SOIL TEST PIT (LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)
- POTENTIAL WASTEWATER DISPOSAL SITE

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 inch = 60 ft.

NOTE:
MINIMUM LOT SIZES AS SHOWN ARE FOR LOTS SERVED BY PUBLIC WATER. LOTS MUST BE 80,000 SQ. FT. MINIMUM IF SERVED BY PRIVATE WATER SUPPLIES. (SEE BIDDEFORD ORDINANCE)

WETLAND DELINEATION & POTENTIAL WASTEWATER DISPOSAL PLAN

PREPARED FOR
ANNETTE GOSNELL
781 POOL STREET
(MAP 5, LOT 17-2)
BIDDEFORD, MAINE

LONGVIEW PARTNERS, LLC
ENVIRONMENTAL PERMITTING SPECIALISTS

DRAFT:	SCALE:	CHECKED:	PLAN DATE:
BO	1" = 60'	JL	6/13/22

SOIL TEST PIT PROFILE DESCRIPTIONS

LONGVIEW PARTNERS, LLC
6 SECOND STREET BUXTON, MAINE

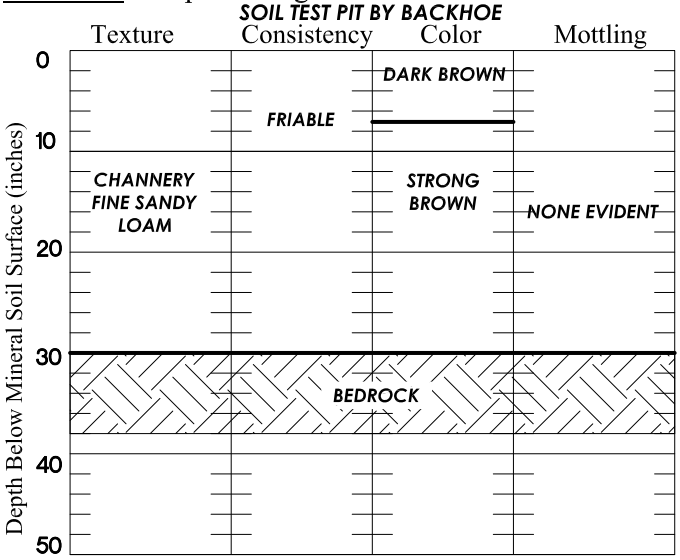
Town, City, Plantation	Street, Road, Subdivision	Owner's Name
BIDDEFORD	**781 POOL STREET**	**ANNETTE GOSNELL**

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 1** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

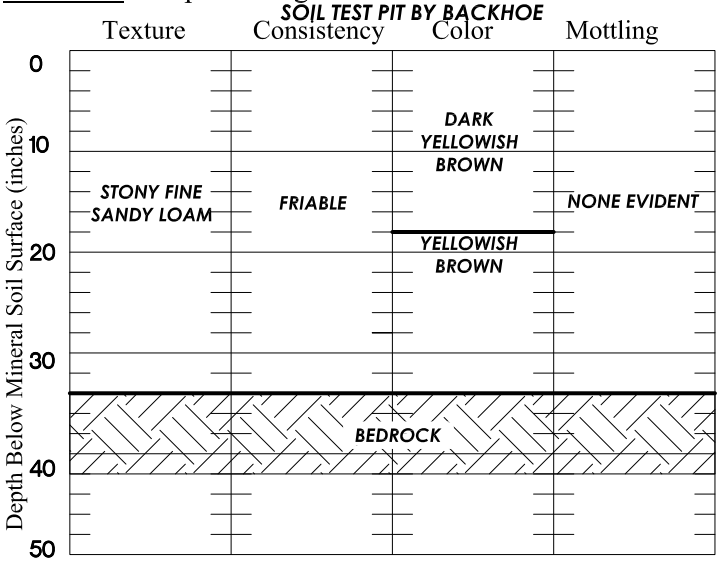


Soil Classification	Slope	Limiting Factor	
2 (Profile) AIII (Condition) TUNBRIDGE	____ %	30 "	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth

Observation Hole **TP 2** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



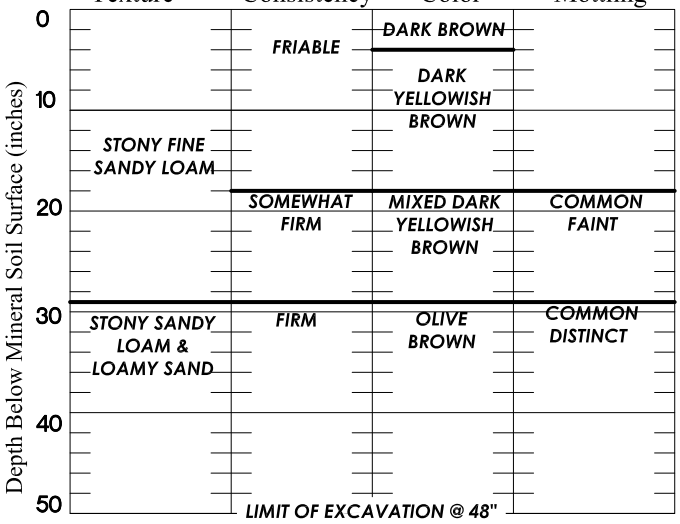
Soil Classification	Slope	Limiting Factor	
2 (Profile) AIII (Condition) TUNBRIDGE	____ %	34 "	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 3** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

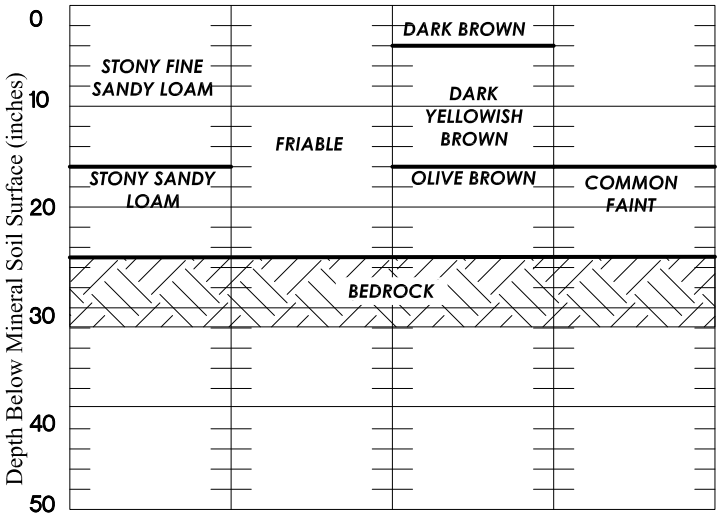


Soil Classification	Slope	Limiting Factor	
3 (Profile) C (Condition) SKERRY	____ %	18 "	[X] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

Observation Hole **TP 4** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



Soil Classification	Slope	Limiting Factor	
2 (Profile) AIII/C (Condition) TUNBRIDGE	____ %	25 "	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth

SIGNATURE	LSE/CSS #	DATE
Jamie Logan	237/213	5/24/22

SOIL TEST PIT PROFILE DESCRIPTIONS

LONGVIEW PARTNERS, LLC
6 SECOND STREET BUXTON, MAINE

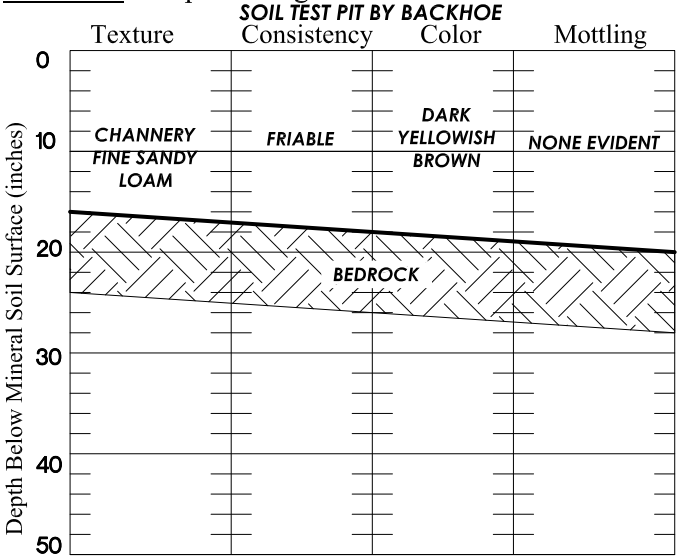
Town, City, Plantation	Street, Road, Subdivision	Owner's Name
BIDDEFORD	**781 POOL STREET**	**ANNETTE GOSNELL**

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 5** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

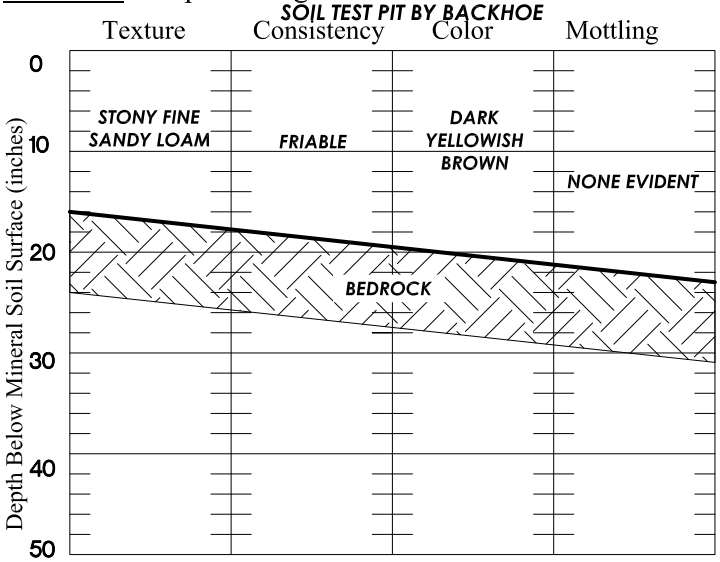


Soil Classification	Slope	Limiting Factor	
2 Profile / AIII Condition	_____ %	16-20"	[X] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth
LYMAN			

Observation Hole **TP 6** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



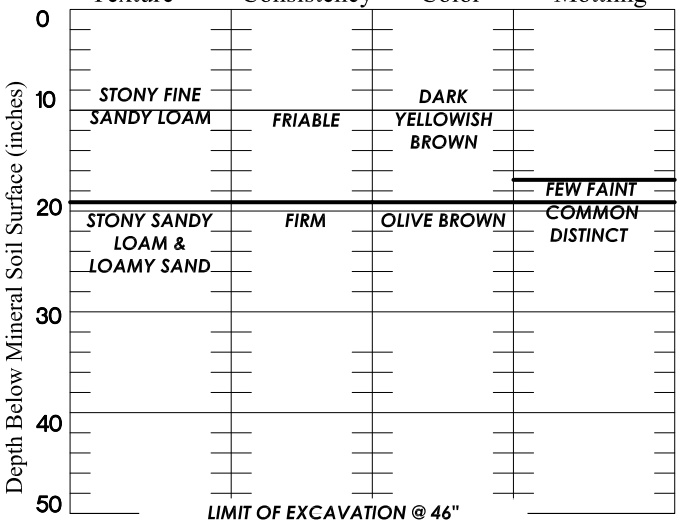
Soil Classification	Slope	Limiting Factor	
2 Profile / AIII Condition	_____ %	16-23"	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth
LYMAN			

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 7** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

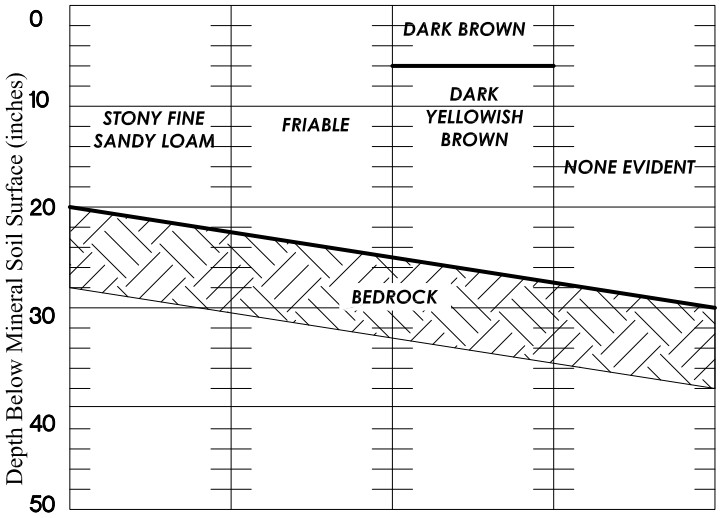


Soil Classification	Slope	Limiting Factor	
3 Profile / C Condition	_____ %	17"	[X] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth
SKERRY			

Observation Hole **TP 8** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



Soil Classification	Slope	Limiting Factor	
2 Profile / AIII Condition	_____ %	20-30"	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth
TUNBRIDGE			

SIGNATURE	LSE/CSS #	DATE
Jamie Logan	237/213	5/24/22

SOIL TEST PIT PROFILE DESCRIPTIONS

LONGVIEW PARTNERS, LLC
6 SECOND STREET BUXTON, MAINE

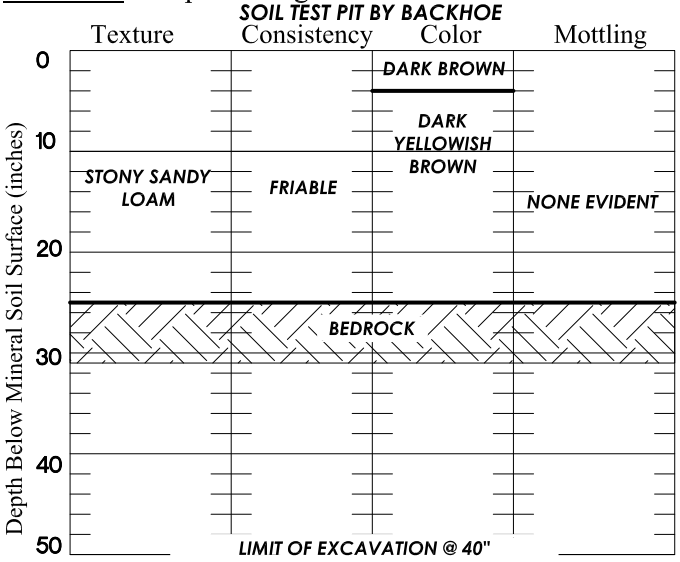
Town, City, Plantation	Street, Road, Subdivision	Owner's Name
BIDDEFORD	**781 POOL STREET**	**ANNETTE GOSNELL**

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 9** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

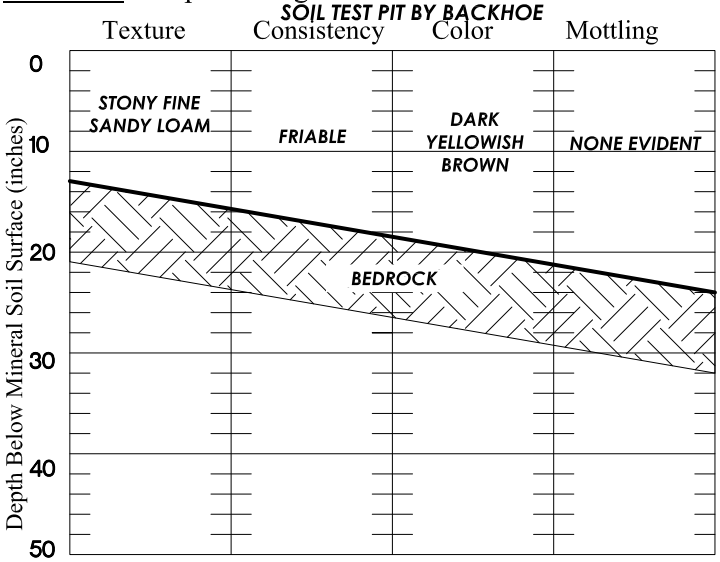


Soil Classification	Slope	Limiting Factor	
2 (Profile) AIII (Condition) TUNBRIDGE	_____ %	25 "	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth

Observation Hole **TP 10** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



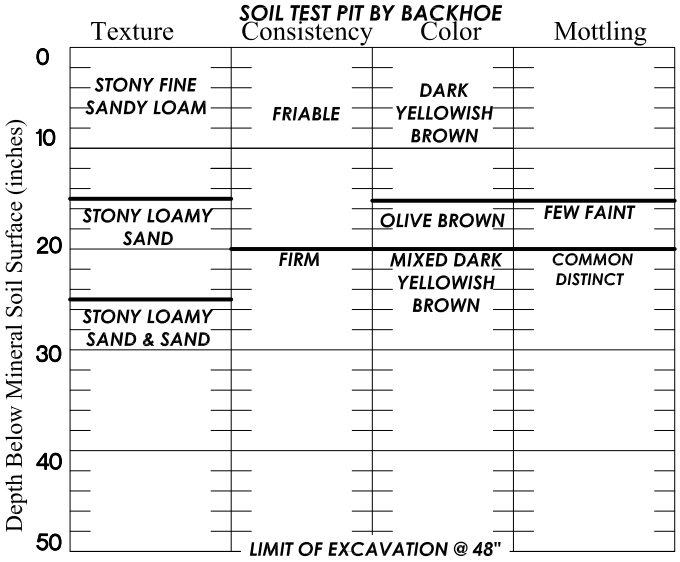
Soil Classification	Slope	Limiting Factor	
2 (Profile) AII (Condition) LYMAN	_____ %	13-24 "	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 11** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

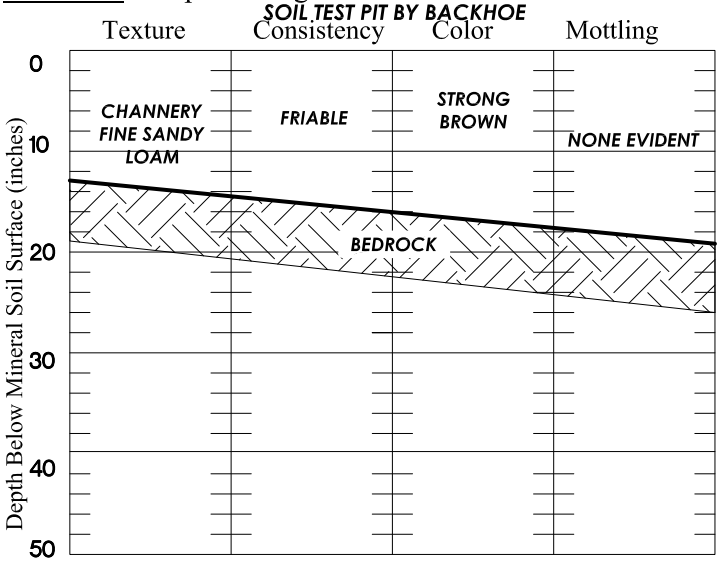


Soil Classification	Slope	Limiting Factor	
3 (Profile) C (Condition) SKERRY	_____ %	15 "	[X] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

Observation Hole **TP 12** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



Soil Classification	Slope	Limiting Factor	
2 (Profile) AII (Condition) LYMAN	_____ %	13-19"	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth

SIGNATURE	LSE/CSS #	DATE
Jamie Logan	237/213	5/24/22

SOIL TEST PIT PROFILE DESCRIPTIONS

LONGVIEW PARTNERS, LLC
6 SECOND STREET BUXTON, MAINE

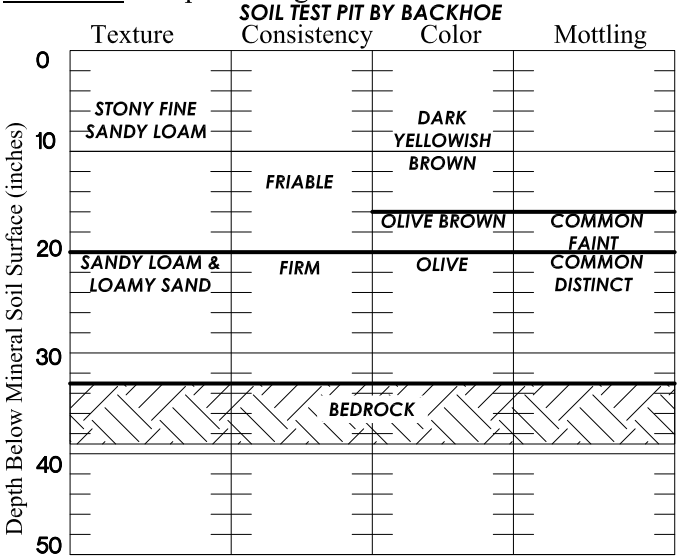
Town, City, Plantation	Street, Road, Subdivision	Owner's Name
BIDDEFORD	**781 POOL STREET**	**ANNETTE GOSNELL**

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 13** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE

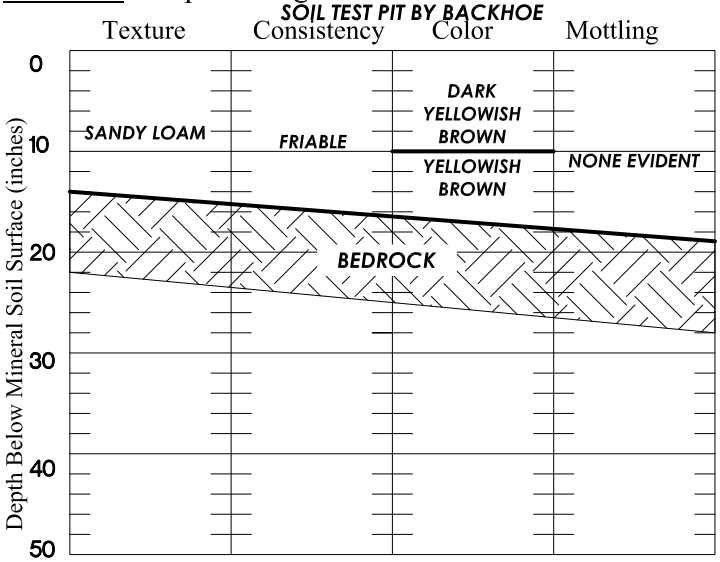


Soil Classification		Slope	Limiting Factor	
3	AIII/C	_____ %	16 "	[X] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth
Profile	Condition			

Observation Hole **TP 14** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



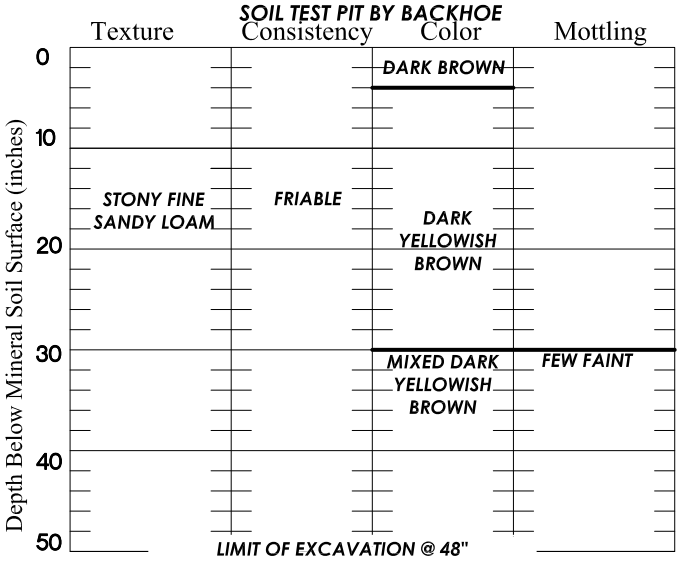
Soil Classification		Slope	Limiting Factor	
2	AIII	_____ %	14-19"	[ ] Ground Water [ ] Restrictive Layer [X] Bedrock [ ] Pit Depth
Profile	Condition			
LYMAN				

SOIL DESCRIPTION AND CLASSIFICATION (PER STATE OF MAINE SUBSURFACE WASTEWATER DISPOSAL RULES)

Observation Hole **TP 15** ■ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

SOIL TEST PIT BY BACKHOE



Soil Classification		Slope	Limiting Factor	
2	C	_____ %	30 "	[X] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth
Profile	Condition			

Observation Hole _____ ☐ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

Soil Classification		Slope	Limiting Factor	
_____	_____	_____ %	_____ "	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth
Profile	Condition			

SIGNATURE	LSE/CSS #	DATE
Jamie Logan	237/213	5/24/22

Attachment 5

Vernal Pool Assesment

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

MELANIE LOYZIM
COMMISSIONER

April 11, 2023

Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043

Re: Vernal Pool Significance Determination, Pool ID #s 5059, 5060, 5061, 5062, 5063, 5064, 5065– Biddeford

To Whom It May Concern:

Vernal pools are temporary to semi-permanent wetlands occurring in shallow depressions that typically fill during the spring and dry during the summer or in drought years. They provide important breeding and foraging habitat for a wide variety of specialized wildlife species including several rare, threatened, and endangered species.

After conducting a field survey at your request, it has been determined that the vernal pools identified above on your property are NOT SIGNIFICANT because either: 1. the features do not meet the definition of a vernal pool under the Significant Wildlife Habitat rules, 06-096 CMR 335(9) or 2. the vernal pools do not meet the biological standards for exceptional wildlife use of the Significant Wildlife Habitat rules, 06-096 CMR 335(9)(B). Therefore, activities within 250 feet of the pools are not regulated under the Natural Resources Protection Act (NRPA) unless there are other protected natural resources nearby such as streams or freshwater wetlands. I have attached a copy of the database printout that verifies the State's findings with respect to your survey.

I want to also advise you that the pool areas on your property can be considered freshwater wetlands and therefore direct pool alterations may require permitting under the NRPA.

If you have any questions or need further clarification, please contact Mark Stebbins at 207-592-4810 or email at: Mark.N.Stebbins@maine.gov

Sincerely,

Robert Wood
Director, Bureau of Land Resources

cc. town file

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Tuesday, April 11, 2023

IFW's Pool ID: 5059 Twp: Biddeford
Observer's ID: Pool A
UTM Coordinates of Pool Center: 388460 E, 4809658 N
ProjectType: 781 Pool Street

Landowner: Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043
geoff@bowleybuilders.com

Contact: James Logan - Longview Partners, LLC
6 Second Street
Buxton, ME 04093
(207) 693-8799 longviewpartners213@gmail.com

Survey Date: 4/13/2022 Additional Survey Dates: 04/20/2022, 05/09/2022
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5060 Twp: Biddeford
Observer's ID: Pool B
UTM Coordinates of Pool Center: 388466 E, 4809583 N
ProjectType: 781 Pool Street

Landowner: Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043
geoff@bowleybuilders.com

Contact: James Logan - Longview Partners, LLC
6 Second Street
Buxton, ME 04093
(207) 693-8799 longviewpartners213@gmail.com

Survey Date: 4/13/2022 Additional Survey Dates: 04/20/2022, 05/09/2022
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5061 Twp: Biddeford
Observer's ID: Pool C
UTM Coordinates of Pool Center: 388422 E, 4809728 N
ProjectType: 781 Pool Street

Landowner: Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043
geoff@bowleybuilders.com

Contact: James Logan - Longview Partners, LLC
6 Second Street
Buxton, ME 04093
(207) 693-8799 longviewpartners213@gmail.com

Survey Date: 4/13/2022 Additional Survey Dates: 04/20/2022, 05/09/2022
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5062 Twp: Biddeford
Observer's ID: Pool D
UTM Coordinates of Pool Center: 388478 E, 4809679 N
ProjectType: 781 Pool Street

Landowner: Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043
geoff@bowleybuilders.com

Contact: James Logan - Longview Partners, LLC
6 Second Street
Buxton, ME 04093
(207) 693-8799 longviewpartners213@gmail.com

Survey Date: 4/13/2022 Additional Survey Dates: 04/20/2022, 05/09/2022
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments:

IFW's Pool ID: 5063 Twp: Biddeford
Observer's ID: Pool E
UTM Coordinates of Pool Center: 388530 E, 4809786 N
ProjectType: 781 Pool Street

Landowner: Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043
geoff@bowleybuilders.com

Contact: James Logan - Longview Partners, LLC
6 Second Street
Buxton, ME 04093
(207) 693-8799 longviewpartners213@gmail.com

Survey Date: 4/13/2022 Additional Survey Dates: 04/20/2022, 05/09/2022
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments: Pool provides some habitat for spotted salamanders but does not meet the threshold for significance.

IFW Recommendations for Significant Vernal Pool Determinations

The following is a list of pools and IFW's recommendations for whether or not they qualify as Significant Vernal Pools, one of Maine's Significant Wildlife Habitats.

Data current as of: Tuesday, April 11, 2023

IFW's Pool ID: 5064 Twp: Biddeford
Observer's ID: Pool F

UTM Coordinates of Pool Center: 388357 E, 4809717 N
ProjectType: 781 Pool Street

Landowner: Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043
geoff@bowleybuilders.com

Contact: James Logan - Longview Partners, LLC
6 Second Street
Buxton, ME 04093
(207) 693-8799 longviewpartners213@gmail.com

Survey Date: 4/13/2022 Additional Survey Dates: 04/20/2022, 05/09/2022
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments: Pool provides some habitat for spotted salamanders but does not meet the threshold for significance.

IFW's Pool ID: 5065 Twp: Biddeford
Observer's ID: Pool G

UTM Coordinates of Pool Center: 388337 E, 4809541 N
ProjectType: 781 Pool Street

Landowner: Bowley Builders
86 York Street, Suite 3
Kennebunk, ME 04043
geoff@bowleybuilders.com

Contact: James Logan - Longview Partners, LLC
6 Second Street
Buxton, ME 04093
(207) 693-8799 longviewpartners213@gmail.com

Survey Date: 4/13/2022 Additional Survey Dates: 04/20/2022, 05/09/2022
IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria
IFW Comments: Pool provides some habitat for spotted salamanders but does not meet the threshold for significance.

POOL E
(NOT SIGNIFICANT)

POOL F
(NOT SIGNIFICANT)

POOL C
(NOT SIGNIFICANT)

POOL D
(NOT SIGNIFICANT)

POOL A
(NOT SIGNIFICANT)

POOL STREET

POOL B
(NOT SIGNIFICANT)

POOL G
(NOT SIGNIFICANT)

PETER POND LANE

DELINEATION NOTES:
WETLAND STUDY CONDUCTED APRIL 13 & 20, 2022. VERNAL POOL STUDY CONDUCTED APRIL 13 & 20, AND MAY 9, 2022.

PLAN NOTES:
THIS PLAN IS A COMPOSITE OF PROPERTY BOUNDARY INFORMATION PER A SURVEY PLAN BY DOW & COULOMBE, INC. DATED APRIL 3, 1989, MAINE OFFICE OF GIS 2' TOPOGRAPHIC CONTOURS & AERIAL PHOTOGRAPH, AND SUBMETER GPS LOCATION OF WETLAND BOUNDARIES & OTHER SITE FEATURES AS DEPICTED BY LONGVIEW PARTNERS, LLC.

MAP IS FURNISHED FOR PLANNING PURPOSES ONLY AND SHALL NOT BE REPRODUCED OR UTILIZED BY ANYONE OTHER THAN THE PARTIES NAMED WITHOUT EXPRESS WRITTEN CONSENT OF LONGVIEW PARTNERS, LLC.

LEGEND:

- ***FRESHWATER WETLAND AREA*** *(LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)*
- ***VERNAL POOL EXTENTS*** *(LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)*
- ***SURFACE WATER RUNOFF*** *(LOCATED BY LONGVIEW PARTNERS, LLC SUBMETER GPS)*
- ***MDEP JURISDICTIONAL STREAM CHANNEL*** *(REQUIRES 75' SETBACK FOR CONSTRUCTION/SOIL DISTURBANCE)*

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)
1 inch = 60 ft.

WETLAND DELINEATION & VERNAL POOL LOCATION PLAN
PREPARED FOR
ANNETTE GOSNELL
781 POOL STREET
(MAP 5, LOT 17-2)
BIDDEFORD, MAINE

LONGVIEW PARTNERS, LLC
ENVIRONMENTAL PERMITTING SPECIALISTS

DRAFT:	SCALE:	CHECKED:	PLAN DATE:
BO	1" = 60'	JL	6/3/22

Attachment 6

Stormwater Management Report

Attachment 7

Site Photographs

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

Pool Street Subdivision Site Photos

The following pictures show site areas associated with the Pool Street Subdivision project. All pictures were taken by Terradyn Consultants on 6/07/2023.

1-Pool Street Site Entrance looking North

2-Peter Pond Lane looking North

Pineland
41 Campus Drive, Suite 301
New Gloucester, ME 04260

Portland
565 Congress Street, Suite 201
Portland, ME 04101

Auburn
95 Main Street, 2nd Floor
Auburn, ME 04210

3-Central site area

4-On site stream looking North

Attachment 8

Financial Capability

Camden
NATIONAL BANK

August 2, 2023

Beachwood Development Fund LP
PO Box 261
Kennebunk

To whom it may concern:

This letter is to confirm you that Beachwood Development Fund LP and all of its subsidiaries, as of today's date August 2, 2023 have in their Camden National Bank Account have a balance over $500,00, and is good standing at Camden National Bank.

If you have any questions, please don't hesitate to give me a call.

Michelle A. Dow

Michelle A. Dow | Assistant Vice President
Kennebunk Banking Center Asst Manager
36 Portland Rd, PO Box 1130
Kennebunk, ME 04043
(207) 985-9222 ext 24260 (o)
(207) 230-4853 (m)
(207) 985-3233 (f)
NMLS# 456723
www.CamdenNational.com

Camden
NATIONAL BANK

Attachment 9

Correspondence with State Agencies

TERRADYN
CONSULTANTS, LLC

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

Project # 23-023

July 7, 2023

John Perry, Environmental Review Coordinator
Maine Department of Inland Fisheries & Wildlife
284 State Street, 41 State House Station
Augusta, ME 04333-0041

SUBJECT: POOL STREET PARCEL REQUEST FOR PROJECT REVIEW

Dear John:

Terradyn Consultants, LLC has been retained by Beachwood Development Fund LP to prepare subdivision plans and application materials for Pool Street Subdivision in Biddeford, Maine. The proposed project includes 8 single family lots located on a 25.45 acre parcel. The project will include construction of 957 liner feet of road and installation of underground utilities and stormwater management infrastructure.

Attached are an excerpt of the USGS topographic map and an aerial photo with the project site identified. We request that you review available information to determine if any known protected fisheries or wildlife habitats exist on or in the vicinity of the proposed project site.

Please contact me if you have any questions or if you need additional information to complete your review.

CLOSURE

If you have any questions or require additional information, please contact me at 207-632-9010 or mtw@terradynconsultants.com.

Sincerely,
TERRADYN CONSULTANTS, LLC

Michael Tadema-Wielandt, P.E.
Vice President

Pineland
41 Campus Drive, Suite 301
New Gloucester, ME 04260

Portland
565 Congress Street, Suite 201
Portland, ME 04101

Auburn
95 Main Street, 2nd Floor
Auburn, ME 04210

TERRADYN
CONSULTANTS, LLC

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

RECEIVED
JUL 07 2023
By 0997-23

Project # 23-023

July 7, 2023

Kirk F. Mohney, Director
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333-0065

SUBJECT: POOL STREET PARCEL REQUEST FOR PROJECT REVIEW

Dear Kirk:

Terradyn Consultants, LLC has been retained by Beachwood Development Fund LP to prepare subdivision plans and application materials for Pool Street Subdivision in Biddeford, Maine. The proposed project includes 8 single family lots located on a 25.45 acre parcel. The project will include construction of 957 liner feet of road and installation of underground utilities and stormwater management infrastructure.

Attached is an excerpt of the USGS topographic map with the project site identified, as well as MHPC Building/Structure Forms for each of the seven structures adjacent to the project that are believed to be more than fifty years old.
p
We are requesting that you review available information to determine if the project will have an impact on historic structures or archaeological resources. The information will be provided to the City of Biddeford as part of the application process.

Please contact me if you have any questions or if you need additional information to complete your review.

CLOSURE

If you have any questions or require additional information, please contact me at 207-632-9010 or mtw@terradynconsultants.com.

Sincerely,
TERRADYN CONSULTANTS, LLC

Michael Tadema-Wielandt, P.E.
Vice President

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohney, 7/19/23
Kirk F. Mohney, Date
State Historic Preservation Officer
Maine Historic Preservation Commission

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

July 10, 2023

Michael Tadema-Wielandt
Terradyn Consultants
565 Congress Street, Suite 201
Portland, ME

Via email: mtw@terradynconsultants.com

Re: Rare and exemplary botanical features in proximity to: #23-023, Pool Street Subdivision, Biddeford, Maine

Dear Michael Tadema-Wielandt:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received July 7, 2023 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Biddeford, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Rare and Exemplary Botanical Features within 4 miles of
Project: #23-023, Pool Street Subdivision, Biddeford, ME

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
American Sea-blite						
	T	S2	G5	2010-08-04	14	Tidal wetland (non-forested, wetland)
Beach Plum						
	E	S1	G4	2006-07-17	3	Rocky coastal (non-forested, upland)
	E	S1	G4	1933-06-21	9	Rocky coastal (non-forested, upland)
	E	S1	G4	2017-06-07	22	Rocky coastal (non-forested, upland)
Beach Wormwood						
	SC	S1S2	G5T5	2011-11-02	7	
	SC	S1S2	G5T5	2011-11-02	9	
Brackish Tidal Marsh						
		S3	GNR	2009-07-29	1	
Button Sedge						
	SC	S2	G5	1880-09-06	2	
Coastal Dune-marsh Ecosystem						
		S3	GNR	2009	1	
Creeping Spike-moss						
	E	S2	G5	1920-07-30	6	Open wetland, not coastal nor rivershore (non-forested,
Dwarf Glasswort						
	T	S1	G5	1981-09-16	2	Tidal wetland (non-forested, wetland)
	T	S1	G5	2010-08-04	8	Tidal wetland (non-forested, wetland)
Estuary Bur-marigold						
	SC	S3	G4	2009-07-30	35	Tidal wetland (non-forested, wetland)
Hollow Joe-pye Weed						
	SC	S2	G5?	2006-08-07	5	Open wetland, not coastal nor rivershore (non-forested,

Hollow Joe-pye Weed						
	SC	S2	G5?	1994-06-06	6	Open wetland, not coastal nor rivershore (non-forested,
Horned Pondweed						
	SC	S2	G5	1907-08-18	10	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2000-08-28	15	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2007-07-05	19	Tidal wetland (non-forested, wetland)
Lilaeopsis						
	SC	S2	G5	2012-10-21	10	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2007-07-05	11	Tidal wetland (non-forested, wetland)
	SC	S2	G5	2007-08-14	12	Tidal wetland (non-forested, wetland)
Mudwort						
	SC	S3	G5	2009-07-30	35	Tidal wetland (non-forested, wetland)
Oak - Hickory Forest						
		S1	G4G5	2012-10-11	3	
Pale Green Orchis						
	SC	S2	G4?T4Q	1991	36	Non-tidal rivershore (non-forested, seasonally wet),Open
Parker's Pipewort						
	SC	S3	G3	2017-08-31	33	Tidal wetland (non-forested, wetland)
Pitch Pine Bog						
		S2	G3G5	2015-09-29	20	
Pitch Pine Dune Woodland						
		S1	G2	2014-05-08	8	
Pocket Swamp						
		S2	G5	2014-05-08	4	
		S2	G5	2020-06-12	33	
Pygmyweed						
	SC	S2S3	G5	2009-07-29	25	Open water (non-forested, wetland)
	SC	S2S3	G5	2007-07-05	28	Open water (non-forested, wetland)
Salt-hay Saltmarsh						

Salt-hay Saltmarsh					
	S3	G5	2010-10-14	12	
	S3	G5	2020-09-22	13	
	S3	G5	2020-09-22	15	
	S3	G5	2016-07-12	23	
	S3	G5	2009	27	
Saltmarsh False-foxglove					
SC	S3	G5	2010-08-04	6	Tidal wetland (non-forested, wetland)
SC	S3	G5	1982	9	Tidal wetland (non-forested, wetland)
SC	S3	G5	2006-07-17	18	Tidal wetland (non-forested, wetland)
SC	S3	G5	2016-07-16	30	Tidal wetland (non-forested, wetland)
SC	S3	G5	2010-08-04	34	Tidal wetland (non-forested, wetland)
SC	S3	G5	2020-09-22	43	Tidal wetland (non-forested, wetland)
Sassafras					
SC	S2	G5	2006-07-17	16	Hardwood to mixed forest (forest, upland),Old field/
Schreber's Wood-aster					
PE	SX	G4	1894-09	1	Rocky coastal (non-forested, upland)
Slender Blue Flag					
T	S2	G4G5	1995-07-18	18	Tidal wetland (non-forested, wetland)
Small Reed Grass					
SC	S3	G5	2006-08-08	14	Old field/roadside (non-forested, wetland or upland)
Smooth Winterberry Holly					
SC	S3	G5	2011-10-28	30	Forested wetland
SC	S3	G5	2020-6-12	39	Forested wetland
Southern Slender Ladies'-tresses					
PE	SH	G5T4T5	1918-08-27	1	Dry barrens (partly forested, upland)
Spongy-leaved Arrowhead					
SC	S3	G5T4	2012-10-21	42	Tidal wetland (non-forested, wetland)
Sweet Pepper-bush					
SC	S2	G5	1989-08-01	8	Hardwood to mixed forest (forest, upland),Forested

Sweet Pepper-bush						
	SC	S2	G5	1917-09	9	Hardwood to mixed forest (forest, upland),Forested
Tidal Marsh Estuary Ecosystem						
		S3	GNR	2010-10-14	4	
Water Pimpernel						
	SC	S3	G5	2012-10-21	26	Tidal wetland (non-forested, wetland)

Date Exported: 2023-07-10 07:42

Conservation Status Ranks

State and Global Ranks: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of critically imperiled (1) to secure (5). Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

Rank	Definition
S1 **G1**	**Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
S2 **G2**	**Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
S3 **G3**	**Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
S4 **G4**	**Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
S5 **G5**	**Secure** – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.
SX **GX**	**Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery.
SH **GH**	**Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery.
S#S# **G#G#**	**Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem.
SU **GU**	**Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
GNR **SNR**	**Unranked** – Global or subnational conservation status not yet assessed.
SNA **GNA**	**Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems.
Qualifier	**Definition**
S#? **G#?**	**Inexact Numeric Rank** – Denotes inexact numeric rank.
Q	**Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level.
T#	**Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

State Status: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

Status	Definition
E	**Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered.
T	**Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened.
SC	**Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered.
PE	**Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence.

Element Occurrence (EO) Ranks: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

Rank	Definition
A	**Excellent** – Excellent estimated viability/ecological integrity.
B	**Good** – Good estimated viability/ecological integrity.
C	**Fair** – Fair estimated viability/ecological integrity.
D	**Poor** – Poor estimated viability/ecological integrity.
E	**Extant** – Verified extant, but viability/ecological integrity not assessed.
H	**Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation.
X	**Extirpated** – Documented loss of population/destruction of habitat.
U	**Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification).
NR	**Not Ranked** – An occurrence rank has not been assigned.

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

SUBDIVISION PLANS

LONGBOARD RIDGE SUBDIVISION

POOL STREET - BIDDEFORD, MAINE

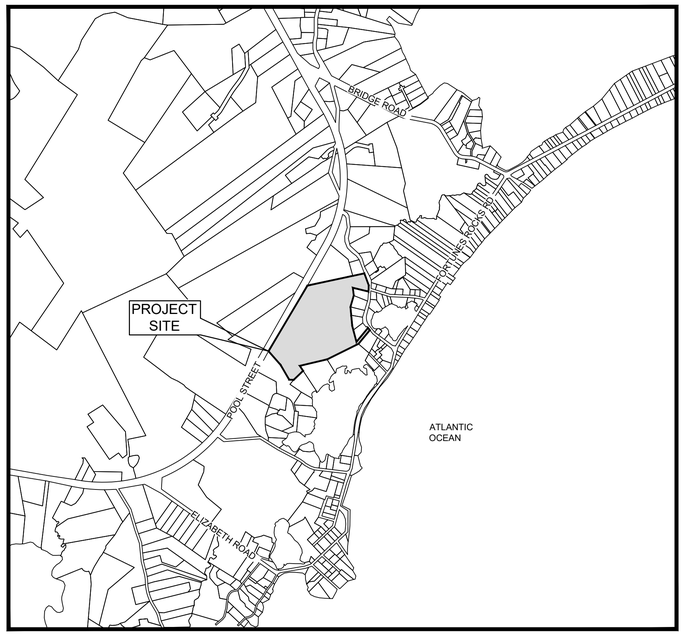
APPLICANT/OWNER:

BEACHWOOD DEVELOPMENT FUND
P.O. BOX 261
KENNEBUNK, MAINE 04043

PROJECT PARCEL SITE

CITY OF BIDDEFORD TAX ASSESSOR'S MAP, LOT NUMBER & ZONING DISTRICT

MAP	LOT	ZONING DISTRICT
5	17-2	COASTAL RESIDENTIAL DISTRICT



LOCATION MAP
SCALE: 1"=1000'

UTILITIES

SEWER
PRIVATE ONSITE SUBSURFACE WASTEWATER DISPOSAL

WATER
KENNEBUNK, KENNEBUNKPORT & WELLS WATER DISTRICT
92 MAIN STREET
KENNEBUNK, ME 04043

ELECTRIC
CENTRAL MAINE POWER CO.
162 CANCO ROAD
PORTLAND, ME 04103
(207) 842-2367

TELEPHONE
FAIRPOINT COMMUNICATIONS
P.O. BOX 11560
PORTLAND, MAINE 04104
1-888-984-1515

CABLE
SPECTRUM
386 FORE ST #204
PORTLAND, MAINE 04101
(207) 331-5331

DIG SAFE SYSTEM, INC.
TEL. 1-888-DIG-SAFE (344-7233)
FAX 1-781-721-0047
WWW.DIGSAFE.COM

PERMITS

TYPE OF PERMIT	GOVERNING BODY	STATUS
SUBDIVISION APPROVAL	CITY OF BIDDEFORD, MAINE PLANNING BOARD 205 MAIN STREET BIDDEFORD, ME 04005 TEL. 207-571-0700	SUBMITTED 8/16/2023
STORMWATER PERMIT BY RULE	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION 312 CANCO ROAD PORTLAND, ME 04103 TEL. 207-822-6300	PENDING

LEGEND

	EXISTING PROPERTY LINE
	PROJECT SITE BOUNDARY
	EXISTING SETBACK LINE
	PROPOSED EASEMENT
124	EXISTING MINOR CONTOUR
124	EXISTING MAJOR CONTOUR
124	PROPOSED CONTOUR
SD	EXISTING STORMDRAIN
SD	PROPOSED STORMDRAIN
UD	EXISTING UNDERDRAIN
UD	PROPSED UNDERDRAIN
OHE	EXISTING OVERHEAD ELECTRIC & TELEPHONE
OHE	PROPOSED OVERHEAD ELECTRIC & TELEPHONE
UGE	EXISTING UNDERGROUND ELECTRIC & TELEPHONE
UGE	PROPOSED UNDERGROUND ELECTRIC & TELEPHONE
	EXISTING EDGE OF PAVEMENT
	PROPOSED EDGE OF PAVEMENT
	EXISTING EDGE OF GRAVEL
	PROPOSED EDGE OF GRAVEL
	EXISTING CURB
	PROPOSED CURB
	PROPOSED FENCE
SF	SILT FENCE
TP-A	TEST PIT
	EXISTING VALVE
	PROPOSED VALVE
	EXISTING HYDRANT
	EXISTING LIGHT POLE
	PROPOSED LIGHT POLE
	EXISTING UTILITY POLE
	EXISTING CATCH BASIN
	PROPOSED CATCH BASIN
	EXISTING DRAIN MANHOLE
	PROPOSED DRAIN MANHOLE
	EXISTING SEWER MANHOLE
	PROPOSED SEWER MANHOLE
30.20	EXISTING SPOT GRADE
30.20	PROPOSED SPOT GRADE
	SURVEY CONTROL POINT
	EXISTING MONUMENT
	EXISTING IRON PIPE
	EXISTING SIGN
	PROPOSED SIGN
	EXISTING BUILDING
	PROPOSED BUILDING
	PROPOSED CONCRETE
	PROPOSED PAVEMENT

SHEET INDEX

C-1.0	COVER SHEET
1	TOPOGRAPHIC SURVEY PLAN
C-2.0	SUBDIVISION PLAN
C-3.0	PLAN & PROFILE STA. 0+00 TO STA. 9+37
C-4.0	SITE DETAILS
C-4.1	EROSION CONTROL NOTES & DETAILS
C-4.2	UTILITY DETAILS

PREPARED BY:

CIVIL ENGINEER:
TERRADYN CONSULTANTS, LLC
565 CONGRESS STREET, SUITE 201
PORTLAND, MAINE 04101
(207) 926-5111

SURVEYOR:
TERRADYN CONSULTANTS, LLC
79 MAIN STREET, SUITE 300
AUBURN, MAINE 04210
(207) 946-4480

SOIL SCIENTIST:
LONGVIEW PARTNERS, LLC
6 SECOND STREET
BUXTON, MAINE 04093
(207) 807-1739

GENERAL NOTES

1. THE PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE CITY OF BIDDEFORD, AND THE LOCAL UTILITY COMPANIES.
2. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY THE CITY OF BIDDEFORD OR THE LOCAL UTILITY COMPANIES SHALL BE COORDINATED BY THE CONTRACTOR.
3. THE LOCATION AND/OR ELEVATIONS OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION. IT SHALL BE THE RESPONSIBLE OF THE CONTRACTOR TO RELOCATE ANY EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
4. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. THE EROSION CONTROL MEASURES SHOWN ON THE PLANS ARE THE MINIMUM REQUIRED TO PREVENT EROSION AND SEDIMENTATION. ADDITIONAL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY THE OWNER, ENGINEER, OR REGULATING AGENCIES.
5. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
6. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE STRICTEST STANDARDS CONTAINED IN THE MAIN DEPARTMENT OF TRANSPORTATION SPECIFICATIONS, THE PROJECT SPECIFICATIONS, AND THE UTILITY COMPANY AND CITY OF BIDDEFORD REQUIREMENTS.
7. ALL DIMENSIONS, UNLESS OTHERWISE NOTED IS TO THE EDGE OF PAVEMENT, FACE OF CURB, OR THE FACE OF THE BUILDING.
8. ALL SIGNAGE SHALL BE SUPPLIED AND INSTALLED IN COMPLIANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

UTILITY NOTES

1. THE PROJECT WILL BE SERVED BY SUBSURFACE WASTEWATER DISPOSAL SYSTEMS .
2. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF n=0.012 OR LESS.

STATE OF MAINE
MICHAEL E. TADEMA-WIELANDT
NO. 13121
LICENSED
PROFESSIONAL ENGINEER

DATE: 8/16/2023

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD, ME

SHEET TITLE:
COVER SHEET

RECORD OWNER:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

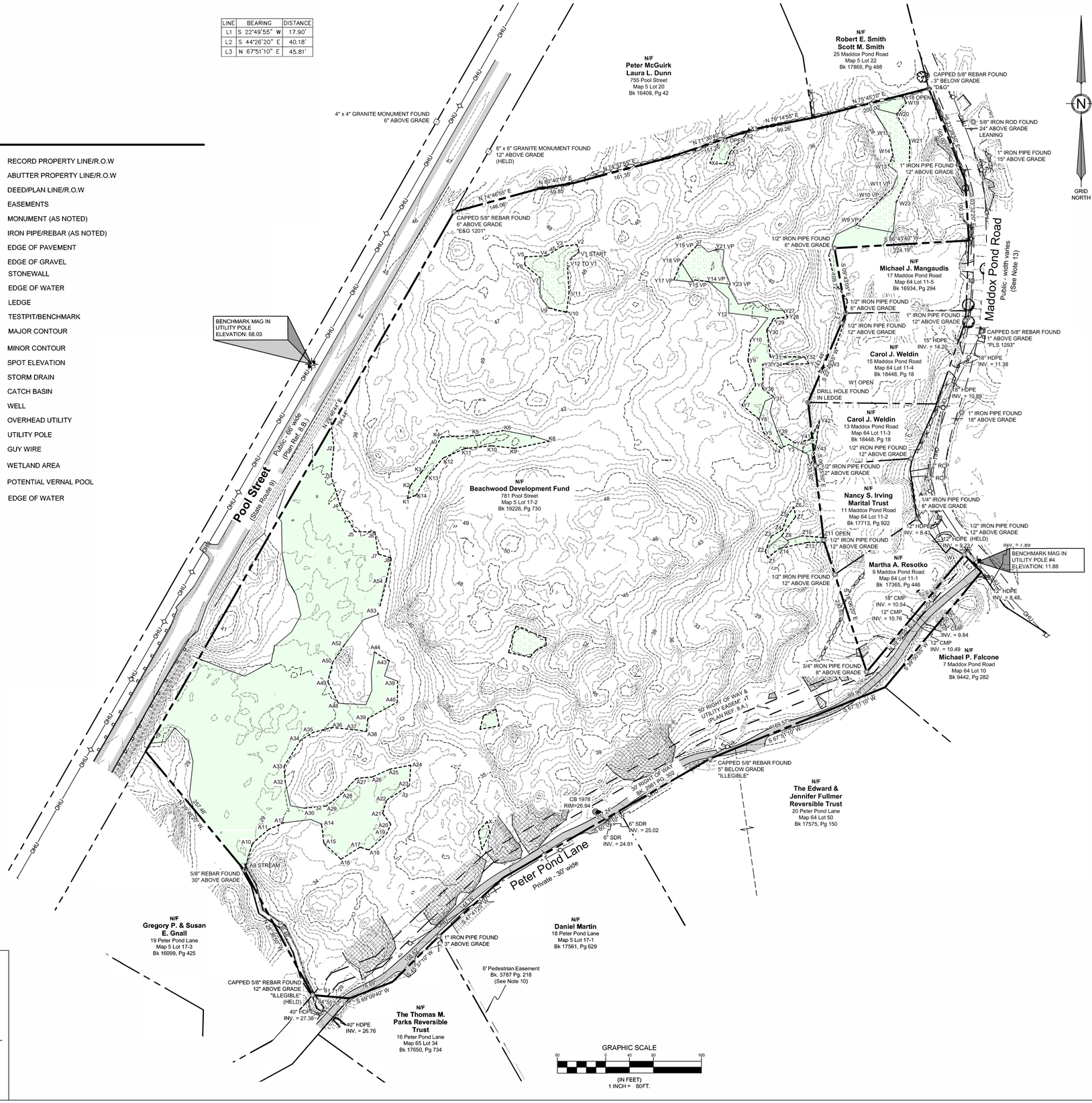
DATE:	3/10/2023
SCALE:	AS NOTED
JOB NO:	23-023
SHEET:	C-1.0

C:\OD\Terradyn Consultants\Project Folders - Documents\2023_Jobs\23-023 Pool Street Subdivision\CAD\Permitting\23-023 C.dwg

LINE	BEARING	DISTANCE
L1	S 22°49'55" W	17.90'
L2	S 44°26'20" E	40.18'
L3	N 67°51'10" E	45.81'

LEGEND

- RECORD PROPERTY LINE/R.O.W
- ABUTTER PROPERTY LINE/R.O.W
- DEED/PLAN LINE/R.O.W
- EASEMENTS
- MONUMENT (AS NOTED)
- IRON PIPE/REBAR (AS NOTED)
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- STONEWALL
- EDGE OF WATER
- LEDGE
- TESTPIT/BENCHMARK
- 120 MAJOR CONTOUR
- 122 MINOR CONTOUR
- × 121.3 SPOT ELEVATION
- SD STORM DRAIN
- CATCH BASIN
- WELL
- OHU OVERHEAD UTILITY
- UTILITY POLE
- GUY WIRE
- WETLAND AREA
- POTENTIAL VERNAL POOL
- EDGE OF WATER



STATE OF MAINE
NICHOLAS RACIOPPI
No. 2621
PROFESSIONAL LAND SURVEYOR

General Notes:

1. The purpose of this plan is to depict the results of a Boundary Retracement and Existing Conditions/Topographic Survey of the subject parcel.
2. All Book and Page numbers refer to the York County Registry of Deeds, unless otherwise noted.
3. The record owner of the subject parcel is Beachwood Development Fund by a deed dated April 24, 2023 and recorded in Book 19226, Page 730.
4. The subject parcel is shown on the Town of Biddeford Tax Map 5 as Lot 17-2 and is located in the Coastal Residential District.
5. Space and bulk standards for the Coastal Residential District as of the date of this plan are as follows:

Min. Lot Size:	20,000 sq ft
Min. Frontage:	150 ft
Min. Front Setback from major right of way:	40 ft
Min. Front Setback from other right of way:	25 ft
Min. Side Setback:	25 ft
Min. Rear Setback:	25 ft
Max. Building Height:	35 ft

6. Total area of the subject parcel is 25.30 acres.
7. Boundary and topographic information shown hereon is based on an on the ground survey performed by Terradyn Consultants, LLC in May 2023 and supplemented with LiDAR Remote Sensing, collected in 2020 by the State of Maine and distibuted by the USGS as classified .LAZ point cloud.

   NAVD88-Geoid18
   error (95% confidence interval) in meters = 0.039

8. Plan References:
   A. "Peter Pond - Phase 2 Plan Showing A Standard Boundary Survey" Prepared for Richard W. Banfield by Dow & Coulombe, Inc. Dated Aug 28, 1989
   B. "Maine State Highway Commission Right of Way Map State Aid Highway '2'" Federal Aid Project No. S-0112(3) Dated December 1961. Recorded in the York County Registry of Deeds Plan Book 39 Page 8.
   C. "Plan Showing Lots Belonging to L. Gordon Adamson et al." Prepared by Libby & Dow Engineers. Dated 1967. Recorded in the York County Registry of Deeds Plan Book 43 Page 26.
   D. "Final Plan Peter Pond - Phase 3" Prepared for Peter Pond, Inc. by Dow & Coulombe, Inc. Dated July 22, 1993. Recorded in the York County Registry of Deeds Plan Book 214 Page 3.
9. Plan orientation is Grid North, Maine State Plane Coordinate System, West Zone 1802-NAD83. Elevations depicted hereon are NAVD88, based on dual-frequency GPS observations.
10. The subject parcel may benefit from a 6' wide pedestrian easement as described in Book 3787, Page 218. This easement is depicted on Plan Reference 8.A. as "To Be Abandoned". The current status of this easement is unknown.
11. The subject parcel is subject to rights of others to use of the 30-foot wide right of way and 50-foot utility easement as shown on Plan Reference 8.A. and described in the following deeds: Book 2981, Page 302; Book 3673, Page 117; Book 3787, Page 218; Book 3109, Page 19; Book 2352, Page 142; Book 1256, Page 417; Book 3622, Page 123; Book 4598, Page 131; Book 3832, Page 230; Book 2016, Page 42.
12. The subject parcel is subject to mineral rights reservations and utility easements appearing of record.
13. The width of Maddox Pond Road varies as depicted on a hand-drawn plan supplied by the City of Biddeford.
14. The subject parcel is located within Zone X, Areas of Minimal Flood Hazard, as delineated on the Flood Insurance Rate Map for the Town of Biddeford, York County, Community-Panel Number 230145001B, having an Effective Date of May 15, 1984.
15. The depth, size, location, existence or nonexistence of underground utilities and/or structures were not investigated as part of this survey. Utilities depicted hereon may not necessarily represent all existing utilities. Owners, contractors, and/or designers need to contact Dig-Safe Systems, Inc. (call 811) and field verify existing utilities prior to digging or breaking ground.

Surveyor's Certification

To the best of my knowledge, I have used ordinary and prudent conduct expected of Professional Land Surveyors and the results shown here represent the licensee's responsibility to the public as required under the Standards of Practice as defined by the Board of Licensure for Professional Land Surveyors (M.R.S.A Title 32, Chapter 141, Dated April 2001).

Except as Follows:

1. Survey Report Limited to Notes on the Plan
2. No Deed Description to Date

Plan Prepared by: _____

Nicholas Racioppi PLS # 2621

STATE OF MAINE, York County, SS
REGISTRY OF DEEDS

Received _____

At ____ h ____ m ____M and recorded in

Plan Book _____, Page _____

Attest _____
Registrar

NO.	DATE	REVISIONS
1	06/28/2023	RELEASED TO ENGINEER FOR REVIEW

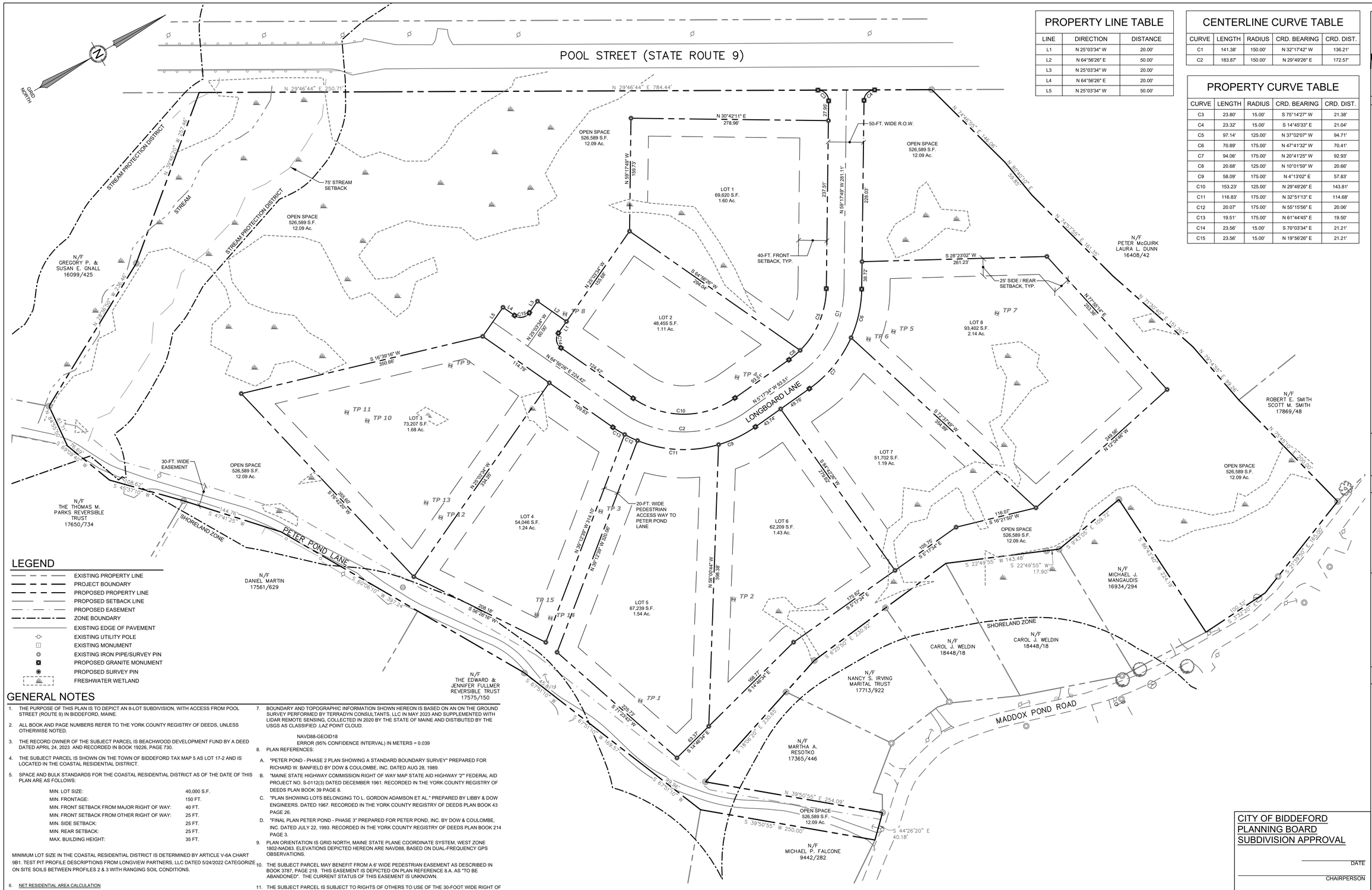
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting
ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260
PHONE: (207) 926-5111
WEB SITE: www.terradynconsultants.com

PROJECT: POOL STREET PARCEL
781 POOL STREET, BIDDEFORD, MAINE
SHEET TITLE: BOUNDARY RETRACEMENT & EXISTING CONDITIONS PLAN
PREPARED FOR: BEACHWOOD DEVELOPMENT FUND
86 YORK STREET, #2
KENNEBUNK, MAINE 04043

DATE:	06/29/2023
SCALE:	1" = 80'
JOB NO:	23-023
SHEET:	1 OF 1

Sheet Size: 24" X 36"

C:\DBS\Terradyn Consultants\Project Folders - Documents\2023 Jobs\23-023 Pool Street Subdivision\CAD\Survey\23-023 BD EC.dwg



PROPERTY LINE TABLE

LINE	DIRECTION	DISTANCE
L1	N 25°03'34" W	20.00'
L2	N 64°56'26" E	50.00'
L3	N 25°03'34" W	20.00'
L4	N 64°56'26" E	20.00'
L5	N 25°03'34" W	50.00'

CENTERLINE CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C1	141.38'	150.00'	N 32°17'42" W	136.21'
C2	183.87'	150.00'	N 29°49'26" E	172.57'

PROPERTY CURVE TABLE

CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C3	23.80'	15.00'	S 75°14'27" W	21.38'
C4	23.32'	15.00'	S 14°45'33" E	21.04'
C5	97.14'	125.00'	N 37°02'07" W	94.71'
C6	70.89'	175.00'	N 47°41'32" W	70.41'
C7	94.06'	175.00'	N 20°41'25" W	92.93'
C8	20.68'	125.00'	N 10°01'59" W	20.66'
C9	58.09'	175.00'	N 4°13'02" E	57.83'
C10	153.23'	125.00'	N 29°49'26" E	143.81'
C11	116.83'	175.00'	N 32°51'13" E	114.68'
C12	20.07'	175.00'	N 55°15'56" E	20.06'
C13	19.51'	175.00'	N 61°44'45" E	19.50'
C14	23.56'	15.00'	S 70°03'34" E	21.21'
C15	23.56'	15.00'	N 19°56'26" E	21.21'

LEGEND

- EXISTING PROPERTY LINE
- PROJECT BOUNDARY
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK LINE
- PROPOSED EASEMENT
- ZONE BOUNDARY
- EXISTING EDGE OF PAVEMENT
- EXISTING UTILITY POLE
- EXISTING MONUMENT
- EXISTING IRON PIPE/SURVEY PIN
- PROPOSED GRANITE MONUMENT
- PROPOSED SURVEY PIN
- FRESHWATER WETLAND

GENERAL NOTES

1. THE PURPOSE OF THIS PLAN IS TO DEPICT AN 8-LOT SUBDIVISION, WITH ACCESS FROM POOL STREET (ROUTE 9) IN BIDDEFORD, MAINE.
2. ALL BOOK AND PAGE NUMBERS REFER TO THE YORK COUNTY REGISTRY OF DEEDS, UNLESS OTHERWISE NOTED.
3. THE RECORD OWNER OF THE SUBJECT PARCEL IS BEACHWOOD DEVELOPMENT FUND BY A DEED DATED APRIL 24, 2023 AND RECORDED IN BOOK 19226, PAGE 730.
4. THE SUBJECT PARCEL IS SHOWN ON THE TOWN OF BIDDEFORD TAX MAP 5 AS LOT 17-2 AND IS LOCATED IN THE COASTAL RESIDENTIAL DISTRICT.
5. SPACE AND BULK STANDARDS FOR THE COASTAL RESIDENTIAL DISTRICT AS OF THE DATE OF THIS PLAN ARE AS FOLLOWS:

MIN. LOT SIZE:	40,000 S.F.
MIN. FRONTAGE:	150 FT.
MIN. FRONT SETBACK FROM MAJOR RIGHT OF WAY:	40 FT.
MIN. FRONT SETBACK FROM OTHER RIGHT OF WAY:	25 FT.
MIN. SIDE SETBACK:	25 FT.
MIN. REAR SETBACK:	25 FT.
MAX. BUILDING HEIGHT:	35 FT.

MINIMUM LOT SIZE IN THE COASTAL RESIDENTIAL DISTRICT IS DETERMINED BY ARTICLE V-6A CHART 9B1. TEST PIT PROFILE DESCRIPTIONS FROM LONGVIEW PARTNERS, LLC DATED 5/24/2022 CATEGORIZE ON SITE SOILS BETWEEN PROFILES 2 & 3 WITH RANGING SOIL CONDITIONS.

6. NET RESIDENTIAL AREA CALCULATION

TOTAL PARCEL AREA	25.30 ACRES
LESS STEEP SLOPES & UNSUITABLE SOILS	12.73 ACRES
LESS WETLANDS	3.80 ACRES
TOTAL	8.77 ACRES
MIN. LOT DENSITY	40,000 SF
MAXIMUM LOTS	9
PROPOSED LOTS	8

7. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ON THE GROUND SURVEY PERFORMED BY TERRADYN CONSULTANTS, LLC IN MAY 2023 AND SUPPLEMENTED WITH LIDAR REMOTE SENSING, COLLECTED IN 2020 BY THE STATE OF MAINE AND DISTIBUTED BY THE USGS AS CLASSIFIED .LAZ POINT CLOUD.

   NAVD88-GEOID18
   ERROR (95% CONFIDENCE INTERVAL) IN METERS = 0.039
8. PLAN REFERENCES:
   A. "PETER POND - PHASE 2 PLAN SHOWING A STANDARD BOUNDARY SURVEY" PREPARED FOR RICHARD W. BANFIELD BY DOW & COULOMBE, INC. DATED AUG 28, 1989.
   B. "MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP STATE AID HIGHWAY "2" FEDERAL AID PROJECT NO. S-0112(3) DATED DECEMBER 1961. RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 39 PAGE 8.
   C. "PLAN SHOWING LOTS BELONGING TO L. GORDON ADAMSON ET AL." PREPARED BY LIBBY & DOW ENGINEERS. DATED 1967. RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 43 PAGE 26.
   D. "FINAL PLAN PETER POND - PHASE 3" PREPARED FOR PETER POND, INC. BY DOW & COULOMBE, INC. DATED JULY 22, 1993. RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 214 PAGE 3.
9. PLAN ORIENTATION IS GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83. ELEVATIONS DEPICTED HEREON ARE NAVD88, BASED ON DUAL-FREQUENCY GPS OBSERVATIONS.
10. THE SUBJECT PARCEL MAY BENEFIT FROM A 6' WIDE PEDESTRIAN EASEMENT AS DESCRIBED IN BOOK 3787, PAGE 218. THIS EASEMENT IS DEPICTED ON PLAN REFERENCE 8.A. AS "TO BE ABANDONED". THE CURRENT STATUS OF THIS EASEMENT IS UNKNOWN.
11. THE SUBJECT PARCEL IS SUBJECT TO RIGHTS OF OTHERS TO USE OF THE 30-FOOT WIDE RIGHT OF WAY AND 50-FOOT UTILITY EASEMENT AS SHOWN ON PLAN REFERENCE 8.A. AND DESCRIBED IN THE FOLLOWING DEEDS: BOOK 2981, PAGE 302; BOOK 3673, PAGE 117; BOOK 3787, PAGE 218; BOOK 3109, PAGE 19; BOOK 2352, PAGE 142; BOOK 1256, PAGE 417; BOOK 3622, PAGE 123; BOOK 4598, PAGE 131; BOOK 3832, PAGE 230; BOOK 2016, PAGE 42.
12. THE SUBJECT PARCEL IS SUBJECT TO MINERAL RIGHTS RESERVATIONS AND UTILITY EASEMENTS APPEARING OF RECORD.
13. THE WIDTH OF MADDOX POND ROAD VARIES AS DEPICTED ON A HAND-DRAWN PLAN SUPPLIED BY THE CITY OF BIDDEFORD.
14. THE SUBJECT PARCEL IS LOCATED WITHIN ZONE X, AREAS OF MINIMAL FLOOD HAZARD, AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR THE TOWN OF BIDDEFORD, YORK COUNTY, COMMUNITY-PANEL NUMBER 2301450018, HAVING AN EFFECTIVE DATE OF MAY 15, 1984.

GRAPHIC SCALE
60 30 0 30 60 120
(IN FEET)
1 INCH = 60 FT.

CITY OF BIDDEFORD
PLANNING BOARD
SUBDIVISION APPROVAL

_____ DATE
_____ CHAIRPERSON

STATE OF MAINE
YORK COUNTY REGISTRY OF DEEDS
RECEIVED _____, 20__
AT ___h ___m _____M. AND RECORDED IN
PLAN BOOK _____ PAGE _____
ATTEST _____ REGISTER

STATE OF MAINE
MICHAEL E. TADEMA-WELANDT
No. 13257
LICENSED PROFESSIONAL ENGINEER

DATE: 8/16/2023

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260
PHONE: (207) 926-5111
WEB SITE: www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
CIVIL Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: LONGBOARD RIDGE SUBDIVISION
751 POOL STREET, BIDDEFORD, ME

SHEET TITLE: SUBDIVISION PLAN

RECORD OWNER: BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

DATE: 3/10/2023
SCALE: 1" = 60'
JOB NO: 23-023
SHEET: C-2.0

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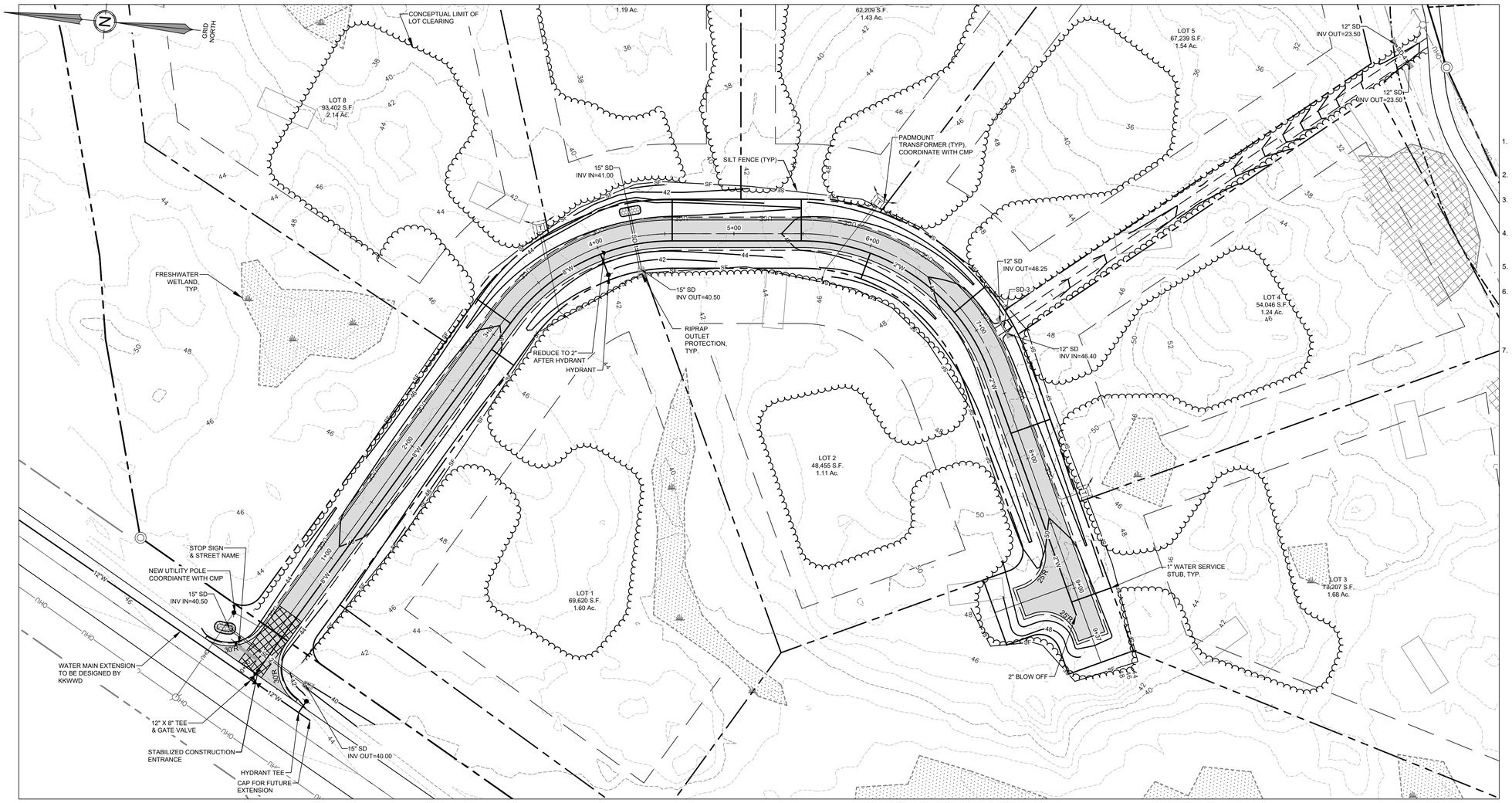
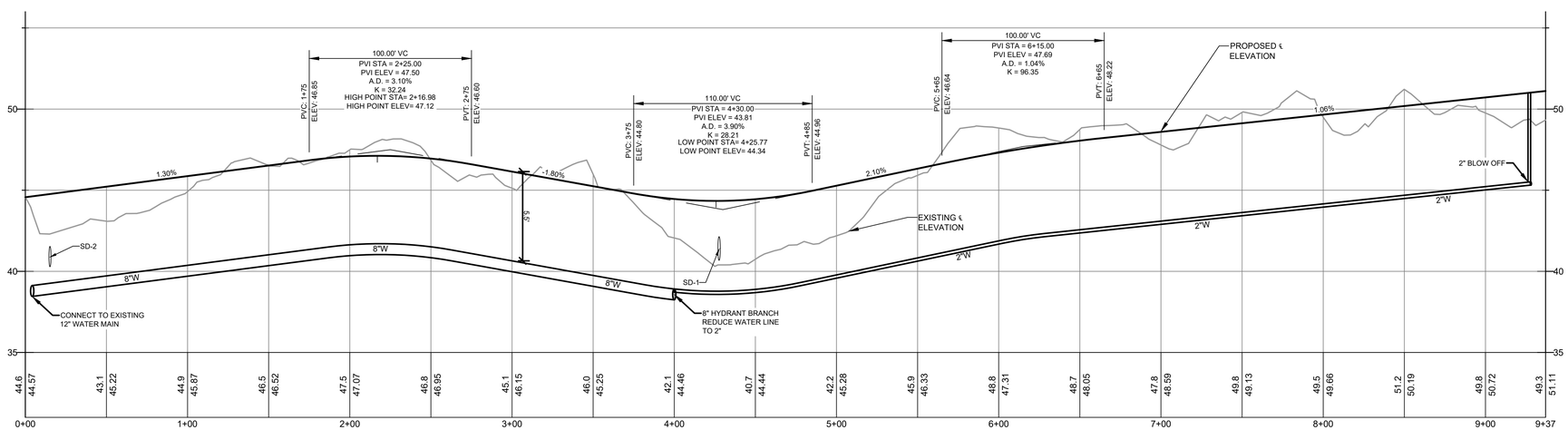


PLAN VIEW - LONGBOARD LANE STA. 0+00 TO 9+37

SCALE: 1" = 40'



PROFILE - LONGBOARD LANE STA. 0+00 TO 9+37

SCALE: 1" = 40' HORIZ.
1" = 4' VERT.

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-1	15"	42'	1.20%
SD-2	15"	68'	0.73%
SD-3	12"	11'	1.43%
SD-4	12"	19'	2.67%

UTILITY NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RELOCATING ANY EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. STORM DRAIN PIPE SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) UNLESS OTHERWISE NOTED ON THE PLAN.
3. FINAL DESIGN OF THE ELECTRICAL DISTRIBUTION SHALL BE COORDINATED WITH CENTRAL MAINE POWER PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A STREET OPENING PERMIT FROM THE CITY OF BIDDEFORD FOR WORK WITHIN POOL STREET, IF NECESSARY.
5. THE CONTRACTOR SHALL COORDINATE ALL WATER WORK WITH THE KENNEBUNK, KENNEBUNKPORT, & WELLS WATER DISTRICT.
6. ALL WATER MAINS, SERVICES, SERVICE ENTRANCES, METER ARRANGEMENTS AND BACKFLOW PREVENTORS WILL BE IN ACCORDANCE WITH AND TO THE SATISFACTION OF KENNEBUNK, KENNEBUNKPORT, & WELLS WATER DISTRICT STANDARDS AND SPECIFICATIONS, TERMS & CONDITIONS, AND ALSO IN ACCORDANCE WITH ALL MAINE PUBLIC UTILITY COMMISSION RULES & REGULATIONS.
7. ALL NEW OR DEWATERED WATER LINES LARGER THAN 2" IN DIAMETER MUST BE TESTED AND DISINFECTED IN ACCORDANCE WITH AWWA C600, AWWA C651 AND ALL KENNEBUNK, KENNEBUNKPORT, & WELLS WATER DISTRICT STANDARDS TO THE SATISFACTION OF THE WATER DISTRICT.
   - THE STATE FIRE MARSHAL REQUIRES THE SPRINKLER SERVICE TO BE FLUSHED AND TESTED TO NFPA STANDARDS. THIS PROJECT WILL BE FED BY AN 8" FIRE PROTECTION SERVICE. NFPA STANDARDS REQUIRE A FLUSHING VELOCITY OF 10 FEET PER SECOND. FOR 8" PIPE THAT TRANSLATES TO 1,566 GALLONS PER MINUTE.
   - THE APPLICANT WILL NEED TO ARRANGE WORK SUCH THAT FLUSHING AND TESTING IS ABLE TO OCCUR, AND DOES NOT DAMAGE LANDSCAPING OR EROSION CONTROL MEASURES. THE APPLICANT WILL NEED TO COORDINATE THE TIMING OF THE TEST SO AS NOT TO INTERFERE WITH OTHER WORK ON TEH SITE. TESTING AND DISINFECTION MUST BE COMPLETED BEFORE THE BUILDING IS ERECTED. ALL TESTING AND DISINFECTION IS THE RESPONSIBILITY OF THE APPLICANT.

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 INCH = 40 FT.

STATE OF MAINE
MICHAEL E. TADEMA-WELANDT
No. 13257
LICENSED PROFESSIONAL ENGINEER

DATE: 8/16/2023

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD, ME

SHEET TITLE:
PLAN & PROFILE

RECORD OWNER:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

DATE: 3/10/2023
SCALE: 1" = 40'
JOB NO: 23-023
SHEET: C-3.0

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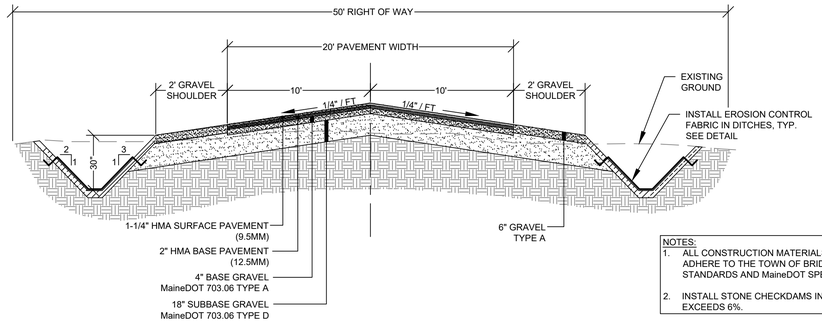
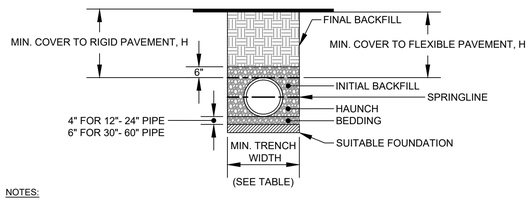


NOTES:
1. ALL CONSTRUCTION MATERIALS AND METHODS SHALL ADHERE TO THE TOWN OF BRIDGTON CONSTRUCTION STANDARDS AND MaineDOT SPECIFICATIONS.
2. INSTALL STONE CHECKDAMS IN DITCHES WHERE ∢ GRADE EXCEEDS 6%.

POOL STREET SUBDIVISION ROAD TYPICAL CROSS SECTION

NOT TO SCALE



NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

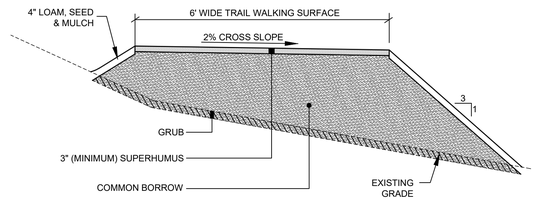
MINIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TYPICAL TRENCH DETAIL

NOT TO SCALE



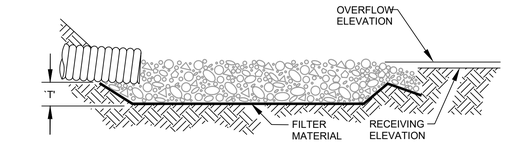
NOTES:

1. STANDARD TRAIL BUILDING PRACTICES SHALL BE USED TO LIMIT EROSION AND PROVIDE FOR PROPOER DRAINAGE SUCH AS GRADE DIPS, KNICKS, AND ROLLING GRADE DIPS.

