1 2

3

4

5 6

7 8 9 10 11

12

13

14

Protection Overlay (OZ-RP) Zones.

REQ'D	ACTION	COMMENTS	STATUS
YES	Sketch Plan Acceptance/Approval	5/11/23	Accepted
YES	Planning board determination of completeness	Scheduled for 8/24/23	Pending
NO	Site Visit		TBD
YES	Public Hearing	Required for Preliminary Site Plan or Subdivision Approval	TBD
YES	Preliminary Plan Approval		TBD
YES	Final Plan Review and Decision		TBD

Town of Kittery

Planning Board Meeting

August 24, 2023

Action: accept plan as complete or continue review. Schedule site walk/public hearing. Michael Tadema-

Wielandt, on behalf of owner/applicant Geoff Bowley, is proposing to divide a 19.11-acre parcel into a

conservation subdivision of 9 single-family residential building lots, a private street system, and an open

space plot around identified wetlands, vernal pools, and a pre-existing cemetery. The proposed subdivision

is located on the property of 77 Bartlett Road, Map 62 Lot 26, in the Residential-Rural (R-RL) and Resource

ITEM 4 – 77 Bartlett Road – Conservation Subdivision Plan – Preliminary Review

Applicant: Prior to the signing of the approved Plan any Conditions of Approval related to the Findings of Fact along with waivers and variances (by the BOA) must be placed on the Final Plan and, when applicable, recorded at the York County Registry of Deeds. PLACE THE MAP AND LOT NUMBER IN 1/4" HIGH LETTERS AT LOWER RIGHT BORDER OF ALL PLAN SHEETS. As per Section 16.4.4.L - Grading/Construction Final Plan Required. - Grading or construction of roads, grading of land or lots, or construction of buildings is prohibited until the original copy of the approved final plan endorsed has been duly recorded in the York County registry of deeds when applicable.

15 16

17

18

19 20 21 22

23 24 25

26 27

28 29

30 31

32 33

PROJECT INTRODUCTION

This is a conceptual review for a proposed 9-lot conservation subdivision located at 77 Bartlett Road in the R-RL (Residential-Rural) zoning district and partially within the OZ-RP Resource Protection Overlay Zone. The lots are proposed to be accessed from Bartlett Road through a private street system ending in one culde-sac, designed to meet the standards of a Class II private street with a 3-foot widened shoulder and a painted strip on the west side for pedestrian movement. Nine proposed lots will all be accessed from the new road. Lot sizes range from approximately 21,000 square feet to 34,000 square feet. The property currently contains a single residential dwelling; the structure will remain on the lot after renovations, and the driveway currently providing access to Bartlett Road will be removed.

A private cemetery, located between proposed lots 1 and 2, will be maintained as open space with public access provided. Public water and sewage are unavailable to the property; the developer proposes installing private septic systems and wells for each individual lot. The site contains wetland areas around the proposed subdivision, including two vernal pools (that have not been deemed of significant size by the state) located east of the proposed development, and an area containing a wetland of special significance as well as a floodplain abutting the proposed subdivision to the southwest.

The required building envelopes and water quality letter from a hydrogeologist, which were missing at the sketch review, have been provided. The applicant has provided the submission requirements for a preliminary site plan. Staff advise determining application completeness and providing initial feedback during this meeting.

STAFF COMMENTS

- 1. A 40-foot right-of-way is proposed, with a 5-foot grading and drainage easement along both sides of the ROW. The proposed road shall be private and maintained by a homeowner's association.
- 2. Part of the cul-de-sac is within 100 feet of the wetland. **§16.5.30** requires traveled ways greater than 18 feet in width only maintain a 30-foot setback, or 10 feet from the toe of the slope, whichever is greater. Additionally, this is a standard that can be modified in a conservation subdivision.
- 3. The grading plan shows the test pits for potential septic and wells, as well as proposed transformer locations to be coordinated with Central Maine Power.
- 4. The water report confirms the recharge capacity of the aquifer is greater than the anticipated water usage of the proposed wells, and the bedrock is a good site for wells to be dug.
- 5. The Maine Department of Inland Fisheries and Wildlife does not anticipate essential habitats to be directly affected by the project. Endangered, threatened, and significant wildlife have not been identified in the parcel area, and impact to nearby identified habitats is not anticipated.
- 6. Because the conservation subdivision ordinance strongly recommends all buildings within the subdivision be designed for maximum energy efficiency per §16.10.6.A.(4), it is suggested that buildings be designed as south-facing whenever possible in this subdivision.
- 7. The conservation subdivision requires low impact development wherever possible. The proposal plans to reuse the materials from the portions of the stone wall to be dismantled and is proposing a forested stormwater buffer adjacent to lot 4. Staff believe these examples show the applicant is working to meet this requirement.

PROJECT ANALYSIS

Code Ref.	§16.4 Land Use Zone Standards					
	Standard	Determination				
§16.4.10.B	Permitted/Special Exception Uses	The proposed subdivision is a permitted use				
§16.4.10.E.(2).(a).	Minimum area per dwelling: 40,000 sq ft.	ft. It appears the standard is satisfied.				
§16.4.10.E.(2).(b).	Lot size: 40,000 sq ft minimum	Not all lots meet this standard. Requirements need not be met in a conservation subdivision				
§16.4.10.E.(2).(c).	Street frontage: 150 ft minimum	Not all lots meet this standard. Requirements may be modified in a conservation subdivision.				

§16.4.10.E.(2).(d).	Front setback: 40 ft minimum	Not all lots meet this standard. Requirements may be modified in a conservation subdivision.
§16.4.10.E.(2).(e).	Building coverage: 15% maximum	Not all lots meet this standard. Requirements may be modified in a conservation subdivision.
§16.4.10.E.(2).(f).	Rear and side setbacks: 20 ft minimum.	Not all lots meet this standard. Requirements may be modified in a conservation subdivision.
§16.4.10.E.(2).(g).	Building height: 35 ft maximum	It appears the standard is satisfied.
§16.4.10.E.(2).(i).	Minimum water-body setbacks: up to 100 feet from high-water line of identified wetlands	The plan is missing a setback from the wetlands abutting lot 1.
C 1 D C	§16.5 Performance Standards	
Code Ref.	Standard	Determination
§16.5.4	Affordable housing requirements	Not applicable, as the subdivision has less than 10 lots.
§16.5.9	Conservation of vernal pools	Identified vernal pools were not deemed significant. Standard setback applies determined by size.
§16.5.10	Essential services	Test pits and well locations have been notated. Underground utilities are proposed. Standards appear to be met
§16.5.11	Floodplain Management	The proposed development is outside of the indicated floodplain. Standards appear to be met.
§16.5.14.B	Lots	The flag-shaped lot proposed in the sketch review has been removed. Lot standards appear to be met, save for issues noted in the table above.

§16.5.18.	Net residential acreage	Staff found an error in calculations: the "less space" totaled 265,047 sq ft, not 256,264. Despite this error, there is still enough land to support a maximum of 14 lots. The standard appears to be met.				
§16.5.27	Street Standards	The proposed road appears to meet the standards of a class II private street. A paved "pedestrian way" has been provided instead of required sidewalks.				
§16.5.30	All wetlands of 501 sq ft.or greater trigger setbacks for certain uses	Delineation was submitted, and wetlands of special significance have been identified. Standards appear to be met, save for the missing setback mentioned above.				
Cada Daf	§16.10 Additional Requirements for Conservation Subdivision					
Code Ref.	Standard	Determination				
§16.10.4.B	Indicate any proposed public open space and Town Council approval	Standard is not required. Public access is not proposed by applicant, and the cemetery on the property would not be considered a public park.				
§16.10.5.C	Proposed private and water systems must show: adequate groundwater is available. Proposed groundwater sources are safe from on-site and off-site contamination. Proposed individual septic systems will not endanger drinking water supply. The costs of a community water or wastewater system is prohibitively expensive 	Standards appear to be met.				
§16.10.5.D	Designated open space to be permanently preserved	Appears to meet minimum open space standards. Proposed configuration requires planning board approval				

	-	,
§16.10.5.E	Minimum lot size with private water/wastewater: 20,000 sq ft	Standard appears to be met
§16.10.5.F	No individual lot may have direct vehicular access onto a public road	All proposed lots will access the proposed private way. The driveway of the existing dwelling currently connecting to Bartlett Road will be removed. Standard appears to be met.
§16.10.5.G	All areas designated as Resource Protection must be protected as open space	While wetlands of special significance are notated, there is no boundary line for the resource protection overlay zone.
§16.10.5.I	Wetlands designated as open space to have a "no-cut, no disturb" buffer	Staff suggest adding a note in the site plan indicating the identified wetland setbacks will be "no cut, no disturbance" areas, as that is a code requirement.
§16.10.5.J	Al utilities must be installed underground	The standard appears to be met.
§16.10.5.K	All subsurface wastewater disposal areas to be indicated on plan	The standard appears to be met
§16.10.6.F	Vegetated buffer located on front lot line, a minimum width of 40 feet	The standard appears to be met.
§16.10.6.H	Low-impact design must be incorporated into the plan whenever possible	The stormwater drainage plan proposes a forested stormwater buffer on Lot 4. The standard appears to be met.

§16.10.7.A	Open space minimum: 60% of lot, with 40% of that consisting of net residential acreage	Numbers in this calculation seem to conflict with the net residential acreage calculations. Staff suggest revising calculations, and incorporating the error indicated above.
§16.10.7.B	All wetlands, water bodies, and floodplains must be located within open space boundaries	This standard appears to be met.
§16.10.7.C	Significant natural resources or wildlife habitat areas must be designated as open space	This standard appears to be met.
§16.10.7.D	Open space must include any notable features	This standard appears to be met.
§16.10.7.E	All historic, cultural, or archaeological resources must be included as open space	The Payne Cemetery is designated as open space. The standard appears to be met.
§16.10.7.F	Open space areas must be made contiguous to the greatest extent possible	Staff believe this standard has been met, but open space configuration is up to the decision of the planning board.
§16.10.7.G	Open space may not be mowed unless part of a public park/trail	This standard will be met with the addition of the above mentioned "no cut" buffers.
§16.10.10	The homeowner's association will be held responsible for: • Maintenance of open space • Maintenance public facilities such as road and stormwater systems • An initial capital fund required to cover expenses • Maintenance and replacement of plantings, including additional plantings required by the planning board	The plan indicates the subdivision will be maintained by a Homeowner's Association

§16.10.11	Prior to the beginning of any site work, the applicant must: • Define the limits of any proposed clearings. • File all required performance guarantees and inspection escrows in forms acceptable to the Town Manager	Not applicable at preliminary stage					
Code Ref.	§16.8.9.C Preliminary Subdivision Plan Requirements						
Code Rei.	Standard	Determination					
§16.8.9.C.(5).(a-i).	* Paper plan sheets no smaller than 11" x 17" * Scale of drawing no greater than 1 inch = 30 feet * Code block in right-hand corner * Standard boundary survey of existing conditions * Compass with arrow pointing true north * Locus map of property * Vicinity map and aerial photograph * Surveyed acreage of parcel(s), rights-of-way, wetlands, and amount of street frontage * Names and addresses of owners of record abutting property	Provided					
§16.8.9.C.(5).(j).	Existing conditions survey including all identified structures, natural resources, rights-of-way, and utilities located on and within 100 feet of the property	Provided					
§16.8.9.C.(5).(k).	Proposed development area including: * Location and detail of proposed structures and signs * Proposed utilities including power, water, and sewer * Sewage facilities type and placement * Domestic water source * Lot lines, rights-of-way, and street alignments * Road and other paved area plans * Existing and proposed setbacks * Storage areas for waste or hazardous materials * Topographic contours of existing contours and finished grade elevations * Locations and dimensions of artificial features such as pedestrian ways, sidewalks, curb cuts, driveways, fences, retaining walls,	Provided					
§16.8.9.C.(6).(a).	Documents showing legal interest in the property	Provided					
§16.8.9.C.(6).(b).	Identified property encumbrances	Provided					

§16.8.9.C.(6).(c).	Kittery Water District approval letter	Private water proposed: hydrogeologist letter has been provided.
§16.8.9.C.(6).(d).	Erosion and sedimentation control plan	Provided
§16.8.9.C.(6).(e). Stormwater management plan and drainage analysis Provided		Provided
§16.8.9.C.(6).(f).	Soil survey	Provided
§16.8.9.C.(6).(g).	Vehicular traffic report	Provided
§16.8.9.C.(6).(h).	Traffic impact analysis	Not deemed applicable due to low traffic volume
§16.8.9.C.(6).(i). Test pit analysis for proposed septic systems Prov		Provided
§16.8.9.C.(6).(j).	Town sewage department confirmation	Not applicable.
§16.8.10.C.(6).(k).	Evaluation of development by Police, Fire, and Public Works department heads	Provided
§16.8.10.C.(6).(1).	Additional submissions as required	None proposed at this time

DISCUSSION, NEXT STEPS, AND RECOMMENDATIONS

The purpose of the first meeting of a preliminary site plan is to determine the completeness of the application, provide specific feedback to the applicant, and determine whether the plan is ready to schedule a public hearing. The issues that have been identified are able to be modified at later iterations of the preliminary site plan. Additionally, the applicant's proposed sustainable and low-impact development appears to show adherence to the additional requirements of a conservation subdivision. Staff believe the application meets all submission requirements for initial acceptance and suggest the planning board advise the applicant regarding their willingness to entertain the proposed modifications.

RECOMMENDED MOTIONS

 Below are recommended motions for the Board's use and consideration:

Motion to accept the application as complete

Move to accept the site plan by Michael Tadema-Wielandt, on behalf of owner/applicant Geoff Bowley, proposing to divide a 19.11-acre parcel into a conservation subdivision of 9 single-family residential building lots, a private street system, and an open space plot around identified wetlands, vernal pools, and a pre-existing cemetery on the property of 77 Bartlett Road, Map 62 Lot 26, in the Residential-Rural (R-RL) and Resource Protection Overlay (OZ-RP) Zones.

Motion to schedule a site walk

Move to visit the site of the plan by Michael Tadema-Wielandt, on behalf of owner/applicant Geoff Bowley, proposing to divide a 19.11-acre parcel into a conservation subdivision of 9 single-family

residential building lots, a private street system, and an open space plot around identified wetlands, vernal pools, and a pre-existing cemetery on the property of 77 Bartlett Road, Map 62 Lot 26, in the Residential-Rural (R-RL) and Resource Protection Overlay (OZ-RP) Zones.

90 91 92

88

89

Motion to schedule a public hearing

Move to schedule a public hearing for the plan by Michael Tadema-Wielandt, on behalf of owner/applicant Geoff Bowley, proposing to divide a 19.11-acre parcel into a conservation subdivision of 9 single-family residential building lots, a private street system, and an open space plot around identified wetlands, vernal pools, and a pre-existing cemetery on the property of 77 Bartlett Road, Map 62 Lot 26, in the Residential-Rural (R-RL) and Resource Protection Overlay (OZ-RP) Zones.

APPLICANT/OWNER:

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

PROJECT PARCEL SITE

TOWN OF KITTERY TAX ASSESSOR'S MAP, LOT NUMBERS & ZONING DISTRICTS

MAP LO

ZONING DISTRICTS

SUBDIVISION PLANS BARTLETT ROAD SUBDIVISION BARTLETT ROAD - KITTERY, MAINE



SHEET INDEX

C-4.2 DRAINAGE & UTILITY DETAILS

C-1.0	COVER SHEET
1	TOPOGRAPHIC SURVEY PLAN
C-2.0	EXISTING CONDITIONS & CLEARING PLAN
C-3.0	SUBDIVISION PLAN
C-3.1	PLAN & PROFILE, UTILITY, & EROSION CONTROL PLAN
C-4.0	EROSION CONTROL NOTES & DETAILS
C-4.1	SITE 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

GEOLOGIST: MARK CENCI GEOLOGIC, INC. 93 MILL ROAD NORTH YARMOUTH, MAINE 04097 (207) 329-3524

UTILITIES

PRIVATE ONSITE SUBSURFACE
WASTEWATER DISPOSAL

WATER PRIVATE ONSITE WELLS

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
CONSOLIDATED COMMUNICATIONS
24 HERSEY STREET
PORTLAND, MAINE 04103
(844) 986-7224

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

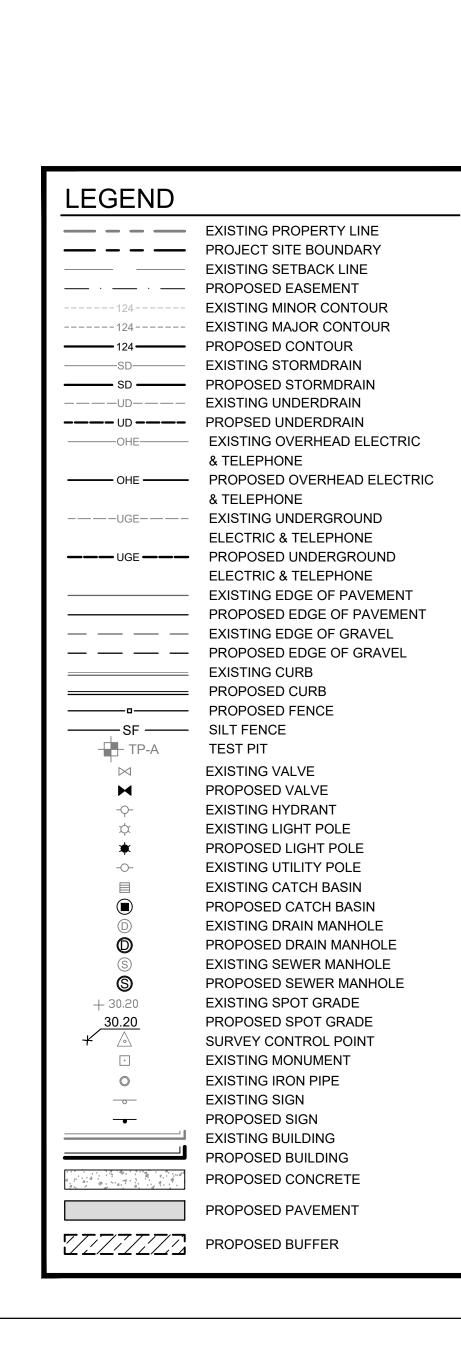
PERMITS TYPE OF PERMIT GOVERNING BODY STATUS SUBDIVISION APPROVAL TOWN OF KITTERY, MAINE PLANNING BOARD PLANNING BOARD 200 ROGERS ROAD KITTERY, ME 03904 TEL. 207-439-0452

GENERAL NOTES

- 1. THE PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY THE TOWN OF KITTERY, AND THE LOCAL UTILITY COMPANIES.
- 2. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY THE TOWN OF KITTERY 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 TOWN OF KITTERY 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 INDIVIDUAL WELLS AND 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.



P.E.: MICHAEL TADEMA-WIELAND

NOT FOR CONSTRUCTION

SHEET

SCALE:

JOB NO:

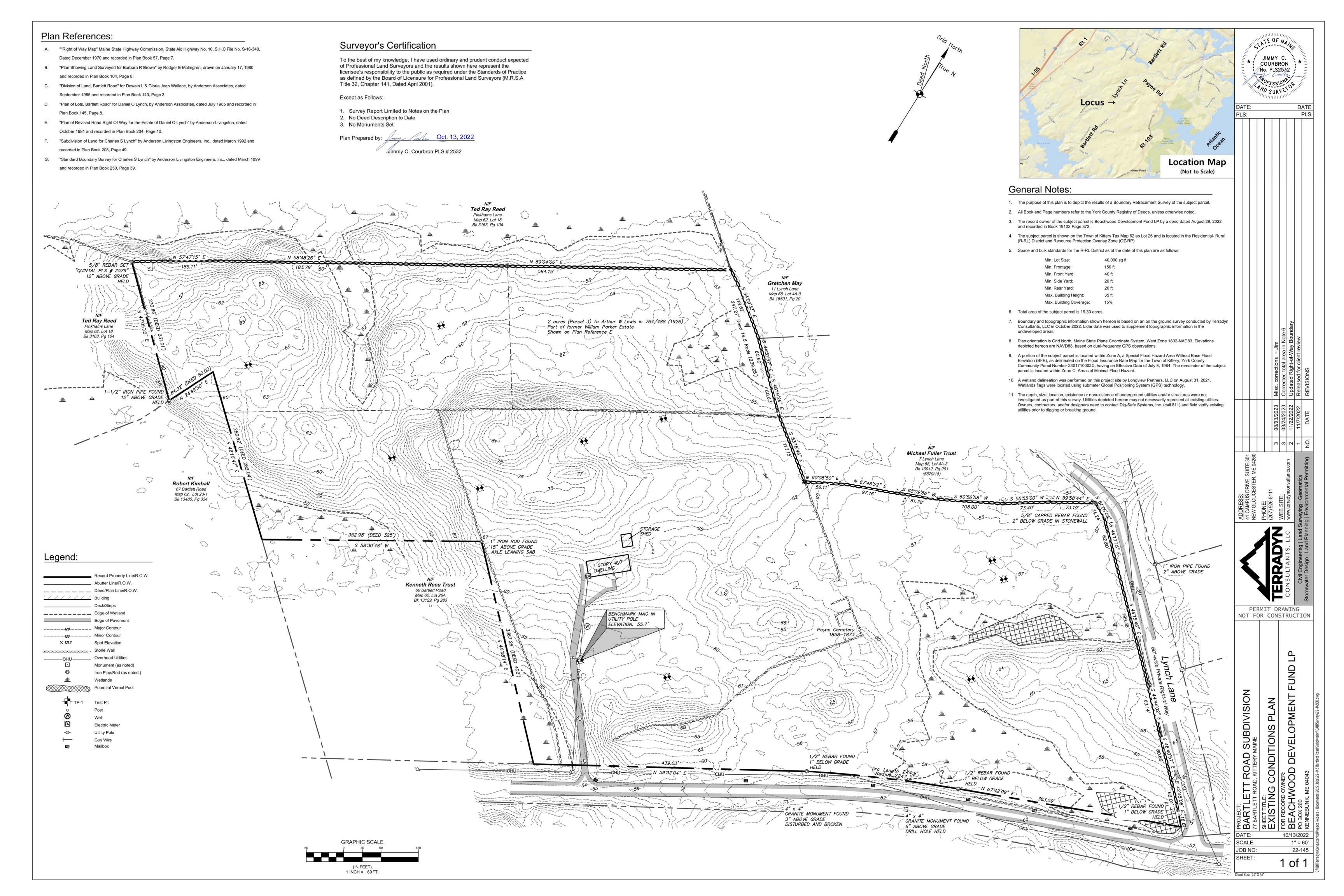
SHEET

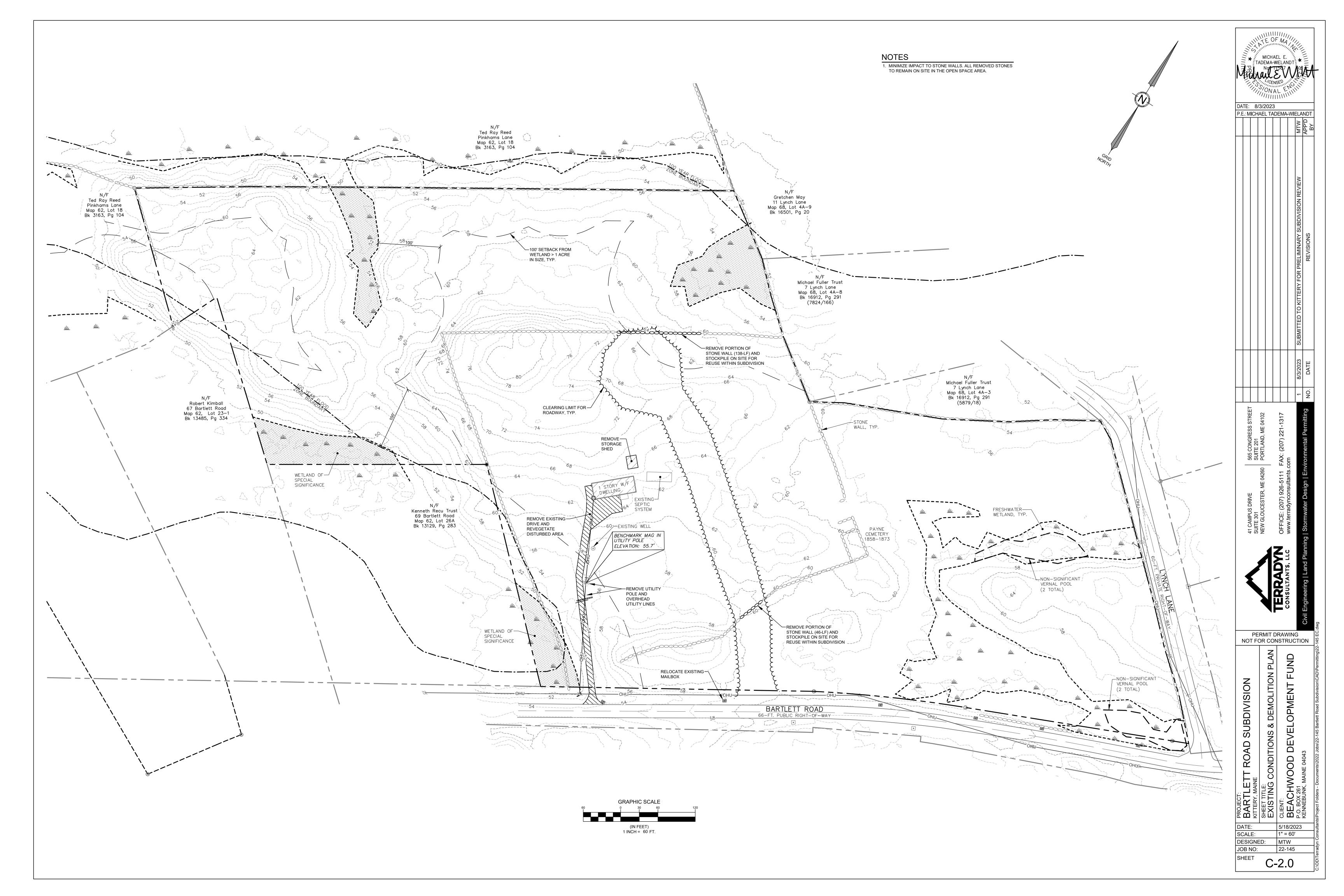
5/18/2023

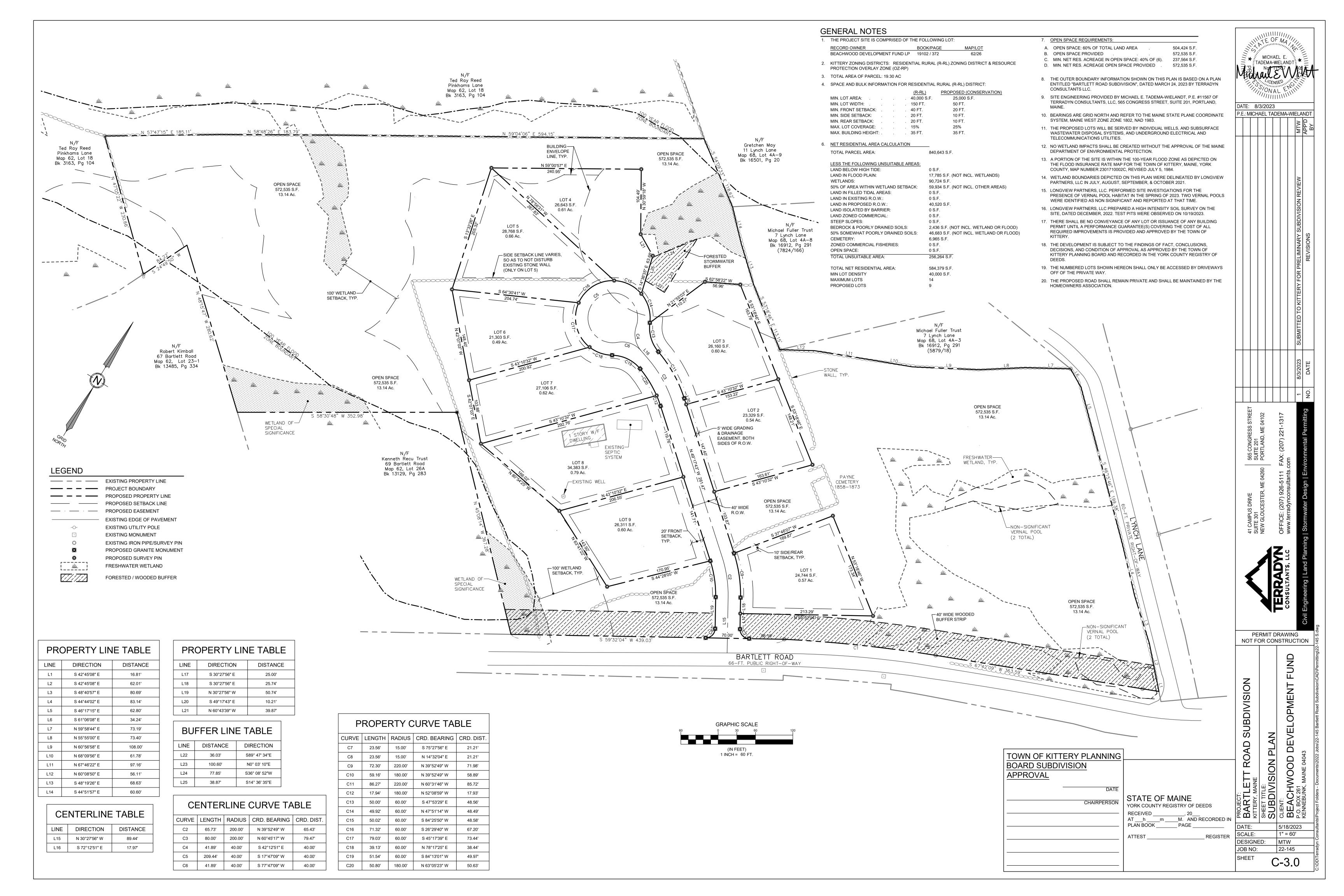
IMTW

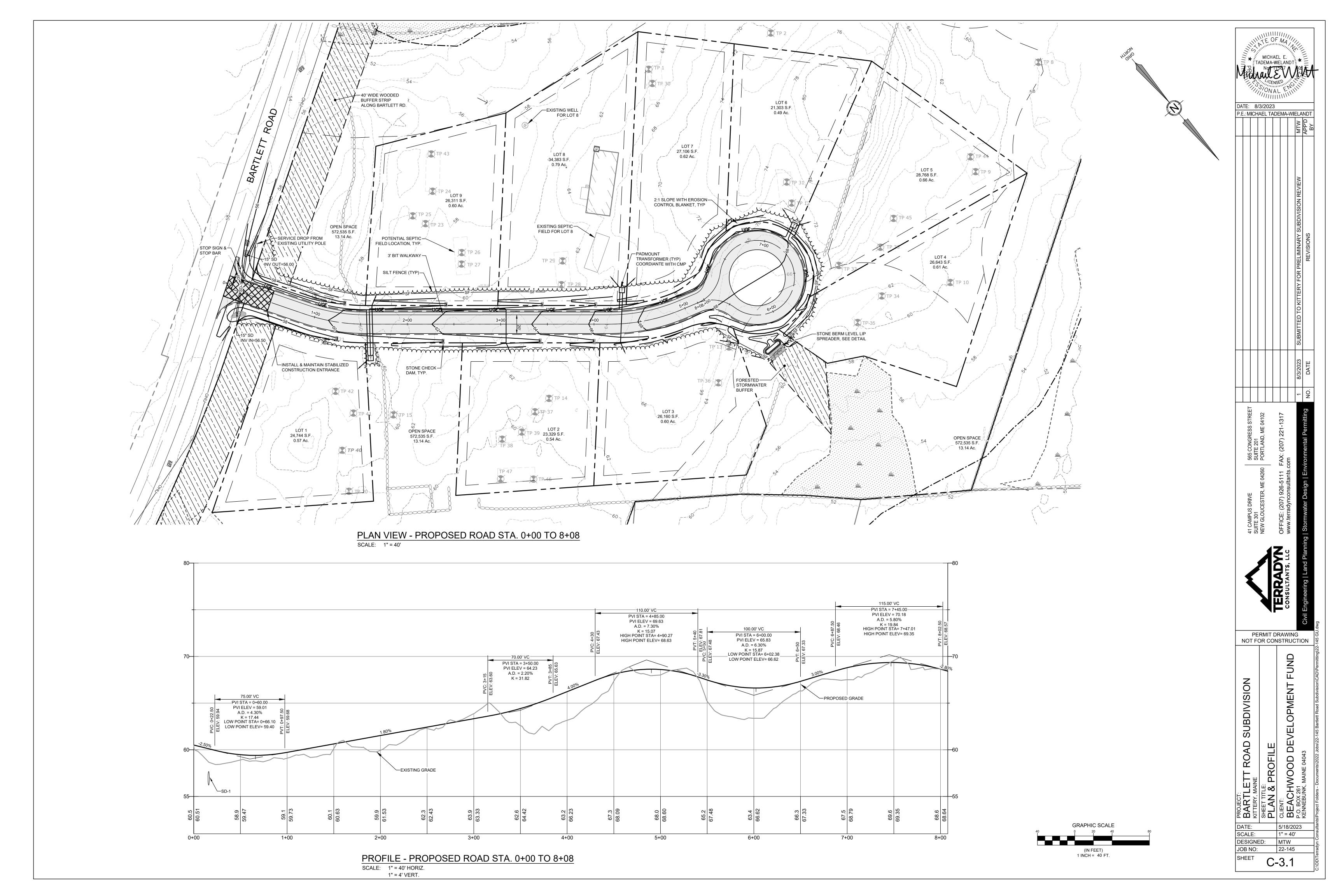
22-145

AS NOTED









EROSION AND SEDIMENT CONTROL PLAN

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. FROSION 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

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. TRACKED MUD OR SEDIMENT SHALL BE REMOVED PRIOR TO A STORM EVENT BY VACUUM SWEEPING.

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, MULICH, OR OTHER NON-FRODABLE 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

E. EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX SHOULD BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH SUCH AS FLY ASH OR YARD SCRAPING. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX. THE MIX COMPOSITION SHOULD MEET THE FOLLOWING STANDARDS:

- THE ORGANIC MATTER CONTENT SHOULD BE BETWEEN 80% AND 100%, DRY WEIGHT BASIS. PARTICLE SIZE BY WEIGHT SHOULD BE 100% PASSING A 6" SCREEN AND 70% TO 85% PASSING A 0.75" SCREEN
- THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED

DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE.

 SOLUBLE SALTS CONTENT SHALL BE <4.0 MMHOS/CM • THE pH SHALL BE BETWEEN 5.0 AND 8.0

. 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.

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 MUI CH. FOR MUI CHED AREAS. PERMANENT MUI CHING 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. AGRICULTURAL USE. FOR CONSTRUCTION PROJECTS ON LAND USED FOR AGRICULTURAL PURPOSES (E.G., PIPELINES ACROSS CROP

LAND), PERMANENT STABILIZATION MAY BE ACCOMPLISHED BY RETURNING THE DISTURBED LAND TO AGRICULTURAL USE. F. PAVED AREAS. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUBBASE IS

G. 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

. 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.

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.

FAILURE TO COMPLY WITH THE ENGINEER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.

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

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 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

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

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

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 UNI ESS 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

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

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.

THE AREA SHOULD BE SEEDED AT THE BEGINNING OF THE GROWING SEASON.

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.

N. EROSION CONTROL MUST BE INSPECTED AFTER EACH RAINFALL, SNOW STORM, OR THAWING EVENT AND AT LEAST ONCE A WEEK BETWEEN NOVEMBER 15 AND APRIL 15

A MINIMUM FROSION 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. 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. 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. 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.

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.