2. SUPERHUMUS BY CASELLA ORGANICS, 800-933-6474

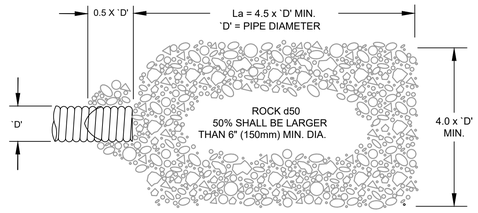
TRAIL CROSS SECTION

NOT TO SCALE



THICKNESS ('T') = 1.5 x MAX. ROCK DIAMETER - 6" (150mm) MIN.

SECTION



PLAN

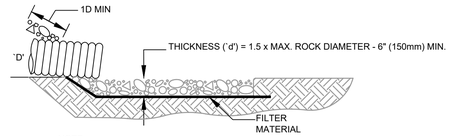
PIPE OUTLET PROTECTION SIZING TABLE

PIPE SIZE (IN)	LENGTH (FT)	WIDTH (FT)
6	2.5	2.0
12	5.0	4.0
15	6.25	5.0
18	7.5	6.0
24	10.0	8.0
30	13.0	10.0
36	15.0	12.0
42	17.5	14.0
48	20.0	16.0
60	25.0	20.0

NOTES:
1. 'La' = LENGTH OF APRON. DISTANCE 'La' SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY.
2. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
3. FILTER MATERIAL SHALL BE FILTER FABRIC (MIRAFI 600X OR APPROVED EQUAL) OR 6" (150mm) THICK MINIMUM GRADED GRAVEL LAYER.

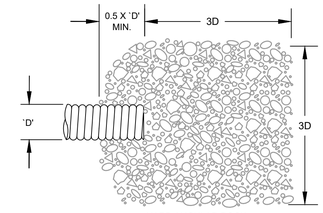
PIPE OUTLET PROTECTION

NOT TO SCALE



NOTE:
1. GEOTEXTILE FILTER FABRIC BENEATH STONE BASED ON UNDISTURBED SOILS, OR 6" OF 4" MINUS BAN RUN GRAVEL FREE OF FINES, CLAYS, SILTS.
2. GEOTEXTILE TO BE MIRAFI 600X OR APPROVED EQUAL.

SECTION



PLAN

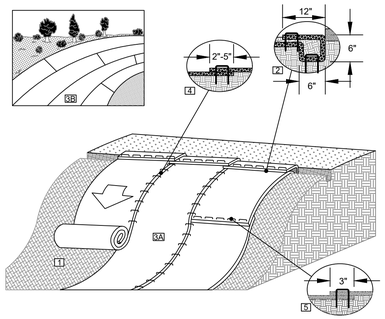
PIPE INLET PROTECTION SIZING TABLE

PIPE SIZE (IN)	LENGTH (FT)	WIDTH (FT)
6	2.0	1.5
12	3.5	3.0
15	4.5	3.75
18	5.25	4.5
24	7.0	6.0
30	8.75	7.5
36	10.5	9.0
42	12.25	10.5
48	14.0	12.0
60	17.5	15.0

NOTES:
1. IN DEFINED CHANNELS, APRON SHALL EXTEND FULL WIDTH OF BOTTOM AND ONE FOOT ABOVE MAX. HEADWATER OR UP TO BANK FULL, WHICHEVER IS LESS.

PIPE INLET PROTECTION

NOT TO SCALE



NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6"(15CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

PHOTODEGRADABLE EROSION CONTROL BLANKET SELECTION

6:1 > 3:1 SLOPES	3:1 > 2:1 SLOPES	≥2:1 SLOPES
NA GREEN DS75	NA GREEN S150	NA GREEN SC150

PERMANENT TURF REINFORCEMENT
IF THE PLAN CALLS FOR PERMANENT TURF REINFORCEMENT, USE NORTH AMERICAN GREEN VMAX SC250

NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPS.

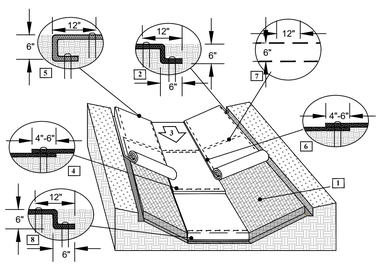
3. ROLL THE RECPS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.

4. THE EDGES OF PARALLEL RECPS MUST BE STAPLED WITH APPROXIMATELY 2" - 5" OVERLAP DEPENDING ON THE RECPS TYPE.

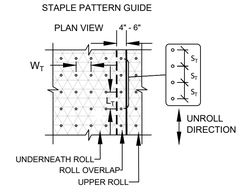
5. CONSECUTIVE RECPS SPLICED DOWN THE SLOPE MUST BE END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPS WIDTH.

EROSION CONTROL FABRIC SLOPE INSTALLATION

NOT TO SCALE



STAPLE PATTERN GUIDE



STAPLE PATTERN	
DIMENSION	
W_T	20"
L_T	20"
S_T	18"
NOMINAL FREQUENCY	3.8 / SY

NOTE: HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

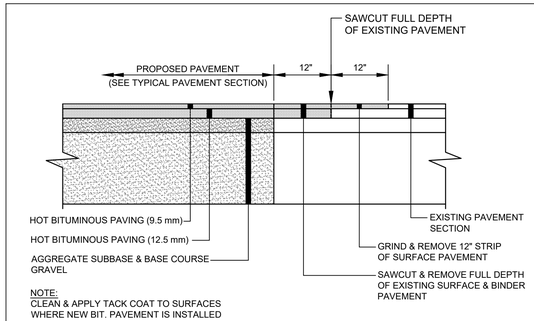
PIN / STAPLE / TWIST PIN, AS APPROPRIATE FOR FIELD CONDITIONS

NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPS), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. GROUND SURFACE MUST BE FREE OF DEBRIS, ROCKS, CLAY CLODS AND RAKED SMOOTH SUFFICIENT TO ALLOW INTIMATE CONTACT OF THE RECP WITH THE SOIL OVER THE ENTIRETY OF THE INSTALLATION.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECPS IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. USE SHOREMAX MAT AT THE CHANNEL/CULVERT OUTLET AS SUPPLEMENTAL SCOUR PROTECTION AS NEEDED. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES/PINS APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO THE COMPACTED SOIL AND FOLD THE REMAINING 12" PORTION OF RECPS BACK OVER THE SEED AND COMPACTED SOIL. SECURE RECPS OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES/PINS SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPS.
3. ROLL CENTER RECPS IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECPS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECPS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES/PINS IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. PLACE CONSECUTIVE RECPS END-OVER-END (SHINGLE STYLE) WITH A 4"- 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECPS.
5. FULL LENGTH EDGE OF RECPS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES/PINS SPACED AT S_T APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECPS MUST BE OVERLAPPED APPROXIMATELY 4"- 6" AND SECURED WITH STAPLES/STAKES/PINS AT S_T.
7. IN HIGH FLOW CHANNEL APPLICATIONS A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 6" APART AND 12" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECPS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES/PINS SPACED AT S_T APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
9. FASTENERS SHOULD PROVIDE A MINIMUM OF TWENTY POUNDS OF PULLOUT RESISTANCE. 6" X 1" ELEVEN GAUGE STAPLES ARE TYPICALLY ADEQUATE. IN LOOSE SOILS, LONGER STAPLES MAY BE NECESSARY, TWIST PINS CAN PROVIDE THE GREATEST PULLOUT RESISTANCE. IN HARD OR ROCKY SOILS, STRAIGHT PINS MAY BY USED WHERE STAPLES OR TWIST PINS ARE REFUSED, PROVIDED THE MINIMUM PULLOUT REQUIREMENTS ARE MET.

EROSION CONTROL FABRIC CHANNEL INSTALLATION

NOT TO SCALE



NOTE:
CLEAN & APPLY TACK COAT TO SURFACES WHERE NEW BIT. PAVEMENT IS INSTALLED

TYPICAL PAVEMENT JOINT

NOT TO SCALE

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Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

STATE OF MAINE — MICHAEL E. TADEMA-WELANDT — LICENSED PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

DATE: 8/16/2023

PROJECT: LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD, ME

SHEET TITLE: SITE DETAILS

RECORD OWNER: BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

DATE:	3/10/2023
SCALE:	AS NOTED
JOB NO:	23-023
SHEET:	C-4.0

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EROSION AND SEDIMENT CONTROL PLAN

PRE-CONSTRUCTION PHASE
A PERSON WHO CONDUCTS, OR CAUSES TO BE CONDUCTED, AN ACTIVITY THAT INVOLVES FILLING, DISPLACING OR EXPOSING SOIL OR OTHER EARTHEN MATERIALS SHALL TAKE MEASURES TO PREVENT UNREASONABLE EROSION OF SOIL OR SEDIMENT BEYOND THE PROJECT SITE OR INTO A PROTECTED NATURAL RESOURCE AS DEFINED IN 38 MRSA § 480-B. EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE THE ACTIVITY BEGINS. MEASURES MUST REMAIN IN PLACE AND FUNCTIONAL UNTIL THE SITE IS PERMANENTLY STABILIZED. ADEQUATE AND TIMELY TEMPORARY AND PERMANENT STABILIZATION MEASURES MUST BE TAKEN. THE SITE MUST BE MAINTAINED TO PREVENT UNREASONABLE EROSION AND SEDIMENTATION. MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE.

BMP CONSTRUCTION PHASE
A. SEDIMENT BARRIERS. PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE EDGE OF ANY DOWNGRADIENT DISTURBED AREA AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE PROPOSED DISTURBED AREA. MAINTAIN THE SEDIMENT BARRIERS UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.

B. CONSTRUCTION ENTRANCE: PRIOR TO ANY CLEARING OR GRUBBING, A CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT THE INTERSECTION WITH THE PROPOSED ACCESS DRIVE AND THE EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM THE SITE.

C. RIPRAP: SINCE RIPRAP IS USED WHERE EROSION POTENTIAL IS HIGH, CONSTRUCTION MUST BE SEQUENCED SO THAT THE RIPRAP IS PUT IN PLACE WITH THE MINIMUM DELAY. DISTURBANCE OF AREAS WHERE RIPRAP IS TO BE PLACED SHOULD BE UNDERTAKEN ONLY WHEN FINAL PREPARATION AND PLACEMENT OF THE RIPRAP CAN FOLLOW IMMEDIATELY BEHIND THE INITIAL DISTURBANCE. WHERE RIPRAP IS USED FOR OUTLET PROTECTION, THE RIPRAP SHOULD BE PLACED BEFORE OR IN CONJUNCTION WITH THE CONSTRUCTION OF THE PIPE OR CHANNEL SO THAT IT IS IN PLACE WHEN THE PIPE OR CHANNEL BEGINS TO OPERATE. MAINTAIN TEMPORARY RIPRAP, SUCH AS TEMPORARY CHECK DAMS UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.

D. TEMPORARY STABILIZATION. STABILIZE WITH TEMPORARY SEEDING, MULCH, OR OTHER NON-ERODABLE COVER ANY EXPOSED SOILS THAT WILL REMAIN UNWORKED FOR MORE THAN 14 DAYS EXCEPT, STABILIZE AREAS WITHIN 100 FEET OF A WETLAND OR WATERBODY WITHIN 7 DAYS OR PRIOR TO A PREDICTED STORM EVENT, WHICHEVER COMES FIRST. IF HAY OR STRAW MULCH IS USED, THE APPLICATION RATE MUST BE 2 BALES (70-90 POUNDS) PER 1000 SF OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE. HAY MULCH MUST BE KEPT MOIST OR ANCHORED TO PREVENT WIND BLOWING. AN EROSION CONTROL BLANKET OR MAT SHALL BE USED AT THE BASE OF GRASSED WATERWAYS, STEEP SLOPES (15% OR GREATER) AND ON ANY DISTURBED SOIL WITHIN 100 FEET OF LAKES, STREAMS AND WETLANDS. GRADING SHALL BE PLANNED SO AS TO MINIMIZE THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING. ON LARGE PROJECTS THIS SHOULD BE ACCOMPLISHED BY PHASING THE OPERATION AND COMPLETING THE FIRST PHASE UP TO FINAL GRADING AND SEEDING BEFORE STARTING THE SECOND PHASE, AND SO ON.

E. VEGETATED WATERWAY. UPON FINAL GRADING, THE DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED TO PERMANENT VEGETATION AND MULCHED AND WILL NOT BE USED AS OUTLETS UNTIL A DENSE, VIGOROUS VEGETATIVE COVER HAS BEEN OBTAINED. ONCE SOIL IS EXPOSED FOR WATERWAY CONSTRUCTION, IT SHOULD BE IMMEDIATELY SHAPED, GRADED AND STABILIZED. VEGETATED WATERWAYS NEED TO BE STABILIZED EARLY DURING THE GROWING SEASON (PRIOR TO SEPTEMBER 15). IF FINAL SEEDING OF WATERWAYS IS DELAYED PAST SEPTEMBER 15, EMERGENCY PROVISIONS SUCH AS SOD OR RIPRAP MAY BE REQUIRED TO STABILIZE THE CHANNEL. WATERWAYS SHOULD BE FULLY STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

PERMANENT STABILIZATION DEFINED
A. SEEDED AREAS. FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS AN 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.

B. SODDED AREAS. FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.

C. PERMANENT MULCH. FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.

D. RIPRAP. FOR AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIPRAP. STONE MUST BE SIZED APPROPRIATELY. IT IS RECOMMENDED THAT ANGULAR STONE BE USED.

E. PAVED AREAS. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUBBASE IS COMPLETED.

F. DITCHES, CHANNELS, AND SWALES. FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH WELL-GRADED RIPRAP, OR WITH ANOTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE LINING, UNDERCUTTING OF THE BANKS, OR DOWN-CUTTING OF THE CHANNEL.

GENERAL CONSTRUCTION PHASE
THE FOLLOWING EROSION CONTROL MEASURES SHALL BE FOLLOWED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION OF THIS PROJECT:

A. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDED WITH RYE AT 3 POUNDS/1,000 SF AND MULCHED, AND REUSED AS REQUIRED. SILT FENCING SHALL BE PLACED DOWN GRADIENT FROM THE STOCKPILED LOAM. STOCKPILE TO BE LOCATED BY DESIGNATION OF THE OWNER AND INSPECTING ENGINEER.

B. THE INSPECTING ENGINEER AT HIS/HER DISCRETION, MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES AND/OR SUPPLEMENTAL VEGETATIVE PROVISIONS TO MAINTAIN STABILITY OF EARTHWORKS AND FINISH GRADED AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY SUPPLEMENTAL MEASURES AS DIRECTED BY THE INSPECTING ENGINEER. FAILURE TO COMPLY WITH THE ENGINEER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.

C. EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISH SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.

D. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE ADEQUATELY STABILIZED.

E. ALL EROSION, AND SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

F. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIALS.

G. AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF TOPSOIL.

H. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

I. ALL FILLS SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS.

J. EXCEPT FOR APPROVED LANDFILLS OR NON-STRUCTURAL FILLS, FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS.

K. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILL SLOPES OR STRUCTURAL FILLS.

L. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION.

M. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED APPROPRIATELY.

N. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

O. REMOVE ANY TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENTS AND STABILIZE.

PERMANENT VEGETATION
PERMANENT VEGETATIVE COVER SHOULD BE ESTABLISHED ON DISTURBED AREAS WHERE PERMANENT, LONG LIVED VEGETATIVE COVER IS NEEDED TO STABILIZE THE SOIL, TO REDUCE DAMAGES FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE ENVIRONMENT.

SEEDBED PREPARATION
A. GRADE AS FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING, AND MAINTENANCE.

B. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TESTS SUCH AS THOSE OFFERED BY THE UNIVERSITY OF MAINE SOIL TESTING LABORATORY. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL COOPERATIVE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P2O5-K2O) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT
A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQ. FT).

C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.D. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.

E. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.

F. PERMANENT SEEDING SHOULD BE MADE 45 DAYS PRIOR TO THE FIRST KILLING FROST OR AS A DORMANT SEEDING WITH MULCH AFTER THE FIRST KILLING FROST AND BEFORE SNOWFALL. WHEN CROWN VETCH IS SEEDED IN LATER SUMMER, AT LEAST 35% OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). IF SEEDING CANNOT BE DONE WITHIN THE SEEDING DATES, MULCH ACCORDING TO THE TEMPORARY MULCHING BMP AND OVERWINTER STABILIZATION AND CONSTRUCTION TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.

G. FOLLOWING SEED BED PREPARTATION, SWALE AREAS, FILL AREAS AND BACK SLOPES SHALL BE SEEDED AT A RATE OF 3 LBS./1,000 S.F. WITH A MIXTURE OF 35% CREEPING RED FESCUE, 6% RED TOP, 24% KENTUCKY BLUEGRASS, 10% PERENNIAL RYEGRASS, 20% ANNUAL RYEGRASS AND 5% WHITE DUTCH CLOVER.

I. AREAS WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING.

J. AREAS WHICH CANNOT BE SEEDED WITHIN THE GROWING SEASON SHALL BE MULCHED FOR OVER-WINTER PROTECTION AND THE AREA SHOULD BE SEEDED AT THE BEGINNING OF THE GROWING SEASON.

WINTER CONSTRUCTION PHASE
IF AN AREA IS NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES BY NOVEMBER 15, THEN THE SITE MUST BE PROTECTED WITH ADDITIONAL STABILIZATION MEASURES.

A. PERMANENT STABILIZATION CONSISTS OF AT LEAST 90% VEGETATION, PAVEMENT/GRAVEL BASE OR RIPRAP.

B. DO NOT EXPOSE SLOPES OR LEAVE SLOPES EXPOSED OVER THE WINTER OR FOR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY PROTECTED WITH MULCH.

C. APPLY HAY MULCH AT TWICE THE STANDARD RATE (150 LBS. PER 1,000 SF). THE MULCH MUST BE THICK ENOUGH SUCH THAT THE GROUND SURFACE WILL NOT BE VISIBLE AND MUST BE ANCHORED.

D. USE MULCH AND MULCH NETTING OR AN EROSION CONTROL MULCH BLANKET OR ALL SLOPES GREATER THAN 8 % OR OTHER AREAS EXPOSED TO DIRECT WIND.

E. INSTALL AN EROSION CONTROL BLANKET IN ALL DRAINAGEWAYS (BOTTOM AND SIDES) WITH A SLOPE GREATER THAN 3 %.

F. SEE THE VEGETATION MEASURES FOR MORE INFORMATION ON SEEDING DATES AND TYPES.

G. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SO THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.

H. AN AREA WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIER.

I. TEMPORARY MULCH MUST BE APPLIED WITHIN 7 DAYS OF SOIL EXPOSURE OR PRIOR TO ANY STORM EVENT, BUT AFTER EVERY WORKDAY IN AREAS WITHIN 100 FEET FROM A PROTECTED NATURAL RESOURCE.

J. AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE PERMANENTLY MULCHED THAT SAME DAY.

K. IF SNOWFALL IS GREATER THAN 1 INCH (FRESH OR CUMULATIVE), THE SNOW SHALL BE REMOVED FROM THE AREAS DUE TO BE SEEDED AND MULCHED.

L. LOAM SHALL BE FREE OF FROZEN CLUMPS BEFORE IT IS APPLIED.

M. ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE DEPARTMENT.

MAINTENANCE AND INSPECTION PHASE
A. MINIMUM EROSION CONTROL MEASURES WILL NEED TO BE IMPLEMENTED AND THE APPLICANT WILL BE RESPONSIBLE TO MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. AREAS SHALL BE INSPECTED AT LEAST ONCE A WEEK AS WELL AS BEFORE AND WITHIN 24 HOURS AFTER A STORM EVENT (RAINFALL), AND PRIOR TO COMPLETING PERMANENT STABILIZATION MEASURES. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY DURING CONSTRUCTION AND NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISHED. IF BEST MANAGEMENT PRACTICES (BMP'S) NEED TO BE REPAIRED, THE REPAIR WORK SHOULD BE INITIATED UPON DISCOVERY OF THE PROBLEM BUT NOT LATER THAN THE END OF THE NEXT WORKDAY. IF ADDITIONAL BMP'S OR SIGNIFICANT REPAIR OF BMP'S ARE NECESSARY, IMPLEMENTATION MUST BE COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED. A CONSTRUCTION LOG MUST BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE

B. A LOG (REPORT) MUST BE KEPT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, AND MAJOR OBSERVATIONS RELATING TO OPERATION OF EROSION AND SEDIMENTATION CONTROLS AND POLLUTION PREVENTION MEASURES. a PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS AND CONDITIONS IN THE PERMIT SHALL CONDUCT THE INSPECTIONS. MAJOR OBSERVATIONS MUST INCLUDE: BMPS THAT NEED TO BE MAINTAINED; LOCATION(S) OF BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION; AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION. FOLLOW-UP TO CORRECT DEFICIENCIES OR ENHANCE CONTROLS MUST ALSO BE INDICATED IN THE LOG AND DATED, INCLUDING WHAT ACTION WAS TAKEN AND WHEN.

DEWATERING
A DEWATERING PLAN IS NEEDED TO ADDRESS EXCAVATION DE-WATERING FOLLOWING HEAVY RAINFALL EVENTS OR WHERE THE EXCAVATION MAY INTERCEPT THE GROUNDWATER TABLE DURING CONSTRUCTION. THE COLLECTED WATER NEEDS TREATMENT AND A DISCHARGE POINT THAT WILL NOT CAUSE DOWNGRADIENT EROSION AND OFFSITE SEDIMENTATION OR WITHIN A RESOURCE.

GOOD HOUSEKEEPING NOTES:

1. **SPILL PREVENTION.** CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

   NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT : HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. **GROUNDWATER PROTECTION.** DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

   SEE MAINE DEP CHAPTER 500 APPENDIX D FOR LICENSE BY RULE STANDARDS FOR INFILTRATION OF STORMWATER.

   NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

3. **FUGITIVE SEDIMENT AND DUST.** ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

   NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE *NATURAL RESOURCES PROTECTION ACT*.

4. **DEBRIS AND OTHER MATERIALS.** MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

   NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST-CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. **EXCAVATION DE-WATERING.** EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.

   NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

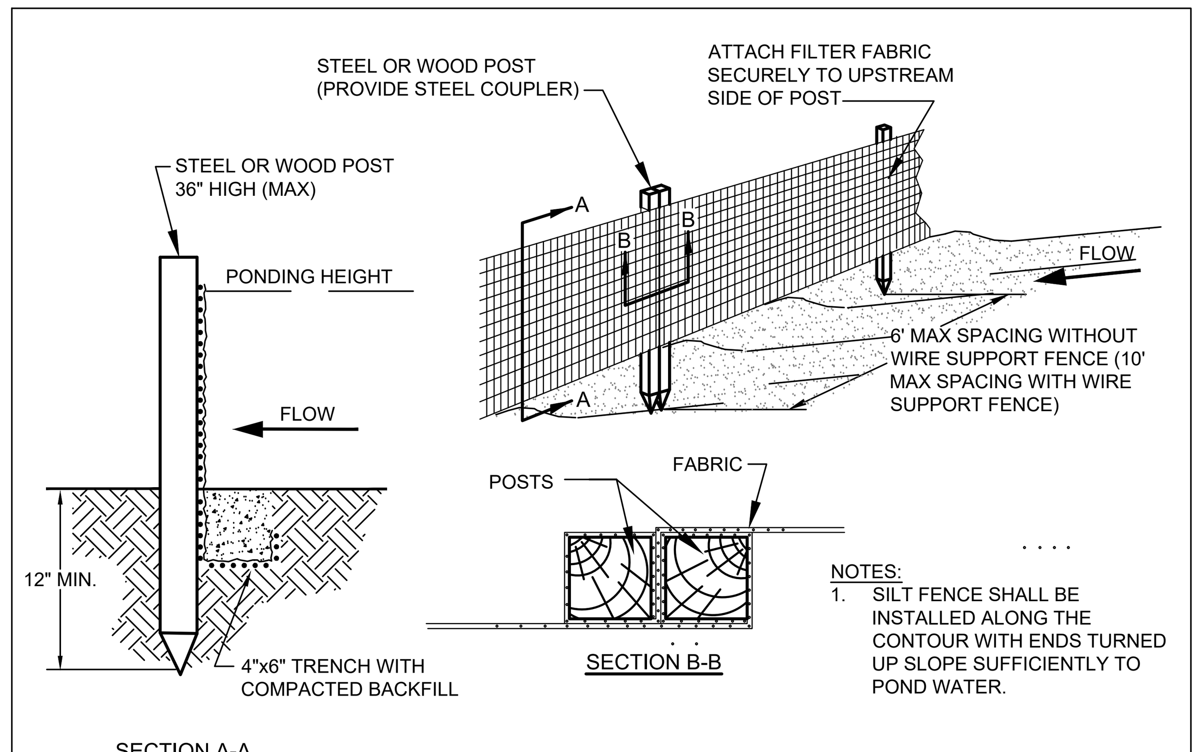
6. **AUTHORIZED NON-STORMWATER DISCHARGES.** IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:

   (a) DISCHARGES FROM FIREFIGHTING ACTIVITY;
   (b) FIRE HYDRANT FLUSHINGS;
   (c) VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
   (d) DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3);
   (e) ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
   (f) PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
   (g) UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
   (h) UNCONTAMINATED GROUNDWATER OR SPRING WATER;
   (i) FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
   (j) UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));
   (k) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
   (l) LANDSCAPE IRRIGATION.

7. **UNAUTHORIZED NON-STORMWATER DISCHARGES.** THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:

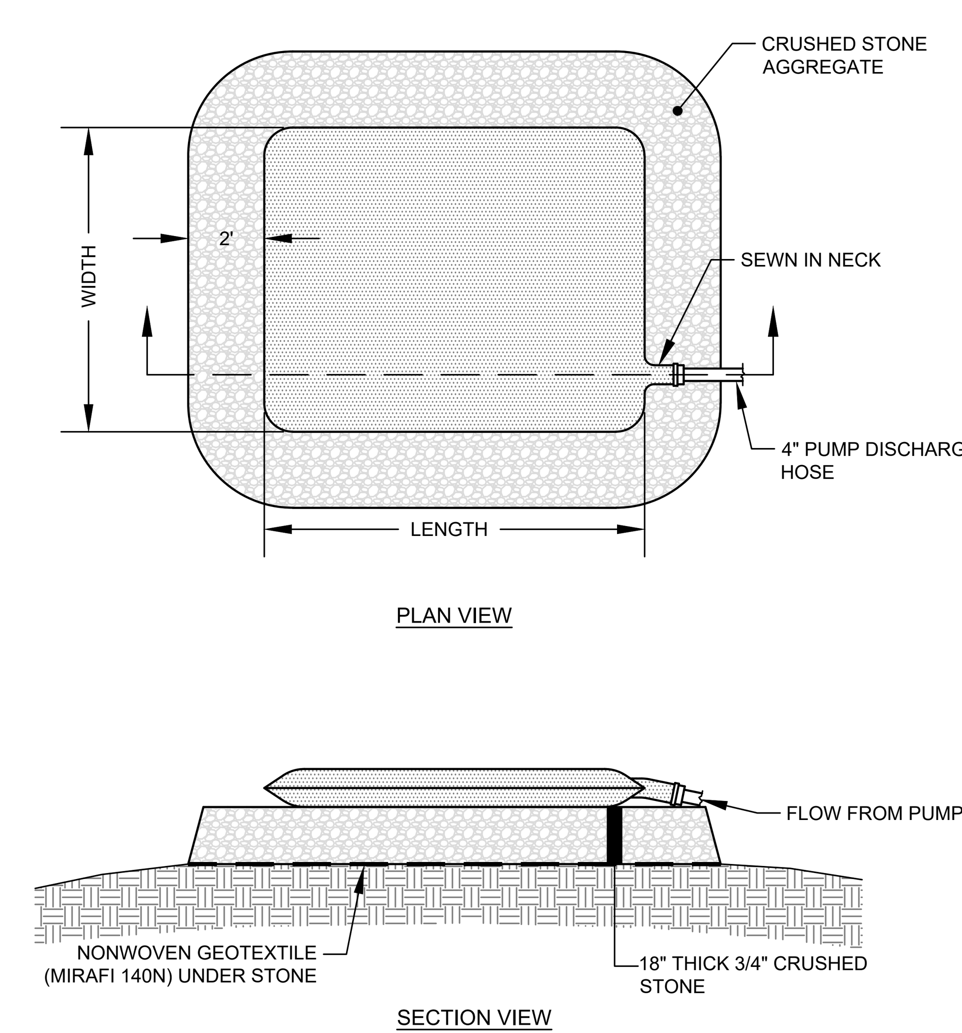
   (a) WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
   (b) FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
   (c) SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
   (d) TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.

8. **ADDITIONAL REQUIREMENTS.** ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.



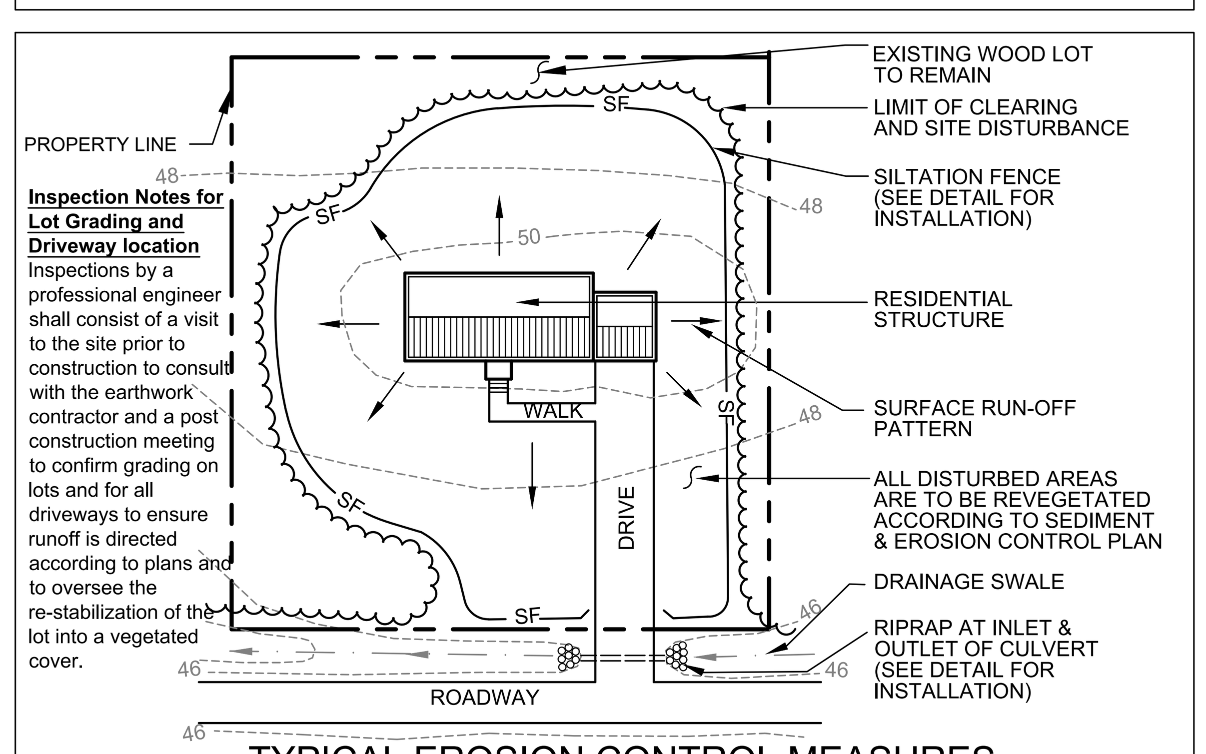
NOTES:
1. SILT FENCE SHALL BE INSTALLED ALONG THE CONTOUR WITH ENDS TURNED UP SLOPE SUFFICIENTLY TO POND WATER.

SILT FENCE
NOT TO SCALE



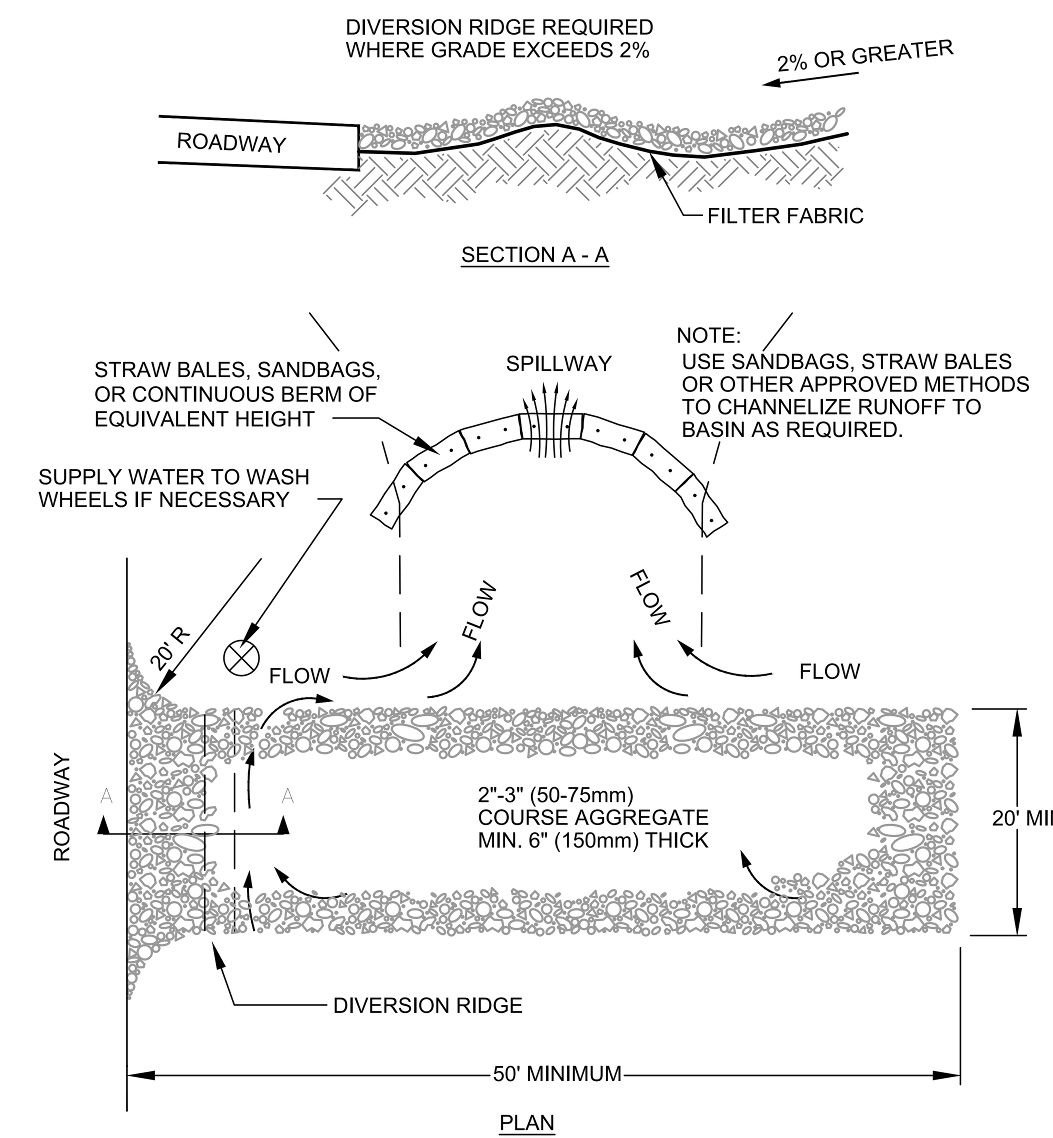
NOTES:
1. DIRTBAG BY ACF ENVIRONMENTAL
2. SEAMS MUST BE HIGH STRENGTH DOUBLE STITCHED "J" SEAMS.
3. CONSTRUCTION DEWATERING OF TURBID WATER SHALL BE PUMPED THROUGH A DIRTBAG AND RELEASED THROUGH A VEGETATED BUFFER AT LEAST 50' UPSTREAM OF WETLAND AREAS.
4. THE DIRTBAG SHALL NOT BE SITED IN CRITICAL AREAS, SUCH AS WETLANDS AND 75 FEET FROM ANY PROTECTED RESOURCE.

DIRTBAG DETAIL
NOT TO SCALE



Inspection Notes for Lot Grading and Driveway location
Inspections by a professional engineer shall consist of a visit to the site prior to construction to consult with the earthwork contractor and a post construction meeting to confirm grading on lots and for all driveways to ensure runoff is directed according to plans and to oversee the re-stabilization of the lot into a vegetated cover.

TYPICAL EROSION CONTROL MEASURES FOR DWELLING UNITS
NOT TO SCALE



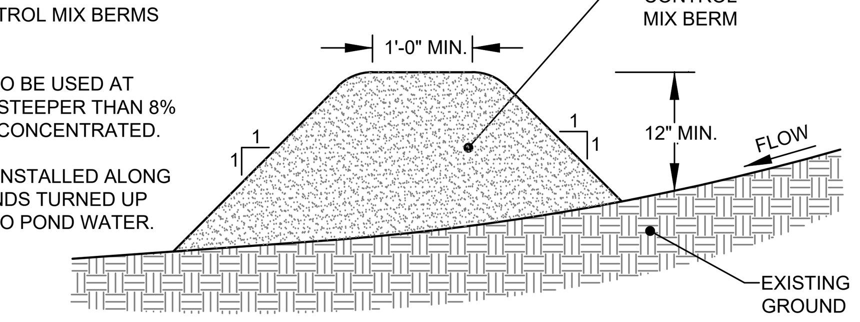
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

NOTES:
1. DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.
2. ECM BERMS ARE NOT TO BE USED AT THE BASE OF A SLOPE STEEPER THAN 8% OR WHERE RUNOFF IS CONCENTRATED.
3. ECM BERMS SHALL BE INSTALLED ALONG THE CONTOUR WITH ENDS TURNED UP SLOPE SUFFICIENTLY TO POND WATER.



EROSION CONTROL MIX:
EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES & MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:
- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 80% - 100% DRY WEIGHT BASIS
- PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MINIMUM OF 70%, MAXIMUM OF 85% PASSING A 0.75" SCREEN
- THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
- LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
- SOLUBLE SALTS CONTENT SHALL BE < 4.0 mmhos/cm.
- ph SHALL FALL BETWEEN 5.0 - 8.0.

EROSION CONTROL MIX BERM
NOT TO SCALE

STATE OF MAINE — MICHAEL E. TADEMA-WIELANDT — No. 11587 — LICENSED PROFESSIONAL ENGINEER

DATE: 8/16/2023

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting
ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD, ME

SHEET TITLE:
EROSION & SEDIMENT CONTROL DETAILS

RECORD OWNER:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

DATE:	3/10/2023
SCALE:	AS NOTED
JOB NO:	23-023
SHEET:	C-4.1

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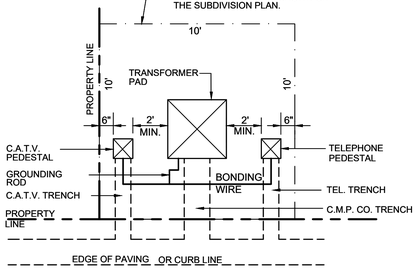
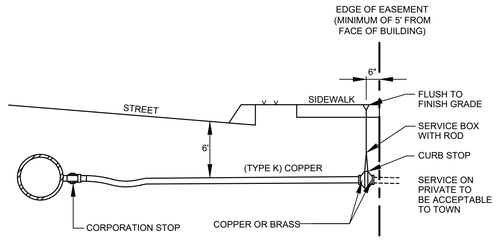


NOTE:
TRANSFORMER PAD AND COVER TO BE FIBERGLASS MEETING CENTRAL MAINE POWER SPECIFICATIONS.

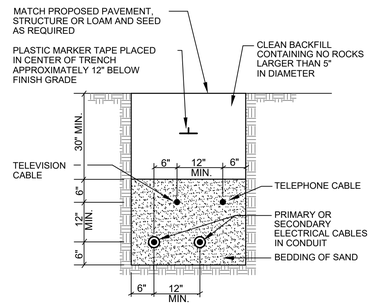
TRANSFORMER DETAIL

NOT TO SCALE



TYPICAL WATER SERVICE CONNECTION

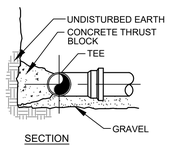
NOT TO SCALE



CABLES TO BE ENCASED IN SCHEDULE 40 PVC CONDUIT WHEN RUN BENEATH PAVED AREAS.

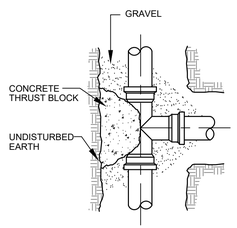
TYPICAL UNDERGROUND CABLE INSTALLATION

NOT TO SCALE

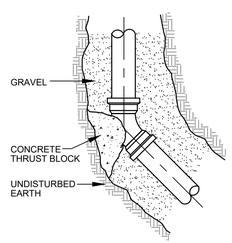


SECTION

CONCRETE THRUST BLOCK SIZE REQUIREMENTS				
		SQ. FT. OF BEARING ON UNDISTURBED SOIL		
FITTINGS		90° BENDS	45° BENDS	TEES AND PLUGS
PIPE SIZE	6"	4.0	2.0	3.0
	8"	8.0	4.0	6.0
	12"	15	10	10



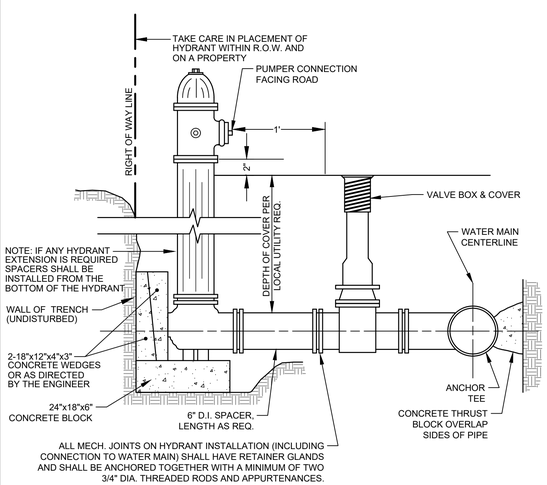
PLAN



45° BEND

TEE & BEND DETAIL

NOT TO SCALE



NOTES:
1. ALL MATERIALS SHALL CONFORM TO THE KENNEBUNK, KENNEBUNKPORT & WELLS WATER DISTRICT REQUIREMENTS
2. HYDRANT SHALL BE OPEN RIGHT
3. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE

TYP. HYDRANT INSTALLATION

NOT TO SCALE

STATE OF MAINE
MICHAEL E. TADEMA-WELANDT
No. 17557
LICENSED
PROFESSIONAL ENGINEER

DATE: 8/16/2023

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260
PHONE: (207) 926-5111
WEB SITE: www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: LONGBOARD RIDGE SUBDIVISION
761 POOL STREET, BIDDEFORD, ME

SHEET TITLE: UTILITY DETAILS

RECORD OWNER: BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

DATE:	3/10/2023
SCALE:	AS NOTED
JOB NO:	23-023
SHEET:	C-4.2

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207.926.5111
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LONGBOARD RIDGE SUBDIVISION

781 POOL STREET, BIDDEFORD, MAINE

STORMWATER MANAGEMENT REPORT

PREPARED FOR:

BEACHWOOD DEVELOPMENT FUND, LLC
92 YORK STREET
KENNEBUNK, MAINE 04043

PREPARED BY:

TERRADYN CONSULTANTS LLC
565 CONGRESS STREET, SUITE 201
PORTLAND, MAINE 04101

STATE OF MAINE
MICHAEL E.
TADEMA-WIELANDT
No. 11587
LICENSED
PROFESSIONAL ENGINEER

AUGUST 2023

Pineland
41 Campus Drive, Suite 301
New Gloucester, ME 04260

Portland
565 Congress Street, Suite 201
Portland, ME 04101

Auburn
95 Main Street, 2nd Floor
Auburn, ME 04210

Introduction

The following Stormwater Management Plan has been prepared for Longboard Ridge Subdivision to evaluate stormwater runoff and erosion control for the proposed 8-lot subdivision.

Site Calculations

Below is a summary of existing and proposed impervious and developed areas on the project site.

Total Site Area	25.45 Ac (+/-)
Existing Impervious Area	0.44 Ac
Existing Developed Area	0.00 Ac
Proposed New Impervious (Road Only)	0.55 Ac
Proposed New Developed (Road Only)	1.17 Ac
Proposed Lot Impervious Area	0.92 Ac
Proposed Lot Developed Area	3.67 Ac
Total Impervious Area	1.91 Ac
Total Developed Area	4.84 Ac
Net Change in Impervious Area	1.47 Ac
Net Change in Developed Area	4.84 Ac

Existing Conditions

The project site is approximately 25.45 acres in size and is identified as Lot 17-2 on Biddeford Tax Map 5. The site is located in the Coastal Residential District with small areas in the Stream Protection and Limited Residential Overlay Zones.

The parcel is undeveloped woodland with pockets of freshwater wetlands.

A wetland and vernal pool study was conducted on the site by Longview Partners in the spring of 2022. There are approximately 3.8 acres of forested freshwater wetlands on the site.

Seven potential vernal pools were identified on the site and studied in accordance with Maine DEP guidance. The pools were found to not have a high habitat value and are regulated as typical forested wetlands by the Maine Department of Environmental Protection under the Natural Resources Protection Act.

Longview Partners also conducted an examination of potential wastewater disposal sites. The report shows the viability of subsurface disposal sites and a copy of this is attached herein.

The site is comprised of the following soil types:

Name	HSG
Scantic Silt Loam	D
Lyman-Rock	D

The project site is not located within a mapped significant sand and gravel aquifer or in an area of flood hazard, according to the Federal Insurance Rate Map FM2301450011B. The following existing conditions figures with the project site identified are provided in Attachment 1.

Figure 1	USGS Topographic Map
Figure 2	Aerial Photograph
Figure 3	Medium Intensity Soil Survey
Figure 4	Federal Insurance Rate Map
Figure 5	Significant Aquifer Map

Proposed Project

The applicant is proposing to develop an eight-lot subdivision, including a 937 linear-foot road and underground utilities.

The proposed lots and infrastructure are located in the eastern part of the site, away from forested wetlands and the onsite stream. Proposed lots range in size from 1.11 acres (Lot 2) to 2.14 acres (Lot 8), and 10.86 acres will be preserved as open space. Lots will be served by individual subsurface wastewater disposal fields and will connect to the public water supply located within Pool Street. Electric and telecommunications services will be installed underground.

Stormwater runoff from the roadway will be managed with open ditches. The project was designed to meet the stormwater performance standards of the City of Biddeford Subdivision Regulations. Stormwater runoff from the proposed development will be collected in the vegetated swales before being discharged to the wetland system on the site. The system will also attenuate peak flow rates from the developed areas so peak discharge rates from the site will be limited to pre-development levels. A stormwater management report has been prepared for the project and is provided in Attachment 9.

In addition to subdivision approval, the project will require a Stormwater Permit By Rule by the Maine Department of Environmental Protection (MDEP). We intend to submit the application for this permit in the coming weeks.

Applicable Design Standards

The Town of Biddeford Subdivision Ordinance Article IV Section 61 A: Stormwater Management

1. *All new construction and development, whether or not served by a stormwater collection and transportation system, shall be designed to reflect or resemble, as nearly as possible, natural runoff conditions in terms of volume, velocity and location of runoff.*
2. *If runoff, after development, would exceed predevelopment runoff conditions, the offsite impact must be evaluated in terms of potential soil erosion and sedimentation, drainage capacity, and the land use/land cover characteristics. Appropriate methods of reducing off-site impact shall be employed.*
3. *Stormwater management evaluations and designs shall be based on a twenty-four-hour, twenty-five-year occurrence interval storm.*
4. *The Planning Board may, when it deems it appropriate, require calculations that are based on a fifty-year storm.*

Stormwater Quantity Control

Stormwater Quantity control is required as part of town requirements for this project; the proposed development has been designed to minimize stormwater runoff from the site in excess of the natural pre-development conditions. A hydrologic analysis of pre-development and post-development conditions was conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 20 and 55 (SCS TR-20 and TR-55). For York County, Maine a 24-hour SCS Type III Storm distribution was used for the analysis using the following storm frequencies and rainfall amounts, per Maine DEP Chapter 500:

Storm Event	24-Hour Rainfall
2–Year Storm	3.3 inches
10–Year Storm	4.9 inches
25–Year Storm	6.2 inches

Runoff curve numbers, time of concentration, and travel time data were established based on methods outlined in the USDA TR-55 manual.

Individual lot development will be carried out by lot owners, not the applicant. For the post-development model, the following impervious and landscaped areas were assumed based on lot size and configuration. All 8 lots were assumed to have 5,000 sf of impervious area and 20,000 sf of landscaped area. A minimum time of concentration of 5 minutes and a maximum sheet flow distance of 150 linear feet was used in the models.

Pre-Development Conditions

The pre-development HydroCAD model includes four (4) subcatchments and four (4) study points. Stormwater runoff from the site flows primarily through the system of freshwater wetlands to the study points described below.

Study Point SP1 – Located at the southern site boundary, where an unnamed stream flows from Pool Street to Peter Pond Lane.

Study Point SP2 – Located at the southern site boundary, runoff flows in a southeast direction along the eastern boundary around adjacent properties to Maddox Pond Road.

Study Point SP3 – Located in the middle of the site, runoff flows southeast to Peter Pond Lane at the eastern border of the site.

Study Point SP4 – Located in the southern portion of the site, runoff flows southeast to a catch basin next to Peter Pond Lane.

A Pre-Development Watershed Map, showing sub-watershed boundaries, time of concentration flow paths, and Study Points is provided in Appendix 2. The Pre-development HydroCAD model is attached in Appendix 4.

Existing condition peak rates of runoff at the Study Points are as follows:

Pre-Development Peak Rates of Runoff (cfs)			
	2-Year	**10-Year**	**25-Year**
SP1	9.19	18.31	26.20
SP2	4.75	9.49	13.58
SP3	5.77	11.71	16.88
SP4	1.37	2.73	3.90

The pre-development peak rates of runoff are a baseline used for comparison to the post-development condition.

Post-Development Conditions

The proposed post-development HydroCAD model includes nine (9) subcatchments and four (4) study points. The study points remain the same from the pre-development model. A Post-development Watershed Map showing sub-watershed boundaries, time of concentration flow paths, and Study Points is provided in Appendix 2. The Post-development HydroCAD model is attached in Appendix 5.

Post-development peak rates of runoff at the Study Points are as follows:

Post-Development Peak Rates of Runoff (cfs)			
	2-Year	**10-Year**	**25-Year**
SP1	9.13	17.12	23.97
SP2	4.75	9.49	13.58
SP3	5.77	11.06	15.57
SP4	1.37	2.73	3.90

Peak Flow Analysis

The results of the pre-development and post-development models were compared at the defined Study Points described above. The direct comparison of the pre-development and post-development conditions at the Study Points are as follows:

Peak Runoff Flow Rates Comparison		
Storm Event	**Pre-Development (cfs)**	**Post-Development (cfs)**
	Study Point SP1	
2-Year	9.19	9.13
10-Year	18.31	17.12
25-Year	26.2	23.97
	Study Point SP2	
2-Year	4.75	4.75
10-Year	9.49	9.49
25-Year	13.58	13.58
	Study Point SP3	
2-Year	5.77	5.77
10-Year	11.71	11.06
25-Year	16.88	15.57
	Study Point SP4	
2-Year	1.37	1.37
10-Year	2.73	2.73
25-Year	3.90	3.90

The hydrologic models predict that peak rates of runoff at study points 1, 2, 3 and 4 will generally decrease or stay the same in the 2, 10 & 25-year design storm events. The reduction in peak flow rates is due to the change in predevelopment sub catchment areas due to the 8-lot development. Runoff from the new road is collected in open ditches and sent to the unnamed stream via vegetated swales and wetland network, which has a large area to collect runoff.

Overall, sub catchments 1 and 3 have an overall reduction in area, which offsets the effects of the increased developed and impervious area. Since there was no change to sub catchment 4 in the pre and post development, there was no change in stormwater runoff.

The reduction in peak flow rates in subcatchment 2 is believed to be the result of modified timing of the peak rates of runoff from different tributary areas resulting from the proposed development. The relatively small amount of impervious area to be constructed, and the associated increase in runoff volume and peak runoff rates from these areas of the site, is expected to be offset by the modified timing of peak runoff rates.

Stormwater Quality Control

The Chapter 500 General Standard does not apply to this development which requires “Any-other non-lake watershed. One acre of more of impervious area, or 5 acres or more of developed area anywhere else for a project that is not in the direct watershed of a lake.”

Summary

The proposed eight (8) lot subdivision includes construction of a 937’ long roadway. Runoff from the road will be collected in roadside ditches and discharged into wetlands onsite and eventually the unnamed stream. Pre and post-development hydrologic models were developed to determine the effect of the proposed development on peak runoff rates at the site boundary.

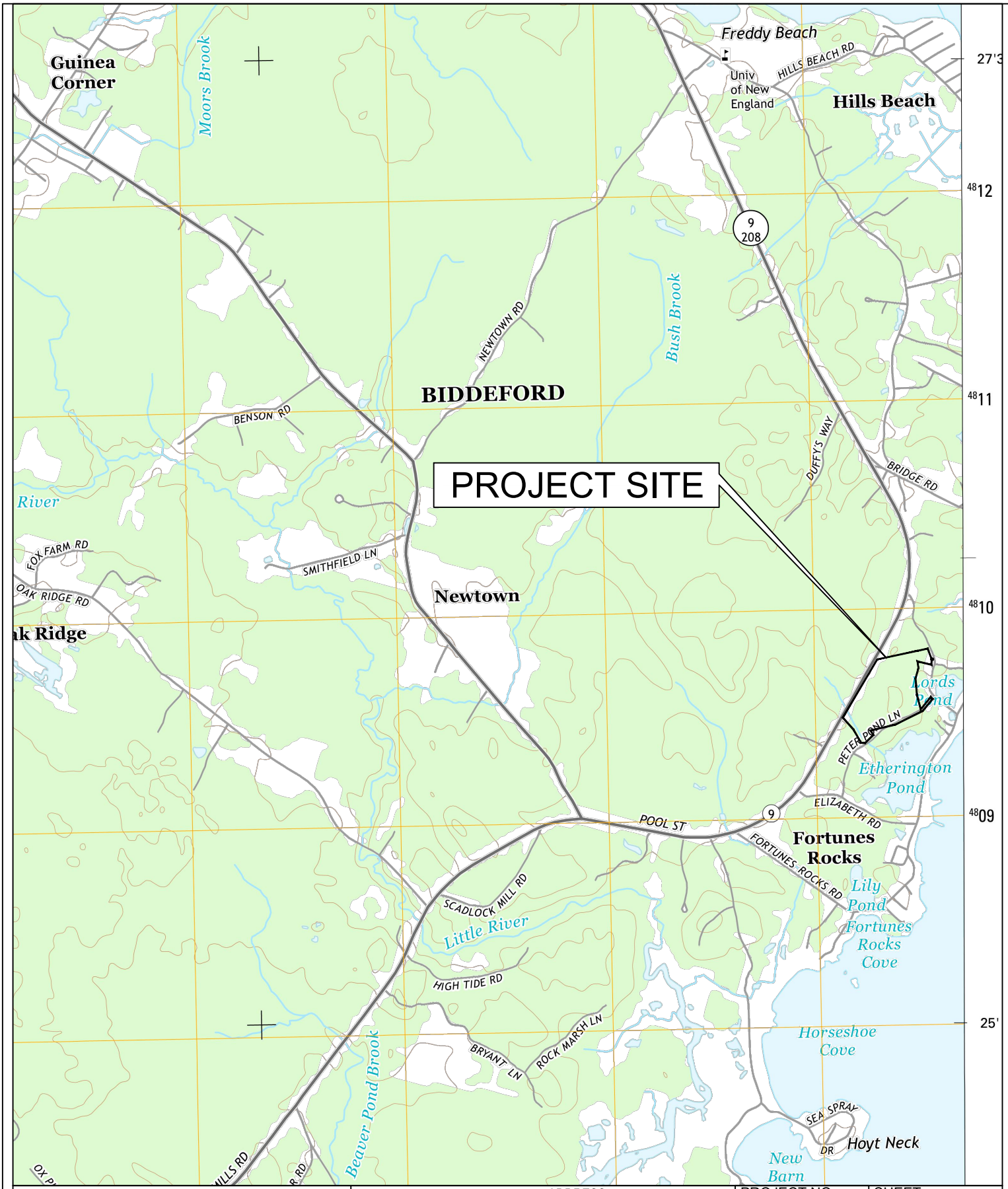
Based upon the results of this evaluation, the proposed project meets the applicable performance standards and is not expected to cause flooding, erosion, or other significant adverse effects downstream of the site.

Appendices

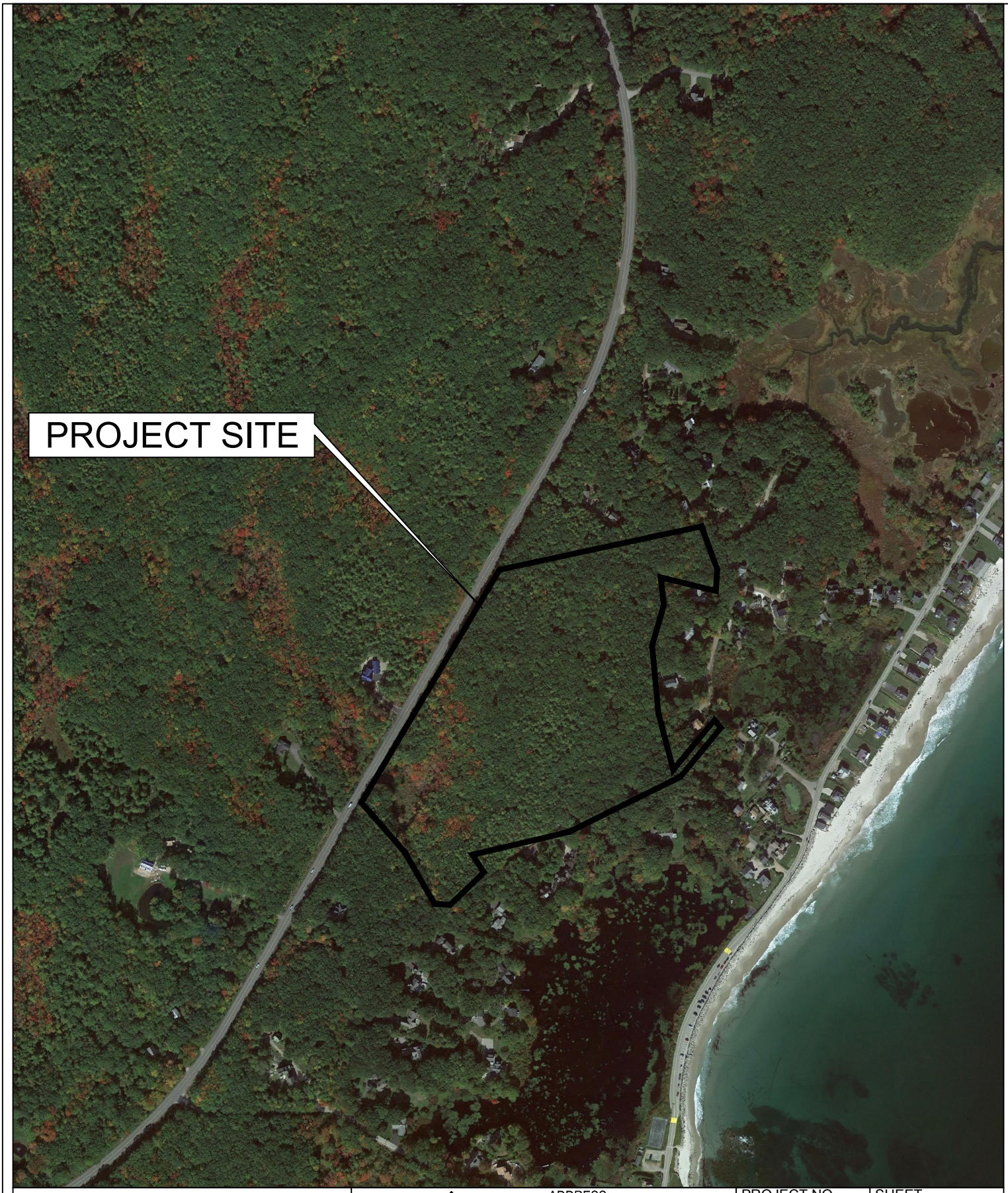
1 – Existing Conditions Figures
2 – Watershed Maps
3 – Inspection & Maintenance Manual
4 – Pre-Development HydroCAD Model
5 – Post-Development HydroCAD Model

APPENDIX 1

EXISTING CONDITIONS FIGURES



USGS BIDDEFORD QUADRANGLE MAP	TERRADYN CONSULTANTS, LLC	ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260	PROJECT NO. 22-023	SHEET 1
PROJECT: POOL STREET SUBDIVISION BIDDEFORD MAINE		PHONE: (207) 926-5111	DATE 5/16/2023	OF 5
PREPARED FOR: BEACHWOOD DEVELOPMENT FUND 92 YORK STREET KENNEBUNK, MAINE 04043		WEB SITE: www.terradynconsultants.com	SCALE 1" = 2,000'	
		Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting		



AERIAL MAP

PROJECT:
POOL STREET SUBDIVISION
BIDDEFORD MAINE

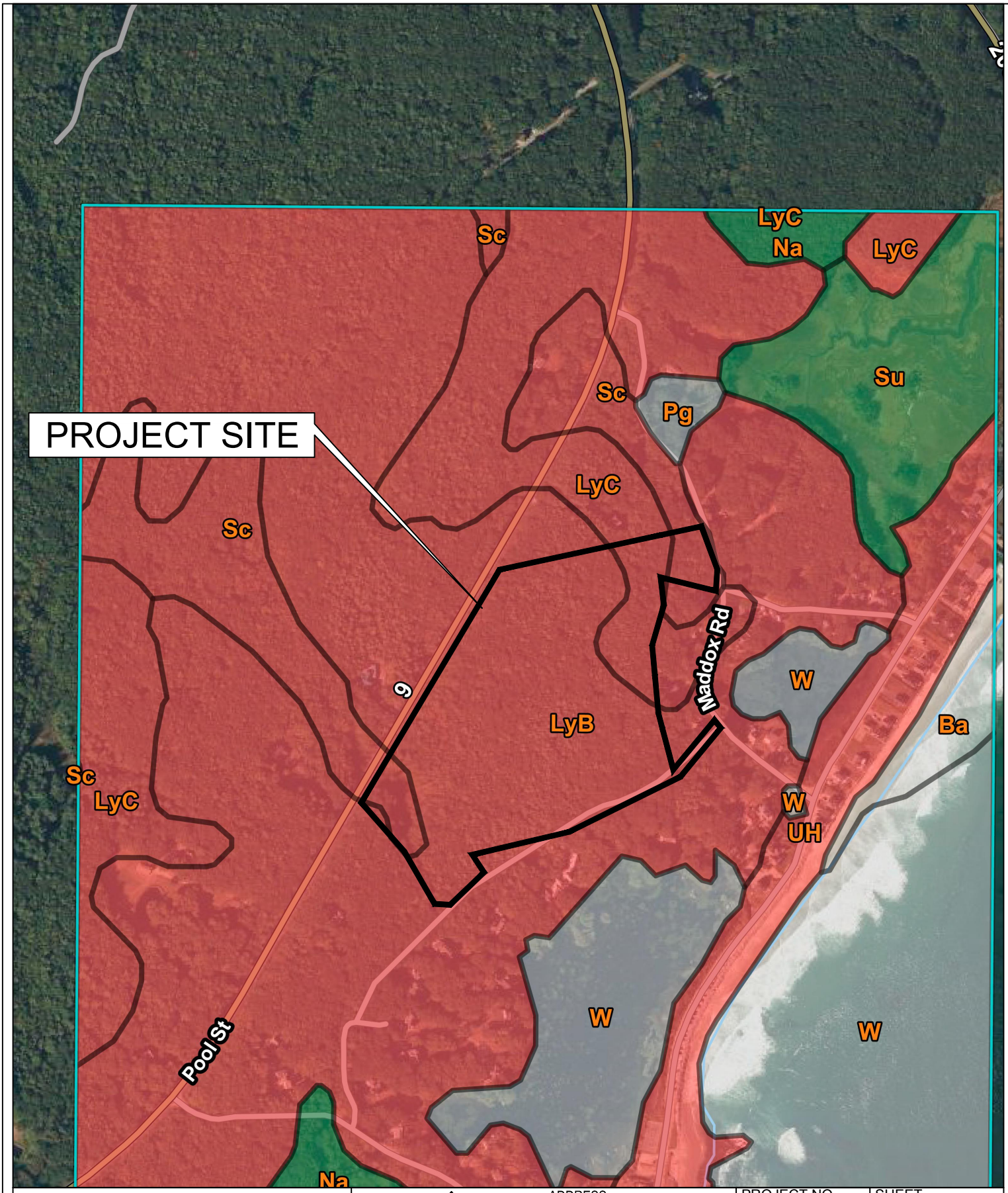
PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, MAINE 04043

TERRADYN CONSULTANTS, LLC

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com

Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PROJECT NO.	SHEET
22-023	2
DATE	OF
5/16/2023	5
SCALE	
1" = 500'	



MEDIUM INTENSITY SOILS SURVEY

PROJECT:
POOL STREET SUBDIVISION
BIDDEFORD MAINE

PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, MAINE 04043

TERRADYN CONSULTANTS, LLC
ADDRESS:
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NEW GLOUCESTER, ME 04260
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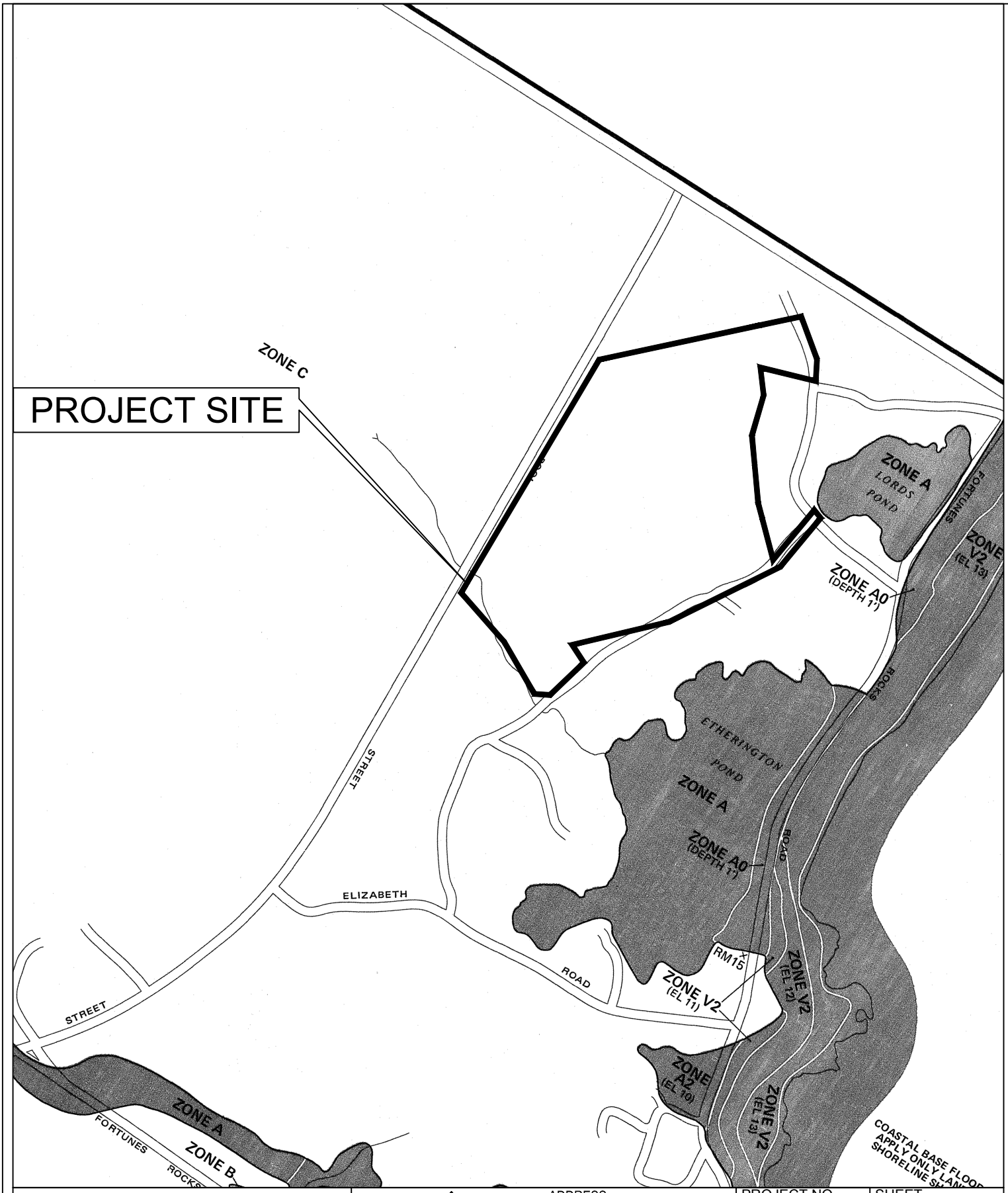
PROJECT NO.	SHEET
22-023	3
DATE	OF
5/16/2023	5
SCALE	
1" = 500'	



FLOOD INSURANCE RATE MAP

PROJECT:
POOL STREET SUBDIVISION
BIDDEFORD MAINE

PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, MAINE 04043

TERRADYN CONSULTANTS, LLC

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(207) 926-5111
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Civil Engineering | Land Surveying | Geomatics
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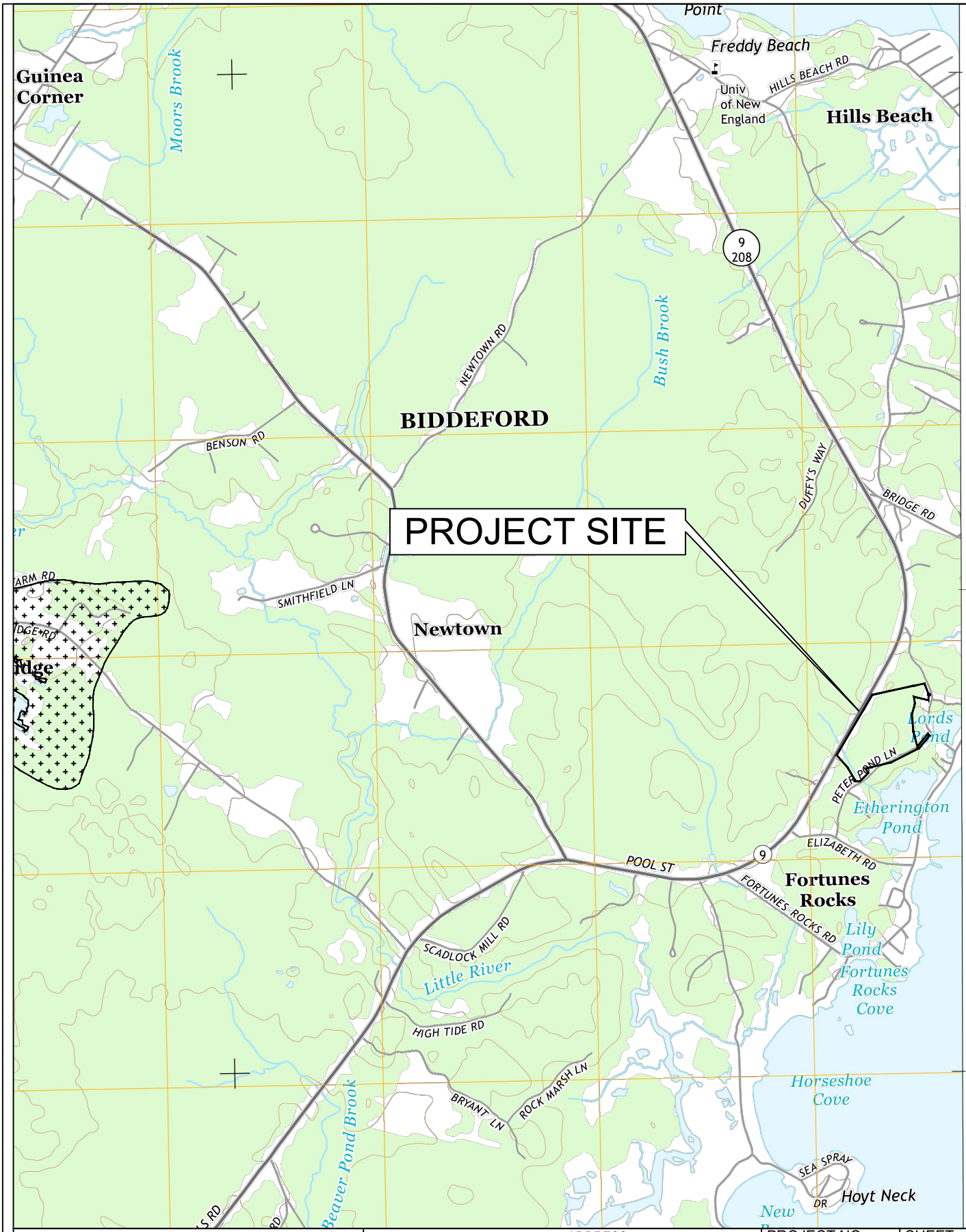
PROJECT NO.	SHEET
22-023	4
DATE	OF
5/16/2023	5
SCALE	
1" = 500'	



SIGNIFICANT SAND & GRAVEL AQUIFER MAP	TERRADYN CONSULTANTS, LLC	ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260	PROJECT NO. 22-023	SHEET 5
PROJECT: POOL STREET SUBDIVISION BIDDEFORD MAINE		PHONE: (207) 926-5111	DATE 5/16/2023	OF 5
PREPARED FOR: BEACHWOOD DEVELOPMENT FUND 92 YORK STREET KENNEBUNK, MAINE 04043		WEB SITE: www.terradynconsultants.com	SCALE 1" = 2,000'	
	Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting			

APPENDIX 2

PRE AND POST-DEVELOPMENT WATERSHED MAPS

PREDEVELOPMENT TIME OF CONCENTRATION		
Watershed 1		
Segment ID	**Length**	**Slope**
A-B	150	0.053
B-C	822	0.015
C-D	406	0.004
Watershed 2		
Segment ID	**Length**	**Slope**
A-B	150	0.027
B-C	415	0.036
C-D	575	0.003
E-F	165	0.091
F-G	85	0.012
Watershed 3		
Segment ID	**Length**	**Slope**
A-B	150	0.027
B-C	386	0.028
C-D	234	0.066
Watershed 4		
Segment ID	**Length**	**Slope**
A-B	150	0.040
B-C	165	0.024

NOTES:

- SOILS WITHIN THE WATERSHED AREAS ARE PRIMARILY MAPPED AS LYMAN-ROCK OUTCROP COMPLEX (HSG D) AND SCANTIC SILT LOAM (HSG D) BY THE NRCS WEB SOIL SURVEY IN JUNE 2023.

STATE OF MAINE
MICHAEL E. TADEMA-WELANDT
No. 17551
LICENSED PROFESSIONAL ENGINEER

DATE: 8/16/2023

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD, ME

SHEET TITLE:
PREDEVELOPMENT WATERSHED MAP

RECORD OWNER:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

DATE: 3/10/2023
SCALE: 1" = 60'
JOB NO: 23-023
SHEET: WS-1

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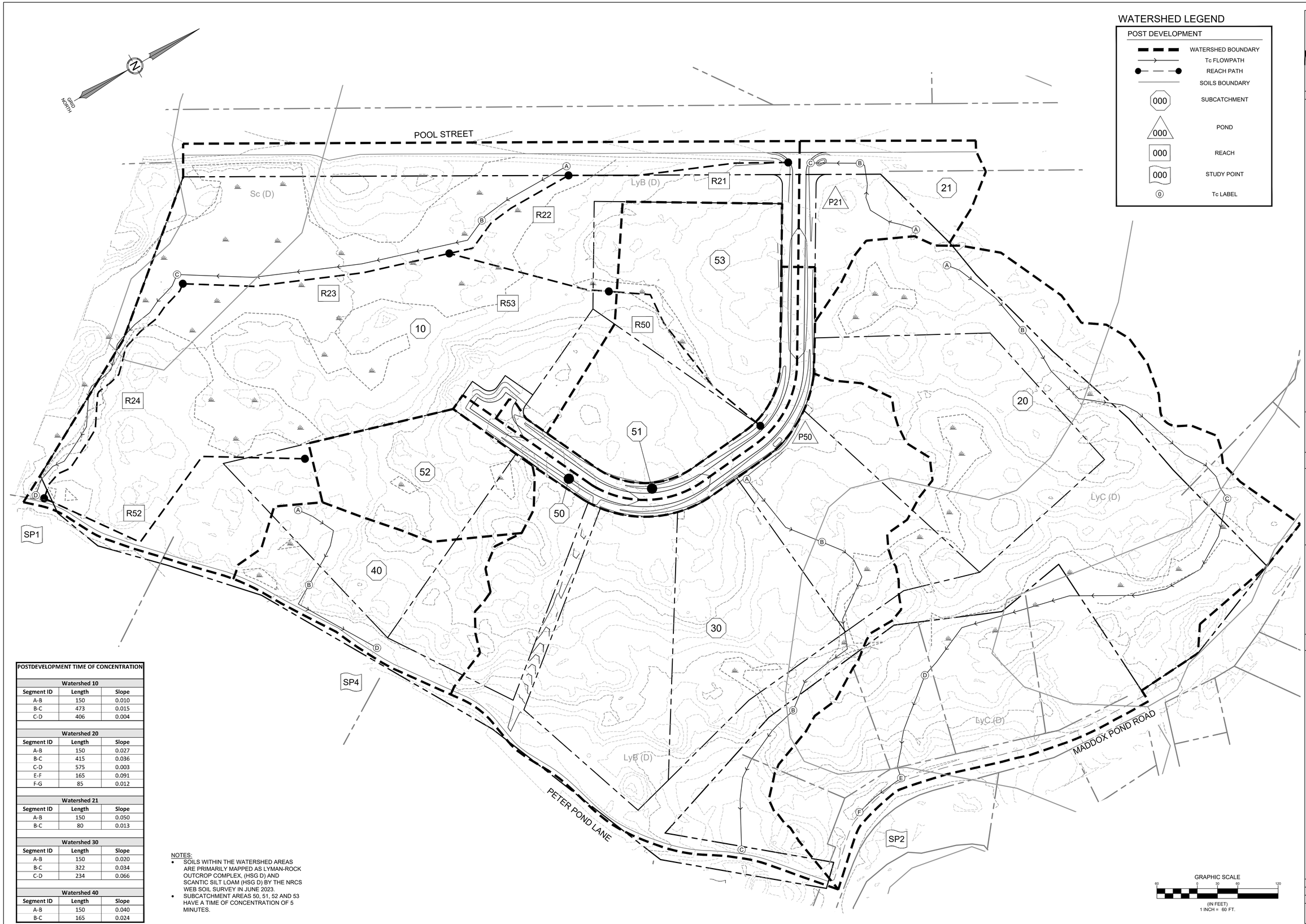

POSTDEVELOPMENT TIME OF CONCENTRATION		
Watershed 10		
Segment ID	**Length**	**Slope**
A-B	150	0.010
B-C	473	0.015
C-D	406	0.004
Watershed 20		
Segment ID	**Length**	**Slope**
A-B	150	0.027
B-C	415	0.036
C-D	575	0.003
E-F	165	0.091
F-G	85	0.012
Watershed 21		
Segment ID	**Length**	**Slope**
A-B	150	0.050
B-C	80	0.013
Watershed 30		
Segment ID	**Length**	**Slope**
A-B	150	0.020
B-C	322	0.034
C-D	234	0.066
Watershed 40		
Segment ID	**Length**	**Slope**
A-B	150	0.040
B-C	165	0.024

NOTES:
- SOILS WITHIN THE WATERSHED AREAS ARE PRIMARILY MAPPED AS LYMAN-ROCK OUTCROP COMPLEX, (HSG D) AND SCANTIC SILT LOAM (HSG D) BY THE NRCS WEB SOIL SURVEY IN JUNE 2023.
- SUBCATCHMENT AREAS 50, 51, 52 AND 53 HAVE A TIME OF CONCENTRATION OF 5 MINUTES.

STATE OF MAINE
MICHAEL E. TADEMA-WELANDT
NO. 17551
LICENSED
PROFESSIONAL ENGINEER

DATE: 8/16/2023

NO.	DATE	REVISIONS
1	08/16/2023	SUBMITTED FOR PRELIMINARY SUBDIVISION APPROVAL

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
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TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
LONGBOARD RIDGE SUBDIVISION
781 POOL STREET, BIDDEFORD, ME

SHEET TITLE:
POSTDEVELOPMENT WATERSHED MAP

RECORD OWNER:
BEACHWOOD DEVELOPMENT FUND
92 YORK STREET
KENNEBUNK, ME 04043

DATE:	3/10/2023
SCALE:	1" = 60'
JOB NO:	23-023
SHEET:	WS-2

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APPENDIX 3

Inspection & Maintenance Manual

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

LONGBOARD RIDGE SUBDIVISION
BIDDEFORD, MAINE
STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN

Project Owner/Developer: Beachwood Development Fund, LLC.
92 York Street
Kenenbunk, Maine 04043
(650) 985-3646

Responsible Party: Owner or Homeowners Association

Prepared By: Terradyn Consultants, LLC
565 Congress Street, Suite 201
Portland, ME 04101
(207) 926-5111

INTRODUCTION:

Regular inspection and maintenance of the entire stormwater management system is crucial to the long-term effectiveness of the system. The responsible party must provide regular inspection and maintenance of all permanent erosion control measures and stormwater management structures, establish any contract services required to implement the program, and keep records and a maintenance logbook of inspection and maintenance activities. At a minimum, the inspection and maintenance activities outlined herein should be performed at the recommended intervals. A rainfall event of 1” in a 24 hour period would trigger a wet weather post-construction inspection.

All measures must be maintained in effective operating condition. A person with knowledge of erosion and sedimentation practices, stormwater management, and the standards and conditions of all local, state and federal permits for the project shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected.

INSPECTION TASKS

1. Inspect **vegetated areas**, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

2. Inspect **ditches, swales and other open stormwater channels** in the spring, late fall and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, control vegetated growth that could obstruct flow and repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or sideslopes.

3. Inspect **culverts** in the spring, in late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris at the inlet, the outlet and within the culvert. Repair any erosion damage at the culvert's inlet and outlet.

4. Clear accumulations of winter sand **along roadways** at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder.

5. Inspect **resources** once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within site grading, ditch turnouts must be used to ensure a more even distribution of flow. Check down slope of all turnouts for erosion. If erosion is present, adjust or modify the turnout lip to ensure a better distribution of flow. Clean-out any accumulation of sediment within the turn-out pools.

ATTACHMENTS:
Example Stormwater Management Facilities Inspection & Maintenance Log

Stormwater Management Facilities
Post Construction Inspection & Maintenance Log
Longboard Ridge Subdivision, Biddeford, Maine

General Information:

Inspected by:	Date:	Weather:

Reason for Inspection: (Regular Inspection) (Major Rain Event, 1” in 24 hours)

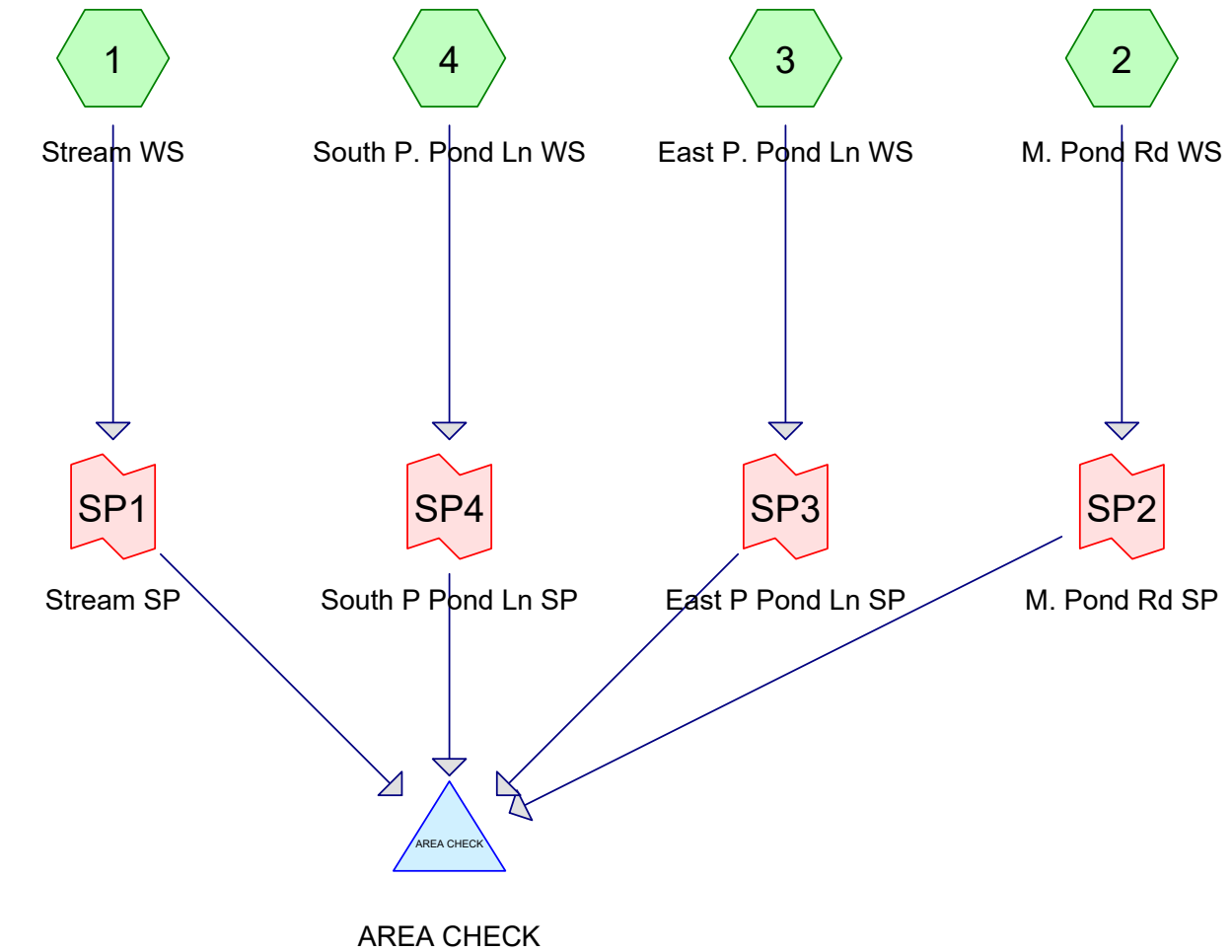
BMP	Conditions Observed	Repairs Needed?
1. Vegetated Areas		
2. Ditches, Swales, Open Channels		
3. Culverts		

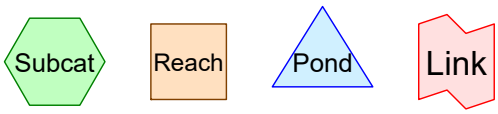
Detailed Repair Notes:

BMP Type	Date	Description of Repairs & Sediment Disposal

APPENDIX 4

PRE-DEVELOPMENT HYDROCAD MODEL





Routing Diagram for 23-023-PRE
Prepared by Terradyn Consultants LLC, Printed 8/15/2023
HydroCAD® 10.20-3c s/n 10466 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.735	80	>75% Grass cover, Good, HSG D (2, 3)
0.220	98	Impervious - offsite houses/driveway (2, 3)
0.138	98	Maddox Pond Road (2)
0.198	98	Peter Pond Ln (1, 3, 4)
0.465	98	Pool Street (1)
28.963	77	Woods, Good, HSG D (1, 2, 3, 4)

Summary for Subcatchment 1: Stream WS

Runoff = 9.19 cfs @ 12.67 hrs, Volume= 1.473 af, Depth= 1.35"
Routed to Link SP1 : Stream SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
	549,233	77	Woods, Good, HSG D
*	20,252	98	Pool Street
*	2,100	98	Peter Pond Ln
	571,585	78	Weighted Average
	549,233		96.09% Pervious Area
	22,352		3.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	150	0.0530	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
22.4	822	0.0150	0.61		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
4.6	406	0.0040	1.49	2.97	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=0.50' Z= 4.0 '/' Top.W=6.00' n= 0.030 Earth, grassed & winding
46.8	1,378	Total			

Summary for Subcatchment 2: M. Pond Rd WS

Runoff = 4.75 cfs @ 12.96 hrs, Volume= 0.951 af, Depth= 1.35"
Routed to Link SP2 : M. Pond Rd SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	6,000	98	Maddox Pond Road
	327,088	77	Woods, Good, HSG D
*	8,800	98	Impervious - offsite houses/driveway
	27,000	80	>75% Grass cover, Good, HSG D
	368,888	78	Weighted Average
	354,088		95.99% Pervious Area
	14,800		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.3	415	0.0360	0.95		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
32.4	575	0.0035	0.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.8	165	0.0910	1.51		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.8	85	0.0120	1.87	1.40	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=0.50' Z= 1.0 '/' Top.W=2.00' n= 0.040 Earth, cobble bottom, clean sides
68.2	1,390	Total			

Summary for Subcatchment 3: East P. Pond Ln WS

Runoff = 5.77 cfs @ 12.54 hrs, Volume= 0.820 af, Depth= 1.28"
Routed to Link SP3 : East P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
	323,778	77	Woods, Good, HSG D
*	4,203	98	Peter Pond Ln
*	800	98	Impervious - offsite houses/driveway
	5,000	80	>75% Grass cover, Good, HSG D
	333,781	77	Weighted Average
	328,778		98.50% Pervious Area
	5,003		1.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.7	386	0.0280	0.84		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
3.0	234	0.0660	1.28		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
36.6	770	Total			

Summary for Subcatchment 4: South P. Pond Ln WS

Runoff = 1.37 cfs @ 12.38 hrs, Volume= 0.165 af, Depth= 1.35"
Routed to Link SP4 : South P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	2,339	98	Peter Pond Ln
	61,516	77	Woods, Good, HSG D
	63,855	78	Weighted Average
	61,516		96.34% Pervious Area
	2,339		3.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	150	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
3.6	165	0.0240	0.77		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
25.8	315	Total			

Summary for Pond AREA CHECK: AREA CHECK

Inflow Area = 30.719 ac, 3.33% Impervious, Inflow Depth = 1.33" for 2-yr event
Inflow = 19.32 cfs @ 12.65 hrs, Volume= 3.408 af
Primary = 19.32 cfs @ 12.65 hrs, Volume= 3.408 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP1: Stream SP

Inflow Area = 13.122 ac, 3.91% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 9.19 cfs @ 12.67 hrs, Volume= 1.473 af
Primary = 9.19 cfs @ 12.67 hrs, Volume= 1.473 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2: M. Pond Rd SP

Inflow Area = 8.469 ac, 4.01% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 4.75 cfs @ 12.96 hrs, Volume= 0.951 af
Primary = 4.75 cfs @ 12.96 hrs, Volume= 0.951 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3: East P Pond Ln SP

Inflow Area = 7.663 ac, 1.50% Impervious, Inflow Depth = 1.28" for 2-yr event
Inflow = 5.77 cfs @ 12.54 hrs, Volume= 0.820 af
Primary = 5.77 cfs @ 12.54 hrs, Volume= 0.820 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP4: South P Pond Ln SP

Inflow Area = 1.466 ac, 3.66% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 1.37 cfs @ 12.38 hrs, Volume= 0.165 af
Primary = 1.37 cfs @ 12.38 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1: Stream WS

Runoff = 18.31 cfs @ 12.65 hrs, Volume= 2.873 af, Depth= 2.63"
Routed to Link SP1 : Stream SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
	549,233	77	Woods, Good, HSG D
*	20,252	98	Pool Street
*	2,100	98	Peter Pond Ln
	571,585	78	Weighted Average
	549,233		96.09% Pervious Area
	22,352		3.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	150	0.0530	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
22.4	822	0.0150	0.61		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
4.6	406	0.0040	1.49	2.97	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=0.50' Z= 4.0 '/' Top.W=6.00' n= 0.030 Earth, grassed & winding
46.8	1,378	Total			

Summary for Subcatchment 2: M. Pond Rd WS

Runoff = 9.49 cfs @ 12.94 hrs, Volume= 1.854 af, Depth= 2.63"
Routed to Link SP2 : M. Pond Rd SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	6,000	98	Maddox Pond Road
	327,088	77	Woods, Good, HSG D
*	8,800	98	Impervious - offsite houses/driveway
	27,000	80	>75% Grass cover, Good, HSG D
	368,888	78	Weighted Average
	354,088		95.99% Pervious Area
	14,800		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.3	415	0.0360	0.95		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
32.4	575	0.0035	0.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.8	165	0.0910	1.51		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.8	85	0.0120	1.87	1.40	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=0.50' Z= 1.0 '/' Top.W=2.00' n= 0.040 Earth, cobble bottom, clean sides
68.2	1,390	Total			

Summary for Subcatchment 3: East P. Pond Ln WS

Runoff = 11.71 cfs @ 12.51 hrs, Volume= 1.622 af, Depth= 2.54"
Routed to Link SP3 : East P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
	323,778	77	Woods, Good, HSG D
*	4,203	98	Peter Pond Ln
*	800	98	Impervious - offsite houses/driveway
	5,000	80	>75% Grass cover, Good, HSG D
	333,781	77	Weighted Average
	328,778		98.50% Pervious Area
	5,003		1.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.7	386	0.0280	0.84		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
3.0	234	0.0660	1.28		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
36.6	770	Total			

Summary for Subcatchment 4: South P. Pond Ln WS

Runoff = 2.73 cfs @ 12.36 hrs, Volume= 0.321 af, Depth= 2.63"
Routed to Link SP4 : South P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	2,339	98	Peter Pond Ln
	61,516	77	Woods, Good, HSG D
	63,855	78	Weighted Average
	61,516		96.34% Pervious Area
	2,339		3.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	150	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
3.6	165	0.0240	0.77		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
25.8	315	Total			

Summary for Pond AREA CHECK: AREA CHECK

Inflow Area = 30.719 ac, 3.33% Impervious, Inflow Depth = 2.61" for 10-yr event
Inflow = 38.79 cfs @ 12.63 hrs, Volume= 6.669 af
Primary = 38.79 cfs @ 12.63 hrs, Volume= 6.669 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP1: Stream SP

Inflow Area = 13.122 ac, 3.91% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 18.31 cfs @ 12.65 hrs, Volume= 2.873 af
Primary = 18.31 cfs @ 12.65 hrs, Volume= 2.873 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2: M. Pond Rd SP

Inflow Area = 8.469 ac, 4.01% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 9.49 cfs @ 12.94 hrs, Volume= 1.854 af
Primary = 9.49 cfs @ 12.94 hrs, Volume= 1.854 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3: East P Pond Ln SP

Inflow Area = 7.663 ac, 1.50% Impervious, Inflow Depth = 2.54" for 10-yr event
Inflow = 11.71 cfs @ 12.51 hrs, Volume= 1.622 af
Primary = 11.71 cfs @ 12.51 hrs, Volume= 1.622 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP4: South P Pond Ln SP

Inflow Area = 1.466 ac, 3.66% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 2.73 cfs @ 12.36 hrs, Volume= 0.321 af
Primary = 2.73 cfs @ 12.36 hrs, Volume= 0.321 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1: Stream WS

Runoff = 26.20 cfs @ 12.64 hrs, Volume= 4.107 af, Depth= 3.76"
Routed to Link SP1 : Stream SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	549,233	77	Woods, Good, HSG D
*	20,252	98	Pool Street
*	2,100	98	Peter Pond Ln
	571,585	78	Weighted Average
	549,233		96.09% Pervious Area
	22,352		3.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	150	0.0530	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
22.4	822	0.0150	0.61		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
4.6	406	0.0040	1.49	2.97	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=0.50' Z= 4.0 '/' Top.W=6.00' n= 0.030 Earth, grassed & winding
46.8	1,378	Total			

Summary for Subcatchment 2: M. Pond Rd WS

Runoff = 13.58 cfs @ 12.93 hrs, Volume= 2.651 af, Depth= 3.76"
Routed to Link SP2 : M. Pond Rd SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	6,000	98	Maddox Pond Road
	327,088	77	Woods, Good, HSG D
*	8,800	98	Impervious - offsite houses/driveway
	27,000	80	>75% Grass cover, Good, HSG D
	368,888	78	Weighted Average
	354,088		95.99% Pervious Area
	14,800		4.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.3	415	0.0360	0.95		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
32.4	575	0.0035	0.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.8	165	0.0910	1.51		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.8	85	0.0120	1.87	1.40	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=0.50' Z= 1.0 '/' Top.W=2.00' n= 0.040 Earth, cobble bottom, clean sides
68.2	1,390	Total			

Summary for Subcatchment 3: East P. Pond Ln WS

Runoff = 16.88 cfs @ 12.51 hrs, Volume= 2.333 af, Depth= 3.65"
Routed to Link SP3 : East P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	323,778	77	Woods, Good, HSG D
*	4,203	98	Peter Pond Ln
*	800	98	Impervious - offsite houses/driveway
	5,000	80	>75% Grass cover, Good, HSG D
	333,781	77	Weighted Average
	328,778		98.50% Pervious Area
	5,003		1.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.7	386	0.0280	0.84		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
3.0	234	0.0660	1.28		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
36.6	770	Total			

Summary for Subcatchment 4: South P. Pond Ln WS

Runoff = 3.90 cfs @ 12.36 hrs, Volume= 0.459 af, Depth= 3.76"
Routed to Link SP4 : South P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	2,339	98	Peter Pond Ln
	61,516	77	Woods, Good, HSG D
	63,855	78	Weighted Average
	61,516		96.34% Pervious Area
	2,339		3.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	150	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
3.6	165	0.0240	0.77		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
25.8	315	Total			

Summary for Pond AREA CHECK: AREA CHECK

Inflow Area = 30.719 ac, 3.33% Impervious, Inflow Depth = 3.73" for 25-yr event
Inflow = 55.68 cfs @ 12.62 hrs, Volume= 9.550 af
Primary = 55.68 cfs @ 12.62 hrs, Volume= 9.550 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP1: Stream SP

Inflow Area = 13.122 ac, 3.91% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 26.20 cfs @ 12.64 hrs, Volume= 4.107 af
Primary = 26.20 cfs @ 12.64 hrs, Volume= 4.107 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2: M. Pond Rd SP

Inflow Area = 8.469 ac, 4.01% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 13.58 cfs @ 12.93 hrs, Volume= 2.651 af
Primary = 13.58 cfs @ 12.93 hrs, Volume= 2.651 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3: East P Pond Ln SP

Inflow Area = 7.663 ac, 1.50% Impervious, Inflow Depth = 3.65" for 25-yr event
Inflow = 16.88 cfs @ 12.51 hrs, Volume= 2.333 af
Primary = 16.88 cfs @ 12.51 hrs, Volume= 2.333 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

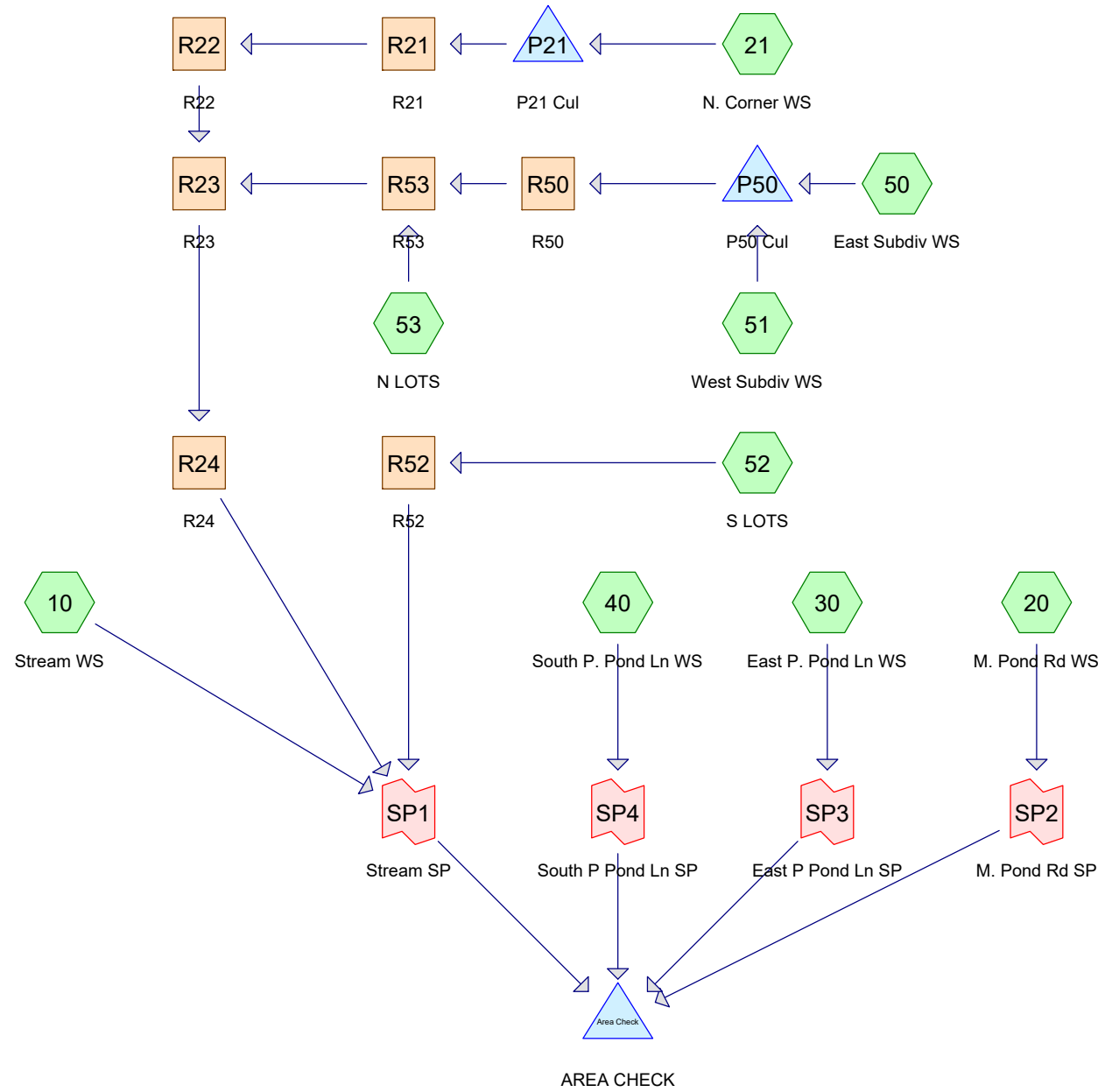
Summary for Link SP4: South P Pond Ln SP

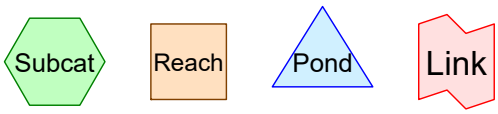
Inflow Area = 1.466 ac, 3.66% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 3.90 cfs @ 12.36 hrs, Volume= 0.459 af
Primary = 3.90 cfs @ 12.36 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min
Routed to Pond AREA CHECK : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

APPENDIX 5

POST-DEVELOPMENT HYDROCAD MODEL





Routing Diagram for 23-023-POST
Prepared by Terradyn Consultants LLC, Printed 8/15/2023
HydroCAD® 10.20-3c s/n 10466 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.391	80	>75% Grass cover, Good, HSG D (10, 20, 21, 30, 40, 50, 51)
0.220	98	Impervious - offsite houses/driveway (20, 30)
0.947	98	LOT IMP (20, 30, 40, 52, 53)
3.788	80	LOT LS (20, 30, 52, 53)
0.138	98	Maddox Pond Road (20)
0.198	98	Peter Pond Ln (10, 30, 40)
0.563	98	Pool Street (10, 21)
0.567	98	Proposed Road Imp (10, 21, 50, 51)
22.906	77	Woods, Good, HSG D (10, 20, 21, 30, 40, 52, 53)

Summary for Subcatchment 10: Stream WS

Runoff = 5.55 cfs @ 12.79 hrs, Volume= 0.987 af, Depth= 1.35"
Routed to Link SP1 : Stream SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
	354,497	77	Woods, Good, HSG D
*	20,252	98	Pool Street
*	2,100	98	Peter Pond Ln
*	3,962	98	Proposed Road Imp
	2,069	80	>75% Grass cover, Good, HSG D
	382,880	78	Weighted Average
	356,566		93.13% Pervious Area
	26,314		6.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	150	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
12.9	473	0.0150	0.61		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
4.6	406	0.0040	1.49	2.97	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=0.50' Z= 4.0 '/' Top.W=6.00' n= 0.030 Earth, grassed & winding
56.1	1,029	Total			

Summary for Subcatchment 20: M. Pond Rd WS

Runoff = 4.75 cfs @ 12.96 hrs, Volume= 0.951 af, Depth= 1.35"
Routed to Link SP2 : M. Pond Rd SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
	309,588	77	Woods, Good, HSG D
*	6,000	98	Maddox Pond Road
*	8,800	98	Impervious - offsite houses/driveway
	27,000	80	>75% Grass cover, Good, HSG D
*	2,500	98	LOT IMP
*	15,000	80	LOT LS
	368,888	78	Weighted Average
	351,588		95.31% Pervious Area
	17,300		4.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.3	415	0.0360	0.95		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
32.4	575	0.0035	0.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.8	165	0.0910	1.51		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.8	85	0.0120	1.87	1.40	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=0.50' Z= 1.0 '/' Top.W=2.00' n= 0.040 Earth, cobble bottom, clean sides
68.2	1,390	Total			

Summary for Subcatchment 21: N. Corner WS

Runoff = 1.14 cfs @ 12.30 hrs, Volume= 0.124 af, Depth= 1.48"
Routed to Pond P21 : P21 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	4,275	98	Pool Street
	35,671	77	Woods, Good, HSG D
*	2,193	98	Proposed Road Imp
	1,671	80	>75% Grass cover, Good, HSG D
	43,810	80	Weighted Average
	37,342		85.24% Pervious Area
	6,468		14.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	150	0.0500	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	80	0.0130	2.17	2.71	**Trap/Vee/Rect Channel Flow, B-C** Bot.W=2.00' D=0.50' Z= 1.0 '/' Top.W=3.00' n= 0.040 Earth, cobble bottom, clean sides
20.9	230	Total			

Summary for Subcatchment 30: East P. Pond Ln WS

Runoff = 5.77 cfs @ 12.55 hrs, Volume= 0.821 af, Depth= 1.48"
Routed to Link SP3 : East P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
	180,035	77	Woods, Good, HSG D
*	20,000	98	LOT IMP
*	80,000	80	LOT LS
*	800	98	Impervious - offsite houses/driveway
	5,000	80	>75% Grass cover, Good, HSG D
*	4,203	98	Peter Pond Ln
	290,038	80	Weighted Average
	265,035		91.38% Pervious Area
	25,003		8.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	150	0.0200	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
5.8	322	0.0340	0.92		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
3.0	234	0.0660	1.28		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
38.0	706	Total			

Summary for Subcatchment 40: South P. Pond Ln WS

Runoff = 1.37 cfs @ 12.38 hrs, Volume= 0.165 af, Depth= 1.35"
Routed to Link SP4 : South P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	2,339	98	Peter Pond Ln
	55,266	77	Woods, Good, HSG D
*	1,250	98	LOT IMP
	5,000	80	>75% Grass cover, Good, HSG D
	63,855	78	Weighted Average
	60,266		94.38% Pervious Area
	3,589		5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	150	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
3.6	165	0.0240	0.77		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
25.8	315	Total			

Summary for Subcatchment 50: East Subdiv WS

Runoff = 1.16 cfs @ 12.08 hrs, Volume= 0.083 af, Depth= 2.09"
Routed to Pond P50 : P50 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
	11,040	80	>75% Grass cover, Good, HSG D
*	9,641	98	Proposed Road Imp
	20,681	88	Weighted Average
	11,040		53.38% Pervious Area
	9,641		46.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	120		0.40		**Direct Entry, A-B**

Summary for Subcatchment 51: West Subdiv WS

Runoff = 1.03 cfs @ 12.07 hrs, Volume= 0.074 af, Depth= 2.17"
Routed to Pond P50 : P50 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	8,918	98	Proposed Road Imp
	8,816	80	>75% Grass cover, Good, HSG D
	17,734	89	Weighted Average
	8,816		49.71% Pervious Area
	8,918		50.29% Impervious Area

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

Summary for Subcatchment 52: S LOTS

Runoff = 2.05 cfs @ 12.08 hrs, Volume= 0.146 af, Depth= 1.62"
Routed to Reach R52 : R52

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	7,500	98	LOT IMP
*	30,000	80	LOT LS
	9,598	77	Woods, Good, HSG D
	47,098	82	Weighted Average
	39,598		84.08% Pervious Area
	7,500		15.92% Impervious Area

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

Summary for Subcatchment 53: N LOTS

Runoff = 4.08 cfs @ 12.08 hrs, Volume= 0.292 af, Depth= 1.48"
Routed to Reach R53 : R53

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.30"

	Area (sf)	CN	Description
*	10,000	98	LOT IMP
*	40,000	80	LOT LS
	53,114	77	Woods, Good, HSG D
	103,114	80	Weighted Average
	93,114		90.30% Pervious Area
	10,000		9.70% Impervious Area

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

Summary for Reach R21: R21

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.13 cfs @ 12.33 hrs, Volume= 0.124 af
Outflow = 1.09 cfs @ 12.46 hrs, Volume= 0.124 af, Atten= 3%, Lag= 8.0 min
Routed to Reach R22 : R22

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.24 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 0.37 fps, Avg. Travel Time= 15.1 min

Peak Storage= 294 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.15' , Surface Width= 6.52'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 9.22 cfs

5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 335.0' Slope= 0.0164 '/'
Inlet Invert= 40.50', Outlet Invert= 35.00'

‡

Summary for Reach R22: R22

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.09 cfs @ 12.46 hrs, Volume= 0.124 af
Outflow = 1.03 cfs @ 12.63 hrs, Volume= 0.124 af, Atten= 5%, Lag= 10.1 min
Routed to Reach R23 : R23

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.65 fps, Min. Travel Time= 5.7 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 17.0 min

Peak Storage= 352 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.10' , Surface Width= 20.49'
Bank-Full Depth= 0.50' Flow Area= 17.5 sf, Capacity= 27.26 cfs

10.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 60.00'
Length= 220.0' Slope= 0.0091 '/'
Inlet Invert= 35.00', Outlet Invert= 33.00'

‡

Summary for Reach R23: R23

Inflow Area = 4.255 ac, 18.90% Impervious, Inflow Depth = 1.61" for 2-yr event
Inflow = 5.37 cfs @ 12.15 hrs, Volume= 0.572 af
Outflow = 5.11 cfs @ 12.24 hrs, Volume= 0.572 af, Atten= 5%, Lag= 5.9 min
Routed to Reach R24 : R24

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.02 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.75 fps, Avg. Travel Time= 8.9 min

Peak Storage= 1,017 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 9.72'
Bank-Full Depth= 5.00' Flow Area= 115.0 sf, Capacity= 1,159.04 cfs

8.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 38.00'
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 33.00', Outlet Invert= 29.00'

‡

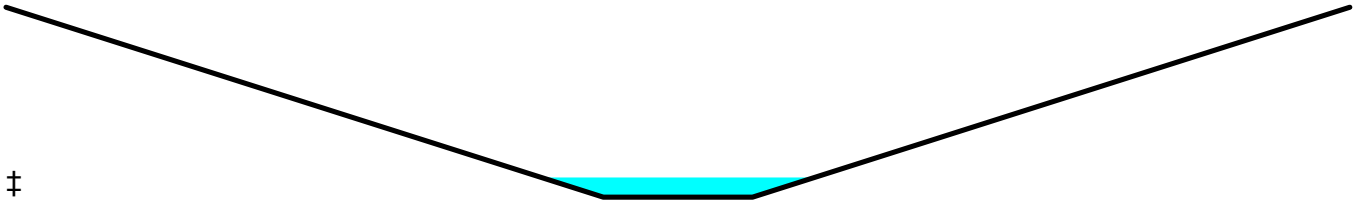
Summary for Reach R24: R24

Inflow Area = 4.255 ac, 18.90% Impervious, Inflow Depth = 1.61" for 2-yr event
Inflow = 5.11 cfs @ 12.24 hrs, Volume= 0.572 af
Outflow = 4.68 cfs @ 12.40 hrs, Volume= 0.572 af, Atten= 8%, Lag= 9.4 min
Routed to Link SP1 : Stream SP

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.28 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 15.0 min

Peak Storage= 1,463 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.52' , Surface Width= 9.16'
Bank-Full Depth= 5.00' Flow Area= 125.0 sf, Capacity= 575.73 cfs

5.00' x 5.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 45.00'
Length= 397.0' Slope= 0.0041 '/'
Inlet Invert= 29.00', Outlet Invert= 27.38'



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Summary for Reach R50: R50

Inflow Area = 0.882 ac, 48.31% Impervious, Inflow Depth = 2.13" for 2-yr event
Inflow = 2.19 cfs @ 12.08 hrs, Volume= 0.156 af
Outflow = 1.94 cfs @ 12.18 hrs, Volume= 0.156 af, Atten= 12%, Lag= 6.0 min
Routed to Reach R53 : R53

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.41 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.56 fps, Avg. Travel Time= 9.3 min

Peak Storage= 440 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.24' , Surface Width= 6.47'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 773.52 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 313.0' Slope= 0.0064 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'

Summary for Reach R52: R52

Inflow Area = 1.081 ac, 15.92% Impervious, Inflow Depth = 1.62" for 2-yr event
Inflow = 2.05 cfs @ 12.08 hrs, Volume= 0.146 af
Outflow = 1.73 cfs @ 12.22 hrs, Volume= 0.146 af, Atten= 16%, Lag= 8.4 min
Routed to Link SP1 : Stream SP

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.50 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 0.65 fps, Avg. Travel Time= 11.9 min

Peak Storage= 542 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.21' , Surface Width= 6.25'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 899.43 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 463.0' Slope= 0.0086 '/'
Inlet Invert= 34.00', Outlet Invert= 30.00'

Summary for Reach R53: R53

Inflow Area = 3.249 ac, 20.18% Impervious, Inflow Depth = 1.66" for 2-yr event
Inflow = 5.42 cfs @ 12.10 hrs, Volume= 0.448 af
Outflow = 5.22 cfs @ 12.14 hrs, Volume= 0.448 af, Atten= 4%, Lag= 2.6 min
Routed to Reach R23 : R23

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.24 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.21 fps, Avg. Travel Time= 3.4 min

Peak Storage= 416 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.28' , Surface Width= 6.70'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 1,619.23 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0280 '/'
Inlet Invert= 40.00', Outlet Invert= 33.00'

Summary for Pond Area Check: AREA CHECK

Inflow Area = 30.719 ac, 8.57% Impervious, Inflow Depth = 1.42" for 2-yr event
Inflow = 19.20 cfs @ 12.61 hrs, Volume= 3.641 af
Primary = 19.20 cfs @ 12.61 hrs, Volume= 3.641 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond P21: P21 Cul

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 1.14 cfs @ 12.30 hrs, Volume= 0.124 af
Outflow = 1.13 cfs @ 12.33 hrs, Volume= 0.124 af, Atten= 1%, Lag= 1.6 min
Primary = 1.13 cfs @ 12.33 hrs, Volume= 0.124 af
Routed to Reach R21 : R21

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.59' @ 12.33 hrs Surf.Area= 301 sf Storage= 93 cf

Plug-Flow detention time= 1.4 min calculated for 0.124 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (856.4 - 855.0)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,255 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	10	0	0
42.00	500	255	255
43.00	5,500	3,000	3,255

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	**12.0" Round Culvert** L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.12 cfs @ 12.33 hrs HW=41.59' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.12 cfs @ 2.31 fps)

Summary for Pond P50: P50 Cul

Inflow Area = 0.882 ac, 48.31% Impervious, Inflow Depth = 2.13" for 2-yr event
Inflow = 2.20 cfs @ 12.07 hrs, Volume= 0.156 af
Outflow = 2.19 cfs @ 12.08 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.5 min
Primary = 2.19 cfs @ 12.08 hrs, Volume= 0.156 af
Routed to Reach R50 : R50

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 38.79' @ 12.08 hrs Surf.Area= 85 sf Storage= 38 cf

Plug-Flow detention time= 0.4 min calculated for 0.156 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (811.4 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	560 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	10	0	0
40.00	200	210	210
41.00	500	350	560

Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	**15.0" Round Culvert** L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 38.00' / 37.50' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.12 cfs @ 12.08 hrs HW=38.78' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.12 cfs @ 2.65 fps)

Summary for Link SP1: Stream SP

Inflow Area = 14.126 ac, 11.19% Impervious, Inflow Depth = 1.45" for 2-yr event
Inflow = 9.13 cfs @ 12.50 hrs, Volume= 1.705 af
Primary = 9.13 cfs @ 12.50 hrs, Volume= 1.705 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2: M. Pond Rd SP

Inflow Area = 8.469 ac, 4.69% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 4.75 cfs @ 12.96 hrs, Volume= 0.951 af
Primary = 4.75 cfs @ 12.96 hrs, Volume= 0.951 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3: East P Pond Ln SP

Inflow Area = 6.658 ac, 8.62% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 5.77 cfs @ 12.55 hrs, Volume= 0.821 af
Primary = 5.77 cfs @ 12.55 hrs, Volume= 0.821 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP4: South P Pond Ln SP

Inflow Area = 1.466 ac, 5.62% Impervious, Inflow Depth = 1.35" for 2-yr event
Inflow = 1.37 cfs @ 12.38 hrs, Volume= 0.165 af
Primary = 1.37 cfs @ 12.38 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 10: Stream WS

Runoff = 11.07 cfs @ 12.77 hrs, Volume= 1.924 af, Depth= 2.63"
Routed to Link SP1 : Stream SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
	354,497	77	Woods, Good, HSG D
*	20,252	98	Pool Street
*	2,100	98	Peter Pond Ln
*	3,962	98	Proposed Road Imp
	2,069	80	>75% Grass cover, Good, HSG D
	382,880	78	Weighted Average
	356,566		93.13% Pervious Area
	26,314		6.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	150	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
12.9	473	0.0150	0.61		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
4.6	406	0.0040	1.49	2.97	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=0.50' Z= 4.0 '/' Top.W=6.00' n= 0.030 Earth, grassed & winding
56.1	1,029	Total			

Summary for Subcatchment 20: M. Pond Rd WS

Runoff = 9.49 cfs @ 12.94 hrs, Volume= 1.854 af, Depth= 2.63"
Routed to Link SP2 : M. Pond Rd SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
	309,588	77	Woods, Good, HSG D
*	6,000	98	Maddox Pond Road
*	8,800	98	Impervious - offsite houses/driveway
	27,000	80	>75% Grass cover, Good, HSG D
*	2,500	98	LOT IMP
*	15,000	80	LOT LS
	368,888	78	Weighted Average
	351,588		95.31% Pervious Area
	17,300		4.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.3	415	0.0360	0.95		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
32.4	575	0.0035	0.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.8	165	0.0910	1.51		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.8	85	0.0120	1.87	1.40	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=0.50' Z= 1.0 '/' Top.W=2.00' n= 0.040 Earth, cobble bottom, clean sides
68.2	1,390	Total			

Summary for Subcatchment 21: N. Corner WS

Runoff = 2.18 cfs @ 12.29 hrs, Volume= 0.235 af, Depth= 2.81"
Routed to Pond P21 : P21 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	4,275	98	Pool Street
	35,671	77	Woods, Good, HSG D
*	2,193	98	Proposed Road Imp
	1,671	80	>75% Grass cover, Good, HSG D
	43,810	80	Weighted Average
	37,342		85.24% Pervious Area
	6,468		14.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	150	0.0500	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	80	0.0130	2.17	2.71	**Trap/Vee/Rect Channel Flow, B-C** Bot.W=2.00' D=0.50' Z= 1.0 '/' Top.W=3.00' n= 0.040 Earth, cobble bottom, clean sides
20.9	230	Total			

Summary for Subcatchment 30: East P. Pond Ln WS

Runoff = 11.06 cfs @ 12.53 hrs, Volume= 1.557 af, Depth= 2.81"
Routed to Link SP3 : East P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
	180,035	77	Woods, Good, HSG D
*	20,000	98	LOT IMP
*	80,000	80	LOT LS
*	800	98	Impervious - offsite houses/driveway
	5,000	80	>75% Grass cover, Good, HSG D
*	4,203	98	Peter Pond Ln
	290,038	80	Weighted Average
	265,035		91.38% Pervious Area
	25,003		8.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	150	0.0200	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
5.8	322	0.0340	0.92		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
3.0	234	0.0660	1.28		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
38.0	706	Total			

Summary for Subcatchment 40: South P. Pond Ln WS

Runoff = 2.73 cfs @ 12.36 hrs, Volume= 0.321 af, Depth= 2.63"
Routed to Link SP4 : South P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	2,339	98	Peter Pond Ln
	55,266	77	Woods, Good, HSG D
*	1,250	98	LOT IMP
	5,000	80	>75% Grass cover, Good, HSG D
	63,855	78	Weighted Average
	60,266		94.38% Pervious Area
	3,589		5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	150	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
3.6	165	0.0240	0.77		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
25.8	315	Total			

Summary for Subcatchment 50: East Subdiv WS

Runoff = 1.96 cfs @ 12.07 hrs, Volume= 0.141 af, Depth= 3.57"
Routed to Pond P50 : P50 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
	11,040	80	>75% Grass cover, Good, HSG D
*	9,641	98	Proposed Road Imp
	20,681	88	Weighted Average
	11,040		53.38% Pervious Area
	9,641		46.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	120		0.40		**Direct Entry, A-B**

Summary for Subcatchment 51: West Subdiv WS

Runoff = 1.72 cfs @ 12.07 hrs, Volume= 0.125 af, Depth= 3.68"
Routed to Pond P50 : P50 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	8,918	98	Proposed Road Imp
	8,816	80	>75% Grass cover, Good, HSG D
	17,734	89	Weighted Average
	8,816		49.71% Pervious Area
	8,918		50.29% Impervious Area

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

Summary for Subcatchment 52: S LOTS

Runoff = 3.78 cfs @ 12.08 hrs, Volume= 0.269 af, Depth= 2.99"
Routed to Reach R52 : R52

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	7,500	98	LOT IMP
*	30,000	80	LOT LS
	9,598	77	Woods, Good, HSG D
	47,098	82	Weighted Average
	39,598		84.08% Pervious Area
	7,500		15.92% Impervious Area

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

Summary for Subcatchment 53: N LOTS

Runoff = 7.79 cfs @ 12.08 hrs, Volume= 0.553 af, Depth= 2.81"
Routed to Reach R53 : R53

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.90"

	Area (sf)	CN	Description
*	10,000	98	LOT IMP
*	40,000	80	LOT LS
	53,114	77	Woods, Good, HSG D
	103,114	80	Weighted Average
	93,114		90.30% Pervious Area
	10,000		9.70% Impervious Area

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

Summary for Reach R21: R21

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.14 cfs @ 12.33 hrs, Volume= 0.235 af
Outflow = 2.09 cfs @ 12.43 hrs, Volume= 0.235 af, Atten= 2%, Lag= 6.2 min
Routed to Reach R22 : R22

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.55 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 12.6 min

Peak Storage= 454 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.22' , Surface Width= 7.22'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 9.22 cfs

5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 335.0' Slope= 0.0164 '/'
Inlet Invert= 40.50', Outlet Invert= 35.00'

‡

Summary for Reach R22: R22

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.09 cfs @ 12.43 hrs, Volume= 0.235 af
Outflow = 2.02 cfs @ 12.57 hrs, Volume= 0.235 af, Atten= 4%, Lag= 8.3 min
Routed to Reach R23 : R23

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.78 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 0.25 fps, Avg. Travel Time= 14.5 min

Peak Storage= 569 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.15' , Surface Width= 24.84'
Bank-Full Depth= 0.50' Flow Area= 17.5 sf, Capacity= 27.26 cfs

10.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 60.00'
Length= 220.0' Slope= 0.0091 '/'
Inlet Invert= 35.00', Outlet Invert= 33.00'

‡

Summary for Reach R23: R23

Inflow Area = 4.255 ac, 18.90% Impervious, Inflow Depth = 2.97" for 10-yr event
Inflow = 10.28 cfs @ 12.13 hrs, Volume= 1.055 af
Outflow = 9.97 cfs @ 12.21 hrs, Volume= 1.055 af, Atten= 3%, Lag= 4.8 min
Routed to Reach R24 : R24

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.55 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 8.2 min

Peak Storage= 1,577 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 10.55'
Bank-Full Depth= 5.00' Flow Area= 115.0 sf, Capacity= 1,159.04 cfs

8.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 38.00'
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 33.00', Outlet Invert= 29.00'

‡

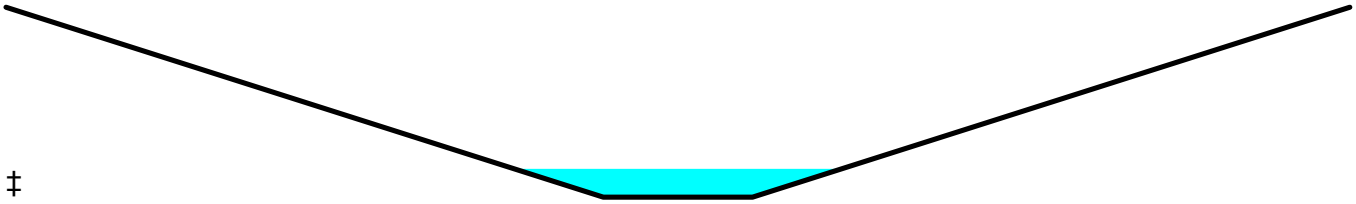
Summary for Reach R24: R24

Inflow Area = 4.255 ac, 18.90% Impervious, Inflow Depth = 2.97" for 10-yr event
Inflow = 9.97 cfs @ 12.21 hrs, Volume= 1.055 af
Outflow = 9.14 cfs @ 12.34 hrs, Volume= 1.055 af, Atten= 8%, Lag= 7.7 min
Routed to Link SP1 : Stream SP

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.56 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 13.2 min

Peak Storage= 2,365 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.75' , Surface Width= 10.97'
Bank-Full Depth= 5.00' Flow Area= 125.0 sf, Capacity= 575.73 cfs

5.00' x 5.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 45.00'
Length= 397.0' Slope= 0.0041 '/'
Inlet Invert= 29.00', Outlet Invert= 27.38'



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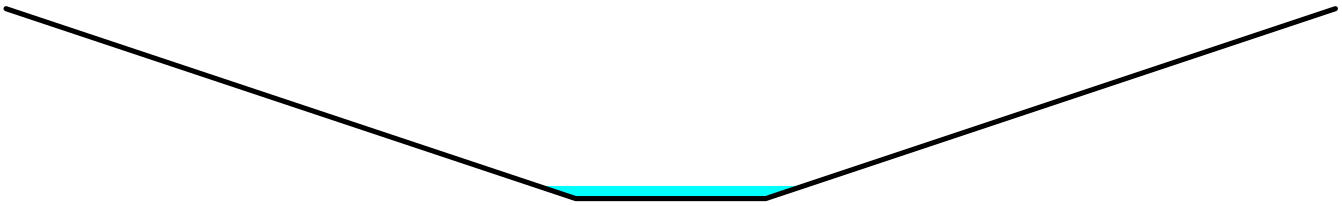
Summary for Reach R50: R50

Inflow Area = 0.882 ac, 48.31% Impervious, Inflow Depth = 3.62" for 10-yr event
Inflow = 3.65 cfs @ 12.08 hrs, Volume= 0.266 af
Outflow = 3.39 cfs @ 12.17 hrs, Volume= 0.266 af, Atten= 7%, Lag= 5.0 min
Routed to Reach R53 : R53

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.70 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.59 fps, Avg. Travel Time= 8.9 min

Peak Storage= 626 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.33' , Surface Width= 7.00'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 773.52 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 313.0' Slope= 0.0064 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'



Summary for Reach R52: R52

Inflow Area = 1.081 ac, 15.92% Impervious, Inflow Depth = 2.99" for 10-yr event
Inflow = 3.78 cfs @ 12.08 hrs, Volume= 0.269 af
Outflow = 3.29 cfs @ 12.19 hrs, Volume= 0.269 af, Atten= 13%, Lag= 7.0 min
Routed to Link SP1 : Stream SP

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.87 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.68 fps, Avg. Travel Time= 11.4 min

Peak Storage= 837 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.31' , Surface Width= 6.83'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 899.43 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 463.0' Slope= 0.0086 '/'
Inlet Invert= 34.00', Outlet Invert= 30.00'

Summary for Reach R53: R53

Inflow Area = 3.249 ac, 20.18% Impervious, Inflow Depth = 3.03" for 10-yr event
Inflow = 10.24 cfs @ 12.10 hrs, Volume= 0.820 af
Outflow = 9.84 cfs @ 12.13 hrs, Volume= 0.820 af, Atten= 4%, Lag= 1.8 min
Routed to Reach R23 : R23

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.01 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.30 fps, Avg. Travel Time= 3.2 min

Peak Storage= 639 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.41' , Surface Width= 7.46'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 1,619.23 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0280 '/'
Inlet Invert= 40.00', Outlet Invert= 33.00'

Summary for Pond Area Check: AREA CHECK

Inflow Area = 30.719 ac, 8.57% Impervious, Inflow Depth = 2.73" for 10-yr event
Inflow = 37.02 cfs @ 12.61 hrs, Volume= 6.980 af
Primary = 37.02 cfs @ 12.61 hrs, Volume= 6.980 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond P21: P21 Cul

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 2.18 cfs @ 12.29 hrs, Volume= 0.235 af
Outflow = 2.14 cfs @ 12.33 hrs, Volume= 0.235 af, Atten= 2%, Lag= 2.4 min
Primary = 2.14 cfs @ 12.33 hrs, Volume= 0.235 af
Routed to Reach R21 : R21

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.91' @ 12.33 hrs Surf.Area= 454 sf Storage= 210 cf

Plug-Flow detention time= 1.4 min calculated for 0.235 af (100% of inflow)
Center-of-Mass det. time= 1.4 min (837.9 - 836.5)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,255 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	10	0	0
42.00	500	255	255
43.00	5,500	3,000	3,255

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	**12.0" Round Culvert** L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.13 cfs @ 12.33 hrs HW=41.90' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.13 cfs @ 2.85 fps)

Summary for Pond P50: P50 Cul

Inflow Area = 0.882 ac, 48.31% Impervious, Inflow Depth = 3.62" for 10-yr event
Inflow = 3.67 cfs @ 12.07 hrs, Volume= 0.266 af
Outflow = 3.65 cfs @ 12.08 hrs, Volume= 0.266 af, Atten= 1%, Lag= 0.6 min
Primary = 3.65 cfs @ 12.08 hrs, Volume= 0.266 af
Routed to Reach R50 : R50

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 39.11' @ 12.08 hrs Surf.Area= 116 sf Storage= 70 cf

Plug-Flow detention time= 0.4 min calculated for 0.266 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (796.4 - 796.0)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	560 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	10	0	0
40.00	200	210	210
41.00	500	350	560

Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	**15.0" Round Culvert** L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 38.00' / 37.50' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.54 cfs @ 12.08 hrs HW=39.08' (Free Discharge)
└**1=Culvert** (Inlet Controls 3.54 cfs @ 3.13 fps)

Summary for Link SP1: Stream SP

Inflow Area = 14.126 ac, 11.19% Impervious, Inflow Depth = 2.76" for 10-yr event
Inflow = 17.12 cfs @ 12.40 hrs, Volume= 3.248 af
Primary = 17.12 cfs @ 12.40 hrs, Volume= 3.248 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2: M. Pond Rd SP

Inflow Area = 8.469 ac, 4.69% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 9.49 cfs @ 12.94 hrs, Volume= 1.854 af
Primary = 9.49 cfs @ 12.94 hrs, Volume= 1.854 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3: East P Pond Ln SP

Inflow Area = 6.658 ac, 8.62% Impervious, Inflow Depth = 2.81" for 10-yr event
Inflow = 11.06 cfs @ 12.53 hrs, Volume= 1.557 af
Primary = 11.06 cfs @ 12.53 hrs, Volume= 1.557 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP4: South P Pond Ln SP

Inflow Area = 1.466 ac, 5.62% Impervious, Inflow Depth = 2.63" for 10-yr event
Inflow = 2.73 cfs @ 12.36 hrs, Volume= 0.321 af
Primary = 2.73 cfs @ 12.36 hrs, Volume= 0.321 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 10: Stream WS

Runoff = 15.85 cfs @ 12.76 hrs, Volume= 2.751 af, Depth= 3.76"
Routed to Link SP1 : Stream SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	354,497	77	Woods, Good, HSG D
*	20,252	98	Pool Street
*	2,100	98	Peter Pond Ln
*	3,962	98	Proposed Road Imp
	2,069	80	>75% Grass cover, Good, HSG D
	382,880	78	Weighted Average
	356,566		93.13% Pervious Area
	26,314		6.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.6	150	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
12.9	473	0.0150	0.61		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
4.6	406	0.0040	1.49	2.97	**Trap/Vee/Rect Channel Flow, C-D** Bot.W=2.00' D=0.50' Z= 4.0 '/' Top.W=6.00' n= 0.030 Earth, grassed & winding
56.1	1,029	Total			

Summary for Subcatchment 20: M. Pond Rd WS

Runoff = 13.58 cfs @ 12.93 hrs, Volume= 2.651 af, Depth= 3.76"
Routed to Link SP2 : M. Pond Rd SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	309,588	77	Woods, Good, HSG D
*	6,000	98	Maddox Pond Road
*	8,800	98	Impervious - offsite houses/driveway
	27,000	80	>75% Grass cover, Good, HSG D
*	2,500	98	LOT IMP
*	15,000	80	LOT LS
	368,888	78	Weighted Average
	351,588		95.31% Pervious Area
	17,300		4.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.9	150	0.0270	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
7.3	415	0.0360	0.95		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
32.4	575	0.0035	0.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
1.8	165	0.0910	1.51		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
0.8	85	0.0120	1.87	1.40	**Trap/Vee/Rect Channel Flow, E-F** Bot.W=1.00' D=0.50' Z= 1.0 '/' Top.W=2.00' n= 0.040 Earth, cobble bottom, clean sides
68.2	1,390	Total			

Summary for Subcatchment 21: N. Corner WS

Runoff = 3.07 cfs @ 12.29 hrs, Volume= 0.332 af, Depth= 3.96"
Routed to Pond P21 : P21 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	4,275	98	Pool Street
	35,671	77	Woods, Good, HSG D
*	2,193	98	Proposed Road Imp
	1,671	80	>75% Grass cover, Good, HSG D
	43,810	80	Weighted Average
	37,342		85.24% Pervious Area
	6,468		14.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	150	0.0500	0.12		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	80	0.0130	2.17	2.71	**Trap/Vee/Rect Channel Flow, B-C** Bot.W=2.00' D=0.50' Z= 1.0 '/' Top.W=3.00' n= 0.040 Earth, cobble bottom, clean sides
20.9	230	Total			

Summary for Subcatchment 30: East P. Pond Ln WS

Runoff = 15.57 cfs @ 12.52 hrs, Volume= 2.198 af, Depth= 3.96"
Routed to Link SP3 : East P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	180,035	77	Woods, Good, HSG D
*	20,000	98	LOT IMP
*	80,000	80	LOT LS
*	800	98	Impervious - offsite houses/driveway
	5,000	80	>75% Grass cover, Good, HSG D
*	4,203	98	Peter Pond Ln
	290,038	80	Weighted Average
	265,035		91.38% Pervious Area
	25,003		8.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.2	150	0.0200	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
5.8	322	0.0340	0.92		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
3.0	234	0.0660	1.28		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
38.0	706	Total			

Summary for Subcatchment 40: South P. Pond Ln WS

Runoff = 3.90 cfs @ 12.36 hrs, Volume= 0.459 af, Depth= 3.76"
Routed to Link SP4 : South P Pond Ln SP

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	2,339	98	Peter Pond Ln
	55,266	77	Woods, Good, HSG D
*	1,250	98	LOT IMP
	5,000	80	>75% Grass cover, Good, HSG D
	63,855	78	Weighted Average
	60,266		94.38% Pervious Area
	3,589		5.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.2	150	0.0400	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.30"
3.6	165	0.0240	0.77		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
25.8	315	Total			

Summary for Subcatchment 50: East Subdiv WS

Runoff = 2.60 cfs @ 12.07 hrs, Volume= 0.191 af, Depth= 4.82"
Routed to Pond P50 : P50 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
	11,040	80	>75% Grass cover, Good, HSG D
*	9,641	98	Proposed Road Imp
	20,681	88	Weighted Average
	11,040		53.38% Pervious Area
	9,641		46.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	120		0.40		**Direct Entry, A-B**

Summary for Subcatchment 51: West Subdiv WS

Runoff = 2.27 cfs @ 12.07 hrs, Volume= 0.167 af, Depth= 4.93"
Routed to Pond P50 : P50 Cul

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	8,918	98	Proposed Road Imp
	8,816	80	>75% Grass cover, Good, HSG D
	17,734	89	Weighted Average
	8,816		49.71% Pervious Area
	8,918		50.29% Impervious Area

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

Summary for Subcatchment 52: S LOTS

Runoff = 5.26 cfs @ 12.07 hrs, Volume= 0.376 af, Depth= 4.17"
Routed to Reach R52 : R52

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	7,500	98	LOT IMP
*	30,000	80	LOT LS
	9,598	77	Woods, Good, HSG D
	47,098	82	Weighted Average
	39,598		84.08% Pervious Area
	7,500		15.92% Impervious Area

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

Summary for Subcatchment 53: N LOTS

Runoff = 10.93 cfs @ 12.08 hrs, Volume= 0.782 af, Depth= 3.96"
Routed to Reach R53 : R53

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.20"

	Area (sf)	CN	Description
*	10,000	98	LOT IMP
*	40,000	80	LOT LS
	53,114	77	Woods, Good, HSG D
	103,114	80	Weighted Average
	93,114		90.30% Pervious Area
	10,000		9.70% Impervious Area

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

Summary for Reach R21: R21

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 2.79 cfs @ 12.38 hrs, Volume= 0.332 af
Outflow = 2.77 cfs @ 12.47 hrs, Volume= 0.332 af, Atten= 1%, Lag= 5.6 min
Routed to Reach R22 : R22

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.70 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.49 fps, Avg. Travel Time= 11.4 min

Peak Storage= 547 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.26' , Surface Width= 7.59'
Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 9.22 cfs

5.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 5.0 '/' Top Width= 10.00'
Length= 335.0' Slope= 0.0164 '/'
Inlet Invert= 40.50', Outlet Invert= 35.00'

‡

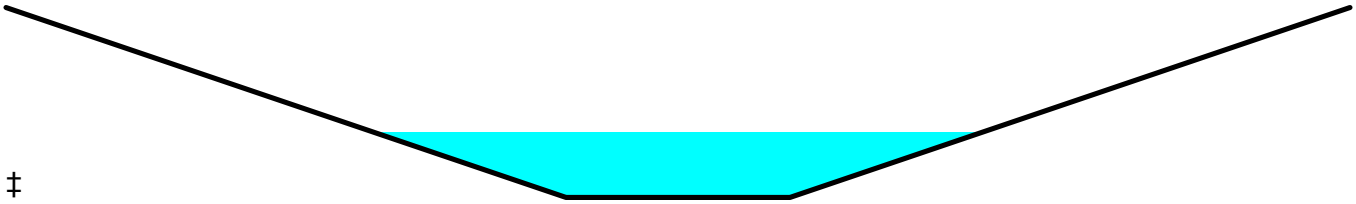
Summary for Reach R22: R22

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 2.77 cfs @ 12.47 hrs, Volume= 0.332 af
Outflow = 2.73 cfs @ 12.60 hrs, Volume= 0.332 af, Atten= 2%, Lag= 7.6 min
Routed to Reach R23 : R23

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.85 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 13.3 min

Peak Storage= 707 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.17' , Surface Width= 27.25'
Bank-Full Depth= 0.50' Flow Area= 17.5 sf, Capacity= 27.26 cfs

10.00' x 0.50' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 50.0 '/' Top Width= 60.00'
Length= 220.0' Slope= 0.0091 '/'
Inlet Invert= 35.00', Outlet Invert= 33.00'



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Summary for Reach R23: R23

Inflow Area = 4.255 ac, 18.90% Impervious, Inflow Depth = 4.15" for 25-yr event
Inflow = 14.56 cfs @ 12.12 hrs, Volume= 1.472 af
Outflow = 13.95 cfs @ 12.20 hrs, Volume= 1.472 af, Atten= 4%, Lag= 4.5 min
Routed to Reach R24 : R24

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.86 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.87 fps, Avg. Travel Time= 7.7 min

Peak Storage= 1,980 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.52' , Surface Width= 11.11'
Bank-Full Depth= 5.00' Flow Area= 115.0 sf, Capacity= 1,159.04 cfs

8.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 38.00'
Length= 400.0' Slope= 0.0100 '/'
Inlet Invert= 33.00', Outlet Invert= 29.00'

‡

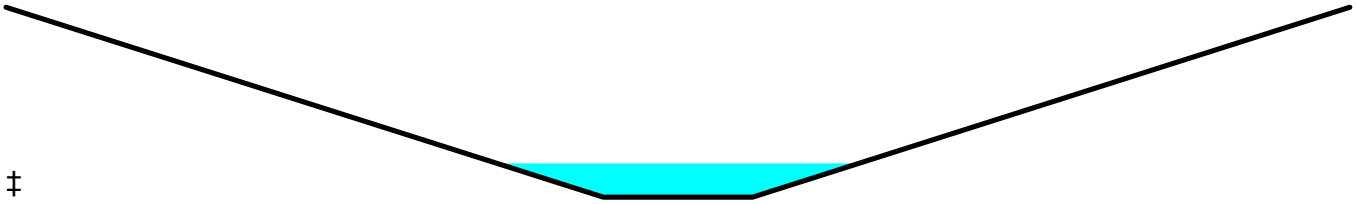
Summary for Reach R24: R24

Inflow Area = 4.255 ac, 18.90% Impervious, Inflow Depth = 4.15" for 25-yr event
Inflow = 13.95 cfs @ 12.20 hrs, Volume= 1.472 af
Outflow = 12.99 cfs @ 12.31 hrs, Volume= 1.472 af, Atten= 7%, Lag= 6.8 min
Routed to Link SP1 : Stream SP

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.72 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 0.54 fps, Avg. Travel Time= 12.2 min

Peak Storage= 3,027 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.89' , Surface Width= 12.12'
Bank-Full Depth= 5.00' Flow Area= 125.0 sf, Capacity= 575.73 cfs

5.00' x 5.00' deep channel, n= 0.040 Earth, cobble bottom, clean sides
Side Slope Z-value= 4.0 '/' Top Width= 45.00'
Length= 397.0' Slope= 0.0041 '/'
Inlet Invert= 29.00', Outlet Invert= 27.38'



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Summary for Reach R50: R50

Inflow Area = 0.882 ac, 48.31% Impervious, Inflow Depth = 4.87" for 25-yr event
Inflow = 4.80 cfs @ 12.09 hrs, Volume= 0.358 af
Outflow = 4.49 cfs @ 12.16 hrs, Volume= 0.358 af, Atten= 6%, Lag= 4.6 min
Routed to Reach R53 : R53

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.86 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 8.6 min

Peak Storage= 757 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.39' , Surface Width= 7.35'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 773.52 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 313.0' Slope= 0.0064 '/'
Inlet Invert= 42.00', Outlet Invert= 40.00'

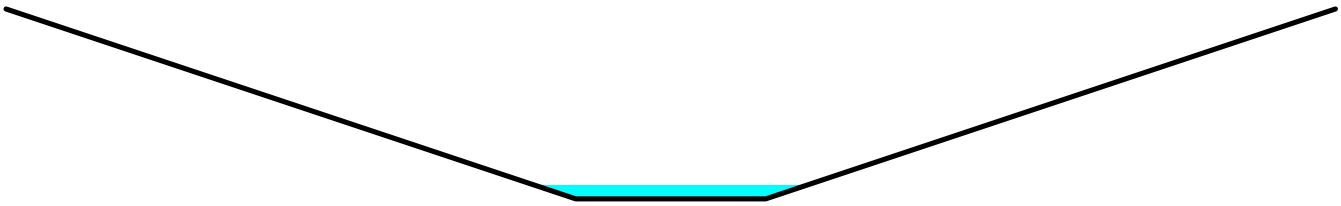
Summary for Reach R52: R52

Inflow Area = 1.081 ac, 15.92% Impervious, Inflow Depth = 4.17" for 25-yr event
Inflow = 5.26 cfs @ 12.07 hrs, Volume= 0.376 af
Outflow = 4.63 cfs @ 12.18 hrs, Volume= 0.376 af, Atten= 12%, Lag= 6.1 min
Routed to Link SP1 : Stream SP

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.10 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.71 fps, Avg. Travel Time= 10.9 min

Peak Storage= 1,052 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.37' , Surface Width= 7.23'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 899.43 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 463.0' Slope= 0.0086 '/'
Inlet Invert= 34.00', Outlet Invert= 30.00'



Summary for Reach R53: R53

Inflow Area = 3.249 ac, 20.18% Impervious, Inflow Depth = 4.21" for 25-yr event
Inflow = 14.26 cfs @ 12.09 hrs, Volume= 1.139 af
Outflow = 13.87 cfs @ 12.12 hrs, Volume= 1.139 af, Atten= 3%, Lag= 1.6 min
Routed to Reach R23 : R23

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.46 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.37 fps, Avg. Travel Time= 3.0 min

Peak Storage= 801 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.49' , Surface Width= 7.97'
Bank-Full Depth= 5.00' Flow Area= 100.0 sf, Capacity= 1,619.23 cfs

5.00' x 5.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0280 '/'
Inlet Invert= 40.00', Outlet Invert= 33.00'

Summary for Pond Area Check: AREA CHECK

Inflow Area = 30.719 ac, 8.57% Impervious, Inflow Depth = 3.87" for 25-yr event
Inflow = 52.18 cfs @ 12.60 hrs, Volume= 9.907 af
Primary = 52.18 cfs @ 12.60 hrs, Volume= 9.907 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Pond P21: P21 Cul

Inflow Area = 1.006 ac, 14.76% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 3.07 cfs @ 12.29 hrs, Volume= 0.332 af
Outflow = 2.79 cfs @ 12.38 hrs, Volume= 0.332 af, Atten= 9%, Lag= 5.6 min
Primary = 2.79 cfs @ 12.38 hrs, Volume= 0.332 af
Routed to Reach R21 : R21

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 42.20' @ 12.38 hrs Surf.Area= 1,499 sf Storage= 455 cf

Plug-Flow detention time= 1.6 min calculated for 0.332 af (100% of inflow)
Center-of-Mass det. time= 1.6 min (828.2 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	41.00'	3,255 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
41.00	10	0	0
42.00	500	255	255
43.00	5,500	3,000	3,255

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	**12.0" Round Culvert** L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.78 cfs @ 12.38 hrs HW=42.20' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.78 cfs @ 3.55 fps)

Summary for Pond P50: P50 Cul

Inflow Area = 0.882 ac, 48.31% Impervious, Inflow Depth = 4.87" for 25-yr event
Inflow = 4.87 cfs @ 12.07 hrs, Volume= 0.358 af
Outflow = 4.80 cfs @ 12.09 hrs, Volume= 0.358 af, Atten= 1%, Lag= 0.9 min
Primary = 4.80 cfs @ 12.09 hrs, Volume= 0.358 af
Routed to Reach R50 : R50

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 39.47' @ 12.09 hrs Surf.Area= 150 sf Storage= 117 cf

Plug-Flow detention time= 0.4 min calculated for 0.358 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (788.3 - 787.9)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	560 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	10	0	0
40.00	200	210	210
41.00	500	350	560

Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	**15.0" Round Culvert** L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 38.00' / 37.50' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.68 cfs @ 12.09 hrs HW=39.43' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.68 cfs @ 3.81 fps)

Summary for Link SP1: Stream SP

Inflow Area = 14.126 ac, 11.19% Impervious, Inflow Depth = 3.91" for 25-yr event
Inflow = 23.97 cfs @ 12.35 hrs, Volume= 4.599 af
Primary = 23.97 cfs @ 12.35 hrs, Volume= 4.599 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP2: M. Pond Rd SP

Inflow Area = 8.469 ac, 4.69% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 13.58 cfs @ 12.93 hrs, Volume= 2.651 af
Primary = 13.58 cfs @ 12.93 hrs, Volume= 2.651 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP3: East P Pond Ln SP

Inflow Area = 6.658 ac, 8.62% Impervious, Inflow Depth = 3.96" for 25-yr event
Inflow = 15.57 cfs @ 12.52 hrs, Volume= 2.198 af
Primary = 15.57 cfs @ 12.52 hrs, Volume= 2.198 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP4: South P Pond Ln SP

Inflow Area = 1.466 ac, 5.62% Impervious, Inflow Depth = 3.76" for 25-yr event
Inflow = 3.90 cfs @ 12.36 hrs, Volume= 0.459 af
Primary = 3.90 cfs @ 12.36 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min
Routed to Pond Area Check : AREA CHECK

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

City of Biddeford, Maine
DRAFT Inclusionary Zoning Regulations
***NEW ORDINANCE: Code of Ordinances, Part III: Land Development Regulations, Article VI – Performance Standards, Section 40 – Inclusionary Zoning.**

***NEW ORDINANCE: Code of Ordinances, Part II: Chapter 38 (currently reserved) Housing Trust Fund**

***NOTE: Amended August 16, 2023 based upon discussions and direction from the Planning Board**

DEFINITIONS

Affordable Housing. Housing for which the percentage of income a household is charged in rent and other housing expenses or must pay in monthly mortgage payments (including condominium/HOA fees, mortgage insurance, other insurance and real estate taxes), does not exceed 30% of a household income, or other amount established in City regulations that does not vary significantly from this amount.

Workforce housing unit for rent for which:

A. The rent is affordable to a household earning 100% or less than of AMI.
B. The unit is rented to a household earning 100% or less than of AMI.
C. The requirements of (A) and (B) above are limited by deed restriction or other legally binding agreement for the applicable length of time in this ordinance.

AFFORDABLE HOUSING – CODE OF ORDINANCES, PART III: LAND DEVELOPMENT REGULATIONS, ARTICLE VI - PERFORMANCE STANDARDS, SECTION 40 INCLUSIONARY ZONING

Purpose

It is in the public interest to promote an adequate supply of housing that is affordable to a range of households at different income levels. The purpose of this section therefore is to offer incentives to developers to include units of affordable and workforce housing within development projects, thereby mitigating the impact of market rate housing construction, or the demonstrated increase in affordable housing needs resulting from the creation of new lower-income jobs, on the limited supply of available land for suitable housing, and helping to meet the housing needs of all economic groups within the city. The City believes that this section will assist in meeting the City's comprehensive goals for affordable housing, in the prevention of overcrowding and deterioration of the limited supply of affordable housing, and by doing so promote the health, safety, and welfare of its citizens.

Ensuring Workforce Housing

A. Purpose. Based on the City Council adopted the 2023 City's Comprehensive Plan and the Mayor Affordable Housing Task Force Report dated December, 2022, it is in the public interest to promote an adequate supply of housing that is affordable to a range of households at different income levels. The purpose of this subsection is to ensure that housing developments over a certain size provide a portion of workforce housing units and, by doing so, promote the health, safety, and welfare of City of Biddeford citizens.

B. Applicability. This subsection shall apply to development projects that create eight (8) or more net new dwelling units for rent through new construction, substantial rehabilitation of existing structures, adaptive reuse or conversion of a nonresidential use to residential use, or any combination of these elements. This ordinance shall not apply to projects as follows:

a. Using public financing requiring affordability restrictions, as defined by tax increment financing, U.S. Department of Housing and Urban Development funds such as HOME or CDBG, other federal, state, or local housing program, or the Low-Income Housing Tax Credit Program or

b. Residential projects with Planning Board and/or City Council approvals.

C. Standards. Development projects subject to this subsection shall be subject to the following requirements:

1. Notwithstanding any language to the contrary in this Land Use Code, all developments of eight (8) units or more are conditional uses subject to Planning Board review on the condition that they comply with the requirements of this subsection.
2. At least 10% of the units in the project shall meet the definition of workforce housing units for rent to an eligible household, as defined in Article I, In General. The project shall have the option of paying a partial fee-in-lieu as outlined in Subsection 6a below. Where the required number of units results in a fraction of less than 0.5, the required number of onsite units is rounded down to the nearest whole number. Where the required

number of units results in a fraction of 0.5 or more, the development project shall have the option of paying a partial fee-in-lieu for the fractional value or rounding the number of onsite units up to the nearest whole number.

3. Projects shall not be segmented or phased to avoid compliance with these provisions. In cases where projects are completed in phases, affordable units shall be provided in proportion to the development of market rate units unless otherwise permitted through regulations.
4. Workforce units must be integrated with the rest of the development, must use a common entrance, and must provide no indications from common areas that these units are workforce housing units. Exteriors of affordable units shall be consistent with and indistinguishable from the exteriors of other units in the project. Workforce units shall be comparable in materials, interior finishes, amenities, and parking to dwelling units in the neighborhood and in the development in which they are located.
5. Workforce units need not be the same size as other units in the development but the number of bedrooms in such units shall be no less than 10 percent of the total number of bedrooms in the development. For the purposes of calculating the number of bedrooms in a development, every 400 square feet in each market rate unit will count as a bedroom if the Planning Authority determines this method is appropriate in lieu of counting actual bedrooms.
6. As an alternative to providing workforce housing units, the project may:
    a. Pay a fee-in-lieu of some or all of the units. In-lieu fees shall be paid into the Housing Trust Fund. The fee for affordable units not provided shall be $100,000 per unit. The payment shall be required in conjunction with a request for a Certificate of Occupancy.
7. If at least 33% of the units in a development are workforce units, the development is eligible for subsidy through an Affordable Housing Tax Increment Financing (TIF) District Credit Enhancement Agreement, subject to City Council approval.
8. The term of affordability for the required % workforce units provided shall be thirty (30) years.

D. Implementing regulations. Regulations to further specify the details of this subsection shall be developed, including, but not limited to:

1. Specific methodology for income verification.
2. Situations where less than permanent affordability might be considered.

E. Reporting to City Council. In conjunction with the annual report on the Housing Trust Fund, the Planning Authority shall annually report on developments subject to this subsection, the number of units produced, the amount of fee-in-lieu collected, and the overall effectiveness of this subsection in achieving its stated purpose.

F. Sunset Regulations. Municipal Inclusionary Zoning Regulations will sunset within ~~three (3)~~ ten (10) years following City Council adoption unless extended by the City Council. All Inclusionary Zoning Projects approved by the Planning Board shall remain in effect if the Inclusionary Zoning Regulations Sunset.

****HOUSING TRUST FUND - Code of Ordinances, Part II: Chapter 38 - Housing Trust Fund (currently reserved)**

**** NOTE: The Housing Trust Fund does not require Planning Board review and approval, but has been included for content.**

Purpose

The purpose of enacting this section is:

A. To establish a City of Biddeford Housing Trust Fund for the promotion, retention, and creation of an adequate supply of housing, particularly affordable housing, for all economic groups and to limit the net loss of housing units in the city.

B. To serve as a vehicle for addressing very low, low, and median income housing needs through a combination of funds as set out in this article.

Establishment of the Housing Trust Fund

The City Council shall establish a special revenue account under the name "City of Biddeford Housing Trust Fund" (Housing Trust Fund). Deposits into the fund shall include:

A. In-lieu fees under Subsection 6a.

B. Funds appropriated to be deposited into the fund by vote of the City Council.

C. Voluntary contributions of money or other liquid assets to the fund.

D. Any federal, state, or private grant or loan funds provided to the fund.

E. Interest from fund deposits and investments.

F. Repayments of loans made from the fund.

Management of the Trust Fund

The City Manager, or his or her designee, shall serve as the manager of the Housing Trust Fund. The responsibilities of the manager, subject to the orders of the City Council, shall include:

A. Maintaining the financial and other records of the Housing Trust Fund.

B. Disbursing and collecting Housing Trust Fund monies in accordance with the Housing Trust Fund Annual Plan.

C. Monitoring the use of monies distributed to successful applicants for Housing Trust Fund support to assure on-going compliance with the purposes of the fund and the conditions under which these monies were granted or loaned.

Housing Trust Fund Annual Plan

A. Each fiscal year, the City Council shall adopt a Housing Trust Fund Annual Plan. The City Manager shall submit to the City Council a recommended Housing Trust Fund Annual Plan, utilizing the revenues of the Housing Trust Fund as well as any other funds the City Manager may propose as appropriate.

B. The Housing Trust Fund Annual Plan shall include:

1. A description of all programs to be funded in part or in full by the Housing Trust Fund.

2. A description of how funds from the Housing Trust Fund will be distributed among very low-income, low-income and moderate-income households.
3. The amount of funds budgeted for programs funded in part or in full from the Housing Trust Fund.

C. Priority for the expenditure of funds collected pursuant to Subsection 6a shall be given to the creation of new housing stock, through either new construction or conversion of nonresidential buildings to residential use.

Distribution and use of the Housing Trust Fund's Assets

A. All distribution of principal, interest, or other assets of the Housing Trust Fund shall be made in furtherance of the public purposes set out in Section 6a.

B. During each year, the Housing Trust Fund shall disburse as grants or loans so much of the Housing Trust Fund's assets as the City Council in its discretion has approved in the Housing Trust Fund Annual Plan.

C. Funds shall not be used for City administrative expenses.

D. Funds shall not be used for property operating expenses or supporting services.

E. No grants or loans shall be awarded by the Housing Trust Fund to corporations, partnerships, or individuals who are delinquent at the time of application in the payment of property taxes or other fees to the City of Biddeford, who have been convicted of arson, who have been convicted of discrimination in the sale or lease of housing under the fair housing laws of the State of Maine, or who have pending violations of current City electrical, plumbing, building, or housing codes or zoning ordinances.

Term of Affordability

A. Whenever funds from the Housing Trust Fund are used for the acquisition, construction, or substantial rehabilitation of an affordable rental or cooperative unit, the City of Biddeford shall impose enforceable requirements on the owner of the housing unit that the unit remain affordable for the remaining life of the housing unit, assuming good faith efforts by the owner to maintain the housing unit and rehabilitate it as necessary. The remaining life of the housing unit shall be presumed to be a minimum of 30 years.

B. Whenever funds from the Housing Trust Fund are used for the acquisition, construction, or substantial rehabilitation of ownership housing, the City of Biddeford shall impose enforceable resale restrictions on the owner to keep the housing unit affordable for the longest feasible time, while maintaining and equitable balance between the interests of the owner and the interests of the City of Biddeford.

C. The affordability restriction requirements described in this subsection shall run with the land and the City of Biddeford shall develop appropriate procedures and documentation to enforce these requirements and shall record such documentation in the York County Registry of Deeds.

Planning Board

Meeting Date: September 20, 2023
Meeting Time: 6pm

Item Description: City of Biddeford **REVISED** Proposed Inclusionary Zoning and Affordable Housing Trust Fund Regulations

Submitted by: Greg Mitchell, Consultant

Supporting Information/Documentation:

REVISED Proposed Inclusionary Zoning and Affordable Housing Trust Fund Regulations are attached in a strike though and underline format based upon discussion and direction at the August 16, 2023 Planning Board meeting. Outcomes of discussion and direction at the August 16, 2023 Planning Board meeting included the following:

> ***Regulations Sunset Provisions***. Consensus of the Planning Board was to extend the sunset provisions to upwards of ten (10) years. The Board felt three years was too short a timeframe to determine the impact of the IZ Regulations. I note that the Planning Board understood that the City Council could change IZ Regulations at any time.
>
> ***Incentives***. The Planning Board reached consensus that they wanted to see amendments to the City Density Bonus Ordinance at the same time as taking action on IZ Regulations (i.e. carrot and stick approach). Proposed revisions to the existing City Density Bonus Ordinance to comply with State of Maine LD2003 requirements are proposed and are being presented at the September 20, 2023 Planning Board meeting.
>
> ***Affordability Application and Level.*** There was discussion about expanding IZ Regulations to include new housing ownership units. The Planning Board reached consensus that IZ Regulations should only apply to rental housing units. Also, there was discussion about the appropriate affordability level for IZ Regulations. The Planning Board did not reach consensus on changing the affordability level currently at 100% AMI.
>
> ***Increased Developer Input.*** The Board wanted increased developer input on the Proposed IZ Regulations because very few developers have attended or offered comments on the Proposed IZ Regulations.

Key Terms:

Inclusionary Zoning (IZ)

Executive Summary:

The Mayor's Affordable Housing Task Force Final Report issued December, 2022 includes a recommendation that the City establish IZ Regulations.

To date, direction on City Proposed IZ and Affordable Housing Trust Fund Regulations has been provided from the following public meetings:

- June 12, 2023 City Council Policy Committee recommendation to the City Council.
- June 20, 2023 City Council meeting and referral to the Planning Board.
- July 26, 2023 Planning Board meeting.
- August 16, 2023 Planning Board meeting.

Detailed Review:

Definition. Inclusionary zoning (IZ) is sometimes known as inclusionary housing, a reference to the desired outcome of the zoning. Simply stated, IZ requires that all new construction of housing units, most especially rentals, must participate in the creation of affordable housing units. Usually, IZ is designed to target community members that are considered to have very low to moderately low incomes. These zoning regulations are mandates without any public financial investment.

Overview of Proposed REVISED Biddeford Inclusionary Zoning and Affordable Housing Trust Fund Regulations with the following City Staff comments:

- ***Applicable to Rental Projects including eight (8) or more residential units*.**
- ***Affordability Level***: A one hundred (100) percent area medium income affordability level. It is proposed to combine IZ Regulations with other City, State of Maine and federal affordable housing programs to lower housing affordability levels.
- ***Percent of Required Affordable Units***: Ten (10)
- ***Term***: Thirty (30) years to be consistent with LD 2003.
- ***Opt Out Fees***: $100,000 fixed per unit.
- ***Exceptions***: Language is proposed to exempt affordable housing projects under the following two situations:
    1. Projects which utilize **public** financing requiring affordability restrictions, as defined by tax increment financing, US Housing and Urban Development (HUD) funds such as HOME or Community Development Block Grant (CDBG), or other federal, state, or local housing programs, or Low-Income Housing Tax Credit Program and
    2. Residential Projects with Planning Board and/or City Council approvals.

IZ and Affordable Housing Trust Fund Regulations are two new programs to address city affordable housing needs. In addition, city staff is preparing amendments to the City Land Use Code to support increasing the supply of housing and to address city affordable housing needs including:

- City Code of Ordinances amendments to comply with LD2003,
- Revisions to the existing City Housing Density Bonus Regulations,
- Revisions to Accessory Dwelling Units and
- Allowing reductions with residential property frontage requirements.

I note that the City Council approved amendments to the Land Use Code to allow residential development on “Back Lots” with a Planning Board recommendation.

Funding Source:

Not applicable.

Staff Recommendation:

City staff looks forward to discussion and direction at your September 20, 2023 Planning Board meeting.

CITY OF BIDDEFORD

Planning and Development Department

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(207) 284-9115
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PLANNING BOARD MEMORANDUM

TO: Chair Patoine and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Deputy Director/City Planner

DATE: September 14, 2023

RE: 2021.31 Subdivision Plan / Second Minor Amendment Request for Ginger Hill Design + Build, LLC for the Windward Ridge Subdivision at 918 Pool Street (Tax Map 4, Lot 48) / Side Yard Setback Reduction Request from 25 feet to 15 feet.

MEETING DATE: September 20, 2023 at 6:00 PM

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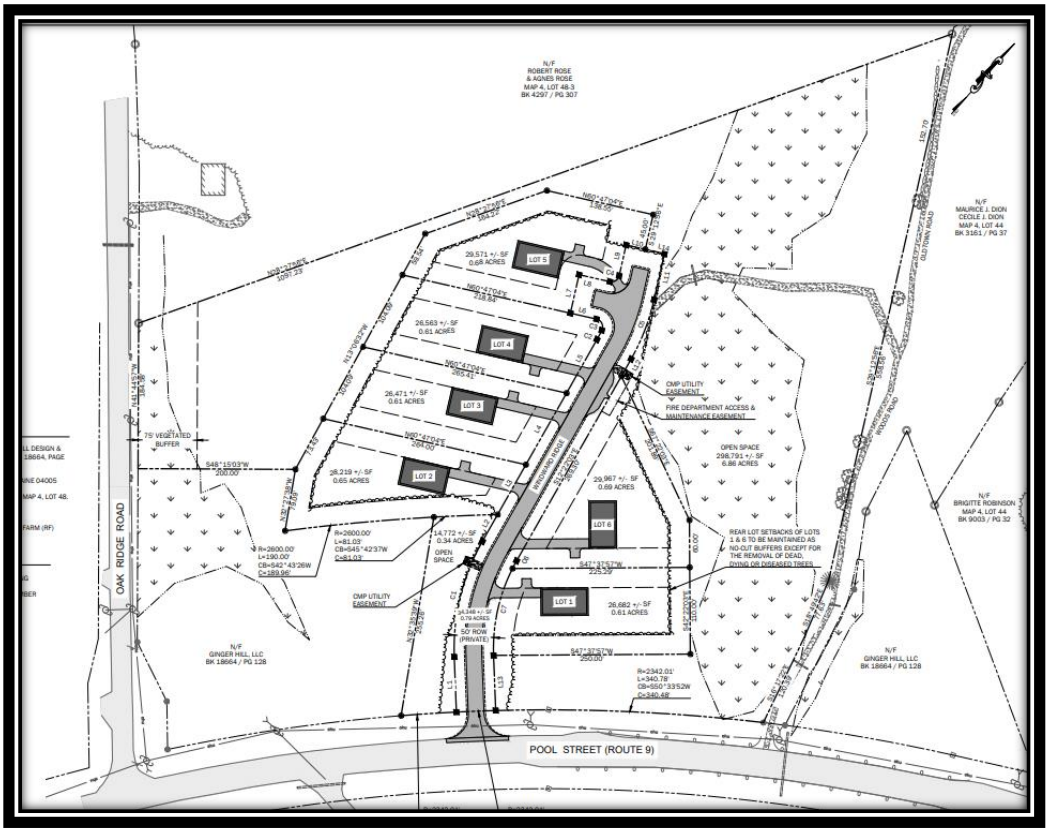
1. INTRODUCTION:

On February 2, 2022 the Planning Board granted approval of Windward Ridge, a six (6) lot residential cluster subdivision located at 918 Pool Street (Case# 2021.31), for Ginger Hill Design + Build, LLC.



Windward Ridge Subdivision

2021.31 Subdivision Plan Minor Amendment Request for Ginger Hill Design + Build, LLC for the Windward Ridge Subdivision at 918 Pool Street (Tax Map 4, Lot 48) / "Minor Modification" to Lot # 2 (9 Windward Ridge PID# Map 4 Lot 48 Sub-lot 11).

Planning Board Date: September 20, 2023

The Windward Ridge Subdivision is located on 11.8 acres +/- with and was approved for a six (6) lot residential cluster subdivision located at 918 Pool Street within the Coastal Residential (CR) and Rural Farm (RF) zoning districts. The subdivision contained approximately 270,305 square feet or 6.20-acres of openspace when 146,935 (3.37-acres) is required by ordinance. On July 5, 2023 the Planning Board approved a Minor Amendment for a rear lot line adjustment which increased the depth of Lot #2 by 10+ feet.

At this time, Emily Ingwersen the Owner of Ginger Hill Design + Build, LLC, is seeking a Second Minor Amendment to their approved Subdivision Plan Minor Amendment where they are requesting a reduction of the side yard setback from the required twenty-five (25') feet to fifteen (15') feet, to allow additional flexibility regarding house placement on the remaining lots to be developed.

2. PROJECT INFORMATION:

1.	Applicant and Owner	Emily Ingwersen Ginger Hill, LLC 18 Early Way, Arundel, ME 04046
2.	Agent:	William R. Walsh III, PE, Walsh Engineering Associates, Inc. 1 Karen Drive, Westbrook, ME 04092
3.	Surveyor:	Titcomb Associates 133 Gray Road, Falmouth, ME 04105
4.	Project Location:	918 Pool Street
5.	Project Tax Map #/Lot #:	Tax Map 4 Lot 48
6.	Lot Size:	11.8 AC +/-
7.	Existing Zoning:	Coastal Residential / Rural Farm
8.	Overlay Zoning:	None
10.	Existing Use:	Vacant
11.	Proposed Use:	Six Lot Single Family Clustered Subdivision
12.	Floodplain Status:	None
13.	Approvals Required:	Subdivision Plan Review
14.	Uses in the Vicinity:	Residential
15.	Dimensional Requirements:	
	Min. Setback from Major R.O.W: 40FT/ Other R.O.W: 25 FT	Min. Lot Size: 20,000 SF/ Unit* *Clustered development
	Minimum Side/Rear Setback: 25 FT – Amendment Requested	Maximum Height: 3 stories / 35 FT
16.	Waivers Needed:	
	a. None	
17.	Waivers Granted:	None
18.	Variances Needed for Approval:	None.
19.	Other Approvals Required:	Building Permits from the Biddeford Code Enforcement Office.
20.	Other Permits Obtained:	None.
21.	Other Non-City Permits Required:	MDEP
22.	LDR Attachment A: Fees Paid:	Yes

23.	Planning Board Review History:	
	A. Conceptual Review	Meeting on July 7, 2021
	B. Preliminary Review	Meeting on November 3, 2021
	C. Final Review	Meeting on February 2, 2022
	D. Minor Amendment #1 – Lot line adjustment – Lot #2	Meeting on July 5, 2023
	C. Minor Amendment #2 – Side Yard Reduction from 25' to 15'.	Meeting on September 20, 2023

3. REQUESTED PLANNING BOARD DETERMINATION:

The City's Cluster Subdivision Ordinance is discussed in Part II – Land Development regulations, Article IV – Performance Standards, Section 16 – Cluster Developments. Section 5 Discuses "Minimum Lot Area" which includes the below standards:

Section 5 - Minimum Lot Area

a. No lot serviced by a subsurface septic disposal system shall be smaller in area than 20,000 square feet.

b. If a cluster development will be serviced by public sewer, no lot shall be smaller in area than 75% of the minimum lot size requirements established in Article V of this ordinance, except in the Rural Farm Zone where no lot shall be smaller than 20,000 square feet.

c. If a cluster development will be serviced by public water, no lot shall be smaller in area than 75% of the minimum lot size requirements established in Article V of this ordinance, except in the Rural Farm Zone where no lot shall be smaller than 20,000 square feet.

d. If a cluster development will be serviced by both public sewer service and public water, no lot shall be smaller in area than 75% of the minimum lot size requirements established in Article V of this ordinance, except in the Rural Farm Zone where no lot shall be smaller than 20,000 square feet.