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:

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;

UNCONTAMINATED GROUNDWATER OR SPRING WATER; i) FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED; UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));

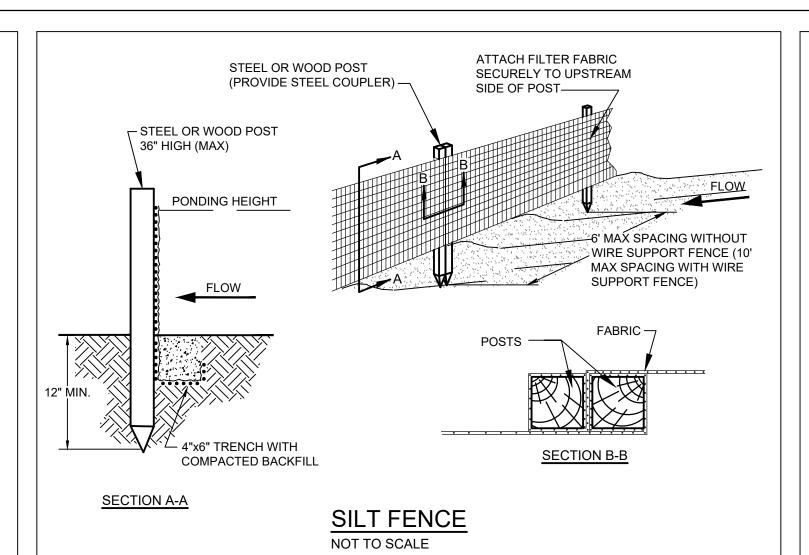
(k) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND

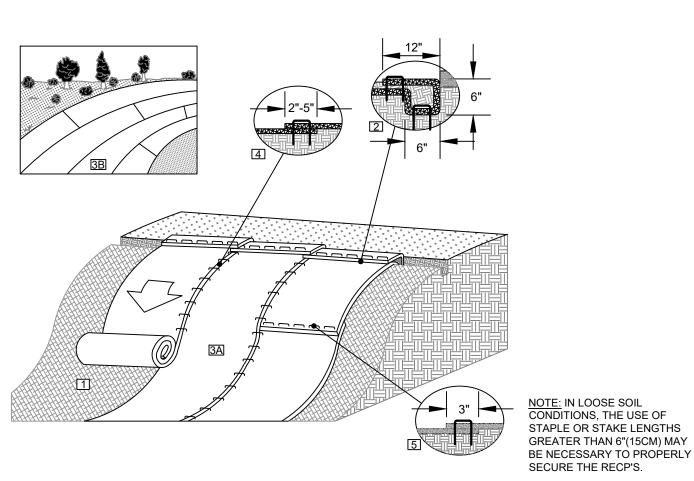
7. UNAUTHORIZED NON-STORMWATER DISCHARGES. THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF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





PHOTODEGRADABLE EROSION CONTROL BLANKET SELECTION

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

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

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

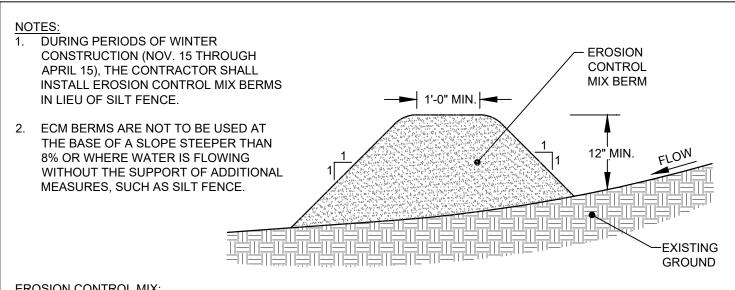
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPS IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECPS EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPS WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH 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



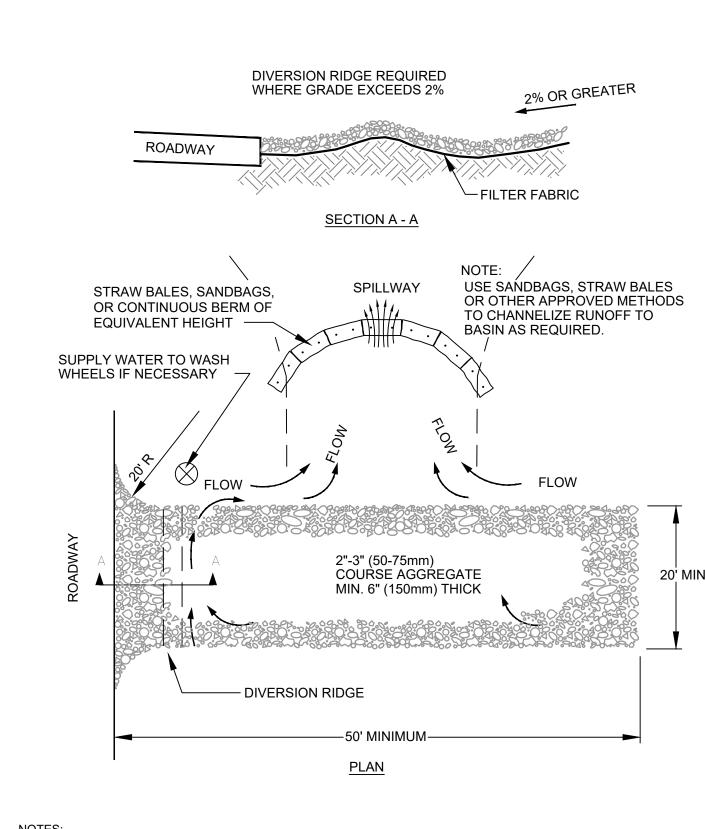
EROSION CONTROL MIX

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

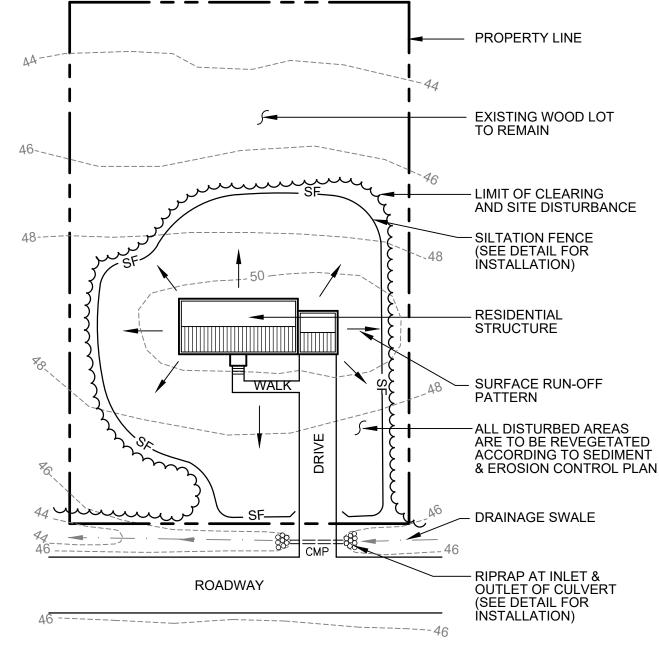


1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.

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

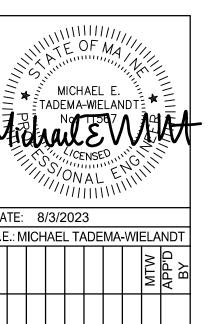
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

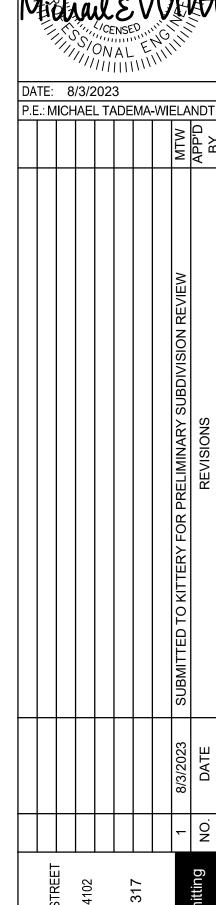
STABILIZED CONSTRUCTION ENTRANCE NOT TO SCALE



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

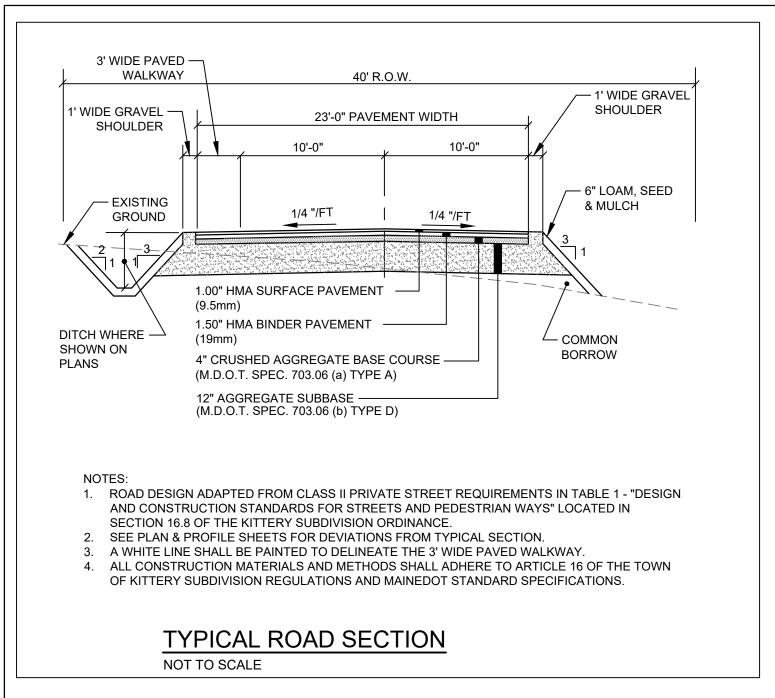


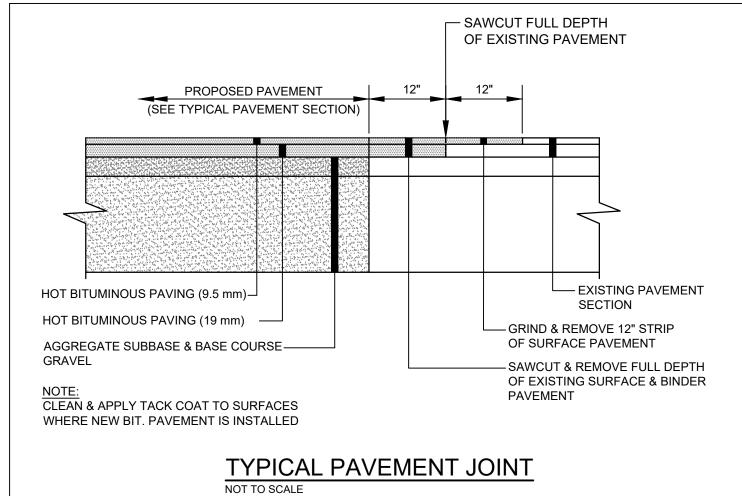


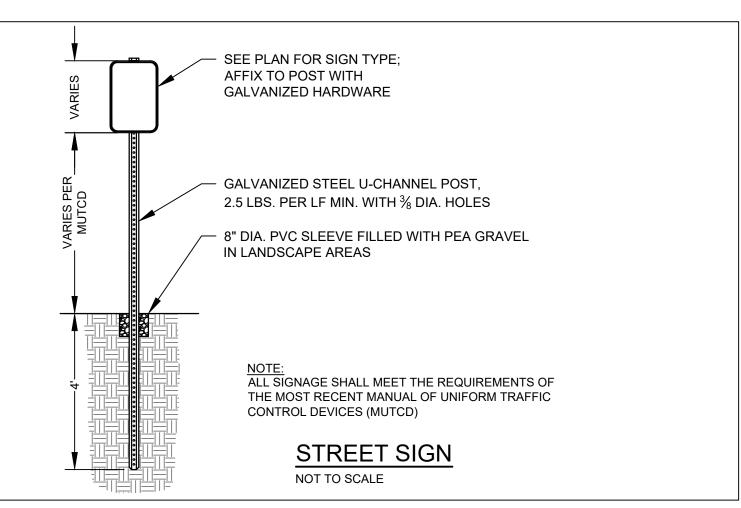
PERMIT DRAWING NOT FOR CONSTRUCTION AIL SUBDIVISION ∞୪ S NOTE CONTROL ROAD

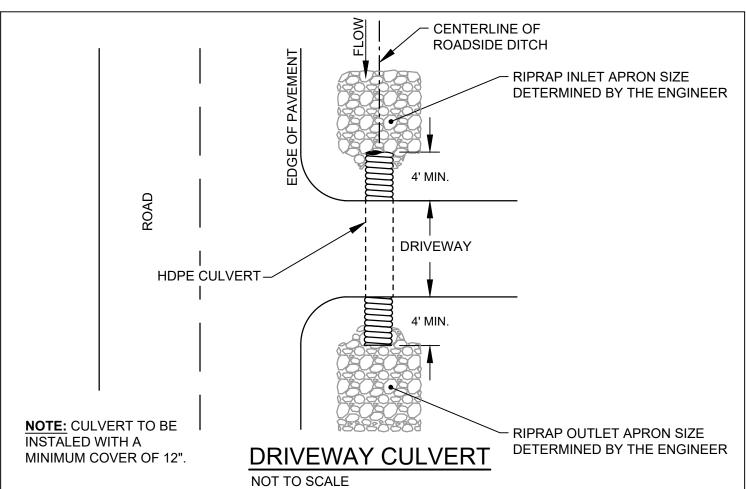
DATE: 5/18/2023 AS NOTED **I**MTW 22-145

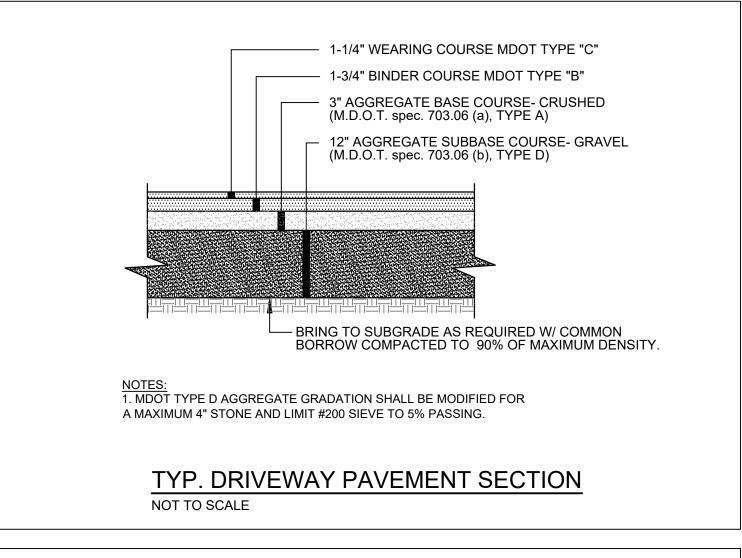
SCALE: DESIGNED: JOB NO: C-4.0

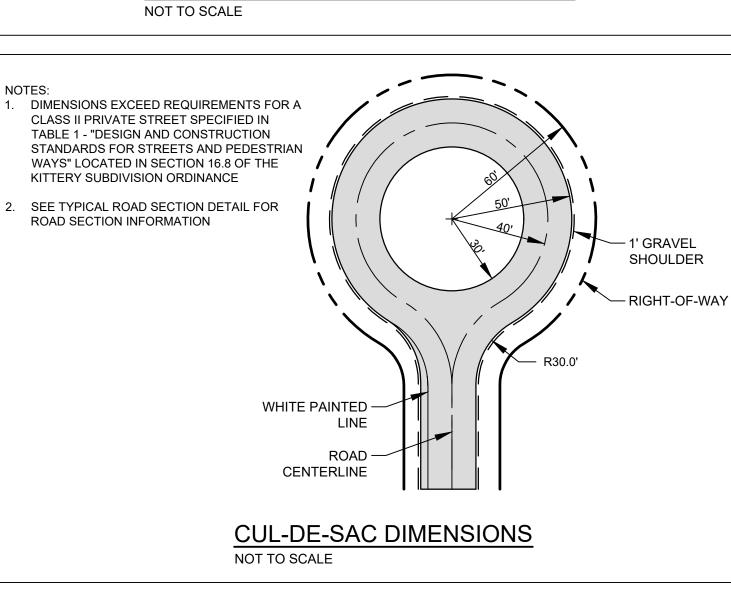




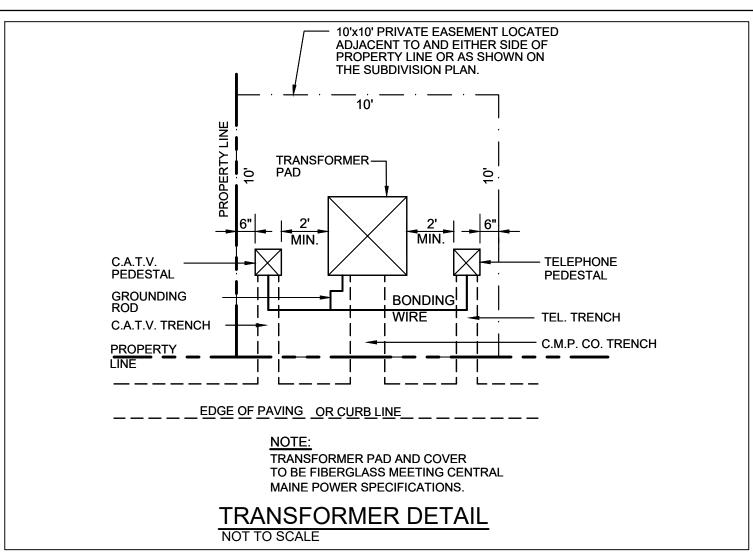


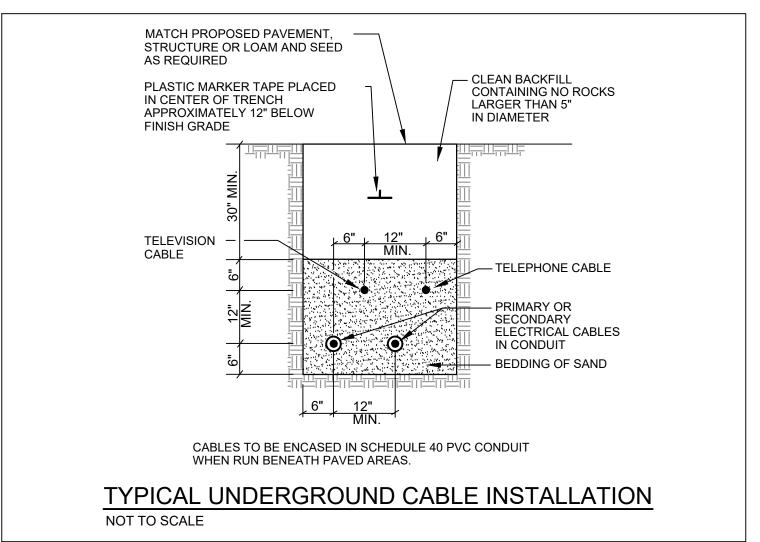


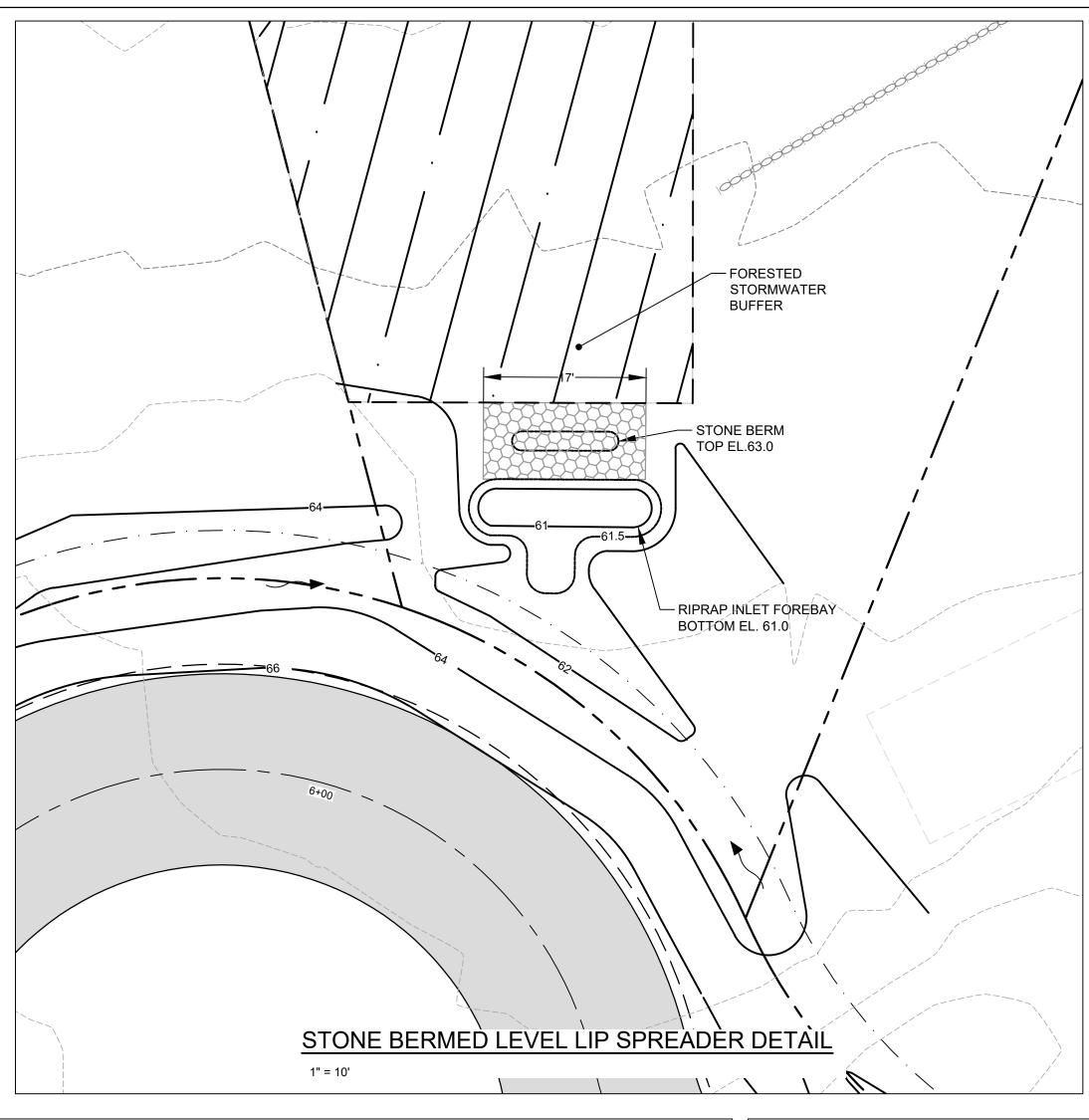


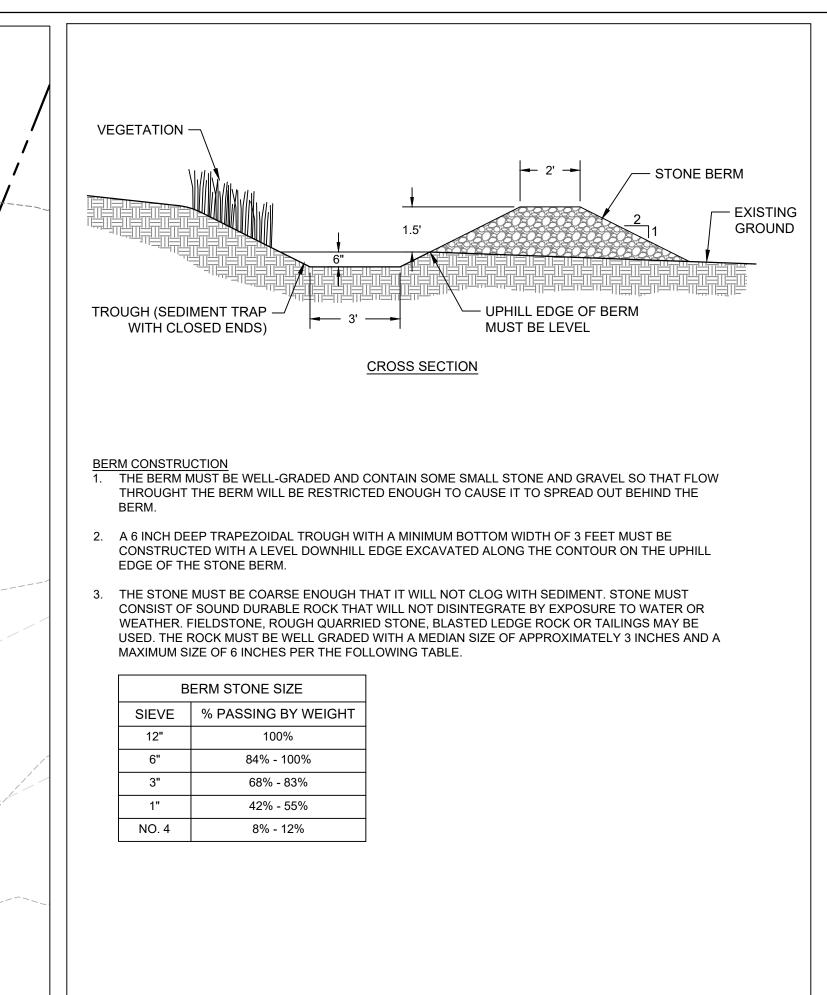


IE:	8/	ADE N S/S/S/S/S/S/S/S/S/S/S/S/S/S/S/S/S/S/S	ICHA MA-V JOEN ON A JIIII 023	JISE AL	DIE III	1110		
							SUBMITTED TO KITTERY FOR PRELIMINARY SUBDIVISION REVIEW	REVISIONS
							8/3/2023	NO. DATE
41 CAMPLIS DRIVE 565 CONGRESS STREET		NEW GLOUCESTER, ME 04260 PORTLAND, ME 04102	_	OFFICE: (207) 036 6111 EAV: (307)	OFFICE: (201) 920-3111 FAA: (201) 221-1317	www.terradynconsultants.com		Stormwater Design Environmental Permitting
*								Civil Engineering Land Planning Stormwater Design
 NO ⁻			IIT [NS T	TF	RUC	CTIC	ON
BARTLETT ROAD SUBDIVISION			SITE DETAILS	5	/18		DE0. BOX 261	



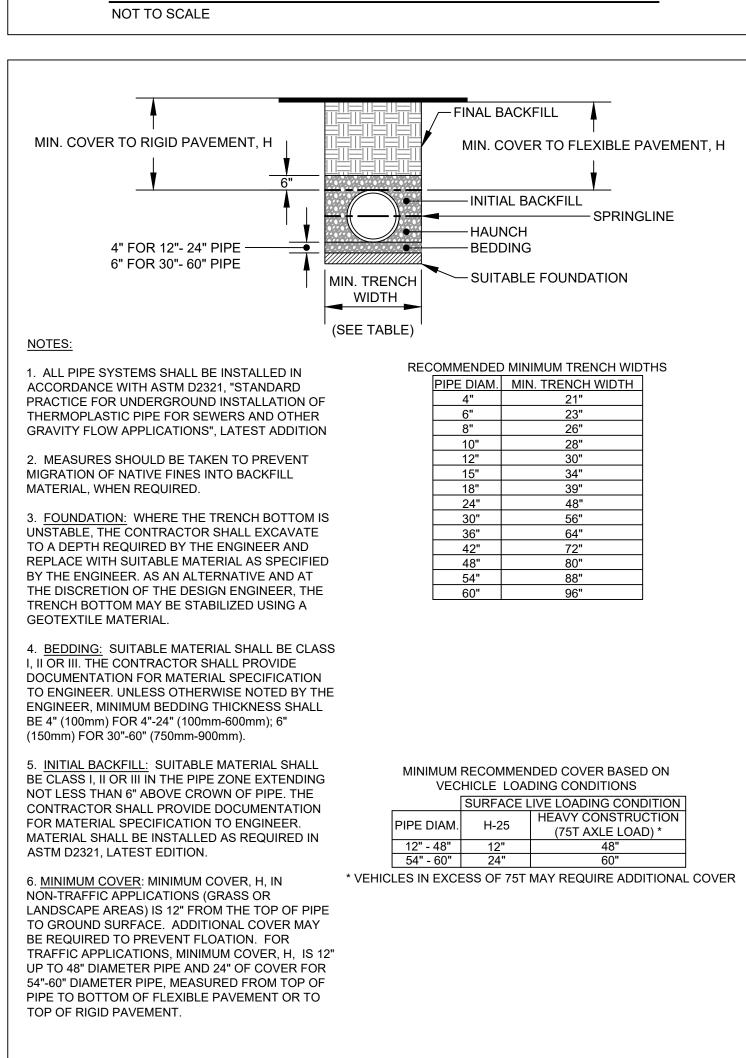






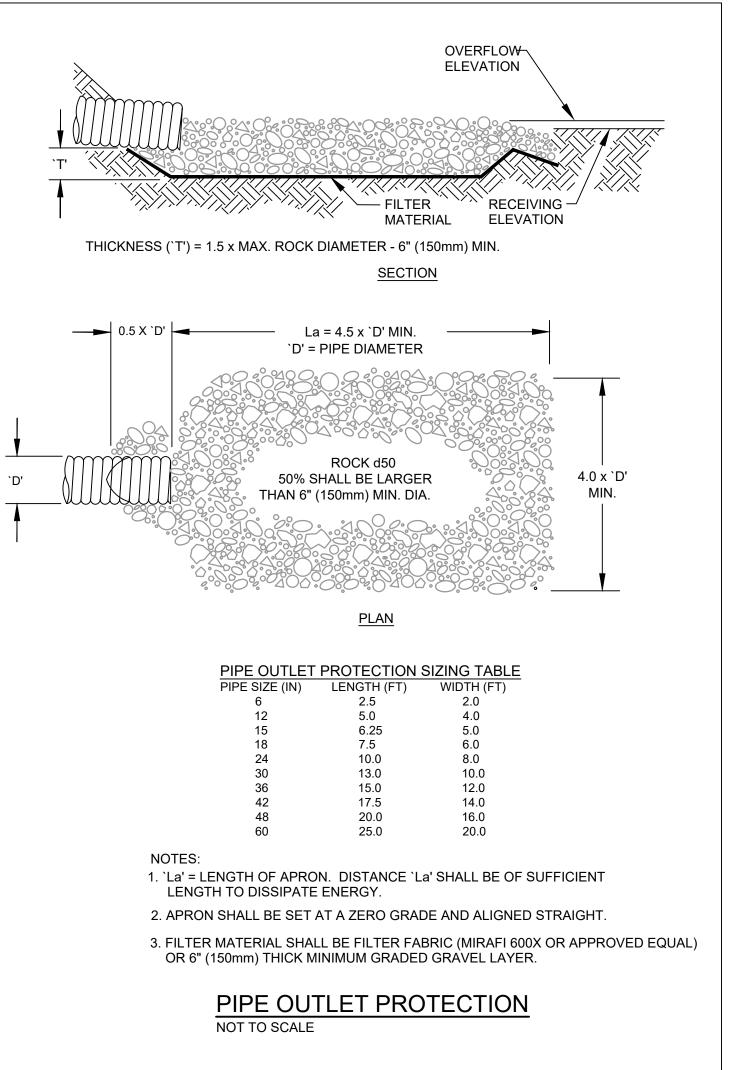
STONE BERMED LEVEL LIP SPREADER

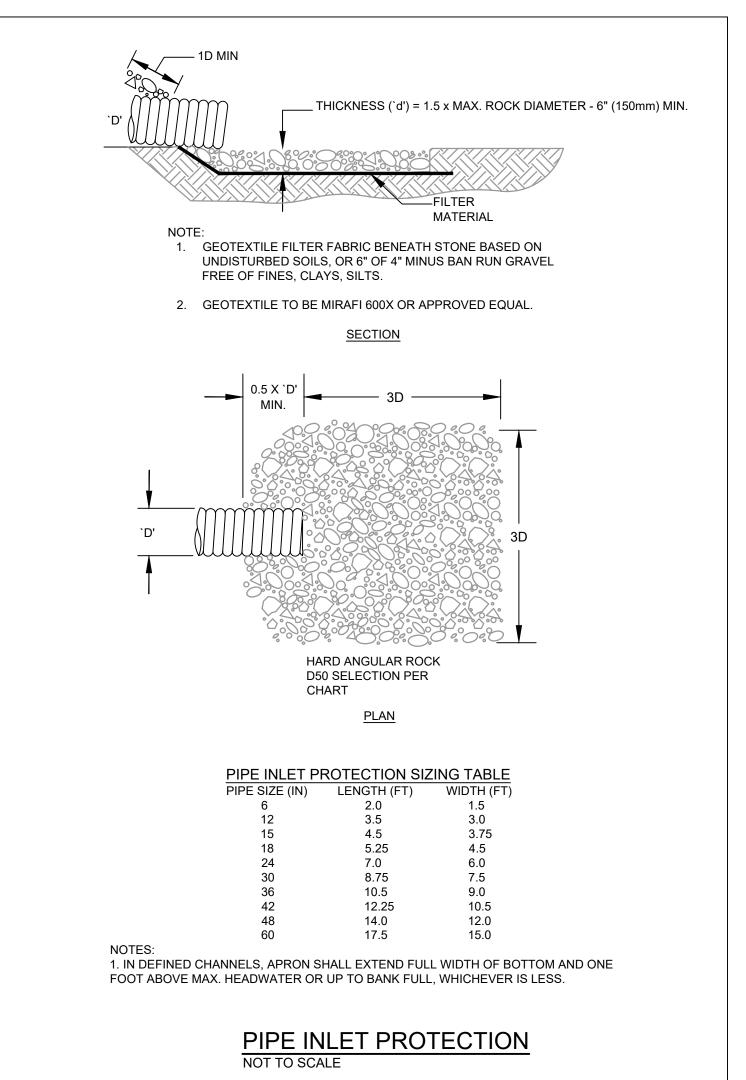
NOT TO SCALE

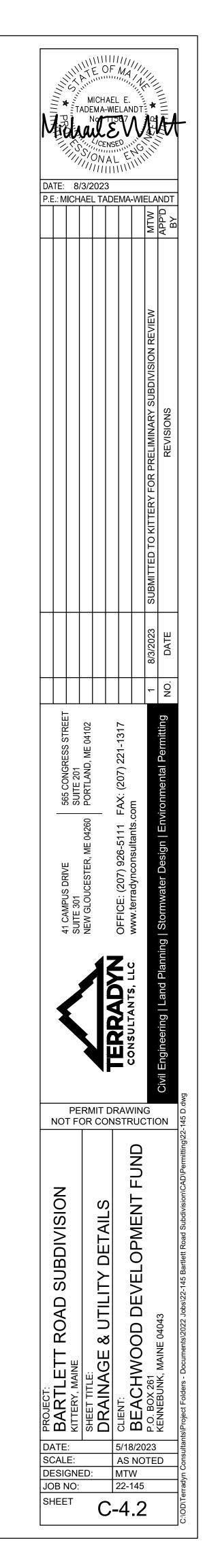


TYPICAL TRENCH DETAIL

NOT TO SCALE









August 3, 2023 Project #22-145

Jason Garnham, Director of Planning & Development Town of Kittery 200 Rogers Road Kittery, ME 03904

SUBJECT: BARTLETT ROAD SUBDIVISION

PRELIMINARY PLAN APPLICATION

Dear Jason:

On behalf of Beachwood Development Fund LP, attached is a Preliminary Subdivision Plan application for a proposed 9-lot single-family conservation subdivision located at 77 Bartlett Road in Kittery. We met with the planning board for a pre-application sketch plan & site analysis review on May 11, 2023 and have revised the plans in response to feedback from the board. 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 19.30 acres in size and is identified as Lot 26 on Kittery Tax Map 62. The site is located in the Residential-Rural District with a small area in the Resource Protection Overlay Zone.

The parcel contains an existing single-family home with a paved driveway connecting to Bartlett Road and a small cemetery in the eastern part of the site. Most of the parcel is undeveloped woodland with pockets of freshwater wetlands. Several stone walls are located throughout the site.

A wetland and vernal pool study was conducted on the site by Longview Partners in the summer of 2022. There are approximately 2 acres of forested freshwater wetlands on the site. A wetland on the southern site boundary meets the Maine DEP's criteria for a "Wetland of Special Significance". The wetlands to the southwest and north are greater than one acre in size and are subject to the applicable setback requirements of Table 16.5.30 in the Kittery Land Use and Development Code. This wetland also has a mapped flood zone associated with it.

Two potential vernal pools were identified on the site and studied in the spring of 2023 to determine if they have characteristics to be considered significant wildlife habitat by the Maine Department of Environmental Protection. The vernal pools were determined to be not significant

and are regulated as freshwater wetlands. More information on the vernal pools is located in Attachment 6.

Longview Partners also conducted a High Intensity Soil Survey of the site. Native soils are primarily loamy glacial till and bedrock outcrops in upland areas with wetland soils in low-lying areas. A copy of the High Intensity Soil Survey is provided in Attachment 4.

The net residential area of the parcel is 13.21 acres, and the minimum density in the R-RL district is 40,000 square feet per dwelling unit. According to these calculations, which are provided directly on the attached subdivision plans, the site can support up to 14 lots.

PROPOSED PROJECT

The applicant is proposing to develop a nine-lot conservation subdivision, including an 808 linear-foot road, stormwater management infrastructure, underground utilities, and pedestrian accommodations.

The proposed road and lots are located through the central portion of the site, preserving the wetlands and adjacent upland areas in the norther, western, and eastern areas of the site. Proposed lots were designed to avoid impacts to freshwater wetlands, the existing cemetery, and stone walls throughout the site.

The proposed road is approximately 808 linear feet in length, ending in a cul-de-sac. Nine proposed lots will all be accessed from the new road. Lot sizes range from approximately 21,000 square feet (Lot 6) to 29,000 square feet (Lot 5). The existing house will be located on proposed Lot 8. The existing driveway from Bartlett Road will be removed, and a new driveway from the proposed road will be constructed to access the house on Lot 8.

The proposed road has been designed to meet the town's Class II Private street standard with a 3 foot widened shoulder designated with a painted stripe on the west side for pedestrian movement.

Approximately 13 acres will be preserved as open space, including the existing cemetery and all freshwater wetlands and potential vernal pools on the site. The majority of the existing stone walls on the site are located within the proposed open space. The lot line between lots 5 and 6 follows an existing stone wall that will be protected. Breaks in the existing stone walls will only be required for the proposed road and for driveways to lots 4 and 5.

Lots will be served by individual subsurface wastewater disposal fields and wells. The existing house on lot 8 is expected to continue to use the existing septic system and well. Electric and telecommunications services will be installed underground.

Longview Partners has completed test pits showing suitable soils for subsurface wastewater disposal on all proposed lots in accordance with the performance standards of the Kittery Subdivision Ordinance. Information on soils, including test pit logs and a copy of the high-intensity soil survey are provided in Attachment 4.

Mark Cenci Geologic, Inc. has prepared a Ground Water Availability Assessment of the site and determined that the aquifer recharge capacity of the project site exceeds the expected

groundwater withdrawal from the proposed wells. A copy of the report is provided in Attachment 5.

Stormwater runoff from the roadway will be managed with open ditches. The project was designed to meet the stormwater performance standards of the Town of Kittery Subdivision Regulations. Runoff from the cul-de-sac will be discharged to a level spreader and forested stormwater buffer for treatment. The remainder of the proposed road will drain to vegetated swales located on either side of the road, which will provide an opportunity for sediment capture and runoff absorption. The stormwater management system will 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.

CLOSURE

In addition to the information provided above, additional materials are attached to meet the submission requirements of the Kittery Subdivision Regulations. We request to be added to the Planning Board's August 24th 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 LP

Attachments:

- 1 Application Forms & Agent Authorization Letter
- 2 Current Property Deed
- 3 Existing Conditions Figures
- 4 High Intensity Soil Survey and Test Pit Logs
- 5 Groundwater Assessment
- 6 Vernal Pool Assessment Methodology & Summary
- 7 Stormwater Management Report
- 8 Vehicle Trip Generation Estimate
- 9 Financial Capability
- 10 Correspondence with State Agencies
- 11 Abutter Notices

Attachment 1

Application Form & Agent Authorization Letter



TOWN OF KITTERY MAINE TOWN PLANNING AND DEVELOPMENT DEPARTMENT

200 Rogers Road, Kittery, Maine 03904 PHONE: (207) 475-1323 Fax: (207) 439-6806 www.kittery.org

APPLICATION: SUBDIVISION PLAN REVIEW

FEE FOR		M	\$500. 00 PLUS			M	\$50.00/LOT OR DWELLING UNIT		ıR	Minor Subdivision: not more than 4 lots Fee I \$ Date:			Fee Paid: \$ te:		
REVIEW	:		\$500	500. 00 PLUS						☐ Major Subdivision		on: 5 or more lots			Escrow Fee Paid: \$ Date:
PROPERTY DESCRIPTION		Parcel ID			Мар	62	Lot	26	Zone(s): Bas Overlay MS4		R-R OZ- Yes		Total Land Area	19.11 acres	
		Physical Address		77 Bartlett Road											
				Nam	е	Beachwood Development Fund LP				Mailing Address		P.O. Box 261 Kennebunk ME 04043			
PROPERTY OWN		VIVER		Phor	ie	207-985-3646									
INFORM	IATION			Fax						J					
			Ema	I	geoff@bowleybuilders.com			m							
				Nam	е	Michael Tadema-Wielandt, P				E. Name of Business		Terradyn Consultants, LLC			
APPLICANT'S AGENT INFORMATION		Ph			ie	207-632-9010				Mailing Address		565 Congress Street Suite 201 Portland ME 04101			
		_		Fax											
			Ema	İ	mtw@terradynconsultants.co				om						
-	Existin	g Us	e(s): T	he ex	kisting	g parce	el is wo	oded	with	pockets of fre	eshwa	ter	wetlands, and cont	ains a	single family
	The existing parcel is wooded with pockets of freshwater wetlands, and contains a single family residential home with a paved driveway accessing Bartlett Road. An old cemetery is located central to the southern half of the site.										is located centrally				
NO	Number of Proposed Lots				9 s			Sub	Subdivision Name		Bartlett Road Subdivision				
PROJECT DESCRIPTION	Proposed Subdivision:														
	Design: (check)				Conventional					Total Development		l Development		Landscaping	
				\checkmark	Cluster Development			Re	Responsibilities: (check)	Other		7	Road		
	Ownership: (check)			$\underline{\checkmark}$	Fee- Simple					Post-Construction Storm Water Runoff System Maintenance					
- -					Condominium										
_	Homeowner's Association			\checkmark	YESNO										

WAIVER REQUEST (Submittal Information or Development Standard)									
	Ordinance Section	Describe why this request is being made.							
	EXAMPLE 16.32.560 (B)- OFFSTREET PARKING.	***EXAMPLE*** Requesting a waiver of this ordinance since the proposed professional offices have a written agreement with the abutting Church owned property to share parking.							
έν									
Waivers									
Rela	ited Kittery Land Use	and Development Code Provisions:							

16.10.8.2.5 Conditions or Waivers.

Conditions required by the Planning Board at the final plan review phase must have been met before the final plan may be given final approval unless so specified in the condition or specifically waived, upon written request by the applicant, by formal Planning Board action wherein the character and extent of such waivers which may have been requested are such that they may be waived without jeopardy to the public health, safety and general welfare.

16.7.4.1 Objectives Met. In granting modifications or waivers, the Planning Board must require such conditions as will, in its judgment, substantially meet the objectives of the requirements so waived or modified.

ABUTTER NOTIFICATION

16.10.5.1.1. Preliminary Plan Application Filing and Completeness Review. ... The application must be accompanied by a Plan and the required fee together with a certification the applicant has notified abutters by mail of the filing of the Plan application for approval.

Submitted Application must include a list showing the names and addresses of the abutters notified and date mailed.

The Abutter Notice must include a copy of page one and where applicable page 2 of a signed Application.

I certify, to the best of my knowledge, the information provided in this Application is true and correct, abutters to the project have							
been notified, and	I will not deviate from the Plan submitted	without notifying	g the Kittery Planning Department of any changes.				
Applicant's Agent Signature: Date:	Millaul & VVVVT 8/3/2028	Owner's Agent Signature: Date:	Michael & VVV VI 888820023				

iviinimum Pian Subi	mittai kequirements
☐ 15 COPIES OF THE SUBDIVISION PLAN APPLICATION AT☐ 1 PDF OF THE SUBDIVISION PLAN SHOWING GPS COOI	
PRIOR TO STARTING THE REVIEW PROCESS, THE PLANNING	
BOARD WILL DECIDE WHETHER SUFFICIENT INFORMATION HAS	L) Indicate required landscaping including:
BEEN PROVIDED AND WILL VOTE TO DETERMINE	☐ Type of plant material ☐ Plant/Tree sizes
	☐ Placement ☐ Irrigation systems
COMPLETENESS/ACCEPTANCE.	M) Show natural and historical topography:
NOTE: THE APPLICANT IS RESPONSIBLE TO PRESENT A <u>CLEAR</u>	Rock walls Railroad beds
UNDERSTANDING OF THE PROJECT.	☑ The location of all natural features or site elements to be preserved.
A) Paper size: ☑ No less than 11" X 17" (reduced) or greater than 24" X 36" (full)	N) Provide a vicinity map and aerial photograph at a scale not more than 400 feet to the inch showing the relation to other properties and geographic features and show:
B) Scale size: ☐ Under 10 acres: no greater than 1" = 30' ☐ 10 + acres: 1" = 50'	All the area within five hundred (500) feet of the boundary line of the proposed development including roads, geographic features, natural resources (wetlands, etc.), historic sites, applicable comprehensive plan features such as proposed
C) Title block: ☑ Applicant's name and address ☑ Name of preparer of plans with professional information and professional seal Parcel's tax map identification (map – lot) ☑ Date of plan preparation	park locations, land uses, Zones and other features; Any smaller area between the tract and all existing streets, provided any part of such a street used as part of the perimeter for the vicinity map is at least five hundred (500) feet from any boundary of the proposed development.
	O) Show the locations of any:
 Boundary survey performed and sealed by licensed surveyor: ☑ Identify all existing boundary markers ☐ Show all proposed boundary monuments (per ordinance) 	 □ Parks ☑ Preserved Open space □ Conservation easements □ Note on the subdivision plan regarding areas to be dedicated for public use and conditions of such dedication.
E) Provide orientation:	P) Identify and locate each:
✓ Arrow showing true north and magnetic declination	☐ Easements
☐ Graphic scale ☐ Parcel Owners and map and lot	✓ All intersecting property lines within 50 feet of the parcel.
☐ Deed docket and page numbers ☐ Draft Deed of Covenants	
☐ Signature block for planning board	Q) Include plans, profiles and typical sections of all roads and other paved
	ways, including all relevant street data.
F) Show location and description of:	☐ Intersections or ☐ Distance to nearest intersection
☐ Elevations of dwelling units. If applicable	☐ Driveways onsite ☐ Distance to nearest driveway ☐ Sight visibility lines
☐ All structures and accesses within 100 feet	a Signit visibility lines
G) Show parcel data:	R) Show all existing and proposed lighting
☑ Zoning District(s) ☑ Lots ☑ Lot Widths ☑ Lot Depths	☐ Map of all street lighting, attached lighting, and area lighting
☑ Street frontage ☑ Building setback lines ☑ Lot Areas	☐ Location of lighted signs ☐ Photo-metrics map
☑ Rights-of-way ☑ ROW area ☐ Exist. & new street names	
Wetlands Wetland area Wetland setbacks	S) Indicate the location of any permanently installed machinery likely to cause appreciable noise at the lot lines.
☐ Common tracts ☐ Easements ☑ parcel areas	to cause appreciable noise at the lot lines.
 ☐ Shoreland Zoning setbacks ☑ Undisturbed areas ☐ Note on the subdivision plan regarding areas to be taped off and protected until project construction is completed. 	T) Provide description of these materials stored on the property: ☐ Hazardous ☐ Toxic ☐ Raw Waste
H) Show names and addresses of all owners of record on abutting parcels and the assessor's map and lot numbers.	U) Show existing contours and finished grade elevations onsite and sufficiently offsite to demonstrate how the project is situated in the surrounding environment.
I)	V) Indicate the location and dimensions of:
J) Show locations of natural physical features such as water bodies,	□ Sidovalles □ Curbs □ Drivovave
 J) Show locations of natural physical features such as water bodies, watercourses, forest cover, and ledge outcroppings. 	☐ Fences ☐ Retaining walls ☐ Other artificial features
 K) Show the location of existing and proposed Utilities and identify which utilities are to be privately owned/ municipally owned: ✓ Overhead Electric ✓ underground electric 	W) Copies of State and Local permit applications: ☐ Notice of Intent ☐ NRPA ☐ Permit by Rule ☑ All other applicable permits
☐ Water mains ☑ Wells ☐ Gas mains ☐ Cable TV	N 7 0 1 5 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
☐ Sewer mains ☐ Test pits ☐ Septic tanks ☐ Leach fields	X) Copy of FIRM Map showing the <u>proposed subdivision</u>
☑ Storm drain lines ☐ Catch basins ☑ Culverts ☐ Gutters	boundary to scale.
☐ Stormwater storage basins ☐ Rain gardens	NOTE TO ADDITIONITY DRICK TO THE CITE WALK
☐ Nearest fire hydrant	NOTE TO APPLICANT: PRIOR TO THE SITE WALK,
	TEMPORARY MARKERS MUST BE ADEQUATELY PLACED
	THAT ENABLE THE PLANNING BOARD TO READILY LOCATE
	AND APPRAISE THE LAYOUT OF DEVELOPMENT.
SUBMITTALS THE TOWN PLANNER DEEMS SUFFICIENTLY LACKING IN	I CONTENT WILL NOT BE SCHEDULED FOR PLANNING BOARD REVIEW.

August 1, 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 Bartlett Road Subdivision, Kittery, 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 Bartlett Road in Kittery 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 19102 PG 372** Instr # 2022037435

08/30/2022 10:50:45 AM Pages 2 YORK CO

1002240207920

After recording return to:

Space Above This Line For Recording Data
--

WARRANTY DEED

SHIRLEY B. WASHBURN, of 77 Bartlett Road, Kittery Point, ME, Maine 03909, for consideration paid, hereby grants to BEACHWOOD DEVELOPMENT FUND LP, 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, in the Town of Kittery, York County, Maine, being more particularly described as follows:

SEE EXHIBIT A ATTACHED HERETO AND INCORPORATED HEREIN BY REFERENCE.

Witness my hand this 29 day of August, 2022.

STATE OF MAINE County of York, ss.

August 29, 2022

Personally appeared Cyndra Lea Grover, before me, as attorney in fact for Shirley B. Washburn, principal, and acknowledged the foregoing instrument to be her free act and deed.

Shirley B. Washburn

Morrey at Law Notary Public

Print Name:

Jeffrey S Zdunczyk Notary Public, Maine My Commission Expires March 20, 2023

EXHIBIT A

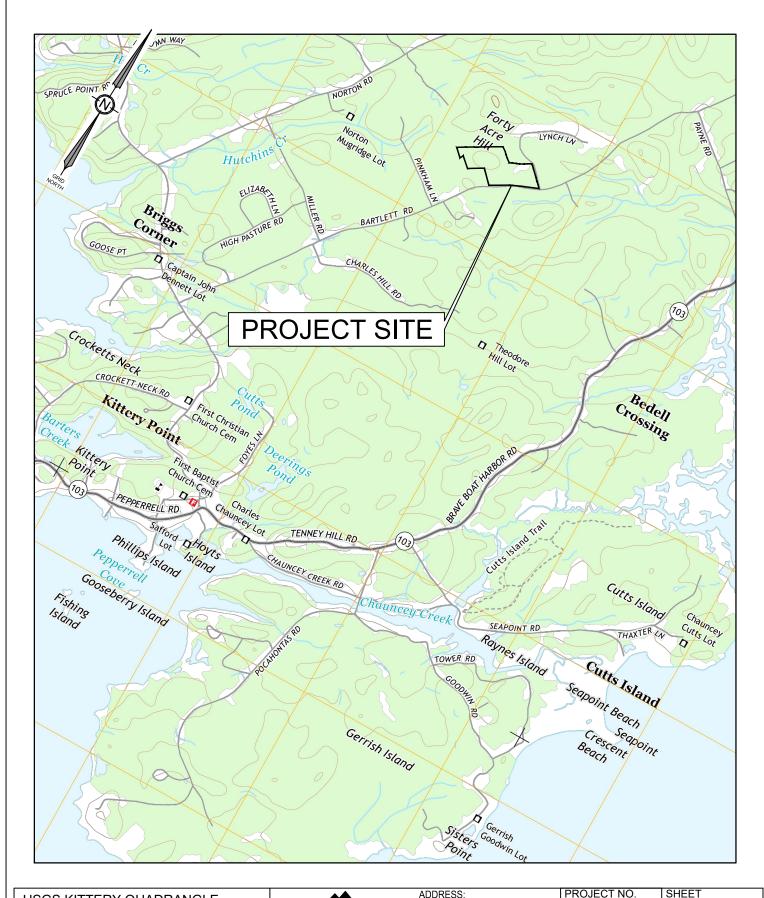
A certain lot or parcel of land with the buildings and improvements thereon, situated on the northerly side of the Bartlett Road, in the Town of Kittery, County of York and State of Maine and being more particularly bounded and described as follows:

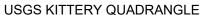
Beginning at a point in the northerly sideline of the Bartlett Road, and in the easterly corner of the lot or parcel of land herein conveyed, thence running northwesterly by and along a stone wall and land now or formerly of Lynch for a distance of 557.53 feet to an intersection; thence turning and running southwesterly by and along a stone wall and land now or formerly of said Lynch for a distance of 468.49 feet to an intersection; thence turning and running northwesterly by and along a stone wall and land now or formerly of said Lynch for a distance of 360.91 feet to an intersection; thence turning and running southwesterly by and along a stone wall and land now or formerly of Reed for a distance 961.97 feet to an intersection; thence turning and running S 32° 03' 04" E partially by and along a stone wall and land now or formerly of Dyer for a distance of 231.01 feet to an iron pipe; thence turning and running N 41° 07' 27" E by and along said land of Dyer for a distance of 80.02 feet to an iron pipe; thence turning and running S 31° 58' 06" E by and along said land of Dyer for a distance of 282.04 feet to a point; thence turning and running N 74° 24' 21" E by and along land now or formerly of MacLeod for a distance of 351.35 feet to an iron pipe; thence turning and running S 31 °20' 04" E by and along said land of MacLeod for a distance of 385.46 feet to an iron put set in the northerly sideline of Bartlett Road; thence turning and running easterly by and along the northerly sideline of Bartlett Road for a distance of 685.08 feet to a point at the end of a stone wall; thence running easterly by and along said wall and the northerly sideline of Bartlett Road for a distance of 348.20 feet to the point of beginning. Containing 19.27 acres more or less.

Meaning to describe and intending to convey the same premises described in the deed of Jean A. Strater to Shirley Washburn dated March 11, 1992 and recorded in the York County Registry of Deeds in Book 6021, Page 344.

Attachment 3

Existing Conditions Figures





PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

PREPARED FOR: BEACHWOOD DEVELOPMENT FUND LP PO BOX 260 KENNEBUNK, MAINE 04043



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

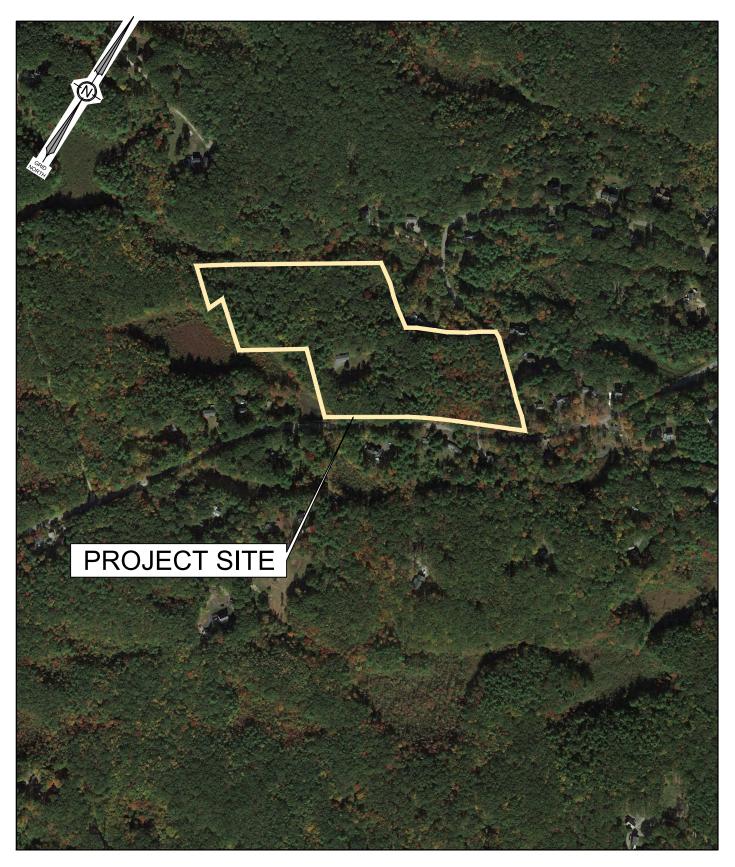
PROJECT NO. 22-145 DATE

1 OF

SCALE 1" = 2,000'

3/20/2023

5



AERIAL MAP

PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

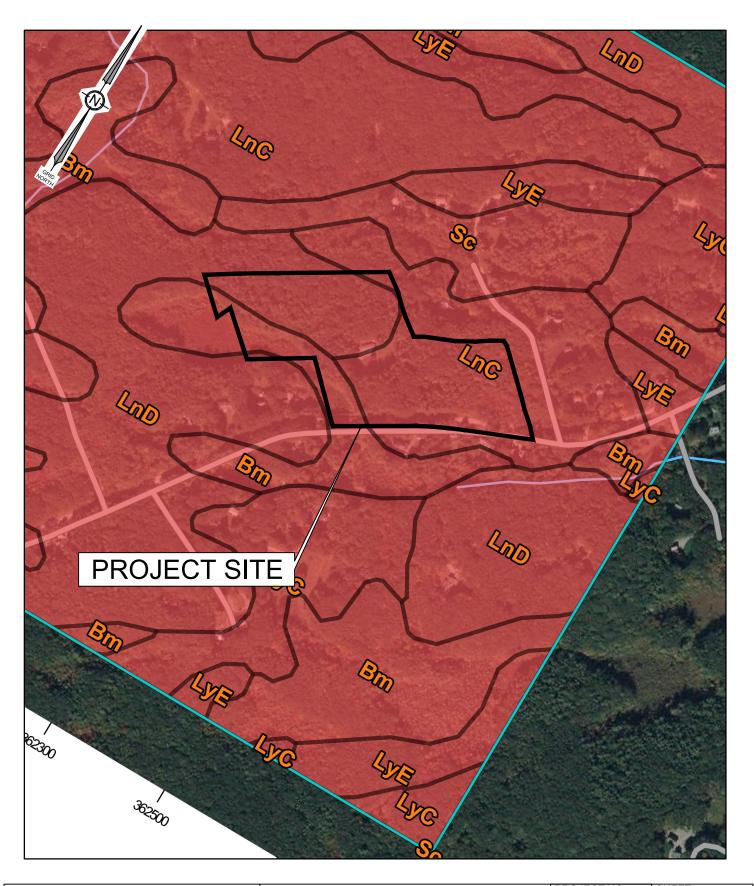
PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND LP PO BOX 260 KENNEBUNK, MAINE 04043



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

www.terradynconsultants.com

PROJECT NO. SHEET 22-145 2 DATE OF 3/20/2023 SCALE 5 1" = 500'



MEDIUM INTENSITY SOIL SURVEY

PROJECT:

BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND LP
PO BOX 260
KENNEBUNK, MAINE 04043



ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260 PHONE: (207) 926-5111

WEB SITE: www.terradvnconsulta

CONSULTANTS, LLC www.terradynconsultants.com
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PROJECT NO. SHEET

22-145

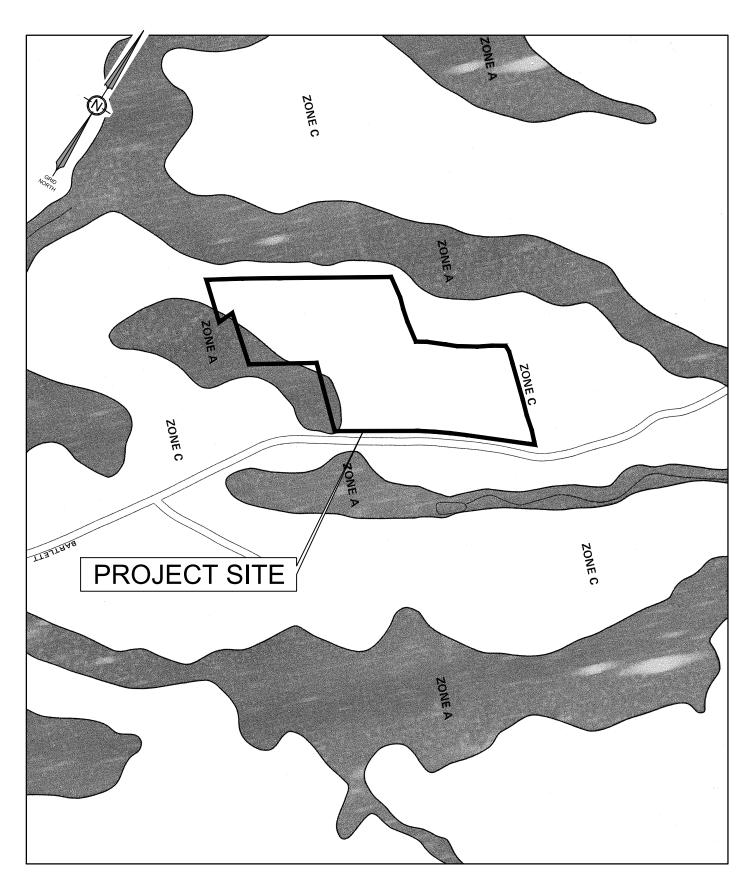
DATE

3/20/2023

OF

3/20/2023 SCALE 1" = 500'

3 OF 5



FLOOD INSURANCE RATE MAP

PROJECT:

BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

PREPARED FOR: BEACHWOOD DEVELOPMENT FUND LP PO BOX 260

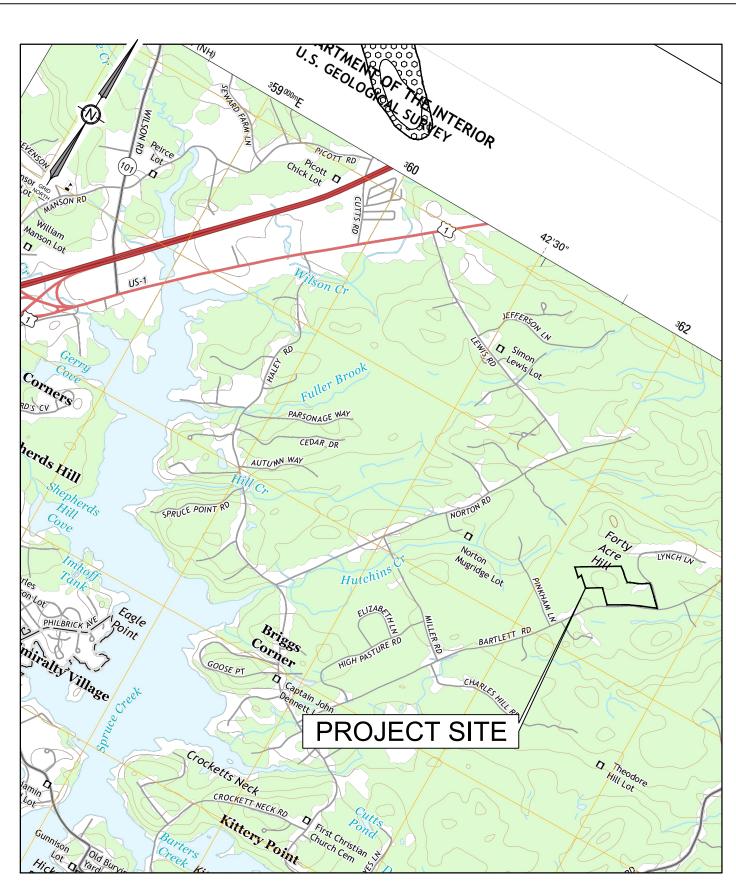
KENNEBUNK, MAINE 04043

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 22-145 4 DATE OF 3/20/2023 SCALE 5

1" = 500'



ADDRESS: PROJECT NO. SHEET SIGNIFICANT SAND & GRAVEL AQUIFER MAP 41 CAMPUS DRIVE, SUITE 301 22-145 NEW GLOUCESTER, ME 04260 5 PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE PHONE: DATE (207) 926-5111 OF 3/20/2023 WEB SITE: PREPARED FOR: CONSULTANTS, LLC www.terradynconsultants.com BEACHWOOD DEVELOPMENT FUND LP SCALE 5 Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting PO BOX 260 1" = 500' KENNEBUNK, MAINE 04043

Attachment 4

Soil Narrative Report



Soil Narrative Report

Prepared for

Terradyn Consultants, LLC

(N/F Bowley Builders) 77 Bartlett Road Kittery, Maine

December 2022

Soil test pits observed October 19 and November 15, 2022

Map prepared for a residential subdivision utilizing private water wells and on-site wastewater disposal

Map scaled 1" = 60', base map provided by Terradyn Consultants, LLC

Mapping meets Maine Association of Professional Soil Scientists Class A High-Intensity mapping standards with minimum mapping units of 1/8 acre

BIDDEFORD (Histic Humaquept)

SETTING

Parent Material: Derived from marine & lacustrine sediments.

Landform: Nearly level lowlands.

Position in Landscape: Usually occupies the lowest position within the landscape.

Slope Gradient Ranges: (A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Biddeford soil is very poorly drained with a perched water table within 0.5

feet of the soil surface, and may be ponded at the surface for some portion of

the year.

Typical Profile Surface layer: Very dark brown mucky peat, 0-12"

Description: Subsurface layer: Gray silt loam, 12-16"

Subsoil layer: Olive gray/dark gray silty clay, 16-35" Substratum: Gray silty clay & silty clay loam, 35-65"

Hydrologic Group: Group D

Surface Run Off: Very slow

Permeability: Moderate or moderately slow in upper horizons, slow or very slow in

substratum

Depth to Bedrock: Deep, more than 40 inches.

Hazard to Flooding: This soil is intermittently ponded, and may rarely flood in areas adjacent to

streams and rivers during periods of prolonged wetness.

INCLUSIONS (Within Mapping Unit)

Similar: Scantic, Whately, Roundabout, Bucksport

Dissimilar: Sebago, Chocorua, Wonsqueak

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factor for building site development is wetness due to a high water table throughout the year. Biddeford soil has very low potential for dwellings with foundations and road construction due to ponding and low strength. Biddeford soil is unsuitable for subsurface wastewater disposal as defined by the State of Maine Subsurface Wastewater Disposal Rules. Biddeford soil is usually classified a wetland, based on the combined consideration of hydric conditions, hydrology, and vegetation.

DIXFIELD

(Typic Haplorthods)

SETTING

Parent Material: Compact loamy glacial till.

Landform: Glaciated uplands and drumlins.

Position in Landscape: Upper portions of landform.

Slope Gradient Ranges: (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Moderately well drained, with a perched water table 1.5 to 2.5 feet beneath the

existing soil surface from November through April and during periods of

excessive precipitation.

Typical Profile Description:

le Surface layer:

Grayish brown and dark brown fine sandy loam,

0-0

Subsurface layer: Strong brown and dark yellowish brown fine sandy

loam, 6-19"

Subsoil layer: Substratum: Light olive brown gravelly fine sandy loam, 19-24" Light olive brown gravelly sandy loam, 24-65"

Hydrologic Group: Group C

Surface Runoff: Moderate in the solum, moderately slow or slow in the compact substratum.

Permeability: Moderate in the solum, moderately slow or slow in the compact substratum.

Depth to Bedrock: Very deep, greater than 60".

Hazard to Flooding: None

Erosion Factors: K: .17 - .24

INCLUSIONS (Within Mapping Unit)

Similar: Hermon, Skerry, Becket, Croghan, Sunappe, Marlow

Dissimilar: Colonel, Tunbridge (20-40" to bedrock), Lyman, Hogback (10-20" to bedrock), Rawsonville

(20-40" to bedrock)

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factor for building site development is wetness due to the presence of a perched water table 1.5 to 2.5 feet beneath the existing soil surface for a significant portion of the year. Proper foundation drainage is recommended for construction. Dixfield soil is suitable for subsurface wastewater disposal and requires a 12-inch separation distance from the bottom of any disposal area to the seasonal high groundwater table. Dixfield soil also requires 3.3 and 1.7 sq.ft/gpd for disposal beds and chamber area, respectively. The Very Stony phase of Dixfield soil has up to 3% of the soil surface covered with stones.

Stormwater design: Dixfield soils are moderately well drained, with seasonal high groundwater table of approximately 1.5 to 3.5 feet beneath the soil surface. Dixfield soils generally exhibit permeabilities of 0.6-2.0 inches/hour in the upper horizons, and 0.06-0.6 inches/hour in the firm basal till horizons of 1.5'+ (approximately).

Soil limitations for proposed use: The soil limiting factor for construction is wetness, due to the presence of a seasonal water table for some time during the year. Diversion of upslope drainage from work areas, or importation of coarse granular fill can help overcome these limitations. Stony soil map units have stony or boulder surfaces, which have limitations for vehicular traffic. Large excavation equipment or blasting of large glacial erratics may be necessary for excavation and/or site preparation.



LYMAN-TUNBRIDGE COMPLEX

SETTING

Parent Material: Loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Upper positions on landform.

Slope Gradient Ranges: **(B)** 3-8% **(C)** 8-20%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively to well drained, with no evidence of a water table, or

only inches from the bedrock surface during spring and periods of heavy

precipitation.

Typical Profile Surface layer:

Description:

Black & reddish brown loam & fine sandy loam, 0-4"

Very dusky red loam, 4-6' Subsurface layer:

Subsoil layer: Substratum layer: Dark red loam, 6-10"

Dark brown to brown loam, 10-20'

Hydrologic Group: Group C/D

Surface Run Off: Rapid

Permeability: Moderate or moderately rapid.

Depth to Bedrock: Shallow (Lyman, 10-20") to moderately deep (Tunbridge, 20-40").

Hazard to Flooding: None

Erosion Factors: K: .20 - .32

> **INCLUSIONS** (Within Mapping Unit)

Similar: Dixfield, Skerry (deeper than 40" to bedrock)

Dissimilar: Naskeag (in depressional areas), Colonel, Brayton

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factors for building site development is shallow to bedrock. Blasting or ripping of the more fractured and weathered bedrock is required for deep excavation. Portions of these map units are suitable for subsurface wastewater disposal, where the depth to limiting factor is greater than 15" from the mineral soil surface within Shoreland Zoned areas, and 9"-15" in non-Shoreland Zoned areas. This soil requires a 24-inch separation distance between the bottom of any disposal area and the bedrock surface, and 3.3 sq.ft/gpd and 1.7 sq.ft/gpd for bed disposal area and chamber area, respectively.

For stormwater design: Limiting factor for stormwater design is bedrock, which is generally less than 20". These soils are generally well drained, with no seasonal water table except for short durations on the bedrock surface. Permeabilities are 2-6 inches per hour in all horizons.

LYMAN-TUNBRIDGE-ROCK OUTCROP COMPLEX

SETTING

Parent Material: Loamy glacial till.

Landform: Glaciated uplands.

Position in Landscape: Uppermost locations on landform; sideslopes, shoulders, and crests of ridges.

Slope Gradient Ranges: (B) 3-8% (C) 8-20% (D) 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat excessively drained (Lyman) to well drained (Tunbridge) with no

apparent water table other than run off across the bedrock surface occasionally, during spring and periods of heavy precipitation. These soils occur in a non-repeating pattern with exposed bedrock outcrop, and cannot be

separated in mapping.

Typical Profile Surface layer: Black & reddish brown

Description: loam & fine sandy loam, 0-4"

Subsurface layer: Very dusky red loam, 4-6'
Dark red loam, 6-10"

Substratum layer: Dark brown to brown loam, 10-20"

Hydrologic Group: Group C/D

Surface Run Off: Slow to rapid depending on slope and bedrock exposure.

Permeability: Moderately rapid.

Depth to Bedrock: Shallow (Lyman 10-20") to moderately deep (Tunbridge 20-40").

Hazard to Flooding: None

INCLUSIONS (Within Mapping Unit)

Similar: Dixfield, Skerry (deeper than 40" to bedrock)

Dissimilar: Colonel (greater than 40" to bedrock), Naskeag (in microdepressions)

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factor for building site development is depth to bedrock, which ranges from o" to 40" within this complex. Blasting or ripping of the more fractured bedrock is necessary for deep excavation. Tunbridge and Lyman (9"-15" deep to bedrock outside shoreland zone areas) soils are suitable for subsurface wastewater disposal in accordance with State of Maine Subsurface Wastewater Disposal Rules. These soils require a 24-inch separation distance between the bedrock surface and the bottom of any disposal system. These soils also require 3.3 and 1.7 sq.ft/gpd for disposal beds and chamber area, respectively.

NASKEAG (Aeric Haplaquods)

SETTING

Parent Material: Loamy and sandy glacial till.

Landform: Depressions of glaciated bedrock ridges.

Position in Landscape: Lowest positions in depressions or concavities in landform.

Slope Gradient Ranges: (A) 0-3% (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Somewhat poorly to poorly drained, with a perched water table 0-1.5 feet

beneath the soil surface.

Typical Profile Surface layer: Very dusky red muck, 0-5"

Description: Subsurface layer: Light brownish gray and brown sandy loam or loamy

sand, 5-16"

Subsoil layer: Dusky red loamy sand, 10-26"

Substratum: Light yellowish brown gravelly sandy loam to loamy

sand, 26-38"

Hydrologic Group: Group C

Surface Run Off: Moderate or moderately rapid (across bedrock surface)

Permeability: Rapid

Depth to Bedrock: Moderately deep, 20-40" to bedrock surface.

Hazard to Flooding: None, but may be ponded for short duration in spring and during periods of

excessive rainfall.

Erosion Factors: .10

INCLUSIONS (Within Mapping Unit)

Similar: Lyman, Tunbridge, Colonel, Brayton, Swanton, Pillsbury

Dissimilar: Rock Outcrop, Peacham, Naskeag (Variant-V.P.D.)

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factor of this soil for building site development are depth to bedrock less than 40" in Naskeag and wetness due to a water table perched above the bedrock surface or hardpan. Proper foundation drainage is recommended for construction. Naskeag does not meet the minimum requirements for subsurface wastewater disposal as defined by the State of Maine Subsurface Wastewater Disposal Rules. This soil (poorly drained) may be classified as wetlands, based on the combined consideration of hydric conditions, hydrology, and vegetation.

SCANTIC (Typic Haplaquepts)

SETTING

Parent Material: Marine or lacustrine sediments.

Landform: Level or gently sloping marine or lake plains.

Position in Landscape: Lower to intermediate positions.

(A) 0-3% (B) 3-8% Slope Gradient Ranges:

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class: Poorly drained, with a perched water table 0.5 to 1.0 feet beneath the soil

surface.

Typical Profile Surface layer: Dark grayish brown silt loam, 0-9"

Description: Subsurface layer: Olive gray silt loam, 9-11"

Olive gray, silty clay loam, 11-16" Olive gray clay, 16-65" Subsoil layer:

Substratum:

Hydrologic Group: Group D

Slow Surface Run Off:

Moderate or moderately slow in upper profile, slow to very slow in dense Permeability:

substratum.

Very deep, greater than 60". Depth to Bedrock:

May flood occasionally on lowest fringes during spring and periods of Hazard to Flooding:

excessive precipitation.

INCLUSIONS (Within Mapping Unit)

Similar: Lamoine, Enosburg (Swanton)

Naskeag, Biddeford, Whately Dissimilar:

USE AND MANAGEMENT

Development with subsurface wastewater disposal: The limiting factor for building site development is wetness due to the presence of a shallow water table throughout most of the year. Proper foundation drainage or site modification is recommended for construction. Scantic soil does not meet the minimum requirements for subsurface wastewater disposal, as defined by State of Maine Rules for Subsurface Wastewater Disposal. Scantic soil may be classified as wetlands, based on the combined consideration of hydrology, hydric conditions, and vegetation.

Development for stormwater: Scantic soils are poorly drained with a high perched water table 0.5 to 1.0 feet beneath the soil surface and exhibit permeabilities of 0.2 to 2.0 inches/hr. in the upper 10 inches, and less than 0.2 inches/hr. below 10 inches.