6. The total area of open space within the development shall equal or exceed the sum of the areas by which any building lots are reduced below the minimum lot area normally required in the district.

7. The Planning Board shall consider the purpose of said open space, and shall require the developer to provide access or to restrict access based on the stated purpose of the open space land.

8. **Distance between buildings shall not be less than 30 feet.**

9. No individual lots shall have frontage on an existing road at the time of development. There shall be a setback of 40 feet from the main public access road and 25 feet from interior roads that are constructed as part of the clustered development.

10. In no case shall shore frontage and setback be reduced below the minimum shore frontage normally required in the district.

11. Where a clustered development abuts a body of water, a usable portion of the shoreline frontage shall be a part of the open space. Said shoreline frontage shall be no less than 100 feet. Deeded access to said frontage shall be conveyed to each lot owner in the clustered development.

12. When individual wells are to be utilized, a drilled well, with casing, shall be provided on each lot by the developer/builder. The applicant shall demonstrate the availability of water adequate for domestic purposes as well as for fire safety. The Planning Board may require the construction of storage ponds and dry hydrants.

13. Utilities shall be installed underground wherever possible. Transformer boxes, pumping stations, and meters shall be located so as not to be unsightly or hazardous to the public.

4. **PLANNING BOARD RECOMENDATION:**

Section 8 includes the statement *"Distance between buildings shall not be less than 30 feet"*. The Applicant is proposing the required 25 foot side yard building setback to fifteen (15) feet. Staff has reviewed the proposed Plan and is supportive of the requested change as there were no concerns with reducing the setbacks. As the Board is aware, the City's Land Use Ordinance grants the City Planner authority to approve minor plan amendments including subdivision lot line adjustments. I consider the proposed amendment to be minor in nature and am supportive of the Applicant's request. However, as has become established practice since my assuming the role of City Planner, this item is being brought before the Board to seek input related to the request, prior to my granting the plan amendment.

If the request is granted the Applicant will be required to provide the City a revised copy of the subdivision plan illustrating the proposed change / amendment including a City Planner signature block and date.

Respectfully submitted,

David C.M. Galbraith

David C.M. Galbraith, Deputy Director/City Planner

WALSH
ENGINEERING ASSOCIATES, INC.

Amended Subdivision Application
City of Biddeford, Maine

for

Windward Ridge Subdivision

Located At:
918 Pool Street
Biddeford, Maine 04005

July 27, 2023

Applicant
Ginger Hill Properties, LLC
18 Early Way
Arundel, Maine 04046

Prepared By
Walsh Engineering Associates, Inc.
1 Karen Drive, Suite 2A
Westbrook, Maine 04092

WALSH
ENGINEERING ASSOCIATES, INC.

July 27, 2023

Biddeford Planning Board
c/o Mr. David Galbraith, City Planner
205 Main Street, P.O. Box 586
Biddeford, ME 04005

RE: Amended Subdivision Submission
Windward Ridge Subdivision
918 Pool Street, Biddeford, Maine 04005
Tax Map 4, Lot 48

Dear Mr. Galbraith,

On behalf of Ginger Hill Properties, LLC (applicant), Walsh Engineering Associates, Inc. (WEA) is pleased to submit this Amended Subdivision application. The applicant is proposing to amend the side setbacks between lots within the approved cluster subdivision at 918 Pool Street.

The project is located on the parcels identified by the City of Biddeford's Tax Assessors Tax Map 4, Lot 48-11 through 48-16. The approved subdivision plan subdivided the property into six residential lots, open space areas, and a private road for access. The applicant received final approval from the Biddeford Planning Board on February 16, 2022. The subdivision plan was then recorded in the York County Registry of Deeds Plan Book 421, Page 49 on March 7, 2022.

We are requesting the side setback between lots within the cluster subdivision be revised from 25 feet to 15 feet in order to better take the natural landscape and challenging topography into consideration when setting houses. The requested 15-foot side setbacks are allowed by Article VI, Section 16.C.8. of the City of Biddeford Land Development Regulations which states, "Distance between buildings shall not be less than 30 feet." This amendment will not impact the originally provided stormwater calculations or any other performance standards as the areas between lots within the subdivision were already classified as landscaped in the original design. This will also not affect the size of the open space areas on site nor the setbacks from the open space areas.

We look forward to working with the city to make this project a success. Please let me know if you have any questions or require any additional information.

Respectfully,

Connor A. Ritter, PE
Walsh Engineering Associates, Inc.

cc. Emily Ingwersen, Ginger Hill Properties, LLC
enc. Subdivision Application Form & Documents

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City of Biddeford – Planning Department
Planning Board Application
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Type of Application:

__ Shoreland Zoning Permit __ Site Plan Review __ Extraction
__ Conditional Use Permit X Subdivision __ Private Way
__ Other: _____

Applicant Information:

Name: Ginger Hill Properties, LLC
Mailing Address: 18 Early Way, Arundel, ME 04046
Telephone: (207) 710-0812
Email: emily@gingerhilldesignbuild.com

What is your legal interest in the property?

X Owner __ Potential Buyer with Contract __ Lease/Rental Agreement

Owner's Information:

Name: Ginger Hill Properties, LLC
Mailing Address: 18 Early Way, Arundel, ME 04046
Telephone: (207) 710-0812
Email: emily@gingerhilldesignbuild.com

Agent's Information:

Name: Connor A. Ritter, PE, Walsh Engineering Associates, Inc.
Mailing Address: 1 Karen Drive, Suite 2A, Westbrook, Maine 04092
Telephone: (207) 553-9898
Email: connor@walsh-eng.com

Engineer/Surveyor's Information:

Name: Connor A. Ritter, PE, Walsh Engineering Associates, Inc.
Mailing Address: 1 Karen Drive, Suite 2A, Westbrook, Maine 04092
Telephone: (207) 553-9898
Email: connor@walsh-eng.com

Project Location and Lot Information:

Street Address: 4, 6, 9, 11, 15 & 16 Windward Ridge Drainage Watershed: Little River
Tax Map: 4 Lot: 48-11 through 48-16
Current Zoning: Costal Residential & Rural Farm Shoreland Zoning: N/A
Size of Lot: 11.8 (✔)acres ( )s.f. Lot Frontage: 461 ft
Existing Use of Property: The existing lot was undeveloped prior to the approved six-lot residential cluster subdivision.

Property currently serviced by:

X City Road __ Public Sewer __ Public Water __ Public Trash
__ Private Road __ Septic System __ Private Well __ Private Hauler

Slope Conditions in Area of Construction (if applicable):

__Flat (0-3% slope) X Rolling (3-8% slope) __Hilly (8-15% slope) __Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? X (Yes)__(No) if yes attach information
Is the project within the 100-year floodplain? __ (Yes)X (No) if yes attach information
Do you plan to bring fill onto the lot? __(Yes) X (No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:

The lot will be used for the construction of a 6-lot residential cluster subdivision. The purpose of this application is to revise the side setbacks between the lots within the subdivision to 15 feet.

Property to be Serviced by:

__ City Road __ Public Sewer __ Public Water X Public Trash

X Private Road X Septic System X Private Well __ Private Hauler

Limits of Disturbance: 196,145 ( )acres (✔)s.f.

Net change in impervious cover: 37,610 ( )acres (✔)s.f.

Is this project part of a larger project? __(Yes) X (No)

Is the project proposing a new Private or Public Road? X (Yes, Private) __(Yes, Public) __(No)

Is this project within the Urbanized Area/MS4 (*see City Drainage Map*) __(Yes) X (No)

Is the project proposing any Stormwater facilities/BMPs? __(Yes) X (No)

Will a Traffic Movement Permit (TMP) be required?: __(Yes) X (No)

__ **If in a Shoreland Zone:**

Percent of residential lot coverage (Max 20%): _____

Percent of structure expansion (Max 30%): _____

X **If Subdivision Review, number of lots proposed:** 6

X **If a Private Way is proposed, number of lots served:** 6

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure: _____

Total new square feet paving/parking: _____

Waiver Requests (attach details):

1. _____
2. _____
3. _____
4. _____
5. _____

Required Submittal Attachments:

A. Letters of Approval
   - X Fire Department – Contact Chief or Deputy Chief – 282-9986
   - N/A Ability to Serve for Water Service – Maine Water – 282-1543
   - N/A Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118
   - X Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127
B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.
C. Photographs of Site.
D. Architectural renderings/drawings of proposed buildings, as required.
E. Engineering Plans, as required.
F. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- $75 Nonrefundable Administration Fee is required for every application.
- Refer to "Attachment A Fees and Charges" of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and its attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance?: X (Yes) __(No)

- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

Signature of Applicant: _____ (agent) **Date** July 27, 2023

Signature of Property Owner: _____ (agent) **Date** July 27, 2023

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVDUAL DRAWING NAME.pdf'

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- All drawings & CAD reference files must be to-scale and within the following coordinate systems:

- MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIUDAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

To Whom It May Concern,

By this letter, the undersigned authorizes Walsh Engineering Associates, Inc. to act as the agent for the undersigned in the preparation and submission of all Federal, State, and Local City permit applications and relevant documents and correspondence for all necessary permits for the construction on the property at 918 Pool Street, Biddeford, Maine 04005 (Tax Map 04, Lot 48) to attend meetings and site visits; to appear before all boards, commissions, and committees, and to provide such other services as are necessary and appropriate in furtherance of the aforementioned project.

Sincerely,

Ginger Hill Properties, LLC

Company

Emily Ingwersen

Signature

Emily Ingwersen, Manager

Printed Name and Title

6/14/2021

Date

WALSH

ENGINEERING ASSOCIATES, INC.

To Whom It May Concern,

By this letter, the undersigned, a representative of Christina M. Kilroe authorizes Walsh Engineering Associates, Inc. to act as the agent for the undersigned in the preparation and submission of all Federal, State, and Local City permit applications and relevant documents and correspondence for all necessary permits for the construction/reconstruction of the property at 9 Windward Ridge; to attend meetings and site visits; to appear before all boards, commissions, and committees, and to provide such other services as are necessary and appropriate in furtherance of the aforementioned project.

Sincerely,

Christina M Kilroe
Signature

Christina M. Kilroe
Printed Name and Title

7/24/2023
Date

MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Mon Aug 02 2021 10:54:51. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
GINGER HILL, LLC	20150386DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
07/30/2014	N/A	MAINE

Other Names	(A=Assumed ; F=Former)
GINGER HILL DESIGN & BUILD	A

Clerk/Registered Agent

RALPH W. AUSTIN
P.O. BOX 468
BIDDEFORD, ME 04005

Back to previous screen | New Search

Click on a link to obtain additional information.

List of Filings	View list of filings	
Obtain additional information:		
Additional Addresses	Plain Copy	Certified copy
Certificate of Existence (more info)	Short Form without amendments ($30.00)	Long Form with amendments ($30.00)

You will need Adobe Acrobat version 3.0 or higher in order to view PDF files.
If you encounter problems, visit the troubleshooting page.

Get Acrobat Reader

ATTACHMENT 1
RIGHT, TITLE & INTEREST

- Warranty Deed YCRD Book 19088, Page 733

NANCY E HAMMOND, REGISTER OF DEEDS
E-RECORDED **Bk 19088 PG 733**
Instr # 2022034016
08/10/2022 10:53:19 AM
Pages 3 YORK CO

DLN: 1002240205268

Space Above Reserved for Recording

No Transfer Tax

WARRANTY DEED
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS THAT **Ginger Hill, LLC,** a Maine limited liability company, with a place of business in Arundel, in the County of York and State of Maine, in consideration of One Dollar and other valuable consideration, grants to **Ginger Hill Properties, LLC** of Arundel, County of York and State of Maine (with a mailing address of 18 Early Way, Arundel, Maine 04046) **with warranty covenants**, the following described property situated in Biddeford, York County, Maine:

Certain parcels of land situated in the Leeward Meadows Subdivision and in the Windward Ridge Subdivision situated in Biddeford, Maine, being more particularly described in Exhibit A attached hereto and incorporated herein by reference.

IN WITNESS WHEREOF, the said **Ginger Hill, LLC** has caused this instrument to be executed by Emily Ingwersen, its Manager duly authorized, this 9th day of August, 2022.

Ginger Hill, LLC

Witness: Ralph W. Austin

By: _____
Emily Ingwersen, Manager

STATE OF MAINE
YORK, ss.

August 9, 2022

Personally appeared the above named Emily Ingwersen, Manager Ginger Hill, LLC, and acknowledged the foregoing instrument to be her free act and deed in her said capacity and the free act and deed of said Company.

Before me, Ralph W. Austin
Ralph W. Austin, Attorney at Law
Bar No. 1156

EXHIBIT A
Ginger Hill, LLC to Ginger Hill Properties, LLC

Windward Ridge Subdivision

Certain lots or parcels of land situated in Biddeford, York County, Maine, lying northwesterly of but not adjacent to Pool Street, also known as Route 9, and further lying on the easterly and westerly sides of Windward Ridge, said lots or parcels of land being identified as Lots 1, 2, 3, 4, 5 and 6 (hereinafter the "Lots") on Plan entitled "Subdivision Plan of Windward Ridge, 918 Pool Street, Biddeford, Maine 04005" by Walsh Engineering Associates, Inc., dated June 15, 2021, with a latest revision date of February 8, 2022 and recorded in the York County Registry of Deeds in Plan Book 421, Page 49 (hereinafter the "Plan"), said Plan being incorporated herein by reference.

Said Lots are hereby conveyed subject to and with the benefit of the following:

1. All notes, conditions, limitations, easements, restrictions and other state of facts shown on the aforesaid Plan.

2. Terms and conditions of "Declaration of Covenants and Restrictions" for Windward Ridge Subdivision dated May 10, 2022 and recorded in the York County Registry of Deeds in Book 19021, Page 818.

3. The right of ingress to and egress from said Lots over Windward Ridge as shown on said Plan, and the right to connect with and to use all utility services located in said Windward Ridge, in common with the Grantor and with others to whom similar rights may be granted. No part of the fee of Windward Ridge is hereby conveyed.

Leeward Meadows Subdivision

Certain lots or parcels of land situated in Biddeford, York County, Maine, lying southwesterly of but not adjacent to Oak Ridge Road, and further lying on the southwesterly, southerly and southeasterly sides of Leeward Meadows, said lots or parcels of land being identified as Lots 1, 2, 3, 4, 5 and 6 (hereinafter the "Lots") on Plan entitled "Subdivision Plan of Leeward Meadows, Oak Ridge Road, Biddeford, Maine 04005" by Walsh Engineering Associates, Inc., dated June 15, 2021, with a latest revision date of February 8, 2022 and recorded in the York County Registry of Deeds in Plan Book 421, Page 48 (hereinafter the "Plan"), said Plan being incorporated herein by reference.

Said Lots are hereby conveyed subject to and with the benefit of the following:

1. All notes, conditions, limitations, easements, restrictions and other state of facts shown on the aforesaid Plan.

2. Terms and conditions of "Declaration of Covenants and Restrictions" for Leeward Meadows Subdivision dated May 10, 2022 and recorded in the York County Registry of Deeds in Book 19021, Page 840.

3. The right of ingress to and egress from said Lots over Leeward Meadows as shown on said Plan, and the right to connect with and to use all utility services located in said Leeward Meadows, in common with the Grantor and with others to whom similar rights may be granted. No part of the fee of Leeward Meadows is hereby conveyed.

4. Terms and conditions of a certain Conservation Easement from Ginger Hill, LLC to Kennebunkport Conservation Trust dated April 13, 2022 and recorded in the York County Registry of Deeds in Book 19002, Page 62.

ATTACHMENT 2
DECLARATION OF COVENANTS & RESTRICTIONS

NANCY E HAMMOND, REGISTER OF DEEDS
E-RECORDED **Bk 19021 PG 818**
Instr # 2022020297
05/10/2022 11:37:15 AM
Pages 9 YORK CO

WINDWARD RIDGE SUBDIVISION
BIDDEFORD, MAINE

DECLARATION OF COVENANTS AND RESTRICTIONS

This Declaration is made this 10th day of May, 2022, by Ginger Hill, LLC, with a place of business in Arundel, in the County of York and State of Maine (hereinafter called "Declarant").

W I T N E S S E T H:

WHEREAS, Declarant is the owner of real property situated on the southerly side of Route 9, also known as Pool Street, in the City of Biddeford, in the County of York and State of Maine, and desires to create a residential community thereon, pursuant to subdivision approval for such property, such approval being evidenced on "Subdivision Plan of Windward Ridge, 918 Pool Street, Biddeford, Maine 04005" by Walsh Engineering Associates, Inc., dated June 15, 2021, with a latest revision date of February 8, 2022, and recorded in the York County Registry of Deeds in Plan Book 421, Page 49; and

WHEREAS, Declarant desires to ensure the preservation of values and amenities in the community and, to this end, desires to subject the real property described in ARTICLE I to the covenants, restrictions, easements, charges and liens hereinafter set forth, each and all of which are for the benefit of said property and each owner thereof; and

WHEREAS, Declarant has deemed it desirable for the efficient preservation of the values and amenities in the community to create an agency to which will be delegated and assigned the powers of maintaining and administering the common areas and facilities and administering and enforcing the covenants and restrictions and collecting and disbursing the assessments and charges hereinafter created; and

WHEREAS, Declarant has incorporated or will incorporate under the laws of the State of Maine, as a nonprofit corporation, WINDWARD RIDGE OWNERS ASSOCIATION for the purpose of exercising the aforesaid functions.

NOW, THEREFORE, Declarant declares that the real property described in Article I is and shall be held, transferred, sold, conveyed and occupied subject to the covenants, restrictions, easements, charges and liens (sometimes referred to as "covenants and restrictions") hereinafter set forth in conveyances of lots.

ARTICLE I
PROPERTY SUBJECT TO THIS DECLARATION

The real property which is, and shall be held, transferred, sold, conveyed and occupied subject to this Declaration is located in the City of Biddeford, in the County of York and State of Maine, and is all of the land area shown on a plan entitled "Subdivision Plan of Windward Ridge, 918 Pool Street, Biddeford, Maine 04005" by Walsh Engineering Associates, Inc., dated June 15, 2021, with a latest revision date of February 8, 2022, and recorded in the York County Registry of Deeds in Plan Book 421, Page 49, hereinafter referred to as "the Plan," to which reference is made for a complete description thereof, all of which real property shall hereinafter be referred to as the "Property," specifically including all of the numbered lots, roads, easements, rights of way, and such other lands or areas which may be designated by Declarant. All conditions, restrictions and limitations shown on said Plan, whether or not specifically referred to herein, are incorporated by reference into this Declaration and made a part hereof.

ARTICLE II
DEFINITIONS

Section 1: "Association" shall refer to Windward Ridge Owners Association, its successors and assigns.

Section 2: "Owner (s)" shall refer to the record owner, whether one or more persons or entities, of fee simple title to any Lot as depicted on the Plan.

Section 3: "Member" shall mean and refer to lot owners as provided in Article V.

Section 4: "Lot (s)" shall refer to those single-family residential lots as depicted on said Plan.

Section 5: "Common Area" shall mean all real property owned by Declarant, or the Association after transfer, with improvements thereon, or real property in which Declarant or the Association has easement rights and which are intended for the common use and/or benefit of the Owners as depicted on said Plan, including areas shown on the Plan as "Open Space" and the subdivision road known as "Windward Ridge".

ARTICLE III
OWNERSHIP, MAINTENANCE AND USE OF COMMON AREAS

Section 1: Every Owner shall have equal rights with respect to the common areas which shall pass with the title to every lot, subject to the right of the Association to charge reasonable fees for the maintenance and upkeep of any portion of the common area. All common areas shall be managed by the Association, which shall be establish

rules and regulations for the use thereof in accordance with the provisions of this Declaration.

Section 2: The common areas on the Plan denoted as "Open Space" shall remain in their natural state in perpetuity, including existing vegetation and wetlands. The Board of Directors of the Association may allow the removal of dead, dying or diseased trees for safety purposes. The purpose of these regulations is to preserve the habitat of the "Open Space" as much as possible. The Association shall hire a plant / wildlife biologist to develop a management plan for the "Open Space." This provision may not be substantially changed without prior approval of the Biddeford Planning Board.

Section 3: The subdivision road shall be maintained by the Association. Maintenance shall include repair, repaving, snowplowing and sanding, all as necessary.

Section 3: Any Owner may delegate, in accordance with the Association's Bylaws, his/her right of enjoyment to the common area and facilities to members of his/her family, his/her tenants and his/her invitees for limited periods of time.

Section 4: Unless earlier conveyed, the common areas shall be conveyed by Declarant to the Association within thirty (30) days after the sale of the last lot. The Declarant, or the Board of Directors of the Association, has the authority to grant a conservation easement over the Open Space to a conservation commission or to a recognized land trust.

ARTICLE IV
COVENANT FOR MAINTENANCE ASSESSMENTS

Section 1: The Owner of each lot hereby covenants, and by acceptance of a deed thereof, agrees to pay to the Association an annual assessment or charge. The assessment, together with interest, costs, and reasonable attorney's fees incurred for collection of the same shall be a continuing lien on the Owner's lot. The assessments levied by the association shall be used exclusively to maintain and/or improve the common areas, and for the maintenance of the subdivision road.

Section 2: Both annual and special assessments shall be fixed at a uniform rate for all lots, with the exception of fees incurred pursuant to Article VI, Section 14E herein, which shall be designated the sole and exclusive obligation of such Owner in breach of these Covenants and Restrictions.

Section 3: The Directors shall fix the amount of the annual assessment and any special assessments in accordance with the procedure set forth in the Bylaws of the Association.

Section 4: The Directors shall upon demand furnish a certificate in recordable form setting forth whether the assessments on a specified lot have been paid. Such a certificate may be signed by the President, Treasurer or other designated officer.

Section 5: In addition to the annual assessments authorized above, the Association may levy, in any assessment year, a special assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, reconstruction, repair or replacement of a capital improvement upon the common area including maintenance of the drainage easements to assure adequate runoff from the rights-of-way. Special assessments shall be determined by the Directors of the Association on an "as needed basis."

Section 6: Any assessment not paid within thirty (30) days after the due date shall bear interest from the due date at a rate to be determined by the Directors, but in any event not less than ten percent (10%) per annum. The Directors, on behalf of the Association may bring an action at law against the Owner personally obligated to pay the same, or foreclose the lien against the property, in the manner as a mortgage on real estate or by any other means presently or hereafter provided by law or in equity. A suit to recover a money judgment for unpaid assessments, interest, penalties and cost of collection may be maintained against the lot owner personally without foreclosing or waiving the lien securing such assessment.

ARTICLE V
MEMBERSHIP AND VOTING RIGHTS

Section 1: The Association shall have one (1) class of voting Membership. The Members of the Association shall have no redemptive rights, as such Members, to acquire any Memberships of this Association that may, at any time, be issued by the Association, except as may be specifically provided in this Article.

Section 2: The Association shall elect a minimum of three (3) Directors to manage Association business. The Directors shall be chosen, and shall serve terms, as designated and set forth in the Bylaws of the Association. Directors shall elect corporate officers, which shall consist of a President, a Vice President, and a Treasurer.

Section 3: Meetings shall be called and conducted, and notices thereof sent, as provided and set forth in the Bylaws.

Section 4: Notwithstanding the foregoing or anything contained in this Declaration to the contrary, Declarant shall have the sole and exclusive right to appoint officers and directors to the Board until sixty (60) days after the sale of last lot in the subdivision or until Declarant voluntarily transfers control of the Association to the Members, whichever occurs first. During the period of control as set forth herein, Members of the Association, otherwise qualified hereunder, shall have non-voting

membership, unless the provisions of this sentence are expressly waived relative to a particular issue by a writing signed by the Declarant.

ARTICLE VI
PROTECTIVE COVENANTS

Section 1: Declarant hereby declares that the following protective covenants shall apply to all lots in Windward Ridge Subdivision for the benefit of all Owners. These covenants shall become effective immediately and shall run with the land described in any deed of conveyance, and be binding upon all persons claiming under the Declarant, as developer or otherwise, until termination by operation of law, or as hereinafter provided. The covenants and restrictions set forth herein shall be referenced in any future deeds of lots in Windward Ridge Subdivision.

Section 2: Each lot shall be used for residential purposes. No lot may be subdivided. No structure shall have vinyl siding or pvc/plastic trim. In any event, no buildings or additions shall be erected, placed or allowed to stand on any lot in the subdivision unless and until the plans, specifications and locations thereof have been approved in writing by a duly authorized agent of Declarant, its successors or assigns, or the Association after assumption of control by the Association.

Section 3: No unregistered automobiles, trucks, motorcycles, motor homes or travel trailers, snowmobiles or boats or other similar motorized vehicles shall be stored on the premises for more than six (6) months without approval of the Board of Directors of the Association.

Section 4: Once construction of a building is commenced, work thereon must be prosecuted diligently and must be completed within a reasonable time, and in any event, within one (1) year from commencement of said work, provided, however, that additional time shall be allowed for exigent circumstances, including labor shortages, material shortages or delays, and pandemics. "Completion" shall include grading, loaming and seeding.

Section 5: The erection or use of any satellite dish over twenty-four inches (24") in diameter within the limits of said subdivision must be approved, in writing, by the Board of Directors of the Association.

Section 6: Any use of the property must be in strict conformity with the provisions of any applicable zoning law, ordinance or regulation. Nothing contained in this article, or elsewhere in this Declaration, shall be construed to prohibit the Declarant from the use of any lot or dwelling for promotional or display purposes, or as "model homes," a sales office, or the like.

Section 7: No temporary structures shall be built upon the land other than those necessary and used in the course of construction of permanent buildings, and all such structures shall be removed immediately upon completion of any building operation. Storage and garden sheds shall be allowed within the building envelope for each lot as shown on the Plan.

Section 8: Any fence constructed upon the property shall be made of non-pressure treated wood or made of metal, but no other material.

Section 9: The use and operation of motorized vehicles of any kind or type, including but not limited to snowmobiles and ATVs, shall be prohibited in any wooded area of the Subdivision, including the wooded area of a lot owned by the operator or user of any such motorized vehicle.

Section 10: The discharge of firearms of any kind or type, for any purpose, is prohibited anywhere within the Subdivision.

Section 11: The use of chemical pesticides and herbicides on lawns and gardens is prohibited. Owners are encouraged to follow the recommendations of the City of Biddeford's "Yard Smart" program as set forth in the pamphlet entitled "10 Simple Steps Toward a Safe & Healthy Lawn" (https://www.biddefordmaine.org/DocumentCenter/View/1762/Conservation-Commission-Resources---Combined-PDF).

Section 12: The Association shall have control over the common areas and its Directors shall enforce the aforementioned and following covenants, which shall be deemed to run with the land:

A. The Association shall, until transfer to a public authority or agency, arrange and provided for the proper maintenance of Windward Ridge, including the subdivision road and the Open Space. The Association shall ensure that the subdivision road is properly maintained, and that snow removal occurs in a reliable manner to aid in public safety access.

B. The Association shall prohibit any use of the property designated "Drainage Easement" on the plan for any purpose other than as a natural drainage swale, and shall arrange and provide for maintenance of said easements so that they continue to perform the function for which they are intended, but none other, including periodic cleaning, if necessary. Nothing contained herein shall allow the Association to enter upon said easement area for the purpose of cutting or removing any natural vegetation unless absolutely essential to the proper operation of said easement.

D. The Declarant, and Association, after transfer of the common areas, shall retain the sole right and power to grant any and all necessary easements over common

areas to public utility authorities to carry out its obligations hereunder, either for installation or repair of same. Any such easements not shown or reflected on the approved subdivision plan must also receive approval from the Biddeford Planning Board.

E. In addition to any other remedies provided for the Association herein, upon the apparent breach of Protective Covenants by any Lot Owner (s), the Directors on behalf of the Association, shall notify said Owner(s) by certified mail of such breach, and include a reasonable description of the actions necessary to correct or cure such breach. If said Owner (s) does not take corrective action within seven (7) days from receipt of said notice, or object to the proposed action to be taken within said time period, the Directors shall, without further notice, be entitled to take such action as set forth in the Notice and to surcharge as a special assessment to said Owner (s) solely for all necessary and incidental expenses, including attorney's fees incurred in taking such corrective action. For this purpose, the Association or any agent thereof shall and by these presents, does have the right to enter upon land of any such breaching Owner to clean all drainage easements of all debris, to clean and maintain the culverts required by said Covenant, or to remove drainage water in accordance with the Plan, and to ensure compliance with any other applicable covenant, restriction or condition.

Section 13: Enforcement shall be by the Association as Plaintiff in a proper case, or by any Owner by proceeding at law or in equity against any persons violating, or attempting to violate any covenants, restrictions or conditions, either to restrain violation or to recover damages, or both, in the sole discretion of the party so proceeding. Any party successfully enforcing any of these covenants shall be entitled to recover against the party violating such covenant (s), as a monetary award, for the reasonable attorney's fees and costs incurred in such enforcement proceedings.

ARTICLE VII
RESERVATION OF RIGHTS AND EASEMENTS

Declarant reserves the following rights and easements:

Section 1: The right to install, maintain, repair and replace under, over and upon the common property and areas designated as easements or rights of way on the plan, and any ways on which said land abuts, or shall abut, such electric light, power, telephone and telegraph cables and wires, water, sewer and drainage pipes, mains and conduits, catch basins, surface drains and culverts, and such other facilities, installations, appurtenances and things as Declarant may deem necessary or convenient in connection with the provision of adequate drainage, sewerage disposal, water, electricity, telephone communications and other utilities to any portion of the property, and for the benefit of any other land owned by Declarant, its successors and assigns, including, but not limited to adjoining property, now owned or hereafter acquired by Declarant, which Declarant

may choose to develop in the future; all of which rights and easements, Declarant, its successors and assigns, may assign to telephone, telegraph, power, water and other public and private utility companies and corporations as Declarant may determine;

Section 2: The right to add to or designate additional lands or areas as common areas as herein defined, or to dedicate and subject additional lands to the terms and conditions of this Declaration.

Section 3: An easement and right of way over all ways and other common spaces shown on the plan for ingress and egress by Declarant to adjoining property now owned or hereafter acquired by Declarant, its successors and assigns for all purposes related to development of such adjoining property and for permanent egress and ingress to such adjoining property by future owners of homes therein.

Section 4: The right to enter upon the land or any sold or unsold lot for the purpose of selectively cutting trees and clearing trees and brush to improve the physical appearance of the land.

Section 5: The right to waive or modify certain of the conditions, covenants and restrictions set forth in Article VI with respect to any additional lands dedicated and subject to the terms and conditions of this Declaration.

ARTICLE VIII
GENERAL PROVISIONS

Section 1: Invalidation of any one of these covenants or restrictions by judgment or court order shall not affect any other provisions which shall remain in full force and effect.

Section 2: The Covenants and Restrictions of this Declaration, which shall be recorded at the York County Registry of Deeds, shall run with and bind the land. This Declaration may be amended by an instrument signed by not less than sixty percent (60%) of said Owners. Any amendments hereto must be recorded at the York County Registry of Deeds. Any amendments to the approved subdivision plan must also be approved by the Biddeford Planning Board.

[signature on following page]

WITNESS:

GINGER HILL, LLC

By: _____
Emily Ingwersen
Its: Manager Duly Authorized

STATE OF MAINE
YORK, ss

May 10, 2022

Personally appeared Emily Ingwersen, Authorized Manager of Ginger Hill, LLC, and acknowledged the foregoing Declaration to be her free act and deed in her said capacity and the free act and deed of said company.

Before me,

Ralph W. Austin /Attorney at Law
Bar #1156

ATTACHMENT 3
REVIEW RESPONSES

- Biddeford Fire Department Review
- Biddeford Police Department Review
- Central Maine Power Review
- MHPC Review
- Final Subdivision Plan Notice of Decision
- Final Subdivision Plan Finding of Facts

Connor Ritter

From: Duross, Kevin <kevin.duross@biddefordmaine.org>
Sent: Monday, January 10, 2022 11:41 AM
To: Connor Ritter
Cc: Tansley, Greg
Subject: RE: Leeward Meadows and Windward Ridge Fire Suppression

Hi Conner,

I have reviewed the plan with the requested fire suppression system. This is an acceptable plan. When the project is completed, we will need to inspect the suppression system.

Thank you,

Kevin

Kevin Duross
Deputy Chief

Biddeford Fire Department
152 Alfred St.
Biddeford, ME 04005

(207) 571-1692 Office
(207) 571-1693 Fax

From: Connor Ritter <connor@Walsh-eng.com>
Sent: Monday, January 3, 2022 11:47 AM
To: Duross, Kevin <kevin.duross@biddefordmaine.org>
Subject: Leeward Meadows and Windward Ridge Fire Suppression

Hi Kevin,

I just wanted to follow up with you on the fire suppression systems for the Leeward Meadows and Windward Ridge subdivision projects. I've attached a plan for each site with 10,000 gallon fire suppression tanks included per the Fire Department layouts provided the last time we met. Let me know if you find these acceptable for the projects or if there is anything else necessary.

Thanks,
Connor

Connor Ritter, EIT

WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Drive, Suite 2A
Westbrook, ME 04092
P: (207) 553-9898, Ext 105
www.walsh-eng.com

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Connor Ritter

From: Fisk, JoAnne <joanne.fisk@biddefordmaine.org> on behalf of Fisk, JoAnne
Sent: Wednesday, July 28, 2021 1:44 PM
To: Connor@walsh-eng.com
Subject: Road names

Connor,

Per our conversation on street names both Leeward Meadows and Windward Ridge are acceptable names. Please let me know if you need anything else.

JoAnne Fisk

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Isaiah Bates

From: Cough, Jamie <Jamie.Cough@cmpco.com> on behalf of Cough, Jamie
Sent: Monday, August 9, 2021 12:16 PM
To: Isaiah Bates
Subject: 158 Oak Ridge Road and 918 Pool Street Biddeford, Maine CAPACITY LETTER | CMP Capacity Letter CMP Ability to Serve Request and Three Phase Service Process
Attachments: Easement_Information_Worksheet.doc; Standard Easement Sample.pdf; blank W9.pdf; May 2021 EDET.XLSX

Request for Ability to Serve Letter

Project Description: Leeward Meadows Subdivison (158 Oak Ridge Road) Biddeford, Maine

The development of a 6-lot residential subdivision

Project Description: Windward Ridge Subdivision (918 Pool Street) Biddeford, Maine

The development of a 6-lot residential subdivision

CMP has the ability to serve the proposed projects in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Handbook of Standard Requirements. If you have any questions on the process, or need help in completion of the documents, **please contact me at 207-629-1489.**

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let me know. The underlined links will redirect you to the appropriate site for additional information**. If this is a single phase service with all self-contained metering, the process is simplified, but still begins with a call to CMP. Please refer to CMP Installation Checklists**

This process can take several months, depending upon several factors including transformer or materials delivery, return of completed paperwork, and other jobs in the system that may be ahead of yours. In addition, contact with the other utilities, including telephone and cable, should be commenced as soon as practical. They may have additional work or charges in addition to the CMP work required to bring your project on line.

You will be responsible for installing the customer connections, conduits, and metering in accordance with the CMP Handbook of Standard Requirements. The transformer will be sized based on your submitted load sheets.

Your deposit amount will be typically based on an estimated two month bill, calculated from your completed load sheet unless otherwise determined by CMP.

Metering:

All metering (including locations) must be preapproved by CMP.

Chapter 324 Interconnections:

Please be advised that if you plan to install solar/wind/hydro generation, you must complete an application under the MPUC mandated Chapter 324 Interconnection Standards. If you go to Chapter 324 Interconnection Standards and follow the instructions for the Small Generator Interconnection Procedures, CMP can do this work in parallel to your service request that will be handled by me. If you project is under 660 KW You will be able to have a Customer Net Energy Billing contract. Information concerning Customer Net Energy Billing can be accessed thru the Chapter 324 website or by clicking here: Net Energy Billing

Reallocation/Line Extensions:

Recently, changes were made to the three-phase construction policy, which require CMP to reallocate construction costs paid by customers. If applicable, those projects identified as "developments" do not qualify for reallocation of funds. Please see this document at our website for details about the reallocation conditions. Any reallocation charges will be specifically denoted on your invoice. The website address for this is: PolyphaseLineExtension .

This line extension will be part of Central Maine Power's distribution system. In the event the property served under this Agreement is sold or otherwise conveyed, all rights and obligations of the Agreement shall stay with the property. Please note that if you rent or lease this property to another and you want to receive the reimbursement payments, you must make special arrangements with the Central Maine Power Company. Otherwise, any reimbursement payments will be sent to the "Customer" taking service at the service location.

Electricity Supplier Information:

Central Maine Power Company (CMP) will provide your facility with electric delivery service. If you don't already have a provider, you will need to make arrangements with a competitive electricity provider in order to receive electricity supply for your facility. In the event you fail to choose a competitive electricity provider, you will receive Standard Offer service arranged by the Maine Public Utilities Commission. If you wish to be served by a competitive electricity provider immediately upon establishment of delivery service, you must arrange for this service directly through your chosen competitive electricity provider, who must enroll your account no later than 5 PM on the business day prior initiation of delivery service by CMP. An up-to-date list of competitive suppliers can be found at the:

1) Maine Public Utilities Commission (MPUC) web site- **Maine PUC**
2) By calling the MPUC at (207) 287-3831

Regards,

Jamie

Jamie Cough
Energy Services Advisor
Central Maine Power Company
162 Canco Road
Portland, ME 04103
207-629-1489 office

CENTRAL MAINE POWER

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MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

August 30, 2021

Mr. Isaiah Bates
Walsh Engineering
One Karen Drive
Suite 2A
Westbrook, ME 04092

Project: MHPC# 1436-21 Windward Ridge Subdivision; 918 Pool Street
Proposed Subdivision

Town: Biddeford, ME

Dear Mr. Bates:

In response to your recent request, I have reviewed the information received August 20, 2021 to initiate consultation on the above referenced project.

Based on the information provided, I have concluded that there are no National Register eligible properties on or adjacent to the parcels. In addition, the project area is not considered sensitive for archaeological resources.

Please contact Megan M. Rideout of our staff, at megan.m.rideout@maine.gov or 207-287-2992, if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335

CITY OF BIDDEFORD

Planning and Development Department

Hannah Bonine
Assistant City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
Hannah.Bonine@biddefordmaine.org

NOTICE OF DECISION

March 17, 2022

Connor Ritter (via e-mail)
Walsh Engineering Associates, Inc.
One Karen Drive, Suite 2A
Westbrook, ME 04092

RE: 2021.31 Final Subdivision Plan Review for Ginger Hill Design + Build, LLC for the Windward Ridge subdivision at 918 Pool Street (Tax Map 4, Lot 48).

Dear Connor,

At their meeting on February 16, 2022, the Biddeford Planning Board reviewed the Final Subdivision Plan to create 6 residential lots at 918 Pool Street in the Rural Farm (RF) and Coastal Residential (CR) zones. Ginger Hill Design + Build, LLC owns the property and you and Bill Walsh from Walsh Engineering presented the proposal to the Planning Board along with Emily Ingwerson from Ginger Hill Design + Build.

Following public comment and the Board's deliberation, the Board approved the Final Subdivision application, approved the Findings of Fact, and authorized the City Planner to sign the final plans conditioned on the following:

1. **Prior to any ground disturbance or issuance of any permits:**
    a. **All outstanding review comments shall be addressed to the satisfaction of the City Planner.**
    b. **A pre-construction meeting with the contractor needs to be held with the Engineering Department to discuss inspection requirements.**
    c. **A Unit Cost Estimate on City form shall be submitted to the City Planner for review.**
    d. **An Erosion and Sedimentation Control Performance Guarantee (acceptable to the Planning Department) in an amount to be determined by the City based on Condition of Approval 1.d. shall be submitted to the Planning Department.**

2. **Prior to the issuance of any occupancy permits:**
    a. **A performance guarantee (acceptable to the Engineering Department) in the amount of 150% of any remaining site improvements shall be submitted to the**

Planning Department. Amount to be determined based on City inspections and the recommendation of the City Engineer.

3. **All erosion and sediment control measures need to be installed. Applicant shall notify the Engineering Department once installed so that Staff may inspect said installation, as necessary.**
4. **A Stabilized Construction Access shall be constructed and maintained through the duration of this project.**
5. **Best management practices shall be adhered to during all ground disturbance operations. All Catch Basin's in the vicinity of earthwork operations shall have silt sacks installed & maintained for the duration of the work.**
6. **Copies of the maintenance logs for any stormwater facilities shall be submitted to the City for each calendar year no later than January 15th of the following year. If the Engineering Department does not receive these copies within 30 days after the deadline, the applicant may be required to return to the Planning Board for further review.**
7. **The applicant shall obtain all other pertinent local, state and federal permits, licenses, and insurance such as blasting, building, electrical, plumbing, etc., prior to commencing business, unless authority issuing said permit allows for such actions.**
8. **The Planning Department shall review and approve a planting plan to revegetate, as permitted with the final extent of ledge, the area along the proposed development entrance and roadway adjacent to Pool Street.**
9. **Once completed, as-built drawings of the site shall be provided to the Planning Department.**
10. **Upon completion of the work the project engineer shall certify that the project has been completed as per the approved plans or shall note any deviations from the approved plans.**
11. **Standard Conditions of Approval apply.**

The approved plan shall be recorded at the York county Registry of Deeds. Failure to do so will render this approval null and void.

Appeals of the Planning Board's decision may be made as per the Biddeford Revised Code of Ordinances.

If you have any questions please call the Planning and Development Department at 207-284-9115.

FOR THE BIDDEFORD PLANNING BOARD

Sincerely,

Hannah Bonine

Hannah Bonine
Assistant City Planner

Cc: R. Fecteau, Code Enforcement, via e-mail
File

CITY OF BIDDEFORD

Planning and Development Department

Standard Conditions of Approval

Owner:	**Emily Ingwerson** **Ginger Hill, LLC** 18 Early Way Arundel, ME 04046
Applicant:	**Emily Ingwerson** **Ginger Hill, LLC** 18 Early Way Arundel, ME 04046
Project Description:	6-Lot Cluster Subdivision
Project Location:	918 Pool Street
Tax Map / Lot Number:	Tax Map 4, Lot 48
Project ID:	2021.31

1. The material provided for the proposed project has been reviewed only for general conformance to the City technical requirements. The applicant(s) and/or their technical consultant shall be responsible for the actual design details and completeness of their work. It is incumbent upon the applicant(s) to ensure that the project is in conformance and complies with all City Codes, ordinances and regulations as well as with all state regulations, including, but not limited to, space and bulk standards, performance standards, use standards and other zoning type requirements.

2. All work shall be in conformance with the approved plans and submission documents. No deviations from the approved plans are permitted without prior approval from the Planning Board for major changes, and from the City Planner and City Engineer for minor changes. The City Planner shall make the determination of major or minor.

3. If Site Development is required as part of the project, a Letter of Credit or other surety acceptable to the City of Biddeford shall be submitted prior to the issuance of permits or site work being initiated. The financial guarantee shall be established for 150% of the cost of the remaining project improvements. (Items include but are not limited to the following):

    a. Landscaping
    b. Paving
    c. Work within ROW (existing or proposed)

d. Drainage
e. Loam & seed
f. Sediment & erosion control
g. As–builts
h. Monuments

4. Prior to any ground disturbance, the applicant shall establish a construction inspection account equal to: N/A.

5. Prior to any ground disturbance, a pre-construction meeting with the owner/applicant, contractor, and City is required. Contact the Engineering Department to schedule this meeting.

6. Contact the Department of Public Works for driveway location permits, curb cut permits and/or street opening permits prior to the start of construction.

7. If Site Development is required as part of the project, an as-built plan must be provided to the City of Biddeford Engineering Office at the end of the project on mylar and on a disk, in a format, which can be read by the City of Biddeford's Geographic Information System software. If a disk copy cannot be provided, a charge for staff time to enter the plan into the City system will be assessed to the applicant.

8. The applicant shall incorporate appropriate erosion control measures into this project to reduce erosion affects from the work. All disturbed areas must be re-vegetated and/or otherwise stabilized at the appropriate stage of the work per Maine DEP standards in the Best Management Practice (BMP) manual.

9. That the Article VI Performance Standards requirements regarding Dust, Fumes, Vapors & Gases (sect 25), Explosive Materials (sect 28), Glare (sect 37), Noise (sect 48) be followed.

10. The applicant is required to comply with all applicable requirements of Chapter 70 (Utilities) and Chapter 71 (Utilities/Industrial Pretreatment Program).

11. The applicant shall obtain all other pertinent local, state and federal permits, licenses, and insurance such as blasting, building, electrical, plumbing, etc prior to commencing business.

12. If Site Development is required as part of the project, at the completion of the project the owner/applicant shall request a final inspection. This request shall be directed to the Planning Office. Performance Guarantees and remaining escrow accounts shall not be released until the Planning Office certifies that the project has been completed and is in compliance with the approval and all applicable City Ordinances.

ATTACHMENT 4
SITE PHOTOS

WALSH
ENGINEERING ASSOCIATES, INC.

PHOTOGRAPHIC LOG

Client Name: Ginger Hill, LLC

Project No. 737
Windward Ridge
Subdivision Photographs

Photo No. 1

Date:
July 19, 2021

Site Location:
Windward Ridge

Description:

Site Entrance from Pool Street looking northwest

Photo No. 2

Date:
November 1, 2021

Site Location:
Windward Ridge

Description:

Woods Road looking northwest

Photo No. 3	
Date: **November 1, 2021**	
Site Location: **Windward Ridge**	
Description: Woods Road looking west	

ATTACHMENT 5
STORMWATER REPORT, REVISION 2
(Bound Separately)

WALSH
ENGINEERING ASSOCIATES, INC.

STORMWATER MANAGEMENT REPORT REVISION 2

for

Windward Ridge
Pool Street
Biddeford, Maine 04005

September 15, 2021
Revision 1: October 20, 2021
Revision 2: January 12, 2022

Submitted to:
City of Biddeford
205 Main Street
P.O. Box 586
Biddeford, Maine 04005

Submitted by:
Walsh Engineering Associates, Inc.
One Karen Drive, Suite 2A
Westbrook, Maine 04092

WALSH
ENGINEERING ASSOCIATES, INC.

STORMWATER MANAGEMENT REPORT REVISION 2

WINDWARD RIDGE
Pool Street
Biddeford, Maine 04005

Introduction

Walsh Engineering Associates, Inc. (WEA) was retained by Emily and Robert Ingwersen, dba Ginger Hill Design + Build (Applicant) to provide site design and stormwater management design services for the development of a six-lot subdivision and open space parcel on Pool Street in Biddeford. The proposed development includes six single-family dwellings, associated driveways, and a private street. The development will create a net increase of approximately 37,610± square feet (0.86± acres) of impervious surfaces.

This Stormwater Management Report assesses both pre-development and post development peak runoff rates of stormwater runoff from the developed site. The analysis provided herein was completed in accordance with the City of Biddeford stormwater standards.

The original Stormwater Management Report was submitted to the City of Biddeford as part of a preliminary subdivision application submission on September 15, 2021. Revision 1 of the Stormwater Management Report reflects revisions made in response to comments provided via an engineer review conducted by Site Design Associates dated September 29, 2021. This Revision 2 of the Stormwater Management Report reflects revisions made in response to comments provided via a Planning Board report prepared by Christopher Di Matteo of Long Meadow Planning & Landscape Architecture, LLC and Tom Saucier of Site Design Associates dated October 29, 2021.

Methodology

Stormwater runoff analysis has been performed to comply with the City of Biddeford Subdivision Regulations. The HydroCAD Stormwater Modeling System software (Version 10.0) developed by the Applied Microcomputer Systems of Chocorua, New Hampshire was used for the analysis. The program is based upon the TR-20 computer program and the TR-55 tabular method, both of which are based upon techniques developed by the USDA Soil Conservation Service. The analysis was performed for the 2-, 10-, and 25-year frequencies (3.3, 4.9, and 6.2 inches respectively) for York County. The 24-hour storm event with a Type III distribution were the basis for the analysis.

Pre-Development Conditions

The property is located within the watershed of the Little River. The parcel was previously undeveloped consisting of wooded land, wetlands, and a woods road running through the middle of the property.

The pre-development condition was considered to be wooded area, lawn area, and impervious surfaces, as taken from the USDA NRCS online Web Soil Survey. The soil types onsite are Lyman-Tunbridge, Colonel, and Scantic listed as Hydrologic Soil Group (HSG) D. See the High Intensity Soil Survey and Web Soil Survey in Appendix C. The property drains northwest through

a large wetland onto an abutting property (AP1), southwest to a set of two 12" culverts that cross Oak Ridge Road (AP2), and west onto an abutting property at a second location (AP3).

Site topography, soil boundaries, pre-development drainage areas, and analysis points AP1, AP2, and AP3 are shown on drawing D1.0 – Pre-Development Drainage Plan. Pre-development HydroCAD calculations can be found in Appendix A. Pre-development peak flow rates at the analysis points are summarized in Table 1 for the 2-, 10-, and 25-year storm events.

Post-Development Conditions

The proposed project will include six single-family dwellings, associated driveways, and a minor, nonurban residential street. The street will have one connection onto Pool Street and all driveways will have access via the proposed street. The project will contain approximately 37,610± square feet of impervious area.

Post-development stormwater runoff from the site was analyzed by routing stormwater flows from the various developed subcatchments through proposed conveyance. Post-development HydroCAD calculations can be found in Appendix B and sheet D2.0 – Post Development Drainage Plan can be found in Appendix E. Post development peak flow rates at each of the analysis points are summarized in Table 1 for the 2-, 10-, and 25-year storm events.

Stormwater Quantity

The City of Biddeford stormwater standards require that peak flow rates discharging from the site are not increased as a result of the development.

Table 1 – Peak Flow Rates (cfs)

Analysis Point		2-Year Storm	10-Year Storm	25-Year Storm
AP1	Pre-Development	4.6	9.4	13.2
	Post Development	4.5	9.1	13.1
AP2	Pre-Development	3.9	7.5	10.0
	Post Development	3.8	7.4	9.9
AP3	Pre-Development	1.1	2.2	3.2
	Post Development	0.8	1.7	2.4

As shown in Table 1, the peak runoff rates at analysis points AP1, AP2, and AP3 under the post development conditions will be less than the peak pre-development runoff rates for every storm event. This result is due to the timing of the peak runoff from the developed areas having little overlap with the timing of the peak runoff from the undeveloped areas. The runoff from the developed areas typically passes the analysis point prior to the higher volume of runoff from the undeveloped areas. Some areas of runoff have also been redirected to different analysis points under the post development conditions due to the development. Based on this analysis, we do not anticipate any adverse impacts on downgradient drainage systems due to the proposed development. Pre- and Post Development HydroCAD calculations can be found in Appendices A and B.

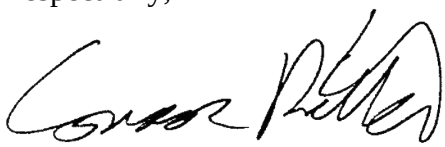
Stormwater Quality
The project is not in the watershed of a lake or Urban Impaired Stream and will not create over one acre of impervious surface or 5 acres of developed area and therefore does not require a Maine DEP Stormwater Permit.

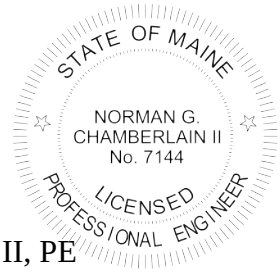
Erosion Control
BMPs such as silt fence and/or filter berms of erosion control mix, erosion control blanket, mulch, and permanent seeding will be used to prevent erosion and downstream migration of sediment during construction. The locations of temporary and permanent erosion control measures are shown on the Site Plans in Appendix E on sheet C2.3. Erosion and sedimentation control notes and details can be found on sheets C3.0-C3.1.

Inspection & Maintenance
Ginger Hill Design + Build will be responsible for maintaining the stormwater facilities for the project until such time as the Homeowners Association will take over the system and maintenance of it. An Inspection and Maintenance Plan is included in Appendix D.

Conclusions
Calculations show that the peak rate of runoff from the 2-, 10-, and 25-year storm events will not exceed the pre-development rate as required by the City of Biddeford.

Respectfully,





Connor A. Ritter, EIT
Walsh Engineering Associates, Inc.

Norman G. Chamberlain II, PE
Walsh Engineering Associates, Inc.

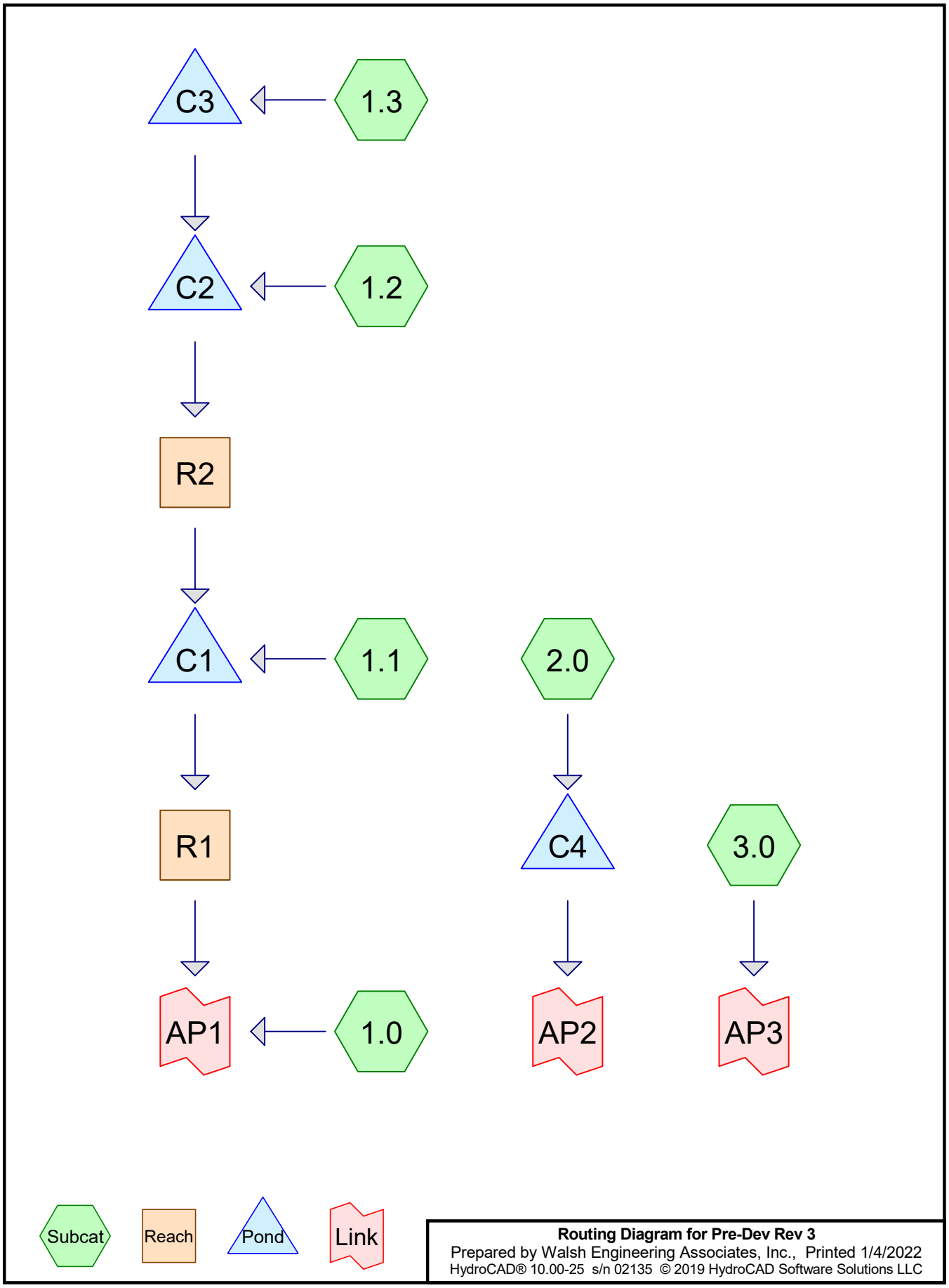
Supporting Data and Calculations

The following material presents calculations and copies of source material used during the analysis for this study.

- Appendix A: Pre-Development HydroCAD Report
- Appendix B: Post-Development HydroCAD Report
- Appendix C: High Intensity Soil Survey
  Web Soil Survey Map
- Appendix D: Inspection & Maintenance Plan
- Appendix E: Drainage Plans
  - D1.0 – Pre-Development Drainage Plan
  - D2.0 – Post-Development Drainage Plan

Appendix A

Pre-Development HydroCAD Report


C3
1.3
C2
1.2
R2
C1
1.1
2.0
R1
C4
3.0
AP1
1.0
AP2
AP3
Subcat
Reach
Pond
Link
Routing Diagram for Pre-Dev Rev 3
Prepared by Walsh Engineering Associates, Inc., Printed 1/4/2022
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
15,280	80	>75% Grass cover, Good, HSG D (1.1, 1.2, 1.3, 2.0)
15,620	89	Dirt roads, HSG D (1.0, 1.1, 2.0)
68,900	98	Paved parking, HSG D (1.1, 1.2, 1.3, 2.0)
1,173,050	77	Woods, Good, HSG D (1.0, 1.1, 1.2, 1.3, 2.0, 3.0)
1,272,850	**78**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=238,725 sf 0.00% Impervious Runoff Depth=1.28"
Flow Length=659' Tc=44.5 min CN=77 Runoff=3.7 cfs 25,539 cf

Subcatchment 1.1: Runoff Area=270,295 sf 0.99% Impervious Runoff Depth=1.35"
Flow Length=598' Tc=67.5 min CN=78 Runoff=3.5 cfs 30,343 cf

Subcatchment 1.2: Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=1.35"
Flow Length=396' Tc=11.4 min CN=78 Runoff=3.8 cfs 14,598 cf

Subcatchment 1.3: Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=1.48"
Flow Length=453' Tc=57.8 min CN=80 Runoff=4.3 cfs 33,424 cf

Subcatchment 2.0: Runoff Area=308,150 sf 6.92% Impervious Runoff Depth=1.41"
Flow Length=750' Tc=49.7 min CN=79 Runoff=5.0 cfs 36,266 cf

Subcatchment 3.0: Runoff Area=54,505 sf 0.00% Impervious Runoff Depth=1.28"
Flow Length=377' Tc=25.7 min CN=77 Runoff=1.1 cfs 5,831 cf

Reach R1: Avg. Flow Depth=0.19' Max Vel=0.36 fps Inflow=2.9 cfs 39,571 cf
n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=2.8 cfs 39,548 cf

Reach R2: Avg. Flow Depth=0.06' Max Vel=0.20 fps Inflow=0.4 cfs 9,256 cf
n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=0.4 cfs 9,228 cf

Pond C1: Peak Elev=34.18' Storage=1,791 cf Inflow=3.5 cfs 39,571 cf
18.0" Round Culvert n=0.013 L=26.0' S=0.0100 '/' Outflow=2.9 cfs 39,571 cf

Pond C2: Peak Elev=40.46' Storage=7,794 cf Inflow=3.8 cfs 14,598 cf
Outflow=0.4 cfs 9,256 cf

Pond C3: Peak Elev=42.68' Storage=10,399 cf Inflow=4.3 cfs 33,424 cf
Discarded=2.1 cfs 33,398 cf Primary=0.0 cfs 0 cf Outflow=2.1 cfs 33,398 cf

Pond C4: Peak Elev=26.01' Storage=6,883 cf Inflow=5.0 cfs 36,266 cf
Outflow=3.9 cfs 35,920 cf

Link AP1: Inflow=4.6 cfs 65,087 cf
Primary=4.6 cfs 65,087 cf

Link AP2: Inflow=3.9 cfs 35,920 cf
Primary=3.9 cfs 35,920 cf

Link AP3: Inflow=1.1 cfs 5,831 cf
Primary=1.1 cfs 5,831 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 146,000 cf Average Runoff Depth = 1.38"
94.59% Pervious = 1,203,950 sf 5.41% Impervious = 68,900 sf

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=238,725 sf 0.00% Impervious Runoff Depth=2.54"
Flow Length=659' Tc=44.5 min CN=77 Runoff=7.6 cfs 50,521 cf

Subcatchment 1.1: Runoff Area=270,295 sf 0.99% Impervious Runoff Depth=2.63"
Flow Length=598' Tc=67.5 min CN=78 Runoff=7.0 cfs 59,172 cf

Subcatchment 1.2: Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=2.63"
Flow Length=396' Tc=11.4 min CN=78 Runoff=7.6 cfs 28,467 cf

Subcatchment 1.3: Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=2.81"
Flow Length=453' Tc=57.8 min CN=80 Runoff=8.2 cfs 63,397 cf

Subcatchment 2.0: Runoff Area=308,150 sf 6.92% Impervious Runoff Depth=2.72"
Flow Length=750' Tc=49.7 min CN=79 Runoff=9.9 cfs 69,738 cf

Subcatchment 3.0: Runoff Area=54,505 sf 0.00% Impervious Runoff Depth=2.54"
Flow Length=377' Tc=25.7 min CN=77 Runoff=2.2 cfs 11,535 cf

Reach R1: Avg. Flow Depth=0.26' Max Vel=0.44 fps Inflow=5.5 cfs 83,984 cf
n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=5.4 cfs 83,961 cf

Reach R2: Avg. Flow Depth=0.12' Max Vel=0.34 fps Inflow=2.6 cfs 24,840 cf
n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=2.0 cfs 24,812 cf

Pond C1: Peak Elev=34.66' Storage=11,630 cf Inflow=8.4 cfs 83,984 cf
18.0" Round Culvert n=0.013 L=26.0' S=0.0100 '/' Outflow=5.5 cfs 83,984 cf

Pond C2: Peak Elev=40.93' Storage=11,993 cf Inflow=7.6 cfs 30,188 cf
Outflow=2.6 cfs 24,840 cf

Pond C3: Peak Elev=42.96' Storage=19,486 cf Inflow=8.2 cfs 63,397 cf
Discarded=3.9 cfs 61,648 cf Primary=0.4 cfs 1,721 cf Outflow=4.3 cfs 63,369 cf

Pond C4: Peak Elev=26.49' Storage=12,411 cf Inflow=9.9 cfs 69,738 cf
Outflow=7.5 cfs 69,392 cf

Link AP1: Inflow=9.4 cfs 134,482 cf
Primary=9.4 cfs 134,482 cf

Link AP2: Inflow=7.5 cfs 69,392 cf
Primary=7.5 cfs 69,392 cf

Link AP3: Inflow=2.2 cfs 11,535 cf
Primary=2.2 cfs 11,535 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 282,831 cf Average Runoff Depth = 2.67"
94.59% Pervious = 1,203,950 sf 5.41% Impervious = 68,900 sf

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=238,725 sf 0.00% Impervious Runoff Depth=3.65"
Flow Length=659' Tc=44.5 min CN=77 Runoff=10.9 cfs 72,698 cf

Subcatchment 1.1: Runoff Area=270,295 sf 0.99% Impervious Runoff Depth=3.76"
Flow Length=598' Tc=67.5 min CN=78 Runoff=10.0 cfs 84,605 cf

Subcatchment 1.2: Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=3.76"
Flow Length=396' Tc=11.4 min CN=78 Runoff=10.9 cfs 40,702 cf

Subcatchment 1.3: Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=3.96"
Flow Length=453' Tc=57.8 min CN=80 Runoff=11.6 cfs 89,526 cf

Subcatchment 2.0: Runoff Area=308,150 sf 6.92% Impervious Runoff Depth=3.86"
Flow Length=750' Tc=49.7 min CN=79 Runoff=14.0 cfs 99,090 cf

Subcatchment 3.0: Runoff Area=54,505 sf 0.00% Impervious Runoff Depth=3.65"
Flow Length=377' Tc=25.7 min CN=77 Runoff=3.2 cfs 16,598 cf

Reach R1: Avg. Flow Depth=0.29' Max Vel=0.47 fps Inflow=6.9 cfs 125,440 cf
n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=6.9 cfs 125,417 cf

Reach R2: Avg. Flow Depth=0.17' Max Vel=0.42 fps Inflow=4.6 cfs 40,864 cf
n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=3.9 cfs 40,835 cf

Pond C1: Peak Elev=35.07' Storage=25,686 cf Inflow=13.6 cfs 125,440 cf
18.0" Round Culvert n=0.013 L=26.0' S=0.0100 '/' Outflow=6.9 cfs 125,440 cf

Pond C2: Peak Elev=41.29' Storage=15,674 cf Inflow=10.9 cfs 46,214 cf
Outflow=4.6 cfs 40,864 cf

Pond C3: Peak Elev=43.15' Storage=26,762 cf Inflow=11.6 cfs 89,526 cf
Discarded=5.4 cfs 83,985 cf Primary=1.0 cfs 5,512 cf Outflow=6.5 cfs 89,497 cf

Pond C4: Peak Elev=26.96' Storage=18,232 cf Inflow=14.0 cfs 99,090 cf
Outflow=10.0 cfs 98,743 cf

Link AP1: Inflow=13.2 cfs 198,115 cf
Primary=13.2 cfs 198,115 cf

Link AP2: Inflow=10.0 cfs 98,743 cf
Primary=10.0 cfs 98,743 cf

Link AP3: Inflow=3.2 cfs 16,598 cf
Primary=3.2 cfs 16,598 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 403,219 cf Average Runoff Depth = 3.80"
94.59% Pervious = 1,203,950 sf 5.41% Impervious = 68,900 sf

Summary for Subcatchment 1.0:

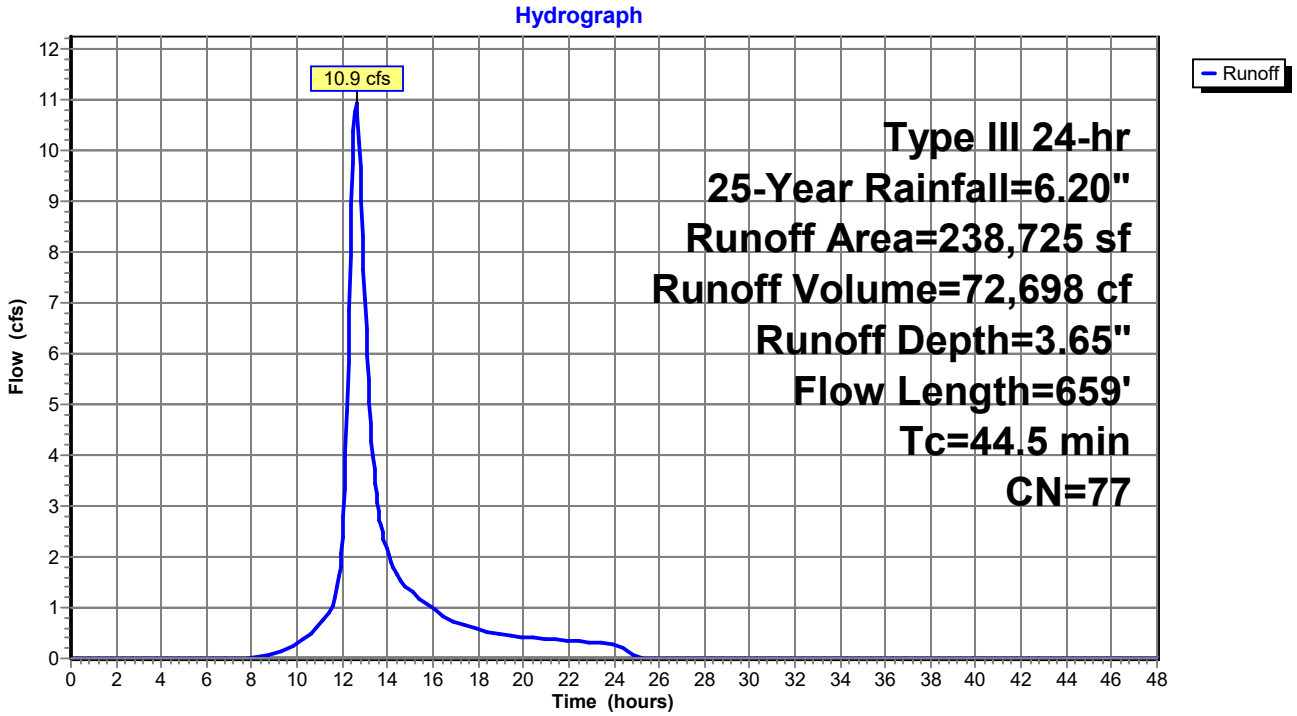
Runoff = 10.9 cfs @ 12.61 hrs, Volume= 72,698 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
235,620	77	Woods, Good, HSG D
3,105	89	Dirt roads, HSG D
238,725	77	Weighted Average
238,725		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		**Shallow Concentrated Flow, B-C** Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:



Summary for Subcatchment 1.1:

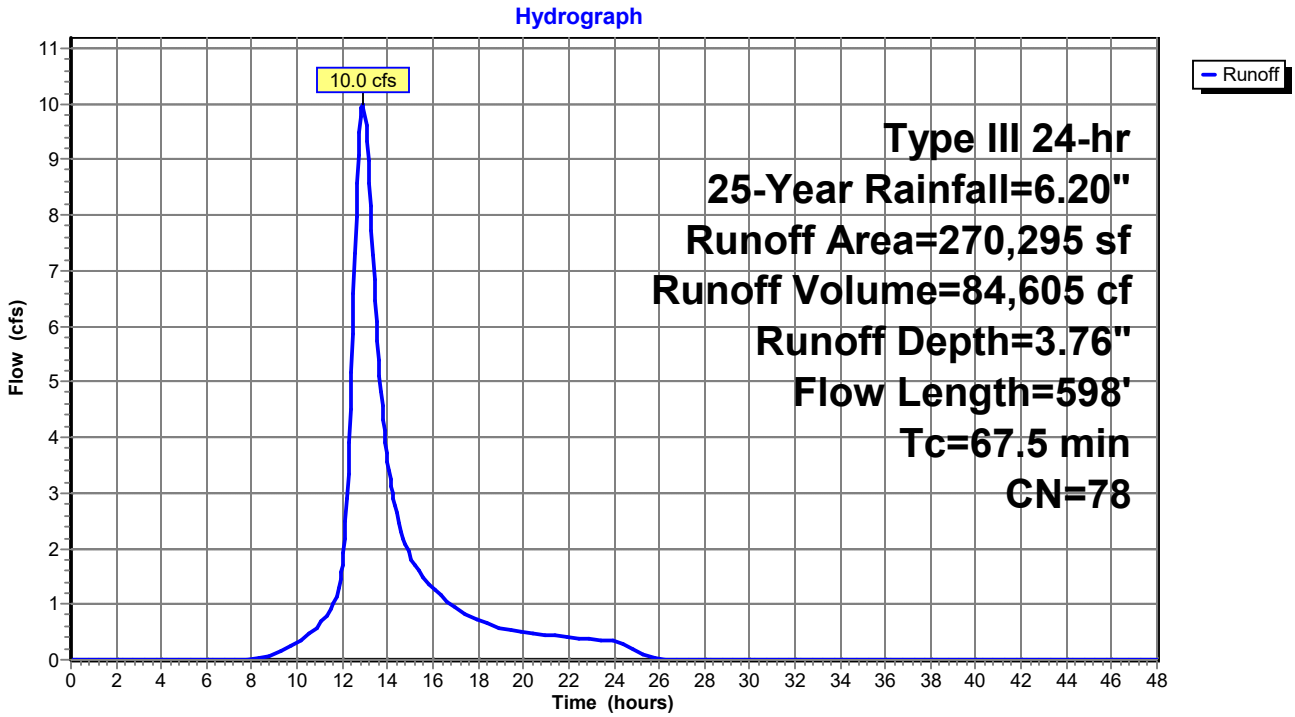
Runoff = 10.0 cfs @ 12.91 hrs, Volume= 84,605 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
255,765	77	Woods, Good, HSG D
1,275	80	>75% Grass cover, Good, HSG D
2,685	98	Paved parking, HSG D
10,570	89	Dirt roads, HSG D
270,295	78	Weighted Average
267,610		99.01% Pervious Area
2,685		0.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		**Sheet Flow, B-C** Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:



Summary for Subcatchment 1.2:

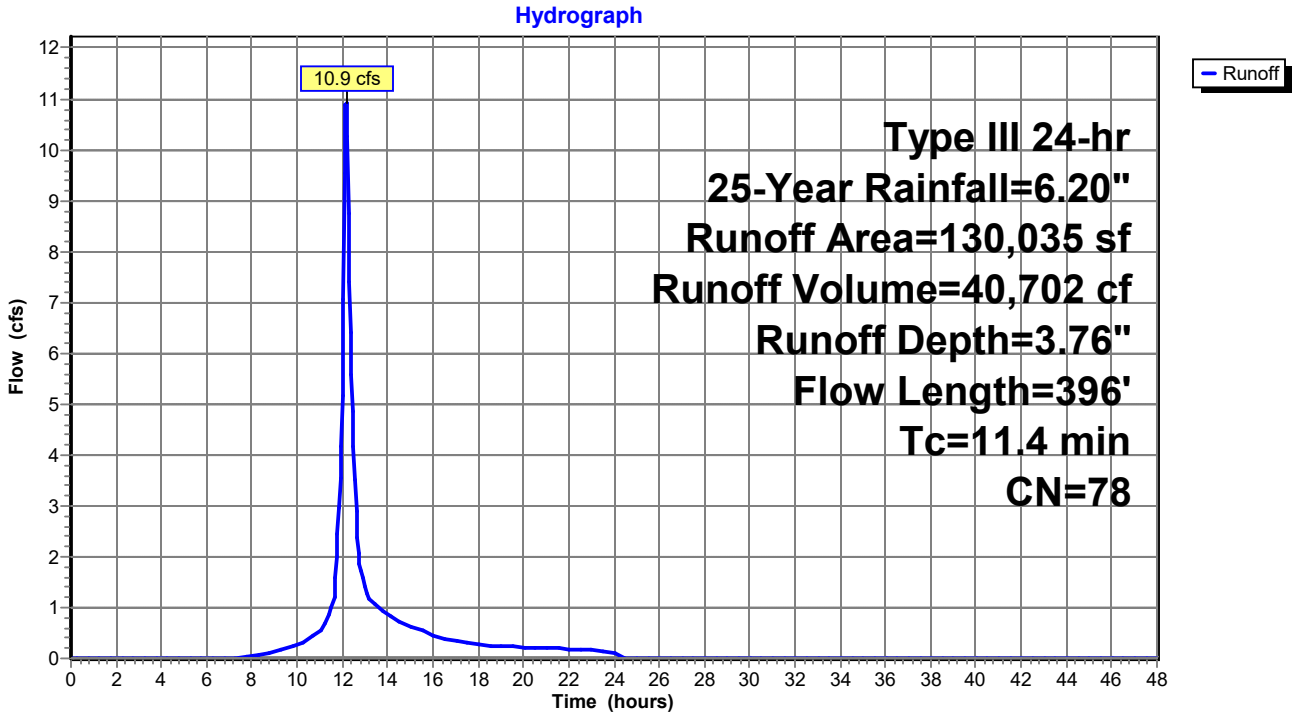
Runoff = 10.9 cfs @ 12.16 hrs, Volume= 40,702 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:



Summary for Subcatchment 1.3:

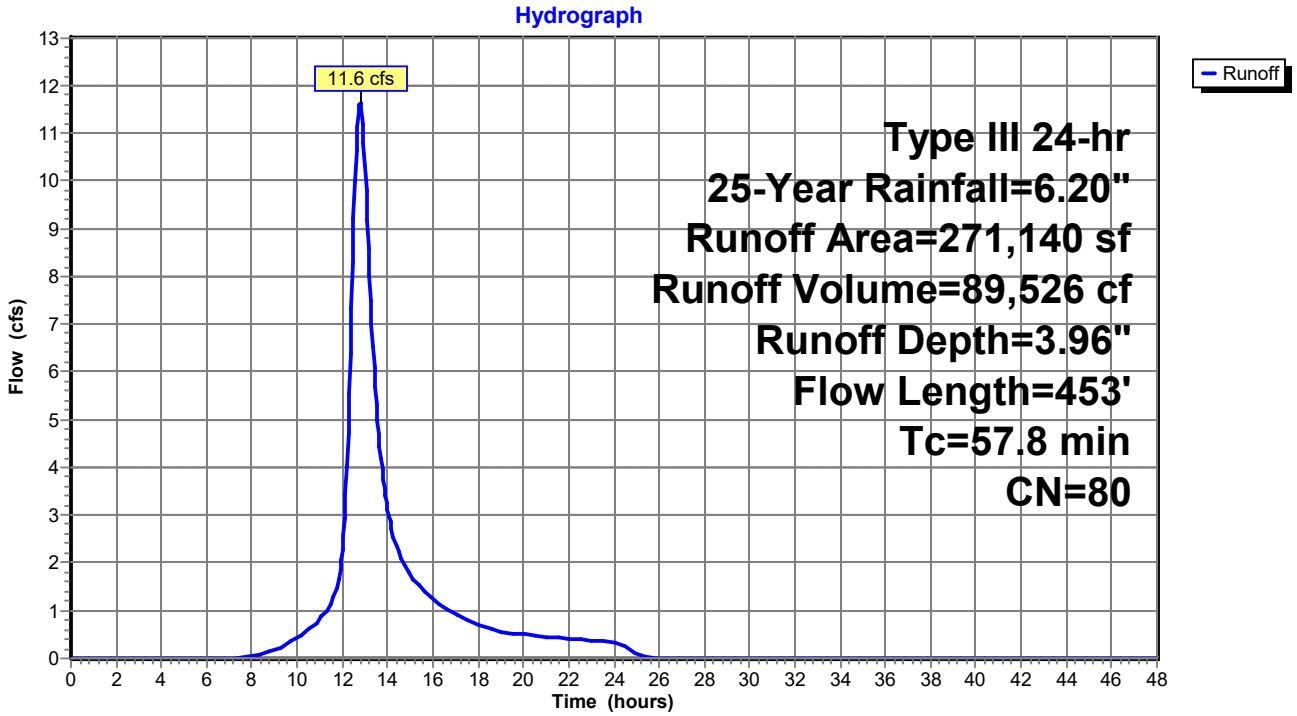
Runoff = 11.6 cfs @ 12.78 hrs, Volume= 89,526 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		**Shallow Concentrated Flow, B-C** Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:



Summary for Subcatchment 2.0:

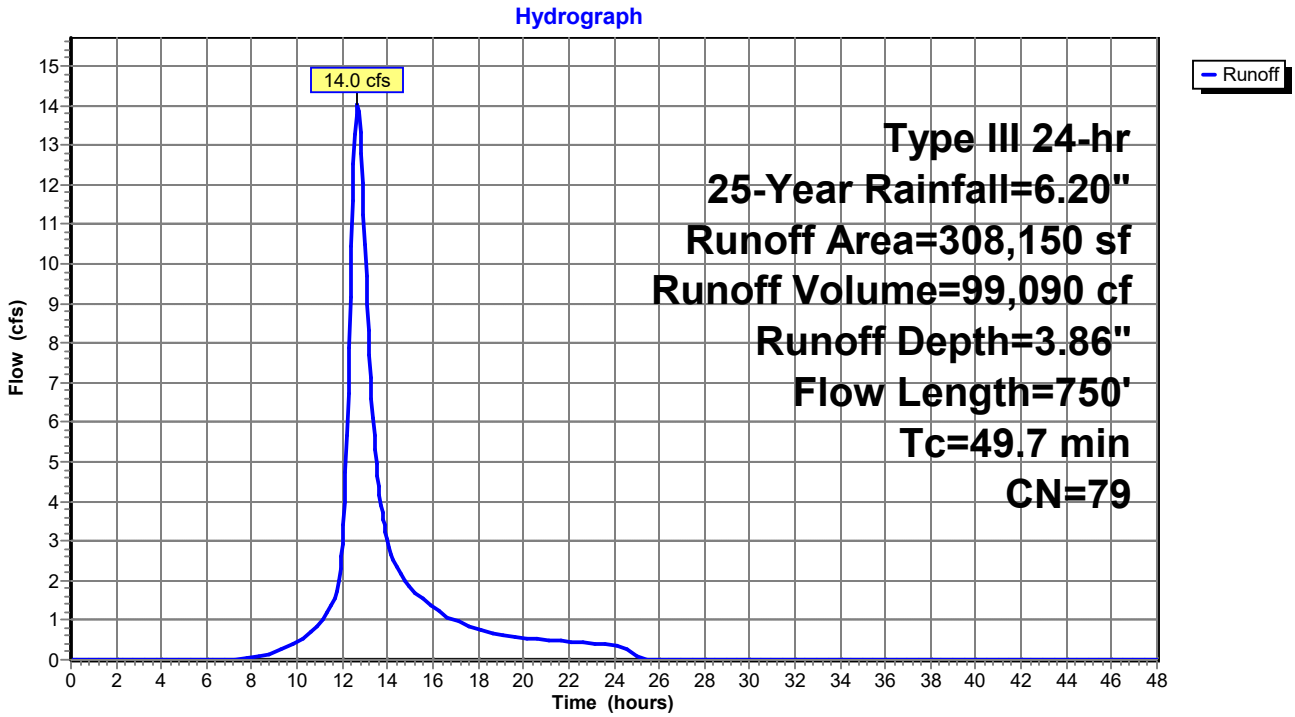
Runoff = 14.0 cfs @ 12.67 hrs, Volume= 99,090 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
275,925	77	Woods, Good, HSG D
8,960	80	>75% Grass cover, Good, HSG D
21,320	98	Paved parking, HSG D
1,945	89	Dirt roads, HSG D
308,150	79	Weighted Average
286,830		93.08% Pervious Area
21,320		6.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		**Shallow Concentrated Flow, B-C** Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:



Summary for Subcatchment 3.0:

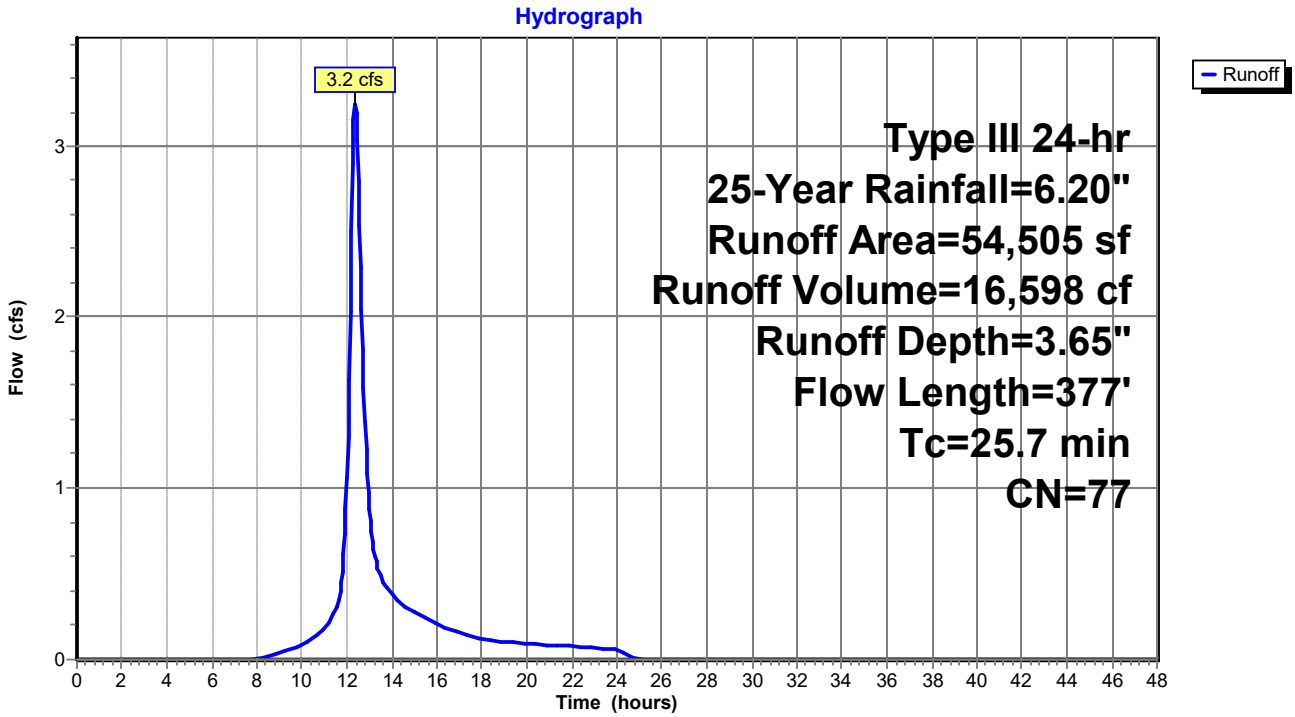
Runoff = 3.2 cfs @ 12.36 hrs, Volume= 16,598 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
54,505	77	Woods, Good, HSG D
54,505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	72	0.1600	0.10		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.30"
13.4	305	0.0230	0.38		**Shallow Concentrated Flow, B-C** Forest w/Heavy Litter Kv= 2.5 fps
25.7	377	Total			