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

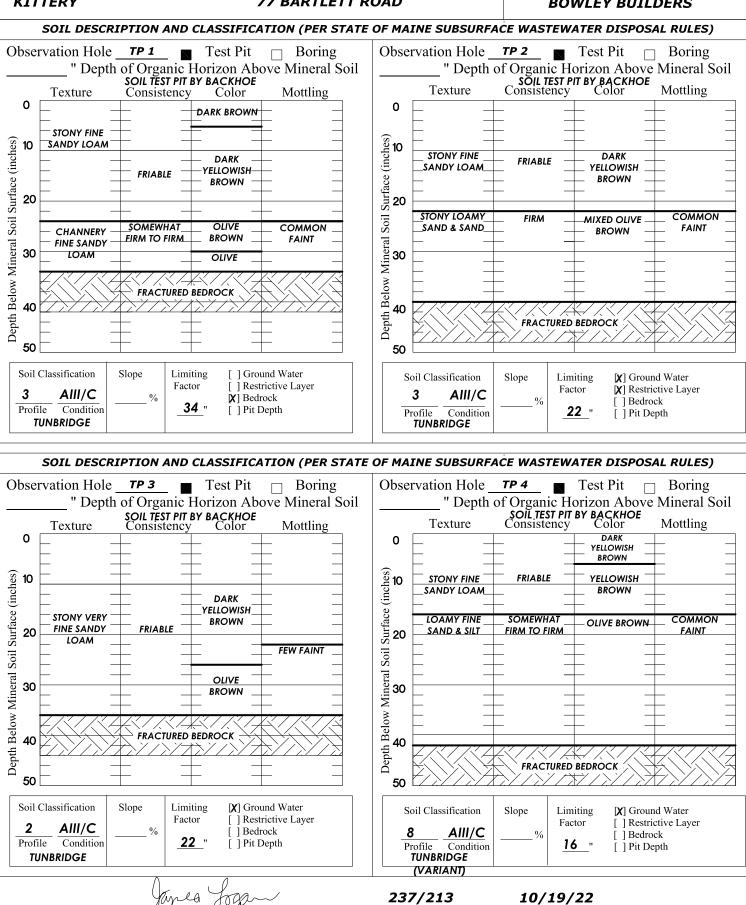
Street, Road, Subdivision

Owner's Name

KITTERY

77 BARTLETT ROAD

BOWLEY BUILDERS



LSE/CSS #

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

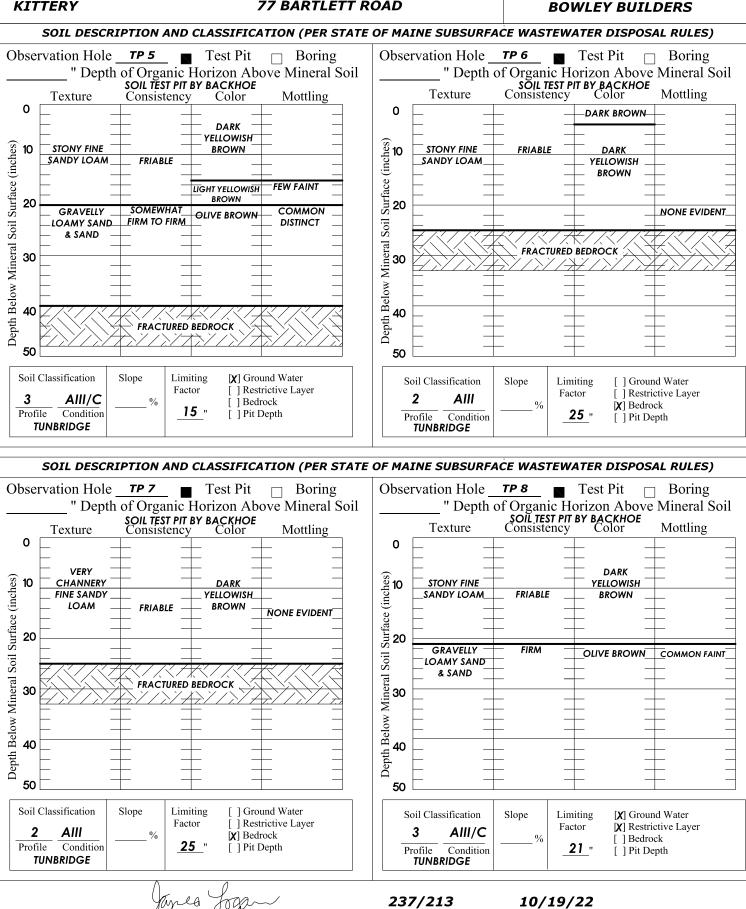
Town, City, Plantation

Street, Road, Subdivision

Owner's Name

KITTERY

77 BARTLETT ROAD



LSE/CSS #

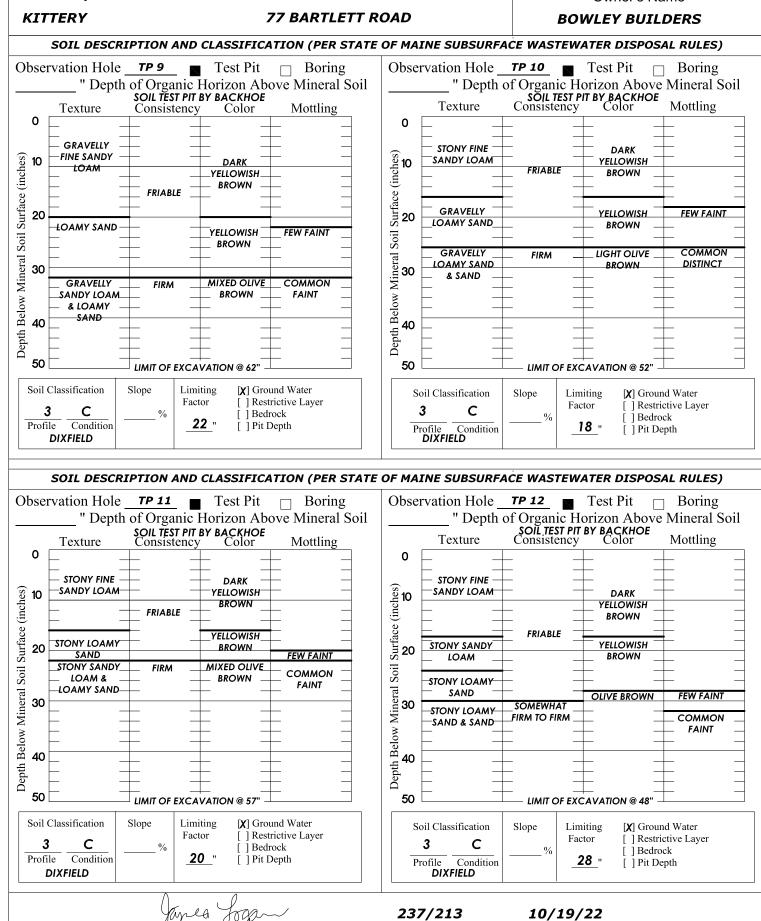
SIGNATÜRE

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

Street, Road, Subdivision

Owner's Name



LSE/CSS #

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

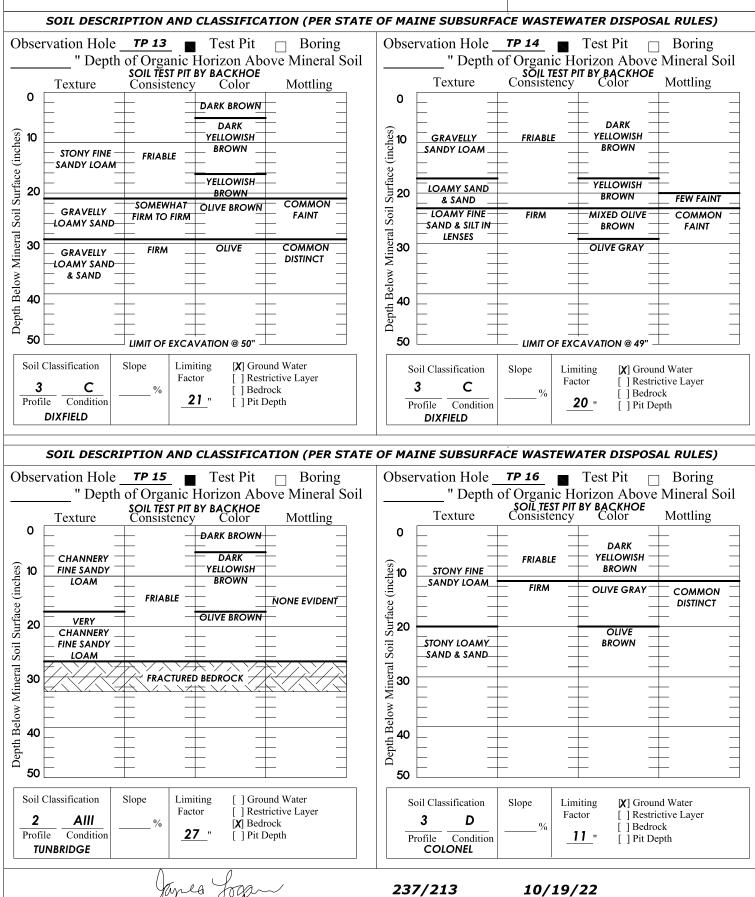
Street, Road, Subdivision

Owner's Name

KITTERY

77 BARTLETT ROAD

BOWLEY BUILDERS



LSE/CSS #

Cubaliviaiaa

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

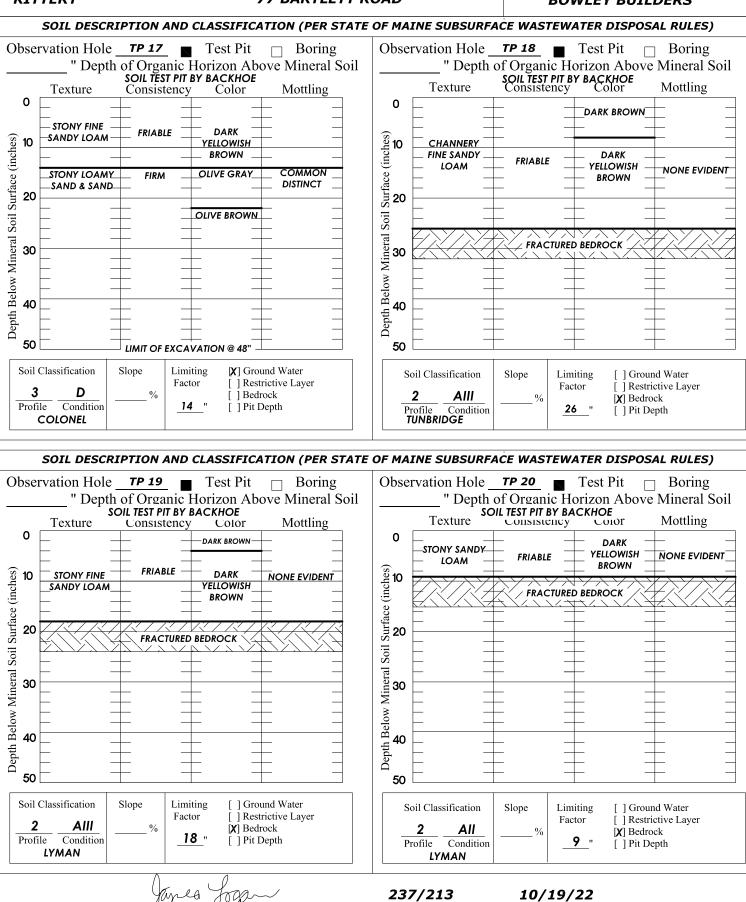
Street, Road, Subdivision

Owner's Name

KITTERY

77 BARTLETT ROAD

BOWLEY BUILDERS



LSE/CSS #

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

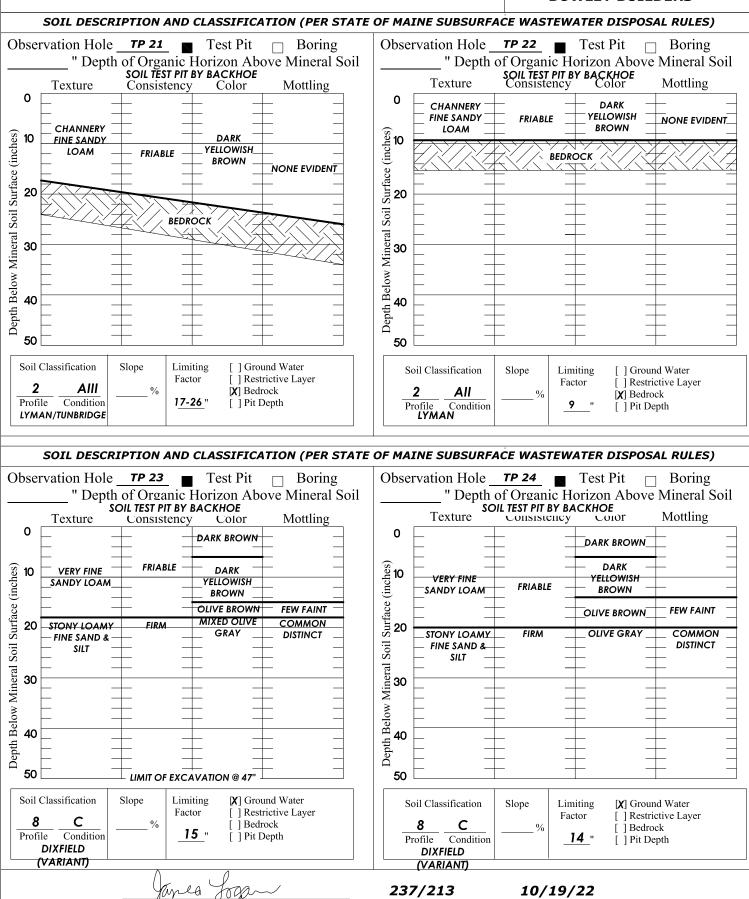
Street, Road, Subdivision

Owner's Name

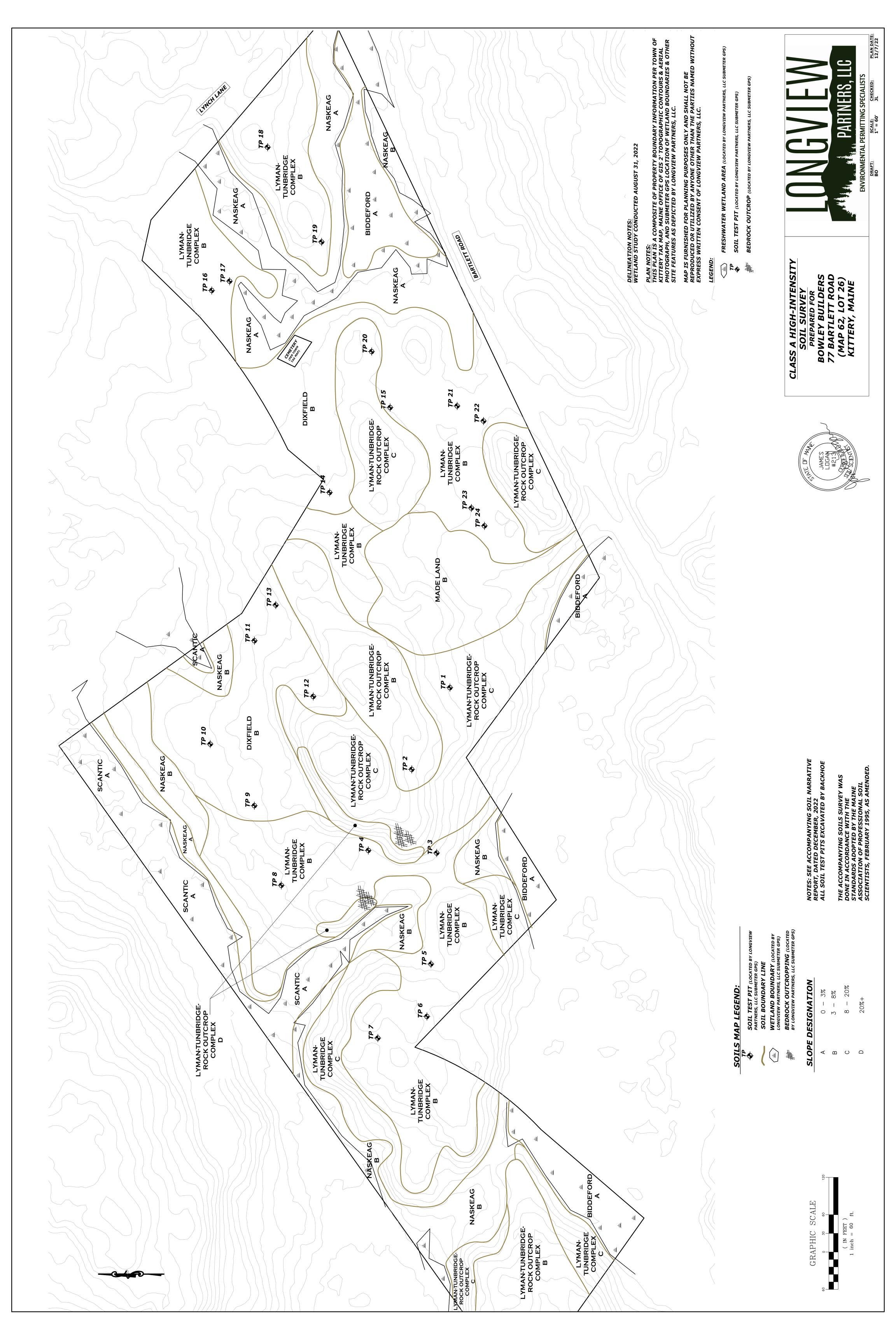
KITTERY

77 BARTLETT ROAD

BOWLEY BUILDERS



LSE/CSS #



LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation Street, Road, Subdivision

Owner's Name

KTTTERY

77 BARTLETT ROAD

ROWI FY RIITI DERS

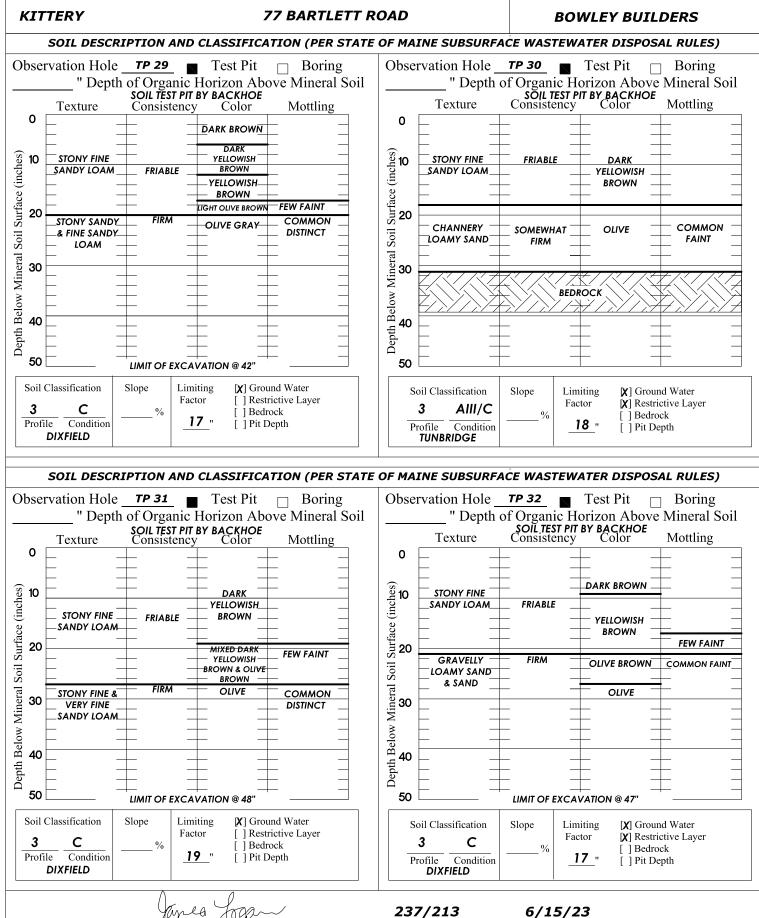
1121			-	, 2,			_	OVVLL	I DOILDLI	15
	SOIL DESCRI	PTION AND	CLASSIFICA	TION (PER STAT	E OF MA.	INE SUBSURFA	ACE WAST	EWATER	DISPOSAL R	ULES)
Obse	rvation Hole	TP 25	Test Pit	☐ Boring	Obse	rvation Hole	TP 26	Tes	t Pit 🖂 B	oring
	" Depth	of Organic	Horizon Ab	ove Mineral Soil	<u> </u>	" Depth	of Organic	- Horizo	on Above Mi	neral Soil
	Texture	Consistency	BY BACKHOE Color	Mottling		Texture	SOIL TE Consistei	ST PIT BY 10y	BACKHOE Color Mo	ottling
0			DARK BROWN		0			<u> </u>		
			DANK BROWN					\pm	DARK ±	
⊗ 10	VERY FINE -	FRIABLE —	DARK		0 jes		_		LLOWISH —	-
nch	SANDY LOAM_	_	YELLOWISH_ BROWN	_	inch	STONY FINESANDY LOAM	FRIABLE		BROWN NO	NE EVIDENT
Depth Below Mineral Soil Surface (inches) O O O O O O O O O O O O O			OLIVE BROWN	FEW FAINT	Surface (inches)	SANDI LOAM		LIC	GHT OLIVE	
11.tg	STONY LOAMY	FIRM	MIXED OLIVE	COMMON	g 20	//////	/ / / /		BROWN	
il Sı	FINE SAND & — SILT —		GRAY _	DISTINCT	SiiS			BEDROCK		
l So	SILI	_			Il Sc		<u> </u>	////	<u> </u>	////
90 je ra					30 gera					
Mir	_ =		_ =		W. W.			#	#	\exists
wol			‡ =		low			#	#	4
මී 40					[™] 40		_			
epth	L =		<u> </u>		Depth Below Mineral Soil 8 8			\pm	士	\exists
ص 50		LIMIT OF EXC	└ AVATION @ 49" -	_	50		_	+	+	4
								·		
Soil	Classification	Slope Lim Fac		und Water rictive Layer	Se	oil Classification	Slope	Limiting	[] Ground Wa	
8		%	[] Bedi	rock		2 AIII	%	Factor	[] Restrictive [[X] Bedrock	Layer
Profi	ile Condition DIXFIELD	-	5 " [] Pit I	Depth	P	ofile Condition LYMAN		<u> 18 "</u>	[] Pit Depth	
	(VARIANT)					277774				
	SOTI DESCRI	PTION AND	CI ASSIFICA	ATION (PER STAT	F OF MA	INF SURSURE	ACE WAST	FWATER	DISPOSAL B	III FS)
01										
Obse	rvation Hole _			☐ Boring ove Mineral Soil	Obse	rvation Hole_			t Pit 🔃 B on Above Mii	oring
		SOIL TEST PIT	BY BACKHOE			·	SOIL TEST	PIT BY BA	ACKHOE	
0	Texture	Consistency	Color	Mottling	0	Texture	Consister	ncy C	Color Mo	ottling
	CTONIV CANDY		DARK — YELLOWISH		"			DAI	RK BROWN	
€ 40	STONY SANDY LOAM		BROWN -		<u>s</u>				DARK ————————————————————————————————————	
inches)		FRIABLE	<u> </u>		(inches)	STONY FINE SANDY LOAM	FRIABLE		BROWN	
(in	STONY LOAMY	_	MIXED DARK YELLOWISH	_			_		ROWN	-
face	SAND		BROWN _	FEW FAINT	Surface				SHT OLIVE FE	W FAINT —
Depth Below Mineral Soil Surface (OP 00 00 00 00 00 00 00 00 00 00 00 00 00	STONY FINE	FIRM	MIXED _	COMMON FAINT	In 20	GRAVELLY FINE & VERY	FIRM		OLIVEC	OMMON
Soil	SANDY LOAM		OLIVE — BROWN —		Soil	FINE SANDY		#	# '	DISTINCT
eral 30	_	_	_	_	eral	LOAM	_			
Aine Oc		_	_		Depth Below Mineral			\pm	\pm	\exists
W N		PEDI	ROCK		ow]		_	-	+	_
He He He He He He He He		BEDI	NOCK TO THE PROPERTY OF THE PR		Bel 40					
pth					http://dis			#	#	7
			_ =		I		<u> </u>	_ 土		
50					50		LIMIT OF EXC	CAVATION	@ 49"	
Soil	Classification			und Water	S	oil Classification	Slope	Limiting	[X] Ground Wa	
3	AIII/C	% Fac	[] Bedi			3/8 C	%	Factor	[] Restrictive [] Bedrock	Layer
Profi			6 " [] Pit I		Pı	ofile Condition		<u>16 "</u>	[] Pit Depth	
TU.	INBRIDGE				DIXE	IELD (VARIANT)				
		<u></u>	. J							
		_ yane	e Jogan	<u>~</u>	232	7/213	6/15	5/23		
		//	NATURE		LSE/C		DA			

LSE/CSS #

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation Street, Road, Subdivision

Owner's Name



LSE/CSS #

LONGVIEW PARTNERS, LLC
6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

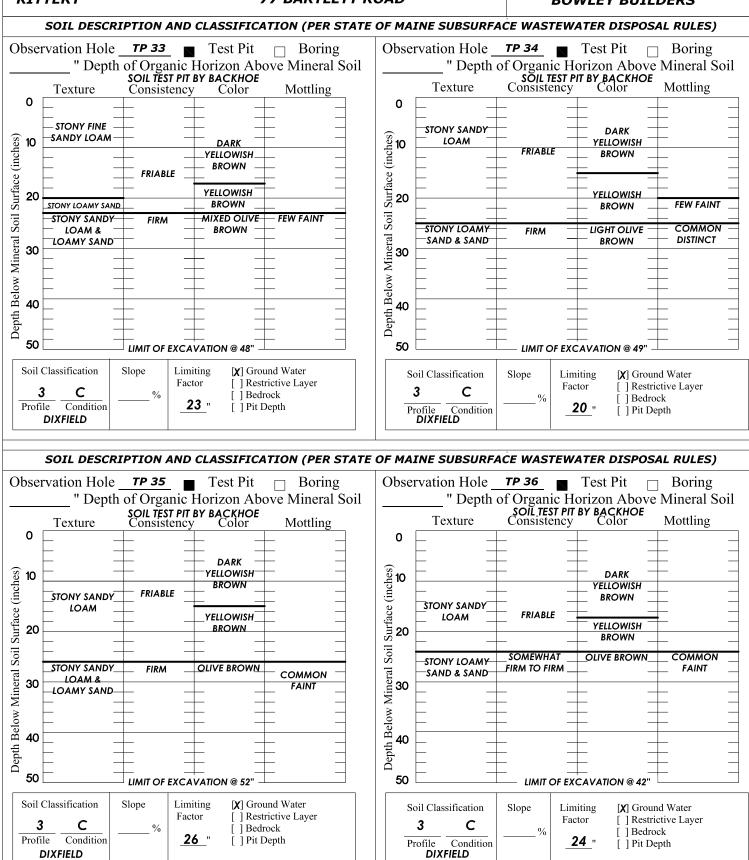
Street, Road, Subdivision

Owner's Name

KITTERY

77 BARTLETT ROAD

BOWLEY BUILDERS



237/213

LSE/CSS #

SIGNATÜRE

6/15/23

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

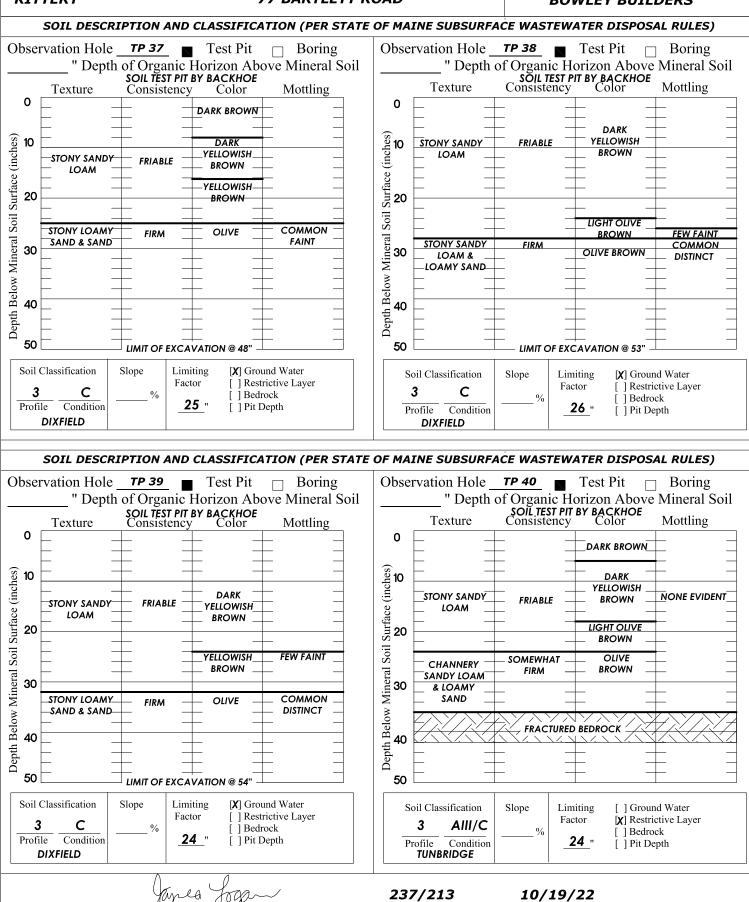
Street, Road, Subdivision

Owner's Name

KITTERY

77 BARTLETT ROAD

BOWLEY BUILDERS



LSE/CSS #

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

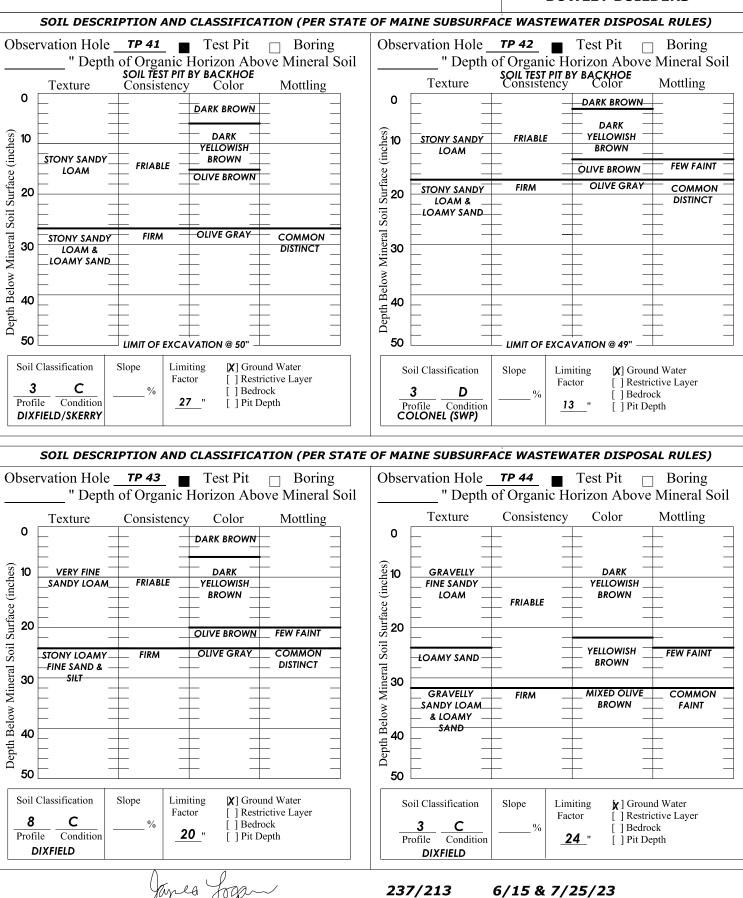
Street, Road, Subdivision

Owner's Name

KITTERY

77 BARTLETT ROAD

BOWLEY BUILDERS



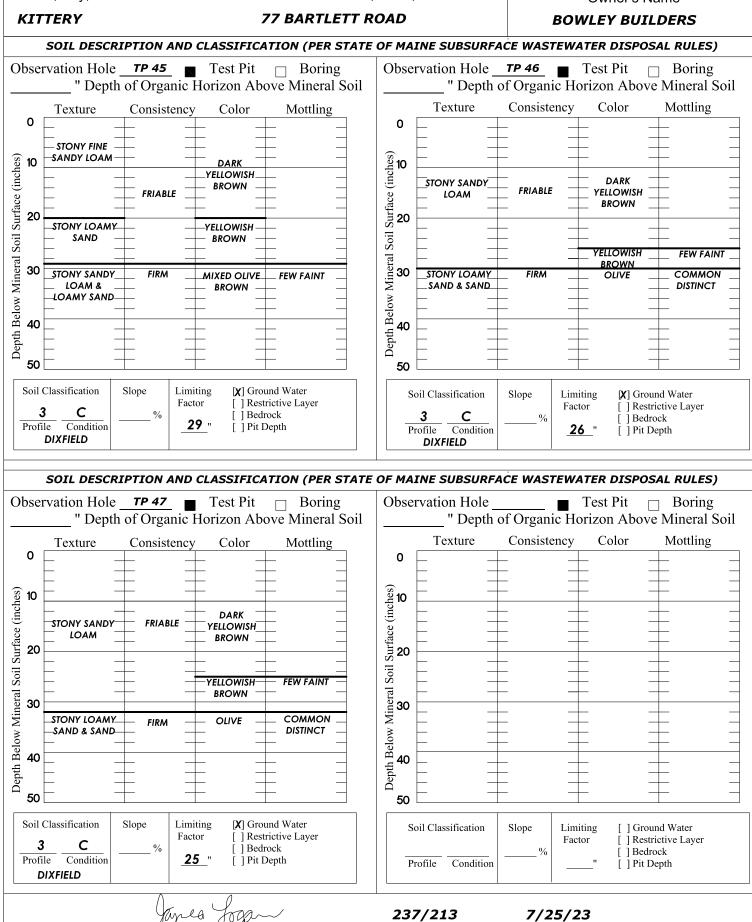
LSE/CSS #

LONGVIEW PARTNERS, LLC 6 SECOND STREET BUXTON, MAINE

Town, City, Plantation

Street, Road, Subdivision

Owner's Name



LSE/CSS #

Attachment 5

Groundwater Availability Letter



93 Mill Road • North Yarmouth, Maine 04097 Cell: 207.329.3524 • mark@markcenci.com www.markcenci.com



Ground Water Availability Assessment of the Bartlett Road Subdivision, Kittery

Date: July 25, 2023

Summary of the Assessment:

The proposed subdivision of nine residential lots satisfies the requirements of the Town of Kittery Subdivision Ordinance regarding effects on ground water quantity.

Purpose of the Assessment:

The purpose of the assessment is to predict the possible effects on ground water from water wells planned for the project to satisfy the requirements of the Town of Kittery.

Information used:

Information used in this assessment includes the *Sketch Plan Conservation Subdivision* by Terradyn Consultants dated 5/18/23 and library research of published geologic, hydrogeologic and soils information.

Project summary:

The project is a subdivision of nine residential lots on 19.3 acres. One existing home occupies one lot. The residences will be single family homes, served by private, drilled bedrock water wells. The homes are assumed to be four-bedrooms in size.

Summary of geology:

The property is located (see Figure 1) on the dissected coastal plain of Kittery, south of Forty Acre Hill. Surface slopes are gentle.

The site is mapped (see Figure 2) as a marine nearshore deposit (Pmn) on the *Surficial Geology* of the Kittery 7.5 Quadrangle, York County Maine (ME Geol. Surv. Open-File Map 99-88). Marine nearshore deposits are defined as "thin, discontinuous and water laid sediments overlying shallow bedrock".

Depths to bedrock are reported from water wells in the area to be 4 to 10 feet below the surface (see Figure 6). The bedrock is mapped as metamorphosed sandstones and siltstones of the Kittery Formation (SOk) by Arthur Hussey (see Figure 3) on the *Bedrock Geology of the Kittery Quadrangle, Maine (ME Geol. Surv, Geologic Map 12-28).*

Summary of hydrogeology:

The source of ground water on this site is precipitation. Precipitation falling on this site seeps into the soil and descends until restrictive soil layers, the water table or bedrock is encountered, where a portion seeps into the open fractures of the bedrock.

On this site the soils are sandy loam to loamy sand in texture. Surface slopes are gentle. Soil recharge is average to above average on the property.

Based on the recommendations of the Maine DEP for hydrogeologic assessments, 30% of all precipitation can be expected to recharge the soil.

Impact on ground water quantity:

An estimated 3,600 gallons of water will be removed from the bedrock aquifer per day, assuming each of the single-family residences uses 400 gallons per day.

Water occurs in fractures and partings in a rock body. The openness and spacing of the fractures and partings differs from rock body to rock body and within the rock body as well. It is extremely difficult to predict the well yield and well depth at any specific location, but general trends can be discerned by looking at well drilling results.

There are two variables to consider when evaluating a water well. One is the depth of the borehole into the rock and the other is the amount of water that can be delivered to the borehole from the bedrock fractures. Where the yield of the well is low, a deep borehole can act as a storage container. The typical drilled, bedrock water well in Maine is 300 feet deep and has a yield of 3 gallons per minute.

To investigate the capacity of the site to deliver water from the bedrock aquifer to the proposed homes, while complying with the Ordinance, research of existing published information was made.

No test wells were drilled and evaluated on the property, but the Maine Water Well Database of the Maine Geological Survey provides published information of existing water wells that are searchable. These are presented in a map format (see Figures 4 and 5).

Twenty-one bedrock wells within 3,500 feet of the property, drilled into the same Kittery Formation that underlies the property, were tallied regarding depth and yield of well.

Well depths range from 72 feet to 520 feet deep. The average well depth is 260 feet, and the median well depth is 240 feet deep. Well yields range from 2 gpm to 100 gpm. The average yield is 22.8 gpm and the median is 6 gpm. These results suggest the Kittery Formation in this area is a body of rock offering above average aquifer characteristics regarding depth and yield.

To better understand the capacity of the bedrock aquifer to deliver the quantity of water required by nine residences without depleting the stored water in the ground, an analysis of the recharge capacity of the property was made.

Precipitation recharges the bedrock aquifer, and typical rates of recharge are known from studies of bedrock in Maine. Rocks like the Kittery Formation typically recharge 9 inches (0.75 feet) of precipitation per year into the bedrock. This is regardless of drought conditions.

A simple Mass-Balance equation can be done to evaluate the capacity of the subject property to supply sufficient water to the bedrock aquifer. Calculations are attached as Table 1 and indicate the property itself supplies more water to the bedrock than will be withdrawn by the proposed wells.

Conclusions:

The bedrock aquifer recharge capacity of the parcel is greater than the ground water withdrawal from the proposed water wells. The Kittery Formation beneath the site is a good bedrock aquifer, as shown by a review of the nearest bedrock water wells in the Maine Water Well Database.

Mark Cenci, LG # 467

TABLE 1

Bedrock Aquifer Mass-Balance Calculations

Assumptions:

- 19.3-acre parcel
- 9 single family residences pumping 400 gallons per day, (3,600 gpd total)
- 4 feet per year of precipitation
- 9 inches recharge (0.75 ft) to the bedrock per year, at a recharge rate of 21%

Calculations:

19.3 acres x 43,540 sq ft/acre x 0.75 ft/ year x 7.481 gal/sq ft / 365 days per year = 51.693 gallons per day, average, recharged into the bedrock aquifer on this parcel.

Conclusions:

Recharge to the bedrock aquifer on the property exceeds the withdrawal from the combined total of existing and new wells.

Attachment 6

Vernal Pool Assessment Methodology & Summary

JANET T. MILLS GOVERNOR

STATE OF MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION



July 5, 2023

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

Re: Vernal Pool Significance Determination, Pool ID #s 5156, 5157-Kittery

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

WEBSITE: www.maine.gov/dep

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: Wednesday, July 05, 2023

IFW's Pool II	D: 5156 Twp: Kittery	UTM Coordinates of Pool Center: 4774569 E, 4774569 N ProjectType: 77 BARTLETT ROAD				
Observer's II	D: Pool 1					
Landowner:	Bowley Builders	Contact:	James Logan - Longview Partners, LLC 6 Second Street Buxton, ME 04093			
	86 York Street, Suite 3					
	Kennebunk, ME 04043					
	geoff@bowleybuilders.com	_	(207) 693-8799 longviewpartners213@gmail.com			
IFW's R	Date: 4/4/2023 Additional Survey Dates: 0- tecommendation: RED: NOT SIGNIFICANT, does numerate: pool provides some habitat for spotted sa	ot meet the biol	ogical criteria			
IFW's R	decommendation: RED: NOT SIGNIFICANT, does number the provides some habitat for spotted sa	ot meet the biol lamanders but d	ogical criteria loes not meet biological criteria for significance.			
IFW's R IFW Co	decommendation: RED: NOT SIGNIFICANT, does number the pool provides some habitat for spotted sa	oot meet the biol lamanders but d UTM Coordir	ogical criteria			
IFW's R	decommendation: RED: NOT SIGNIFICANT, does number the pool provides some habitat for spotted sa	oot meet the biol lamanders but d UTM Coordir	ogical criteria loes not meet biological criteria for significance. nates of Pool Center: 4774518 E, 4774518 N			
IFW's R IFW Co IFW's Pool II Observer's II	decommendation: RED: NOT SIGNIFICANT, does not make the provides some habitat for spotted satisfied. D: 5157 Twp: Kittery D: Pool 2	oot meet the biol lamanders but d UTM Coordir ProjectType:	ogical criteria loes not meet biological criteria for significance. nates of Pool Center: 4774518 E, 4774518 N 77 BARTLETT ROAD			
IFW's R IFW Co IFW's Pool II Observer's II	Recommendation: RED: NOT SIGNIFICANT, does not memore. Pool provides some habitat for spotted sand D: 5157 Twp: Kittery D: Pool 2 Bowley Builders	oot meet the biol lamanders but d UTM Coordir ProjectType:	ogical criteria loes not meet biological criteria for significance. nates of Pool Center: 4774518 E, 4774518 N 77 BARTLETT ROAD James Logan - Longview Partners, LLC			

Survey Date: 4/4/2023 Additional Survey Dates: 04/26/2023, 05/03/2023 IFW's Recommendation: RED: NOT SIGNIFICANT, does not meet the biological criteria

IFW Comments: pool provides some habitat for wood frogs but does not meet biological criteria for significance.