Subcatchment 3.0:



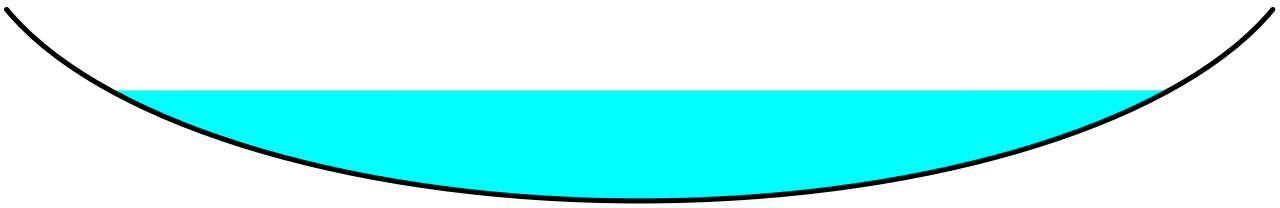
Summary for Reach R1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 2.24" for 25-Year event
Inflow = 6.9 cfs @ 13.84 hrs, Volume= 125,440 cf
Outflow = 6.9 cfs @ 14.19 hrs, Volume= 125,417 cf, Atten= 0%, Lag= 21.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.47 fps, Min. Travel Time= 11.6 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 34.7 min

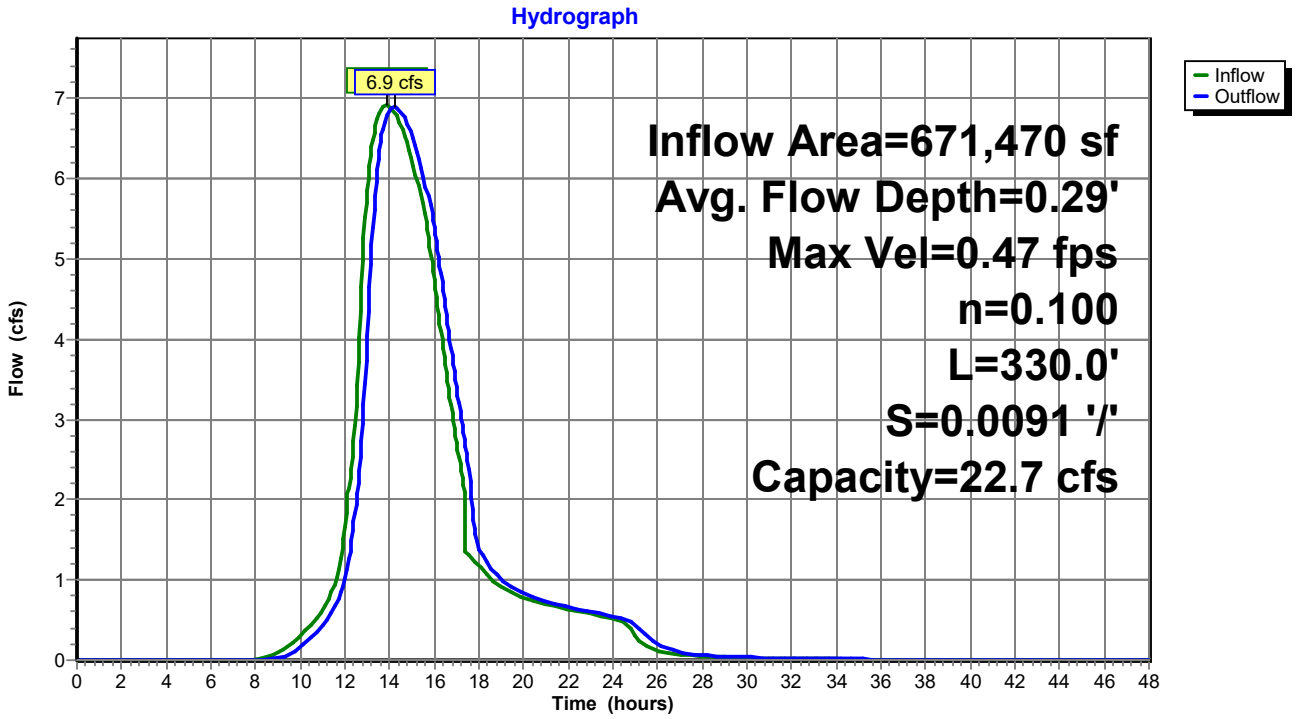
Peak Storage= 4,824 cf @ 14.00 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 330.0' Slope= 0.0091 '/'
Inlet Invert= 33.00', Outlet Invert= 30.00'



‡

Reach R1:



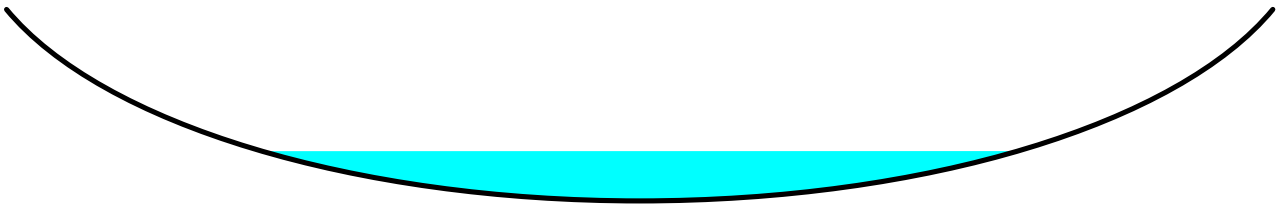
Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 1.22" for 25-Year event
Inflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf
Outflow = 3.9 cfs @ 13.09 hrs, Volume= 40,835 cf, Atten= 17%, Lag= 37.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.42 fps, Min. Travel Time= 19.1 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 61.7 min

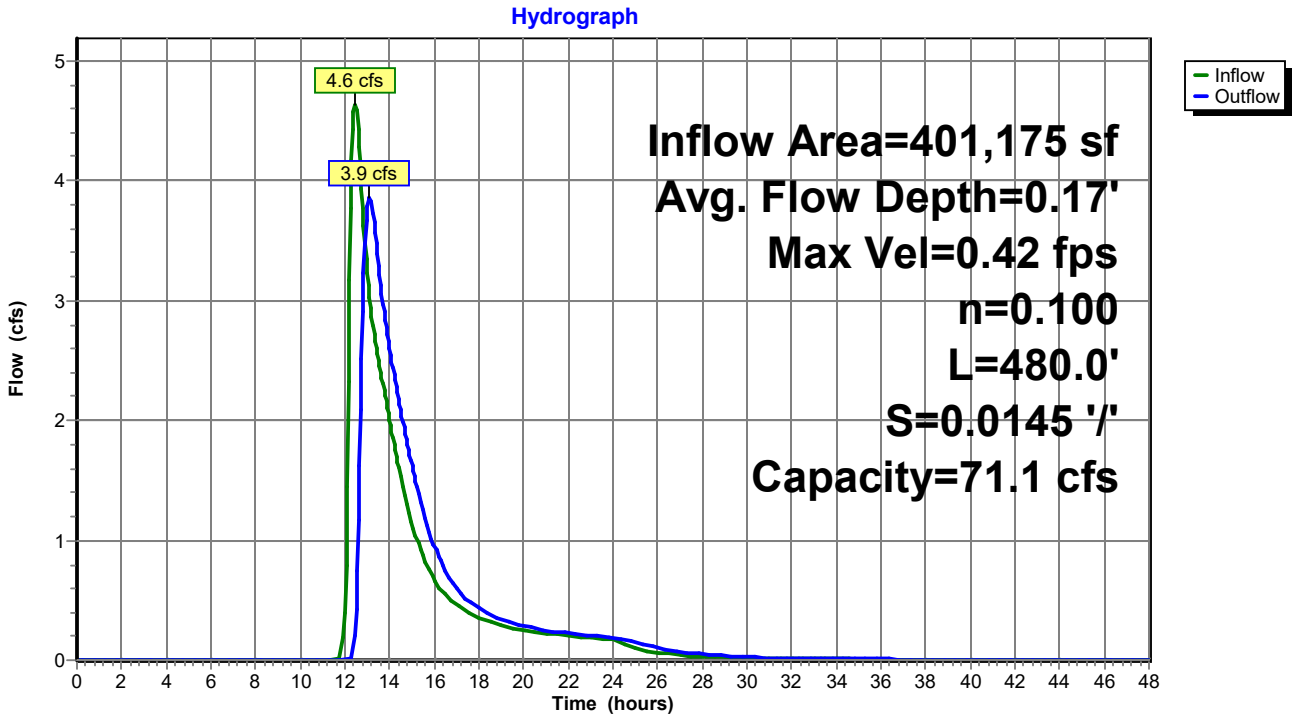
Peak Storage= 4,427 cf @ 12.77 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 480.0' Slope= 0.0145 '/'
Inlet Invert= 40.23', Outlet Invert= 33.26'



‡

Reach R2:



Summary for Pond C1:

Inflow Area = 671,470 sf, 7.09% Impervious, Inflow Depth > 2.24" for 25-Year event
Inflow = 13.6 cfs @ 12.97 hrs, Volume= 125,440 cf
Outflow = 6.9 cfs @ 13.84 hrs, Volume= 125,440 cf, Atten= 49%, Lag= 52.4 min
Primary = 6.9 cfs @ 13.84 hrs, Volume= 125,440 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 35.07' @ 13.84 hrs Surf.Area= 40,698 sf Storage= 25,686 cf
Flood Elev= 34.76' Surf.Area= 31,144 sf Storage= 14,457 cf

Plug-Flow detention time= 32.4 min calculated for 125,440 cf (100% of inflow)
Center-of-Mass det. time= 32.4 min (935.5 - 903.1)

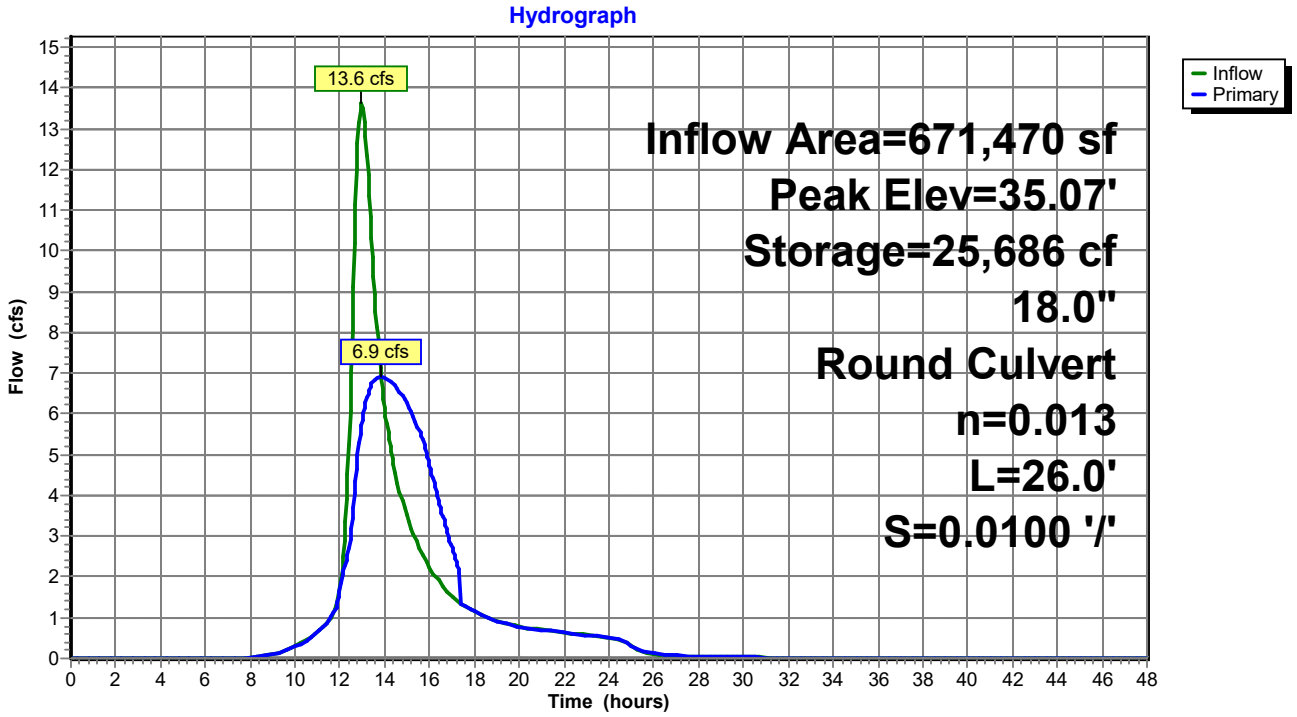
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	**STORAGE (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

Device	Routing	Invert	Outlet Devices
#1	Primary	33.26'	**18.0" Round Culvert** L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.26' / 33.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.9 cfs @ 13.84 hrs HW=35.07' (Free Discharge)
└─**1=Culvert** (Inlet Controls 6.9 cfs @ 3.92 fps)

Pond C1:


Hydrograph
13.6 cfs
6.9 cfs
Inflow Area=671,470 sf
Peak Elev=35.07'
Storage=25,686 cf
18.0"
Round Culvert
n=0.013
L=26.0'
S=0.0100 '/'
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 1.38" for 25-Year event
Inflow = 10.9 cfs @ 12.16 hrs, Volume= 46,214 cf
Outflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf, Atten= 58%, Lag= 18.5 min
Primary = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.29' @ 12.47 hrs Surf.Area= 10,856 sf Storage= 15,674 cf
Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 142.9 min calculated for 40,864 cf (88% of inflow)
Center-of-Mass det. time= 91.8 min (914.6 - 822.7)

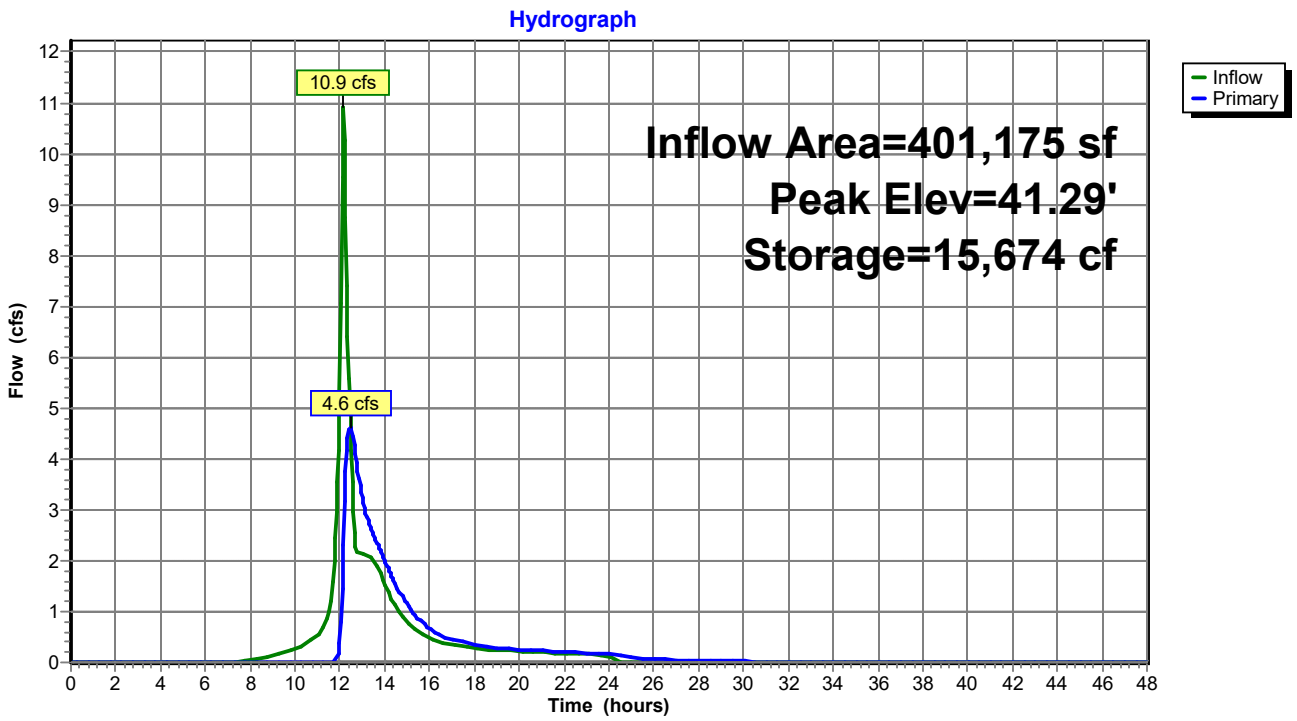
Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	**STORAGE (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	**12.0" Round Culvert** L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.6 cfs @ 12.47 hrs HW=41.28' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.2 cfs @ 3.16 fps)
└─**2=Culvert** (Inlet Controls 2.4 cfs @ 3.07 fps)

Pond C2:


Hydrograph
10.9 cfs
4.6 cfs
Inflow Area=401,175 sf
Peak Elev=41.29'
Storage=15,674 cf
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
7
8
9
10
11
12
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond C3:

Inflow Area =	271,140 sf,	13.50% Impervious,	Inflow Depth =	3.96"	for 25-Year event
Inflow =	11.6 cfs @	12.78 hrs,	Volume=	89,526 cf	
Outflow =	6.5 cfs @	13.36 hrs,	Volume=	89,497 cf,	Atten= 44%, Lag= 34.8 min
Discarded =	5.4 cfs @	13.36 hrs,	Volume=	83,985 cf	
Primary =	1.0 cfs @	13.36 hrs,	Volume=	5,512 cf	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 43.15' @ 13.36 hrs Surf.Area= 38,612 sf Storage= 26,762 cf
Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 83.1 min calculated for 89,497 cf (100% of inflow)
Center-of-Mass det. time= 82.8 min (943.7 - 860.8)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	**STORAGE (Prismatic)** Listed below (Recalc)

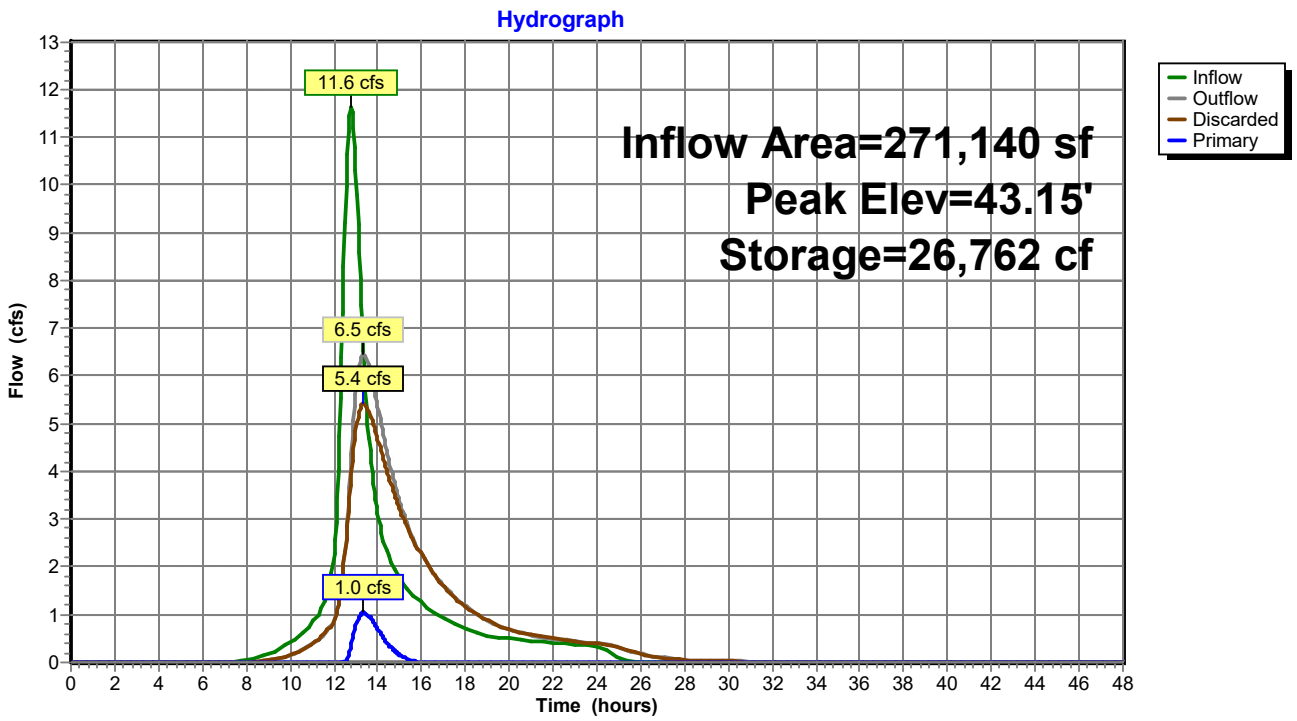
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	**24.0" Round Culvert** L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	**24.0" Round Culvert** L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Discarded OutFlow Max=5.4 cfs @ 13.36 hrs HW=43.15' (Free Discharge)
└─**2=Culvert** (Inlet Controls 5.4 cfs @ 2.89 fps)

Primary OutFlow Max=1.0 cfs @ 13.36 hrs HW=43.15' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.0 cfs @ 1.85 fps)

Pond C3:


Hydrograph
Inflow Area=271,140 sf
Peak Elev=43.15'
Storage=26,762 cf
11.6 cfs
6.5 cfs
5.4 cfs
1.0 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond C4:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth = 3.86" for 25-Year event
Inflow = 14.0 cfs @ 12.67 hrs, Volume= 99,090 cf
Outflow = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf, Atten= 29%, Lag= 21.9 min
Primary = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 26.96' @ 13.03 hrs Surf.Area= 12,920 sf Storage= 18,232 cf
Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 39.4 min calculated for 98,743 cf (100% of inflow)
Center-of-Mass det. time= 37.0 min (892.8 - 855.8)

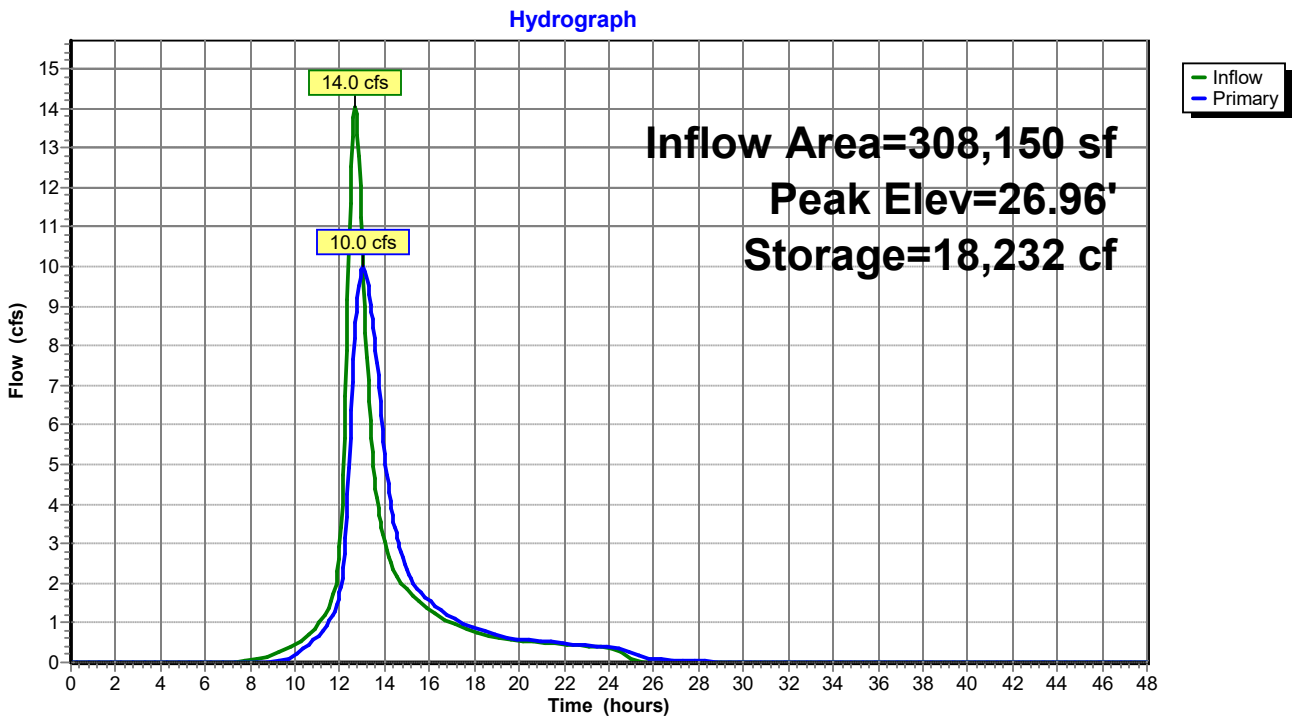
Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	**STORAGE (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	**15.0" Round Culvert** L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	**15.0" Round Culvert** L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=10.0 cfs @ 13.03 hrs HW=26.96' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.8 cfs @ 3.94 fps)
└─**2=Culvert** (Barrel Controls 5.1 cfs @ 4.19 fps)

Pond C4:

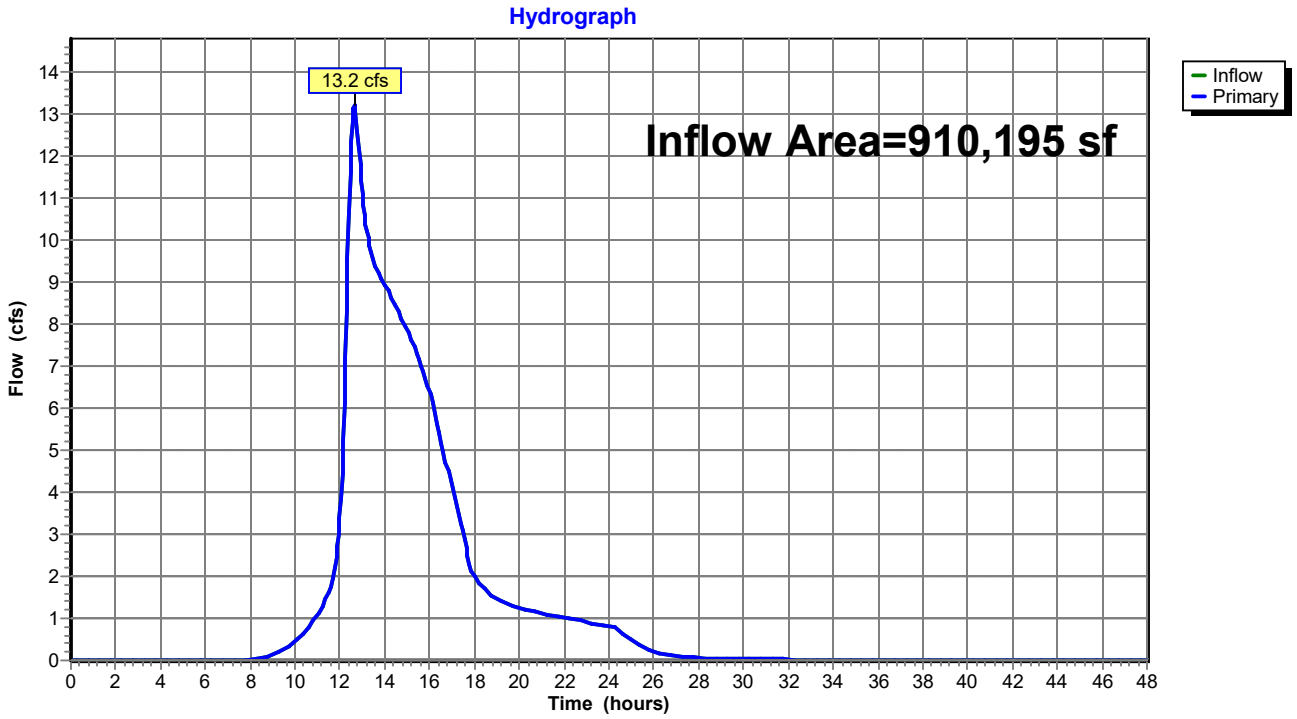

Hydrograph
14.0 cfs
10.0 cfs
Inflow Area=308,150 sf
Peak Elev=26.96'
Storage=18,232 cf
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Link AP1:

Inflow Area = 910,195 sf, 5.23% Impervious, Inflow Depth > 2.61" for 25-Year event
Inflow = 13.2 cfs @ 12.65 hrs, Volume= 198,115 cf
Primary = 13.2 cfs @ 12.65 hrs, Volume= 198,115 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

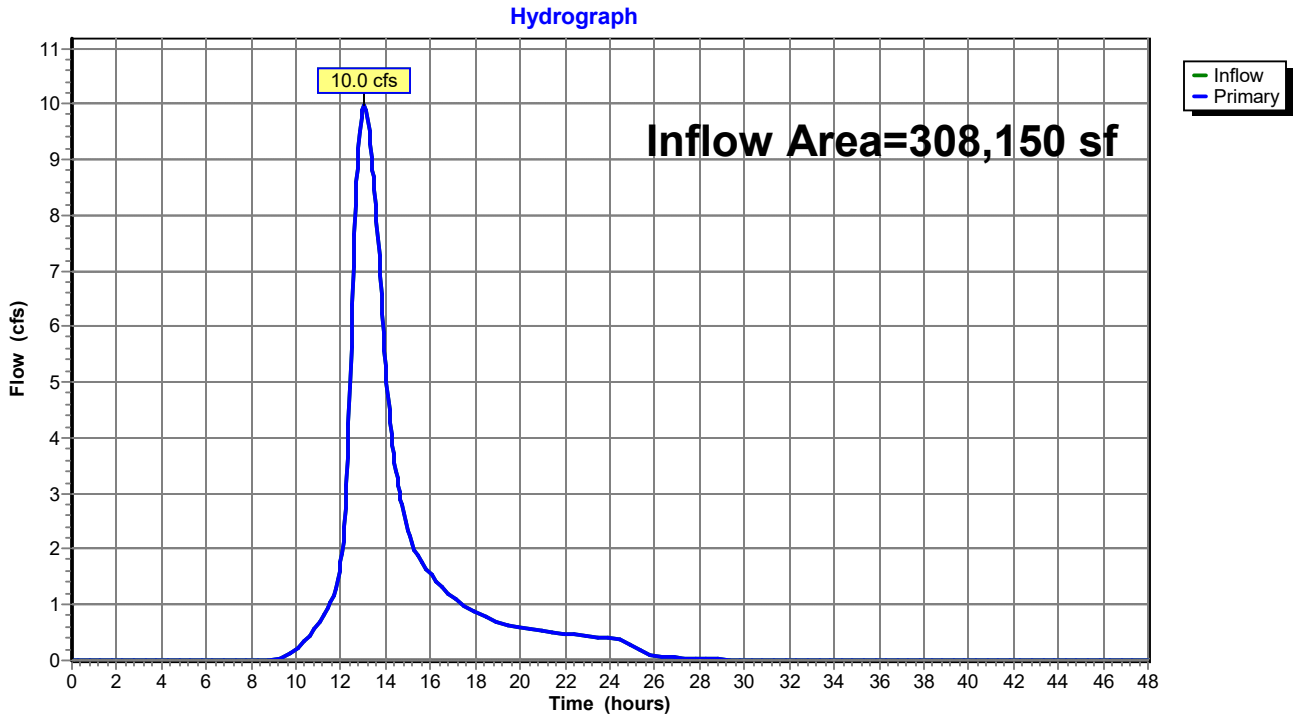


Summary for Link AP2:

Inflow Area = 308,150 sf, 6.92% Impervious, Inflow Depth = 3.85" for 25-Year event
Inflow = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf
Primary = 10.0 cfs @ 13.03 hrs, Volume= 98,743 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:

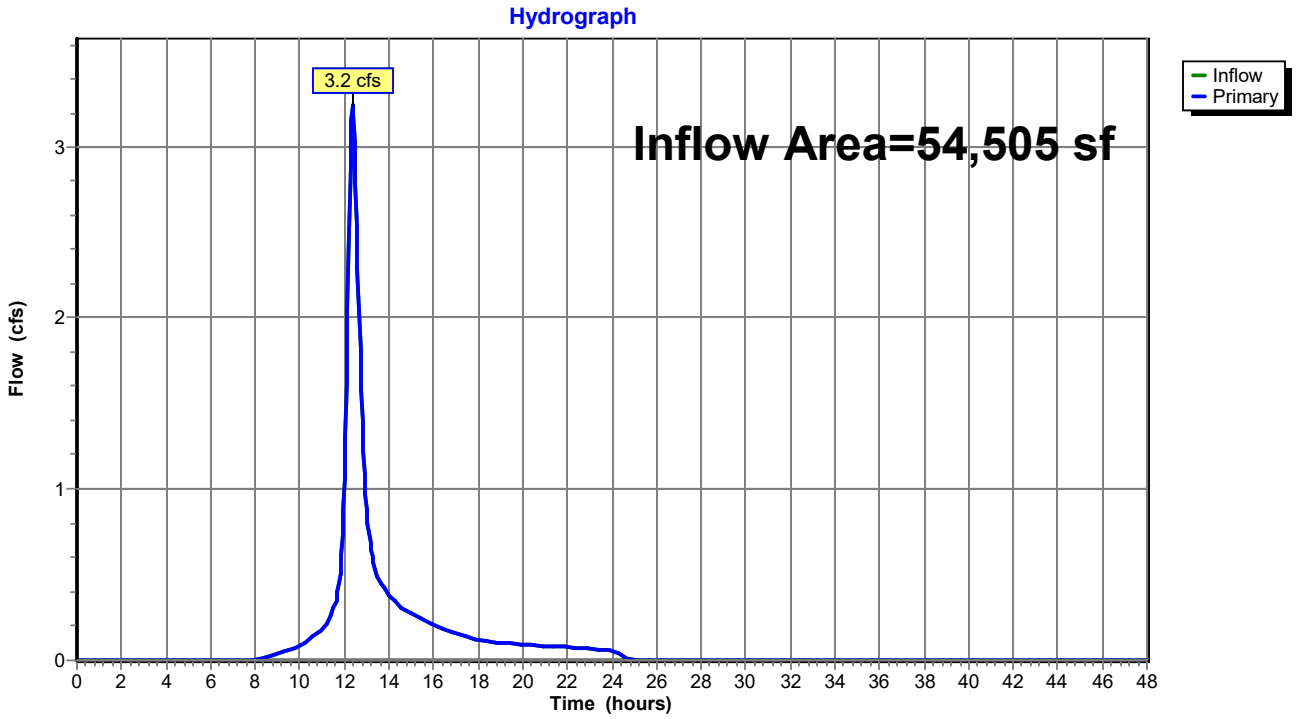


Summary for Link AP3:

Inflow Area = 54,505 sf, 0.00% Impervious, Inflow Depth = 3.65" for 25-Year event
Inflow = 3.2 cfs @ 12.36 hrs, Volume= 16,598 cf
Primary = 3.2 cfs @ 12.36 hrs, Volume= 16,598 cf, Atten= 0%, Lag= 0.0 min

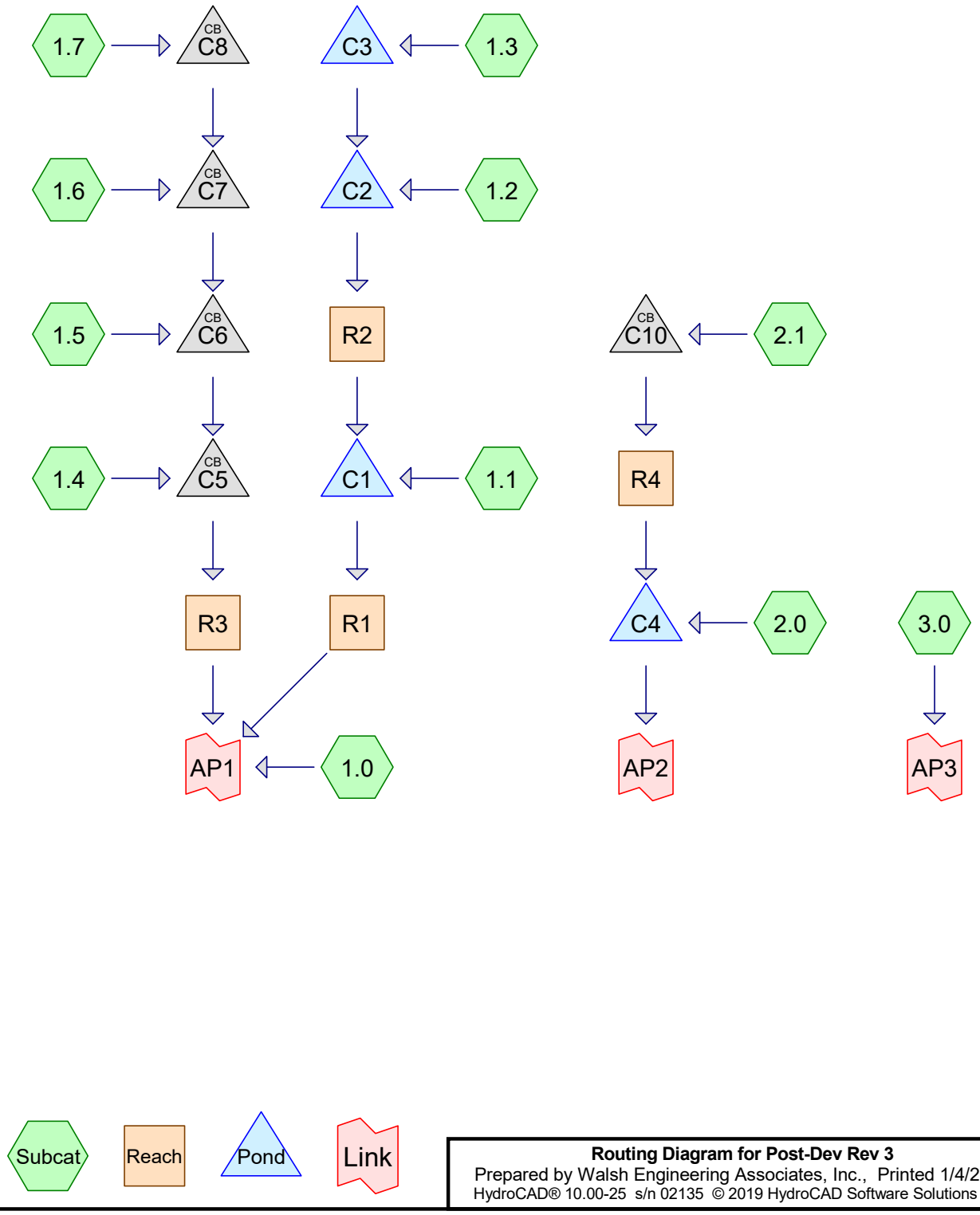
Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:



Appendix B

Post Development HydroCAD Report



Routing Diagram for Post-Dev Rev 3
Prepared by Walsh Engineering Associates, Inc., Printed 1/4/2022
HydroCAD® 10.00-25 s/n 02135 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
149,100	80	>75% Grass cover, Good, HSG D (1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.0, 2.1, 3.0)
9,435	89	Dirt roads, HSG D (1.0, 1.1)
106,510	98	Paved parking, HSG D (1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 2.0, 2.1, 3.0)
1,007,805	77	Woods, Good, HSG D (1.0, 1.1, 1.2, 1.3, 1.7, 2.0, 2.1, 3.0)
1,272,850	**79**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=218,025 sf 4.39% Impervious Runoff Depth=1.35"
Flow Length=659' Tc=44.5 min CN=78 Runoff=3.6 cfs 24,475 cf

Subcatchment 1.1: Runoff Area=265,505 sf 5.76% Impervious Runoff Depth=1.41"
Flow Length=598' Tc=67.5 min CN=79 Runoff=3.6 cfs 31,247 cf

Subcatchment 1.2: Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=1.35"
Flow Length=396' Tc=11.4 min CN=78 Runoff=3.8 cfs 14,598 cf

Subcatchment 1.3: Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=1.48"
Flow Length=453' Tc=57.8 min CN=80 Runoff=4.3 cfs 33,424 cf

Subcatchment 1.4: Runoff Area=9,720 sf 16.82% Impervious Runoff Depth=1.69"
Tc=6.0 min CN=83 Runoff=0.4 cfs 1,370 cf

Subcatchment 1.5: Runoff Area=10,070 sf 33.52% Impervious Runoff Depth=1.92"
Tc=6.0 min CN=86 Runoff=0.5 cfs 1,613 cf

Subcatchment 1.6: Runoff Area=19,190 sf 18.26% Impervious Runoff Depth=1.69"
Tc=6.0 min CN=83 Runoff=0.9 cfs 2,705 cf

Subcatchment 1.7: Runoff Area=8,210 sf 9.38% Impervious Runoff Depth=1.48"
Tc=6.0 min CN=80 Runoff=0.3 cfs 1,012 cf

Subcatchment 2.0: Runoff Area=292,465 sf 8.66% Impervious Runoff Depth=1.41"
Flow Length=750' Tc=49.7 min CN=79 Runoff=4.8 cfs 34,420 cf

Subcatchment 2.1: Runoff Area=12,570 sf 15.04% Impervious Runoff Depth=1.62"
Tc=6.0 min CN=82 Runoff=0.5 cfs 1,696 cf

Subcatchment 3.0: Runoff Area=35,920 sf 0.67% Impervious Runoff Depth=1.41"
Flow Length=225' Tc=23.2 min CN=79 Runoff=0.8 cfs 4,227 cf

Reach R1: Avg. Flow Depth=0.17' Max Vel=0.33 fps Inflow=2.2 cfs 40,450 cf
n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=2.1 cfs 40,423 cf

Reach R2: Avg. Flow Depth=0.06' Max Vel=0.20 fps Inflow=0.4 cfs 9,256 cf
n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=0.4 cfs 9,228 cf

Reach R3: Avg. Flow Depth=0.45' Max Vel=0.66 fps Inflow=2.1 cfs 6,701 cf
n=0.100 L=302.0' S=0.0099 '/' Capacity=21.8 cfs Outflow=1.6 cfs 6,701 cf

Reach R4: Avg. Flow Depth=0.05' Max Vel=1.56 fps Inflow=0.5 cfs 1,696 cf
n=0.018 L=860.0' S=0.0313 '/' Capacity=582.6 cfs Outflow=0.4 cfs 1,696 cf

Pond C1: Peak Elev=34.52' Storage=8,009 cf Inflow=3.6 cfs 40,475 cf
30.0" Round Culvert w/ 6.0" inside fill n=0.013 L=25.0' S=0.0200 '/' Outflow=2.2 cfs 40,450 cf

Pond C10: Peak Elev=47.39' Inflow=0.5 cfs 1,696 cf
15.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=0.5 cfs 1,696 cf

Pond C2: Peak Elev=40.46' Storage=7,794 cf Inflow=3.8 cfs 14,598 cf
Outflow=0.4 cfs 9,256 cf

Pond C3: Peak Elev=42.68' Storage=10,399 cf Inflow=4.3 cfs 33,424 cf
Discarded=2.1 cfs 33,398 cf Primary=0.0 cfs 0 cf Outflow=2.1 cfs 33,398 cf

Pond C4: Peak Elev=26.01' Storage=6,839 cf Inflow=5.0 cfs 36,116 cf
Outflow=3.8 cfs 35,770 cf

Pond C5: Peak Elev=35.36' Inflow=2.1 cfs 6,701 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=2.1 cfs 6,701 cf

Pond C6: Peak Elev=37.67' Inflow=1.7 cfs 5,330 cf
18.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=1.7 cfs 5,330 cf

Pond C7: Peak Elev=41.59' Inflow=1.2 cfs 3,717 cf
15.0" Round Culvert n=0.013 L=25.0' S=0.0200 '/' Outflow=1.2 cfs 3,717 cf

Pond C8: Peak Elev=46.79' Inflow=0.3 cfs 1,012 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0405 '/' Outflow=0.3 cfs 1,012 cf

Link AP1: Inflow=4.5 cfs 71,599 cf
Primary=4.5 cfs 71,599 cf

Link AP2: Inflow=3.8 cfs 35,770 cf
Primary=3.8 cfs 35,770 cf

Link AP3: Inflow=0.8 cfs 4,227 cf
Primary=0.8 cfs 4,227 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 150,787 cf Average Runoff Depth = 1.42"
91.63% Pervious = 1,166,340 sf 8.37% Impervious = 106,510 sf

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=218,025 sf 4.39% Impervious Runoff Depth=2.63"
Flow Length=659' Tc=44.5 min CN=78 Runoff=7.2 cfs 47,730 cf

Subcatchment 1.1: Runoff Area=265,505 sf 5.76% Impervious Runoff Depth=2.72"
Flow Length=598' Tc=67.5 min CN=79 Runoff=7.1 cfs 60,087 cf

Subcatchment 1.2: Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=2.63"
Flow Length=396' Tc=11.4 min CN=78 Runoff=7.6 cfs 28,467 cf

Subcatchment 1.3: Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=2.81"
Flow Length=453' Tc=57.8 min CN=80 Runoff=8.2 cfs 63,397 cf

Subcatchment 1.4: Runoff Area=9,720 sf 16.82% Impervious Runoff Depth=3.08"
Tc=6.0 min CN=83 Runoff=0.8 cfs 2,498 cf

Subcatchment 1.5: Runoff Area=10,070 sf 33.52% Impervious Runoff Depth=3.37"
Tc=6.0 min CN=86 Runoff=0.9 cfs 2,831 cf

Subcatchment 1.6: Runoff Area=19,190 sf 18.26% Impervious Runoff Depth=3.08"
Tc=6.0 min CN=83 Runoff=1.6 cfs 4,931 cf

Subcatchment 1.7: Runoff Area=8,210 sf 9.38% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=80 Runoff=0.6 cfs 1,920 cf

Subcatchment 2.0: Runoff Area=292,465 sf 8.66% Impervious Runoff Depth=2.72"
Flow Length=750' Tc=49.7 min CN=79 Runoff=9.4 cfs 66,189 cf

Subcatchment 2.1: Runoff Area=12,570 sf 15.04% Impervious Runoff Depth=2.99"
Tc=6.0 min CN=82 Runoff=1.0 cfs 3,132 cf

Subcatchment 3.0: Runoff Area=35,920 sf 0.67% Impervious Runoff Depth=2.72"
Flow Length=225' Tc=23.2 min CN=79 Runoff=1.7 cfs 8,129 cf

Reach R1: Avg. Flow Depth=0.25' Max Vel=0.43 fps Inflow=5.1 cfs 84,873 cf
n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=5.1 cfs 84,846 cf

Reach R2: Avg. Flow Depth=0.12' Max Vel=0.34 fps Inflow=2.6 cfs 24,840 cf
n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=2.0 cfs 24,812 cf

Reach R3: Avg. Flow Depth=0.61' Max Vel=0.81 fps Inflow=3.8 cfs 12,180 cf
n=0.100 L=302.0' S=0.0099 '/' Capacity=21.8 cfs Outflow=3.1 cfs 12,180 cf

Reach R4: Avg. Flow Depth=0.07' Max Vel=1.91 fps Inflow=1.0 cfs 3,132 cf
n=0.018 L=860.0' S=0.0313 '/' Capacity=582.6 cfs Outflow=0.8 cfs 3,132 cf

Pond C1: Peak Elev=34.91' Storage=19,523 cf Inflow=8.5 cfs 84,899 cf
30.0" Round Culvert w/ 6.0" inside fill n=0.013 L=25.0' S=0.0200 '/' Outflow=5.1 cfs 84,873 cf

Pond C10: Peak Elev=47.54' Inflow=1.0 cfs 3,132 cf
15.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=1.0 cfs 3,132 cf

Pond C2: Peak Elev=40.93' Storage=11,993 cf Inflow=7.6 cfs 30,188 cf
Outflow=2.6 cfs 24,840 cf

Pond C3: Peak Elev=42.96' Storage=19,486 cf Inflow=8.2 cfs 63,397 cf
Discarded=3.9 cfs 61,648 cf Primary=0.4 cfs 1,721 cf Outflow=4.3 cfs 63,369 cf

Pond C4: Peak Elev=26.48' Storage=12,260 cf Inflow=9.7 cfs 69,321 cf
Outflow=7.4 cfs 68,974 cf

Pond C5: Peak Elev=35.68' Inflow=3.8 cfs 12,180 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=3.8 cfs 12,180 cf

Pond C6: Peak Elev=37.94' Inflow=3.0 cfs 9,682 cf
18.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=3.0 cfs 9,682 cf

Pond C7: Peak Elev=41.84' Inflow=2.2 cfs 6,851 cf
15.0" Round Culvert n=0.013 L=25.0' S=0.0200 '/' Outflow=2.2 cfs 6,851 cf

Pond C8: Peak Elev=46.91' Inflow=0.6 cfs 1,920 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0405 '/' Outflow=0.6 cfs 1,920 cf

Link AP1: Inflow=9.1 cfs 144,756 cf
Primary=9.1 cfs 144,756 cf

Link AP2: Inflow=7.4 cfs 68,974 cf
Primary=7.4 cfs 68,974 cf

Link AP3: Inflow=1.7 cfs 8,129 cf
Primary=1.7 cfs 8,129 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 289,311 cf Average Runoff Depth = 2.73"
91.63% Pervious = 1,166,340 sf 8.37% Impervious = 106,510 sf

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1.0: Runoff Area=218,025 sf 4.39% Impervious Runoff Depth=3.76"
Flow Length=659' Tc=44.5 min CN=78 Runoff=10.3 cfs 68,244 cf

Subcatchment 1.1: Runoff Area=265,505 sf 5.76% Impervious Runoff Depth=3.86"
Flow Length=598' Tc=67.5 min CN=79 Runoff=10.1 cfs 85,377 cf

Subcatchment 1.2: Runoff Area=130,035 sf 6.37% Impervious Runoff Depth=3.76"
Flow Length=396' Tc=11.4 min CN=78 Runoff=10.9 cfs 40,702 cf

Subcatchment 1.3: Runoff Area=271,140 sf 13.50% Impervious Runoff Depth=3.96"
Flow Length=453' Tc=57.8 min CN=80 Runoff=11.6 cfs 89,526 cf

Subcatchment 1.4: Runoff Area=9,720 sf 16.82% Impervious Runoff Depth=4.28"
Tc=6.0 min CN=83 Runoff=1.1 cfs 3,465 cf

Subcatchment 1.5: Runoff Area=10,070 sf 33.52% Impervious Runoff Depth=4.60"
Tc=6.0 min CN=86 Runoff=1.2 cfs 3,860 cf

Subcatchment 1.6: Runoff Area=19,190 sf 18.26% Impervious Runoff Depth=4.28"
Tc=6.0 min CN=83 Runoff=2.1 cfs 6,840 cf

Subcatchment 1.7: Runoff Area=8,210 sf 9.38% Impervious Runoff Depth=3.96"
Tc=6.0 min CN=80 Runoff=0.9 cfs 2,711 cf

Subcatchment 2.0: Runoff Area=292,465 sf 8.66% Impervious Runoff Depth=3.86"
Flow Length=750' Tc=49.7 min CN=79 Runoff=13.3 cfs 94,046 cf

Subcatchment 2.1: Runoff Area=12,570 sf 15.04% Impervious Runoff Depth=4.17"
Tc=6.0 min CN=82 Runoff=1.4 cfs 4,370 cf

Subcatchment 3.0: Runoff Area=35,920 sf 0.67% Impervious Runoff Depth=3.86"
Flow Length=225' Tc=23.2 min CN=79 Runoff=2.4 cfs 11,551 cf

Reach R1: Avg. Flow Depth=0.30' Max Vel=0.49 fps Inflow=7.8 cfs 126,185 cf
n=0.100 L=330.0' S=0.0091 '/' Capacity=22.7 cfs Outflow=7.8 cfs 126,158 cf

Reach R2: Avg. Flow Depth=0.17' Max Vel=0.42 fps Inflow=4.6 cfs 40,864 cf
n=0.100 L=480.0' S=0.0145 '/' Capacity=71.1 cfs Outflow=3.9 cfs 40,835 cf

Reach R3: Avg. Flow Depth=0.72' Max Vel=0.90 fps Inflow=5.3 cfs 16,876 cf
n=0.100 L=302.0' S=0.0099 '/' Capacity=21.8 cfs Outflow=4.4 cfs 16,876 cf

Reach R4: Avg. Flow Depth=0.08' Max Vel=2.13 fps Inflow=1.4 cfs 4,370 cf
n=0.018 L=860.0' S=0.0313 '/' Capacity=582.6 cfs Outflow=1.1 cfs 4,370 cf

Pond C1: Peak Elev=35.20' Storage=31,004 cf Inflow=13.7 cfs 126,212 cf
30.0" Round Culvert w/ 6.0" inside fill n=0.013 L=25.0' S=0.0200 '/' Outflow=7.8 cfs 126,185 cf

Pond C10: Peak Elev=47.64' Inflow=1.4 cfs 4,370 cf
15.0" Round Culvert n=0.013 L=40.0' S=0.0100 '/' Outflow=1.4 cfs 4,370 cf

Pond C2: Peak Elev=41.29' Storage=15,674 cf Inflow=10.9 cfs 46,214 cf
Outflow=4.6 cfs 40,864 cf

Pond C3: Peak Elev=43.15' Storage=26,762 cf Inflow=11.6 cfs 89,526 cf
Discarded=5.4 cfs 83,985 cf Primary=1.0 cfs 5,512 cf Outflow=6.5 cfs 89,497 cf

Pond C4: Peak Elev=26.94' Storage=17,960 cf Inflow=13.7 cfs 98,416 cf
Outflow=9.9 cfs 98,069 cf

Pond C5: Peak Elev=35.95' Inflow=5.3 cfs 16,876 cf
18.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=5.3 cfs 16,876 cf

Pond C6: Peak Elev=38.15' Inflow=4.2 cfs 13,411 cf
18.0" Round Culvert n=0.013 L=30.0' S=0.0333 '/' Outflow=4.2 cfs 13,411 cf

Pond C7: Peak Elev=42.04' Inflow=3.0 cfs 9,551 cf
15.0" Round Culvert n=0.013 L=25.0' S=0.0200 '/' Outflow=3.0 cfs 9,551 cf

Pond C8: Peak Elev=46.99' Inflow=0.9 cfs 2,711 cf
15.0" Round Culvert n=0.013 L=37.0' S=0.0405 '/' Outflow=0.9 cfs 2,711 cf

Link AP1: Inflow=13.1 cfs 211,278 cf
Primary=13.1 cfs 211,278 cf

Link AP2: Inflow=9.9 cfs 98,069 cf
Primary=9.9 cfs 98,069 cf

Link AP3: Inflow=2.4 cfs 11,551 cf
Primary=2.4 cfs 11,551 cf

Total Runoff Area = 1,272,850 sf Runoff Volume = 410,690 cf Average Runoff Depth = 3.87"
91.63% Pervious = 1,166,340 sf 8.37% Impervious = 106,510 sf

Summary for Subcatchment 1.0:

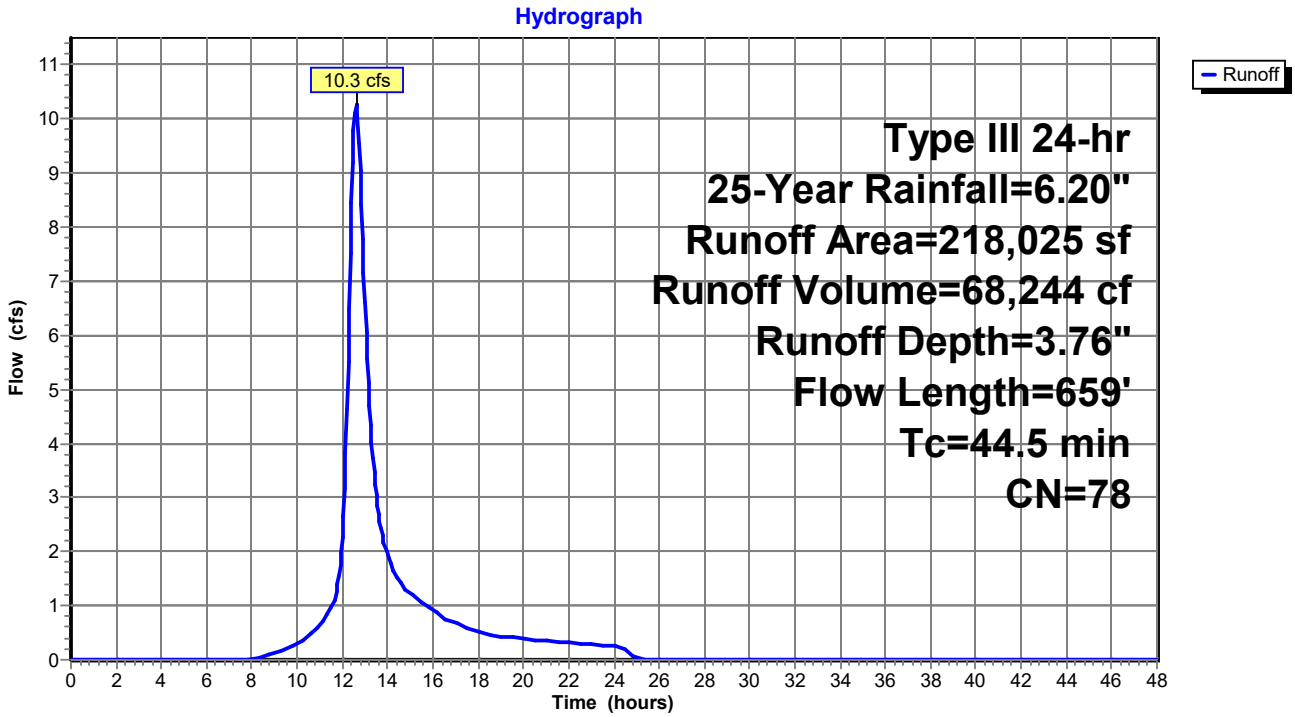
Runoff = 10.3 cfs @ 12.61 hrs, Volume= 68,244 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
184,685	77	Woods, Good, HSG D
20,670	80	>75% Grass cover, Good, HSG D
9,565	98	Paved parking, HSG D
3,105	89	Dirt roads, HSG D
218,025	78	Weighted Average
208,460		95.61% Pervious Area
9,565		4.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.0	100	0.0433	0.06		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.30"
2.8	194	0.2150	1.16		**Shallow Concentrated Flow, B-C** Forest w/Heavy Litter Kv= 2.5 fps
14.7	365	0.0274	0.41		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
44.5	659	Total			

Subcatchment 1.0:



Summary for Subcatchment 1.1:

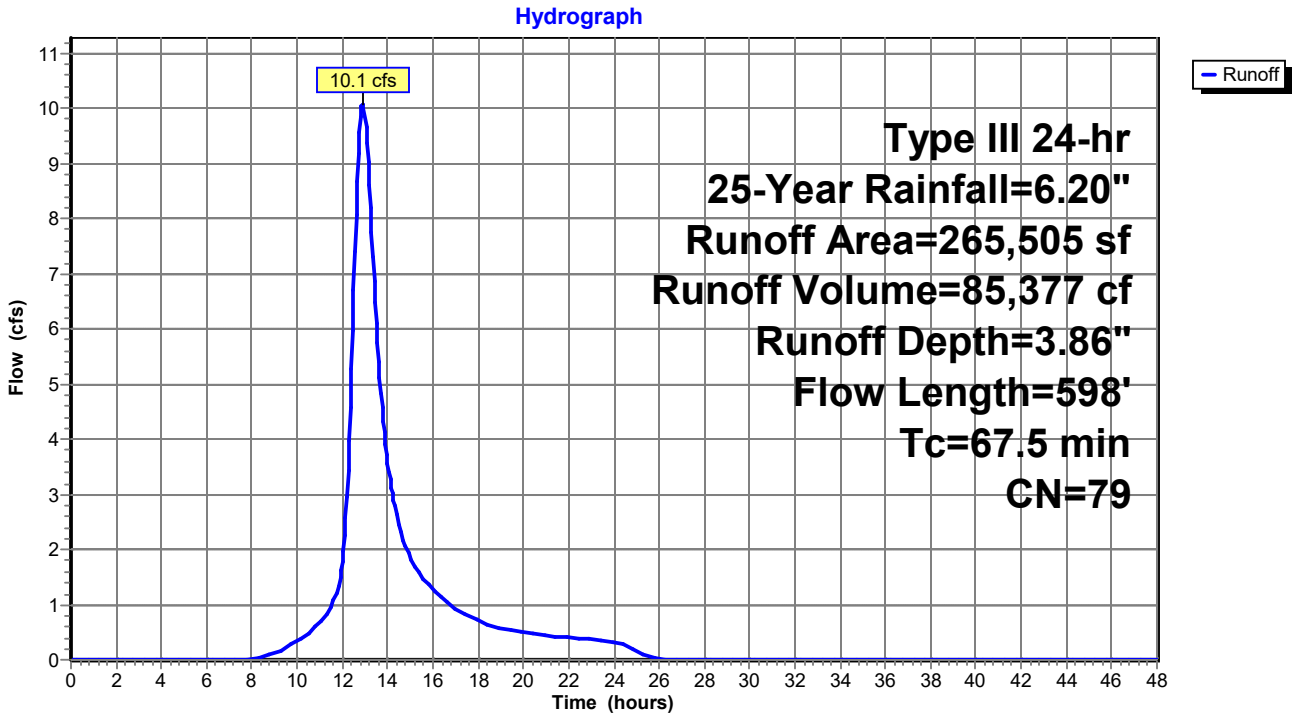
Runoff = 10.1 cfs @ 12.90 hrs, Volume= 85,377 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
202,720	77	Woods, Good, HSG D
41,160	80	>75% Grass cover, Good, HSG D
15,295	98	Paved parking, HSG D
6,330	89	Dirt roads, HSG D
265,505	79	Weighted Average
250,210		94.24% Pervious Area
15,295		5.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	40	0.3500	0.45		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.30"
25.4	60	0.0182	0.04		**Sheet Flow, B-C** Woods: Dense underbrush n= 0.800 P2= 3.30"
40.6	498	0.0067	0.20		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
67.5	598	Total			

Subcatchment 1.1:



Summary for Subcatchment 1.2:

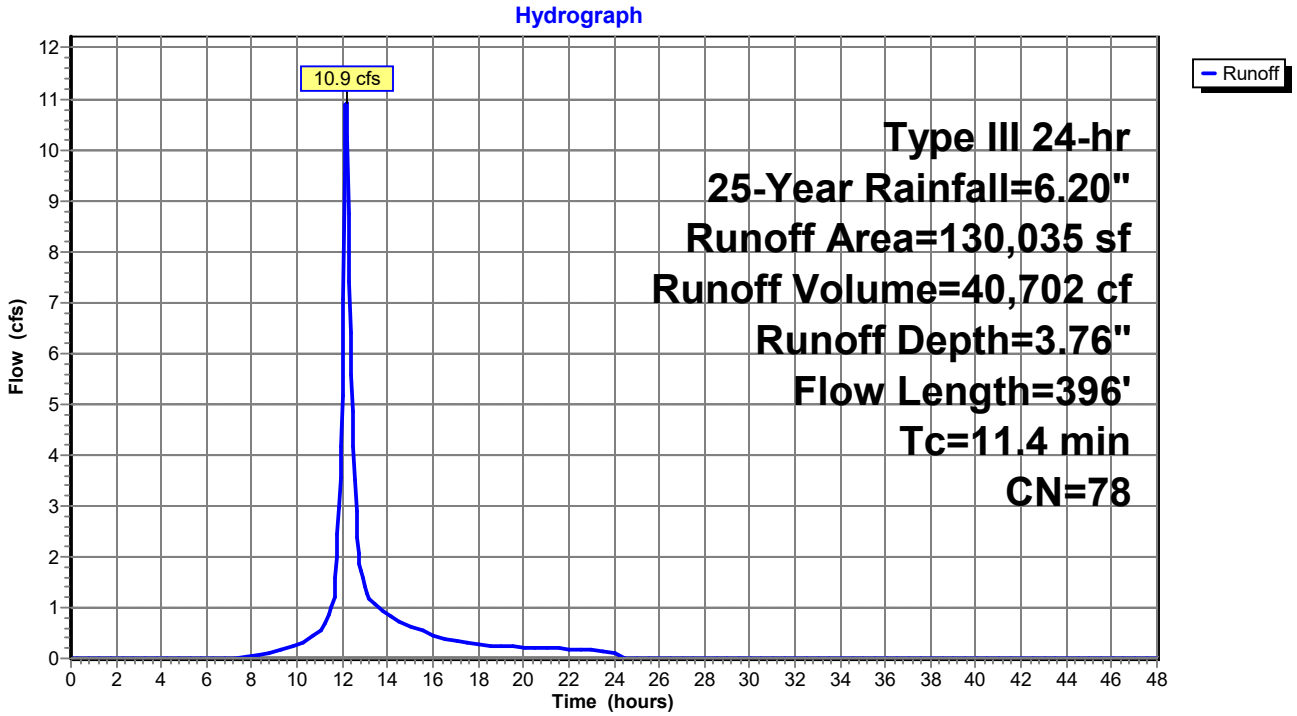
Runoff = 10.9 cfs @ 12.16 hrs, Volume= 40,702 cf, Depth= 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
116,790	77	Woods, Good, HSG D
4,965	80	>75% Grass cover, Good, HSG D
8,280	98	Paved parking, HSG D
130,035	78	Weighted Average
121,755		93.63% Pervious Area
8,280		6.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	86	0.0930	0.31		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.30"
6.8	310	0.0935	0.76		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
11.4	396	Total			

Subcatchment 1.2:



Summary for Subcatchment 1.3:

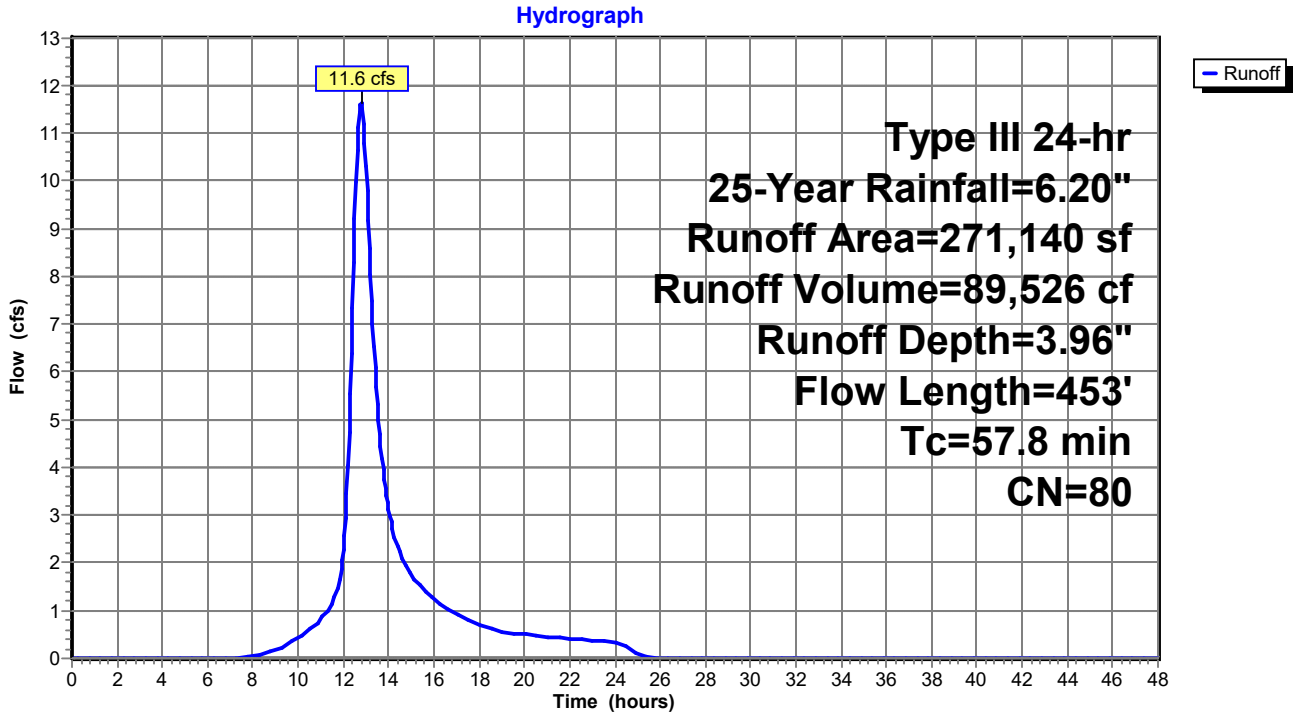
Runoff = 11.6 cfs @ 12.78 hrs, Volume= 89,526 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
234,445	77	Woods, Good, HSG D
80	80	>75% Grass cover, Good, HSG D
36,615	98	Paved parking, HSG D
271,140	80	Weighted Average
234,525		86.50% Pervious Area
36,615		13.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
43.3	100	0.0133	0.04		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.30"
14.5	353	0.0264	0.41		**Shallow Concentrated Flow, B-C** Forest w/Heavy Litter Kv= 2.5 fps
57.8	453	Total			

Subcatchment 1.3:



Summary for Subcatchment 1.4:

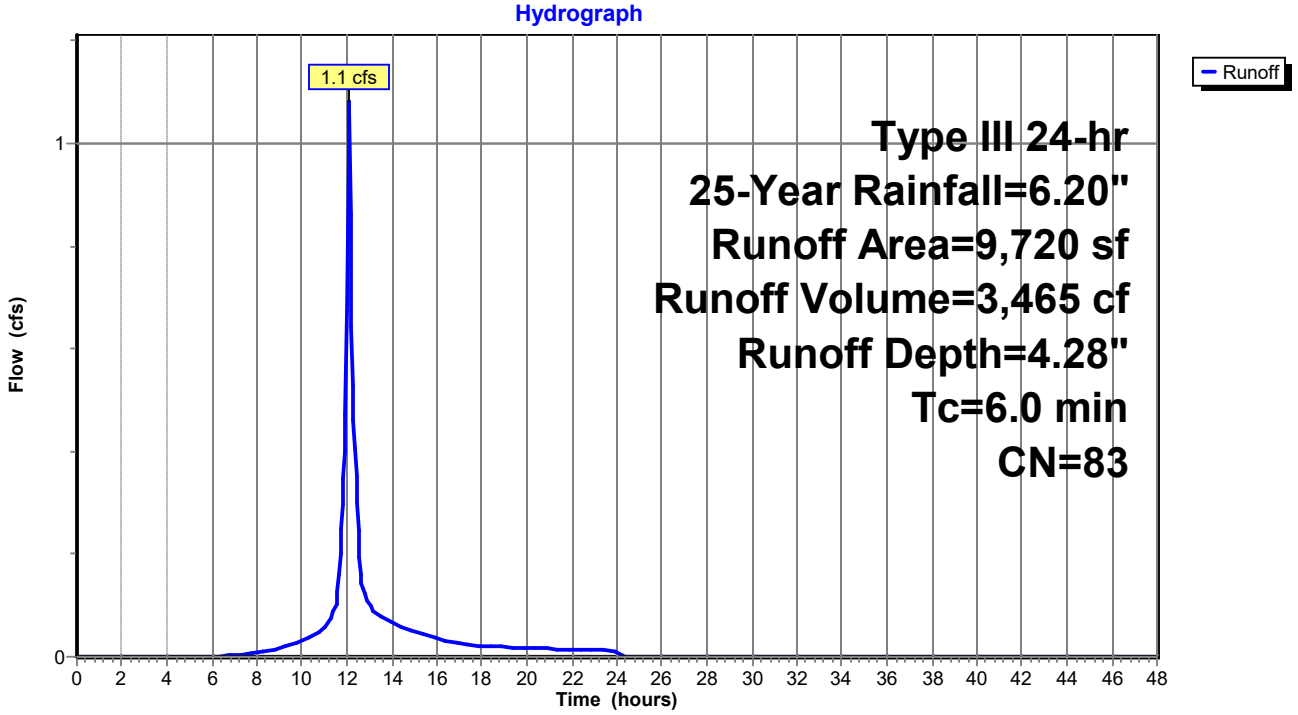
Runoff = 1.1 cfs @ 12.09 hrs, Volume= 3,465 cf, Depth= 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
8,085	80	>75% Grass cover, Good, HSG D
1,635	98	Paved parking, HSG D
9,720	83	Weighted Average
8,085		83.18% Pervious Area
1,635		16.82% Impervious Area

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

Subcatchment 1.4:



Summary for Subcatchment 1.5:

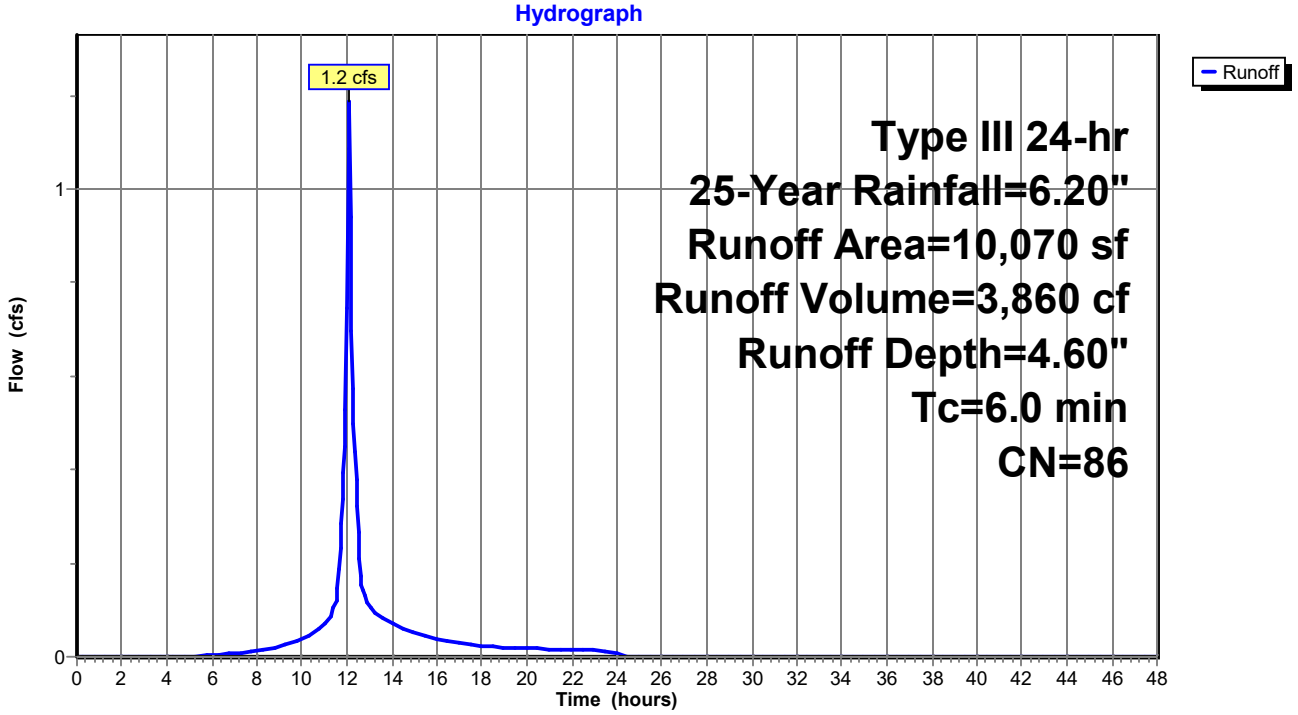
Runoff = 1.2 cfs @ 12.09 hrs, Volume= 3,860 cf, Depth= 4.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
6,695	80	>75% Grass cover, Good, HSG D
3,375	98	Paved parking, HSG D
10,070	86	Weighted Average
6,695		66.48% Pervious Area
3,375		33.52% Impervious Area

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

Subcatchment 1.5:



Summary for Subcatchment 1.6:

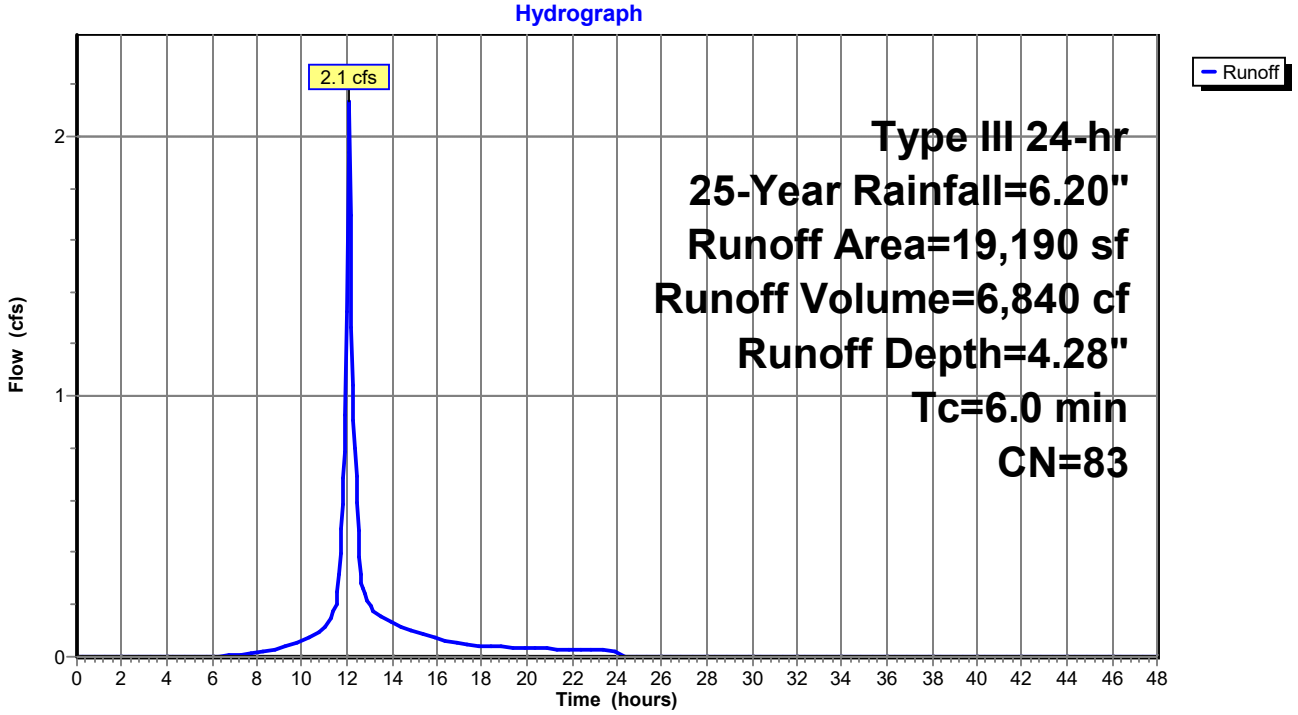
Runoff = 2.1 cfs @ 12.09 hrs, Volume= 6,840 cf, Depth= 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
15,685	80	>75% Grass cover, Good, HSG D
3,505	98	Paved parking, HSG D
19,190	83	Weighted Average
15,685		81.74% Pervious Area
3,505		18.26% Impervious Area

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

Subcatchment 1.6:



Summary for Subcatchment 1.7:

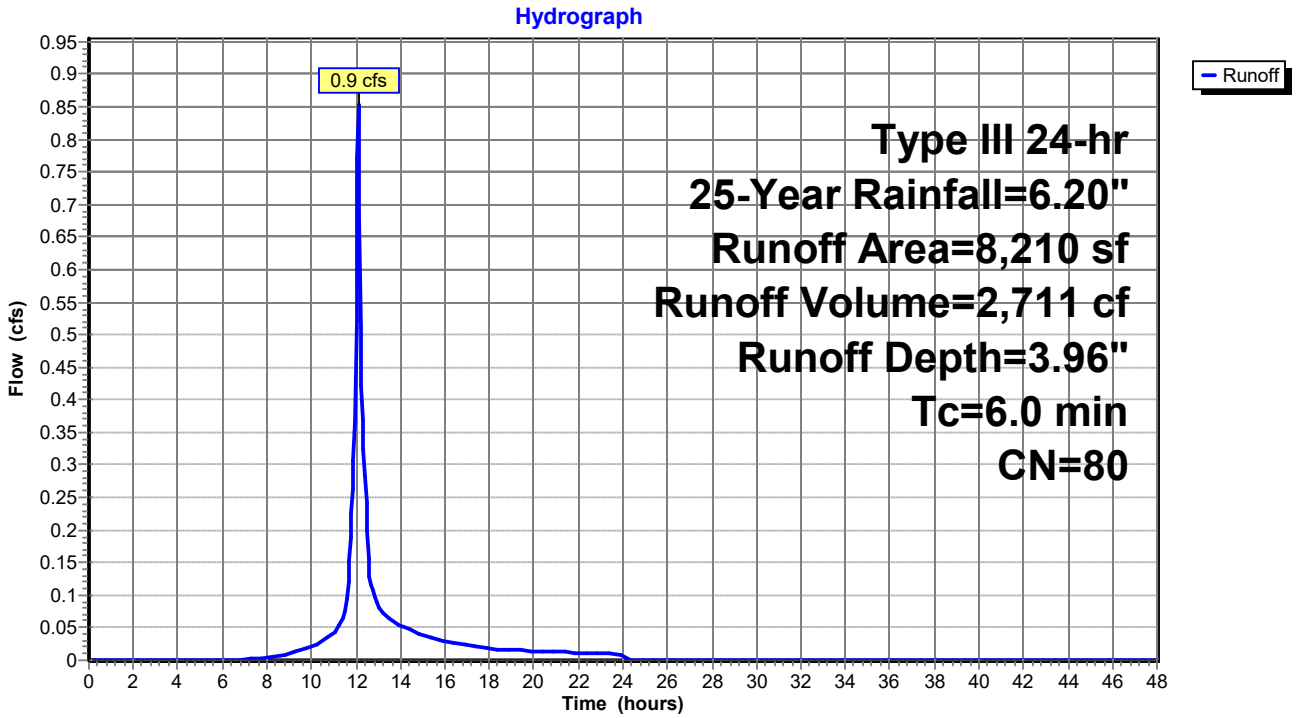
Runoff = 0.9 cfs @ 12.09 hrs, Volume= 2,711 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
3,915	77	Woods, Good, HSG D
3,525	80	>75% Grass cover, Good, HSG D
770	98	Paved parking, HSG D
8,210	80	Weighted Average
7,440		90.62% Pervious Area
770		9.38% Impervious Area

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

Subcatchment 1.7:



Summary for Subcatchment 2.0:

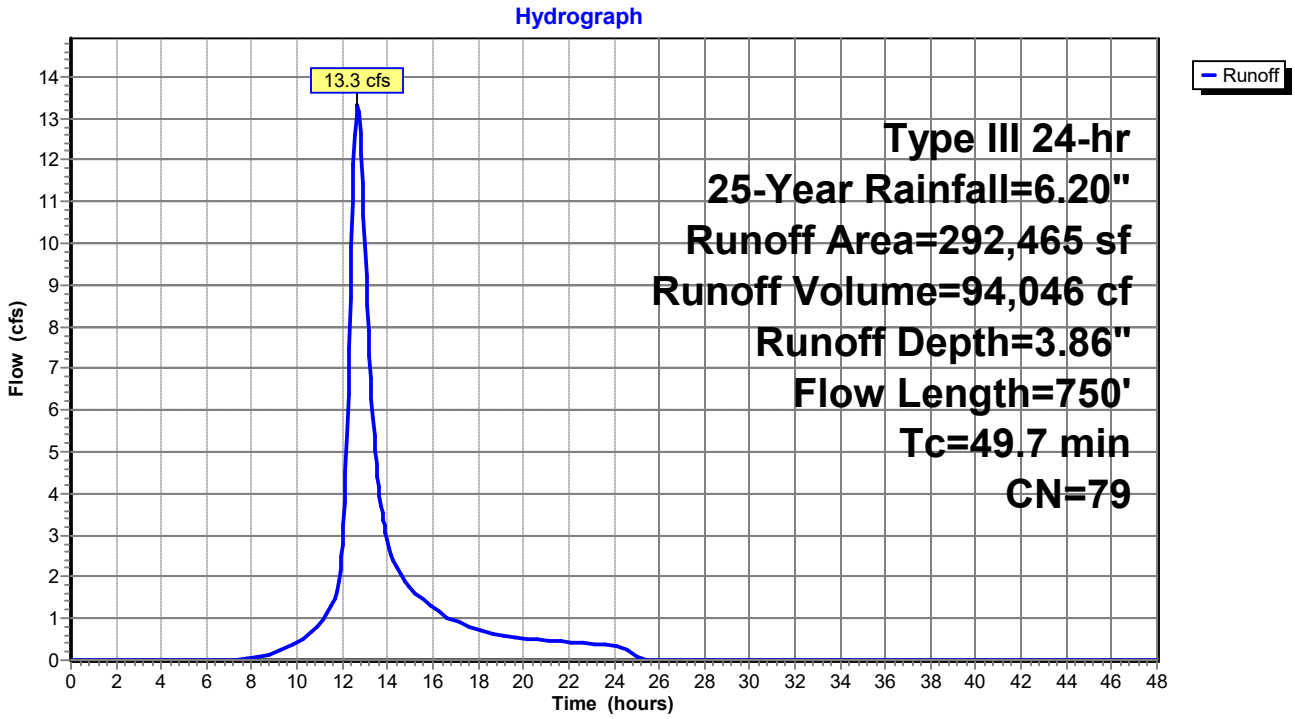
Runoff = 13.3 cfs @ 12.67 hrs, Volume= 94,046 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
243,170	77	Woods, Good, HSG D
23,955	80	>75% Grass cover, Good, HSG D
25,340	98	Paved parking, HSG D
292,465	79	Weighted Average
267,125		91.34% Pervious Area
25,340		8.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	100	0.0833	0.08		**Sheet Flow, A-B** Woods: Dense underbrush n= 0.800 P2= 3.30"
4.7	198	0.0790	0.70		**Shallow Concentrated Flow, B-C** Forest w/Heavy Litter Kv= 2.5 fps
24.2	452	0.0155	0.31		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
49.7	750	Total			