Maine State Vernal Pool Assessment Form



INSTRUCTIONS:

- Complete all 3 pages of form thoroughly. Most fields are required for pool registration.
- Clear photographs of a) the pool AND b) the indicators (one example of each species egg mass) are required for all observers.

Observer's Pool ID: POOL 1

MDIFW Pool ID:

1. PRIMARY OBSERVER INFORMATION

a. Observer name: LONGVIEW PARTNERS (J. LOGAN & W. O'CONNOR)

b. Contact and credentials previously provided? No (submit Addendum 1) Yes

2. PROJECT CONTACT INFORMATION

a. Contact name: same as observer other

b. Contact and credentials previously provided? No (submit Addendum 1) Yes

c. Project Name: 77 BARTLETT ROAD

3. LANDOWNER CONTACT INFORMATION

a. Are you the landowner? Yes No If no, was landowner permission obtained for survey? Yes No

b. Landowner's contact information (required)

Name: **BOWLEY BUILDERS** Phone: E-mail: **geoff@bowleybuilders.com**

Street Address: 86 YORK STREET, SUITE 3 City: KENNEBUNK State: ME Zip: 04043

c. Large Projects: check if separate project landowner data file submitted

The Maine Department of Environmental Protection will e-mail official status letters to the project contact and landowner. Please check these data for completeness and accuracy to prevent delay in mailings. <u>E-mail is the preferred method of notification</u>; please provide e-mail addresses for the project contact and the landowner when available.

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: KITTERY

Brief site directions to the pool (using mapped landmarks):

PLEASE SEE ATTACHED

b. Mapping Requirements

i. USGS topographic map OR aerial photograph with pool clearly marked.

ii. GPS location of vernal pool (use Datum NAD83 / WGS84)

Longitude/Easting: 70 41' 18.08"W Latitude/Northing: 43 06' 41.04"N

Coordinate system: WGS 1984

Check one: GIS shapefile

- send to VernalPool.MDIFW@maine.gov; observer has reviewed shape accuracy (Best) The pool perimeter is delineated by multiple GPS points. (Excellent)

- Include map or spreadsheet with coordinates.

The above GPS point is at the center of the pool. (Good)



Maine State Vernal Pool Assessment Form



5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3):

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

Isolated depression Pool associated with larger wetland complex

Floodplain depression Other:

■ Check all wetland types that best apply to this pool:

Forested swamp Wet meadow Slow stream Dug pond or Shrub swamp Lake or pond cove Floodplain borrow pit

Peatland (fen or bog) Abandoned beaver flowage Mostly unvegetated pool Roadside ditch

Emergent marsh Active beaver flowage ATV or skidder rut Other:

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: Natural Natural-Modified Unnatural Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

ii. Pool Hydrology

■ Select the pool's <u>estimated</u> hydroperiod AND <u>provide rationale</u> in box (**required**):

Permanent Semi-permanent Ephemeral Unknown

(drying partially in all years and (drying out completely

completely in drought years) in most years)

Explain:

SLOW-MOVING DRAINAGE FLOWS THROUGH POOL

■ Maximum depth at survey: 0-12" (0-1 ft.) 12-36" (1-3 ft.) 36-60" (3-5 ft.) >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: m ft Length: m ft

■ Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland Organic matter (peat/muck) shallow or

mosses present) restricted to deepest portion

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap Wet site ferns (e.g. royal fern, marsh fern)

moss, lycopodium spp.)

Dry site ferns (e.g. spinulose wood fern, Wet site shrubs (e.g. highbush blueberry, maleberry,

lady fern, bracken fern) winterberry, mountain holly)

Moist site ferns (e.g. sensitive fern, cinnamon

Wet site graminoids (e.g. blue-joint grass, tussock

fern, interrupted fern, New York fern)
sedge, cattail, bulrushes)

Moist site vasculars (e.g. skunk cabbage, Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

jewelweed, blue flag iris, swamp candle)

Floating or submerged aquatics (e.g. water lily,

Sphagnum moss (anchored or suspended) water shield, pond weed, bladderwort)

No vegetation in pool

■ Faunal indicators (check all that apply):

Fish Bullfrog or Green Frog tadpoles Other:

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

No inlet or outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)

Intermittent inlet Other or Unknown (explain):

or outlet



Maine State Vernal Pool Assessment Form



6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: APRIL 4 & 26, & MAY 3, 2023

b. Indicator abundance criteria and pool survey effort

■ Is pool depression bisected by 2 ownerships (straddler pool)? Yes No

■ Was the entire pool surveyed for egg masses? Yes No; what % of entire pool surveyed?

■ For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR	Egg Masses (or adult Fairy Shrimp)									Tadpoles/Larvae ⁴			
SPECIES	Visit #1	Visit #2	Visit #3	Confidence Level ¹			Egg Mass Maturity ²		Observed		Confidence Level ¹		
Wood Frog	0	0	0	3	3	3							
Spotted Salamander	0	0	4	3	3	3		М	ÌΪ				
Blue-spotted Salamander	0	0	0	3	3	3							
Fairy Shrimp ³	0	0	0	3	3	3							

¹⁻Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

c. Rarity criteria

■ Note any rare species associated with vernal pools. <u>Observations should be accompanied by photographs</u>.

	Method of Verification*			CL**		Method	CL**		
SPECIES	Р	Н	S	OL	SPECIES		Н	S	<u> </u>
Blanding's Turtle					Wood Turtle				
Spotted Turtle					Ribbon Snake				
Ringed Boghaunter					Other:				

^{*}Method of verification: P = Photographed, H = Handled, S = Seen

d. Optional observer recommendation:

SVP Potential SVP Non Significant VP Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

POOL LACKS SUFFICIENT SUBMERGED WOODY VEGETATION TO SUPPORT SIGNIFICANT NUMBERS OF EGG MASSES. SLOW MOVING DRAINAGE.

Send completed form and supporting documentation to: VernalPool.MDIFW@maine.gov

NOTE: Digital submissions are preferred but if not possible, please mail to: Maine Department of Inland Fisheries and Wildlife

Attn: Vernal Pools 106 Hogan Road, Suite 1 Bangor, ME 04401

For MDIFW use only Reviewed by MDIFW Date: Initials:

This pool is: Significant Potentially Significant Not Significant due to: does not meet biological criteria.

but lacking critical data does not meet MDEP vernal pool criteria.

Comments:

²⁻Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (loose matrix, curved embryos), H= Hatched or Hatching

³⁻Fairy shrimp: X = present 4-Tadpoles/larvae: X = present

^{**}CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

180.7 miles

IRS reimbursement: \$105.68



Head toward Hogan Rd. Go for 0.1 mi.

Then 0.11 miles



Turn left onto Hogan Rd. Go for 1.0 mi.

Then 0.99 miles



Turn sharp left and take ramp onto I-95 S toward Newport/Augusta. Go for 84.1 mi.

Then 84.15 miles



Take exit 103 toward I-295 S/Gardiner/ME-9/Brunswick/ME-126. Go for 0.7 mi.

Then 0.66 miles



Keep left onto I-295. Go for 51.6 mi.

Then 51.63 miles

Take the exit onto I-95 (Gold Star Memorial Hwy). Go for 37.0 mi.

Then 37.00 miles



Take exit 7 toward Yorks/US-1/The Berwicks/ME-91. Go for 0.3 mi.

Then 0.26 miles



Turn left onto Spur Rd. Go for 0.5 mi.

Then 0.46 miles



Turn right onto Blue Star Memorial Hwy (US-1). Go for 0.3 mi.

Then 0.33 miles

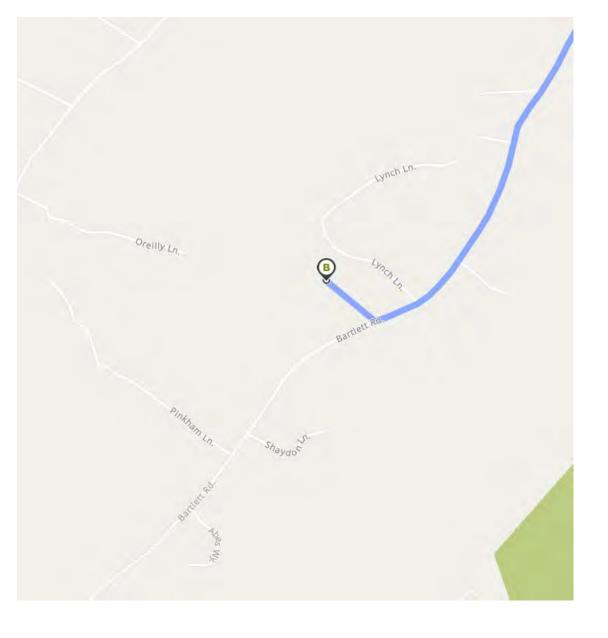


Turn left onto York St (US-1A). Go for 1.3 mi.

Turn right onto Lilac Ln (ME-103). Go for 2.2 mi.
Then 2.21 miles
Turn right onto Payne Rd. Go for 0.6 mi.
Then 0.62 miles
Turn left onto Bartlett Rd. Go for 0.8 mi.
Then 0.79 miles
Turn right. Go for 0.1 mi.
Then 0.11 miles
77 Bartlett Rd

Then 1.34 miles

Kittery, ME 03905-5640



Bowley Builders property 77 Bartlett Road Kittery, Maine Spring 2023 Vernal Pool Study-Pool 1



Pool 1, April 4, 2023



Pool 1, April 4, 2023

Bowley Builders property 77 Bartlett Road Kittery, Maine Spring 2023 Vernal Pool Study-Pool 1



Pool 1, April 26, 2023



Pool 1, April 26, 2023



Pool 1, May 3, 2023



Spotted Salamander egg mass in Pool 1, May 3, 2023



Pool 1, May 3, 2023





Maine State Vernal Pool Assessment Form



INSTRUCTIONS:

- Complete all 3 pages of form thoroughly. Most fields are required for pool registration.
- Clear photographs of a) the pool AND b) the indicators (one example of each species egg mass) are required for all observers.

Observer's Pool ID: POOL 2

MDIFW Pool ID:

1. PRIMARY OBSERVER INFORMATION

- a. Observer name: LONGVIEW PARTNERS (J. LOGAN & W. O'CONNOR)
- b. Contact and credentials previously provided? No (submit Addendum 1) Yes

2. PROJECT CONTACT INFORMATION

- a. Contact name: same as observer other
- b. Contact and credentials previously provided? No (submit Addendum 1) Yes
- c. Project Name: 77 BARTLETT ROAD

3. LANDOWNER CONTACT INFORMATION

- a. Are you the landowner? Yes No If no, was landowner permission obtained for survey? Yes No
- b. Landowner's contact information (required)

Name: **BOWLEY BUILDERS** Phone: E-mail: **geoff@bowleybuilders.com**

Street Address: 86 YORK STREET, SUITE 3 City: KENNEBUNK State: ME Zip: 04043

c. Large Projects: check if separate project landowner data file submitted

The Maine Department of Environmental Protection will e-mail official status letters to the project contact and landowner. Please check these data for completeness and accuracy to prevent delay in mailings. <u>E-mail is the preferred method of notification</u>; please provide e-mail addresses for the project contact and the landowner when available.

4. VERNAL POOL LOCATION INFORMATION

a. Location Township: KITTERY

Brief site directions to the pool (using mapped landmarks):

PLEASE SEE ATTACHED

b. Mapping Requirements

i. USGS topographic map OR aerial photograph with pool clearly marked.

ii. GPS location of vernal pool (use Datum NAD83 / WGS84)

Longitude/Easting: 70 41' 13.88"W Latitude/Northing: 43 06' 39.44"N

Coordinate system: WGS 1984

Check one: GIS shapefile

- send to VernalPool.MDIFW@maine.gov; observer has reviewed shape accuracy (Best) The pool perimeter is delineated by multiple GPS points. (Excellent)

- Include map or spreadsheet with coordinates.

The above GPS point is at the center of the pool. (Good)



Maine State Vernal Pool Assessment Form



5. VERNAL POOL HABITAT INFORMATION

a. Habitat survey date (only if different from indicator survey dates on page 3):

b. Wetland habitat characterization

■ Choose the best descriptor for the landscape setting:

Isolated depression Pool associated with larger wetland complex

Floodplain depression Other:

■ Check all wetland types that best apply to this pool:

Forested swamp Wet meadow Slow stream Dug pond or Shrub swamp Lake or pond cove Floodplain borrow pit

Peatland (fen or bog) Abandoned beaver flowage Mostly unvegetated pool Roadside ditch

Emergent marsh Active beaver flowage ATV or skidder rut Other:

c. Vernal pool status under the Natural Resources Protection Act (NRPA)

i. Pool Origin: Natural Natural-Modified Unnatural Unknown

If modified, unnatural or unknown, describe any modern or historic human impacts to the pool (required):

POOLING OF WATER WITHIN WETLAND HAS BEEN CAUSED BY THE TRAVEL SURFACE OF BARTLETT ROAD.

ii. Pool Hydrology

■ Select the pool's <u>estimated</u> hydroperiod AND <u>provide rationale</u> in box (**required**):

Permanent Semi-permanent Ephemeral Unknown

(drying partially in all years and (drying out completely

completely in drought years) in most years)

Explain:

SLOW-MOVING DRAINAGE FLOWS THROUGH POOL. POOL HAS BEEN OBSERVED IN ALL SEASONS OVER THE PAST 2 CALENDAR YEARS.

■ Maximum depth at survey: 0-12" (0-1 ft.) 12-36" (1-3 ft.) 36-60" (3-5 ft.) >60" (>5 ft.)

■ Approximate size of pool (at spring highwater): Width: m ft Length: m ft

■ Predominate substrate in order of increasing hydroperiod:

Mineral soil (bare, leaf-litter bottom, or upland Organic matter (peat/muck) shallow or

mosses present) restricted to deepest portion

Mineral soil (sphagnum moss present)

Organic matter (peat/muck) deep and widespread

■ Pool vegetation indicators in order of increasing hydroperiod (check all that apply):

Terrestrial nonvascular spp. (e.g. haircap Wet site ferns (e.g. royal fern, marsh fern)

moss, lycopodium spp.)

Dry site ferns (e.g. spinulose wood fern,

Wet site shrubs (e.g. highbush blueberry, maleberry,

lady fern, bracken fern) winterberry, mountain holly)

Moist site ferns (e.g. sensitive fern, cinnamon

Wet site graminoids (e.g. blue-joint grass, tussock

fern, interrupted fern, New York fern)
sedge, cattail, bulrushes)

Moist site vasculars (e.g. skunk cabbage, Aquatic vascular spp. (e.g. pickerelweed, arrowhead)

jewelweed, blue flag iris, swamp candle)

Floating or submerged aquatics (e.g. water lily,

Sphagnum moss (anchored or suspended) water shield, pond weed, bladderwort)

No vegetation in pool

■ Faunal indicators (check all that apply):

Fish Bullfrog or Green Frog tadpoles Other:

iii. Inlet/Outlet Flow Permanency

Type of inlet or outlet (a seasonal or permanent channel providing water flowing into or out of the pool):

No inlet or outlet Permanent inlet or outlet (channel with well-defined banks and permanent flow)

Intermittent inlet Other or Unknown (explain):

or outlet



Maine State Vernal Pool Assessment Form



6. VERNAL POOL INDICATOR INFORMATION

a. Indicator survey dates: APRIL 4 & 26, & MAY 3, 2023

b. Indicator abundance criteria and pool survey effort

■ Is pool depression bisected by 2 ownerships (straddler pool)? Yes No

■ Was the entire pool surveyed for egg masses? Yes No; what % of entire pool surveyed?

■ For each indicator species, indicate the exact number of egg masses, confidence level for species determination, and egg mass maturity. Separate cells are provided for separate survey dates.

INDICATOR	Egg Masses (or adult Fairy Shrimp) Tadpoles/Larv										s/Larva	ae ⁴
SPECIES	Visit #1	Visit #2	Visit #3	Confi	dence	_evel ¹	Egg Mass M	aturity ²	Obs	erved	1 - Other (1)	idence evel ¹
Wood Frog	0	1	4	3	3	3	М	Н				
Spotted Salamander	0	0	o	3	3	3						
Blue-spotted Salamander	0	0	0	3	3	3						
Fairy Shrimp ³	0	0	0	3	3	3						

¹⁻Confidence level: 1 = <60%, 2 = 60-95%, 3 = >95%

c. Rarity criteria

■ Note any rare species associated with vernal pools. <u>Observations should be accompanied by photographs</u>.

	Method	of Veri	fication*	CL**		Method of Verification*		fication*	CL**
SPECIES	Р	Н	S	OL	SPECIES			OL	
Blanding's Turtle					Wood Turtle				
Spotted Turtle					Ribbon Snake				
Ringed Boghaunter					Other:				

^{*}Method of verification: P = Photographed, H = Handled, S = Seen

d. Optional observer recommendation:

SVP Potential SVP Non Significant VP Indicator Breeding Area

e. General vernal pool comments and/or observations of other wildlife:

POOL LACKS SUFFICIENT SUBMERGED WOODY VEGETATION TO SUPPORT SIGNIFICANT NUMBERS OF EGG MASSES. SLOW MOVING DRAINAGE.

Send completed form and supporting documentation to: VernalPool.MDIFW@maine.gov

NOTE: Digital submissions are preferred but if not possible, please mail to: Maine Department of Inland Fisheries and Wildlife

Attn: Vernal Pools 106 Hogan Road, Suite 1 Bangor, ME 04401

For MDIFW use only Reviewed by MDIFW Date: Initials:

This pool is: Significant Potentially Significant Not Significant due to: does not meet biological criteria.

but lacking critical data does not meet MDEP vernal pool criteria.

Comments:

²⁻Egg mass maturity: F= Fresh (<24 hrs), M= Mature (round embryos), A= Advanced (loose matrix, curved embryos), H= Hatched or Hatching

³⁻Fairy shrimp: X = present 4-Tadpoles/larvae: X = present

^{**}CL - Confidence level in species determination: 1= <60%, 2= 60-95%, 3= >95%

180.7 miles

IRS reimbursement: \$105.68



Head toward Hogan Rd. Go for 0.1 mi.

Then 0.11 miles



Turn left onto Hogan Rd. Go for 1.0 mi.

Then 0.99 miles



Turn sharp left and take ramp onto I-95 S toward Newport/Augusta. Go for 84.1 mi.

Then 84.15 miles



Take exit 103 toward I-295 S/Gardiner/ME-9/Brunswick/ME-126. Go for 0.7 mi.

Then 0.66 miles



Keep left onto I-295. Go for 51.6 mi.

Then 51.63 miles

Take the exit onto I-95 (Gold Star Memorial Hwy). Go for 37.0 mi.

Then 37.00 miles



Take exit 7 toward Yorks/US-1/The Berwicks/ME-91. Go for 0.3 mi.

Then 0.26 miles



Turn left onto Spur Rd. Go for 0.5 mi.

Then 0.46 miles



Turn right onto Blue Star Memorial Hwy (US-1). Go for 0.3 mi.

Then 0.33 miles

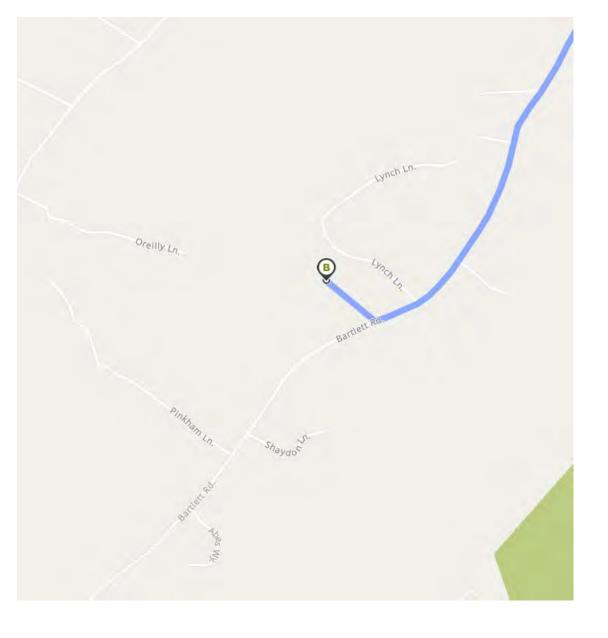


Turn left onto York St (US-1A). Go for 1.3 mi.

Turn right onto Lilac Ln (ME-103). Go for 2.2 mi.
Then 2.21 miles
Turn right onto Payne Rd. Go for 0.6 mi.
Then 0.62 miles
Turn left onto Bartlett Rd. Go for 0.8 mi.
Then 0.79 miles
Turn right. Go for 0.1 mi.
Then 0.11 miles
77 Bartlett Rd

Then 1.34 miles

Kittery, ME 03905-5640





Pool 2, April 4, 2023



Pool 2, April 26, 2023



Pool 2, April 26, 2023



Wood frog egg mass in Pool 2, April 26, 2023



Pool 2, May 26, 2023



Pool 2, May 3, 2023



Wood frog egg mass in Pool 2, May 3, 2023



Pool 2, May 3, 2023



Attachment 7

Stormwater Management Report

Attachment 8

Vehicle Trip Generation Estimate



Project #22-145

ESTIMATE OF TRAFFIC GENERATION

BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

The following traffic generation estimate is based on the Institute of Traffic Engineers (ITE) **Trip Generation Manual**, 11th Edition.

Land Use: Single Family Lot

Time Period	Trip Rate	# Dwelling Units	Trips
AM Peak Hour	0.75 Trips per lot	9	7
PM Peak Hour	0.99 Trips per lot	9	9

Attachment 9

Financial Capacity



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



Attachment 10

Correspondence with State Agencies



STATE OF MAINE DEPARTMENT OF INLAND FISHERIES & WILDLIFE 353 WATER STREET 41 STATE HOUSE STATION AUGUSTA ME 04333-0041



July 27, 2023

Michael Tadema-Wielandt Terradyn Consultants 565 Congress Street, Suite 310 Portland, ME 04101

RE: Information Request – 77 Bartlett Rd, Subdivsion, Kittery Project

Dear Michael:

PHONE: (207) 287-5254

Per your request received on June 13, 2023, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the 77 Bartlett Rd, Subdivision, Kittery project. As project details are lacking, our comments should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats - Of the eight species of bats that occur in Maine, the three *Myotis* species are afforded protection under Maine's Endangered Species Act (MESA, 12 M.R.S §12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are designated as Species of Special Concern (Rare): big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. Tri-colored bats are currently pending designation as a State Threatened species. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during spring/fall migration, the summer breeding season, and/or for overwintering. However, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

Eastern Ribbon Snake - There is a potential for occurrences of Eastern ribbon snake, a state Species of Special Concern, within the proposed project area. This rare species is a slender, semiaquatic snake often observed near the edges of emergent marshes, wet meadows, scrub-shrub wetlands, beaver impoundments, bogs, river and stream floodplains, and vegetated shorelines of ponds and lakes. Additionally, development projects that lead to significant increases in local traffic volume will likely lead to increased road kill and possible extirpation of the local population. If these habitats are present in the project area, we recommend that they be avoided and adequately buffered with a 250-foot undisturbed, intact vegetative cover.

Letter to Michael Tadema-Wielandt, Terradyn Consultants Comments RE: 77 Bartlett Rd, Subdivsion, Kittery July 27, 2023

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of Significant Vernal Pools (SVPs) in the project search area. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. SVPs are not included on MDIFW maps until project areas have been surveyed using approved methods and the survey results confirmed. Thus, their absence from resource maps is not necessarily indicative of an absence on the ground. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fish Habitat - We generally recommend maintaining 100-foot undisturbed vegetated buffers from the upland edge of all intermittent and perennial streams and any contiguous wetlands. Maintaining and enhancing buffers along these resources is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support fish and other aquatic species. Riparian buffers also provide critical habitat and important travel corridors for a variety of wildlife species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide for full aquatic passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis. Undersized crossings may inhibit these functions and become a frequent maintenance problem that causes reoccurring damage to the resource. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e., natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in providing habitat connectivity for fish and other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils can travel significant distances as well as transport other pollutants resulting in direct impacts to fish, other aquatic life, and their habitats. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Letter to Michael Tadema-Wielandt, Terradyn Consultants Comments RE: 77 Bartlett Rd, Subdivsion, Kittery July 27, 2023

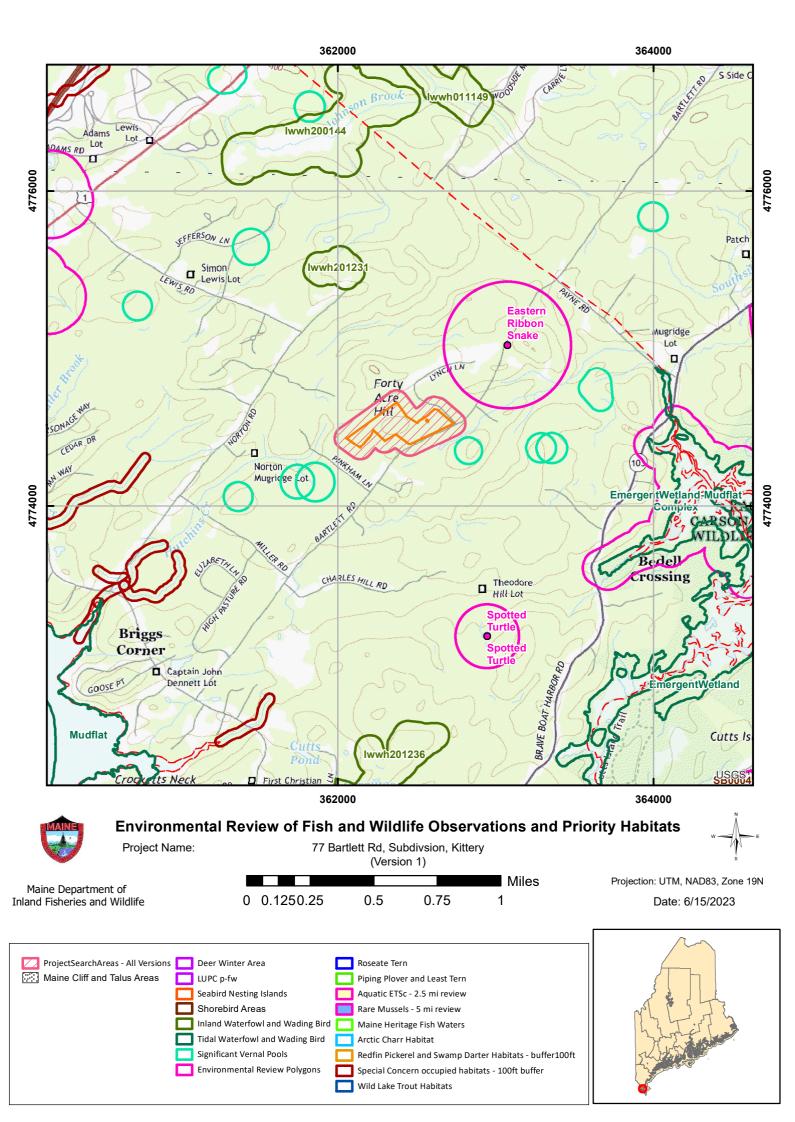
Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Emily Robinson

Wildlife Biologist

Couly Robinson





info@terradynconsultants.com www.terradynconsultants.com



June 6, 2023

JUN 1 2 2023

By 0856-23

Project # 22-145

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

SUBJECT: BARTLETT ROAD 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 Bartlett Road Subdivision in Kittery, Maine. The proposed project includes 9 single family lots located on a 19.30 acre parcel. The project will include construction of 808 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 two structures adjacent to the project that are believed to be more than fifty years old.

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 Town of Kittery 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

MichaelEMM

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.

State Historic Preservation Officer
Maine Aistoric Preservation Commission

6/21/2 Date



GOVERNOR

STATE OF MAINE DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY

177 STATE HOUSE STATION AUGUSTA, MAINE 04333

AMANDA E. BEAL COMMISSIONER

June 15, 2023

Michael Tadema-Wielandt Terradyn Consultants 565 Congress Street, Suite 201 Portland, ME 04101

Via email: <u>mtw@terradynconsultants.com</u>

Re: Rare and exemplary botanical features in proximity to: #22-145, Bartlett Road Subdivision, Kittery, 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 June 12, 2023 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Kittery, 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 Letter to Terradyn Comments RE: Bartlett Rd Subdivision, Kittery June 15, 2023 Page 2 of 2

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: #22-145, Bartlett Road Subdivision, Kittery, ME

Common Name	State Status	State Rank	Global Rank	Date Last Observed	Occurrence Number	Habitat
Allegheny Vine				0.000.100		
	Е	S1	G4	2013-10-08	15	Rocky summits and outcrops (non-forested, upland), Dry
American Sea-blite	е					
	Т	S2	G5	1905-08-18	6	Tidal wetland (non-forested, wetland)
	Т	S2	G5	2014-07-30	11	Tidal wetland (non-forested, wetland)
Beach Plum						
	E	S1	G4	1941-09-05	16	Rocky coastal (non-forested, upland)
Bitternut Hickory						
	E	S1	G5	1995-02-02	1	Hardwood to mixed forest (forest, upland)
Blunt Mountain-m	nint					
	PE	SH	G5	1916-08-09	3	Hardwood to mixed forest (forest, upland)
Bottlebrush Grass						
	SC	S3	G5	2018-07-13	28	Hardwood to mixed forest (forest, upland)
Bulbous Bitter-cres	SS					
	SC	S1	G5	2013-05-31	1	Forested Wetland
Central Hardwood	ls Oak Forest					
		S3	GNR	2021-06-07	1	
Coastal Dune-mars	sh Ecosystem					
		\$3	GNR	2014-07-30	2	
Dune Grassland						
		S2	G4?	1992-08-10	4	
Dwarf Glasswort						
	Т	S1	G5	1905-08-18	1	Tidal wetland (non-forested, wetland)
	Т	S1	G5	2000-08-08	6	Tidal wetland (non-forested, wetland)
Maine Natural Areas Pro	gram			Page 1 of 4		www.maine.gov/dacf/mnap

Dwarf Glasswort					
Т	S1	G5	2001-09-12	7	Tidal wetland (non-forested, wetland)
Estuary Bur-marigold					
SC	S3	G4	1936-07	10	Tidal wetland (non-forested, wetland)
Featherfoil					
Т	S1	G4	2017-05	12	Open water (non-forested, wetland),Forested wetland
Low Sedge Fen					
	\$3	GNR	2013-06-28	18	
Mountain-laurel					
SC	S2 S2	G5	1993	29	Conifer forest (forest, upland), Hardwood to mixed forest
Northern Blazing Star	<u> </u>		2300		come in control (in cont), apraira ji, in a mora to immed in control
T	S1	G5?T3	1922	7	Dry barrens (partly forested, upland)
Northern Wild Comfrey	31	03:13	1922	/	Dry barrens (partry forested, upland)
	C4	CET 4TE	2044 05 40	4.2	Franch developed Headers and to act and franch (franch
Cala History Farrat	S1	G5T4T5	2011-05-10	12	Forested wetland, Hardwood to mixed forest (forest,
Oak - Hickory Forest					
	S1	G4G5	2013-06-28	2	
Pale Green Orchis					
SC	S2	G4?T4Q	1916-08-19	25	Non-tidal rivershore (non-forested, seasonally wet), Open
Pocket Swamp					
	S2	G5	2013-05-31	22	
Rue-anemone					
E	S1	G5	2003-05-23	2	Hardwood to mixed forest (forest, upland)
Salt-hay Saltmarsh					
	\$3	G5	2014-07-30	7	
	\$3	G5	2010-07-07	19	
Saltmarsh False-foxglove					
SC	S3	G5	1960	4	Tidal wetland (non-forested, wetland)
SC		G5	1982	11	Tidal wetland (non-forested, wetland)
SC	S3	G5	2010-10-22	19	Tidal wetland (non-forested, wetland)
Maine Natural Areas Program			Page 2 of 4		www.maine.gov/dacf/mnan

Maine Natural Areas Program
Page 2 of 4
www.maine.gov/dacf/mnap

Saltmarsh False-foxe	glove					
	SC	S3	G5	2000-08-08	25	Tidal wetland (non-forested, wetland)
	SC	S3	G5	2011-10-21	37	Tidal wetland (non-forested, wetland)
	SC	S3	G5	2011-10-21	38	Tidal wetland (non-forested, wetland)
Sassafras						
	SC	S2	G5	1991-08-01	5	Hardwood to mixed forest (forest, upland),Old field/
	SC	S2	G5	1905-08-18	11	Hardwood to mixed forest (forest, upland),Old field/
	SC	S2	G5	2009-09-10	27	Hardwood to mixed forest (forest, upland),Old field/
Scarlet Oak						
	Е	S1	G 5	2006-08-02	7	Hardwood to mixed forest (forest, upland)
Sharp-lobed Hepation	ca					
	PE	SX	G5T5	1896-08-18	2	Hardwood to mixed forest (forest, upland)
Slender Knotweed						
	PE	SH	G 5	1896-08-26	2	Dry barrens (partly forested, upland)
Spicebush						
	SC	S3	G5	2006-08-03	2	Forested wetland
	SC	S 3	G5	2001-07-20	19	Forested wetland
	SC	S3	G5	2009-07-14	20	Forested wetland
Spotted Wintergree	n					
	Т	S2	G5	2000	21	Conifer forest (forest, upland), Hardwood to mixed forest
	Т	S2	G5	2015-10-17	23	Conifer forest (forest, upland), Hardwood to mixed forest
	Т	S2	G5	2005-04-10	25	Conifer forest (forest, upland), Hardwood to mixed forest
	Т	S2	G5	2013-05-22	35	Conifer forest (forest, upland), Hardwood to mixed forest
Stout Smartweed						
	PE	SH	G4G5	1978-08-29	1	
Swamp White Oak						
	Т	S1	G5	1989-04	7	Forested wetland
Tall Beak-rush						

 Maine Natural Areas Program
 Page 3 of 4
 www.maine.gov/dacf/mnap

Tidal Marsh Estua	ry Ecosystem					
		S3	GNR	2009	5	
Water-plantain Sp	earwort					
	PE	SH	G4	1907-07-08	4	Open water (non-forested, wetland)
	PE	SH	G4	1887-09-08	6	Open water (non-forested, wetland)
White Oak - Red C	ak Forest					
		S3	GNR	1995-07-27	3	
		S3	GNR	2012-06-06	11	
White Vervain						
	SC	S1?	G5	1905-08	1	Hardwood to mixed forest (forest, upland),Open wetland,
	SC	S1?	G5	1887-08-25	4	Hardwood to mixed forest (forest, upland),Open wetland,
White-topped Ast	er					
	E	S1	G5	1891	3	Dry barrens (partly forested, upland)
Wild Coffee						
	Е	S1	G5	2018-07-13	1	Non-tidal rivershore (non-forested, seasonally
	E	S1	G5	1961-07-25	6	Non-tidal rivershore (non-forested, seasonally
Wild Garlic						
	SC	S2	G 5	1983	9	Forested wetland, Hardwood to mixed forest (forest,
	SC	S2	G5	1990-07-31	19	Forested wetland, Hardwood to mixed forest (forest,

Date Exported: 2023-06-15 15:36

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	Critically Imperiled – At very high risk of extinction or elimination due to very restricted
G1	range, very few populations or occurrences, very steep declines, very severe threats, or
	other factors.
S2	Imperiled – At high risk of extinction or elimination due to restricted range, few
G2	populations or occurrences, steep declines, severe threats, or other factors.
S3	Vulnerable – At moderate risk of extinction or elimination due to a fairly restricted range,
G3	relatively few populations or occurrences, recent and widespread declines, threats, or
	other factors.
S4	Apparently Secure – At fairly low risk of extinction or elimination due to an extensive
G4	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	Secure – At very low risk of extinction or elimination due to a very extensive range,
G5	abundant populations or occurrences, and little to no concern from declines or threats.
SX	Presumed Extinct – Not located despite intensive searches and virtually no likelihood of
GX	rediscovery.
SH	Possibly Extinct – Known from only historical occurrences but still some hope of
GH	rediscovery.
S#S#	Range Rank – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of
G#G#	uncertainty about the status of the species or ecosystem.
SU	Unrankable – Currently unrankable due to lack of information or due to substantially
GU	conflicting information about status or trends.
GNR	Unranked – Global or subnational conservation status not yet assessed.
SNR	
SNA	Not Applicable – A conservation status rank is not applicable because the species or
GNA	ecosystem is not a suitable target for conservation activities (e.g., non-native species or
	ecosystems.
Qualifier	Definition
S#?	Inexact Numeric Rank – Denotes inexact numeric rank.
G#?	
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.
Т	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).

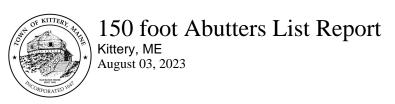
Rank	Definition
Α	Excellent – Excellent estimated viability/ecological integrity.
В	Good – Good estimated viability/ecological integrity.
С	Fair – Fair estimated viability/ecological integrity.
D	Poor – Poor estimated viability/ecological integrity.
E	Extant – Verified extant, but viability/ecological integrity not assessed.
Н	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



Attachment 11

Abutter Notices



Subject Property:

Parcel Number: 62-26 CAMA Number: 62-26

Property Address: 77 BARTLETT ROAD

Mailing Address: BEACHWOOD DEVELOPMENT FUND LP BEACHWOOD DEVELOPMENT FUND LP

PO BOX 261

KENNEBUNK, ME 04043

Abutters:

Parcel Number: 62-18 CAMA Number:

62-18

Property Address: PINKHAMS LANE

Mailing Address: REED, TED RAY REED, TED RAY

27 OLD GORDON ROAD BRENTWOOD, NH 03833-6213

Parcel Number:

62-19

62-19

CAMA Number: Property Address: 57 BARTLETT ROAD Mailing Address:

ICHOR REV. TRUST ICHOR REV. TRUST

P.O. BOX 102

KITTERY, ME 03904

Parcel Number: CAMA Number: 62-23

62-23

Property Address: 65 BARTLETT ROAD

Mailing Address:

PIERCE, PAUL R. PIERCE, PAUL R.

5361 MILL DAM ROAD

WAKE FOREST, NC 27587

Parcel Number: CAMA Number: 62-23-1

62-23-1

Property Address: 67 BARTLETT ROAD

Mailing Address: KIMBALL, ROBERT W KIMBALL,

ROBERT W

67 BARTLETT ROAD

KITTERY POINT, ME 03905-5640

Parcel Number:

62-24A

CAMA Number: 62-24A

Property Address: 78 BARTLETT ROAD

Mailing Address:

POWERS, COREY POWERS, COREY

78 BARTLETT ROAD

KITTERY POINT, ME 03905

Parcel Number: CAMA Number:

62-26A

62-26A

Property Address: 69 BARTLETT ROAD

RECUTR, KENNETH S RECUTR, Mailing Address:

KENNETH S

KENNETH S RECU TRUST 69 BARTLETT

ROAD

KITTERY POINT, ME 03905-5640

Parcel Number: CAMA Number: 62-29

62-29

Property Address: 82 BARTLETT ROAD

Property Address: 80 BARTLETT ROAD

Property Address: 84 BARTLETT ROAD

Mailing Address:

PAARLBERG, WILLIAM T PAARLBERG,

WILLIAM T

82 BARTLETT ROAD

KITTERY POINT, ME 03905-5636

Parcel Number: CAMA Number: 62-29-1 62-29-1

Mailing Address: NILES, KEVIN A NILES, KEVIN A

80 BARTLETT ROAD

KITTERY POINT, ME 03905-5636

Parcel Number: CAMA Number:

62-29-2

62-29-2

Mailing Address: BARAN, ADAM W BARAN, ADAM W

84 BARTLETT ROAD

KITTERY POINT, ME 03905



Property Address: 88 BARTLETT ROAD

Property Address: 4 LYNCH LANE

Property Address: 6 LYNCH LANE

Property Address: 10 LYNCH LANE

Property Address: 81 BARTLETT ROAD

68-4A-1

68-4A-2

68-4A-23

CAMA Number:

CAMA Number:

CAMA Number:

Parcel Number: 62-29-3 Mailing Address: MICHAEL LANDGARTEN 2012 REV.

CAMA Number: 62-29-3 TRUST MICHAEL LANDGARTEN 2012 Property Address: 86 BARTLETT ROAD

REV. TRUST

86 BARTLETT ROAD

KITTERY POINT, ME 03905

Parcel Number: 62-30 Mailing Address: MARTIN, HENRY I MARTIN, HENRY I CAMA Number: 62-30

88 BARTLETT ROAD

KITTERY POINT, ME 03905-5636

Parcel Number: 68-4A-1 Mailing Address: BLAKE, SHARON JEAN BLAKE, SHARON

JEAN

4 LYNCH LANE

KITTERY POINT, ME 03905

Parcel Number: 68-4A-2 Mailing Address: PELKEY, ROY N PELKEY, ROY N

6 LYNCH LANE

KITTERY POINT, ME 03905

Parcel Number: KITTERY LAND TRUST INC KITTERY 68-4A-23 Mailing Address:

> LAND TRUST INC **PO BOX 467**

KITTERY, ME 03904

Parcel Number: 68-4A-3 Mailing Address: FULLER, TR, MICHAEL FULLER, TR,

CAMA Number: 68-4A-3 MICHAEL Property Address: 7 LYNCH LANE 7 LYNCH LANE

KITTERY POINT, ME 03905

Parcel Number: 68-4A-4 Mailing Address: HERSCOTT, MICHAEL JOSEPH 68-4A-4 CAMA Number:

HERSCOTT, MICHAEL JOSEPH

81 BARTLETT ROAD KITTERY POINT, ME 03905

Parcel Number: 68-4A-8 Mailing Address: FULLER, TR, MICHAEL FULLER, TR,

CAMA Number: 68-4A-8 MICHAEL

Property Address: 9 LYNCH LANE 7 LYNCH LANE KITTERY POINT, ME 03905

Mailing Address: MAY, GRETCHEN MAY, GRETCHEN

Parcel Number: 68-4A-9 68-4A-9 CAMA Number: 11 LYNCH LANE

Property Address: 11 LYNCH LANE KITTERY POINT, ME 03905

MCINTIRE, KYLIE R. MCINTIRE, KYLIE R. Parcel Number: 68-7 Mailing Address:

CAMA Number: 68-7 90 BARTLETT ROAD

Property Address: 90 BARTLETT ROAD KITTERY POINT, ME 03905



August 3, 2023 Project #22-145

Abutting Property Owner:

This is to inform you that Terradyn Consultants, LLC plans to submit a Preliminary Subdivision Application to the Kittery Planning Board for a 9-lot residential subdivision on the parcel located at 77 Bartlett Road in Kittery on behalf of the property owner, Beachwood Development Fund, LP.

The application will be available for review at the Planning and Development Department located in Town Hall at 200 Rogers Road. You can contact the Planning and Development department for more information on the application review process.

Sincerely,

TERRADYN CONSULTANTS, LLC

Michael Tadema-Wielandt, P.E.

Vice President



TOWN OF KITTERY MAINE TOWN PLANNING AND DEVELOPMENT DEPARTMENT

200 Rogers Road, Kittery, Maine 03904 PHONE: (207) 475-1323 Fax: (207) 439-6806 www.kittery.org

APPLICATION: SUBDIVISION PLAN REVIEW

FEE FOR		M				M	\$50.00	/I OT C	ıR	☐ Minor Su	ıbdivisi	on:	not more than 4 lots	Da	Fee Paid: \$ te:
REVIEW	/:		\$500. 00 PLU		US		DWELLING UNIT			Major Subdivision: 5 or m		5 or more lots		Escrow Fee Paid: \$ te:	
PROPERTY DESCRIPTION		Parcel ID Physical Address		Мар	62	Lot	26	Zone(s): Bas Overlay MS4		R-R OZ- Yes		Total Land Area	19.11 acres		
					77 Bartlett Road										
				Nam	е	Beachwood Development Fund LP				Mailing Address		P.O. Box 261 Kennebunk ME 04043			
PROPER	_		r'S	Phor	ie	207-985-3646									
INFORM	IATION			Fax											
				Ema	I	geoff@bowleybuilders.com									
				Nam	е	Michael Tadema-Wielandt, P.E			t, P.E.	Name of Busir	ness	Terradyn Consultants, LLC		C	
APPLICA AGENT	NT'S		Phone		207-632-9010					565 Congress Street Suite 201 Portland ME 04101					
INFORM	IATION		Fax				Mailing Address								
Ema		Ema	İ	mtw@terradynconsultants.com											
Existing Use(s): The existing parcel is wooded with pockets of freshwater wetlands, and contains a single faresidential home with a paved driveway accessing Bartlett Road. An old cemetery is locate					single family										
		residential to the sout				hern half of the site.			driv	veway accessing bartiett Road. An old cemetery is located cer			is located centrally		
NO	Numb	er of	Propo	sed Lo	ots	g Sub		Sub	Subdivision Name		Bartlett Road Subdivision				
DESCRIPTION	Propo	sed S	Subdiv	ision:											
DESC	Design	v (ch	ock)			Conven	tional				т	otal	l Development		Landscaping
	Desigi	i. (Ci	ieckj		\checkmark	Cluster	Develo	oment	Re	esponsibilities: (check)	Other		7	Road	
PROJECT	Owne	rshin	: (chec	ck)	$\underline{\checkmark}$	_ Fee- Simple				<u></u> P	ost-	Construction Storm Wate	r Runoff	System Maintenance	
<u>-</u>	Ownership: (check)			_ Condominium											
_	Homeowner's Association			\checkmark	YESNO										

V	WAIVER REQUEST (Submittal Information or Development Standard)							
	Ordinance Section	Describe why this request is being made.						
	EXAMPLE 16.32.560 (B)- OFFSTREET PARKING.	***EXAMPLE*** Requesting a waiver of this ordinance since the proposed professional offices have a written agreement with the abutting Church owned property to share parking.						
S								
Waivers								
<u>-</u>								
Rela	Related Kittery Land Use and Development Code Provisions:							

16.10.8.2.5 Conditions or Waivers.

Conditions required by the Planning Board at the final plan review phase must have been met before the final plan may be given final approval unless so specified in the condition or specifically waived, upon written request by the applicant, by formal Planning Board action wherein the character and extent of such waivers which may have been requested are such that they may be waived without jeopardy to the public health, safety and general welfare.

16.7.4.1 Objectives Met. In granting modifications or waivers, the Planning Board must require such conditions as will, in its judgment, substantially meet the objectives of the requirements so waived or modified.

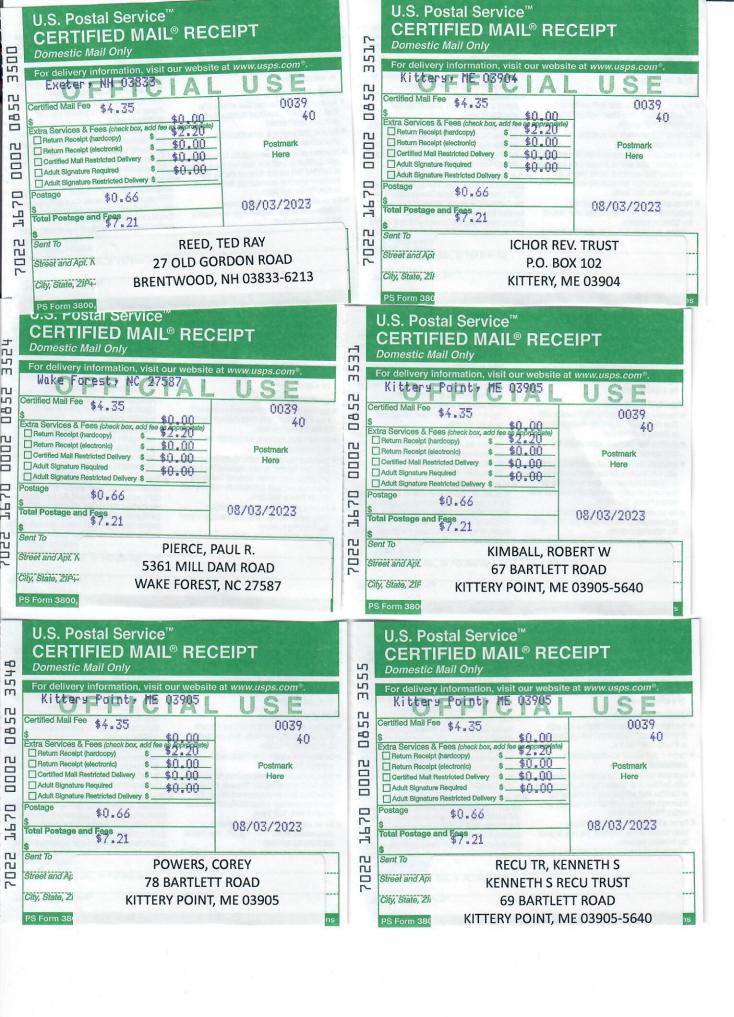
ABUTTER NOTIFICATION

16.10.5.1.1. Preliminary Plan Application Filing and Completeness Review. ... The application must be accompanied by a Plan and the required fee together with a certification the applicant has notified abutters by mail of the filing of the Plan application for approval.

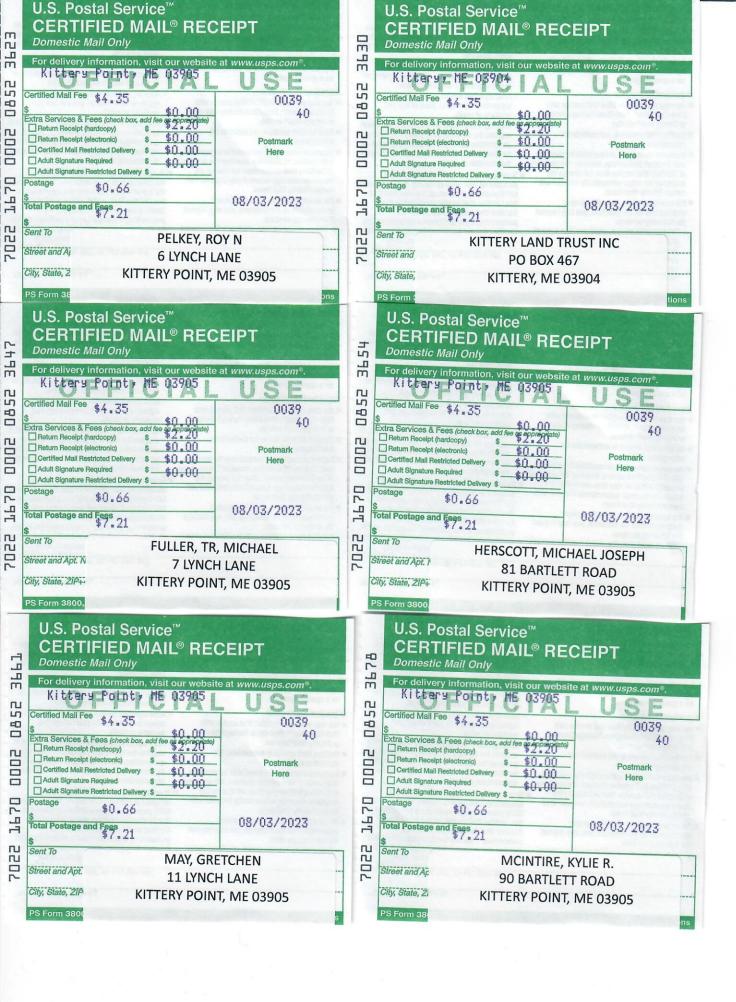
Submitted Application must include a list showing the names and addresses of the abutters notified and date mailed.

The Abutter Notice must include a copy of page one and where applicable page 2 of a signed Application.

I certify, to the bes	I certify, to the best of my knowledge, the information provided in this Application is true and correct, abutters to the project have					
been notified, and	been notified, and I will not deviate from the Plan submitted without notifying the Kittery Planning Department of any changes.					
Applicant's Agent	MichaelsVVVV	Owner's Agent	Michael E. M. W.			
Signature:	0/2/2022	Signature:	8/3/2023			
Date:	8/3/2023	Date:	0/3/2023			



U.S. Postal Service™ CERTIFIED MAIL® REC	EIPT	79	U.S. Postal Service™ CERTIFIED MAIL® REC Domestic Mail Only	CEIPT
For delivery information, visit our website Kittery Foint, NE 03905	at www.usps.com®.	E 5	For delivery information, visit our websit Kittery Point, IE 03905	e at www.usps.com®.
Certified Mail Fee \$4.35 \$ \$1.00 Extra Services & Fees (check box, add fee as exprepriate) Return Receipt (nardcopy) Return Receipt (electronic) Certified Mail Restricted Delivery Adult Signature Required \$0.00	0039 40 Postmark Here	0002 0852	Certified Mail Fee \$4.35 Extra Services & Fees (check box, add fee & appropriate) Return Receipt (hardcopy) Return Receipt (electronic) Certified Mail Restricted Delivery Adult Signature Required	0039 40 Postmark Here
Adult Signature Restricted Delivery \$ Postage \$0.66 \$ Total Postage and Facs 21 \$	08/03/2023	11670	Postage \$0.66 Total Postage and Fees \$7.21	08/03/2023
Sent To PAARLBERG, W Street and A 82 BARTLET City, State, 2 KITTERY POINT, M	TROAD	7022	Street and Apt. No., 80 BART City, State, ZIP+4* KITTERY POINT	KEVIN A LETT ROAD T, ME 03905-5636
U.S. Postal Service [™] CERTIFIED MAIL [®] REC Domestic Mail Only		E	U.S. Postal Service™ CERTIFIED MAIL® REC	CEIPT
For delivery information, visit our website Kittery Foint (15 03985) Certified Mall Fee \$4,35 \$ Extra Services & Fees (check box, add fee \$25000000000000000000000000000000000000	at www.usps.com®. USE 0039 40 Postmark Here	0002 0852 359	For delivery information, visit our website Kittery Foint, HE 03905 Certified Mall Fee \$4.35 \$ Extra Services & Fees (check box, add fee exprepriate) Return Receipt (hardcopy) Return Receipt (electronic) Certified Mall Restricted Delivery \$ Adult Signature Required Adult Signature Restricted Delivery \$	e at www.usps.com*. USE 0039 40 Postmark Here
\$ Total Postage and Fees \$ 7.21	08/03/2023	1670	Postage \$0.66 \$ Total Postage and \$95.21	08/03/2023
BARAN, ADA Street and A; City, State, 2 PS Form 36 BARAN, ADA 84 BARTLETT KITTERY POINT,	ROAD	7022	Sent To MICHAEL LANDGAR Street and A TRUST City, State, 2 86 BARTLETT PS Form 31 KITTERY POINT,	ROAD
U.S. Postal Service [™] CERTIFIED MAIL [®] REC Domestic Mail Only For delivery information, visit our website		16	U.S. Postal Service [™] CERTIFIED MAIL [®] REC Domestic Mail Only	EIPT
Kitters Foint, HE 03905 Certified Mail Fee \$4,35 \$ \$0.00 Extra Services & Fees (check box, add fee at appropriate)	USE 0039 40	1852 36	For delivery information, visit our website Kittery Point, ME 03905 Certified Mail Fee \$4.35	at www.usps.com*. USE 0039 40
Return Receipt (hardcopy) \$ \$2.20 Return Receipt (electronic) \$ \$0.00 Certified Mail Restricted Delivery \$ \$0.00 Adult Signature Required \$ \$0.00 Adult Signature Restricted Delivery \$ Postage \$0.66	Postmark Here	2000	Extra Services & Fees (check box, add fee a expressible) Return Receipt (hardcopy)	Postmark Here
S Total Postage and Fees 7 21	08/03/2023	167	Postage \$0.66 Fotal Postage and Fee: 21	08/03/2023
MARTIN, HE Street and A; 88 BARTLETT City, State, Z KITTERY POINT, ME PS Form 38	ROAD	702	Sent To BLAKE, SHARON Street and 4 LYNCH LAN KITTERY POINT, M PS Form	NE





BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

STORMWATER MANAGEMENT REPORT

PREPARED FOR:

P.O. BOX 261 KENNEBUNK, MAINE 04043

PREPARED BY:

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

August 2023

Introduction

The following Stormwater Management Plan has been prepared for Bartlett Road Subdivision to evaluate stormwater runoff and erosion control for the proposed 9-lot subdivision.

Site Calculations

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

Total Property Area	19.30 Ac (+/-)
Existing Impervious Area	0.18 Ac
Existing Developed Area	0.44 Ac
Proposed New Impervious	0.43 Ac
Proposed New Developed	0.93 Ac
Total Impervious Area	0.56 Ac
Total Developed Area	1.19 Ac

Existing Conditions

The project site is approximately 19.30 acres in size and is identified as Lot 26 on Kittery Tax Map 62. The site is located in the Residential-Rural District with a small area in the Resource Protection Overlay Zone.

The parcel contains an existing single-family home with a paved driveway connecting to Bartlett Road and a small cemetery in the eastern part of the site. Most of the parcel is undeveloped woodland with pockets of freshwater wetlands. Several stone walls are located throughout the site.

A wetland and vernal pool study was conducted on the site by Longview Partners in the summer of 2022. There are approximately 2 acres of forested freshwater wetlands on the site. A wetland on the southern site boundary meets the Maine DEP's criteria for a "Wetland of Special Significance". This wetland also has a mapped flood zone associated with it.

Two potential vernal pools were identified on the site and studied in the spring of 2023 to determine if they have characteristics to be considered significant wildlife habitat by the Maine Department of Environmental Protection. The vernal pools were determined to be not significant and are regulated as freshwater wetlands.

Longview Partners also conducted a High Intensity Soil Survey of the site. Native soils are primarily loamy glacial till and bedrock outcrops in upland areas with wetland soils in low-lying areas. A copy of the High Intensity Soil Survey is attached herein.

The site is generally bisected by two ridgelines, sloping gradually at approximately 2%. Stormwater from the site is split by the ridges and flows in four directions toward the on site wetlands.

The following existing conditions figures are provided in Appendix 1:

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

Proposed Project

The proposed project includes of a 808' long dead-end road with 9 proposed house lots. The project will have 13.14 acres of open space surrounding the development. Each proposed lot ranges in size from 0.49 acres to 0.79 acres and meets all dimensional standards of the town's zoning ordinance. The existing house will occupy Lot 8 and will be accessed from the proposed road.

Lots will be served by public water and individual subsurface wastewater disposal systems.

Applicable Design Standards

The Town of Kittery's Ordinance Title 16, Part E, Section 4-a Stormwater runoff requires: *All components of the stormwater management system must be designed to limit peak discharge to predevelopment levels for the two-year and twenty-five-year, twenty-four-hour duration, frequencies, based on the rainfall data for Portsmouth, NH.*

The project includes 0.43 Ac. of new impervious area and 0.93 Ac. of new developed area and does not require a stormwater permit-by rule in compliance with MDEP Chapter 500.

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 Portsmouth, New Hampshire 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.

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 five (5) subcatchments and four (4) study points. Below is a summary of the study points:

Study Point SP1 – Study Point 1 is the eastern parcel boundary where on site flow travels through culvert under Lynch Lane and to Brave Boat Harbor.

Study Point SP2 – Study Point 2 is the southern parcel boundary outletting through a culvert under Bartlett Road, to Smith Brook and to Brave Boat Harbor.

Study Point SP3 – Study Point 3 is the southern boundary where on site flow collects in a wetland and travels through a culvert under Bartlett Road and to Brave Boat Harbor.

Study Point SP4 – Study Point 4 is the western site boundary where on site flow collects in a wetland and travels to Spruce Creek.

A Pre-Development Watershed Map, showing sub-watershed boundaries, time of concentration flow paths, and Study Points is provided in Appendix 5. The Pre-development HydroCAD model is attached in Appendix 6.

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	7.15	15.22	20.21	
SP2	2.52	5.49	7.35	
SP3	8.49	18.53	24.81	
SP4	6.65	14.51	19.43	

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

Post-Development Conditions

Stormwater runoff from the roadway will be managed with open ditches. The project was designed to meet the stormwater performance standards of the Town of Kittery Subdivision Regulations. Runoff from the cul-de-sac will be discharged to a level spreader and forested stormwater buffer for treatment. The remainder of the proposed road will drain to vegetated swales located on either side of the road, which will provide an opportunity for sediment capture and runoff absorption. The stormwater management system will attenuate peak flow rates from the developed areas so peak discharge rates from the site will be limited to pre-development levels.

The proposed post-development HydroCAD model includes twelve (12) 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 5. The Post-development HydroCAD model is attached in Appendix 7.

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	6.65	14.37	19.18	
SP2	2.51	5.27	6.98	
SP3	8.43	18.15	24.24	
SP4	6.69	14.42	19.23	

Peak Flow Analysis

The results of the pre-development and post-development models were analyzed 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)			
	oint SP1				
2-Year	7.15	6.89			
10-Year	15.22	14.95			
25-Year	20.21	19.91			
	Study P	oint SP2			
2-Year	2.52	2.51			
10-Year	5.49	5.27			
25-Year	7.35	6.98			
	Study P	oint SP3			
2-Year	8.49	8.43			
10-Year	18.53	18.15			
25-Year	24.81	24.24			
	Study P	oint SP4			
2-Year	6.65	6.65			
10-Year	14.51	14.37			
25-Year	19.43	19.18			

The peak rates of runoff at all four study points are expected to decrease slightly in the 2, 10 & 25-year storm events. The reduction in peak flow rates 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.

Summary

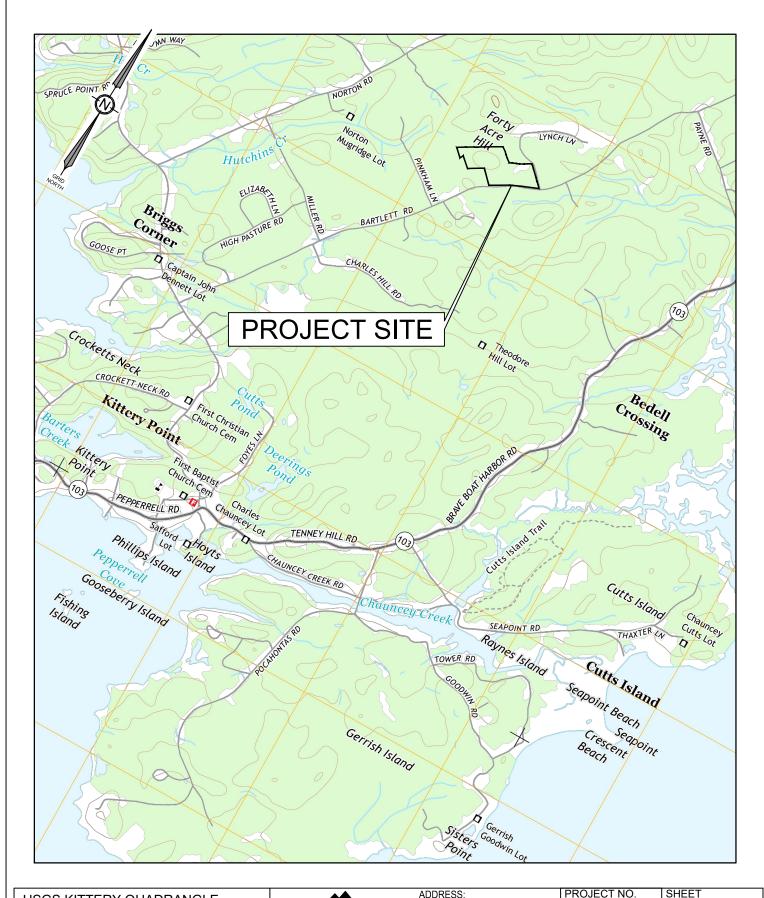
Based upon the results of this evaluation, the proposed project is not expected to cause flooding, erosion, or other significant adverse effects downstream of the site.

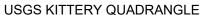
Appendices

- 1 Existing Conditions Figures
- 2 Watershed Maps
- 3 Pre-Development HydroCAD Model
- 4 Post-Development HydroCAD Model
- 5 Housekeeping
- 6 Inspection and Maintenance Manual

APPENDIX 1

EXISTING CONDITIONS FIGURES





PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

PREPARED FOR: BEACHWOOD DEVELOPMENT FUND LP PO BOX 260 KENNEBUNK, MAINE 04043



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

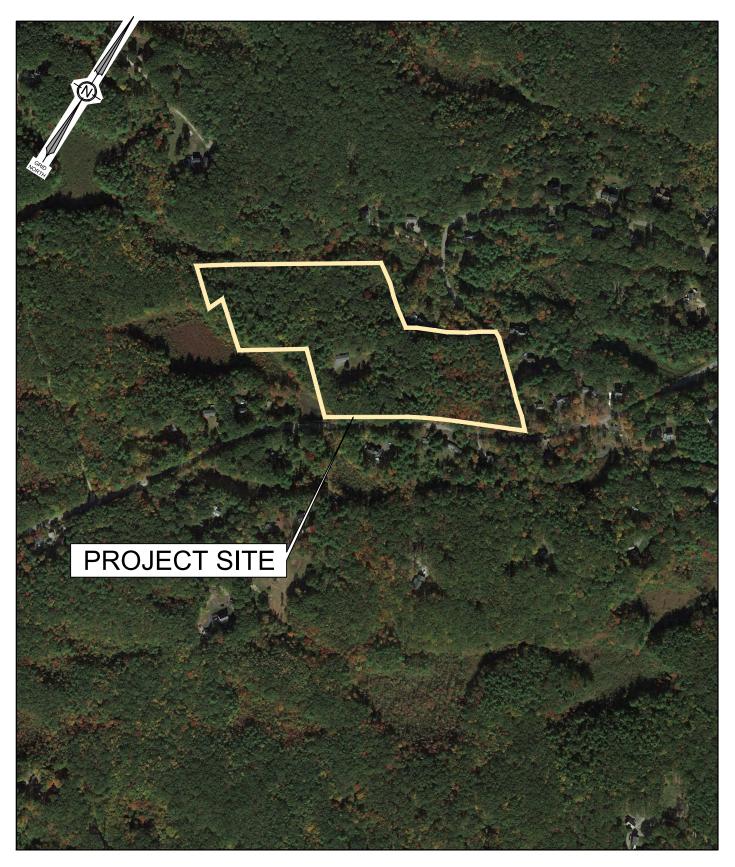
PROJECT NO. 22-145 DATE

1 OF

SCALE 1" = 2,000'

3/20/2023

5



AERIAL MAP

PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

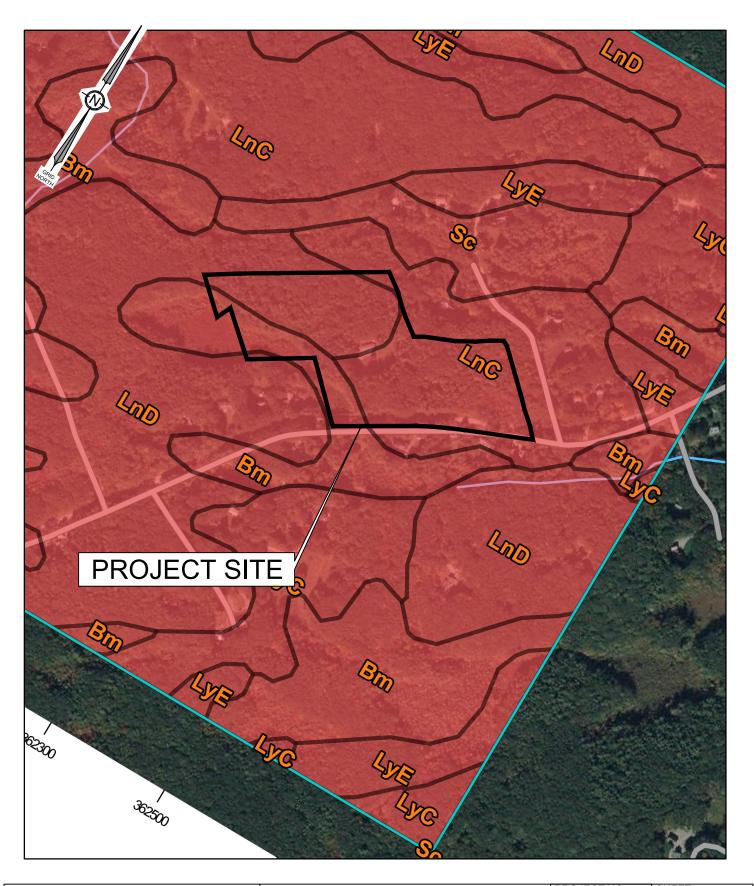
PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND LP PO BOX 260 KENNEBUNK, MAINE 04043



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

www.terradynconsultants.com

PROJECT NO. SHEET 22-145 2 DATE OF 3/20/2023 SCALE 5 1" = 500'



MEDIUM INTENSITY SOIL SURVEY

PROJECT:

BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND LP
PO BOX 260
KENNEBUNK, MAINE 04043



ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260 PHONE: (207) 926-5111

WEB SITE: www.terradvnconsulta

CONSULTANTS, LLC www.terradynconsultants.com
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PROJECT NO. SHEET

22-145

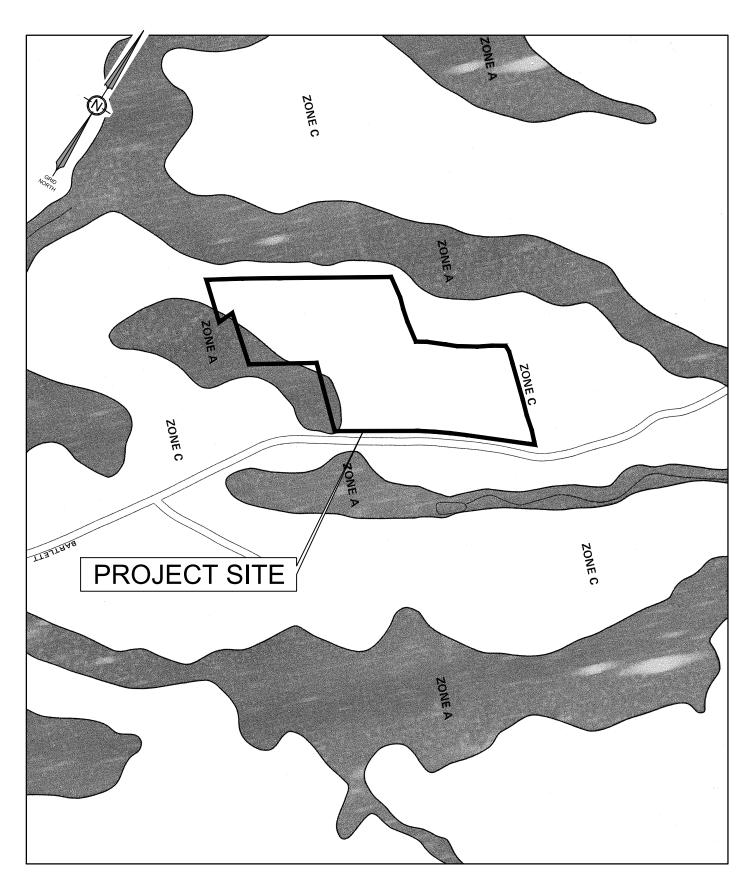
DATE

3/20/2023

OF

3/20/2023 SCALE 1" = 500'

3 OF 5



FLOOD INSURANCE RATE MAP

PROJECT:

BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

PREPARED FOR: BEACHWOOD DEVELOPMENT FUND LP PO BOX 260

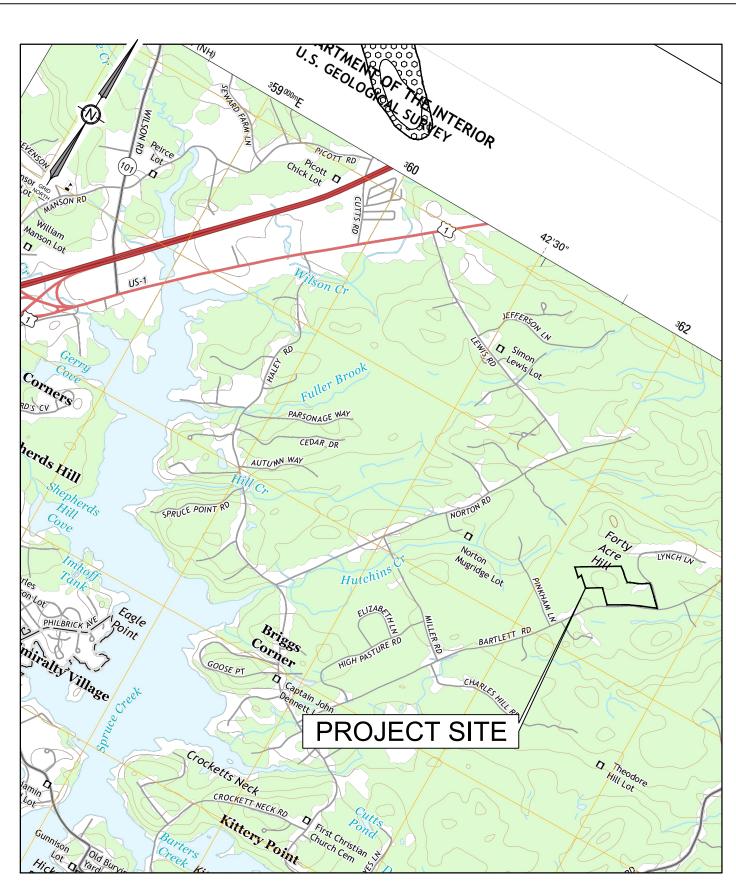
KENNEBUNK, MAINE 04043

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 22-145 4 DATE OF 3/20/2023 SCALE 5

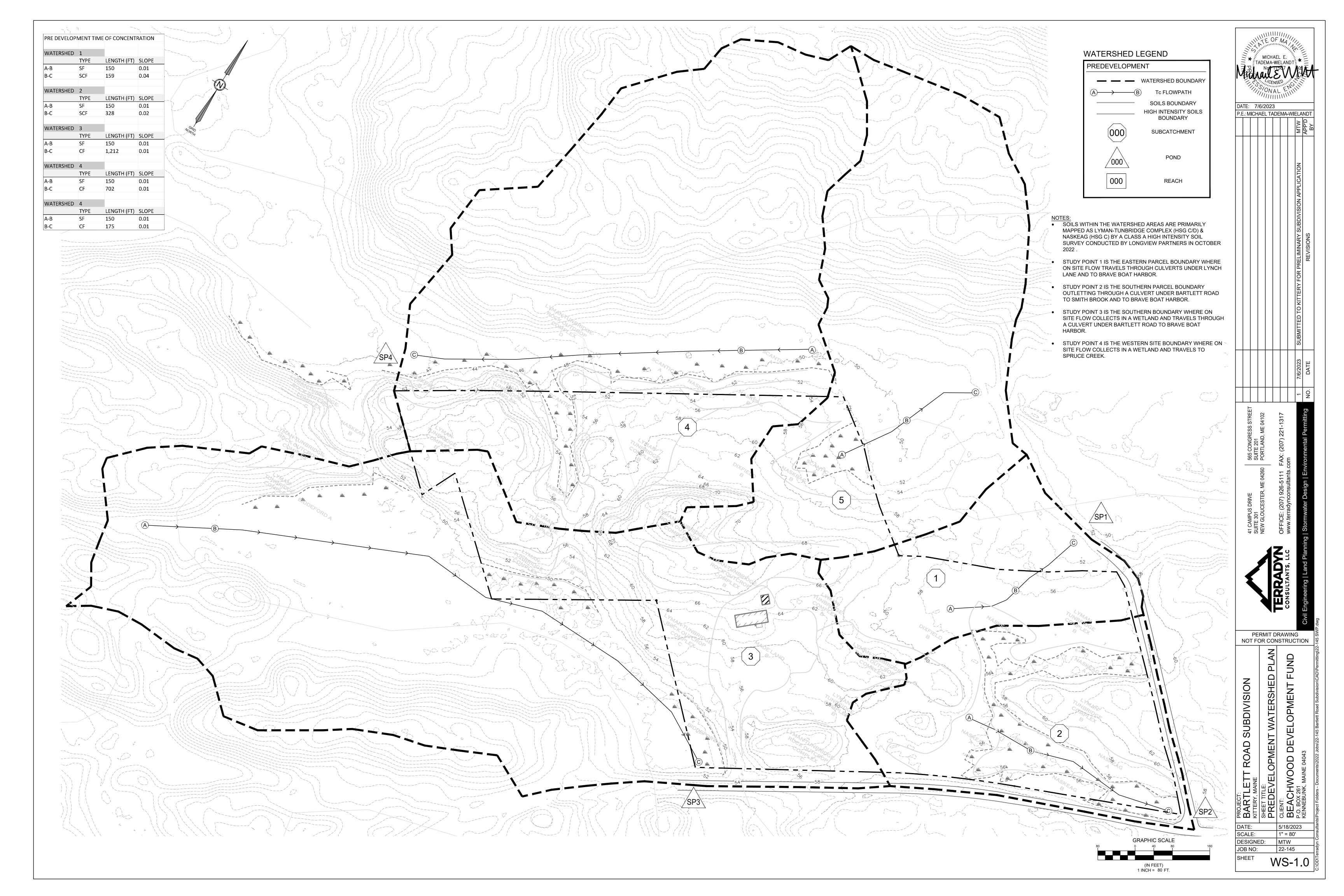
1" = 500'