Subcatchment 2.0:



Summary for Subcatchment 2.1:

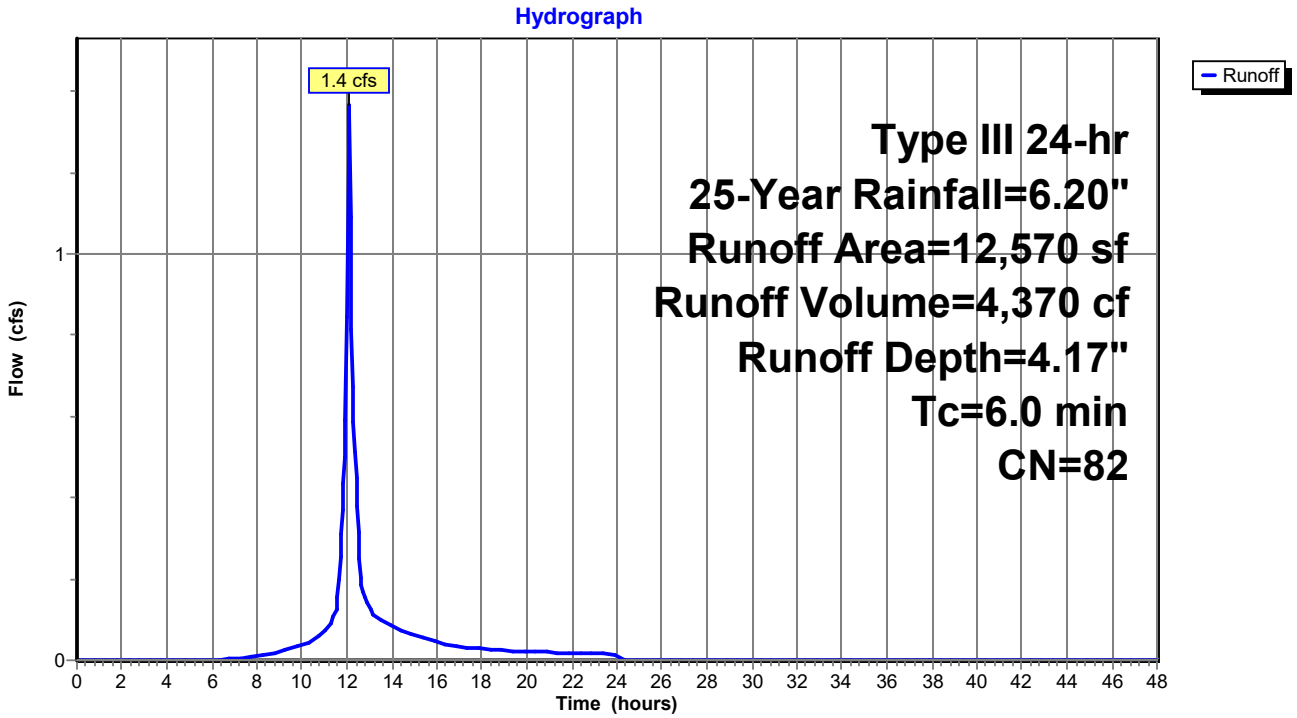
Runoff = 1.4 cfs @ 12.09 hrs, Volume= 4,370 cf, Depth= 4.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
4,765	77	Woods, Good, HSG D
5,915	80	>75% Grass cover, Good, HSG D
1,890	98	Paved parking, HSG D
12,570	82	Weighted Average
10,680		84.96% Pervious Area
1,890		15.04% Impervious Area

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

Subcatchment 2.1:



Summary for Subcatchment 3.0:

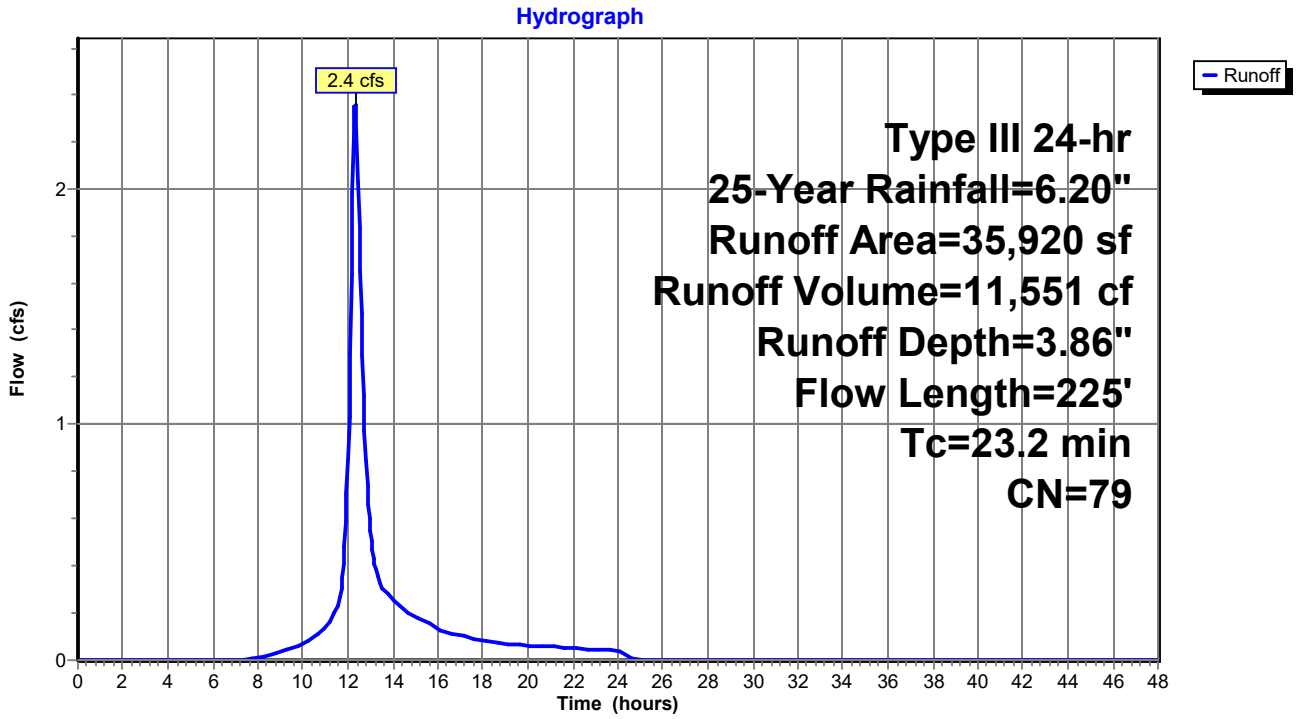
Runoff = 2.4 cfs @ 12.32 hrs, Volume= 11,551 cf, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.20"

Area (sf)	CN	Description
17,315	77	Woods, Good, HSG D
18,365	80	>75% Grass cover, Good, HSG D
240	98	Paved parking, HSG D
35,920	79	Weighted Average
35,680		99.33% Pervious Area
240		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	31	0.0563	0.21		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.30"
18.1	69	0.0563	0.06		**Sheet Flow, B-C** Woods: Dense underbrush n= 0.800 P2= 3.30"
2.6	125	0.1000	0.79		**Shallow Concentrated Flow, C-D** Forest w/Heavy Litter Kv= 2.5 fps
23.2	225	Total			

Subcatchment 3.0:



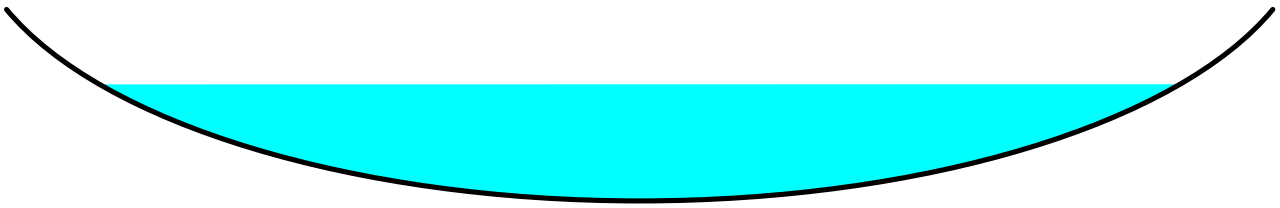
Summary for Reach R1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 2.27" for 25-Year event
Inflow = 7.8 cfs @ 13.70 hrs, Volume= 126,185 cf
Outflow = 7.8 cfs @ 14.04 hrs, Volume= 126,158 cf, Atten= 1%, Lag= 20.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.49 fps, Min. Travel Time= 11.2 min
Avg. Velocity = 0.16 fps, Avg. Travel Time= 33.7 min

Peak Storage= 5,229 cf @ 13.85 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 0.50' Flow Area= 33.3 sf, Capacity= 22.7 cfs

100.00' x 0.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 330.0' Slope= 0.0091 '/'
Inlet Invert= 33.00', Outlet Invert= 30.00'



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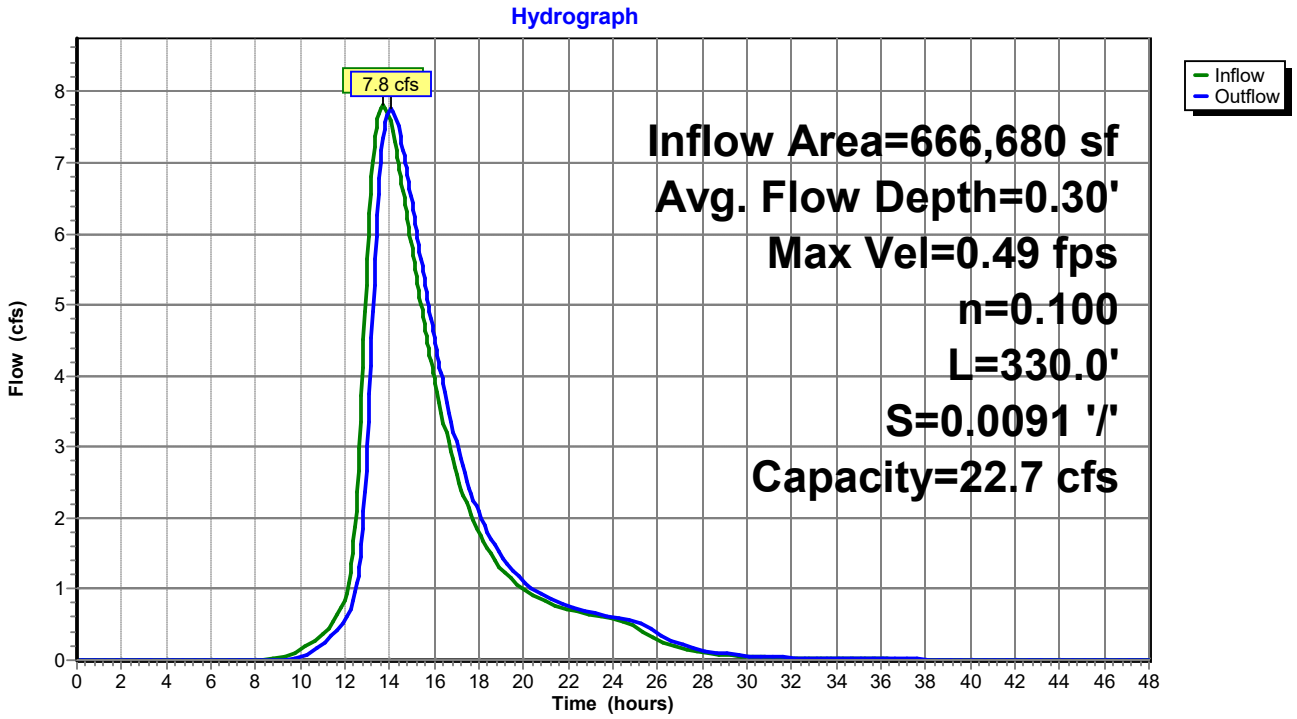
Reach R1:



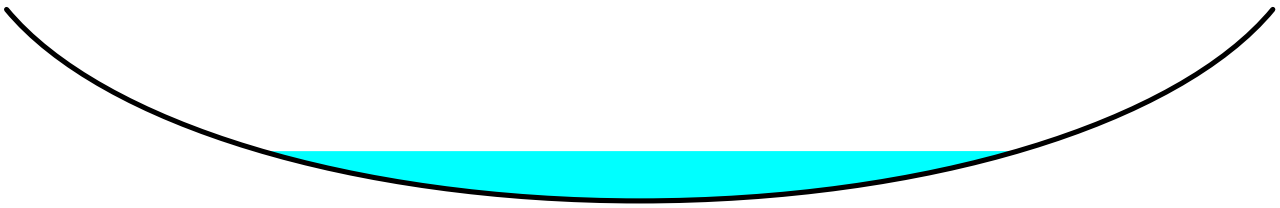
Summary for Reach R2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth > 1.22" for 25-Year event
Inflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf
Outflow = 3.9 cfs @ 13.09 hrs, Volume= 40,835 cf, Atten= 17%, Lag= 37.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.42 fps, Min. Travel Time= 19.1 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 61.7 min

Peak Storage= 4,427 cf @ 12.77 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 0.65' Flow Area= 69.3 sf, Capacity= 71.1 cfs

160.00' x 0.65' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 480.0' Slope= 0.0145 '/'
Inlet Invert= 40.23', Outlet Invert= 33.26'



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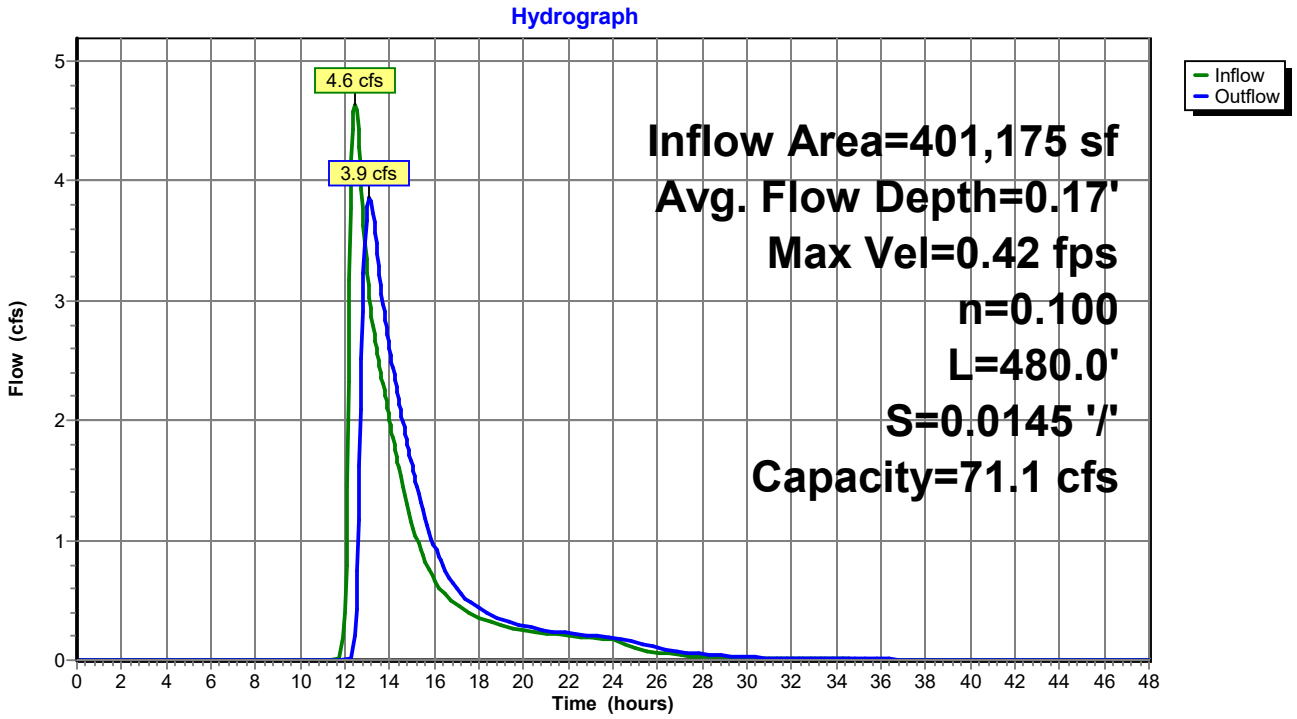
Reach R2:



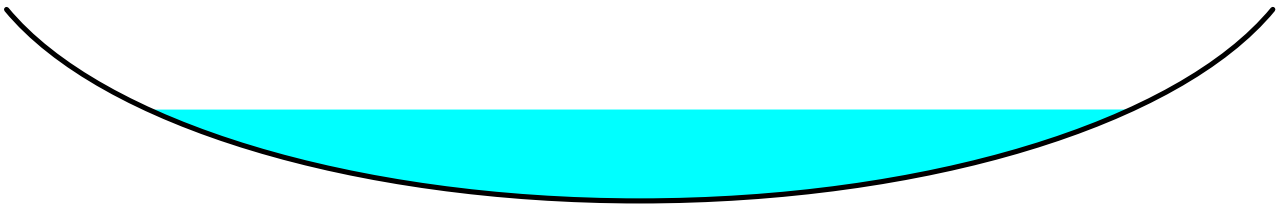
Summary for Reach R3:

Inflow Area = 47,190 sf, 19.68% Impervious, Inflow Depth = 4.29" for 25-Year event
Inflow = 5.3 cfs @ 12.09 hrs, Volume= 16,876 cf
Outflow = 4.4 cfs @ 12.24 hrs, Volume= 16,876 cf, Atten= 16%, Lag= 9.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.90 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 21.4 min

Peak Storage= 1,495 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 1.50' Flow Area= 15.0 sf, Capacity= 21.8 cfs

15.00' x 1.50' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
Length= 302.0' Slope= 0.0099 '/'
Inlet Invert= 34.00', Outlet Invert= 31.00'



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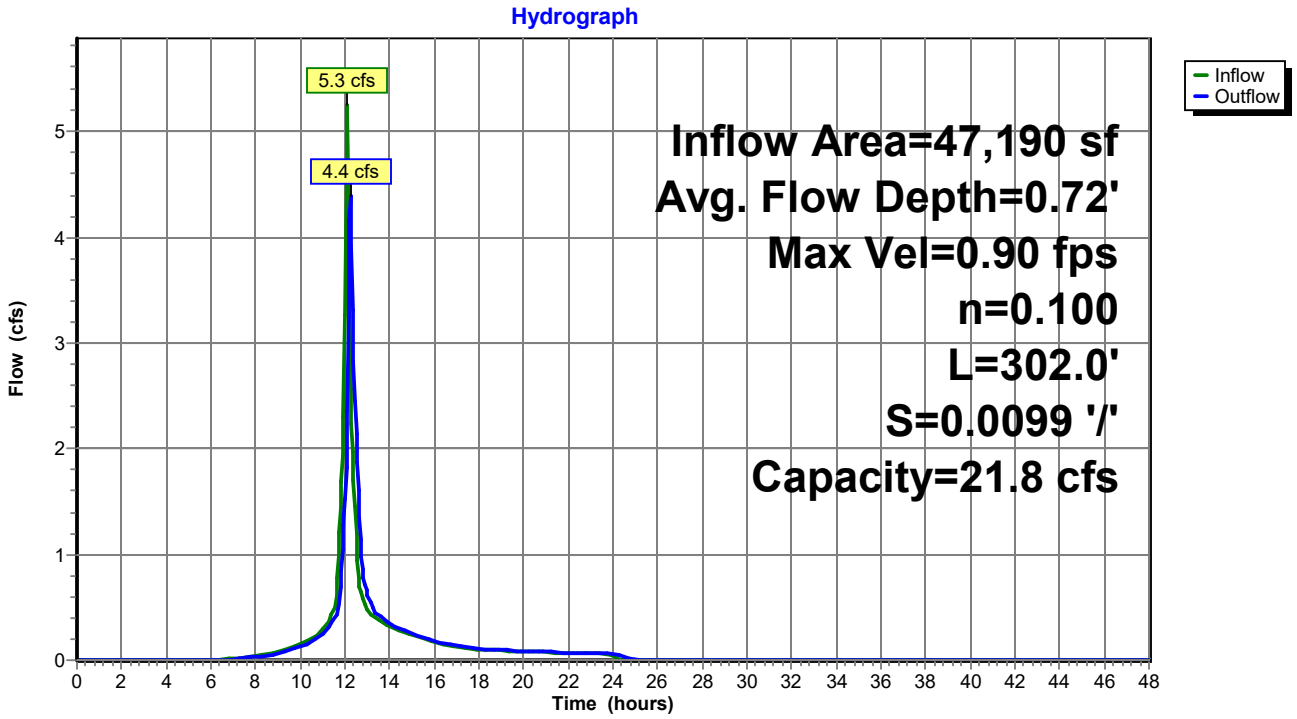
Reach R3:



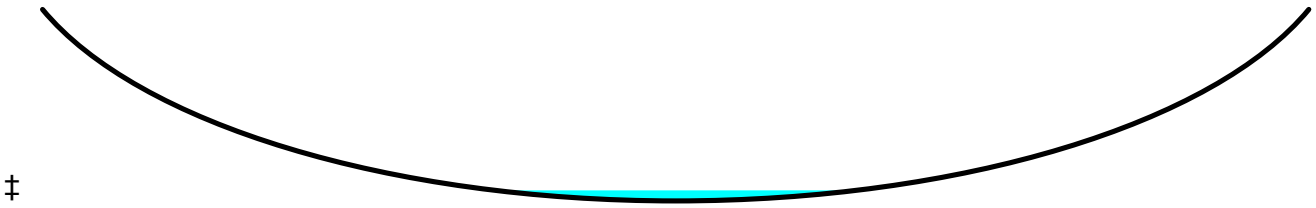
Summary for Reach R4:

Inflow Area = 12,570 sf, 15.04% Impervious, Inflow Depth = 4.17" for 25-Year event
Inflow = 1.4 cfs @ 12.09 hrs, Volume= 4,370 cf
Outflow = 1.1 cfs @ 12.27 hrs, Volume= 4,370 cf, Atten= 20%, Lag= 10.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 6.7 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 17.6 min

Peak Storage= 449 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.50' Flow Area= 40.0 sf, Capacity= 582.6 cfs

40.00' x 1.50' deep Parabolic Channel, n= 0.018 Earth, clean & straight
Length= 860.0' Slope= 0.0313 '/'
Inlet Invert= 52.00', Outlet Invert= 25.10'



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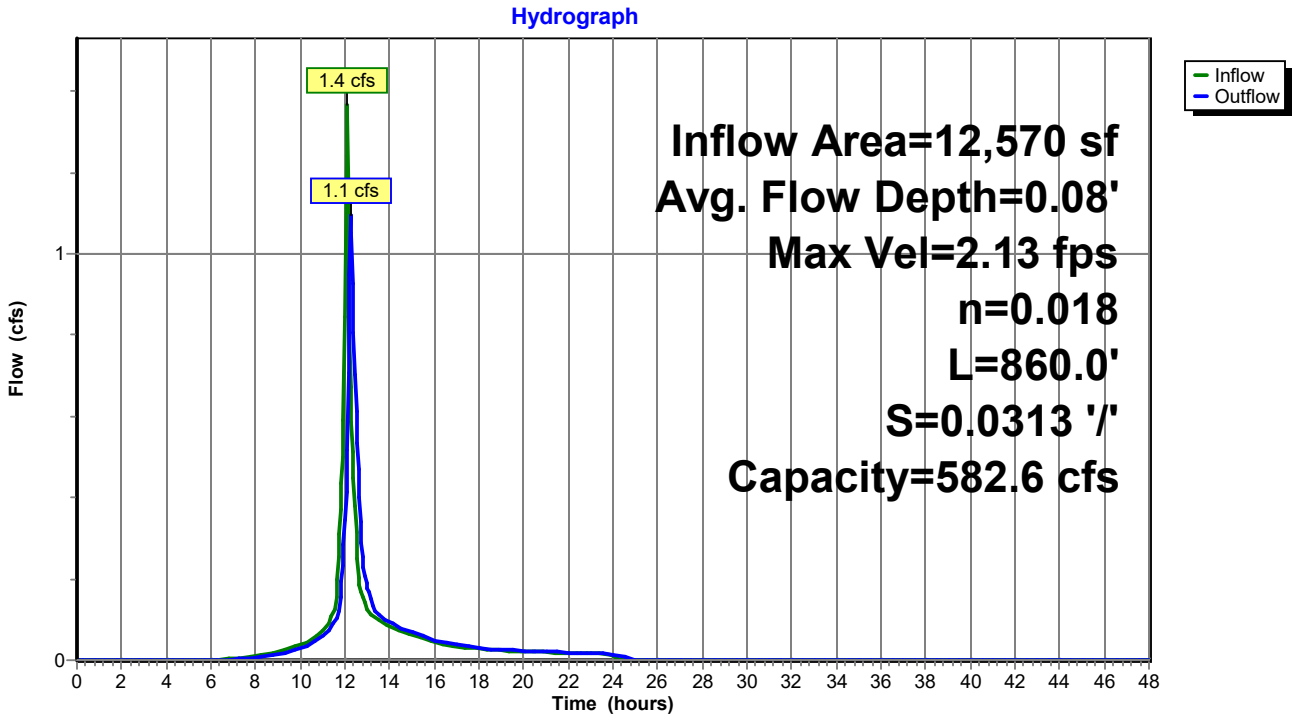
Reach R4:



Summary for Pond C1:

Inflow Area = 666,680 sf, 9.03% Impervious, Inflow Depth > 2.27" for 25-Year event
Inflow = 13.7 cfs @ 12.97 hrs, Volume= 126,212 cf
Outflow = 7.8 cfs @ 13.70 hrs, Volume= 126,185 cf, Atten= 43%, Lag= 43.8 min
Primary = 7.8 cfs @ 13.70 hrs, Volume= 126,185 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 35.20' @ 13.70 hrs Surf.Area= 44,037 sf Storage= 31,004 cf
Flood Elev= 36.00' Surf.Area= 65,400 sf Storage= 74,950 cf

Plug-Flow detention time= 65.5 min calculated for 126,185 cf (100% of inflow)
Center-of-Mass det. time= 65.1 min (966.3 - 901.2)

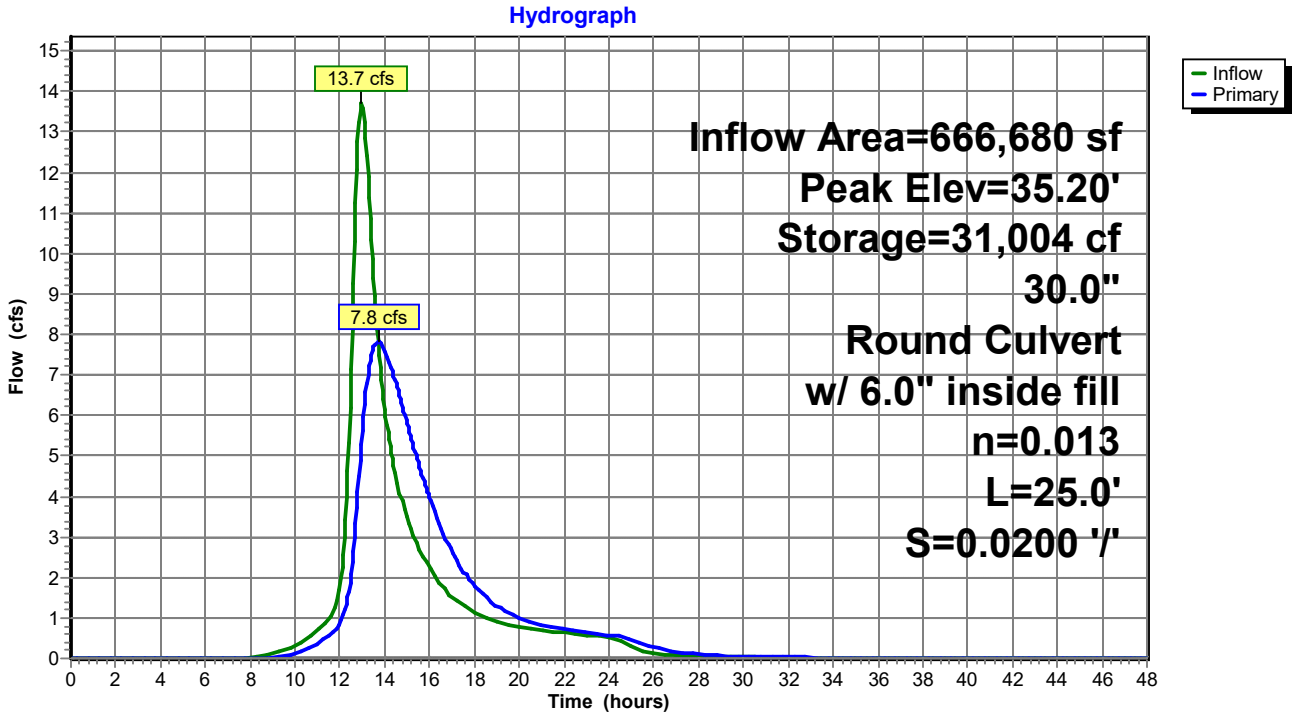
Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	74,950 cf	**STORAGE (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	6,900	0	0
35.00	38,800	22,850	22,850
36.00	65,400	52,100	74,950

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	**30.0" Round Culvert w/ 6.0" inside fill** L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.50' / 33.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.21 sf

Primary OutFlow Max=7.8 cfs @ 13.70 hrs HW=35.20' (Free Discharge)
└─**1=Culvert** (Inlet Controls 7.8 cfs @ 2.74 fps)

Pond C1:


Hydrograph
13.7 cfs
7.8 cfs
Inflow Area=666,680 sf
Peak Elev=35.20'
Storage=31,004 cf
30.0"
Round Culvert
w/ 6.0" inside fill
n=0.013
L=25.0'
S=0.0200 '/'
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Pond C10:

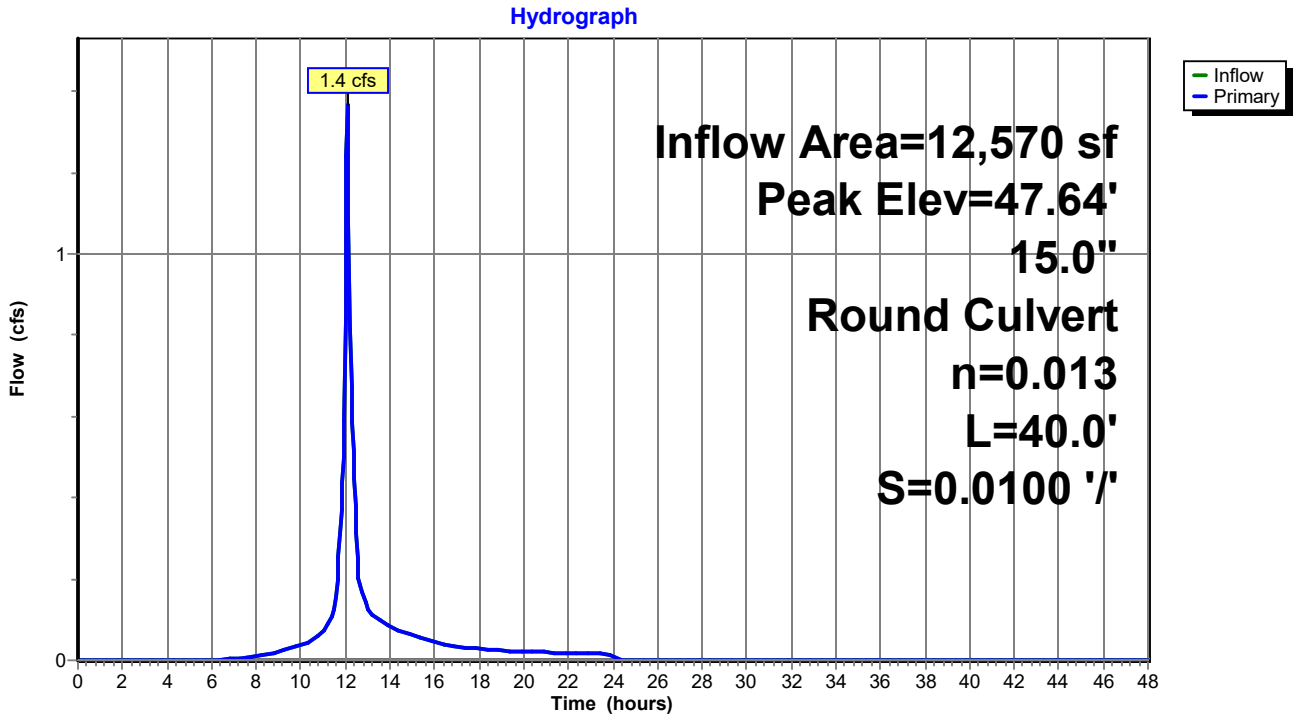
Inflow Area =	12,570 sf,	15.04% Impervious,	Inflow Depth =	4.17"	for 25-Year event
Inflow =	1.4 cfs @	12.09 hrs,	Volume=	4,370 cf	
Outflow =	1.4 cfs @	12.09 hrs,	Volume=	4,370 cf,	Atten= 0%, Lag= 0.0 min
Primary =	1.4 cfs @	12.09 hrs,	Volume=	4,370 cf	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 47.64' @ 12.09 hrs
Flood Elev= 48.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	47.00'	**15.0" Round Culvert** L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 47.00' / 46.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.3 cfs @ 12.09 hrs HW=47.63' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.3 cfs @ 2.14 fps)

Pond C10:



Summary for Pond C2:

Inflow Area = 401,175 sf, 11.19% Impervious, Inflow Depth = 1.38" for 25-Year event
Inflow = 10.9 cfs @ 12.16 hrs, Volume= 46,214 cf
Outflow = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf, Atten= 58%, Lag= 18.5 min
Primary = 4.6 cfs @ 12.47 hrs, Volume= 40,864 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 41.29' @ 12.47 hrs Surf.Area= 10,856 sf Storage= 15,674 cf
Flood Elev= 41.61' Surf.Area= 11,830 sf Storage= 19,358 cf

Plug-Flow detention time= 142.9 min calculated for 40,864 cf (88% of inflow)
Center-of-Mass det. time= 91.8 min (914.6 - 822.7)

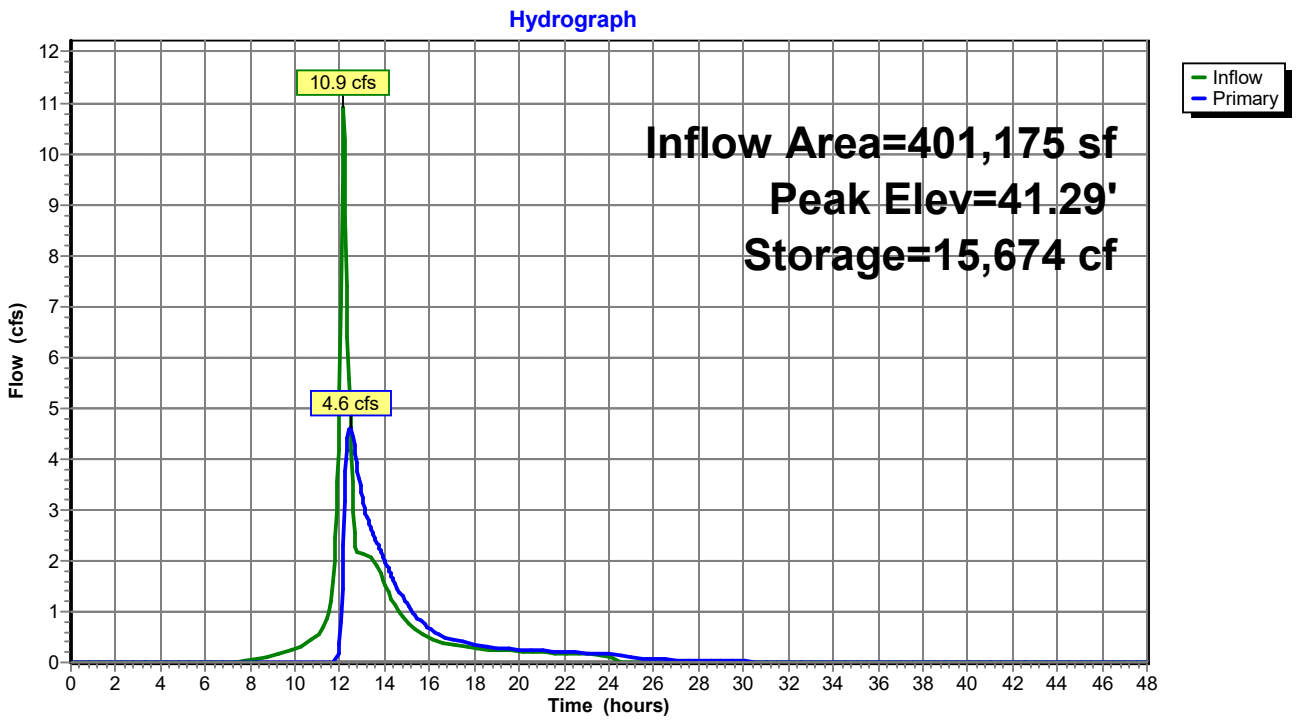
Volume	Invert	Avail.Storage	Storage Description
#1	39.00'	24,200 cf	**STORAGE (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
39.00	1,800	0	0
40.00	6,800	4,300	4,300
41.00	10,000	8,400	12,700
42.00	13,000	11,500	24,200

Device	Routing	Invert	Outlet Devices
#1	Primary	40.36'	**15.0" Round Culvert** L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 40.36' / 40.23' S= 0.0065 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	40.13'	**12.0" Round Culvert** L= 20.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 39.89' / 40.13' S= -0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.6 cfs @ 12.47 hrs HW=41.28' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.2 cfs @ 3.16 fps)
└─**2=Culvert** (Inlet Controls 2.4 cfs @ 3.07 fps)

Pond C2:


Hydrograph
10.9 cfs
4.6 cfs
Inflow Area=401,175 sf
Peak Elev=41.29'
Storage=15,674 cf
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Pond C3:

Inflow Area =	271,140 sf,	13.50% Impervious,	Inflow Depth =	3.96"	for 25-Year event
Inflow =	11.6 cfs @	12.78 hrs,	Volume=	89,526 cf	
Outflow =	6.5 cfs @	13.36 hrs,	Volume=	89,497 cf,	Atten= 44%, Lag= 34.8 min
Discarded =	5.4 cfs @	13.36 hrs,	Volume=	83,985 cf	
Primary =	1.0 cfs @	13.36 hrs,	Volume=	5,512 cf	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 43.15' @ 13.36 hrs Surf.Area= 38,612 sf Storage= 26,762 cf
Flood Elev= 44.68' Surf.Area= 42,000 sf Storage= 60,900 cf

Plug-Flow detention time= 83.1 min calculated for 89,497 cf (100% of inflow)
Center-of-Mass det. time= 82.8 min (943.7 - 860.8)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	60,900 cf	**STORAGE (Prismatic)** Listed below (Recalc)

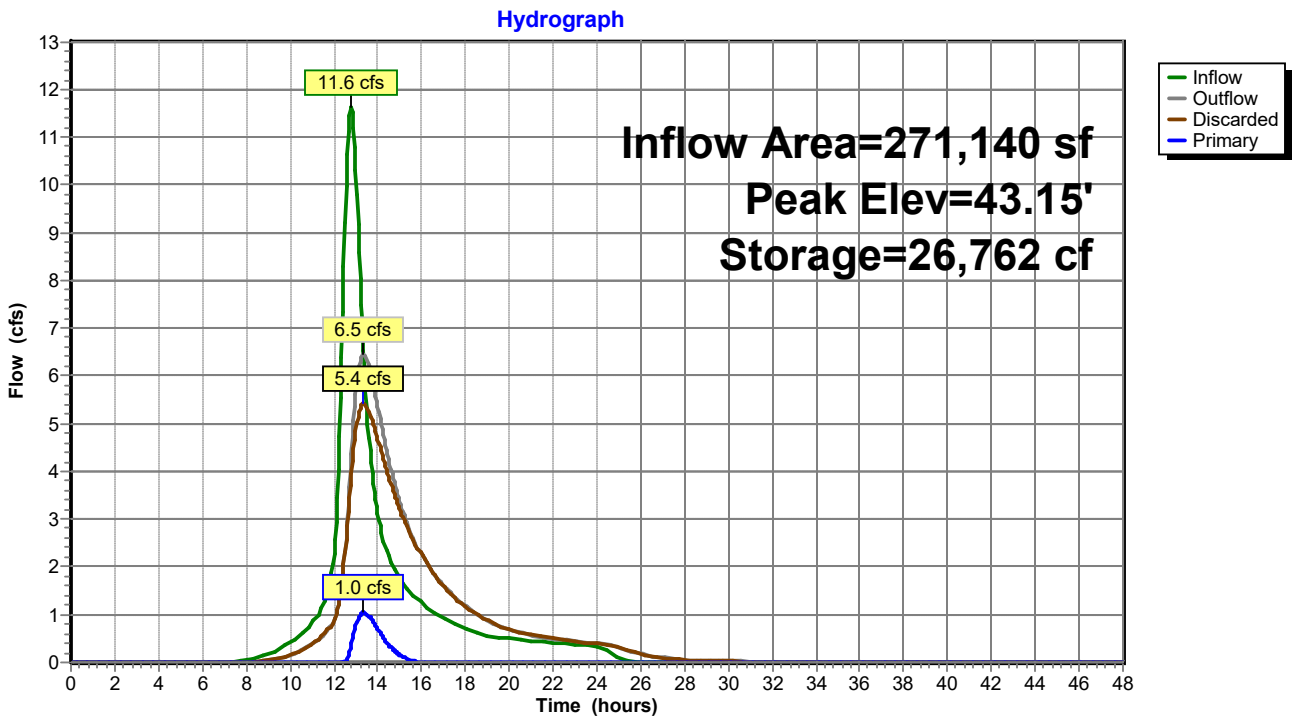
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
42.00	3,800	0	0
43.00	38,000	20,900	20,900
44.00	42,000	40,000	60,900

Device	Routing	Invert	Outlet Devices
#1	Primary	42.68'	**24.0" Round Culvert** L= 81.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.68' / 42.10' S= 0.0072 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Discarded	42.00'	**24.0" Round Culvert** L= 61.5' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 42.00' / 41.00' S= 0.0163 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Discarded OutFlow Max=5.4 cfs @ 13.36 hrs HW=43.15' (Free Discharge)
└─**2=Culvert** (Inlet Controls 5.4 cfs @ 2.89 fps)

Primary OutFlow Max=1.0 cfs @ 13.36 hrs HW=43.15' (Free Discharge)
└─**1=Culvert** (Inlet Controls 1.0 cfs @ 1.85 fps)

Pond C3:


Hydrograph
Inflow Area=271,140 sf
Peak Elev=43.15'
Storage=26,762 cf
11.6 cfs
6.5 cfs
5.4 cfs
1.0 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond C4:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth = 3.87" for 25-Year event
Inflow = 13.7 cfs @ 12.66 hrs, Volume= 98,416 cf
Outflow = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf, Atten= 28%, Lag= 21.7 min
Primary = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 26.94' @ 13.02 hrs Surf.Area= 12,878 sf Storage= 17,960 cf
Flood Elev= 26.51' Surf.Area= 12,020 sf Storage= 12,620 cf

Plug-Flow detention time= 39.4 min calculated for 98,069 cf (100% of inflow)
Center-of-Mass det. time= 37.0 min (891.6 - 854.5)

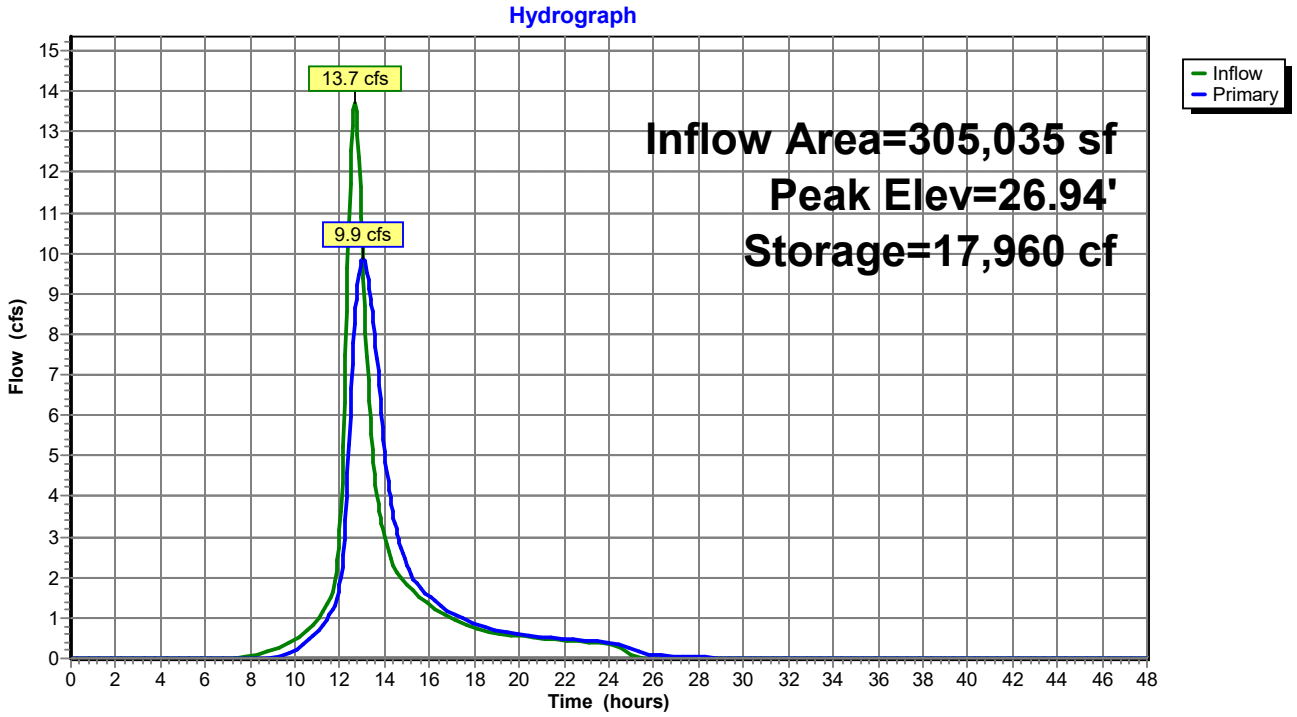
Volume	Invert	Avail.Storage	Storage Description
#1	25.00'	18,750 cf	**STORAGE (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
25.00	2,500	0	0
26.00	11,000	6,750	6,750
27.00	13,000	12,000	18,750

Device	Routing	Invert	Outlet Devices
#1	Primary	25.26'	**15.0" Round Culvert** L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.26' / 24.89' S= 0.0097 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Primary	25.10'	**15.0" Round Culvert** L= 38.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 25.10' / 24.95' S= 0.0039 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=9.9 cfs @ 13.02 hrs HW=26.94' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.8 cfs @ 3.90 fps)
└─**2=Culvert** (Barrel Controls 5.1 cfs @ 4.13 fps)

Pond C4:


Hydrograph
13.7 cfs
9.9 cfs
Inflow Area=305,035 sf
Peak Elev=26.94'
Storage=17,960 cf
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Pond C5:

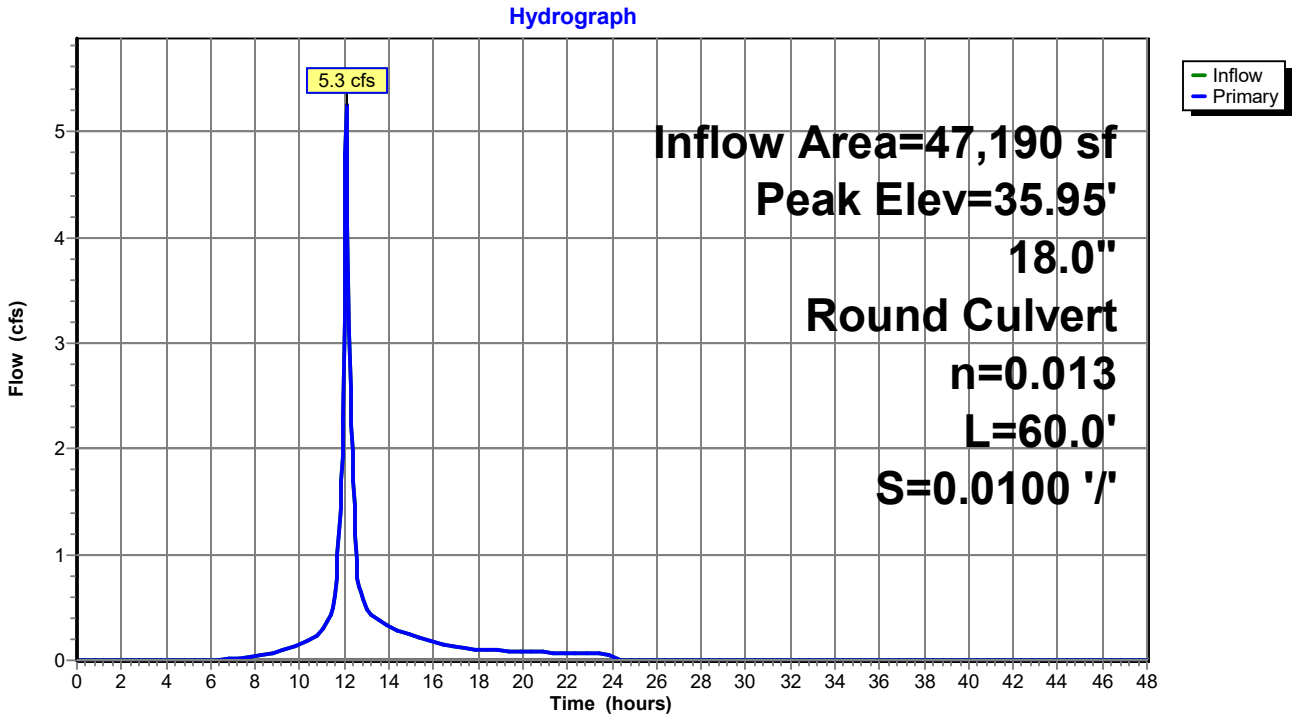
Inflow Area =	47,190 sf,	19.68% Impervious,	Inflow Depth =	4.29"	for 25-Year event
Inflow =	5.3 cfs @	12.09 hrs,	Volume=	16,876 cf	
Outflow =	5.3 cfs @	12.09 hrs,	Volume=	16,876 cf,	Atten= 0%, Lag= 0.0 min
Primary =	5.3 cfs @	12.09 hrs,	Volume=	16,876 cf	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 35.95' @ 12.09 hrs
Flood Elev= 36.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.60'	**18.0" Round Culvert** L= 60.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 34.60' / 34.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.1 cfs @ 12.09 hrs HW=35.93' (Free Discharge)
└**1=Culvert** (Inlet Controls 5.1 cfs @ 3.10 fps)

Pond C5:



Summary for Pond C6:

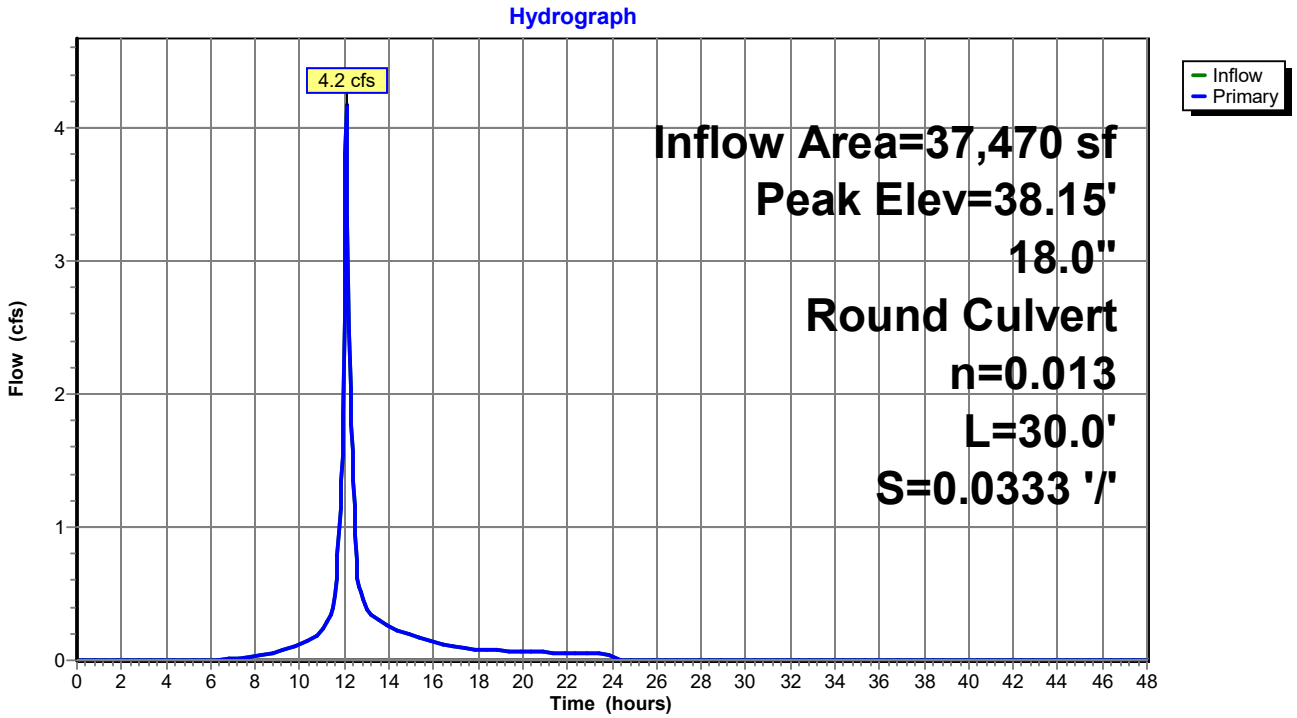
Inflow Area =	37,470 sf,	20.42% Impervious,	Inflow Depth =	4.29"	for 25-Year event
Inflow =	4.2 cfs @	12.09 hrs,	Volume=	13,411 cf	
Outflow =	4.2 cfs @	12.09 hrs,	Volume=	13,411 cf,	Atten= 0%, Lag= 0.0 min
Primary =	4.2 cfs @	12.09 hrs,	Volume=	13,411 cf	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 38.15' @ 12.09 hrs
Flood Elev= 38.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	**18.0" Round Culvert** L= 30.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0333 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.1 cfs @ 12.09 hrs HW=38.13' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.1 cfs @ 2.86 fps)

Pond C6:



Summary for Pond C7:

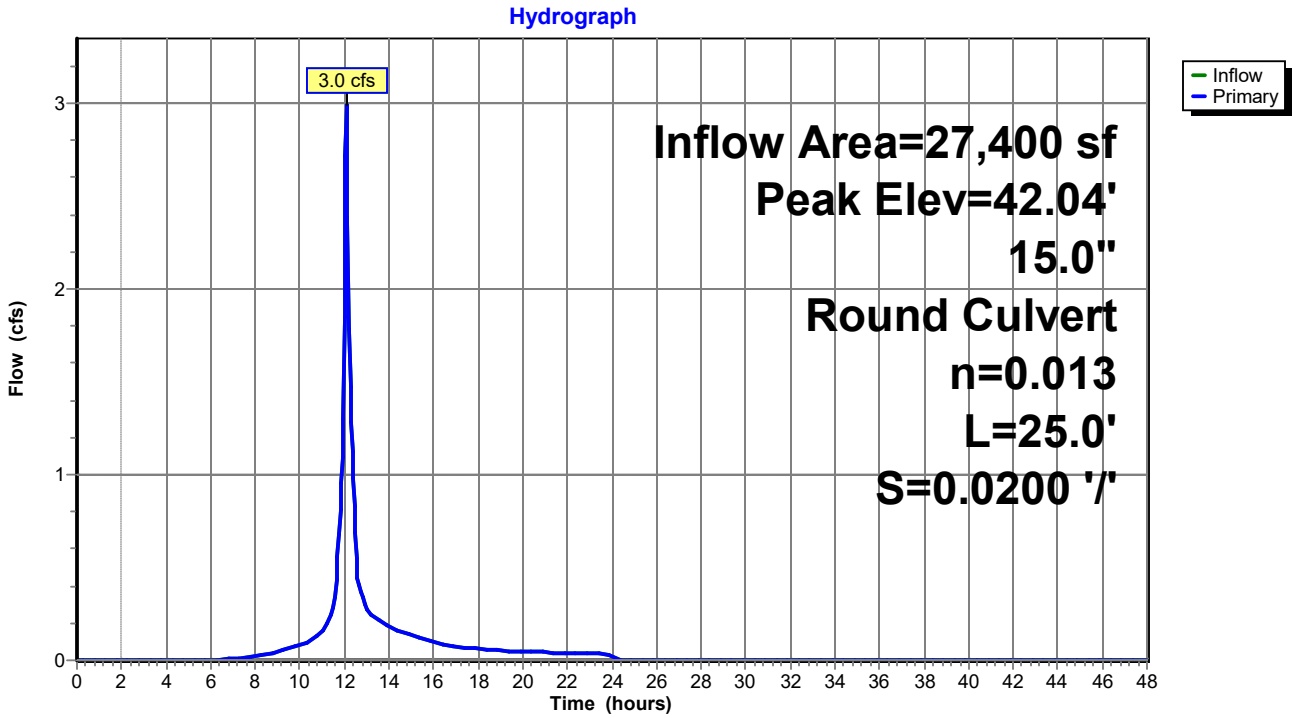
Inflow Area =	27,400 sf,	15.60% Impervious,	Inflow Depth =	4.18"	for 25-Year event
Inflow =	3.0 cfs @	12.09 hrs,	Volume=	9,551 cf	
Outflow =	3.0 cfs @	12.09 hrs,	Volume=	9,551 cf,	Atten= 0%, Lag= 0.0 min
Primary =	3.0 cfs @	12.09 hrs,	Volume=	9,551 cf	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 42.04' @ 12.09 hrs
Flood Elev= 42.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	41.00'	**15.0" Round Culvert** L= 25.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 41.00' / 40.50' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.9 cfs @ 12.09 hrs HW=42.02' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.9 cfs @ 2.72 fps)

Pond C7:



Summary for Pond C8:

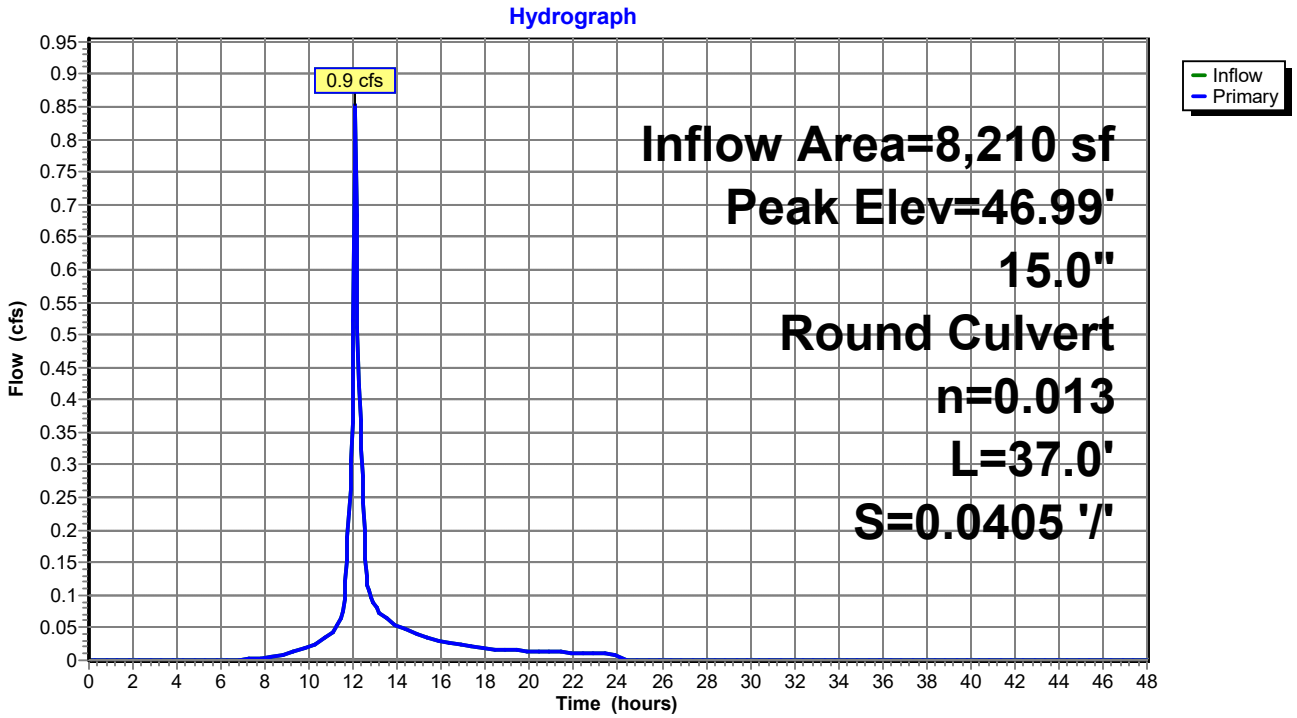
Inflow Area =	8,210 sf,	9.38% Impervious,	Inflow Depth =	3.96"	for 25-Year event
Inflow =	0.9 cfs @	12.09 hrs,	Volume=	2,711 cf	
Outflow =	0.9 cfs @	12.09 hrs,	Volume=	2,711 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.9 cfs @	12.09 hrs,	Volume=	2,711 cf	

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 46.99' @ 12.09 hrs
Flood Elev= 47.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	**15.0" Round Culvert** L= 37.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 46.50' / 45.00' S= 0.0405 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.8 cfs @ 12.09 hrs HW=46.99' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.8 cfs @ 1.88 fps)

Pond C8:

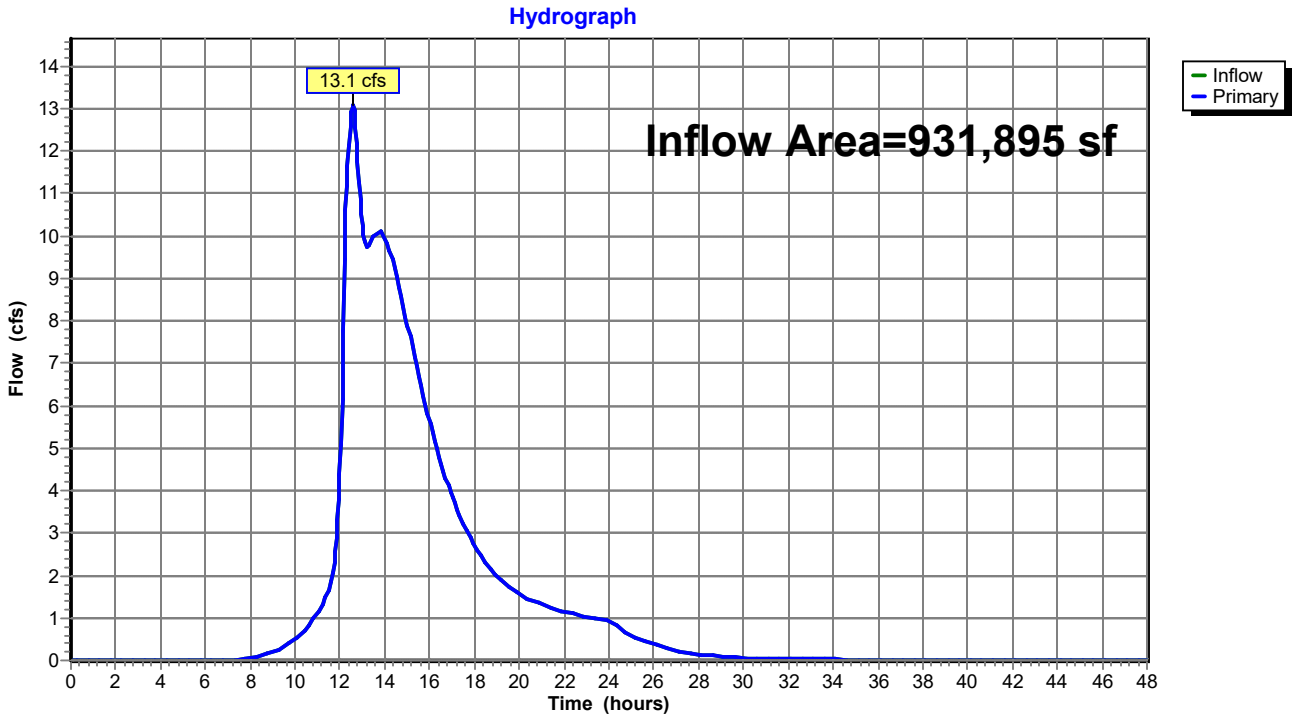


Summary for Link AP1:

Inflow Area = 931,895 sf, 8.48% Impervious, Inflow Depth > 2.72" for 25-Year event
Inflow = 13.1 cfs @ 12.58 hrs, Volume= 211,278 cf
Primary = 13.1 cfs @ 12.58 hrs, Volume= 211,278 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP1:

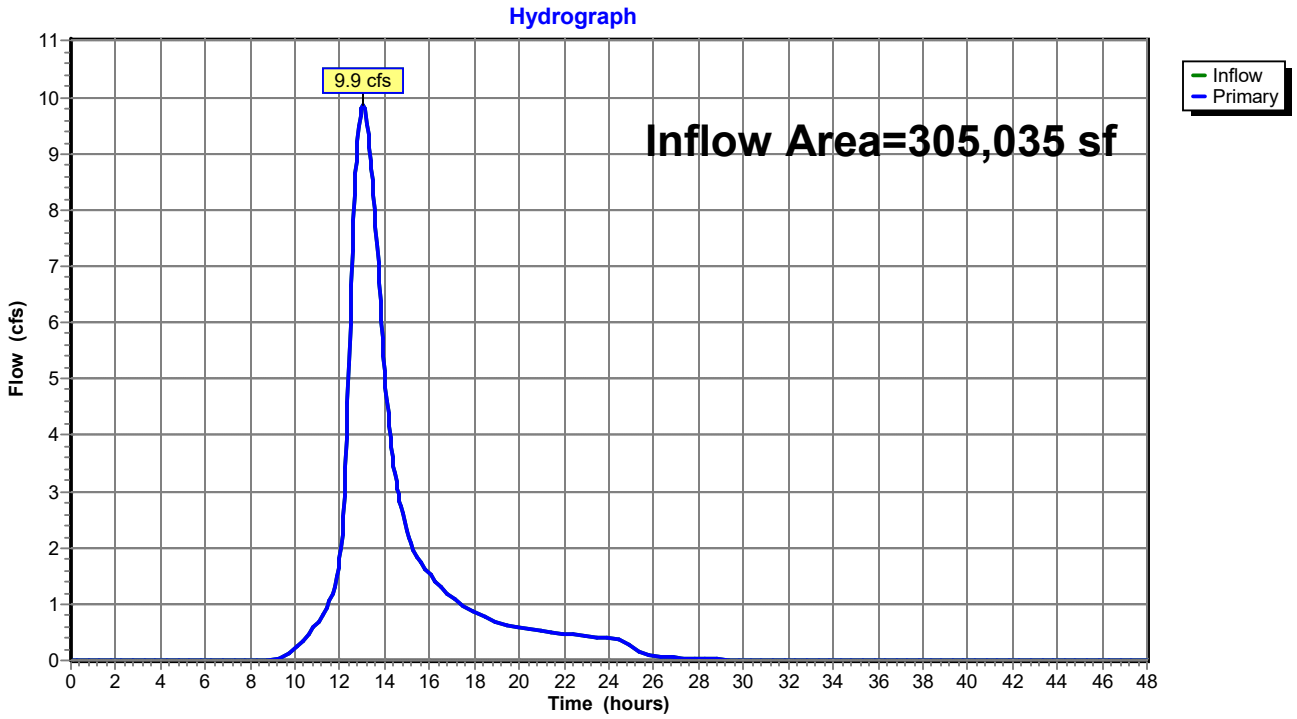


Summary for Link AP2:

Inflow Area = 305,035 sf, 8.93% Impervious, Inflow Depth = 3.86" for 25-Year event
Inflow = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf
Primary = 9.9 cfs @ 13.02 hrs, Volume= 98,069 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP2:

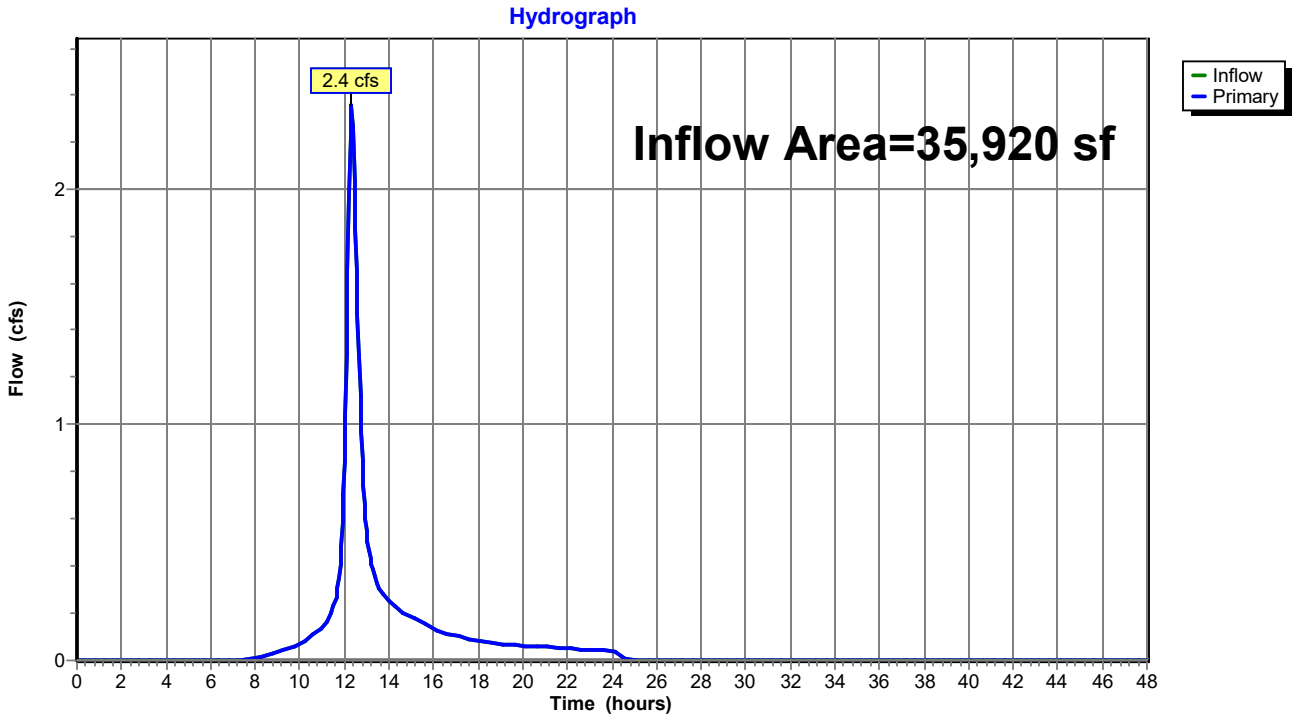


Summary for Link AP3:

Inflow Area = 35,920 sf, 0.67% Impervious, Inflow Depth = 3.86" for 25-Year event
Inflow = 2.4 cfs @ 12.32 hrs, Volume= 11,551 cf
Primary = 2.4 cfs @ 12.32 hrs, Volume= 11,551 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link AP3:



Appendix C

High Intensity Soil Survey
Web Soil Survey Map

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

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918 Pool Street
Biddeford, ME
Ginger Hill Design & Build

Soil Narrative Report

DATE:	Soil Profiles observed on May 5, 2021
BASE MAP:	Base plan provided by Walsh Engineering Associates scale 1 inch equals 60 feet and one foot contours.
GROUND CONTROL:	Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or less.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located by means of compass by chaining, pacing or taping from known control points
Base Map –2 foot contour intervals

Provided:

Mapping units of 1 acre or less
Base map scale of 1"= 60 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by gps equipment with accuracy to less than 3 feet.
Ground topographic survey with one foot contours and ground control provided.

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The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

Mark J. Hampton C.S.S. #216, L.S.E. #263 July 17, 20

Mark J. Hampton

Date

STATE OF MAINE
MARK J.
HAMPTON
#216
CERTIFIED
SOIL SCIENTIST

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918 Pool Street
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Biddeford, ME

LYMAN-TUNBRIDGE COMPLEX

SETTING

PARENT MATERIAL:	Loamy glacial till
LANDFORM:	Glaciated uplands
POSITION IN LANDSCAPE:	Uppermost locations, sideslopes, shoulders and crests
SLOPE GRADIENT RANGES:	(A) 0-3%, (B) 3-8%, (C) 8-15%, (D) 15-25%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Excessively well drained Lyman (10-20 inches to bedrock) and Tunbridge (20-40 inches to bedrock)
These soils occur in a nonrepeating pattern with exposed bedrock outcrops and cannot be separated.

TYPICAL PROFILE:

Surface Layer:	Reddish brown fine sandy loam, 0-4 inches
Subsurface Layer:	Red brown fine sandy loam 4-12"
Subsoil Layer:	Dark red fine sandy loam 12-18"
Substratum:	Brown fine sandy loam 18-36"

HYDROLOGIC GROUP:	Group C/D
PERMEABILITY:	Slow to rapid, depending on slope and bedrock outcrops.
DEPTH TO BEDROCK:	Shallow (Lyman 10-20 inches) to moderately deep (Tunbridge 20-40 inches).
HAZARD TO FLOODING:	None

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Buxton, Lamoine, Scantic

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USE AND MANAGEMENT

Development: The limiting factor for building site development is depth to bedrock which ranges from 0 to 40 inches within this complex. Tunbridge and Lyman (deeper than 11 inches) soils may be suitable for subsurface wastewater disposal.

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Colonel
(Aquic Haplorthods)

SETTING

PARENT MATERIAL:	Derived from dense, loamy glacial till
LANDFORM:	Drumlins and Sideslopes of glaciated uplands
POSITION IN LANDSCAPE:	Mid-positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 1.0 to 2.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dk gray brown, stony sandy loam 0-3"
Subsurface Layer:	Dark Brown, stony sandy loam, 3-12"
Subsoil Layer:	Olive Brown, stony sandy loam, 12-18"
Substratum:	Olive, stony, sandy loam, 18-65"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Moderate and moderately slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

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INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Scantic, Lyman-Tunbridge

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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Biddeford, ME

Scantic
(Aquic Haplorthod)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Lower positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Poorly drained with a perched watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark grayish brown, silt loam 0-9"
Subsurface Layer:	Olive gray silt loam, 9-16"
Substratum:	Gray silty clay loam, 16"+

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

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INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Colonel, Lyman-Tunbridge

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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FORM F Rev. 11/09

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Pool Street Subdivision	Ginger Hill Design and Build	Biddeford

Exploration Symbol # SS-1 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	D	2	14 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Colonel SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-2 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Black	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	E	2	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-3 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3	D	2	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Colonel SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-4 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2	AIII	4	15 "	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/8/21
Name Printed/typed: Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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FORM F Rev. 11/09

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Pool Street Subdivision

Applicant Name: Ginger Hill Design and Build

Project Location (municipality): Biddeford

Exploration Symbol # SS-5 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Black	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile 8, Condition E

Slope: 2 Percent

Limiting Factor: 6 " Depth ☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

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Exploration Symbol # SS-6 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile 2, Condition AIII

Slope: 4 Percent

Limiting Factor: 16 " Depth ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-7 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile 2, Condition AII

Slope: 18 Percent

Limiting Factor: 14 " Depth ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-8 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile 2, Condition AIII

Slope: 6 Percent

Limiting Factor: 16 " Depth ☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Date 4/8/21

Name Printed/typed Mark Hampton

Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Pool Street Subdivision

Applicant Name: Ginger Hill Design and Build

Project Location (municipality): Biddeford

Exploration Symbol # SS-9 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
3 Profile	D Condition	2 Percent	13 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Colonel SPD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-10 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	8 Percent	15 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-11 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	4 Percent	16 " Depth	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

Exploration Symbol # SS-12 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
	Ledge		

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 Profile	AIII Condition	3 Percent	15 " Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil series/phase name: Lyman-Tunbridge WD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature

Date 4/8/21

Name Printed/typed Mark Hampton

Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Pool Street Subdivision	Ginger Hill Design and Build	Biddeford

Exploration Symbol # SS-13 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown	
6	Sandy Loam	Friable	Red Brown	
12				
18		Ledge		
24				
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	4 (Percent)	15 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-14 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown	
6	Sandy Loam	Friable	Red Brown	
12				
18		Ledge		
24				
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	6 (Percent)	16 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-15 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown	
6	Sandy Loam	Friable	Red Brown	
12				
18		Ledge		
24				
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AII (Condition)	12 (Percent)	12 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-16 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Mottling
0	Sandy Loam	Friable	Dark Brown	
6	Sandy Loam	Friable	Red Brown	
12				
18		Ledge		
24				
30				
36				
42				
48				
54				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
2 (Profile)	AIII (Condition)	4 (Percent)	15 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock

Soil series/phase name: Lyman-Tunbridge WD ☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date 4/8/21
Name Printed/typed Mark Hampton	Cert/Lic/Reg. # 263/216

Title ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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FORM F Rev. 11/09

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Pool Street Subdivision

Applicant Name: Ginger Hill Design and Build

Project Location (municipality): Biddeford

Exploration Symbol # SS-17 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Black	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. / S.S.

Soil Classification		Slope	Limiting Factor	
8 (Profile)	E (Condition)	2 (Percent)	6 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-18 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	Common and Distinct

Soil Details by S.E. / S.S.

Soil Classification		Slope	Limiting Factor	
3 (Profile)	D (Condition)	2 (Percent)	13 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Colonel SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-19 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	Common and Distinct

Soil Details by S.E. / S.S.

Soil Classification		Slope	Limiting Factor	
3 (Profile)	D (Condition)	2 (Percent)	13 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Colonel SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # SS-20 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Sandy Loam	Friable	Dark Brown	
Sandy Loam	Friable	Red Brown	
Sandy Loam	Firm	Olive	Common and Distinct

Soil Details by S.E. / S.S.

Soil Classification		Slope	Limiting Factor	
3 (Profile)	D (Condition)	2 (Percent)	12 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil series/phase name: Colonel SPD

☐ Hydric ☒ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: [signature] Date: 4/8/21

Name Printed/typed: Mark Hampton Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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6495

FORM F Rev. 11/09

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Pool Street Subdivision

Applicant Name: Ginger Hill Design and Build

Project Location (municipality): Biddeford

Exploration Symbol # SS-21 ☒ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling
Fine Sandy Loam	Friable	Black	
Silty Clay Loam	Firm	Gray	Common and Distinct

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
8	E	2	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name: Scantic PD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
			"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
			"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____ ☐ Test Pit ☐ Boring

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches): 0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Texture	Consistency	Color	Mottling

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
			"	☐ Groundwater ☐ Restrictive Layer ☒ Bedrock
Profile	Condition	Percent	Depth	

Soil series/phase name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: [signature]

Date: 4/8/21

Name Printed/typed: Mark Hampton

Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

affix professional seal

Legend for Soil Maps

1. Drainage Class

Excessively Well Drained	EWD
Well Drained	WD
Moderately Well Drained	MWD
Somewhat Poorly Drained	SPD
Poorly Drained	PD
Very Poorly Drained	VPD

2. Slope Designation

0-3%	A
3-8%	B
8-15%	C
15-25%	D
>25%	E

3. Note: High Intensity Soil Survey has been prepared by Mark Hampton Associates, Inc. in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

SOIL SURVEY GENERAL NOTES

1. SOILS AND WETLANDS MAPPING BY MARK HAMPTON ASSOCIATES, P.O. BOX 1931, PORTLAND, MAINE.
2. FOR ACCOMPANYING SOIL SURVEY REPORT SEE "SOIL NARRATIVE REPORT" SIGNED AND SEALED MAY 5, 2021.
3. THE SOILS SURVEY WAS CONDUCTED IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.
4. THE SURVEY IS CLASS B–HIGH INTENSITY SOIL SURVEY.

SOIL LEGEND

DRAINAGE CLASS

EXCESSIVELY WELL DRAINED	EWD
WELL DRAINED	WD
MODERATELY WELL DRAINED	MWD
SOMEWHAT POORLY DRAINED	SPD
POORLY DRAINED	PD
VERY POORLY DRAINED	VPD

SLOPE DESIGNATION

0–3%	A
3–8%	B
8–15%	C
15–25%	D
> 25%	E

NOTE: HIGH INTENSITY SOIL SURVEY HAS BEEN PREPARED BY MARK HAMPTON ASSOCIATES, INC. IN ACCORDANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS, AND THE MAINE BOARD OF CERTIFICATION OF GEOLOGISTS AND SOIL SCIENTISTS.

MARK HAMPTON ASSOCIATES, INC.
P.O. BOX 1931
PORTLAND, MAINE 04104

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

GRAPHIC SCALE

60 0 30 60 120 240

1 inch = 60 ft.

DATE: AUGUST 20, 2021

GINGER HILL, LLC
18 EARLY WAY, ARUNDEL, MAINE, 04046

HIGH INTENSITY SOIL SURVEY
918 POOL ST, BIDDEFORD, MAINE, 04005, MAP 4, LOT 57

Map Scale: 1:7,340 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
Survey Area Data: Version 19, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	19.4	19.4%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	3.1	3.1%
LnD	Lyman loam, 15 to 25 percent slopes, rocky	D	0.0	0.0%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	24.5	24.5%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	33.8	33.8%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	19.2	19.2%
Totals for Area of Interest			**100.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix D

Inspection and Maintenance Plan

INSPECTION AND MAINTENANCE OF
STORMWATER MANAGEMENT FACILITIES PLAN

WINDWARD RIDGE
Pool Street
Biddeford, Maine 04005

Stormwater Management Facilities include swales, paved areas, gravel areas, culverts, riprapped aprons, and level spreaders. Periodic inspection and maintenance of these site features and devices is necessary to prevent erosion, protect roadways and other gravel areas, and remove pollutants from stormwater runoff. Ginger Hill Design + Build will be responsible for the inspection and maintenance of the stormwater facilities associated with this project until all units are sold. At that time, inspection and maintenance will be transferred to the Homeowners Association.

SIGNIFICANT RAINFALL:

For the purposes of this Inspection and Maintenance Plan, a significant rainfall event shall be defined as a storm of 0.5 inches or more in a 24-hour period, heavy, intense rainfall, such as thunder showers or during periods of significant snowmelt.

SWALES, DITCHES, PAVED AREAS, AND GRAVEL AREAS:

Swales, ditches, paved areas, and gravel areas are easily inspected during a site walk or even a ride-by. Since visual inspection is easy, their condition should be assessed during and/or after significant rainfall events. Any damage or unusual condition such as sedimentation of a ditch, erosion, damaged curb or dying vegetation should be recorded, dated and initialed by the inspector when observed. Even if there is no damage, the inspector should make record of these inspections at least twice annually.

Paved and gravel areas should be visually inspected monthly during the winter. The inspector should pay particular attention for evidence of erosion. The date and initials of the inspector should be recorded on the forms provided as well as a notation of any cleanup effort that was made and repairs to eroded areas.

Open swales and ditches shall be inspected twice per year (in spring and fall) to assure that debris and/or sediments do not reduce the effectiveness of the system. Debris and sediments shall be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the ditches and slopes proper function. Maintenance shall include, but not be limited to, mowing, trimming and removal of vegetation in the ditches and slopes as required in order to prevent vegetation from blocking or diverting storm flows, replacement of riprap channel lining to prevent scour of the channel invert, removing vegetation and debris from the culverts.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be reseeded and mulched immediately.

CULVERT PIPES:

Inspect culvert pipes when inspecting other stormwater maintenance facilities. At least annually make a visual inspection of the pipe. During the daylight you should be able to see light through most pipes as they have been laid to a straight line and grade.

Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the stormwater filter or wetland areas.

Riprap aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

Record inspections on the forms provided noting condition of pipe and any maintenance procedures implemented.

SEDIMENT DISPOSAL:

Any sediment or debris removed during maintenance of the stormwater system must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

WINDWARD RIDGE BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
SWALES, DITCHES, PAVED AREAS, AND GRAVEL AREAS			
I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
5/10/19	RST	I, C	EXAMPLE: Removed sand around CB's 19 and 20. Heavy rain over the weekend.

WINDWARD RIDGE BIDDEFORD, MAINE			
INSPECTION / MAINTENANCE LOG			
CULVERT PIPES			
I: INSPECTED - C: CLEANED - R: REPAIRED			
DATE	**INITIALS**	**ACTION**	**COMMENT**
4/19/18	JKL	I, C	EXAMPLE: Called ACME to clean debris from culvert inlets along Main Road and Loop Road.

STORMWATER MANAGEMENT SYSTEM MAINTENANCE PROGRAM SUMMARY CHECKLIST					
Item	**Commentary**	**Frequency**			
		Month	**Semi-Annual**	**Annual**	**Long-Term**
Open Swale, Ditches & Inlet Structures	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	**X Mow**		**X**	
Pavement & Gravel Surfaces	Review for damage and buildup of debris and sand.	**X**	**X Sweep**		
Culverts	Inspect for sediment build-up in pipe. Flush and remove as required.			**X**	
Riprap	Inspect for erosion, sediment and vegetation. Clean and rebuild as required.			**X**	

Appendix E

Drainage Plans
D1.0 – Pre-Development Drainage Plan
D2.0 – Post Development Drainage Plan
(See Complete Plan Set)

ATTACHMENT 6
SITE PLAN

- Cover Sheet
- S1.0 – Subdivision Plan
- Plan of Boundary Survey 930 Pool Street, Biddeford, Maine

- C1.0 – Existing Conditions & Removals Plan
- C1.1 – Conventional Layout Plan
- C1.2 – Cluster Layout Plan
- C2.0 – Site Layout & Utilities Plan
- C2.1 – Grading & Erosion Control Plan
- C2.2 – Windward Ridge Plan & Profile
- C3.0 – Site Details
- C3.1 – Site Details

- D1.0 – Pre-Development Drainage Plan
- D2.0 – Post Development Drainage Plan

- S1.0 – Second Amended Subdivision Plan

Windward Ridge

Pool Street
Biddeford, Maine 04005

prepared for:

Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046
January 12, 2021

Design Consultants:

CIVIL ENGINEER
WALSH ENGINEERING ASSOCIATES, INC.
ONE KAREN DRIVE, SUITE 2A
WESTBROOK, MAINE 04092
207-553-9898

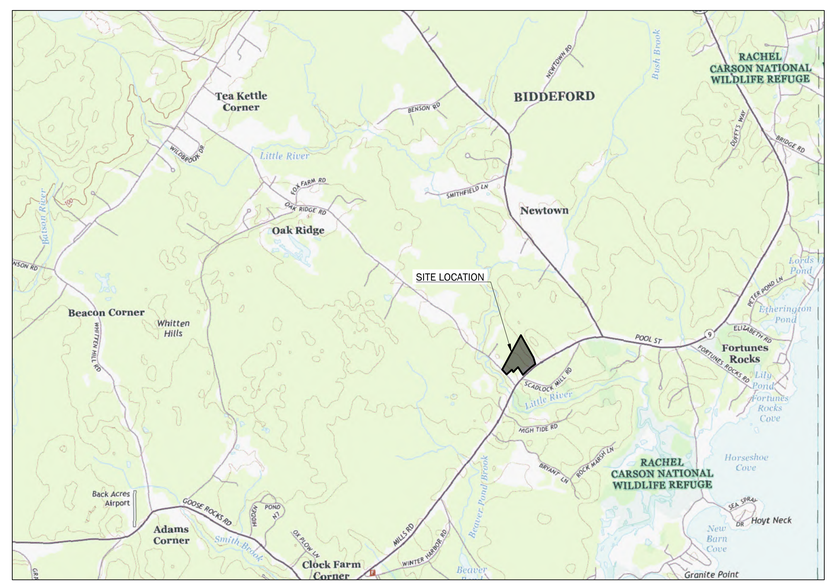
BOUNDARY SURVEYOR
TITCOMB ASSOCIATES, INC.
133 GRAY ROAD
FALMOUTH, MAINE 04105
207-797-9199

WETLAND & SOIL SCIENTIST
MARK HAMPTON ASSOCIATES, INC.
PO BOX 1931
PORTLAND, MAINE 04104
207-756-2900

WILDLIFE BIOLOGIST
JONES ASSOCIATES, INC
280 POLAND SPRING ROAD
AUBURN, MAINE 04210
207-241-0235

WALSH
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com



List of Drawings:

SHEET NO.	SHEET TITLE
	COVER SHEET
S1.0	SUBDIVISION PLAN
	PLAN OF BOUNDARY SURVEY 930 POOL STREET, BIDDEFORD, MAINE
C1.0	EXISTING CONDITIONS & REMOVALS PLAN
C1.1	CONVENTIONAL LAYOUT PLAN
C1.2	CLUSTER LAYOUT PLAN
C2.0	SITE LAYOUT & UTILITIES PLAN
C2.1	GRADING & EROSION CONTROL PLAN
C2.2	WINDWARD RIDGE PLAN & PROFILE
C3.0	SITE DETAILS
C3.1	SITE DETAILS
D1.0	PRE-DEVELOPMENT DRAINAGE PLAN
D2.0	POST DEVELOPMENT DRAINAGE PLAN

Record Owner:

GINGER HILL, LLC
18 EARLY WAY
ARUNDEL, MAINE 04046

Parcel ID:

MAP 4
LOT 48

BIDDEFORD PLANNING BOARD

GREG TANSLEY, CITY PLANNER, DULY AUTHORIZED TO SIGN ON BEHALF OF THE BIDDEFORD PLANNING BOARD.

NOTE: THIS PLAN IS SIGNED BY THE CITY PLANNER ON BEHALF OF THE BIDDEFORD PLANNING BOARD AND SHALL BE DEEMED TO HAVE BEEN SIGNED BY THE INDIVIDUAL MEMBERS ON THE PLANNING BOARD EVIDENCING APPROCAL OF THE FINAL PLANS.

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	
	IRON ROD OR PIN SET	5/8" REBAR TO BE SET
	CONCRETE MONUMENT FOUND	CONCRETE or GRANITE MONUMENT TO BE SET
	GRANITE MONUMENT FOUND	
	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	

PARCEL INFORMATION:

1. OWNER OF RECORD: GINGER HILL, LLC dba GINGER HILL DESIGN & BUILD BY DEED RECORDED AT THE (YCRD) DEED BOOK 18664, PAGE 128, DATED MAY 13, 2021.
2. STREET ADDRESS: 918 POOL STREET, BIDDEFORD, MAINE 04005
3. PARCEL SHOWN HEREON IS TOWN OF BIDDEFORD TAX MAP 4, LOT 48.
4. TOTAL AREA OF PARCEL: 11.8± AC (515,383 SF)
5. CURRENT ZONE: COASTAL RESIDENTIAL (CR) & RURAL FARM (RF)

PLAN REFERENCES:

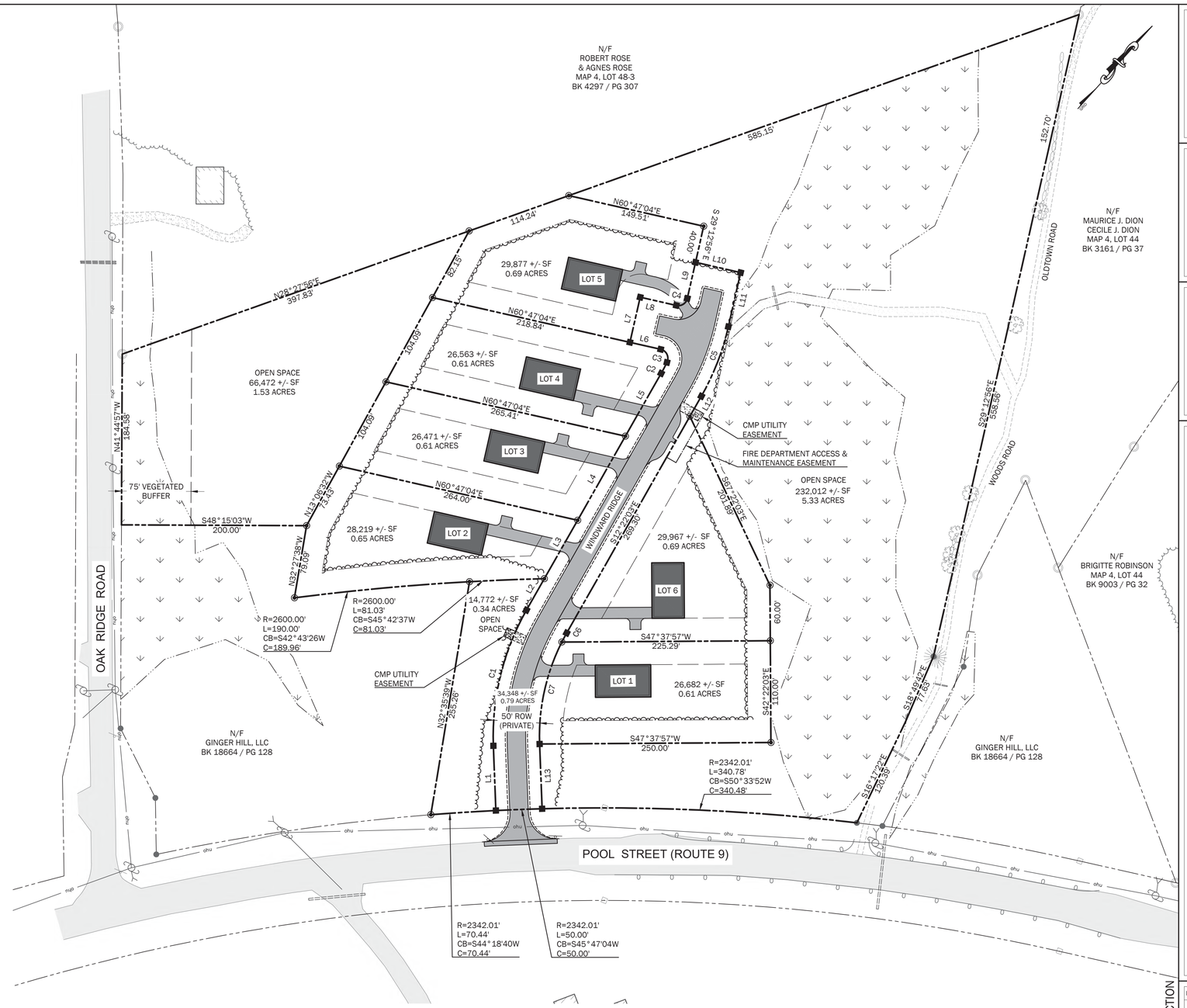
1. TOPOGRAPHIC AND PROPERTY BOUNDARY INFORMATION TAKEN FROM A COMPILATION OF THE FOLLOWING:
   - 1.1. A PLAN TITLED "PLAN OF BOUNDARY SURVEY 930 POOL STREET, BIDDEFORD, MAINE", MADE FOR GINGER HILL DESIGN & BUILD BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE 04105, DATED JULY 13, 2021 AND REVISED THROUGH AUGUST 3, 2021.
   - 1.2. DIGITAL ELEVATION INFORMATION OBTAINED FROM MAINE OFFICE OF GIS GEOLIBRARY DIGITAL ELEVATION APPLICATION FEBRUARY 22, 2021.
   - 1.3. ZONING BOUNDARY OBTAINED FROM A MAP TITLED "OFFICIAL ZONING MAP" FOR THE CITY OF BIDDEFORD, DATED JULY 3, 2012.
2. WETLAND DELINEATION PROVIDED BY MARK HAMPTON ASSOCIATES, INC. ON MARCH 5, 2021.

GENERAL NOTES:

1. BOOK AND PAGE REFERENCES ARE TO THE YORK COUNTY REGISTRY OF DEEDS, UNLESS OTHERWISE NOTED.
2. BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83.
3. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE, BASED ON LOCATION OF VISIBLE FEATURES. DIGSAFE AND/OR THE APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
4. THE PROPERTY IS BENEFITED BY AND SUBJECT TO THE EASEMENT, COVENANTS, AND RESTRICTIONS SET FORTH IN THE MASTER DECLARATION.
5. LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.

FLOOD ZONE INFORMATION:

1. CLASSIFICATION: ZONE C, AREAS OF MINIMAL FLOODING
2. FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 230145 0010 B
3. EFFECTIVE DATE: MAY 15, 1984



ZONING INFORMATION*:

1. CLASSIFICATION: RURAL FARM (RF) & COASTAL RESIDENTIAL (CR)
2. MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
   20,000 SF (NO WATER, NO SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
   25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT (RF) 10 FT (CR)
8. REAR SETBACK: 25 FT (RF) 10 FT (CR)
9. PARKING REQUIREMENTS: 2 PER DWELLING UNIT
10. 75' VEGETATED BUFFER FROM EXISTING ROW

Line Segment Table

Line Segment	Bearing	Distance
L1	N44°12'56"W	70.00'
L2	N12°22'03"W	39.09'
L3	N12°22'03"W	72.67'
L4	N12°22'03"W	104.48'
L5	N12°22'03"W	78.14'
L6	S60°47'04"W	34.11'
L7	N29°12'56"W	50.00'

Line Segment Table

Line Segment	Bearing	Distance
L8	N60°47'04"E	40.00'
L9	N29°12'56"W	40.00'
L10	N60°47'04"E	50.00'
L11	N29°12'56"W	60.00'
L12	S12°22'03"E	25.09'
L13	S44°12'56"E	70.00'

Curve Segment Table

Curve Segment	Curve Radius	Curve Length	Chord Bearing	Chord Length
C1	275.00'	152.86'	N28°17'30"W	150.90'
C2	225.00'	13.35'	N14°04'04"W	13.35'
C3	10.00'	18.06'	N67°29'30"W	15.70'
C4	10.00'	15.71'	N15°47'04"E	14.14'
C5	275.00'	80.87'	S20°47'30"E	80.57'
C6	225.00'	11.11'	S13°46'56"E	11.11'
C7	225.00'	113.96'	S29°42'23"E	112.74'

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Nicholas S. Elliston, P.L.S. #2518

GRAPHIC SCALE

60 0 30 60 120 240

1 inch = 60 ft.

BIDDEFORD PLANNING BOARD

GREG TANSLEY, CITY PLANNER, DULY AUTHORIZED TO SIGN ON BEHALF OF THE BIDDEFORD PLANNING BOARD.

NOTE: THIS PLAN IS SIGNED BY THE CITY PLANNER ON BEHALF OF THE BIDDEFORD PLANNING BOARD AND SHALL BE DEEMED TO HAVE BEEN SIGNED BY THE INDIVIDUAL MEMBERS ON THE PLANNING BOARD EVIDENCING APPROCAL OF THE FINAL PLANS.

State of Maine, York ss.
Registry of Deeds
Received _____, 20 ____
at __h__ m__M, and recorded in
Plan Book _____ , Page _____
Attest: _____
Register

WALSH
ENGINEERING ASSOCIATES, INC.
One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

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STATE OF MAINE
NICHOLAS S. ELLISTON #2518
PROFESSIONAL LAND SURVEYOR

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

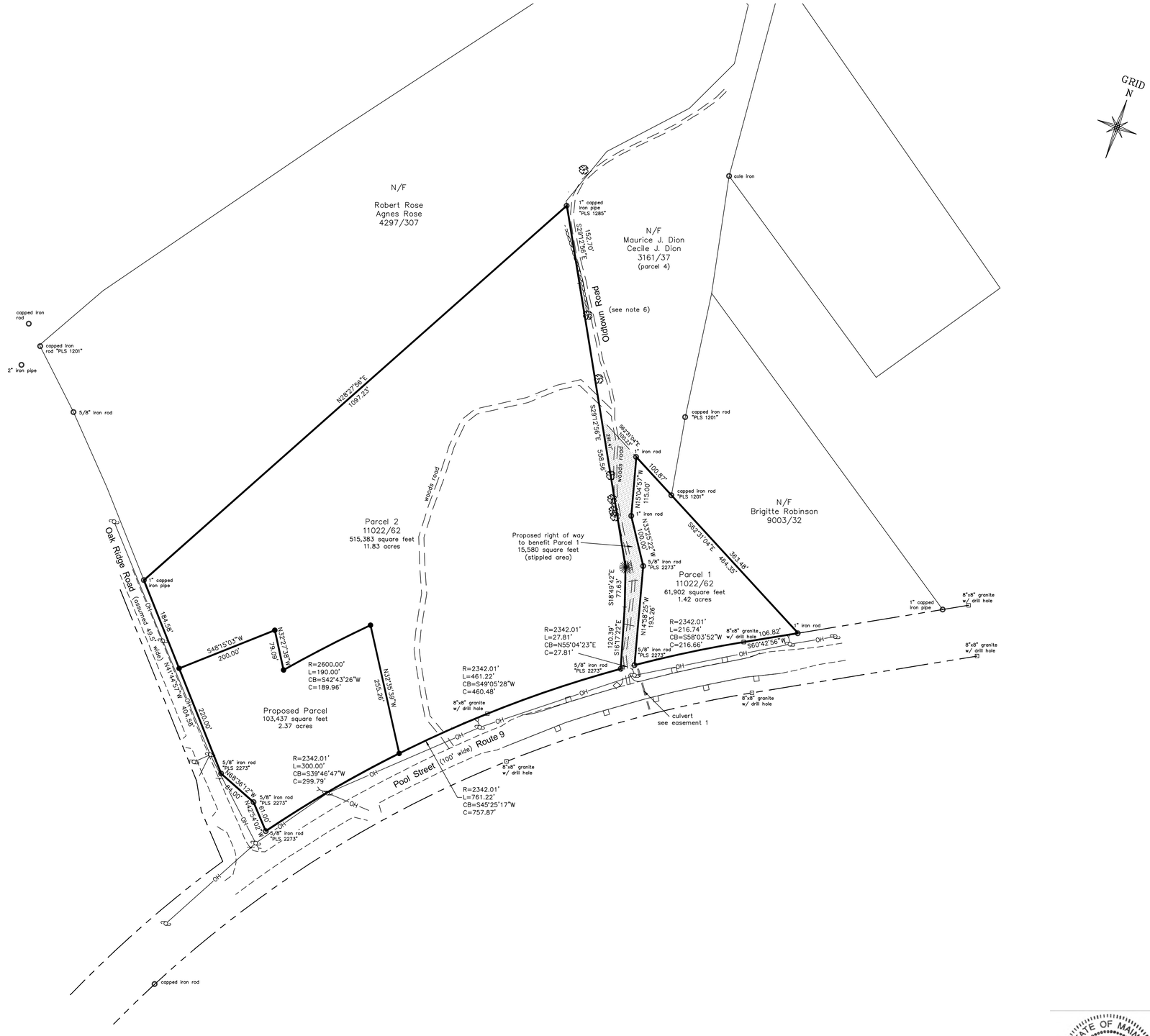
Sheet Title:

Subdivision Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 60'
Drawn:	CAR
Checked:	WRW

Sheet No.: S1.0

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION



LEGEND

⊡	Monument – found
○	Iron marker – found
●	Iron marker – set (#5 rebar)
━━━	Property line (locus)
═══	Property line (abutter)
— — —	Right of way line
⊓ ⊓ ⊓	Guard rail
—┼—	Sign
─○─	Utility pole
─<─	Guy wire
──OH──	Overhead utility line
N/F	Now or formerly of
1234/567	Deed reference (Book/Page)
○○○○○○○○○○	Stone wall
✿	Deciduous tree w/embedded wire fence
✹	Coniferous tree w/embedded wire fence

NOTES

1) Book and Page references are to the York County Registry of Deeds, unless otherwise noted.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, West Zone, NAD83.

3) Utility information on this plan is approximate, based on location of visible features. DigSafe and/or the appropriate utilities should be contacted prior to any construction.

4) Property lies within Zone C based on FIRM Community #230145 Panel #0010 B, effective date May 15, 1984. It does not lie within a special flood hazard area.

5) Project area was covered by snow and ice at the time of the survey and some features may have been obscured and not shown on this plan.

6) This portion of Oldtown Road was formerly known as Old Newtown Road. It was renamed by order of the City of Biddeford Municipal Officers on November 20, 1979. "Newtown Road" was discontinued by the City of Biddeford Municipal Officers on January 2, 1990 and described as "all of Newtown Road lying between Hills Beach Road on the northeast, and Pool Street on the southwest". The roadway has not been maintained and is presumed to be included in the "Newtown Road" discontinuance. The City of Biddeford retained a public easement over the discontinued road.

PLAN REFERENCES

1) Plan Showing a Standard Boundary Survey made for Christopher Robinson by Dow and Coulombe, Inc. dated September 22, 1989 as recorded in Plan Book 186, Page 10.

2) Worksheet Sketch made for Hank Labrie by John Bruckler dated January 31, 1997.

3) Revision to Alphonse & Bernadette M. Dion Subdivision Boundary Survey and Re-Subdivision of Land of Peter S. and Shirley W. Bowen and David R. and Frances V. Consalvo made by Civil Consultants dated June 13, 2003 as recorded in Plan Book 284, Page 1.

4) Maine State Highway Commission Right of Way S.H.C. File No. 16–137 Sheet 5 of 5 dated December, 1961 as recorded in Plan Book 39, Page 7.

5) Standard Boundary Survey made for the Saco Valley Land Trust, Inc. made by Guy Casavant PLS #1301 dated October 16, 2002 as recorded in Plan Book 290, Page 28.

6) Standard Boundary Survey made for Albert A. & Isabella Chretien by BH2M dated April, 2006 and revised through April 6, 2010 as recorded in Book 343, Page 13.

5) Maine State Highway Commission Right of Way S.H.C. File No. 16–122 Sheet 1 of 2 dated June, 1958 as recorded in Plan Book 29, Page 11.

6) Boundary Survey made for Henry George Labrie III by Titcomb Associates dated February 24, 2021.

EASEMENTS / ENCUMBRANCES

1) Drainage rights described in a Notice of Taking by the State of Maine recorded in Book 1481, Page 11

AREA

as noted

OWNERS OF RECORD

Ginger Hill Design & Build
18 Early Way, Arundel, Maine
Book 18664, Page 128

SCALE IN FEET

100 0 100 200

1" = 100'

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Rex J. Croteau, P.L.S. #2273

STATE OF MAINE
REX J. CROTEAU
2273
PROFESSIONAL LAND SURVEYOR

Rev. 1	08/03/21	proposed easement	RJC

PLAN OF

Boundary Survey

930 Pool Street — Biddeford, Maine

MADE FOR

Ginger Hill Design & Build

468 Limerick Road — Arundel, Maine

JOB #221021	DATE: July 13, 2021	SCALE: 1" = 100'
BOOK #933	Titcomb Associates	
221021.dwg	133 Gray Road, Falmouth, Maine 04105	
	(207)797-9199 www.titcombsurvey.com	

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	
	IRON ROD OR PIN SET	5/8" REBAR TO BE SET
	CONCRETE MONUMENT FOUND	CONCRETE or GRANITE MONUMENT TO BE SET
	GRANITE MONUMENT FOUND	
	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	

PARCEL INFORMATION:

1. OWNER OF RECORD: GINGER HILL, LLC dba GINGER HILL DESIGN & BUILD
2. STREET ADDRESS: 918 POOL STREET, BIDDEFORD, MAINE 04005
3. PARCEL SHOWN HEREON IS TOWN OF BIDDEFORD TAX MAP 4, LOT 48.
4. TOTAL AREA OF PARCEL: 11.8± AC (515,383 SF)
5. CURRENT ZONE: COASTAL RESIDENTIAL (CR) & RURAL FARM (RF)

PLAN REFERENCES:

1. TOPOGRAPHIC AND APPROXIMATE PROPERTY BOUNDARY INFORMATION TAKEN FROM A COMPILATION OF THE FOLLOWING:
   - 1.1. A PLAN TITLED "PLAN OF BOUNDARY SURVEY 930 POOL STREET, BIDDEFORD, MAINE", PREPARED BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE 04105, DATED FEBRUARY 24, 2021.
   - 1.2. DIGITAL ELEVATION INFORMATION OBTAINED FROM MAINE OFFICE OF GIS GEOLIBRARY DIGITAL ELEVATION APPLICATION FEBRUARY 22, 2021.
   - 1.3. PROPERTY BOUNDARY INFORMATION OBTAINED FROM MAINE OFFICE OF GIS IN FEBRUARY 22, 2021.
   - 1.4. ZONING BOUNDARY OBTAINED FROM A MAP TITLED "OFFICIAL ZONING MAP" FOR THE CITY OF BIDDEFORD, DATED JULY 3, 2012.
2. WETLAND DELINEATION PROVIDED BY MARK HAMPTON ASSOCIATES, INC. ON MARCH 5, 2021.
3. SOILS INFORMATION WITHIN THE PROPERTY BOUNDARIES FROM A HIGH INTENSITY SOIL SURVEY AND SOIL NARRATIVE REPORT PROVIDED BY MARK HAMPTON DATED MAY 5, 2021.
4. SOIL TEST PIT INFORMATION FOR SEPTIC SYSTEMS FROM HHE-200 DOCUMENTS PROVIDED BY MARK HAMPTON DATED AUGUST 26, 2021.

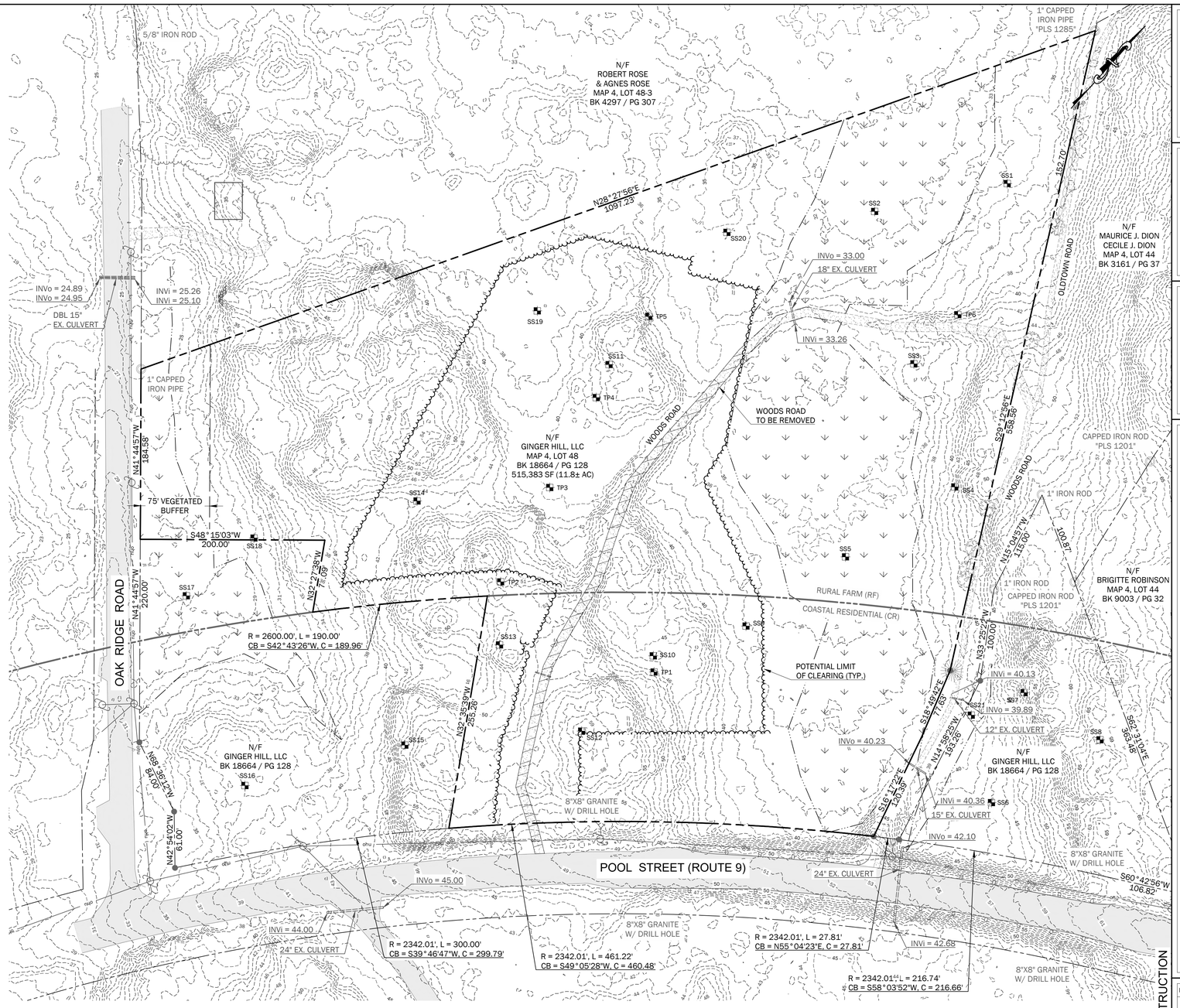
FLOOD ZONE INFORMATION:

1. CLASSIFICATION: ZONE C
2. FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 230145 0010 B
3. EFFECTIVE DATE: MAY 15, 1984

ZONING INFORMATION*:

1. CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
2. MIN. LOT AREA: CR: 80,000 SF (NO WATER/SEWER, CONVENTIONAL)
   CR: 30,000 SF (NO WATER/SEWER, CLUSTER)
   RF: 40,000 SF (NO WATER/SEWER, CONVENTIONAL)
   RF: 20,000 SF (NO WATER/SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: CR: 150 FT
   RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
   25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD CODE OF ORDINANCES, DATED DECEMBER 15, 2020.



GRAPHIC SCALE

60 0 30 60 120 240

1 inch = 60 ft.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

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ENGINEERING ASSOCIATES, INC.
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ph: 207.553.9898 | www.walsh-eng.com

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STATE OF MAINE
WILLIAM R. WALSH, III
No. 8204
LICENSED PROFESSIONAL ENGINEER
1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	8/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Existing Conditions & Removals Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 60'
Drawn:	CAR
Checked:	WRW

Sheet No.: C1.0

LEGEND

EXISTING

ROAD

PROPERTY LINE

RIGHT-OF-WAY LINE

ABUTTERS PROPERTY LINE

PROPERTY SETBACK

TOWN LINE

N/F "OWNERS NAME" TAX MAP TAX LOT DEED BOOK AND PAGE

ABUTTER IDENTIFICATION

WETLANDS

NET LOT AREA DEDUCT AREAS

SOMEWHAT POORLY DRAINED SOILS

WETLANDS

STEEP SLOPES (>33%)

PLAN NOTES:

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

ZONING INFORMATION*:

1. CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
2. MIN. LOT AREA: CR: 80,000 SF (NO WATER/SEWER, CONVENTIONAL)
   RF: 40,000 SF (NO WATER/SEWER, CONVENTIONAL)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: CR: 150 FT
   RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
   25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD
CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

Net Residential Density Calculation (CR Zone)	
	Area (sf)
Gross Lot Area	**128,000**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	12,632
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,953
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	28,046
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**85,370**
Minimum Conventional Lot Area (CR Zone)	**80,000**
Total Allowable Lots	**1**

Net Residential Density Calculation (RF Zone)	
	Area (sf)
Gross Lot Area	**381,091**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	65,925
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,933
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	93,774
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**219,460**
Minimum Conventional Lot Area (RF Zone)	**40,000**
Total Allowable Lots	**5**

Net Residential Density Calculation (Lot 1)	
	Area (sf)
Gross Lot Area	**122,844**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	12,632
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,953
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	28,046
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**80,214**
Minimum Conventional Lot Area (CR Zone)	**80,000**

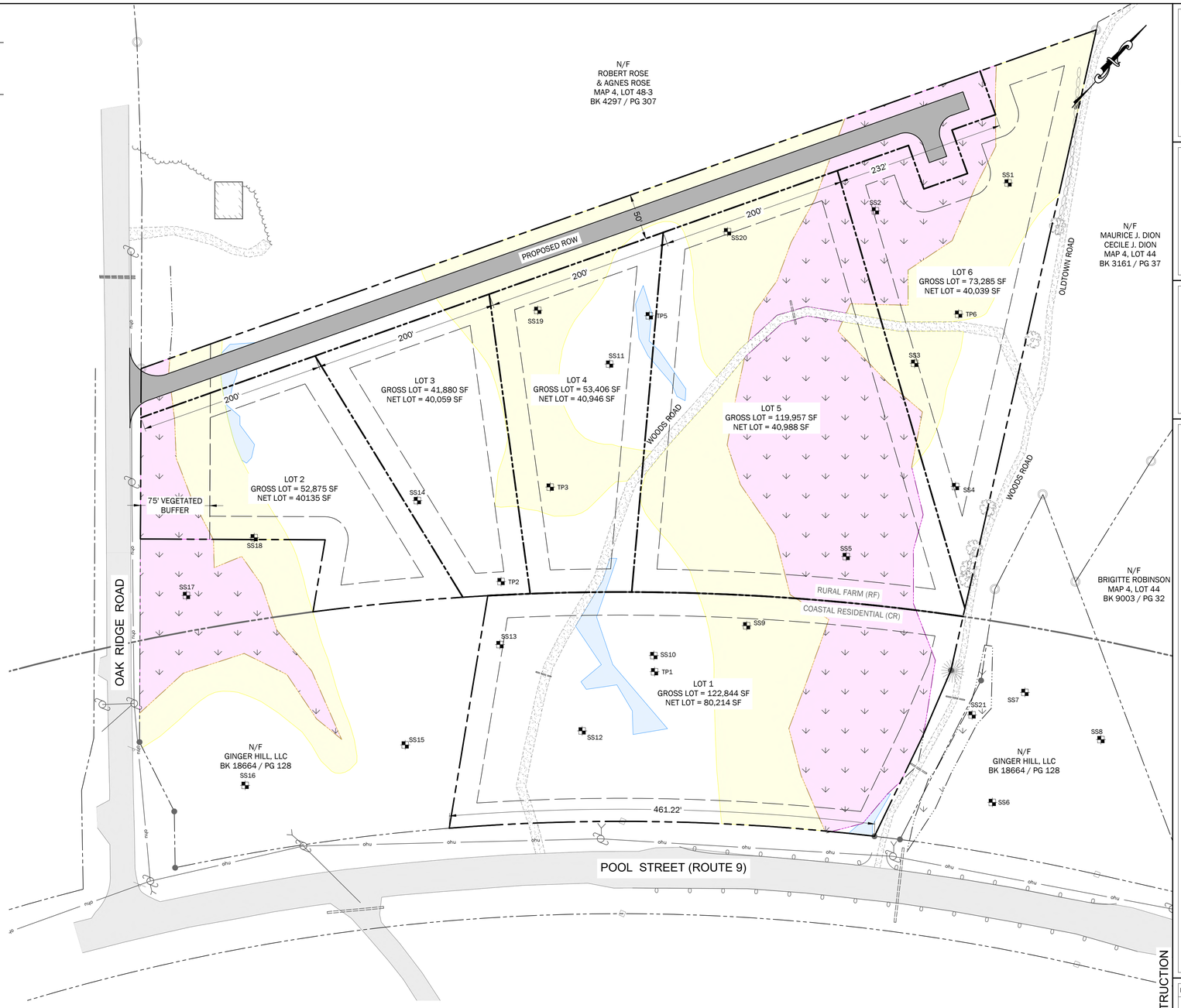
Net Residential Density Calculation (Lot 2)	
	Area (sf)
Gross Lot Area	**52,875**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	5,397
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	483
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	6,861
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**40,135**
Minimum Conventional Lot Area (RF Zone)	**40,000**

Net Residential Density Calculation (Lot 3)	
	Area (sf)
Gross Lot Area	**41,880**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	1,822
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**40,059**
Minimum Conventional Lot Area (RF Zone)	**40,000**

Net Residential Density Calculation (Lot 4)	
	Area (sf)
Gross Lot Area	**53,406**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	11,890
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	570
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**40,946**
Minimum Conventional Lot Area (RF Zone)	**40,000**

Net Residential Density Calculation (Lot 5)	
	Area (sf)
Gross Lot Area	**119,957**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	19,103
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	325
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	59,542
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**40,988**
Minimum Conventional Lot Area (RF Zone)	**40,000**

Net Residential Density Calculation (Lot 6)	
	Area (sf)
Gross Lot Area	**73,285**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	16,563
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	16,683
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**40,039**
Minimum Conventional Lot Area (RF Zone)	**40,000**



GRAPHIC SCALE

60 0 30 60 120 240

1 inch = 60 ft.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

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STATE OF MAINE
WILLIAM R. WALSH, III
No. 8204
LICENSED PROFESSIONAL ENGINEER
1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
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2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Conventional Layout Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 60'
Drawn:	CAR
Checked:	WRW

Sheet No.: C1.1

LEGEND

EXISTING

ROAD

PROPERTY LINE

RIGHT-OF-WAY LINE

ABUTTERS PROPERTY LINE

PROPERTY SETBACK

TOWN LINE

N/F "OWNERS NAME" TAX MAP TAX LOT DEED BOOK AND PAGE

ABUTTER IDENTIFICATION

WETLANDS

NET LOT AREA DEDUCT AREAS

SOMEWHAT POORLY DRAINED SOILS

WETLANDS

STEEP SLOPES (>33%)

PLAN NOTES:

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

ZONING INFORMATION*:

1. CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
2. MIN. LOT AREA: CR: 30,000 SF (NO WATER/SEWER, 2/A SOILS)
   RF: 20,000 SF (NO WATER/SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: CR: 150 FT
   RF: 200 FT (NO WATER/SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
   25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

Net Residential Density Calculation (CR Zone)	
	Area (sf)
Gross Lot Area	**128,000**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	12,632
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,953
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	28,046
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**85,370**
Minimum Conventional Lot Area (CR Zone)	**80,000**
Total Allowable Lots	**1**

Net Residential Density Calculation (RF Zone)	
	Area (sf)
Gross Lot Area	**381,091**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	65,925
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,933
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	93,774
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**219,460**
Minimum Conventional Lot Area (RF Zone)	**40,000**
Total Allowable Lots	**5**

Net Residential Density Calculation (Lot 1)	
	Area (sf)
Gross Lot Area	**26,682**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	4,394
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	1,086
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**21,203**
Minimum Cluster Lot Area	**20,000**

Net Residential Density Calculation (Lot 2)	
	Area (sf)
Gross Lot Area	**28,219**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	0
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**28,219**
Minimum Cluster Lot Area	**20,000**

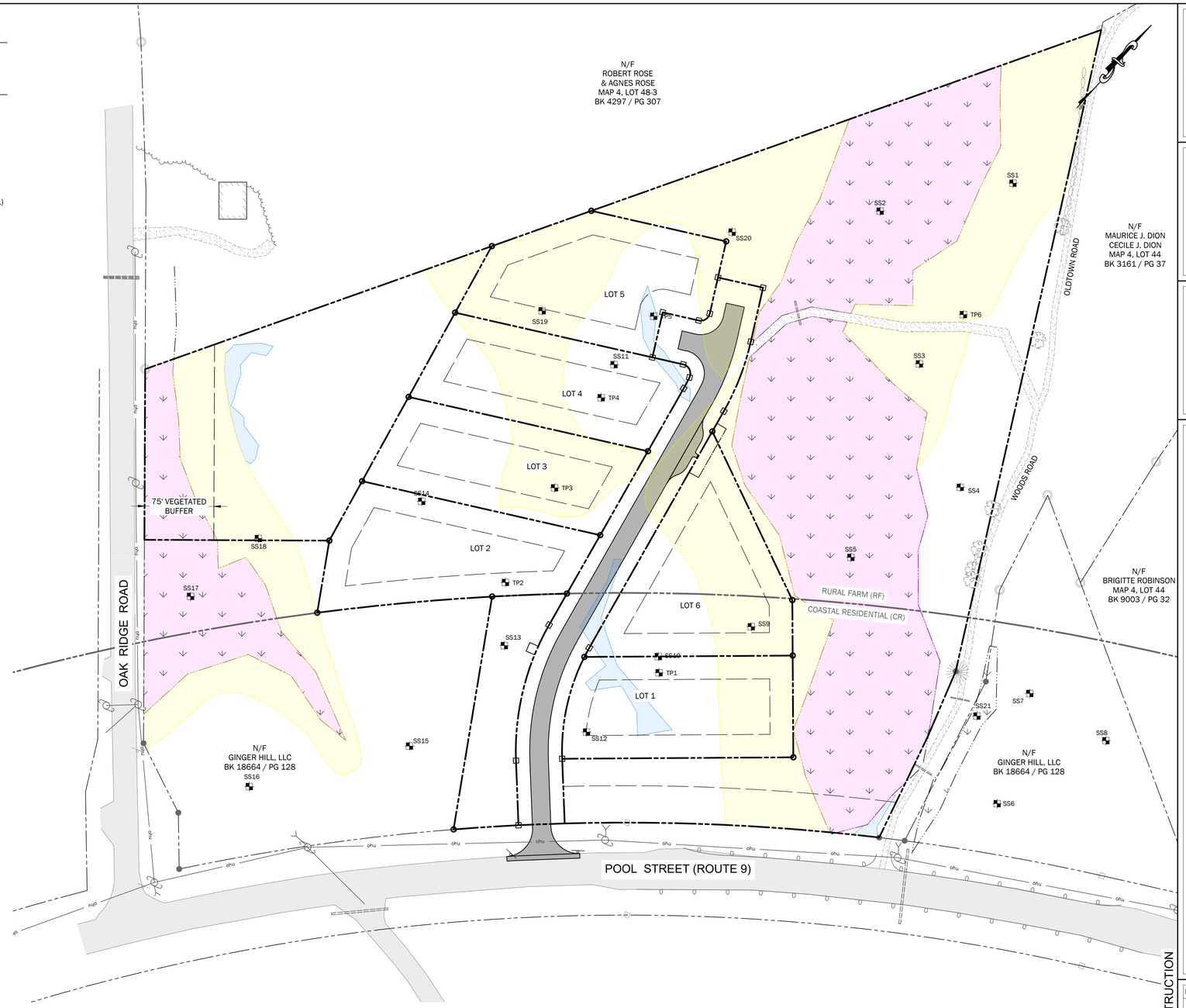
Net Residential Density Calculation (Lot 3)	
	Area (sf)
Gross Lot Area	**26,471**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	5,463
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	0
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**21,008**
Minimum Cluster Lot Area	**20,000**

Net Residential Density Calculation (Lot 4)	
	Area (sf)
Gross Lot Area	**26,598**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	4,449
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	205
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**21,945**
Minimum Cluster Lot Area	**20,000**

Net Residential Density Calculation (Lot 5)	
	Area (sf)
Gross Lot Area	**29,898**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	9,078
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	400
Area Subject to ROWs/easements, etc.	0
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**20,421**
Minimum Cluster Lot Area	**20,000**

Net Residential Density Calculation (Lot 6)	
	Area (sf)
Gross Lot Area	**29,932**
Deductions (no sewer)	
100-year flood zone	0
Soil Drainage Class	
Somewhat poorly drained (50% Deduction)	8,930
Poorly/Very Poorly Drained	0
Slopes > 33% (50% Deduction)	233
Area Subject to ROWs/easements, etc.	500
Surface Waters/Wetlands	0
Soils of Statewide Significance	0
Land within RP zone	0
Land within CR zone setback	0
Unreclaimed extractive activity land	0
Net Lot Area	**20,270**
Minimum Cluster Lot Area	**20,000**

Cluster Open Space Area Calculations			
Lot	Convensional Subdivision Minimum Lot Area (sf)	Net Lot Area (sf)	Cluster Subdivision Lot Area Reduction (sf)
1	80,000	21,203	58,798
2	40,000	28,219	11,781
3	40,000	21,008	18,992
4	40,000	21,945	18,055
5	40,000	20,421	19,579
6	40,000	20,270	19,731
Required Open Space Area			**146,935**
Provided Open Space Area			**270,305**
% of Required Open Space Provided			**184.0%**



GRAPHIC SCALE

60 0 30 60 120 240

1 inch = 60 ft.

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No. 8204
LICENSED PROFESSIONAL ENGINEER
1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
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Sheet Title:

Cluster Layout Plan

Job No.: 742
Date: June 15, 2021
Scale: 1" = 60'
Drawn: CAR
Checked: WRW

Sheet No.: C1.2

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	
	IRON ROD OR PIN SET	5/8" REBAR TO BE SET
	CONCRETE MONUMENT FOUND	CONCRETE or GRANITE MONUMENT TO BE SET
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	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
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ugu	UNDERGROUND UTILITY	UGU
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	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	
	SILT FENCE	SF
	EROSION CONTROL BERM	ECB
	TURF REINFORCEMENT MATTING	
	CONSTRUCTION ENTRANCE	

PLAN NOTES:

1. SEE SHEET C1.0 FOR PLAN REFERENCES, ZONING INFORMATION, ETC.

ZONING INFORMATION*:

1. CLASSIFICATION: COASTAL RESIDENTIAL (CR), RURAL FARM (RF)
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6. FRONT SETBACK: 40 FT FROM MAJOR ROW
   25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT
8. REAR SETBACK: 25 FT
9. 75' VEGETATED BUFFER FROM EXISTING ROW IN RF DISTRICT

*ZONING STANDARDS FROM TOWN OF BIDDEFORD CODE OF ORDINANCES, DATED DECEMBER 15, 2020.

LAYOUT, MATERIALS, AND UTILITY NOTES:

1. ALL DIMENSIONS, LOCATIONS AND CONTROLS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION ACTIVITIES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
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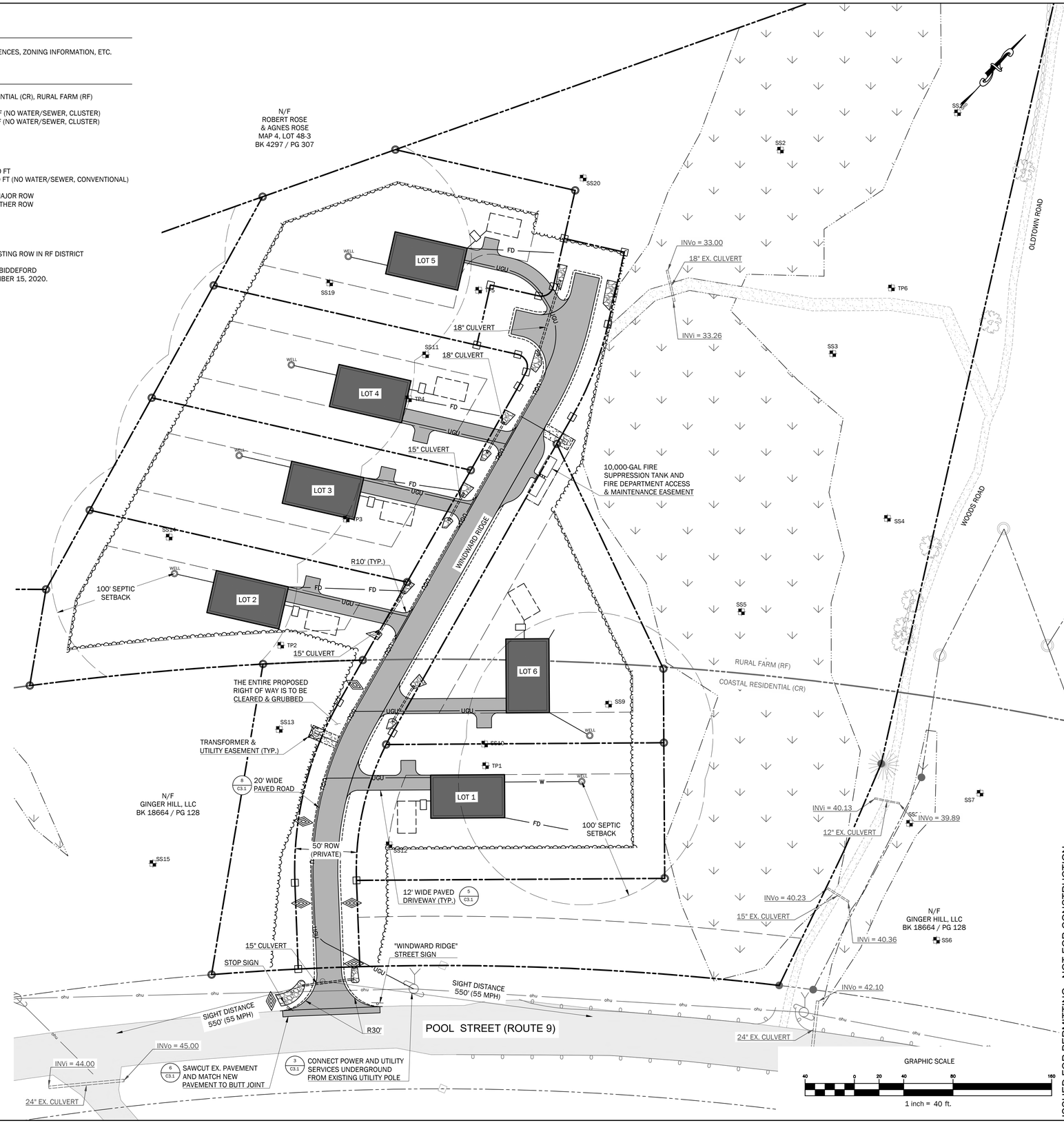

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WILLIAM R. WALSH, III
No. 8204
LICENSED PROFESSIONAL ENGINEER
7/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

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Sheet Title:

Site Layout & Utilities Plan

Job No.:	742	Sheet No.:	C2.0
Date:	June 15, 2021		
Scale:	1" = 40'		
Drawn:	CAR		
Checked:	WRW		

LEGEND

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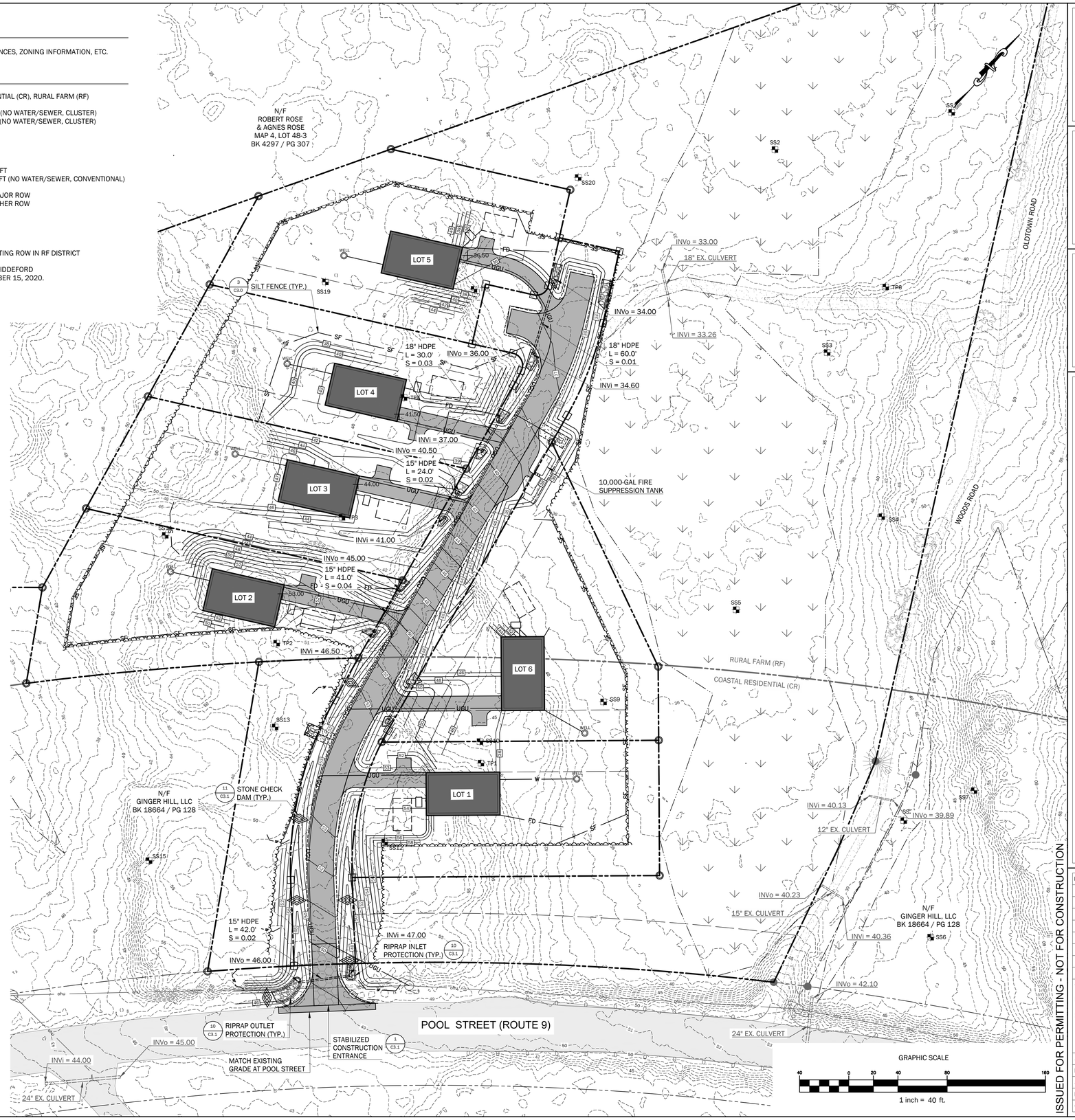

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7/12/2022

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Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
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18 Early Way
Arundel, Maine 04046

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Sheet Title:

Grading & Erosion Control Plan

Job No.:	742	Sheet No.:
Date:	June 15, 2021	C2.1
Scale:	1" = 40'	
Drawn:	CAR	
Checked:	WRW	

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LEGEND

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	CONSTRUCTION ENTRANCE	

PLAN NOTES:

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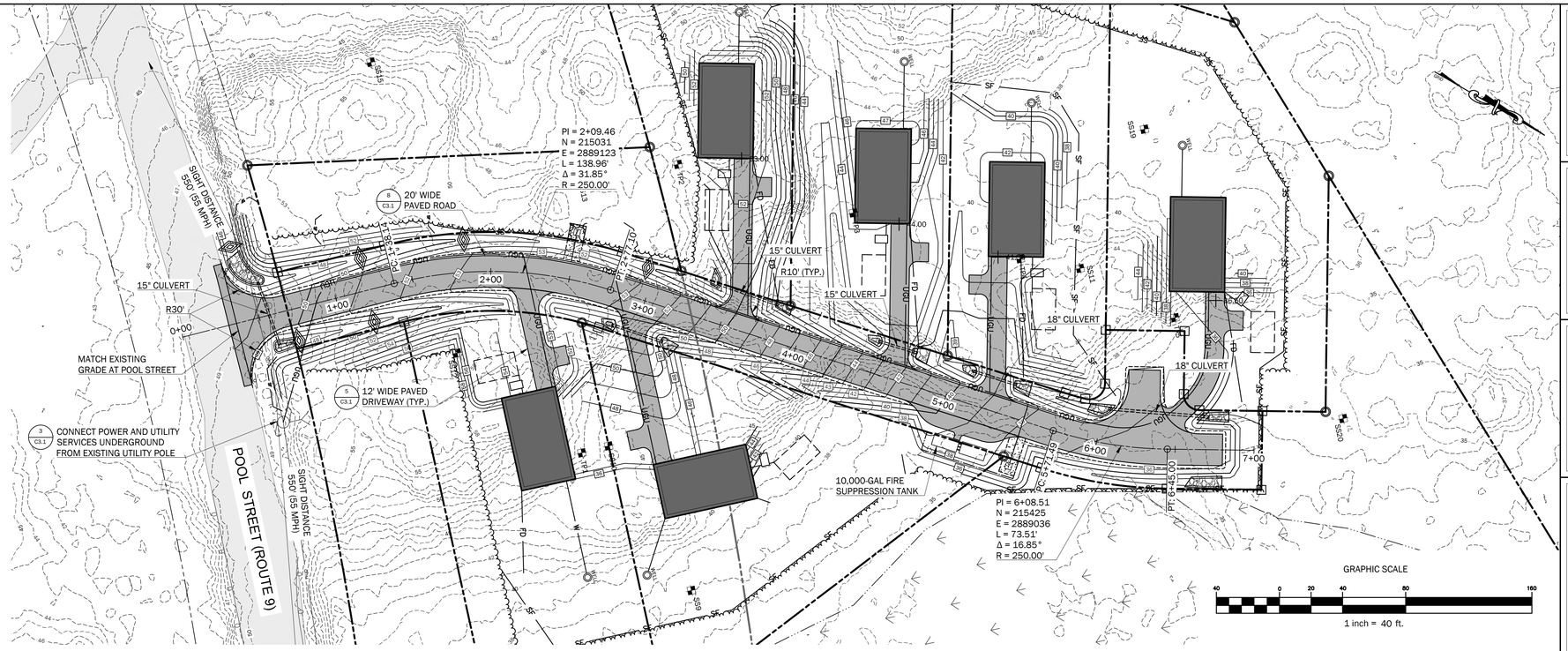
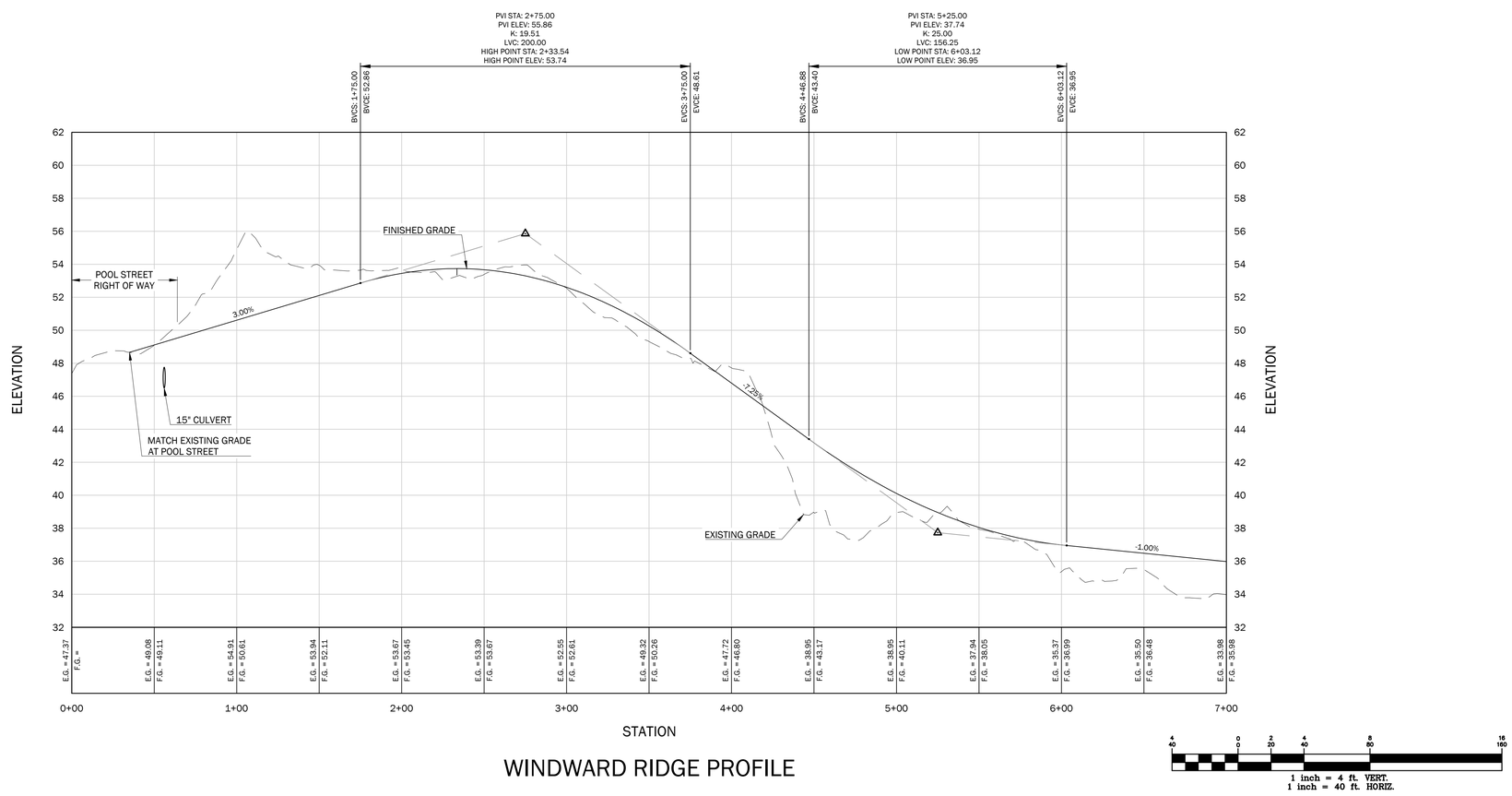
2. THIS PLAN IS TO ACT AS THE "PLAN OF PRIVATE WAY" IN ACCORDANCE WITH ARTICLE VI, SECTION 51, PART D OF THE CITY OF BIDDEFORD LAND DEVELOPMENT REGULATIONS.
3. THE CITY OF BIDDEFORD SHALL NOT BE RESPONSIBLE OF THE COST OF MATERIALS, INSTALLATION, MAINTENANCE, OR POWER FOR THE STREET LIGHTING. THE HOMEOWNER'S ASSOCIATION SHALL ASSUME ALL COSTS ASSOCIATED WITH THE LIGHTING SYSTEM.
4. THE CITY OF BIDDEFORD WILL NOT BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR, OR PLOWING OF THE PRIVATE WAY AND THAT FURTHER LOT DIVISIONS UTILIZING THE PRIVATE WAY ARE PROHIBITED WITHOUT PRIOR APPROVAL OF THE BOARD.





WINDWARD RIDGE PROFILE

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Sheet Title:
Windward Ridge
Plan & Profile View

Job No.:	742
Date:	June 15, 2021
Scale:	As Shown
Drawn:	CAR
Checked:	WRW

Sheet No.: C2.2

EROSION AND SEDIMENTATION CONTROL NOTES:

INTRODUCTION

THE FOLLOWING PLAN FOR CONTROLLING SEDIMENTATION AND EROSION IN THIS PROJECT IS BASED ON CONSERVATION PRACTICES FOUND IN THE MAINE EROSION & SEDIMENT CONTROL BMPS MANUAL, OCTOBER 2016, AND MAINE EROSION AND SEDIMENT CONTROL PRACTICE FIELD GUIDE FOR CONTRACTORS, REVISED 2014, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION. THE CONTRACTOR WHO IMPLEMENTS THIS PLAN SHALL BE FAMILIAR WITH THESE PUBLICATIONS AND ADHERE TO THEM AND THE PRACTICES PRESENTED HEREIN

THERE SHALL BE NO DISTURBANCE WITHIN 50 FEET OF PROTECTED NATURAL RESOURCES WITHOUT AN APPROVED PERMIT BY RULE NOTIFICATION FOR THAT DISTURBANCE.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

THE FOLLOWING IS A LIST OF GENERAL EROSION CONTROL PRACTICES THAT WILL BE USED TO PREVENT EROSION AND SEDIMENTATION BEFORE, DURING AND AFTER THE CONSTRUCTION OF THIS PROJECT. IN ADDITION, SPECIAL CARE SHALL BE USED AT ALL TIMES TO:

1) LIMIT DISTURBANCE AND, HENCE, EROSION
2) CORRECT ANY EROSION PROBLEMS IMMEDIATELY
3) REGULARLY MONITOR THE IMPLEMENTED PRACTICES, ESPECIALLY AFTER EVERY RAINFALL
4) REVEGETATE DISTURBED AREAS AS SOON AS POSSIBLE AFTER CONSTRUCTION
5) CONFORM TO ALL REQUIREMENTS/STANDARDS OF THE SITE'S MAINE DEP EROSION & SEDIMENT CONTROL BMP MANUAL.

A SIGNIFICANT STORM EVENT SHALL BE DEFINED AS 0.5 INCHES OF RAINFALL IN A 24-HOUR PERIOD.

SILT FENCE AND/OR EROSION CONTROL MIX SEDIMENT BARRIERS

SILT FENCE AND/OR EROSION CONTROL MIX SEDIMENT BARRIERS WILL BE INSTALLED ALONG THE DOWN GRADIENT SIDE OF THE PROPOSED GROUND DISTURBANCE AREAS PRIOR TO ANY CONSTRUCTION ACTIVITIES WHERE SLOPES EXCEED 8% OR THERE IS FLOWING WATER BOTH SILT FENCE AND EROSION CONTROL MATTING BERMS SHALL BE USED.

CATCH BASIN PROTECTION

CATCH BASIN PROTECTION WILL BE INSTALLED AT THE FIRST DOWNGRADIENT CATCH BASIN IN STREET ADJACENT TO ANY CONSTRUCTION ACTIVITIES AND IN ALL ONSITE CATCH BASINS UNTIL SITE HAS BEEN COMPLETELY STABILIZED.

CONSTRUCTION PHASE

THE FOLLOWING GENERAL PRACTICES WILL BE IMPLEMENTED TO PREVENT EROSION DURING CONSTRUCTION ON THIS PROJECT:

1. EROSION AND SEDIMENTATION CONTROL BMPS SHALL BE INTALLED PRIOR TO THE COMMENCEMENT OF EARTHWORK ACTIVITIES.
2. ONLY THOSE AREAS UNDER ACTIVE CONSTRUCTION WILL BE CLEARED AND LEFT IN AN UNTREATED OR UNVEGETATED CONDITION. AN AREA NO LARGER THAN WHAT CAN BE MULCHED IN ONE DAY MAY BE OPEN AT ONCE. IN NO CASE SHALL AN AREA GREATER THAN 10 ACRES BE UNSTABILIZED. ONCE CONSTRUCTION OF AN AREA IS COMPLETE, FINAL GRADING, LOAMING AND SEEDING SHALL OCCUR IMMEDIATELY (REFER TO "POST CONSTRUCTION REVEGETATION" SECTION). IF DURING FINAL GRADING, LOAMING AND SEEDING CAN NOT OCCUR IMMEDIATELY, IT SHALL BE DONE PRIOR TO ANY STORM EVENT AND WITHIN 7 DAYS OF COMPLETING CONSTRUCTION IN THE AREA OR WITHIN 48 HOURS IF WITHIN 75 FEET OF A NATURAL RESOURCE. IF FINAL GRADING, LOAMING AND SEEDING CANNOT OCCUR WITHIN 7 DAYS, OR IF THE AREA IS NOT UNDER ACTIVE CONSTRUCTION FOR A PERIOD LONGER THAN 7 DAYS, SEE ITEM NO. 4 BELOW.
3. PRIOR TO THE START OF CONSTRUCTION IN A SPECIFIC AREA, SILT FENCING SHALL BE INSTALLED ON DOWNGRADIENT PORTIONS OF THE SITE AS LOCATED ON THE PLANS TO PROTECT AGAINST ANY CONSTRUCTION RELATED EROSION.
4. TOPSOIL WILL BE STOCKPILED WHEN NECESSARY IN AREAS WHICH HAVE MINIMUM POTENTIAL FOR EROSION AND WILL BE KEPT AS FAR AS POSSIBLE FROM EXISTING DRAINAGE AREAS AND WETLANDS. ALL STOCKPILES EXPECTED TO REMAIN LONGER THAN 7 DAYS SHALL BE:
   A. TREATED WITH ANCHORED MULCH (WITHIN 5 DAYS OF THE LAST DEPOSIT OF STOCKPILED SOIL).
   B. SEEDED WITH CONSERVATION MIX AND MULCHED IMMEDIATELY.
   C. STOCKPILES SHALL BE EITHER PLACED UPHILL OF AN EXISTING SEDIMENT BARRIER ON THE SITE OR ENCIRCLED BY A HAY BALE OR SILT FENCE BARRIER THE FIRST DAY THAT STOCKPILING COMMENCES.
5. ALL DISTURBED AREAS EXPECTED TO REMAIN LONGER THAN 7 DAYS SHALL BE:
   A. TREATED WITH STRAW AT A RATE OF 70-90 LBS. PER 1000 SQUARE FEET FROM 4/16 TO 10/1, OR AT A RATE OF 150-200 LBS. PER 1000 SQUARE FEET FROM 10/1 TO 4/15.
   B. SEEDED WITH CONSERVATION MIX OF PERENNIAL RYE GRASS (1.0 LBS/1000 SQ.FT.) AND MULCHED IMMEDIATELY. FROM 10/1 TO 4/15, FOLLOW THE SEEDING RATES AS OUTLINED BELOW IN SUB-SECTION 4.D. OF THE "POST CONSTRUCTION REVEGETATION" SECTION.
   C. MONITORED EVERY TWO WEEKS UNTIL SEEDING CAN OCCUR AND REMULCHED AS NEEDED TO PROTECT SLOPES.
5. ALL GRADING WILL BE HELD TO A MAXIMUM 3:1 SLOPE WHERE PRACTICAL, AND IN NO CASE SHALL SLOPES EXCEED 1.5:1. GREATER SLOPES MAY BE USED WHERE THE BANKS ARE PROTECTED WITH SOFT ARMOUR MATTING, EROSION CONTROL MATTING, OR RIPRAP. ALL SLOPES WILL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY AFTER FINAL GRADING IS COMPLETE. (IT IS UNDERSTOOD THAT IMMEDIATELY MEANS WITHIN 5 DAYS OF THE COMPLETION OF WORK. SEE POST-CONSTRUCTION REVEGETATION FOR SEEDING SPECIFICATION).
6. APPLICATION RATE MUST BE 2 BALES (70-90 LBS.) PER 1,000 SQUARE FEET OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE. DRIVE OVER WITH TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
7. CONSTRUCTION TRAFFIC WILL BE DIRECTED OVER THE EXISTING SITE ENTRANCE. THE ROAD SHALL BE SWEPT AND VACUUMED DAILY SHOULD SEDIMENT BE TRACKED ONTO IT.
8. ALL AREAS DRAINING TO A STORMWATER FILTER OR BMP SHALL BE STABILIZED PRIOR TO CONSTRUCTION OF FILTER MEDIA TO PREVENT SEDIMENT FROM CLOGGING MEDIA.

DEWATERING

1. ALL DEWATERING DISCHARGE LOCATIONS SHALL BE LOCATED ON RELATIVELY FLAT GROUND AT LEAST 75' FROM STREAMS AND 25' FROM WETLANDS. THE CONTRACTOR SHALL UTILIZE DIRTBAGS, EROSION CONTROL MIX BERMS, OR SIMILAR METHODS FOR FILTRATION OF DEWATERING AND SHALL CONFORM TO THE MAINE EROSION AND SEDIMENT CONTROL BMPS G-1, G-2, AND G-3.

POST CONSTRUCTION REVEGETATION

THE FOLLOWING GENERAL PRACTICES WILL BE IMPLEMENTED TO PREVENT EROSION AS SOON AS AN AREA IS READY TO UNDERGO FINAL GRADING:

1. A MINIMUM OF 6" OF LOAM WILL BE SPREAD OVER DISTURBED AREAS TO BE REVEGETATED AS LAWN AND 4" IN AREAS TO BE REVEGETATED WITH NON-LAWN VEGETATION AND GRADED TO A UNIFORM DEPTH AND NATURAL APPEARANCE.
2. LAWN AREAS: "PARK MIX" GRASS SEED BY ALLEN, STERLING & LOTHROP (FALMOUTH, MAINE), OR APPROVED EQUAL.
3. MULCH SHALL BE HAY OR STRAW MULCHES THAT ARE DRY AND FREE FROM UNDESIRABLE SEEDS AND COURSE MATERIALS.
   A. APPLICATION RATE MUST BE 2 BALES (70-90 LBS.) PER 1,000 SQUARE FEET OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE.
   B. DRIVE OVER WITH TRACKED CONSTRUCTION EQUIPMENT ON GRADES OF 5% AND LESS.
   C. BLANKET WITH TACKED PHOTODEGRADABLE/BIODEGRADABLE NETTING ON GRADES GREATER THAN 5%.
4. HYDRO-MULCH SHALL CONSIST OF A MIXTURE OF ASPHALT, WOOD FIBRE OR PAPER FIBRE AND WATER, WHICH IS SPRAYED OVER A SEEDED AREA. HYDRO-MULCH SHALL NOT BE USED BETWEEN 10/1 AND 4/15.
5. CONSTRUCTION SHALL BE PLANNED TO ELIMINATE THE NEED FOR SEEDING BETWEEN OCTOBER 1ST AND APRIL 15TH. SHOULD SEEDING BE NECESSARY BETWEEN THESE DATES, THE FOLLOWING PROCEDURE SHALL BE FOLLOWED:
   A. ONLY UNFROZEN LOAM SHALL BE USED.
   B. LOAMING, SEEDING AND MULCHING WILL NOT BE DONE OVER SNOW OR ICE COVER. IF SNOW EXISTS, IT MUST BE REMOVED PRIOR TO PLACEMENT OF SEED.
   C. WHERE PERMANENT SEEDING IS NECESSARY, ANNUAL WINTER RYE (1.2 LBS/1000 S.F.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
   D. WHERE TEMPORARY SEEDING IS REQUIRED, ANNUAL WINTER RYE (2.5 LBS/1000 S.F.) SHALL BE SOWN INSTEAD OF THE PREVIOUSLY NOTED SEEDING RATE.
   E. FERTILIZING, SEEDING AND MULCHING SHALL BE DONE ON LOAM THE DAY THE LOAM IS SPREAD.
   F. HAY MULCH SHALL BE SECURED WITH PHOTODEGRADABLE/BIODEGRADABLE NETTING. TRACKING BY MACHINERY ALONE WILL NOT SUFFICE. WINTER MULCHING RATES, SHALL BE DOUBLE AS SPECIFIED ABOVE IN SUBSECTION 3.A OF THE "POST CONSTRUCTION REVEGETATION" SECTION, SHOULD BE APPLIED DURING THIS PERIOD.
6. FOLLOWING FINAL SEEDING, THE SITE WILL BE INSPECTED EVERY 30 DAYS UNTIL 90% COVER HAS BEEN ESTABLISHED. RESEEDING WILL BE CARRIED OUT BY THE CONTRACTOR WITHIN 10 DAYS OF NOTIFICATION BY THE DESIGN PROFESSIONAL THAT THE EXISTING CATCH IS INADEQUATE.

MONITORING SCHEDULE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING, MONITORING, MAINTAINING, REPAIRING, REPLACING AND REMOVING ALL OF THE EROSION AND SEDIMENTATION CONTROLS OR APPOINTING A QUALIFIED SUBCONTRACTOR TO DO SO.
MAINTENANCE MEASURES WILL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL, AND AT LEAST ONCE A WEEK, A VISUAL INSPECTION WILL BE MADE OF ALL EROSION AND SEDIMENTATION CONTROLS AS FOLLOWS:

1. SILT FENCE SHALL BE INSPECTED AND REPAIRED. SEDIMENT TRAPPED BEHIND THESE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6" AND REDISTRIBUTED TO AREAS UNDERGOING FINAL GRADING.
2. CONSTRUCTION ENTRANCE SHALL BE VISUALLY INSPECTED AND REPAIRED AS NEEDED. ANY AREAS SUBJECT TO RUTTING SHALL BE STABILIZED IMMEDIATELY. IF THE VOIDS OF THE CONSTRUCTION ENTRANCE BECOME FILLED WITH MUD, MORE CRUSHED STONE SHALL BE ADDED AS NEEDED. THE PUBLIC ROADWAY SHALL BE SWEPT AND VACUUMED SHOULD MUD BE DEPOSITED/TRACKED ONTO THEM.

STANDARDS FOR STABILIZING SITES FOR THE WINTER

THE FOLLOWING STANDARDS AND METHODOLOGIES SHALL BE USED FOR STABILIZING THE SITE DURING THE WINTER CONSTRUCTION PERIOD:

1. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES (ANY AREA HAVING A GRADE GREATER THAN 25%) - THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15TH. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15TH, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.
   A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS: BY OCTOBER 1ST THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A RATE OF 3 POUNDS PER 1000 SQUARE FEET AND THEN INSTALL EROSION CONTROL MATS OR ANCHORED HAY MULCH OVER THE SEEDING AT TWICE THE RATE AS SPECIFIED ABOVE IN SUBSECTION 3.A OF THE "POST CONSTRUCTION REVEGETATION" SECTION. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS.
   B. STABILIZE THE SLOPE WITH EROSION CONTROL MIX: THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF EROSION CONTROL MIX ON THE SLOPE BY NOVEMBER 15TH. THE CONTRACTOR WILL NOT USE EROSION CONTROL MIX TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:IV) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
   C. STABILIZE THE SLOPE WITH STONE RIPRAP: THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15TH. THE DEVELOPMENT'S OWNER WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY ON THE SLOPE AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS - BY SEPTEMBER 15TH THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON THE SITE. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ON OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION: BY OCTOBER 1ST THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR FAILS TO COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER, 1, THEN THE CONTRACTOR WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM III OF THIS STANDARD.
B. STABILIZE THE SOIL WITH SOD: THE CONTRACTOR WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE CONTRACTOR PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
C. STABILIZE THE SOIL WITH MULCH: BY NOVEMBER 15TH THE CONTRACTOR WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. IMMEDIATELY AFTER APPLYING THE MULCH, THE CONTRACTOR WILL ANCHOR THE MULCH WITH NETTING OR OTHER METHOD TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

EROSION CONTROL REMOVAL

AN AREA IS CONSIDERED STABLE IF IT IS PAVED OR IF 90% GROWTH OF PLANTED SEEDS IS ESTABLISHED. ONCE AN AREA IS CONSIDERED STABLE, THE EROSION CONTROL MEASURES CAN BE REMOVED AS FOLLOWS:

1. SILT FENCE: SILT FENCE SHALL BE DISPOSED OF LEGALLY AND PROPERLY OFF-SITE. ALL SEDIMENT TRAPPED BEHIND THESE CONTROLS SHALL BE DISTRIBUTED TO AN AREA UNDERGOING FINAL GRADING OR REMOVED AND RELOCATED OFF-SITE.
2. STABILIZED CONSTRUCTION ENTRANCE: THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE REMOVED ONCE THE COMPACTED ROADWAY BASE IN IN PLACE. STONE AND SEDIMENT FROM THE CONSTRUCTION ENTRANCE SHALL BE REDISTRIBUTED TO AN AREA UNDERGOING GRADING OR REMOVED AND RELOCATED OFFSITE.
3. MISCELLANEOUS: ONCE ALL THE TRAPPED SEDIMENTS HAVE BEEN REMOVED FROM THE TEMPORARY SEDIMENTATION DEVICES THE DISTURBED AREAS MUST BE REGRADED IN AN AESTHETIC MANNER TO CONFORM TO THE SURROUNDING TOPOGRAPHY. ONCE GRADED THESE DISTURBED AREAS MUST BE LOAMED (IF NECESSARY), FERTILIZED, SEEDED AND MULCHED IN ACCORDANCE WITH THE RATES PREVIOUSLY STATED.

THE ABOVE EROSION CONTROLS MUST BE REMOVED WITHIN 30 DAYS OF FINAL STABILIZATION OF THE SITE.
CONFORMANCE WITH THIS PLAN AND FOLLOWING THESE PRACTICES WILL RESULT IN A PROJECT THAT COMPLIES WITH THE STATE REGULATIONS AND THE STANDARDS OF THE NATURAL RESOURCES PROTECTION ACT, AND WILL PROTECT WATER QUALITY IN AREAS DOWNSTREAM FROM THE PROJECT.

INSPECTION AND MAINTENANCE (APPENDIX B)

THE OWNER SHALL BE RESPONSIBLE FOR SEEING THAT EROSION AND SEDIMENT CONTROL MEASURES ARE UNDERTAKEN AND MAINTAINED. IF INSPECTIONS ARE REQUIRED BY PERMITTING AGENCIES, THE DESIGN ENGINEER, OR THIRD PARTY INSPECTOR SHALL FOLLOW THE PROCEDURES OUTLINED BELOW:

1. INSPECTION AND MAINTENANCE REQUIREMENTS: INSPECT DISTURBED AND IMPERVIOUS AREAS, EROSION AND STORMWATER CONTROL MEASURES, AREAS USED FOR STORAGE THAT ARE EXPOSED TO PRECIPITATION, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE. INSPECT THESE AREAS AT LEAST ONCE A WEEK AS WELL AS BEFORE AND AFTER A SIGNIFICANT STORM EVENT AND PRIOR TO COMPLETION OF PERMANENT STABILIZATION MEASURES. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROL, INCLUDING THE STANDARDS IN THE MCGP AND ANY DEPARTMENTAL COMPANION DOCUMENT TO THE MCGP, MUST CONDUCT THE INSPECTION. THIS PERSON MUST BE IDENTIFIED IN THE INSPECTION LOG. IF BEST MANAGEMENT PRACTICES (BMPS) NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY, IMPLEMENTATION MUST BE STARTED BY THE END OF THE NEXT WORKIN DAY AND COMPLETED WITHIN 7 CALENDAR DAYS AND PRIOR TO ANY STORM EVENT (RAINFALL). ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS AREA PERMANENTLY STABILIZED. DOCUMENTATION OF CORRECTION ACTIONS SHALL BE MAINTAINED WITH THE INSPECTION FORMS.
2. INSPECTION LOG (REPORT): A LOG (REPORT) MUST BE KEPT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, AND MAJOR OBSERVATIONS RELATING TO OPERATION OF EROSION AND SEDIMENTATION CONTROLS AND POLLUTION PREVENTION MEASURES. MAJOR OBSERVATIONS MUST INCLUDE BMPS THAT NEED MAINTENANCE, BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION, AND LOCATIONS(S) WHERE ADDITIONAL BMPS ARE NEEDED. FOR EACH BMP REQUIRING MAINTENANCE, BMP NEEDING REPLACEMENT, AND LOCATION NEEDING ADDITIONAL BMPS, NOTE IN THE INSPECTION LOG THE CORRECT ACTION TAKEN AND WHEN IT WAS TAKEN. THE LOG MUST BE MADE ACCESSIBLE TO THE DEPARTMENT STAFF AND A COPY MUST BE PROVIDED UPON REQUEST. THE PERMITTEE SHALL RETAIN A COPY OF THE LOG FOR A PERIOD OF AT LEAST THREE YEARS FROM THE COMPLETION OF THE PERMANENT STABILIZATION.

HOUSEKEEPING (APPENDIX C)

1. SPILL PREVENTION: CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT: HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. GROUNDWATER PROTECTION: DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

3. FUGITIVE SEDIMENT AND DUST: ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

4. DEBRIS AND OTHER MATERIALS: MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST-CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. EXCAVATION DEWATERING: EXCAVATION DEWATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.