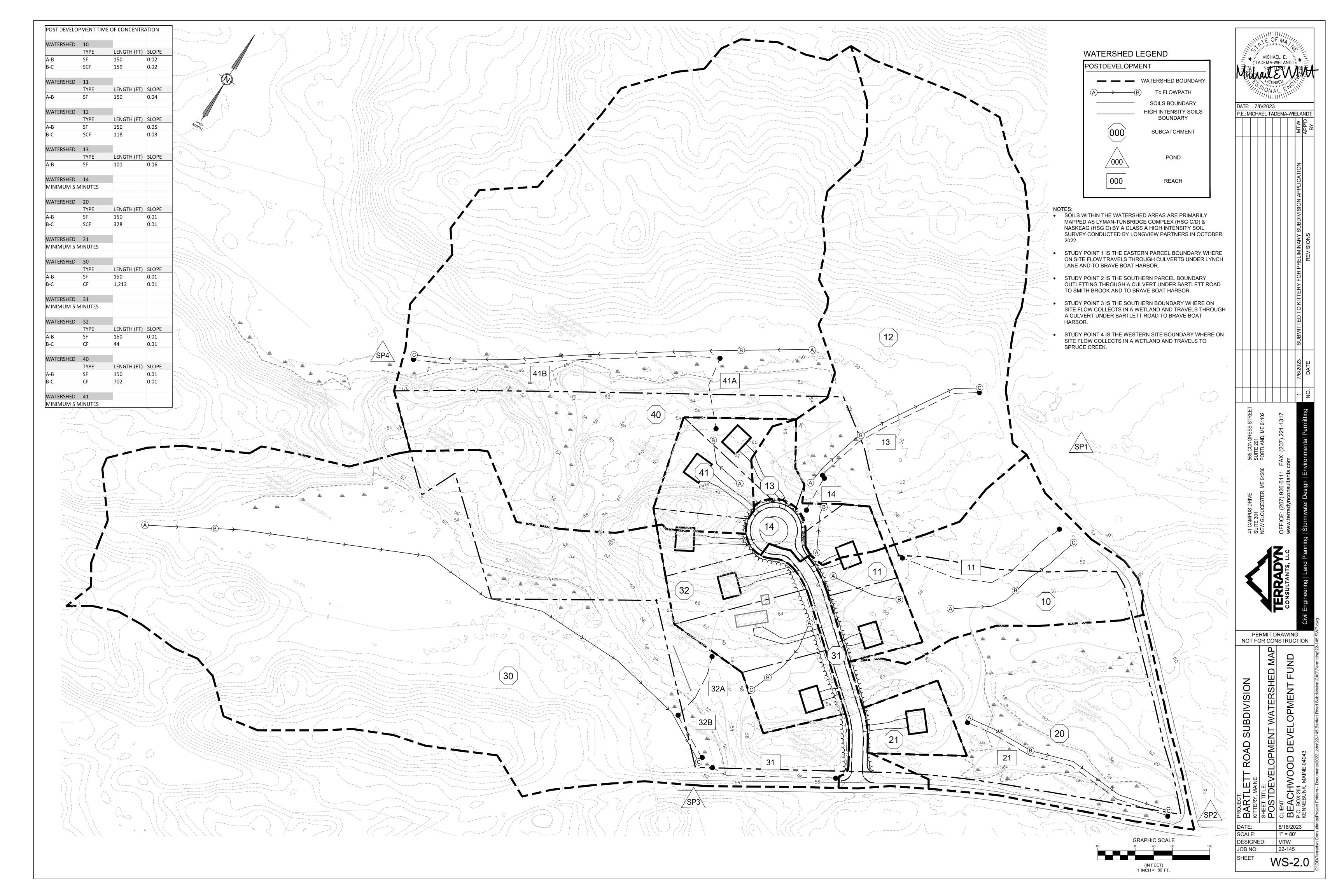


ADDRESS: PROJECT NO. SHEET SIGNIFICANT SAND & GRAVEL AQUIFER MAP 41 CAMPUS DRIVE, SUITE 301 22-145 NEW GLOUCESTER, ME 04260 5 PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE PHONE: DATE (207) 926-5111 OF 3/20/2023 WEB SITE: PREPARED FOR: CONSULTANTS, LLC www.terradynconsultants.com BEACHWOOD DEVELOPMENT FUND LP SCALE 5 Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting PO BOX 260 1" = 500' KENNEBUNK, MAINE 04043

APPENDIX 2

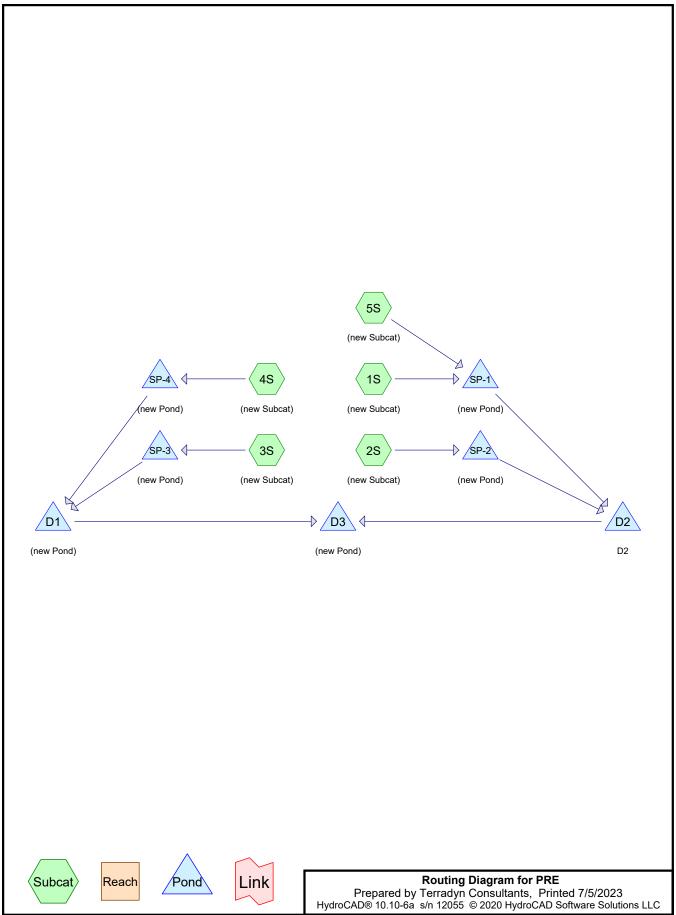
WATERSHED MAPS





APPENDIX 3

PRE-DEVELOPMENT HYDROCAD MODEL











Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.230	80	1/2 acre lots, 25% imp, HSG C (1S)
1.607	85	1/2 acre lots, 25% imp, HSG D (3S, 5S)
0.375	98	BARTLETT ROAD (2S, 3S)
0.052	98	EXISTING HOUSE (3S)
0.126	98	LOT DRIVEWAY (3S)
0.171	98	Lynch Ln (1S, 2S, 5S)
11.056	70	Woods, Good, HSG C (1S, 2S, 3S, 4S, 5S)
41.658	77	Woods, Good, HSG D (1S, 2S, 3S, 4S, 5S)
55.274	76	TOTAL AREA

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 3

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 1S: (new Subcat)

Runoff Area=158,935 sf 3.69% Impervious Runoff Depth>0.90"

Flow Length=309' Tc=41.3 min CN=77 Runoff=1.98 cfs 0.274 af

Subcatchment 2S: (new Subcat)

Runoff Area=229,714 sf 3.99% Impervious Runoff Depth>0.85"

Flow Length=478' Tc=46.3 min CN=76 Runoff=2.52 cfs 0.373 af

Subcatchment 3S: (new Subcat)

Runoff Area=869,221 sf 3.04% Impervious Runoff Depth>0.84"

Flow Length=1,362' Slope=0.0100 '/' Tc=56.8 min CN=76 Runoff=8.49 cfs 1.405 af

Subcatchment 4S: (new Subcat)

Runoff Area=718,114 sf 0.00% Impervious Runoff Depth>0.84"

Flow Length=852' Slope=0.0100 '/' Tc=62.0 min CN=76 Runoff=6.65 cfs 1.158 af

Subcatchment 5S: (new Subcat) Runoff Area=431,736 sf 2.34% Impervious Runoff Depth>0.90" Flow Length=325' Slope=0.0100'/ Tc=44.4 min CN=77 Runoff=5.18 cfs 0.744 af

Pond D1: (new Pond)

Inflow=15.07 cfs 2.563 af

Primary=15.07 cfs 2.563 af

Pond D2: D2 Inflow=9.66 cfs 1.392 af Primary=9.66 cfs 1.392 af

Pond D3: (new Pond)

Inflow=23.95 cfs 3.954 af

Primary=23.95 cfs 3.954 af

Pond SP-1: (new Pond)Inflow=7.15 cfs 1.019 af
Primary=7.15 cfs 1.019 af

Pond SP-2: (new Pond) Inflow=2.52 cfs 0.373 af Primary=2.52 cfs 0.373 af

Pond SP-3: (new Pond) Inflow=8.49 cfs 1.405 af Primary=8.49 cfs 1.405 af

Pond SP-4: (new Pond) Inflow=6.65 cfs 1.158 af

Primary=6.65 cfs 1.158 af

Total Runoff Area = 55.274 ac Runoff Volume = 3.954 af Average Runoff Depth = 0.86" 97.86% Pervious = 54.091 ac 2.14% Impervious = 1.183 ac

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

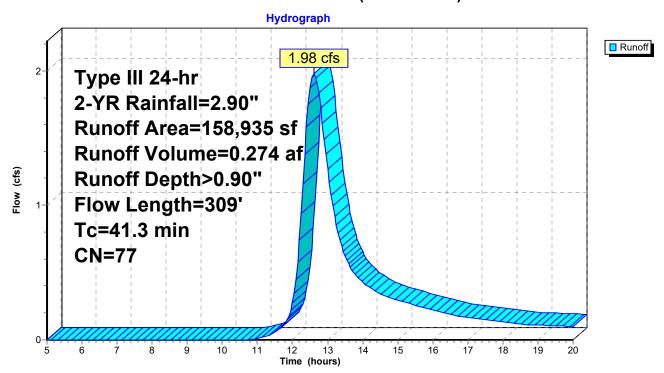
Summary for Subcatchment 1S: (new Subcat)

Runoff = 1.98 cfs @ 12.61 hrs, Volume= 0.274 af, Depth> 0.90" Routed to Pond SP-1 : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN [Description		
*		3,368	98 L	ynch Ln		
		10,000	80 1	/2 acre lots	s, 25% imp	, HSG C
		20,000	70 V	Voods, Go	od, HSG C	
_	1	25,567	77 V	Voods, Go	od, HSG D	
	1	58,935	77 V	Veighted A	verage	
	1	53,067	ç	6.31% Per	vious Area	
	5,868 3.69% Impervious Area					a
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	38.6	150	0.0100	0.06		Sheet Flow, A-B
						Woods: Light underbrush n= 0.400 P2= 3.30"
	2.6	159	0.0400	1.00		Shallow Concentrated Flow, B-C
_						Woodland Kv= 5.0 fps
	41.3	309	Total			

Subcatchment 1S: (new Subcat)



HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 5

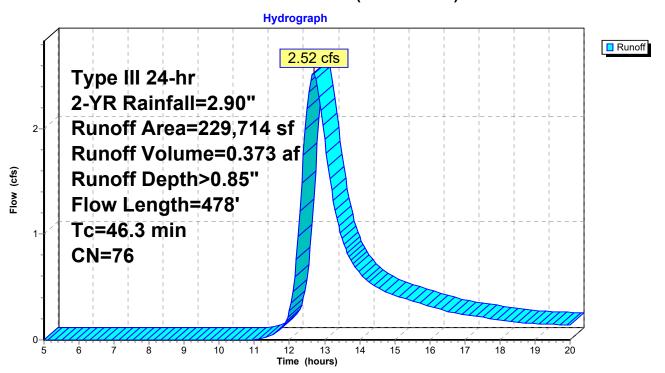
Summary for Subcatchment 2S: (new Subcat)

Runoff = 2.52 cfs @ 12.69 hrs, Volume= 0.373 af, Depth> 0.85" Routed to Pond SP-2 : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

_	Α	rea (sf)	CN [Description		
*		1,470	98 L	ynch Ln		
*		7,692	98 E	ÄRTLETT	ROAD	
		52,000	70 V	Noods, Go	od, HSG C	
_	1	68,552	77 \	Voods, Go	od, HSG D	
	229,714 76 Weighted Average					
	2	20,552	ç	96.01% Pei	vious Area	
	9,162 3.99% Impervious Area					a
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	38.6	150	0.0100	0.06		Sheet Flow, A-B
						Woods: Light underbrush n= 0.400 P2= 3.30"
	7.7	328	0.0200	0.71		Shallow Concentrated Flow, B-C
_						Woodland Kv= 5.0 fps
	46.3	478	Total			

Subcatchment 2S: (new Subcat)



Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 6

Summary for Subcatchment 3S: (new Subcat)

Runoff = 8.49 cfs @ 12.82 hrs, Volume= 1.405 af, Depth> 0.84"

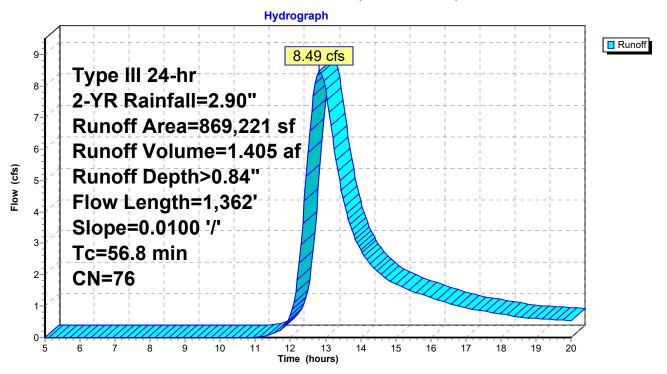
Routed to Pond SP-3 : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN [Description		
	5	69,212	77 \	Voods, Go	od, HSG D	
	2	243,626	70 \	Voods, Go	od, HSG C	
*		5,490	98 L	OT DRIVE	WAY	
*		8,628	98 E	BARTLETT	ROAD	
*		2,265	98 E	EXISTING	HOUSE	
		40,000	85 1	I/2 acre lot	s, 25% imp	, HSG D
	8	869,221	76 \	Veighted A	verage	
	8	342,838	ç	96.96% Per	vious Area	
26,383 3.04% Impervious Area					ervious Area	a
	Тс	Length	Slope		Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	38.6	150	0.0100	0.06		Sheet Flow, A-B
						Woods: Light underbrush n= 0.400 P2= 3.30"
	18.2	1,212	0.0100	1.11	18.06	Trap/Vee/Rect Channel Flow, B-C
						Bot.W=30.00' D=0.50' Z= 5.0 '/' Top.W=35.00'
						n= 0.080 Earth, long dense weeds
	56.8	1.362	Total			

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Subcatchment 3S: (new Subcat)



HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 4S: (new Subcat)

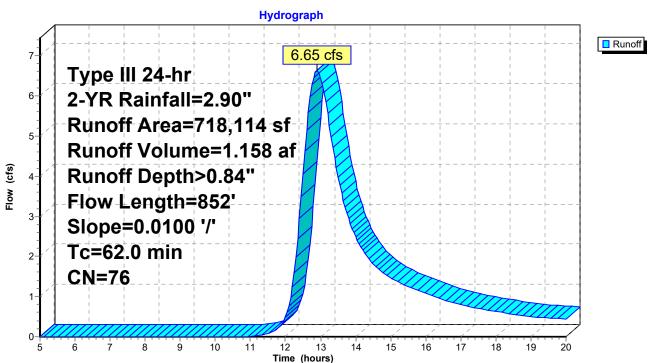
Runoff = 6.65 cfs @ 12.90 hrs, Volume= 1.158 af, Depth> 0.84" Routed to Pond SP-4 : (new Pond)

reduced to 1 ond of -4 : (new 1 ond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

_	Α	rea (sf)	CN [Description					
592,160 77 Woods, Good, HSG D									
125,954 70 Woods, Good, HSG C									
718,114 76 Weighted Average									
718,114 100.00% Pervious Area					ervious Are	a			
	Tc	Length	Slope	,	Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	38.6	150	0.0100	0.06		Sheet Flow, A-B			
						Woods: Light underbrush n= 0.400 P2= 3.30"			
	23.4	702	0.0100	0.50		Shallow Concentrated Flow, B-C			
_						Woodland Kv= 5.0 fps			
	62.0	852	Total	•					

Subcatchment 4S: (new Subcat)



Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

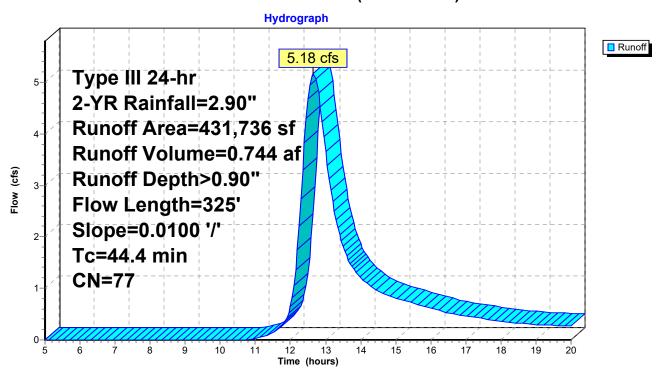
Summary for Subcatchment 5S: (new Subcat)

Runoff = 5.18 cfs @ 12.65 hrs, Volume= 0.744 af, Depth> 0.90" Routed to Pond SP-1 : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

_	Α	rea (sf)	CN [Description		
		30,000			s, 25% imp	
		40,000	70 V	Voods, Go	od, HSG C	
*		2,600	98 L	ynch Ln		
359,136 77 Woods, Good, HSG D					od, HSG D	
	4	31,736	77 V	Veighted A	verage	
	4	21,636	ç	7.66% Per	vious Area	
	10,100 2.34% Impervious Area					a
		,		•		
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	38.6	150	0.0100	0.06		Sheet Flow, A-B
						Woods: Light underbrush n= 0.400 P2= 3.30"
	5.8	175	0.0100	0.50		Shallow Concentrated Flow, B-C
_						Woodland Kv= 5.0 fps
	44.4	325	Total	•	•	

Subcatchment 5S: (new Subcat)



Summary for Pond D1: (new Pond)

Inflow Area = 36.440 ac, 1.66% Impervious, Inflow Depth > 0.84" for 2-YR event

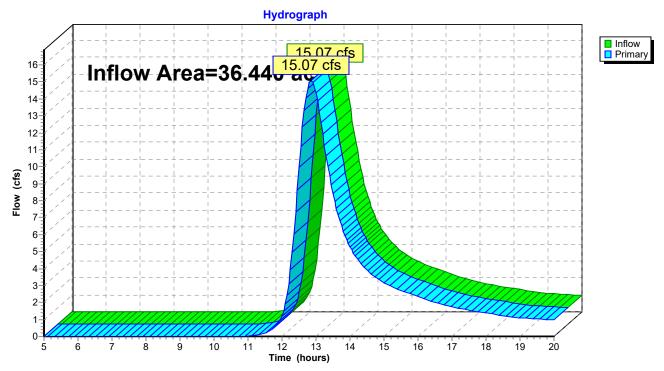
Inflow = 15.07 cfs @ 12.86 hrs, Volume= 2.563 af

Primary = 15.07 cfs @ 12.86 hrs, Volume= 2.563 af, Atten= 0%, Lag= 0.0 min

Routed to Pond D3: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond D1: (new Pond)



Summary for Pond D2: D2

Inflow Area = 3.06% Impervious, Inflow Depth > 0.89" for 2-YR event 18.833 ac,

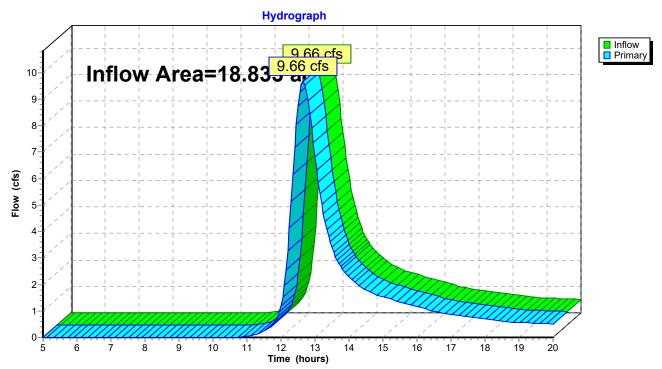
Inflow 1.392 af

9.66 cfs @ 12.65 hrs, Volume= 9.66 cfs @ 12.65 hrs, Volume= Primary 1.392 af, Atten= 0%, Lag= 0.0 min

Routed to Pond D3: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond D2: D2



HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 12

Summary for Pond D3: (new Pond)

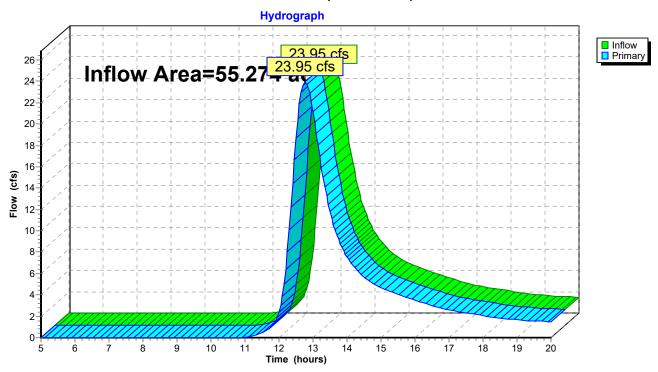
55.274 ac, 2.14% Impervious, Inflow Depth > 0.86" for 2-YR event Inflow Area =

Inflow 3.954 af

23.95 cfs @ 12.77 hrs, Volume= 23.95 cfs @ 12.77 hrs, Volume= 3.954 af, Atten= 0%, Lag= 0.0 min Primary

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond D3: (new Pond)



Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 13

Summary for Pond SP-1: (new Pond)

Inflow Area = 13.560 ac, 2.70% Impervious, Inflow Depth > 0.90" for 2-YR event

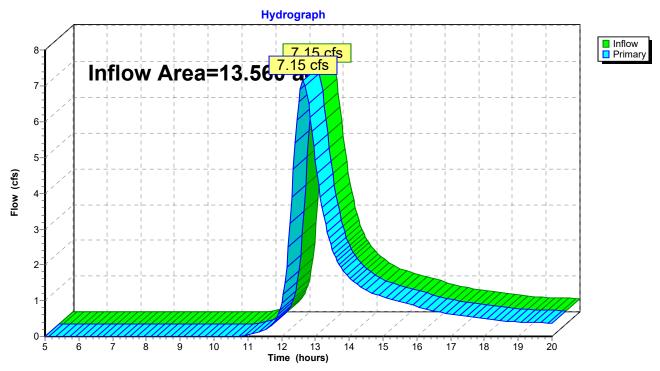
Inflow 1.019 af

7.15 cfs @ 12.64 hrs, Volume= 7.15 cfs @ 12.64 hrs, Volume= 1.019 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D2: D2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-1: (new Pond)



PRE

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 14

Summary for Pond SP-2: (new Pond)

Inflow Area = 3.99% Impervious, Inflow Depth > 0.85" for 2-YR event 5.274 ac,

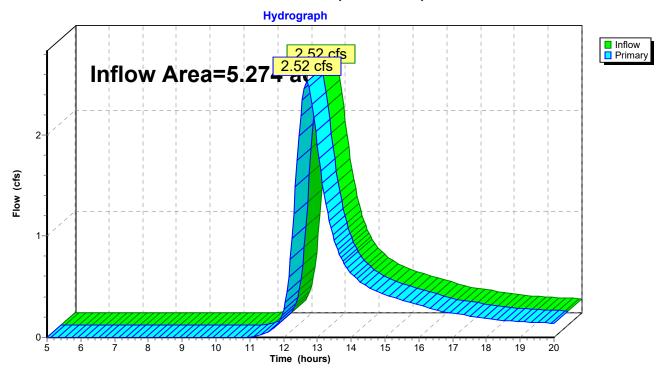
Inflow 0.373 af

2.52 cfs @ 12.69 hrs, Volume= 2.52 cfs @ 12.69 hrs, Volume= 0.373 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D2: D2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-2: (new Pond)



HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 15

Summary for Pond SP-3: (new Pond)

Inflow Area = 3.04% Impervious, Inflow Depth > 0.84" for 2-YR event 19.955 ac,

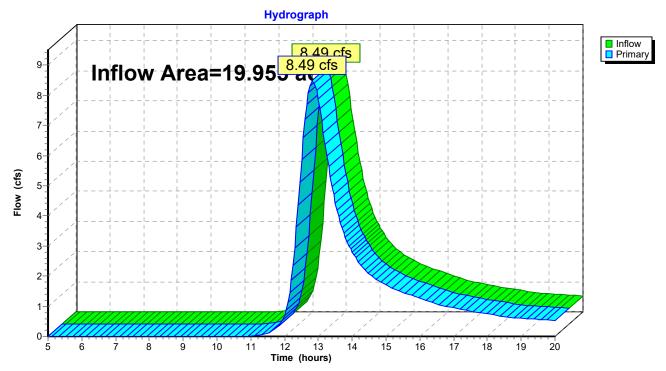
Inflow 1.405 af

8.49 cfs @ 12.82 hrs, Volume= 8.49 cfs @ 12.82 hrs, Volume= 1.405 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D1: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-3: (new Pond)



Page 16

Summary for Pond SP-4: (new Pond)

Inflow Area = 16.486 ac, 0.00% Impervious, Inflow Depth > 0.84" for 2-YR event

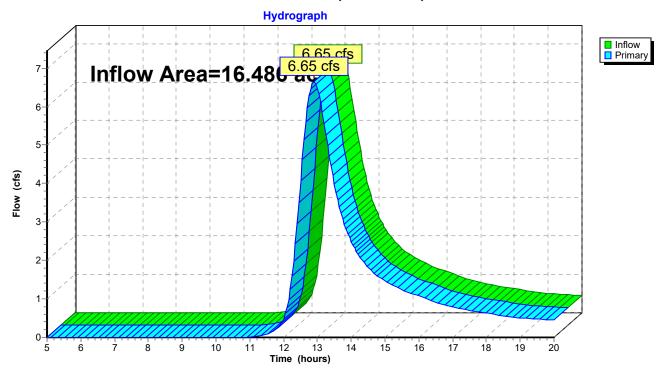
Inflow 1.158 af

6.65 cfs @ 12.90 hrs, Volume= 6.65 cfs @ 12.90 hrs, Volume= 1.158 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D1: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-4: (new Pond)



Type III 24-hr 10-YR Rainfall=4.30" Printed 7/5/2023

Page 1

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 1S: (new Subcat)	Runoff Area=158,935 sf 3.69% Impervious Runoff Depth>1.87" Flow Length=309' Tc=41.3 min CN=77 Runoff=4.21 cfs 0.570 af
Subcatchment 2S: (new Subcat)	Runoff Area=229,714 sf 3.99% Impervious Runoff Depth>1.80" Flow Length=478' Tc=46.3 min CN=76 Runoff=5.49 cfs 0.789 af
Subcatchment 3S: (new Subcat) Flow Length=1,362	Runoff Area=869,221 sf 3.04% Impervious Runoff Depth>1.79" Slope=0.0100 '/' Tc=56.8 min CN=76 Runoff=18.53 cfs 2.973 af
Subcatchment 4S: (new Subcat) Flow Length=852	Runoff Area=718,114 sf 0.00% Impervious Runoff Depth>1.78" Slope=0.0100 '/' Tc=62.0 min CN=76 Runoff=14.51 cfs 2.451 af
Subcatchment 5S: (new Subcat) Flow Length=325	Runoff Area=431,736 sf 2.34% Impervious Runoff Depth>1.87" Slope=0.0100 '/' Tc=44.4 min CN=77 Runoff=11.02 cfs 1.546 af
Pond D1: (new Pond)	Inflow=32.94 cfs 5.424 af Primary=32.94 cfs 5.424 af
Pond D2: D2	Inflow=20.69 cfs 2.905 af Primary=20.69 cfs 2.905 af
Pond D3: (new Pond)	Inflow=52.05 cfs 8.330 af Primary=52.05 cfs 8.330 af
Pond SP-1: (new Pond)	Inflow=15.22 cfs 2.116 af Primary=15.22 cfs 2.116 af
Pond SP-2: (new Pond)	Inflow=5.49 cfs 0.789 af Primary=5.49 cfs 0.789 af
Pond SP-3: (new Pond)	Inflow=18.53 cfs 2.973 af Primary=18.53 cfs 2.973 af
Pond SP-4: (new Pond)	Inflow=14.51 cfs 2.451 af Primary=14.51 cfs 2.451 af

Total Runoff Area = 55.274 ac Runoff Volume = 8.330 af Average Runoff Depth = 1.81" 97.86% Pervious = 54.091 ac 2.14% Impervious = 1.183 ac

PRE

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Printed 7/5/2023 Page 2

Primary=24.81 cfs 3.972 af

Primary=19.43 cfs 3.275 af

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 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 1S: (new Subcat)	Runoff Area=15	8,935 sf 3.69	9% Imper	vious Runoff Depth>2.49"
,	Flow Length=309'	Tc=41.3 min	CN=77	Runoff=5.60 cfs 0.757 af

Subcatchment 2S: (new Subcat)	Runoff Area=229,714 s	f 3.99% Impervious	Runoff Depth>2.40"
,	Flow Length=478' Tc=46	3.3 min CN=76 Rur	noff=7.35 cfs 1.054 af

Subcatchment3S: (new Subcat)	Runoff Area=869,221 s	f 3.04% Impervious	Runoff Depth>2.39"
Flow Length=1,362'	Slope=0.0100 '/' Tc=56.8	min CN=76 Rund	off=24.81 cfs 3.972 af

Subcatchment4S: (new Subcat)	Runoff Area=718,114 s	f 0.00% Impervious	Runoff Depth>2.38"
Flow Length=852'	Slope=0.0100 '/' Tc=62.0	0 min CN=76 Rund	off=19.43 cfs 3.275 af

Subcatchment 5S: (new Subcat)	Runoff Area=43	31,736 sf 2.3	4% Imperv	rious Runoff Depth>2.49"
Flow Length=325'	Slope=0.0100 '/'	Tc=44.4 min	CN=77 F	Runoff=14.64 cfs 2.053 af

Pond D1: (new Pond)	Inflow=44.10 cfs	7.247 af
,	Primary=44.10 cfs	7.247 af

Pond D2: D2	Inflow=27.54 cfs 3.863 af
	Primary=27.54 cfs 3.863 af

Pond D3: (new Pond)	Inflow=69.61 cfs 11.110 af
,	Primary=69.61 cfs 11.110 af

Pond SP-1: (new Pond)	Inflow=20.21 cfs 2.809 af
,	Primary=20.21 cfs 2.809 af

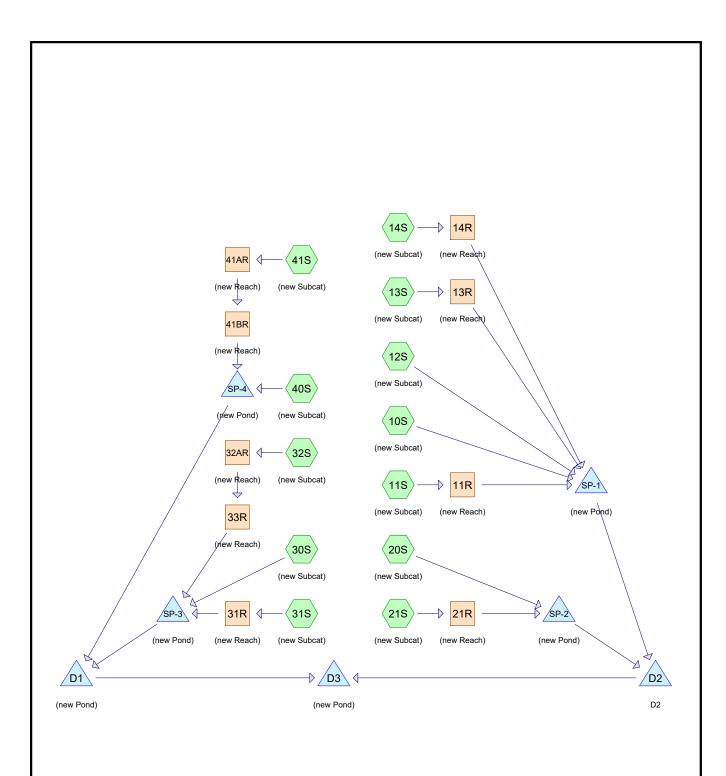
Pond SP-2: (new Pond)	Inflow=7.35 cfs 1.054 af
,	Primary=7.35 cfs 1.054 af

Total Runoff Area = 55.274 ac Runoff Volume = 11.110 af Average Runoff Depth = 2.41" 2.14% Impervious = 1.183 ac

97.86% Pervious = 54.091 ac

APPENDIX 4

POST-DEVELOPMENT HYDROCAD MODEL











Printed 7/5/2023 Page 2

Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
1.377	80	1/2 acre lots, 25% imp, HSG C (12S)
1.377	85	1/2 acre lots, 25% imp, HSG D (10S, 30S)
0.166	74	>75% Grass cover, Good, HSG C (14S)
0.386	98	BARTLETT ROAD (20S, 30S, 31S)
1.090	98	LOT IMP (11S, 13S, 21S, 32S, 41S)
3.270	74	LOT LS (11S, 13S, 21S, 32S, 41S)
0.092	98	Lynch Ln (12S, 20S)
0.321	98	PROPOSED ROAD IMP (31S)
0.320	74	PROPOSED ROAD LS (31S)
0.118	98	Paved parking, HSG C (14S)
11.574	70	Woods, Good, HSG C (10S, 12S, 20S, 21S, 30S, 32S, 40S)
35.183	77	Woods, Good, HSG D (10S, 12S, 20S, 30S, 40S)
55.274	76	TOTAL AREA

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 3

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method	
Subcatchment 10S: (new Subcat) Runoff Area=126,255 sf 3.96% Impervious Runoff Depth>0.85 Flow Length=309' Slope=0.0200 '/' Tc=32.9 min CN=76 Runoff=1.65 cfs 0.206 a	
Subcatchment 11S: (new Subcat) Runoff Area=34,237 sf 21.91% Impervious Runoff Depth>1.02 Flow Length=150' Slope=0.0400 '/' Tc=10.1 min CN=79 Runoff=0.86 cfs 0.067 a	
Subcatchment 12S: (new Subcat) Runoff Area=373,177 sf 4.70% Impervious Runoff Depth>0.80 Flow Length=309' Tc=41.3 min CN=75 Runoff=4.07 cfs 0.573 a	
Subcatchment 13S: (new Subcat) Runoff Area=29,992 sf 20.01% Impervious Runoff Depth>1.03 Flow Length=101' Slope=0.0600 '/' Tc=6.3 min CN=79 Runoff=0.86 cfs 0.059 a	
Subcatchment 14S: (new Subcat) Runoff Area=12,377 sf 41.45% Impervious Runoff Depth>1.33 Tc=5.0 min CN=84 Runoff=0.48 cfs 0.032 a	
Subcatchment 20S: (new Subcat) Runoff Area=205,594 sf 4.46% Impervious Runoff Depth>0.90 Flow Length=478' Slope=0.0100 '/' Tc=49.5 min CN=77 Runoff=2.33 cfs 0.354 area control of the con	
Subcatchment 21S: (new Subcat) Runoff Area=24,744 sf 20.21% Impervious Runoff Depth>0.97 Tc=5.0 min CN=78 Runoff=0.69 cfs 0.046 a	
Subcatchment 30S: (new Subcat) Runoff Area=746,720 sf 2.40% Impervious Runoff Depth>0.84 Flow Length=1,362' Slope=0.0100 '/' Tc=56.8 min CN=76 Runoff=7.29 cfs 1.207 a	
Subcatchment 31S: (new Subcat) Runoff Area=29,090 sf 52.12% Impervious Runoff Depth>1.54 Tc=5.0 min CN=87 Runoff=1.29 cfs 0.086 a	
Subcatchment 32S: (new Subcat) Runoff Area=98,866 sf 17.70% Impervious Runoff Depth>0.91 Flow Length=194' Slope=0.0100 '/' Tc=26.6 min CN=77 Runoff=1.52 cfs 0.172 area.	
Subcatchment 40S: (new Subcat) Runoff Area=690,986 sf 0.00% Impervious Runoff Depth>0.84 Flow Length=852' Slope=0.0100 '/' Tc=62.0 min CN=76 Runoff=6.40 cfs 1.114 a	
Subcatchment 41S: (new Subcat) Runoff Area=35,691 sf 32.22% Impervious Runoff Depth>1.20 Tc=5.0 min CN=82 Runoff=1.24 cfs 0.082 a	
Reach 11R: (new Reach) Avg. Flow Depth=0.03' Max Vel=0.43 fps Inflow=0.86 cfs 0.067 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs 0.065 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs 0.065 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs 0.065 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs 0.065 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs 0.065 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs 0.065 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs 0.065 at n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=0.59 cfs Outflow	
Reach 13R: (new Reach) Avg. Flow Depth=0.11' Max Vel=0.45 fps Inflow=0.86 cfs 0.059 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.059 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.059 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=0.54 cfs 0.057 at n=0.050 L=389.0' S=0.0051 Cfs Outflow=0.54 cfs 0.057 at n=0.050 Cfs Outflow=0.54 cfs 0.057 at n=0.050 Cfs 0.057 at	
Reach 14R: (new Reach) Avg. Flow Depth=0.10' Max Vel=0.21 fps Inflow=0.48 cfs 0.032 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.39 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs 0.031 at n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs 0.031 at n=0.400 L=83.0' Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.03 cfs 0.031 at n=0.400 Capacity=6.000 Capacity=6.000 Capacity=6.000 Capacity=6.000 Capacity=6.000 Capacity=6.000 Capacity=6.000 Capacity=6.000 Capacity=6.00	
Reach 21R: (new Reach) Avg. Flow Depth=0.13' Max Vel=1.16 fps Inflow=0.69 cfs 0.046 a	

n=0.030 L=479.0' S=0.0104 '/' Capacity=6.77 cfs Outflow=0.54 cfs 0.045 af

Prepared by Terradyn Consultants
HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Printed 7/5/2023 Page 4