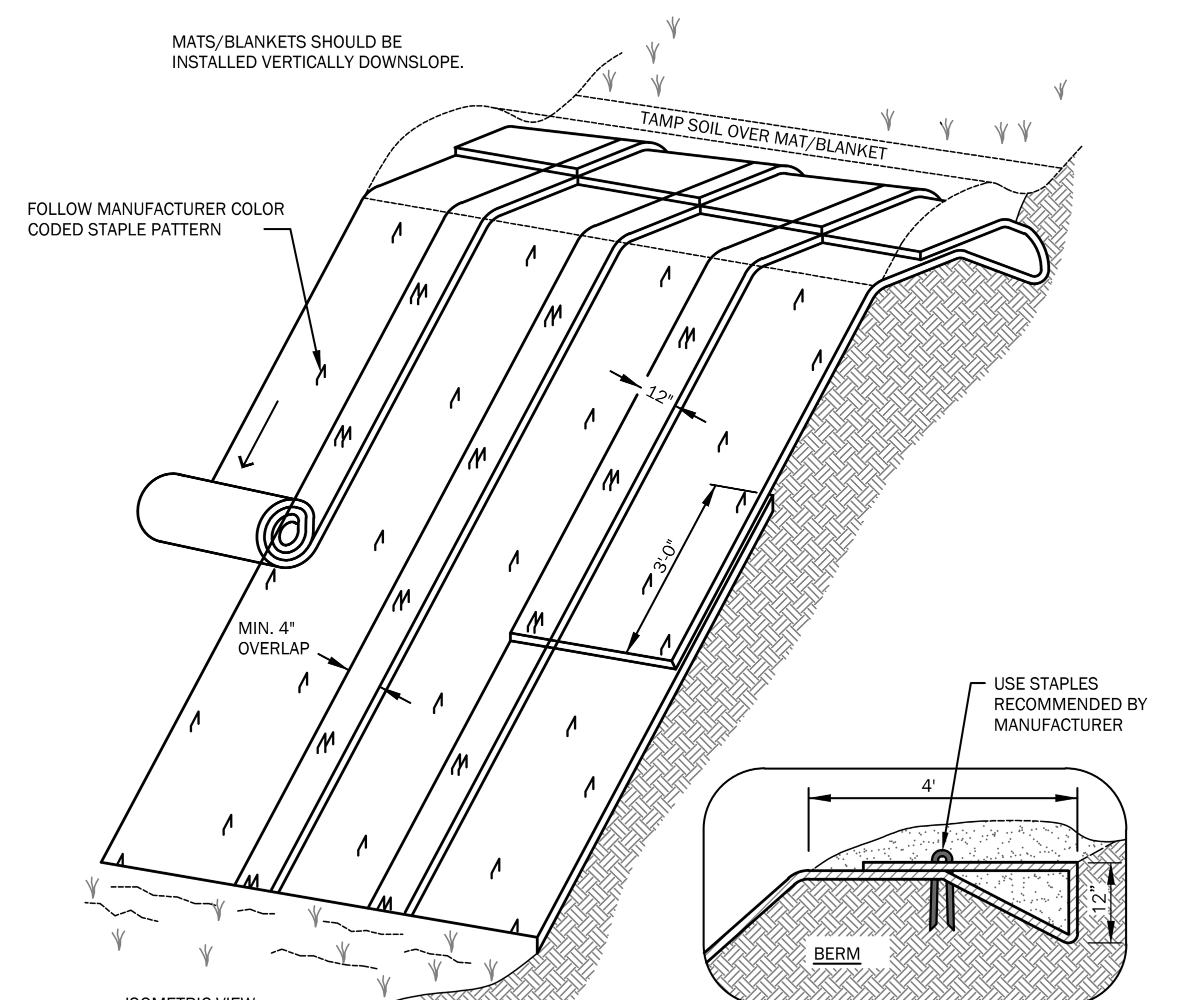
NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

6. AUTHORIZED NON-STORMWATER DISCHARGES: IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:
   - DISCHARGES FROM FIREFIGHTING ACTIVITY;
   - FIRE HYDRANT FLUSHINGS;
   - VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE, AND TRANSMISSION WASHING IS PROHIBITED);
   - DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3);
   - ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
   - PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
   - UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
   - UNCONTAMINATED GROUNDWATER OR SPRING WATER;
   - FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
   - UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));
   - POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
   - LANDSCAPE IRRIGATION
7. UNAUTHORIZED NON-STORMWATER DISCHARGES: THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
   - WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
   - FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
   - SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
   - TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.
8. ADDITIONAL REQUIREMENTS: ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

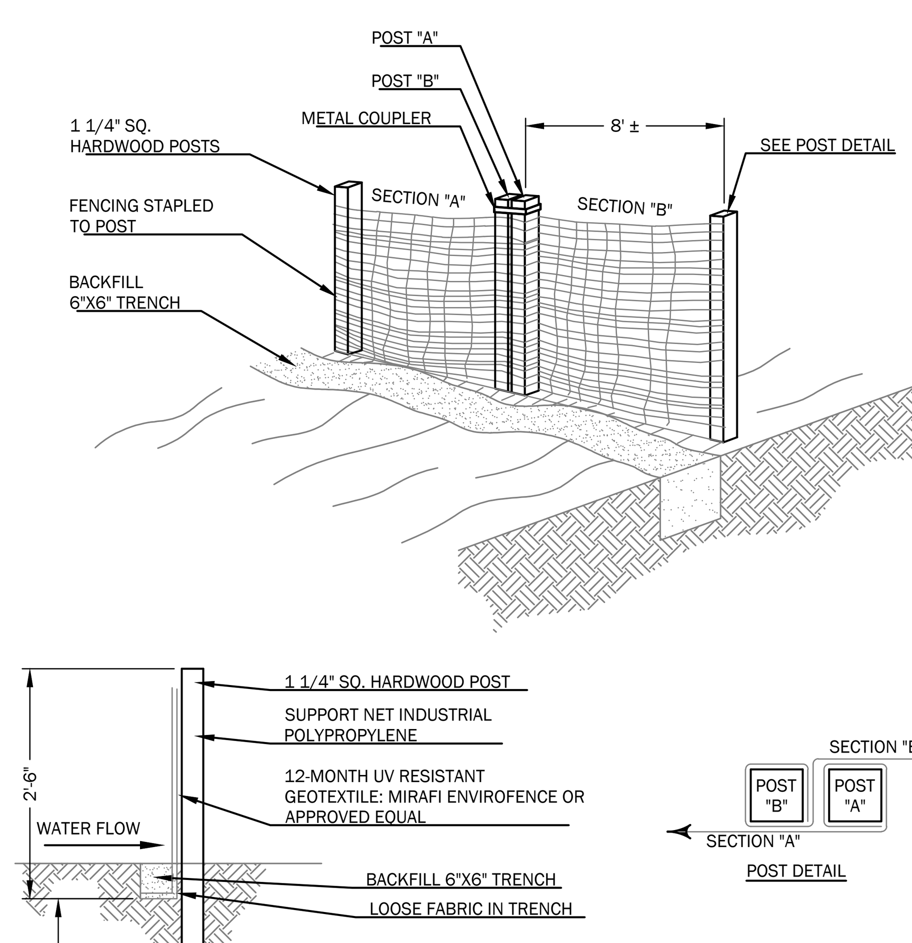
1 / C3.0 EROSION AND SEDIMENTATION CONTROL NOTES
NOT TO SCALE

INSTALLATION INSTRUCTIONS:

1. TURF REINFORCEMENT MAT (TRM) MATERIAL SHALL BE ENKAMAT 7020, OR APPROVED EQUAL.
2. EROSION CONTROL BLANKET (ECB) SHALL BE BIONET S75BN SINGLE NET STRAW BLANKET BY NORTH AMERICAN GREEN OR APPROVED EQUAL.
3. FOR TRM INSTALLATION ONLY:
   3.1. APPLY 2" OF LOAM ONTO THE GROUND SURFACE.
   3.2. OVER TOP THE 2" OF LOAM, UNROLL MAT IN THE DIRECTION OF WATER FLOW.
4. MAT SHOULD LIE FLAT. DO NOT STRETCH MAT OVER GROUND. STRETCHING MAY CAUSE MAT TO BRIDGE DEPRESSIONS IN THE SURFACE AND ALLOW EROSION UNDERNEATH.
5. BURY TRANSVERSE TERMINAL ENDS OF MAT TO SECURE AND PREVENT EROSIVE FLOW UNDERNEATH.
6. SECURE MAT SNUGLY INTO ALL TRANSVERSE CHECK SLOTS.
7. BACKFILL AND COMPACT TRENCHES AND CHECK SLOTS AFTER STAKING THE MAT IN BOTTOM OF TRENCH.
8. OVERLAP ROLL ENDS BY THREE (3) FEET (MIN.) WITH UPSLOPE MAT ON TOP TO PREVENT UPLIFT OF MAT END BY WATER FLOW. IF INSTALLING IN THE DIRECTION OF A CONCENTRATED WATER FLOW, START NEW ROLLS IN A TRANSVERSE DITCH.
9. OVERLAP ADJACENT EDGES OF MAT BY THREE (3) INCHES (MIN.) AND STAKE.
10. USE WOOD STAKES OR STAPLES FOR PINNING MAT TO THE GROUND SURFACE, PER MANUFACTURER'S RECOMMENDATIONS.
11. IN ALL TRANSVERSE TERMINAL TRENCHES AND CHECK SLOTS, STAKE EACH MAT AT ITS CENTER AND OVERLAP EDGES BEFORE BACKFILLING AND COMPACTING.
12. STAKE OVERLAPS LONGITUDINALLY AT THREE (3) TO FIVE (5) FOOT INTERVALS.
13. WORK ADDITIONAL LOAM INTO THE MAT AND COVER THE MAT SURFACE WITH 1" OF LOAM, THEN SEED AND MULCH.



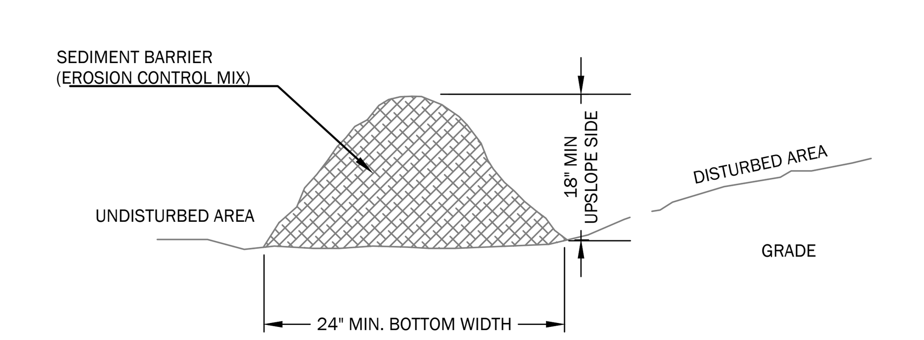
2 / C3.0 STRAW MATTING (ECB) AND TRM EROSION CONTROL
NOT TO SCALE



NOTES:

1. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. SILT FENCE SHALL BE MAINTAINED CONTINUALLY THROUGHOUT THE ENTIRE CONSTRUCTION CYCLE.
3. OPTIONALLY, A 2' WIDE BY 1' HIGH WINDROW OF EROSION CONTROL MIX MAY BE USED.

3 / C3.0 PREFABRICATED SILT FENCE
NOT TO SCALE



NOTES

1. THE EROSION CONTROL MIX SHALL CONTAIN A WELL GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH.
2. MATERIAL SHALL MEET THE FOLLOWING REQUIREMENTS
   A. THE ORGANIC CONTENT SHALL BE BEWTEEN 80 AND 100% DRY WEIGHT BASIS
   B. PARTICLE SIZE BY WIEGHT SHALL BE 100% PASSING A 6" SCREEN AND A MAXIMUM OF 85% PASSING A 0.75" SCREEN
   C. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
   D. LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX
   E. SOLUBLE SALTS CONTENT SHALL BE <4.0 MMHOS/CM
   F. THE pH SHOULD FALL BETWEEN 5.0 AND 8.0
3. PLACE BARRIER ALONG A RELATIVELY FLAT CONTOUR. CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES WHERE FINES CAN WASH UNDER THE BARRIER THROUGH GRASS BLADES AND BRANCHES.
4. PLACEMENT OF BARRIER SHOULD BE:
   - AT TOE OF THE SLOPE.
   - FROZEN GROUND, BEDROCK OR ROOTED FORESTED AREAS.
   - THE EDGE OF GRAVEL AND AREAS UNDER CONSTRUCTION.
5. BARRIER SHALL NOT BE USED ADJACENT TO WETLANDS, WHERE THERE IS LOWING WATER, OR ON SLOPES EXCEEDING 8% WITHOUT THE SUPPORT OF SILT FENCE.
6. REMOVE SEDIMENT DEPOSITS WHEN THEY REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER.
7. WHEN BARRIER IS DECOMPOSED, CLOGGED WITH SEDIMENT, ERODED OR INEFFECTIVE, IT MUST BE REPLACED OR REPAIRED. THE BARRIER SHOULD BE RESHAPED AS NECESSARY.

4 / C3.0 SEDIMENT BARRIER (EROSION CONTROL MIX)
NOT TO SCALE

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

WALSH
ENGINEERING ASSOCIATES, INC.
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ph: 207.553.9898 | www.walsh-eng.com

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STATE OF MAINE
WILLIAM R. WALSH, III
No. 8204
LICENSED PROFESSIONAL ENGINEER
1/12/2022

Windward Ridge
918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
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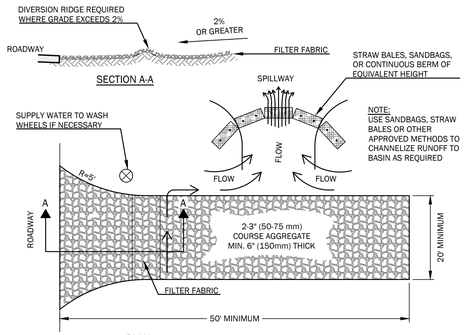
Sheet Title:
Site Details

Job No.: 742	Sheet No.:
Date: June 15, 2021	C3.0
Scale: No Scale	
Drawn: CAR	
Checked: WRW	

P:\737 - 918 Pool Street, Biddeford\3. CAD\737 - Details.dwg plot date: 1/11/2022 11:24 AM

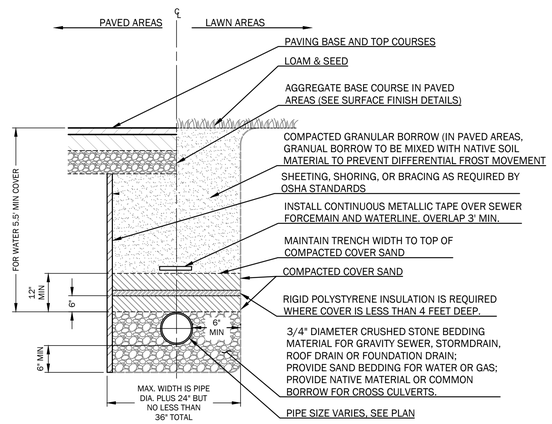


NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS ONTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. TRACKED MUD AND SEDIMENT SHALL BE REMOVED BY VACUUMING PRIOR TO THE NEXT STORM EVENT.

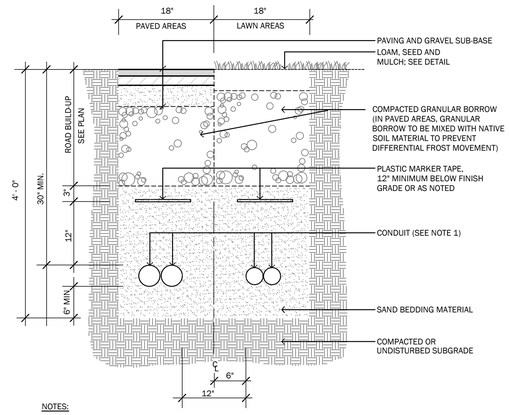
1 / C3.1 STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



2 / C3.1 TYPICAL PIPE TRENCH DETAIL

NOT TO SCALE

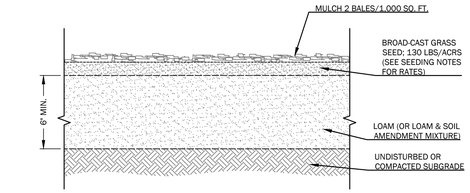


NOTES:

1. COORDINATE NUMBER & SIZE OF CONDUITS WITH ELECTRICAL PLANS.
2. ALL WORK SHALL COMPLY WITH THE RESPECTIVE UTILITY COMPANY STANDARDS.
3. SEE UTILITIES PLANS FOR CONDUIT LOCATIONS.
4. CONTRACTOR TO PROVIDE 1/4" POLYPROPYLENE PULL ROPES IN ALL CONDUITS.
5. CONTRACTOR SHALL PROVIDE PULL BOXES WHERE NECESSARY.
6. CONTRACTOR SHALL VERIFY CONDUIT SIZE, MATERIAL, AND QUANTITY WITH APPLICABLE UTILITY COMPANIES PRIOR TO CONSTRUCTION.

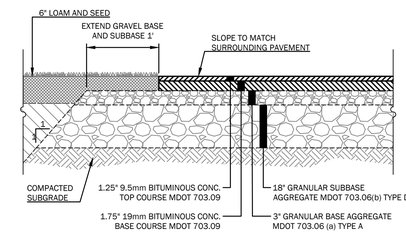
3 / C3.1 UNDERGROUND UTILITY TRENCH SECTION

NOT TO SCALE



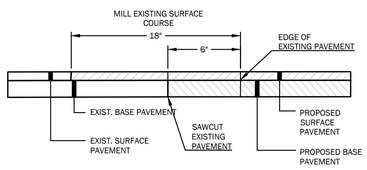
4 / C3.1 LOAM AND SEED DETAIL

NOT TO SCALE



5 / C3.1 PAVED DRIVEWAY SECTION

NOT TO SCALE

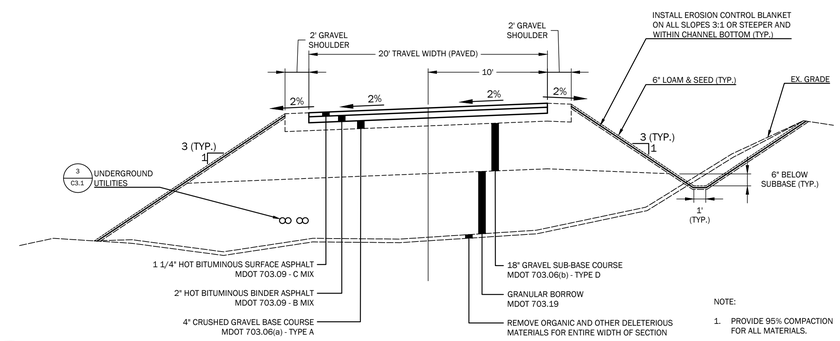


6 / C3.1 HMA PAVEMENT BUTT JOINT DETAIL

NOT TO SCALE

7 / C3.1 DETAIL NOT USED

NOT TO SCALE

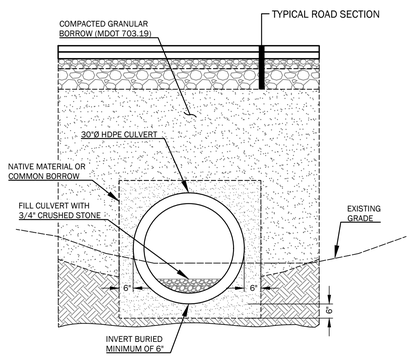


NOTE:

1. PROVIDE 95% COMPACTION FOR ALL MATERIALS.

8 / C3.1 WINDWARD RIDGE ROAD SECTION

NOT TO SCALE

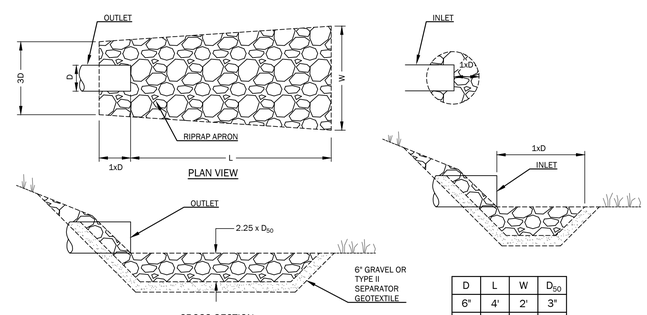


NOTES:

1. TEMPORARILY REROUTE FLOW DURING CONSTRUCTION.
2. INSTALL CULVERTS IN DRY WEATHER CONDITIONS.
3. REPAIR WETLAND BEYOND LIMITS OF CULVERT INSTALLATION AFTER CONSTRUCTION.
4. CONTRACTOR SHALL VERIFY EXISTING GRADE ELEVATIONS AT PIPE INVERTS PRIOR TO INSTALLATION. PIPE INVERT SHALL BE SET 6" BELOW EXISTING GRADE AS DETERMINED IN FIELD AT BOTH ENDS.

9 / C3.1 WETLAND CROSSING CULVERT INSTALLATION

NOT TO SCALE



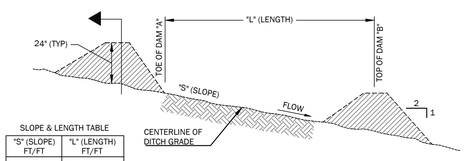
D	L	W	D_{50}
6"	4'	2'	3"
12"	6'	4'	5"
15"	7'	5'	6"
18"	8'	6'	8"
24"	10'	8'	8"

NOTES:

1. USE D_{50} NOTED ON TABLE UNLESS OTHERWISE SPECIFIED ON PLANS.
2. UNDERLAY RIPRAP WITH 6" OF GRAVEL OR TYPE II SEPARATOR GEOTEXTILE FABRIC.
3. USE WIDTHS NOTED ABOVE OR CONFORM TO NATURAL CHANNEL OR TOPOGRAPHY.
4. RIPRAP INLET PROTECTION SHALL BE A CIRCULAR APRON WITH A RADIUS OF 1X THE PIPE DIAMETER.

10 / C3.1 RIPRAP INLET & OUTLET APRONS

NOT TO SCALE

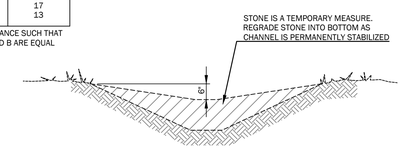


SLOPE & LENGTH TABLE

"S" (SLOPE) FT/FT	"L" (LENGTH) FT/FT
0.020	100
0.030	66
0.040	50
0.050	40
0.080	25
0.100	20
0.120	17
0.150	13

L = THE DISTANCE SUCH THAT POINTS A AND B ARE EQUAL ELEVATION.

SPACING BETWEEN CHECK DAMS
ELEVATION VIEW



SECTION VIEW

NOTES:

1. STONE CHECK DAMS ARE NOT REQ'D IN PROPOSED RIPRAP DITCHES. USE IN UNLINED DITCHES DURING CONSTRUCTION.
2. CHECK DAMS ARE NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING. SOME SEDIMENT WILL ACCUMULATE BEHIND DAMS. SEDIMENT SHOULD BE REMOVED FROM BEHIND DAMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE DAM.
3. STONE: 2"-3" CRUSHED STONE (MDOT 703.31)
4. KEY STONE INTO CHANNEL BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" (0.5m) TO PREVENT FLOW AROUND DAM.

11 / C3.1 STONE CHECK DAM

NOT TO SCALE

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ph: 207.553.9898 | www.walsh-eng.com

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STATE OF MAINE
WILLIAM R. WALSH, III
No. 8204
LICENSED PROFESSIONAL ENGINEER
1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	8/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Site Details

Job No.:	742
Date:	June 15, 2021
Scale:	No Scale
Drawn:	CAR
Checked:	WRW

Sheet No.: C3.1

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	
	STORM DRAIN CATCH BASIN	
sd	STORM DRAIN LINE	SD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
	HYDRANT	
	WATER LINE GATE VALVE	
ss	SANITARY SEWER LINE	SS
	SEWER MANHOLE	
ohu	OVERHEAD UTILITY	OHU
ugu	UNDERGROUND UTILITY	UGU
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	

DRAINAGE

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT DESIGNATION	1
TIME OF CONCENTRATION FLOW	A
ANALYSIS POINT	AP1
POND / CATCH BASIN	1
SOILS BOUNDARY	
SOILS DESIGNATION	Sn (HSG C)

DRAINAGE NOTES:

1. SOILS INFORMATION WITHIN THE PROPERTY BOUNDARIES FROM A HIGH INTENSITY SOIL SURVEY AND SOIL NARRATIVE REPORT PROVIDED BY MARK HAMPTON DATED MAY 5, 2021.
2. SOILS INFORMATION FOR AREAS OUTSIDE OF THE PROPERTY BOUNDARY FROM SOIL SURVEY STAFF, NATURAL RESOURCES CONSERVATION SERVICE, UNITED STATES DEPARTMENT OF AGRICULTURE. WEB SOIL SURVEY. AVAILABLE ONLINE AT HTTP://WEBSOILSURVEY.NRCS.USDA.GOV/. ACCESSED ON AUGUST 2, 2021.

Tc FLOW LINE DATA:

SUBCATCHMENT 1.0

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	27.0	100'	0.043	SHEET FLOW
B-C	2.8	194'	0.022	SHALLOW CONCENTRATED FLOW
C-D	14.7	365'	0.027	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	1.5	40'	0.350	SHEET FLOW
B-C	25.4	60'	0.018	SHEET FLOW
C-D	40.6	498'	0.007	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.2

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	4.6	86'	0.093	SHEET FLOW
B-C	6.8	310'	0.094	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.3

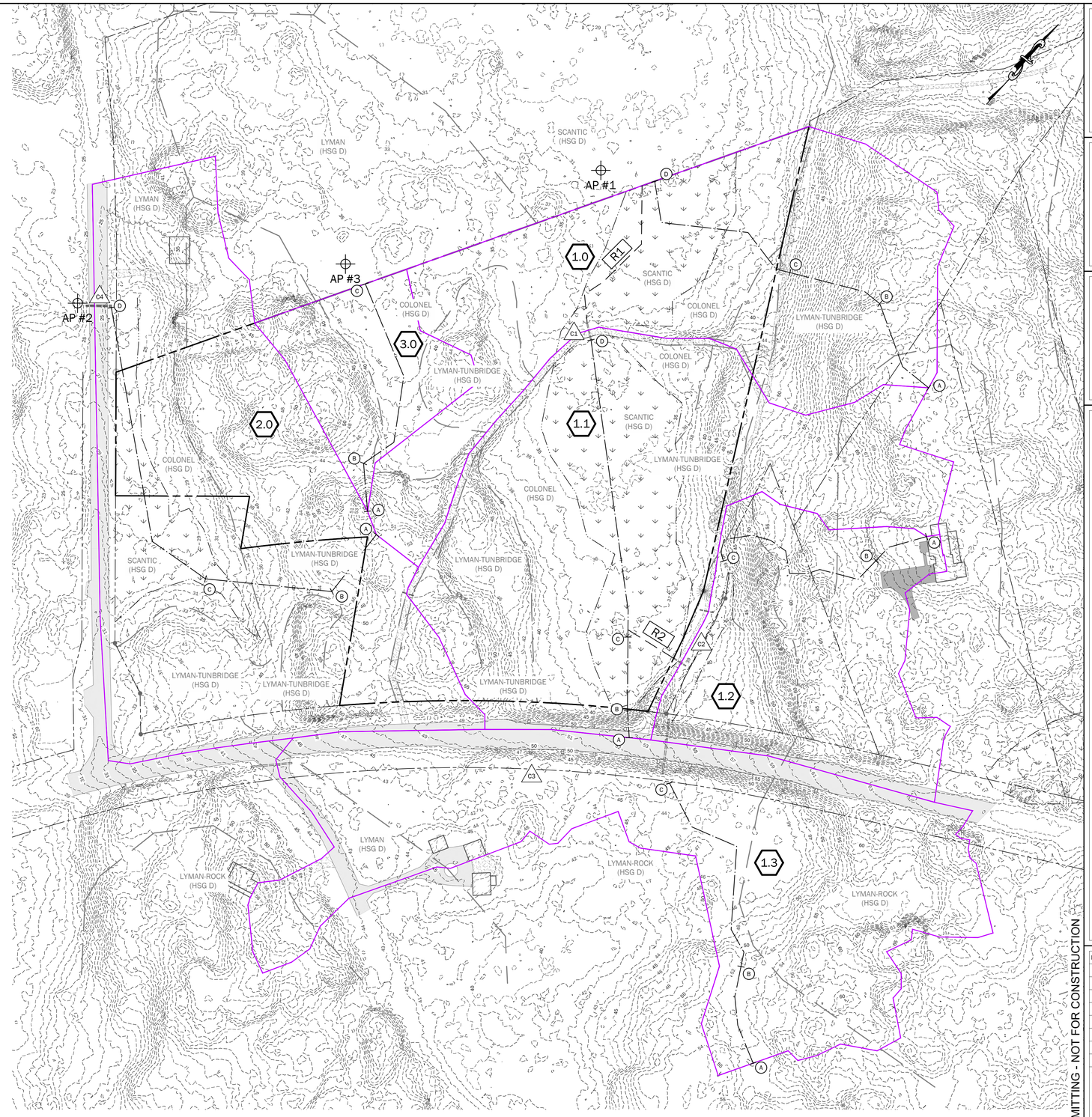
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	43.3	100'	0.013	SHEET FLOW
B-C	14.5	353'	0.026	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 2.0

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	20.8	100'	0.083	SHEET FLOW
B-C	4.7	198'	0.079	SHALLOW CONCENTRATED FLOW
C-D	24.2	452'	0.016	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 3.0

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	12.3	72'	0.016	SHEET FLOW
B-C	13.4	305'	0.023	SHALLOW CONCENTRATED FLOW



GRAPHIC SCALE

80 0 40 80 160 320

1 inch = 80 ft.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

WALSH ENGINEERING ASSOCIATES, INC.

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STATE OF MAINE NORMAN G. CHAMBERLAIN II No. 7144 LICENSED PROFESSIONAL ENGINEER

1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
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18 Early Way
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Sheet Title:

Pre-Development Drainage Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 80'
Drawn:	CAR
Checked:	WRW

Sheet No.: D1.0

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	
	STORM DRAIN CATCH BASIN	
sd	STORM DRAIN LINE	SD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
	HYDRANT	
	WATER LINE GATE VALVE	
ss	SANITARY SEWER LINE	SS
S	SEWER MANHOLE	S
ohu	OVERHEAD UTILITY	OHU
ugu	UNDERGROUND UTILITY	UGU
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	

DRAINAGE

SUBCATCHMENT BOUNDARY	
SUBCATCHMENT DESIGNATION	1
TIME OF CONCENTRATION FLOW	A
ANALYSIS POINT	AP1
POND / CATCH BASIN	1
SOILS BOUNDARY	
SOILS DESIGNATION	Sn (HSG C)

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SUBCATCHMENT 1.2

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B-C	14.5	353'	0.026	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 1.4

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 1.5

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 1.6

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 1.7

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 2.0

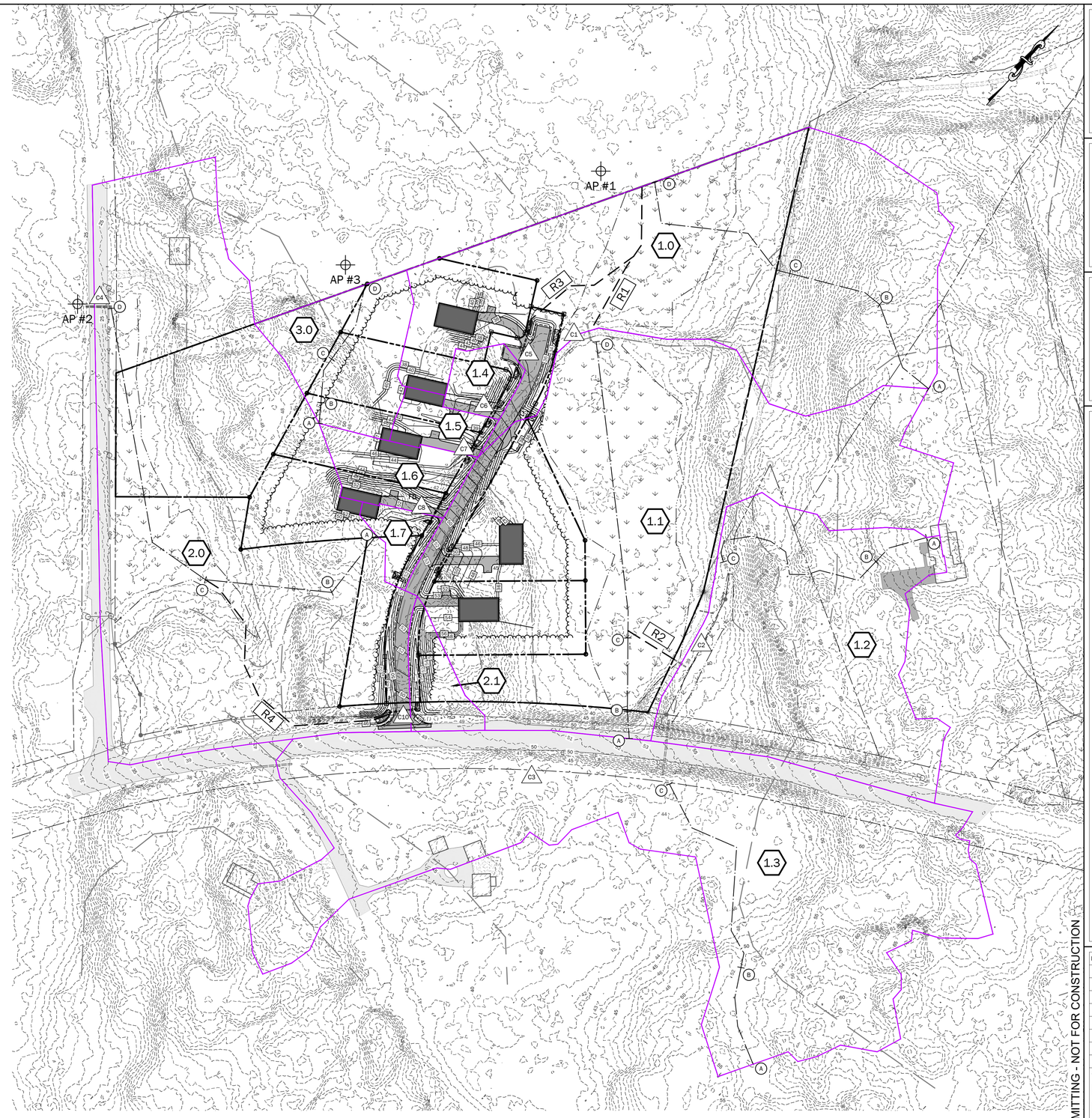
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	20.8	100'	0.083	SHEET FLOW
B-C	4.7	198'	0.079	SHALLOW CONCENTRATED FLOW
C-D	24.2	452'	0.016	SHALLOW CONCENTRATED FLOW

SUBCATCHMENT 2.1

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
N/A	6.0	N/A	N/A	DIRECT ENTRY, MINIMUM TC

SUBCATCHMENT 3.0

SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
A-B	2.5	31'	0.056	SHEET FLOW
B-C	18.1	69'	0.056	SHEET FLOW
C-D	2.6	125'	0.100	SHALLOW CONCENTRATED FLOW



GRAPHIC SCALE

80 0 40 80 160 320

1 inch = 80 ft.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

WALSH
ENGINEERING ASSOCIATES, INC.
One Karen Dr., Suite 2A | Westbrook, Maine 04092
ph: 207.553.9898 | www.walsh-eng.com

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STATE OF MAINE
NORMAN G. CHAMBERLAIN II
No. 7144
LICENSED PROFESSIONAL ENGINEER
1/12/2022

Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
	6/15/2021	Biddeford Subdivision Sketch Plan Review	CAR	WRW
1	8/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC

Sheet Title:

Post-Development Drainage Plan

Job No.:	742
Date:	June 15, 2021
Scale:	1" = 80'
Drawn:	CAR
Checked:	WRW

Sheet No.: D2.0

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE	
	ABUTTERS PROPERTY LINE	
	EASEMENT	
	PROPERTY SETBACK	
IRF or IPF	IRON ROD OR PIN FOUND	
	IRON ROD OR PIN SET	5/8" REBAR TO BE SET
	CONCRETE MONUMENT FOUND	CONCRETE or GRANITE MONUMENT TO BE SET
	GRANITE MONUMENT FOUND	
	MONUMENT SET	
sd	STORM DRAIN LINE	SD
fd	FOUNDATION DRAIN LINE	FD
	STORM DRAIN CULVERT	
	RIP RAP IN/OUT PROTECTION APRON	
w	WATERLINE	W
ss	SANITARY SEWER LINE	SS
ugu	UNDERGROUND UTILITY	UGU
	UTILITY POLE	
	BUILDING	
	RIPRAP	
	LANDSCAPE/RETAINING WALL	
	BITUMINOUS PAVEMENT	
	GRAVEL	
	CONCRETE	
100	INDEX CONTOUR	100
101	INTERMEDIATE CONTOUR	101
	TREELINE	
	TREE	

PLAN REFERENCES:

1. TOPOGRAPHIC AND PROPERTY BOUNDARY INFORMATION TAKEN FROM A COMPILATION OF THE FOLLOWING:

   1.1. A PLAN TITLED "PLAN OF BOUNDARY SURVEY 930 POOL STREET, BIDDEFORD, MAINE", MADE FOR GINGER HILL DESIGN & BUILD BY TITCOMB ASSOCIATES OF FALMOUTH, MAINE 04105, DATED JULY 13, 2021 AND REVISED THROUGH AUGUST 3, 2021.

   1.2. DIGITAL ELEVATION INFORMATION OBTAINED FROM MAINE OFFICE OF GIS GEOLIBRARY DIGITAL ELEVATION APPLICATION FEBRUARY 22, 2021.

   1.3. ZONING BOUNDARY OBTAINED FROM A MAP TITLED "OFFICIAL ZONING MAP" FOR THE CITY OF BIDDEFORD, DATED JULY 3, 2012.

2. WETLAND DELINEATION PROVIDED BY MARK HAMPTON ASSOCIATES, INC. ON MARCH 5, 2021.

PARCEL INFORMATION:

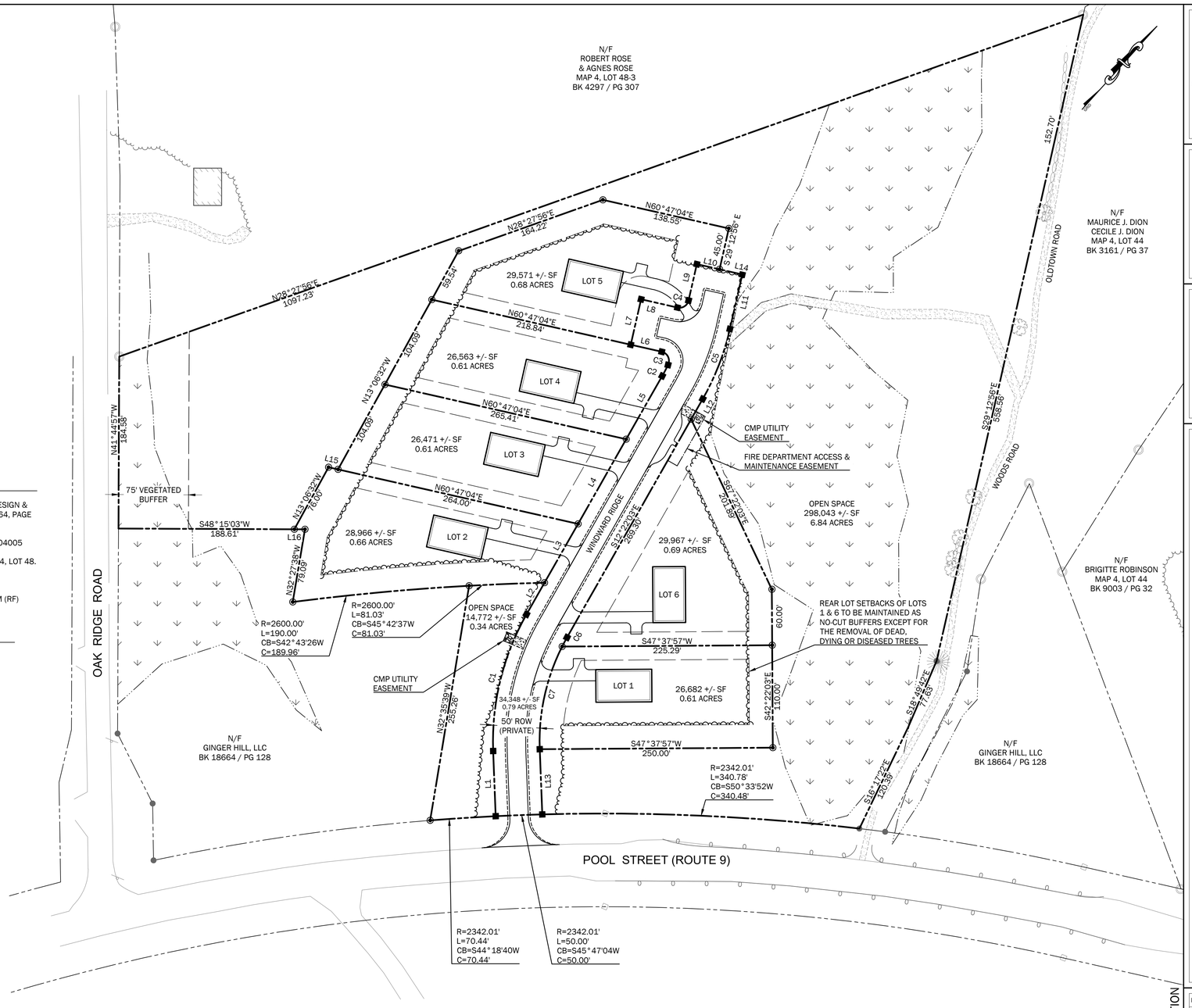
1. OWNER OF RECORD: GINGER HILL, LLC dba GINGER HILL DESIGN & BUILD BY DEED RECORDED AT THE (YCRD) DEED BOOK 18664, PAGE 128, DATED MAY 13, 2021.
2. STREET ADDRESS: 918 POOL STREET, BIDDEFORD, MAINE 04005
3. PARCEL SHOWN HEREON IS TOWN OF BIDDEFORD TAX MAP 4, LOT 48.
4. TOTAL AREA OF PARCEL: 11.8± AC (515,383 SF)
5. CURRENT ZONE: COASTAL RESIDENTIAL (CR) & RURAL FARM (RF)

FLOOD ZONE INFORMATION:

1. CLASSIFICATION: ZONE C, AREAS OF MINIMAL FLOODING
2. FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 230145 0010 B
3. EFFECTIVE DATE: MAY 15, 1984

GENERAL NOTES:

1. BOOK AND PAGE REFERENCES ARE TO THE YORK COUNTY REGISTRY OF DEEDS, UNLESS OTHERWISE NOTED.
2. BEARINGS ARE REFERENCED TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD83.
3. UTILITY INFORMATION ON THIS PLAN IS APPROXIMATE, BASED ON LOCATION OF VISIBLE FEATURES. DIGSAFE AND/OR THE APPROPRIATE UTILITIES SHOULD BE CONTACTED PRIOR TO ANY CONSTRUCTION.
4. THE PROPERTY IS BENEFITED BY AND SUBJECT TO THE EASEMENTS, COVENANTS, AND RESTRICTIONS SET FORTH IN "WINDWARD RIDGE SUBDIVISION DECLARATION OF COVENANTS AND RESTRICTIONS".
5. LOT GRADING, UTILITIES, PROPOSED UNIT LOCATIONS, AND LAWN AREAS ARE CONCEPTUAL ONLY AND MAY BE MODIFIED IN THE FIELD BASED ON ACTUAL BUILDING DESIGNS AND LOCATIONS.
6. THE EXTENTS OF THE PROPOSED RIGHT-OF-WAY SHALL BE FIELD SURVEYED PRIOR TO ROAD CONSTRUCTION.
7. THIS SIX-LOT SINGLE FAMILY RESIDENTIAL SUBDIVISION IS APPROVED AS A CLUSTER DEVELOPMENT PURSUANT TO ARTICLE VI, SECTION 16 OF THE CITY'S LAND DEVELOPMENT REGULATIONS, AND INCLUDES THE DESIGNATED OPEN SPACE IN PERPETUITY.
8. THIS PLAN IS TO ACT AS THE "PLAN OF PRIVATE WAY" IN ACCORDANCE WITH ARTICLE VI, SECTION 51, PART D OF THE CITY OF BIDDEFORD LAND DEVELOPMENT REGULATIONS.
9. THE CITY OF BIDDEFORD SHALL NOT BE RESPONSIBLE OF THE COST OF MATERIALS, INSTALLATION, MAINTENANCE, OR POWER FOR THE STREET LIGHTING. THE HOMEOWNER'S ASSOCIATION SHALL ASSUME ALL COSTS ASSOCIATED WITH THE LIGHTING SYSTEM.
10. THE CITY OF BIDDEFORD WILL NOT BE RESPONSIBLE FOR THE MAINTENANCE, REPAIR, OR PLOWING OF THE PRIVATE WAY AND THAT FURTHER LOT DIVISIONS UTILIZING THE PRIVATE WAY ARE PROHIBITED WITHOUT PRIOR APPROVAL OF THE BOARD.



ZONING INFORMATION*:

1. CLASSIFICATION: RURAL FARM (RF) & COASTAL RESIDENTIAL (CR)
2. MIN. LOT AREA: 40,000 SF (NO WATER, NO SEWER, CONVENTIONAL)
   20,000 SF (NO WATER, NO SEWER, CLUSTER)
3. MAX. LOT COVERAGE: 30%
4. MAX. BUILDING HEIGHT: 35 FT
5. MIN. STREET FRONTAGE: 200 FT (NO WATER, NO SEWER, CONVENTIONAL)
6. FRONT SETBACK: 40 FT FROM MAJOR ROW
   25 FT FROM OTHER ROW
7. SIDE SETBACK: 25 FT (RF), 10 FT (CR), OR 30 FT BETWEEN BUILDINGS
8. REAR SETBACK: 25 FT (RF), 10 FT (CR)
9. PARKING REQUIREMENTS: 2 PER DWELLING UNIT
10. 75' VEGETATED BUFFER FROM EXISTING ROW

Line Segment Table

Line Segment	Bearing	Distance
L1	N44°12'56"W	70.00'
L2	N12°22'03"W	39.09'
L3	N12°22'03"W	72.67'
L4	N12°22'03"W	104.48'
L5	N12°22'03"W	78.14'
L6	S60°47'04"W	34.11'
L7	N29°12'56"W	50.00'
L8	N60°47'04"E	40.00'
L9	N29°12'56"W	40.00'

Line Segment Table

Line Segment	Bearing	Distance
L10	N60°47'04"E	25.00'
L11	N29°12'56"W	60.00'
L12	S12°22'03"E	25.09'
L13	S44°12'56"E	70.00'
L14	N60°47'04"E	25.00'
L15	N60°47'04"E	10.41'
L16	S48°15'03"W	11.39'

Curve Segment Table

Curve Segment	Curve Radius	Curve Length	Chord Bearing	Chord Length
C1	275.00'	152.86'	N28°17'30"W	150.90'
C2	225.00'	13.35'	N14°04'04"W	13.35'
C3	10.00'	18.06'	N67°29'30"W	15.70'
C4	10.00'	15.71'	N15°47'04"E	14.14'
C5	275.00'	80.87'	S20°47'30"E	80.57'
C6	225.00'	11.11'	S13°46'56"E	11.11'
C7	225.00'	113.96'	S29°42'23"E	112.74'

BIDDEFORD PLANNING BOARD

_____ _____

DAVID GALBRAITH, CITY PLANNER, DULY AUTHORIZED
TO SIGN ON BEHALF OF THE CITY OF BIDDEFORD.

NOTE: THE SOLE PURPOSE OF THIS PLAN IS TO MODIFY THE SIDE SETBACKS BETWEEN LOTS WITHIN THE CLUSTER SUBDIVISION TO 15 FEET (30 FEET BETWEEN BUILDINGS).

THIS PLAN AMENDS THE PREVIOUSLY RECORDED WINDWARD RIDGE SUBDIVISION PLAN RECORDED IN THE YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 421, PAGE 49 ON MARCH 7, 2022 AND FIRST AMENDED IN PLAN BOOK 433, PAGE 6 ON JULY 12, 2023.

State of Maine, York ss.
Registry of Deeds
Received _____, 20 ____
at __h__ m__M, and recorded in
Plan Book _____, Page _____
Attest: _____
Register

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

GRAPHIC SCALE

60 0 30 60 120 240

1 inch = 60 ft.

ISSUED FOR PERMITTING - NOT FOR CONSTRUCTION

WALSH
ENGINEERING ASSOCIATES, INC.
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ph: 207.553.9898 | www.walsh-eng.com

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Windward Ridge

918 Pool Street
Biddeford, Maine 04005
Map 4, Lot 48

PREPARED FOR:
Ginger Hill, LLC
18 Early Way
Arundel, Maine 04046

Rev.	Date	Description	Drawn	Check
1	9/15/2021	Biddeford Subdivision Preliminary Plan Review	CAR	NGC
2	10/20/2021	Revised per City Review Comments	CAR	NGC
3	1/12/2022	Issued to City for Final Subdivision Review	CAR	NGC
4	2/8/2022	Revised per Planning Board Review Comments	CAR	NGC
5	4/15/2022	Surveyed topography within proposed right of way added	CAR	NGC
6	6/1/2022	Revised grading per observed ledge	CAR	NGC
7	7/6/2023	Revision to Lot 2 rear property line & adjacent open space	CAR	NGC
8	7/18/2023	Revised side setbacks between subdivided lots to 15 feet	CAR	NGC

Sheet Title:

Second Amended Subdivision Plan

Job No.:	742	Sheet No.:
Date:	June 15, 2021	S1.0
Scale:	1" = 60'	
Drawn:	CAR	
Checked:	WRW	

TERRADYN
CONSULTANTS, LLC

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

August 23, 2023 Project #20-68

David Galbraith, City Planner; Director of Planning & Development
City of Biddeford
205 Main Street
Biddeford, ME 04005

Subject: Berry Park – Proposed 10-Unit Building
Sketch Plan Submission

Dear David:

On behalf of Everybody Loves Raymond St, LP, attached are a sketch plan and supporting information for a proposed 10-unit residential building with associated infrastructure on Raymond Street in Biddeford. The following narrative includes information on the existing project site and the proposed development.

EXISTING PROJECT SITE

The project site is approximately 5.66 acres in size and is identified as Lot 108 on Biddeford Tax Map 29. The site is owned by Berry Park Apartments, LLC and is located in the R2 Multi-Family Residential Zoning District.

The project is within Berry Park, an existing 36-unit affordable housing development located on Raymond Street in Biddeford. The development was constructed in the early 1970's and includes 18 duplex buildings.

Berry Park is bisected by Raymond Street, a 30'-wide (+/-) paved public street with bituminous curbing and sidewalks on both sides. The existing duplexes are located along both sides of Raymond Street, approximately 20' to 30' from the public right-of-way.

The buildings are served by public water and sewer services located in Raymond Street and overhead electric and telecommunications services fed from utility poles, several of which include cobra-head style street lights.

The location of the proposed building is the southern corner of the Berry Park parcel, on the south side of Raymond Street. The project site is approximately 0.6 acres in size and is comprised of mowed grass and unmaintained shrub vegetation.

PROPOSED PROJECT

The applicant is proposing to construct a new 2-story, 10-unit residential building with associated site improvements. The project will be financed through the Maine State Housing Authority's (MSHA) Low Income Housing Tax Credit (LIHTC) program and will provide housing for low-income renters.

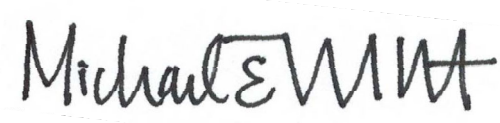
The new building will be served by the existing public utilities located in Raymond Street, and off-street parking for residents will be provided adjacent to the building. We believe that the attached Sketch Plan conforms to all dimensional standards for the R2 Zone, such as frontage and setbacks.

In addition to constructing the new 10-unit building, the applicant is planning to renovate the existing buildings, repair paved driveways, and install new landscape plantings throughout Berry Park. These site-wide improvements to the existing development are part of a capital improvement plan for the property and are not expected to require Site Plan review.

CLOSURE

Attached are a copy of the property deed and the local USGS map with the project site identified. We respectfully request to be added to the Planning Board's next available meeting agenda so we may present the sketch plans to the Board and solicit feedback. In the interim, if you have any questions or require additional information, please contact me.

Sincerely,
TERRADYN CONSULTANTS LLC



Michael Tadema-Wielandt, P.E.
Vice President

Attachments:
1. Application
2. USGS Map
3. Deed
4. Site Photographs
5. Sketch Plan

cc. Brad Fries, Everybody Loves Raymond St LP

ATTACHMENT 1

APPLICATION

City of Biddeford – Planning Department
Planning Board Application
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

Type of Application:
__ Shoreland Zoning Permit _X_Site Plan Review __ Extraction
__ Conditional Use Permit __ Subdivision __ Private Way
__ Other: _____

Applicant Information:
Name: Everybody Loves Raymond St LP
Mailing Address: 17 South Street, 3rd Floor
Telephone: 207-780-0223
Email: brad@northlandus.com
What is your legal interest in the property?
X Owner __ Potential Buyer with Contract __ Lease/Rental Agreement

Owner's Information:
Name: Berry Park Apartments LLC
Mailing Address: 17 South Street, 3rd Floor
Telephone: 207-780-0223
Email: brad@northlandus.com

Agent's Information:
Name: Michael Tadema-Wielandt, P.E.
Mailing Address: 565 Congress Street Suite 201
Telephone: 207-632-9010
Email: mtw@terradynconsultants.com

Engineer/Surveyor's Information:
Name: Michael Tadema-Wielandt, P.E.
Mailing Address: 565 Congress Street Suite 201
Telephone: 207-632-9010
Email: mtw@terradynconsultants.com

Project Location and Lot Information:
Street Address: 27-81 Raymond St Drainage Watershed: West Brook
Tax Map: 29 Lot: 108
Current Zoning: R2 Shoreland Zoning: _____
Size of Lot: 5.66 (x)acres ( )s.f. Lot Frontage: 785
Existing Use of Property: 36 unit development, including 18 duplexes

Property currently serviced by:
x City Road x Public Sewer x Public Water x Public Trash
__ Private Road __ Septic System __ Private Well __ Private Hauler

Slope Conditions in Area of Construction (if applicable):
x Flat (0-3% slope) __Rolling (3-8% slope) __Hilly (8-15% slope) __Steep (15%+ Slope)

Are there any wetlands or waterbodies on the site? __ (Yes) x (No) if yes attach information
Is the project within the 100-year floodplain? __ (Yes) x (No) if yes attach information
Do you plan to bring fill onto the lot? __(Yes) x (No) If yes attach information

Description of proposed use of property:

Project/Proposed Use:

Construction of a new 10-unit building with assoicated parking & infrastructure

Property to be Serviced by:

x City Road x Public Sewer x Public Water x Public Trash

__ Private Road __ Septic System __ Private Well __ Private Hauler

Limits of Disturbance: 21,400 ( )acres (x)s.f.

Net change in impervious cover: 14,400 ( )acres (x)s.f.

Is this project part of a larger project? X (Yes) __(No)

Is the project proposing a new Private or Public Road? __(Yes, Private) __(Yes, Public) x__(No)

Is this project within the Urbanized Area/MS4 (*see City Drainage Map*) x (Yes) __(No)

Is the project proposing any Stormwater facilities/BMPs? x__(Yes) __(No)

Will a Traffic Movement Permit (TMP) be required?: __(Yes) x (No)

__ **If in a Shoreland Zone:**

Percent of residential lot coverage (Max 20%): _____

Percent of structure expansion (Max 30%): _____

__ **If Subdivision Review, number of lots proposed:** _____

__ **If a Private Way is proposed, number of lots served:** _____

If Site Plan Review, you must provide the following information:

Total new square feet footprint of structure: 5,372

Total new square feet paving/parking: 9,030

Waiver Requests (attach details):

1. _____
2. _____
3. _____
4. _____
5. _____

Required Submittal Attachments:

A. Letters of Approval
   - __ Fire Department – Contact Chief or Deputy Chief – 282-9986
   - __ Ability to Serve for Water Service – Maine Water – 282-1543
   - __ Ability to Serve for Sewer Service – Engineering Department – Tom Milligan 284-9118
   - __ Police Department – e-911 Road Name Designation – Contact Joanne Fisk 282-5127

B. Letter to Planning Board describing project, Waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of Site.

D. Architectural renderings/drawings of proposed buildings, as required.

E. Engineering Plans, as required.

F. Stormwater Management Report, as required.

Fees (Due at time of Submission):

- $75 Nonrefundable Administration Fee is required for every application.
- Refer to "Attachment A Fees and Charges" of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- § I certify that I have read and completely understand the application;
- § I certify that the information contained in this application and its attachments are true and correct;
- § I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- § I understand that copies of this information may be supplied upon request to an interested party.
- § I understand that additional funds may be required through the course of the review for special studies, legal review costs, and/or engineering review.
- § I understand that by submitting an application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

Will the proposed project cause 1 acre or more of site disturbance?: __(Yes) __(No)

- **If Yes, applicant is responsible for any required Maine Construction General Permits and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

Signature of Applicant: _____ Brad Fries_____**Date** __8/23/23_____

Signature of Property Owner: _____**Date** _____

DIGITAL SUBMITTAL REQUIREMENTS FOR ALL SUBMITTALS:

A) PDF OF SIGNED APPLICATION

B) PDFs OF ALL DRAWING SETS AND OTHER REQUIRED SUBMITTAL ATTACHMENTS NOTED ABOVE

HARD-COPY SUBMITTAL REQUIREMENTS FOR PLANNING BOARD APPLICATIONS:

A) SEVEN (7) FULL-SIZE PAPER COPIES OF DRAWING SETS

DIGITAL SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

A) INDIVIDUALLY NAMED PDFs OF EACH DRAWING (NOT A COMBINED PDF SET)

- Individual Drawing PDF Naming Format: 'PROJECT/SHEETSET NAME_INDIVDUAL DRAWING NAME.pdf'

B) PDF COPIES OF ALL PERMIT APPROVALS, APPLICATIONS, REPORTS, NARRATIVES, LETTERS, ETC.

C) FINAL CAD REFERENCE FILES IN DWG FORMAT (SURVEY & PROPOSED DESIGN LINEWORK)

- All drawings & CAD reference files must be to-scale and within the following coordinate systems:

- MAINE STATE PLANE WEST NAD83 (Horizontal Datum) & NAVD88 (Vertical Datum)

HARD-COPY SUBMITTAL REQUIREMENTS FOR FINAL APPROVAL:

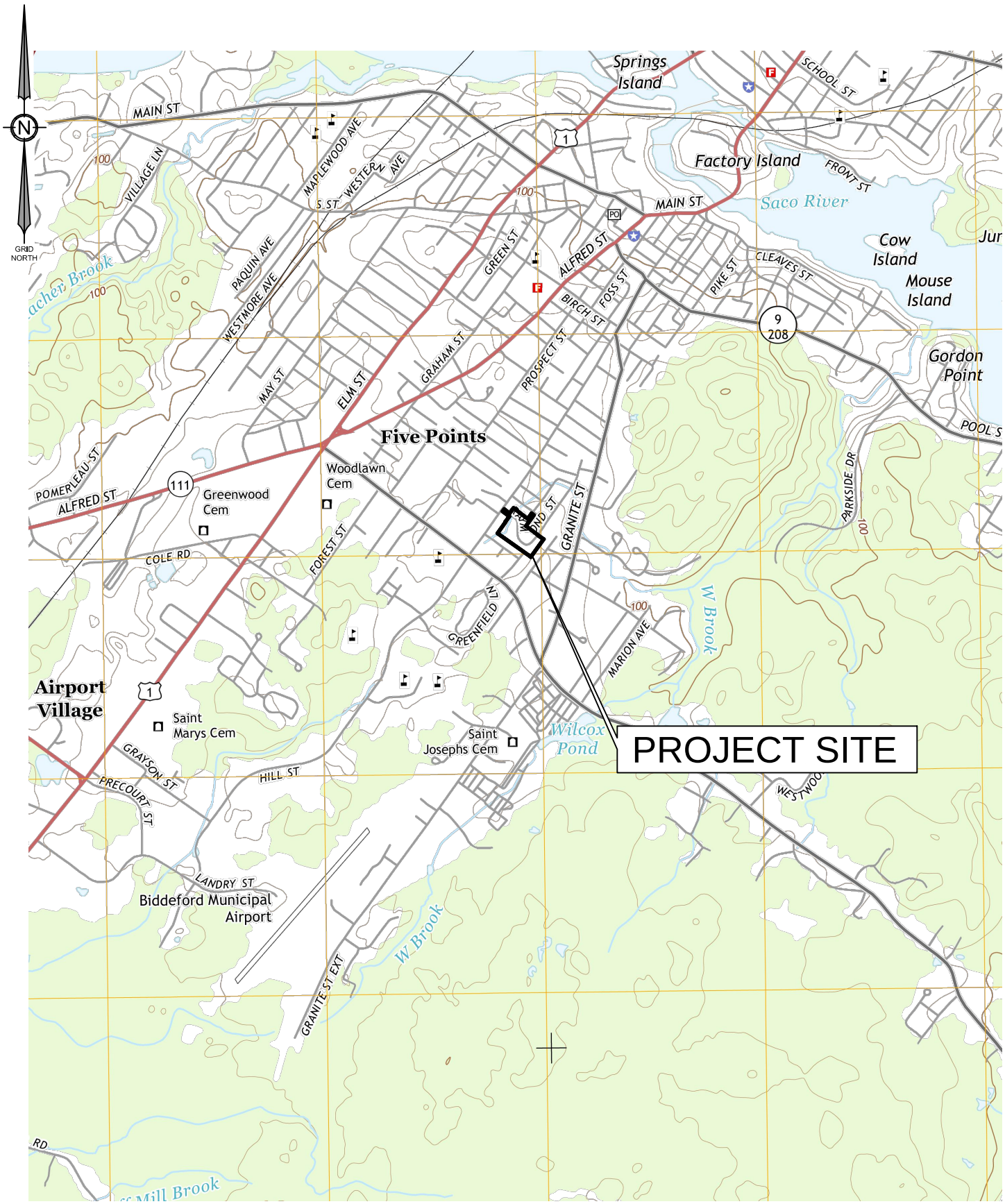
A) THREE (3) FULL-SIZE PAPER COPIES OF INDIVIUDAL DRAWINGS REQUIRING BOARD SIGNATURE

B) ONE (1) FULL-SIZE PAPER COPY OF ENTIRE DRAWING SET FOR ENGINEERING RECORDS

PLEASE CONFIRM WITH PLANNING STAFF FOR CLARIFICATION

ATTACHMENT 2

USGS MAP



USGS BIDDEFORD QUADRANGLE	TERRADYN CONSULTANTS, LLC	ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260 PHONE: (207) 926-5111 WEB SITE: www.terradynconsultants.com	PROJECT NO. 23-95	SHEET 1
PROJECT: BERRY PARK EXPANSION RAYMOND STREET, BIDDEFORD, MAINE	Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting		DATE 8/18/2023	OF 1
PREPARED FOR: NORTHLAND ENTERPRISES, LLC 17 SOUTH STREET, 3RD FLOOR PORTLAND, MAINE 040101			SCALE 1" = 2,000'	

ATTACHMENT 3

DEED

BK 12086 PG 026

066032

SHORT FORM WARRANTY DEED

MAINE R.E. TRANSFER TAX PAID

VILLAGE PARK ASSOCIATES LIMITED PARTNERSHIP, a Maine limited partnership having its principal place of business in Gorham, Cumberland County, Maine (the "Grantor"), FOR CONSIDERATION PAID, grants to BERRY PARK APARTMENTS, LLC, a Maine limited liability company having a mailing address in c/o Northland Enterprises, LLC, One City Center, 4th Floor, Portland, ME 04101 (the "Grantee"), WITH WARRANTY COVENANTS, the following described real property located in the City of Biddeford, County of York and State of Maine:

SEE EXHIBIT A ATTACHED HERETO AND MADE A PART HEREOF.

Being the same premises conveyed by Arlene Holloway to John E. Pearson and York-Cumberland Housing Development Corporation, General Partners under a limited partnership d/b/a Village Park Associates, dated November 21, 1973 and recorded in the York County Registry of Deeds in Book 2119, Page 896. The Grantor herein is the same limited partnership as that identified in the foregoing deed.

IN WITNESS WHEREOF, the said Village Park Associates Limited Partnership has caused this instrument to be executed under seal this 17th day of October, 2002.

WITNESS:

VILLAGE PARK ASSOCIATES LIMITED PARTNERSHIP

BY: York-Cumberland Consulting Services, Inc., General Partner

By: Dana Totman, its President

TO BOTH

BY: Berry Park Housing Corporation, General Partner

By: Dana Totman, its President

STATE OF MAINE
CUMBERLAND, SS.

October 17, 2002

Then personally appeared the above-named Dana Totman, President of York-Cumberland Consulting Services, Inc, and Berry Park Housing Corporation, both being the general partners of Village Park Associates Limited Partnership, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said corporations and

limited partnership.

Before me,

Attorney-~~At Law/Notary Public~~
Print Name: M-A-SELINGER
My Commission Expires:

O:\MAS\99475 York-Cumberland\Sale of Berry Park\Warranty Deed.doc

EXHIBIT A

All that certain lot, piece or, parcel of land situated in the City of Biddeford, County of York and State of Maine, together with the buildings and improvements thereon, and bounded and described as follows:

Beginning at an iron pipe on the southeasterly sideline of Hill Street in Biddeford said point being the northerly corner of a proposed reserved street called Hanna Street, as shown on a plan of Sunset Heights, dated August 28, 1935, and recorded in the York County Registry of Deeds in Plan Book 11, Page 76; thence, South 35° 11' 35" East one hundred and two and seventy hundredths (102.70) feet to a point; thence, North 54° 48' 25" East one hundred and no hundredths (100.00) feet to an iron pipe; thence, South 35° 11' 35" East two hundred and sixty-seven and forty-three hundredths (267.43) feet to a point; thence, North 52° 13' 32" East one hundred and ten hundredths (100.10) feet to Hubert Street; thence, South 35° 11' 35" East by said Hubert Street forty and three hundredths (40.03) feet to an iron pipe; thence, South 52° 13' 32" West two hundred and sixteen hundredths (200.16) feet to a point; thence South 35° 11' 35" East two hundred and sixteen hundredths (200.16) feet to a point; thence, continuing along the same course by the southwesterly end of Raymond Street forty and three hundredths (40.03) feet to a point; thence, South 37° 24' 16" East eighty-nine and thirty-five hundredths (89.35) feet to a point; thence, South 53° 04' 00" West three hundred and twenty-six and eighty seven hundredths (326.87) feet to an iron pipe; thence, North 37° 24' 16" West by the subdivision known as Country Club Estates recorded in the York County Registry of Deeds in Plan Book 54, Page 20; six hundred and twelve and forty-four hundredths (612.44) feet to other land of Oscar J. Gauthier, et ux; thence, North 52° 48' 23" East by other land of said Gauthier's two hundred and six and sixty-eight hundredths (206.68) feet to an iron pipe; thence, North 35° 11' 35" West by other land of said Gauthier's six and twenty-six hundredths (6.26) feet to an iron pipe; thence, North 54° 29' 42" East one hundred and no hundredths (100.00) feet to a point; thence, North 35° 11, 35" West by the proposed street, known as Hanna Street one hundred and twenty-six and sixty-five hundredths (126.65) feet to the southeasterly sideline of Hill Street; thence, North 52° 49' 43" East by said Hill Street forty and three hundredths (40.03) feet to the point of beginning, containing 5.67 acres, subject to such rights as may exist to the streets shown on the plan of Sunset Heights previously mentioned.

O:\MAS\99475 York-Cumberland\Sale of Berry Park\Warranty Deed.doc

RECEIVED YORK S.S.
2002 OCT 21 PM 12: 16

Moran Plumb & Illsley
PO Box 9785
Portland ME 04104

ATTACHMENT 4

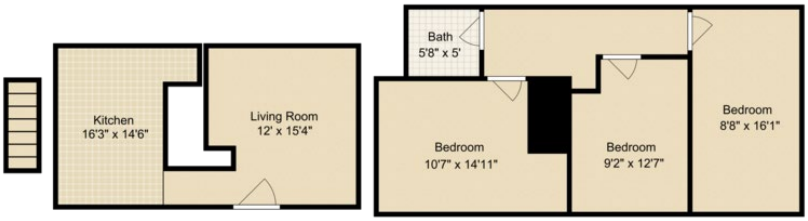
SITE PHOTOGRAPHS

Berry Park Apartments – 36 Unit Family Section 8 Apartments in Biddeford, Maine

Berry Park Apartments – 36 Unit Family Section 8 Apartments in Biddeford, Maine

Berry Park Apartments – 36 Unit Family Section 8 Apartments in Biddeford, Maine

Floor Plans


Kitchen
16'3" x 14'6"
Living Room
12' x 15'4"
Bath
5'8" x 5'
Bedroom
10'7" x 14'11"
Bedroom
9'2" x 12'7"
Bedroom
8'8" x 16'1"

Kitchen
12' x 15'2"
Living Room
11'11" x 15'1"
Bedroom
8'7" x 15'6"
Bedroom
8'9" x 12'7"
Bedroom
10'9" x 14'11"
Closet
Bath
5'8" x 5'
Bedroom
8'5" x 16'4"

Community Map

ATTACHMENT 5

SKETCH PLAN

GENERAL NOTES

1. THE RECORD OWNER IS BERRY PARK APARTMENTS, LLC, WHOSE ADDRESS IS NORTHLAND ENTERPRISES, LLC, ONE CITY CENTER, 4TH FLOOR, PORTLAND, MAINE.
2. THE PROPERTY IS LOCATED ON RAYMOND STREET IN BIDDEFORD, MAINE. DESCRIBED AS LOT 108 ON CITY OF BIDDEFORD ASSESSOR'S TAX MAP 29 RESPECTIVELY.
3. TOTAL AREA OF PARCEL: . . . . . 5.66 AC. +/-
4. SPACE AND BULK INFORMATION FOR RESIDENTIAL 2 DISTRICT ZONE:
   TRADITIONAL SUBDIVISION:

MIN. LOT SIZE:	4,500 S.F.
MIN. STREET FRONTAGE:	45 FT
MIN. FRONT SETBACK:	25 FT
MIN. SIDE SETBACK:	5 FT
MIN. REAR SETBACK:	5 FT
MAX. LOT COVERAGE:	20%
MAX. BUILDING HEIGHT:	35 FT.

5. THE OUTER BOUNDARY AND TOPOGRAPHIC SURVEY INFORMATION SHOWN ON THIS PLAN IS BASED ON BOUNDARY AND TOPOGRAPHIC SURVEY BY TERRADYN CONSULTANTS LLC IN AUGUST 2023.

GRAPHIC SCALE
1 0 5 10 20
(IN FEET)
1 INCH = 10 FT.

STATE OF MAINE
MICHAEL E. TADEMA-WIELANDT
No. 13864
LICENSED
PROFESSIONAL ENGINEER

DATE: 8/23/2023

NO.	DATE	REVISIONS

ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260
PHONE: (207) 926-5111
WEB SITE: www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: BERRY PARK EXPANSION
27-81 RAYMOND STREET, BIDDEFORD, ME

SHEET TITLE: SKETCH PLAN

RECORD OWNER: BERRY PARK APARTMENTS, LLC
17 SOUTH STREET, 3RD FLOOR
PORTLAND, ME 04101

DATE:	8/23/2023
SCALE:	1" = 10'
JOB NO:	20-68
SHEET:	C-1.0

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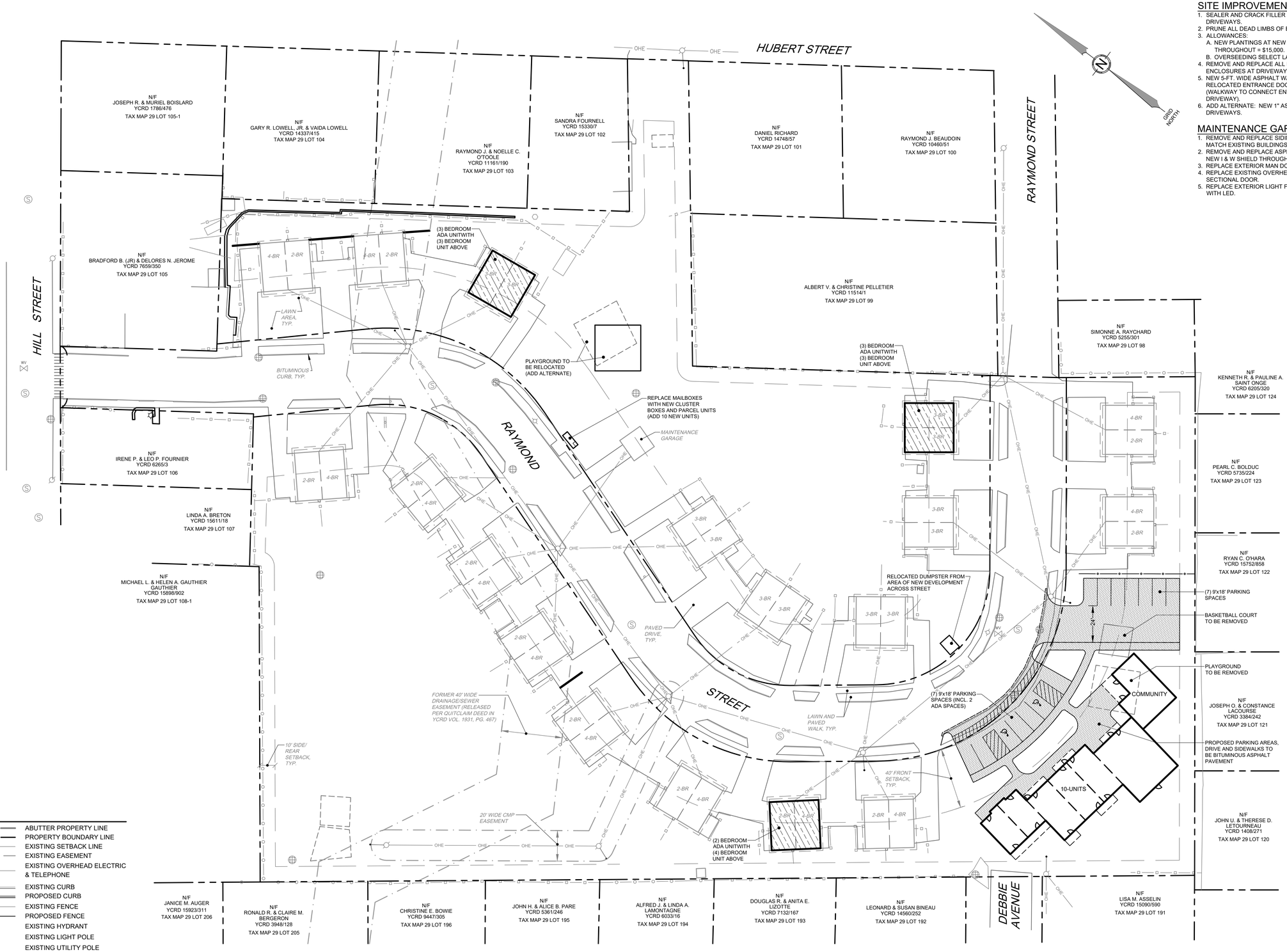

SITE IMPROVEMENTS SCOPE OF WORK:

1. SEALER AND CRACK FILLER AT ALL EXISTING ASPHALT DRIVEWAYS.
2. PRUNE ALL DEAD LIMBS OF EXISTING TREES THROUGHOUT.
3. ALLOWANCES:
   A. NEW PLANTINGS AT NEW BUILDING AND EXISTING COMPLEX THROUGHOUT = $15,000.
   B. OVERSEEDING SELECT LAWN AREAS = $3,500.
4. REMOVE AND REPLACE ALL EXISTING CEDAR FENCE ENCLOSURES AT DRIVEWAYS.
5. NEW 5-FT. WIDE ASPHALT WALKWAYS AT THREE BUILDINGS WITH RELOCATED ENTRANCE DOORS AT REAR AND DOGHOUSES (WALKWAY TO CONNECT ENTRY DOOR WITH EXISTING DRIVEWAY).
6. ADD ALTERNATE: NEW 1" ASPHALT OVERLAY AT ALL EXISTING DRIVEWAYS.

MAINTENANCE GARAGE UPDATES:

1. REMOVE AND REPLACE SIDING WITH HORIZONTAL SIDING TO MATCH EXISTING BUILDINGS.
2. REMOVE AND REPLACE ASPHALT SHINGLE ROOFING, INCLUDING NEW I & W SHIELD THROUGHOUT, RIDGE VENT, DRIP EDGE, ETC.
3. REPLACE EXTERIOR MAN DOOR TO MATCH EXISTING STYLE.
4. REPLACE EXISTING OVERHEAD DOOR WITH NEW INSULATED SECTIONAL DOOR.
5. REPLACE EXTERIOR LIGHT FIXTURE ABOVE OVERHEAD DOOR WITH LED.

LEGEND

- ABUTTER PROPERTY LINE
- PROPERTY BOUNDARY LINE
- EXISTING SETBACK LINE
- EXISTING EASEMENT
- EXISTING OVERHEAD ELECTRIC & TELEPHONE
- EXISTING CURB
- PROPOSED CURB
- EXISTING FENCE
- PROPOSED FENCE
- EXISTING HYDRANT
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING SIGN
- EXISTING BUILDING
- PROPOSED BUILDING

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

NO.	DATE	REVISIONS	APP'D BY

DATE:
P.E.:

TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE SUITE 101 NEW GLOUCESTER, ME 04260
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Civil Engineering | Land Planning | Stormwater Design | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
CLIFFORD BERRY PARK IMPROVEMENTS
RAYMOND STREET, BIDDEFORD, MAINE

SHEET TITLE:
CONCEPT PLAN

CLIENT:
NORTHLAND ENTERPRISES
17 SOUTH STREET, 3rd FLOOR
PORTLAND, MAINE 04101

DATE:	10/06/2021
SCALE:	1" = 30'
DESIGNED:	MTW
JOB NO:	20-68
FILE:	20-68B.dwg
SHEET	1 OF 1

CITY OF BIDDEFORD

Planning and Development Department

David C.M. Galbraith
Interim Deputy Director/City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115
David.Galbraith@biddefordmaine.org

PLANNING BOARD STAFF REPORT

TO: Chair Patoine and Members of the Biddeford Planning Board

FROM: David C.M. Galbraith, Interim Deputy Director/City Planner

DATE: September 12, 2023

RE: 2023.44 Sketch Plan - Subdivision Review for Everybody Loves Raymond St, LP / Proposed Construction of a 10-unit residential structure on Raymond Street (Tax Map 29, Lot 108), within the Berry Park Apartments located in the R-2 Zone.

MEETING DATE: September 20, 2023 at 6:00 PM

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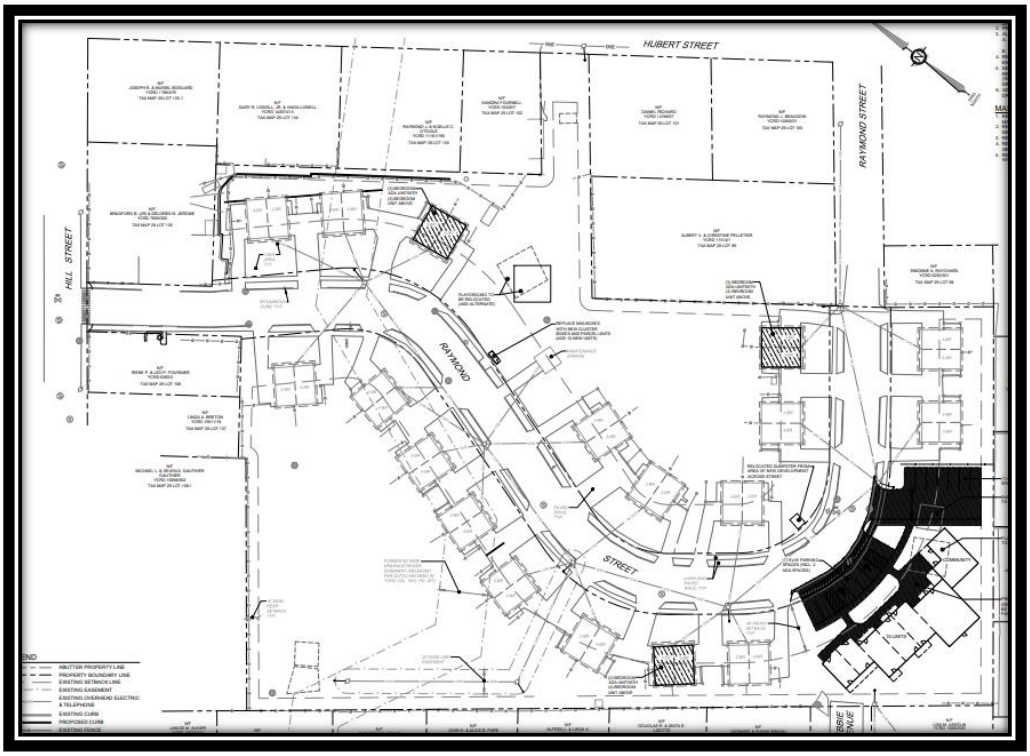
1. INTRODUCTION

Terradyn Consultants is representing Everybody Loves Raymond St., LP who is applying for Sketch Plan Review for the construction of a 2-story, 10-unit residential structure within Berry Park Apartments which is an existing 36-unit affordable housing development.



Berry Park Apartments – Proposed 10 Unit Building

The existing units consist of 18 duplexes, each of which contains a total of six bedrooms per unit, with a either a three (3) bedroom and a three (3) bedroom or a four (4) bedroom with a two (2) bedroom units. The sketch plan application includes a narrative which includes the following proposal overview:

> *The project site is approximately 5.66 acres in size and is identified as Lot 108 on Biddeford Tax Map 29. The site is owned by Berry Park Apartments, LLC and is located in the R2 Multi-Family Residential Zoning District.*
>
> *The project is within Berry Park, an existing 36-unit affordable housing development located on Raymond Street in Biddeford. The development was constructed in the early 1970's and includes 18 duplex buildings.*
>
> *Berry Park is bisected by Raymond Street, a 30'-wide (+/-) paved public street with bituminous curbing and sidewalks on both sides. The existing duplexes are located along both sides of Raymond Street, approximately 20' to 30' from the public right-of-way.*
>
> *The buildings are served by public water and sewer services located in Raymond Street and overhead electric and telecommunications services fed from utility poles, several of which include cobra-head style street lights.*
>
> *The location of the proposed building is the southern corner of the Berry Park parcel, on the south side of Raymond Street. The project site is approximately 0.6 acres in size and is comprised of mowed grass and unmaintained shrub vegetation.*
>
> *The applicant is proposing to construct a new 2-story, 10-unit residential building with associated site improvements. The project will be financed through the Maine State Housing Authority's (MSHA) Low Income Housing Tax Credit (LIHTC) program and will provide housing for low income renters.*
>
> *The new building will be served by the existing public utilities located in Raymond Street, and off-street parking for residents will be provided adjacent to the building. We believe that the attached Sketch Plan conforms to all dimensional standards for the R2 Zone, such as frontage and setbacks. In addition to constructing the new 10-unit building, the applicant is planning to renovate the existing buildings, repair paved driveways, and install new landscape plantings throughout Berry Park. These site-wide improvements to the existing development are part of a capital improvement plan for the property and are not expected to require Site Plan review.*

Case 2023.44: Sketch Plan Review and Subdivision Review for Everybody Loves Raymond St, LP / Proposed Construction of a 10-unit residential structure on Raymond Street (Tax Map 29, Lot 108).
Planning Board Hearing date: September 20, 2023.

Berry Park Apartments – Proposed 10 Unit Building – Front Elevation

2. PROJECT DATA/INFORMATION

1.	Applicant:	Everybody Loves Raymond St LP 17 South Street, 3rd Floor Biddeford, ME 04005
2.	Owner of Property:	Berry Park Apartments, LLC Same address as above
3.	Agent:	Michael Tadema-Wielandt P.E. Terradyn Consultants 565 Congress Street, Suite 201 Portland, ME 04101
4.	Surveyor:	Same as Above
5.	Project Location:	27-81 Raymond Street
6.	Project Tax Map #/Lot #:	Tax Map 29, Lot 108
7.	Lot Size:	5.66 Acres
8.	Base Zoning:	R-2
9.	Overlay Zoning:	N/A
10.	Existing Use:	36 Unit Development, Including 18 Duplexes
11.	Proposed Use:	2-story 10-unit Residential Building Addition
12.	Approvals Required:	Site Plan and Subdivision Review
13.	Uses in the Vicinity:	Residential
14.	Waivers Needed:	a. None
18.	Waivers Granted:	a. None
22.	Other Non-City Permits Required:	N/A
23.	LDR Attachment A: Fees Paid:	Yes
25.	Planning Board Review History: N/A	

3. REVIEW PROCESS

Per City ordinance, this application is subject to Site Plan (Land Development Regulations, Article XI) review and Subdivision Review (Chapter 66 – Subdivisions) approval by the Planning Board.

4. Departmental Review Comments:

A. Planning:

1. All refuse and recycling dumpsters shall be fully screened with a dumpster enclosure/s.
2. Stormwater calculations / stormwater detention shall be provided with the submittal of the Preliminary Subdivision Application.
3. All existing and proposed landscaping shall be illustrated on Preliminary Plan Application, which shall include type, number, size and species of all landscaping materials.
4. The Preliminary Plan Application shall include an overview / narrative of all proposed property improvements being proposed.
5. Playground areas should identify specific areas where they being relocated / proposed in addition to the type of playground equipment being proposed.

B. Code Enforcement:

1. No comments / concerns at this time.

C. Engineering / Public Works:

1. The Applicant shall confirm that stormwater and sewer systems are separated.
2. A stormwater management plan shall be submitted with the Preliminary Subdivision review application.
3. Downstream stormwater capacity shall be confirmed for all new impervious areas.
4. A portion of the sidewalks should be upgraded by the developer as they are too narrow to plow with the sidewalk plow and are in poor condition.
5. Sidewalks within the complex are in need of repair / replacement.

D. Police:

1. No comments / concerns at this time.

E. Fire:

1. No comments / concerns at this time.

F. Traffic Peer Review:

1. Not Applicable.

G. Engineering Peer Review:

1. No comments at this time.

Case 2023.44: Sketch Plan Review and Subdivision Review for Everybody Loves Raymond St, LP / Proposed Construction of a 10-unit residential structure on Raymond Street (Tax Map 29, Lot 108).
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1. STAFF REVIEW

- **APPLICATION COMPLETENESS:** The applicant has submitted a complete application, featuring all required elements as specified under Section 66-35 (Required Information for Final Plan Submissions). As part of the staff's review comments, we've identified aspects of the plan submission to be revised or clarified, which we suggest being made a condition of approval.

- **ZONING:**

  The subject property is located within the City's R-2 zoning district where multi-family dwellings are a permitted use. The proposed ten (10) unit building is situated in an existing multi-family development which is consistent with the surrounding duplexes within the Berry Park Apartments.

- **REVIEW STANDARDS:**

  In general, staff found the application to satisfy City subdivision and site plan requirements. The major site details being proposed, such as building, parking, landscaped areas, gang mailbox and playground location have been determined by the Applicant so the plan being reviewed the Board are what is proposed to be constructed on the property.

- **WAIVERS:**

  No waivers are being sought at this time.

2. SAMPLE MOTIONS:

The Application before the Board is a "Sketch Plan" so no formal vote is required. However, the Board should provide the Applicant direction regarding any items that should be included in the formal Preliminary Application.