Reach 31R: (new Reach)	Avg. Flow Depth=0.20' Max Vel=2.42 fps Inflow=1.29 cfs 0.086 af n=0.035 L=268.0' S=0.0373 '/' Capacity=139.17 cfs Outflow=1.21 cfs 0.086 af
Reach 32AR: (new Reach)	Avg. Flow Depth=0.02' Max Vel=1.53 fps Inflow=1.52 cfs 0.172 af n=0.050 L=20.0' S=0.5000 '/' Capacity=336.50 cfs Outflow=1.51 cfs 0.172 af
Reach 33R: (new Reach)	Avg. Flow Depth=0.09' Max Vel=0.57 fps Inflow=1.51 cfs 0.172 af n=0.050 L=103.0' S=0.0097 '/' Capacity=28.48 cfs Outflow=1.50 cfs 0.171 af
Reach 41AR: (new Reach)	Avg. Flow Depth=0.09' Max Vel=2.43 fps Inflow=1.24 cfs 0.082 af n=0.030 L=157.0' S=0.0637 '/' Capacity=24.22 cfs Outflow=1.19 cfs 0.082 af
Reach 41BR: (new Reach)	Avg. Flow Depth=0.09' Max Vel=1.21 fps Inflow=1.19 cfs 0.082 af n=0.030 L=658.0' S=0.0152 '/' Capacity=56.33 cfs Outflow=0.91 cfs 0.080 af
Pond D1: (new Pond)	Inflow=14.97 cfs 2.657 af Primary=14.97 cfs 2.657 af
Pond D2: D2	Inflow=9.30 cfs 1.331 af Primary=9.30 cfs 1.331 af
Pond D3: (new Pond)	Inflow=23.37 cfs 3.988 af Primary=23.37 cfs 3.988 af
Pond SP-1: (new Pond)	Inflow=6.89 cfs 0.932 af Primary=6.89 cfs 0.932 af
Pond SP-2: (new Pond)	Inflow=2.51 cfs 0.399 af Primary=2.51 cfs 0.399 af
Pond SP-3: (new Pond)	Inflow=8.43 cfs 1.463 af Primary=8.43 cfs 1.463 af
Pond SP-4: (new Pond)	Inflow=6.65 cfs 1.194 af Primary=6.65 cfs 1.194 af

Total Runoff Area = 55.274 ac Runoff Volume = 3.997 af Average Runoff Depth = 0.87" 95.12% Pervious = 52.578 ac 4.88% Impervious = 2.696 ac

Page 5

Summary for Subcatchment 10S: (new Subcat)

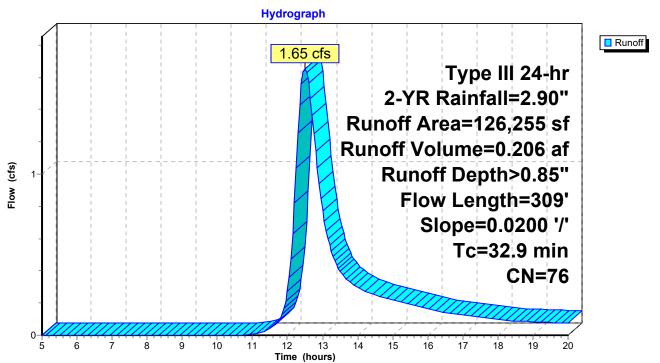
Runoff = 1.65 cfs @ 12.50 hrs, Volume= 0.206 af, Depth> 0.85"

Routed to Pond SP-1: (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

A	rea (sf)	CN D	escription		
	20,000	85 1	/2 acre lots	s, 25% imp,	HSG D
	40,000	70 V	Voods, Go	od, HSG C	
	66,255	77 V	Voods, Go	od, HSG D	
1	26,255	76 V	Veighted A	verage	
121,255 96.04% Pervious Area			6.04% Per	vious Area	
	5,000 3.96% Impervious Area			ervious Area	a
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
29.2	150	0.0200	0.09		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.30"
3.7	159	0.0200	0.71		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
32.9	309	Total			

Subcatchment 10S: (new Subcat)



Page 6

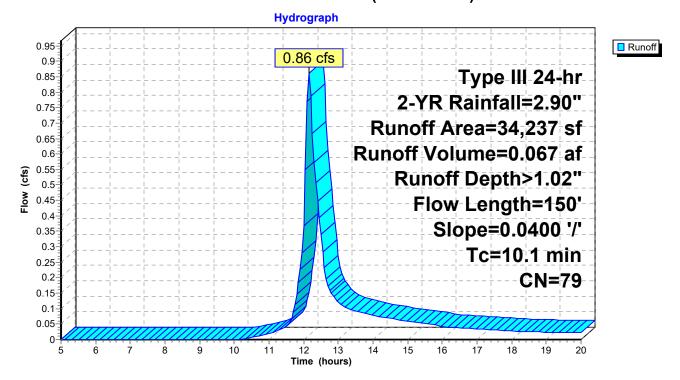
Summary for Subcatchment 11S: (new Subcat)

Runoff = 0.86 cfs @ 12.15 hrs, Volume= 0.067 af, Depth> 1.02" Routed to Reach 11R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN	<u>Description</u>		
*		7,500	98	LOT IMP		
*		26,737	74	LOT LS		
		34,237	79	Weighted A	verage	
		26,737		78.09% Pei	rvious Area	l
		7,500		21.91% lmp	pervious Ar	ea
	Tc	Length	Slope	,	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	10.1	150	0.0400	0.25		Sheet Flow, A-B
						Grass: Short n= 0.150 P2= 3.30"

Subcatchment 11S: (new Subcat)



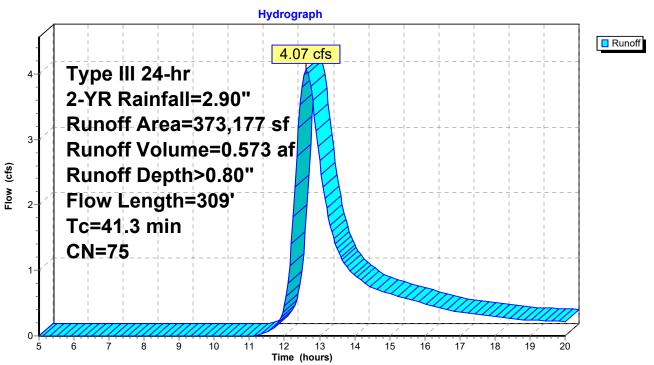
Summary for Subcatchment 12S: (new Subcat)

Runoff = 4.07 cfs @ 12.62 hrs, Volume= 0.573 af, Depth> 0.80" Routed to Pond SP-1 : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

_	Α	rea (sf)	CN [Description		
*		2,528	98 L	ynch Ln		
		60,000	80 ′	I/2 acre lot	s, 25% imp	, HSG C
	1	13,383	70 \	70 Woods, Good, HSG C		
_	1	97,266	77 \	Noods, Go	od, HSG D	
	373,177 75 Weighted Average					
	355,649 95.30% Pervious Area				vious Area	
	17,528 4.70% Impervious Area			1.70% Impe	ervious Area	a
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	38.6	150	0.0100	0.06		Sheet Flow, A-B
						Woods: Light underbrush n= 0.400 P2= 3.30"
	2.6	159	0.0400	1.00		Shallow Concentrated Flow, B-C
_						Woodland Kv= 5.0 fps
	41.3	309	Total			

Subcatchment 12S: (new Subcat)



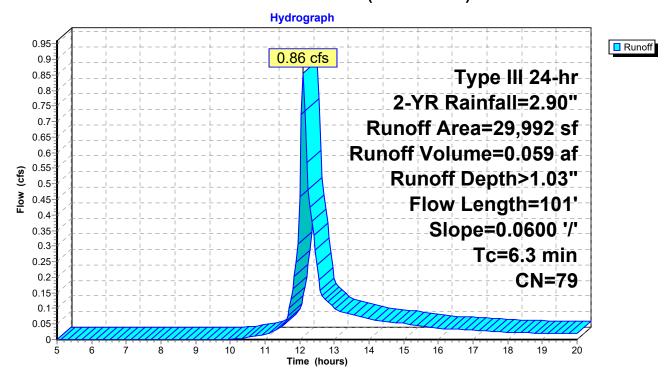
Summary for Subcatchment 13S: (new Subcat)

Runoff = 0.86 cfs @ 12.10 hrs, Volume= 0.059 af, Depth> 1.03" Routed to Reach 13R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN I	Description		
*		23,992	74 l	OT LS		
*		6,000	98 l	OT IMP		
		29,992	79 \	Neighted A	verage	
		23,992	7	79.99% Pei	vious Area	
		6,000		20.01% Imp	ervious Ar	ea
	Tc	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	6.3	101	0.0600	0.27		Sheet Flow, A-B
						Grass: Short n= 0.150 P2= 3.30"

Subcatchment 13S: (new Subcat)



Page 9

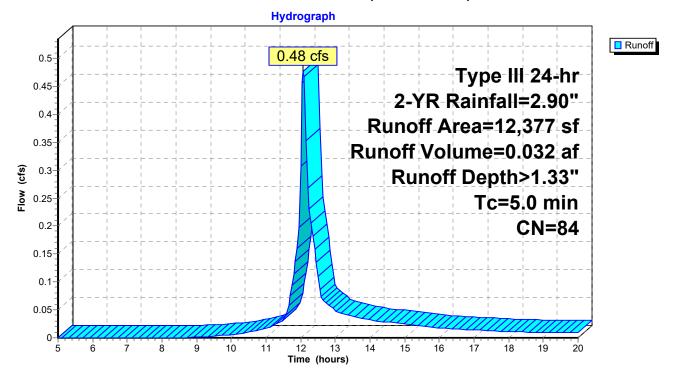
Summary for Subcatchment 14S: (new Subcat)

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.032 af, Depth> 1.33" Routed to Reach 14R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN	Description							
		5,130	98	Paved park	aved parking, HSG C						
		7,247	74	>75% Gras	75% Grass cover, Good, HSG C						
		12,377	84	Weighted A	eighted Average						
		7,247		58.55% Per	58.55% Pervious Area						
		5,130		41.45% Imp	ervious Are	ea					
	То	Longth	Clan	o Malagitu	Canacity	Description					
,	. v	Length	Slope	,	Capacity	Description					
<u>(n</u>	nin)	(feet)	(ft/ft	(ft/sec)	(cfs)						
	5.0					Direct Entry, MIN					

Subcatchment 14S: (new Subcat)



Summary for Subcatchment 20S: (new Subcat)

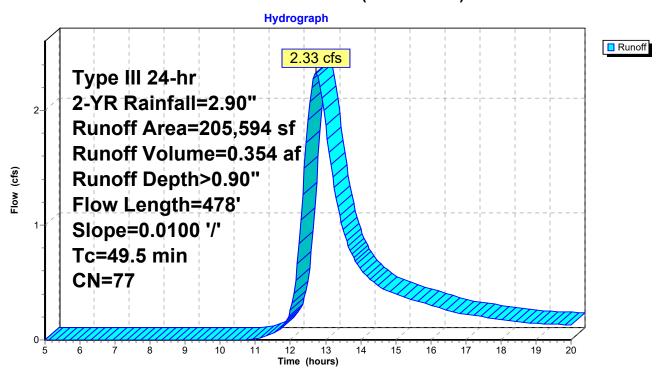
Runoff = 2.33 cfs @ 12.72 hrs, Volume= 0.354 af, Depth> 0.90"

Routed to Pond SP-2: (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN [Description		
*		1,470	98 L	ynch Ln		
*		7,692	98 E	ARTLETT	ROAD	
		36,328	70 V	Voods, Go	od, HSG C	
	1	60,104	77 V	Voods, Go	od, HSG D	
205,594 77 Weighted Average						
	196,432 95.54% Pervious Area					
	9,162 4.46% Impervious Area			.46% Imp∈	ervious Area	a
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·
	38.6	150	0.0100	0.06		Sheet Flow, A-B
						Woods: Light underbrush n= 0.400 P2= 3.30"
	10.9	328	0.0100	0.50		Shallow Concentrated Flow, B-C
_						Woodland Kv= 5.0 fps
	49.5	478	Total			

Subcatchment 20S: (new Subcat)



Page 11

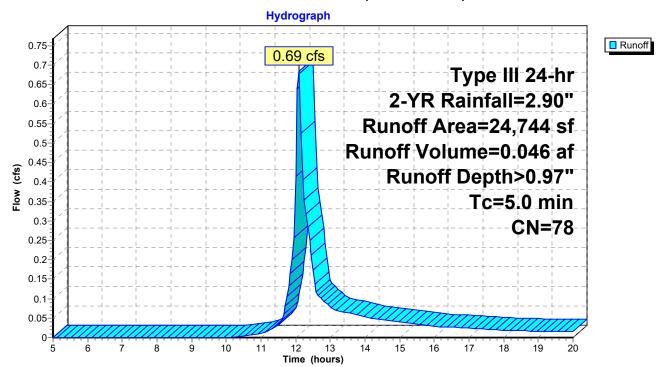
Summary for Subcatchment 21S: (new Subcat)

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.046 af, Depth> 0.97" Routed to Reach 21R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN	Description						
*		5,000	98	LOT IMP	OT IMP					
*		15,000	74	LOT LS	OT LS					
		4,744	70	Woods, Go	oods, Good, HSG C					
		24,744	78	Weighted A	verage					
		19,744		79.79% Pei		l				
		5,000		20.21% Imp	pervious Ar	rea				
	Тс	Length	Slope	e Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft		(cfs)	2				
	5.0					Direct Entry, MIN				

Subcatchment 21S: (new Subcat)



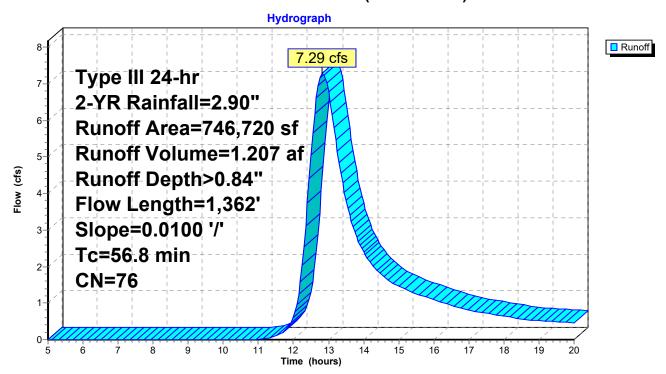
Summary for Subcatchment 30S: (new Subcat)

7.29 cfs @ 12.82 hrs, Volume= 1.207 af, Depth> 0.84" Runoff Routed to Pond SP-3: (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN E	escription		
	5	43,893	77 V	Voods, Go	od, HSG D	
	1	54,871	70 V	Voods, Go	od, HSG C	
*		7,956	98 E	BARTLETT	ROAD	
40,000 85 1/2 acre lots, 25% imp, H					s, 25% imp,	, HSG D
	746,720 76 Weighted Average				verage	
	728,764 97.60% Pervious Area			7.60% Per	vious Area	
	17,956 2.40% Impervious Area			.40% Impe	ervious Area	a
				•		
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	·
	38.6	150	0.0100	0.06		Sheet Flow, A-B
						Woods: Light underbrush n= 0.400 P2= 3.30"
	18.2	1,212	0.0100	1.11	18.06	Trap/Vee/Rect Channel Flow, B-C
		,				Bot.W=30.00' D=0.50' Z= 5.0'/' Top.W=35.00'
						n= 0.080 Earth, long dense weeds
	56.8	1,362	Total			

Subcatchment 30S: (new Subcat)



Page 13

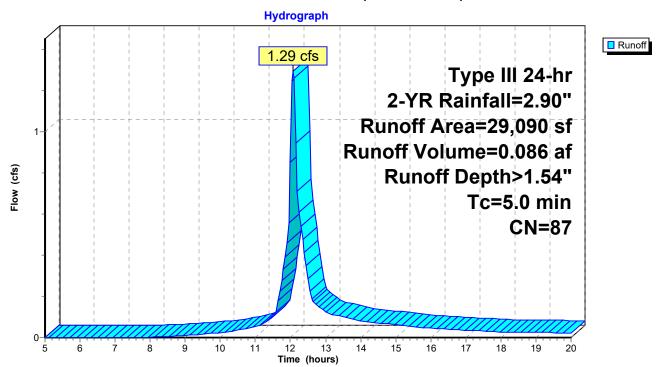
Summary for Subcatchment 31S: (new Subcat)

Runoff = 1.29 cfs @ 12.08 hrs, Volume= 0.086 af, Depth> 1.54" Routed to Reach 31R : (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN	Description					
*		1,161	98	BARTLETT	ROAD				
*		14,001	98	PROPOSE	D ROAD IM	MP			
*		13,928	74	PROPOSE	ROPOSED ROAD LS				
		29,090	87	Weighted A	verage				
		13,928		47.88% Pei	vious Area	a			
		15,162		52.12% lmp	pervious Ar	rea			
(Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
	5.0	(1001)	(13,11	(1200)	(0.0)	Direct Entry, MIN			

Subcatchment 31S: (new Subcat)



Page 14

Summary for Subcatchment 32S: (new Subcat)

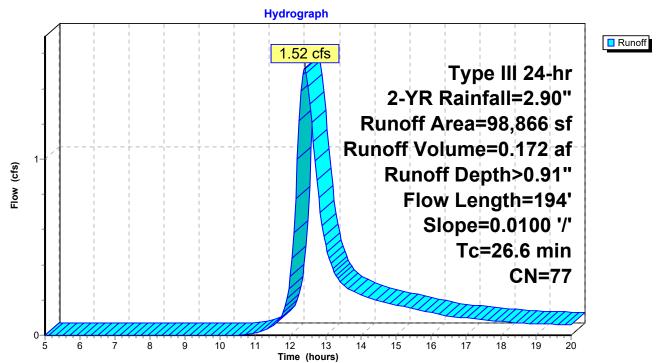
Runoff = 1.52 cfs @ 12.40 hrs, Volume= 0.172 af, Depth> 0.91"

Routed to Reach 32AR: (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN E	Description		
*		17,500	98 L	OT IMP		
*		52,500	74 L	OT LS		
		28,866	70 V	Voods, Go	od, HSG C	
		98,866	77 V	Veighted A	verage	
		81,366	8	32.30% Per	vious Area	
		17,500	1	7.70% Imp	pervious Are	ea
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	25.6	150	0.0100	0.10		Sheet Flow, A-B
						Grass: Dense n= 0.240 P2= 3.30"
	1.0	44	0.0100	0.70		Shallow Concentrated Flow, B-C
						Short Grass Pasture Kv= 7.0 fps
	26.6	194	Total			

Subcatchment 32S: (new Subcat)



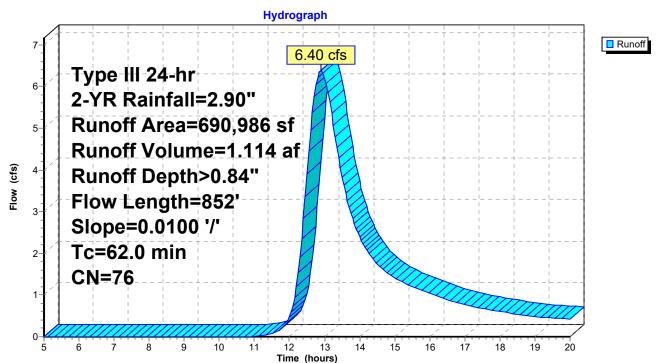
Summary for Subcatchment 40S: (new Subcat)

Runoff = 6.40 cfs @ 12.90 hrs, Volume= 1.114 af, Depth> 0.84" Routed to Pond SP-4 : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

	Α	rea (sf)	CN I	Description				
· · · · · · · · · · · · · · · · · · ·			Woods, Good, HSG D					
125,954 70 Woods, Good, HSG C				Noods, Go	od, HSG C			
	690,986		76 \	Neighted A	verage			
690,986			•	100.00% Pervious Area				
	Тс	Length	Slope		Capacity	Description		
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
	38.6	150	0.0100	0.06		Sheet Flow, A-B		
						Woods: Light underbrush n= 0.400 P2= 3.30"		
	23.4	702	0.0100	0.50		Shallow Concentrated Flow, B-C		
						Woodland Kv= 5.0 fps		
	62.0	852	Total					

Subcatchment 40S: (new Subcat)



HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 41S: (new Subcat)

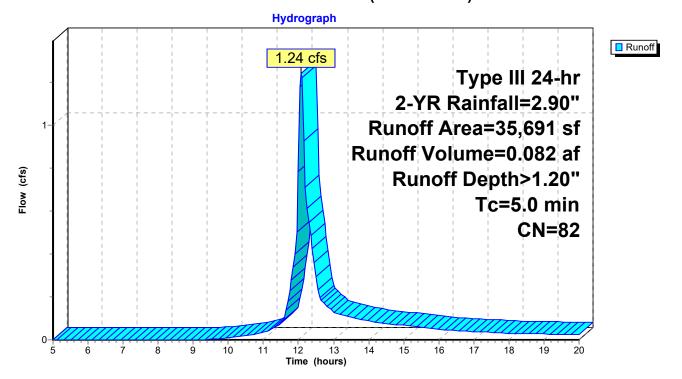
Runoff = 1.24 cfs @ 12.08 hrs, Volume= 0.082 af, Depth> 1.20"

Routed to Reach 41AR: (new Reach)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs Type III 24-hr 2-YR Rainfall=2.90"

_	Α	Area (sf) CN Description							
*		11,500	98	LOT IMP					
*		24,191	74	LOT LS					
	35,691 82 Weighted Average								
	24,191 67.78% Pervious Area					a de la companya de			
11,500				32.22% Impervious Area					
	Тс	Length	Slope	Velocity	Capacity	Description			
	(min)	(feet)	(ft/ft)	,	(cfs)	2000			
_	5.0					Direct Entry, MIN			

Subcatchment 41S: (new Subcat)



Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 17

Summary for Reach 11R: (new Reach)

Inflow Area = 0.786 ac, 21.91% Impervious, Inflow Depth > 1.02" for 2-YR event

Inflow = 0.86 cfs @ 12.15 hrs, Volume= 0.067 af

Outflow = 0.59 cfs @ 12.54 hrs, Volume= 0.065 af, Atten= 31%, Lag= 23.6 min

Routed to Pond SP-1: (new Pond)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.43 fps, Min. Travel Time= 14.9 min Avg. Velocity = 0.18 fps, Avg. Travel Time= 35.4 min

Peak Storage= 530 cf @ 12.30 hrs

Average Depth at Peak Storage= 0.03', Surface Width= 50.54' Bank-Full Depth= 0.50' Flow Area= 27.5 sf, Capacity= 78.06 cfs

 $50.00' \times 0.50'$ deep channel, n= 0.050 Scattered brush, heavy weeds

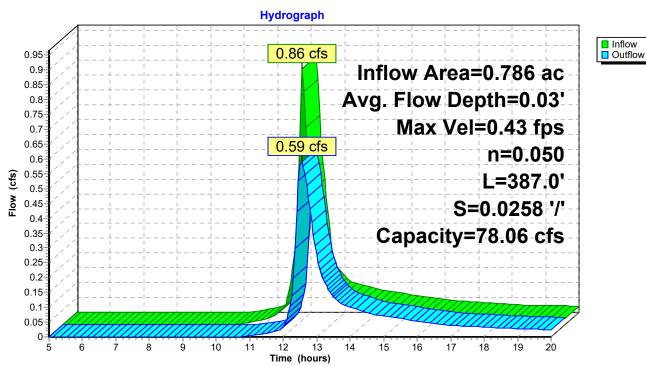
Side Slope Z-value= 10.0 '/' Top Width= 60.00'

Length= 387.0' Slope= 0.0258 '/'

Inlet Invert= 62.00', Outlet Invert= 52.00'



Reach 11R: (new Reach)



Inflow

Outflow

POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Reach 13R: (new Reach)

Inflow Area = 0.689 ac, 20.01% Impervious, Inflow Depth > 1.03" for 2-YR event

Inflow = 0.86 cfs @ 12.10 hrs, Volume= 0.059 af

Outflow = 0.54 cfs @ 12.46 hrs, Volume= 0.057 af, Atten= 37%, Lag= 21.7 min

Routed to Pond SP-1: (new Pond)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.45 fps, Min. Travel Time= 14.3 min Avg. Velocity = 0.18 fps, Avg. Travel Time= 36.1 min

Peak Storage= 467 cf @ 12.22 hrs

Average Depth at Peak Storage= 0.11', Surface Width= 12.17' Bank-Full Depth= 0.50' Flow Area= 7.5 sf, Capacity= 8.30 cfs

10.00' x 0.50' deep channel, n= 0.050 Scattered brush, heavy weeds

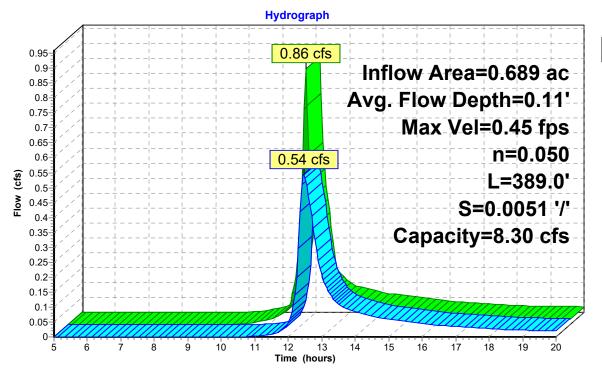
Side Slope Z-value= 10.0 '/' Top Width= 20.00'

Length= 389.0' Slope= 0.0051 '/'

Inlet Invert= 52.00', Outlet Invert= 50.00'



Reach 13R: (new Reach)



Outflow

POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Reach 14R: (new Reach)

Inflow Area = 0.284 ac, 41.45% Impervious, Inflow Depth > 1.33" for 2-YR event

Inflow 0.48 cfs @ 12.08 hrs, Volume= 0.032 af

0.39 cfs @ 12.25 hrs, Volume= 0.031 af, Atten= 19%, Lag= 10.3 min Outflow

Routed to Pond SP-1: (new Pond)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.21 fps, Min. Travel Time= 6.5 min Avg. Velocity = 0.07 fps, Avg. Travel Time= 20.1 min

Peak Storage= 154 cf @ 12.14 hrs

Average Depth at Peak Storage= 0.10', Surface Width= 19.06' Bank-Full Depth= 0.50' Flow Area= 11.0 sf, Capacity= 6.03 cfs

17.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush

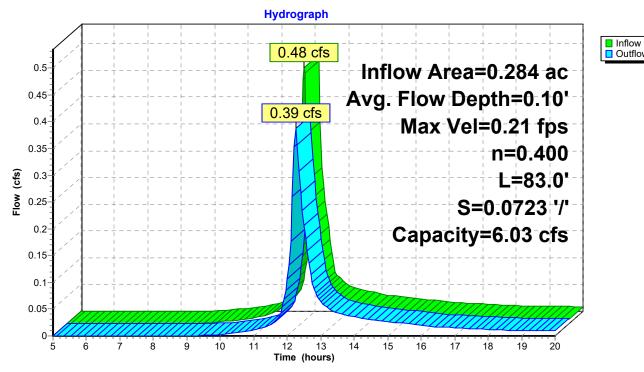
Side Slope Z-value= 10.0 '/' Top Width= 27.00'

Length= 83.0' Slope= 0.0723 '/'

Inlet Invert= 62.00', Outlet Invert= 56.00'



Reach 14R: (new Reach)



Outflow

POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Reach 21R: (new Reach)

0.568 ac, 20.21% Impervious, Inflow Depth > 0.97" for 2-YR event Inflow Area =

Inflow 0.69 cfs @ 12.08 hrs, Volume= 0.046 af

0.54 cfs @ 12.27 hrs, Volume= 0.045 af, Atten= 22%, Lag= 11.0 min Outflow

Routed to Pond SP-2: (new Pond)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.16 fps, Min. Travel Time= 6.9 min Avg. Velocity = 0.44 fps, Avg. Travel Time= 18.2 min

Peak Storage= 226 cf @ 12.15 hrs

Average Depth at Peak Storage= 0.13', Surface Width= 4.29' Bank-Full Depth= 0.50' Flow Area= 2.8 sf, Capacity= 6.77 cfs

3.00' x 0.50' deep channel, n= 0.030 Short grass

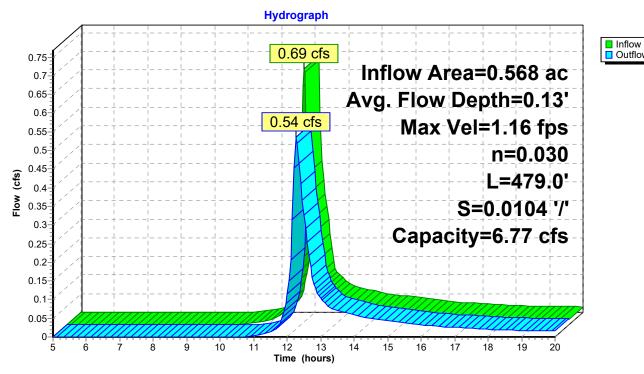
Side Slope Z-value= 5.0 '/' Top Width= 8.00'

Length= 479.0' Slope= 0.0104 '/'

Inlet Invert= 62.00', Outlet Invert= 57.00'



Reach 21R: (new Reach)



Inflow

Outflow

POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Reach 31R: (new Reach)

Inflow Area = 0.668 ac, 52.12% Impervious, Inflow Depth > 1.54" for 2-YR event

Inflow = 1.29 cfs @ 12.08 hrs, Volume= 0.086 af

Outflow = 1.21 cfs @ 12.14 hrs, Volume= 0.086 af, Atten= 7%, Lag= 3.5 min

Routed to Pond SP-3: (new Pond)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity = 2.42 fps, Min. Travel Time = 1.8 min Avg. Velocity = 0.83 fps, Avg. Travel Time = 5.4 min

Peak Storage= 140 cf @ 12.10 hrs

Average Depth at Peak Storage= 0.20', Surface Width= 3.21' Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 139.17 cfs

2.00' x 2.00' deep channel, n= 0.035 Earth, dense weeds

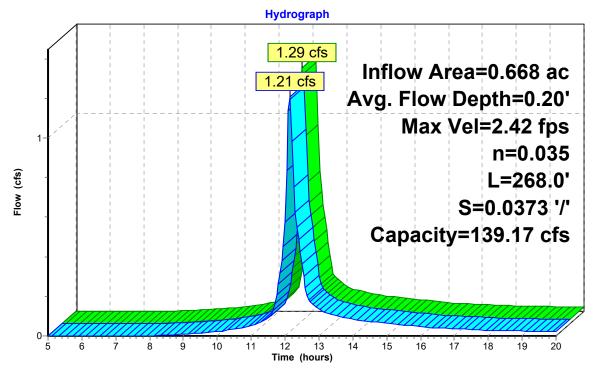
Side Slope Z-value= 3.0 '/' Top Width= 14.00'

Length= 268.0' Slope= 0.0373 '/'

Inlet Invert= 58.00', Outlet Invert= 48.00'



Reach 31R: (new Reach)



POST

#

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 22

Inflow

Outflow

Summary for Reach 32AR: (new Reach)

Inflow Area = 2.270 ac, 17.70% Impervious, Inflow Depth > 0.91" for 2-YR event

Inflow = 1.52 cfs @ 12.40 hrs, Volume= 0.172 af

Outflow = 1.51 cfs @ 12.41 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.4 min

Routed to Reach 33R: (new Reach)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.53 fps, Min. Travel Time= 0.2 min Avg. Velocity = 0.72 fps, Avg. Travel Time= 0.5 min

Peak Storage= 20 cf @ 12.40 hrs

Average Depth at Peak Storage= 0.02', Surface Width= 50.20' Bank-Full Depth= 0.50' Flow Area= 26.3 sf, Capacity= 336.50 cfs

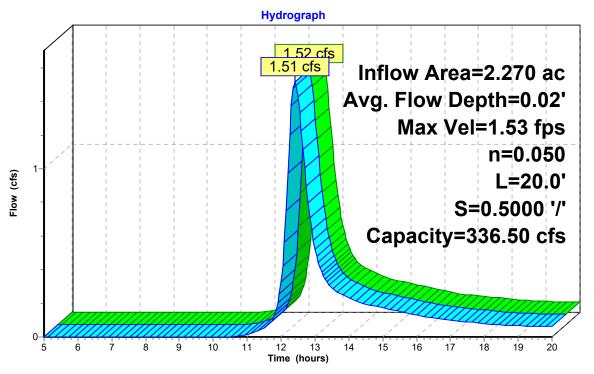
50.00' x 0.50' deep channel, n= 0.050 Scattered brush, heavy weeds

Side Slope Z-value = 5.0 '/' Top Width = 55.00'

Length= 20.0' Slope= 0.5000 '/'

Inlet Invert= 58.00', Outlet Invert= 48.00'





Inflow

Outflow

POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Reach 33R: (new Reach)

Inflow Area = 2.270 ac, 17.70% Impervious, Inflow Depth > 0.91" for 2-YR event

Inflow = 1.51 cfs @ 12.41 hrs, Volume= 0.172 af

Outflow = 1.50 cfs @ 12.49 hrs, Volume= 0.171 af, Atten= 1%, Lag= 5.0 min

Routed to Pond SP-3: (new Pond)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.57 fps, Min. Travel Time= 3.0 min Avg. Velocity = 0.23 fps, Avg. Travel Time= 7.5 min

Peak Storage= 272 cf @ 12.44 hrs

Average Depth at Peak Storage= 0.09', Surface Width= 30.87' Bank-Full Depth= 0.50' Flow Area= 16.3 sf, Capacity= 28.48 cfs

30.00' x 0.50' deep channel, n= 0.050 Scattered brush, heavy weeds

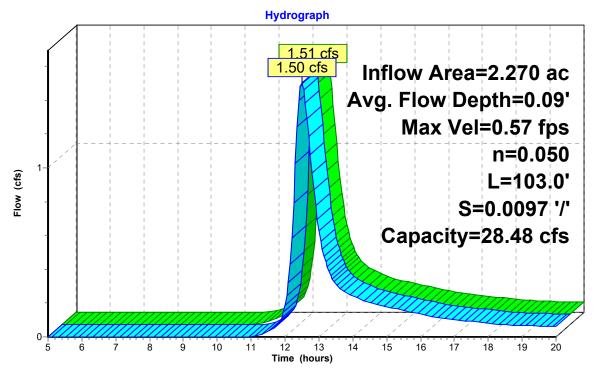
Side Slope Z-value = 5.0 '/' Top Width = 35.00'

Length= 103.0' Slope= 0.0097 '/'

Inlet Invert= 48.00', Outlet Invert= 47.00'



Reach 33R: (new Reach)



Inflow

Outflow

POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Reach 41AR: (new Reach)

Inflow Area = 0.819 ac, 32.22% Impervious, Inflow Depth > 1.20" for 2-YR event

Inflow = 1.24 cfs @ 12.08 hrs, Volume= 0.082 af

Outflow = 1.19 cfs @ 12.11 hrs, Volume= 0.082 af, Atten= 4%, Lag= 1.8 min

Routed to Reach 41BR: (new Reach)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.43 fps, Min. Travel Time= 1.1 min Avg. Velocity = 0.77 fps, Avg. Travel Time= 3.4 min

Peak Storage= 80 cf @ 12.10 hrs

Average Depth at Peak Storage= 0.09', Surface Width= 5.94' Bank-Full Depth= 0.50' Flow Area= 3.8 sf, Capacity= 24.22 cfs

 $5.00' \times 0.50'$ deep channel, n= 0.030 Short grass

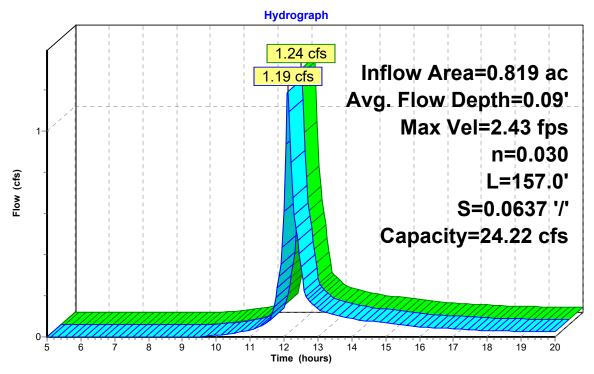
Side Slope Z-value = 5.0 '/' Top Width = 10.00'

Length= 157.0' Slope= 0.0637 '/'

Inlet Invert= 60.00', Outlet Invert= 50.00'



Reach 41AR: (new Reach)



POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 25

Inflow

Outflow

Summary for Reach 41BR: (new Reach)

Inflow Area = 0.819 ac, 32.22% Impervious, Inflow Depth > 1.20" for 2-YR event

Inflow = 1.19 cfs @ 12.11 hrs, Volume= 0.082 af

Outflow = 0.91 cfs @ 12.35 hrs, Volume= 0.080 af, Atten= 23%, Lag= 14.1 min

Routed to Pond SP-4: (new Pond)

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.21 fps, Min. Travel Time= 9.1 min Avg. Velocity = 0.44 fps, Avg. Travel Time= 25.2 min

Peak Storage= 497 cf @ 12.20 hrs

Average Depth at Peak Storage= 0.09', Surface Width= 8.55' Bank-Full Depth= 1.00' Flow Area= 11.0 sf, Capacity= 56.33 cfs

8.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight

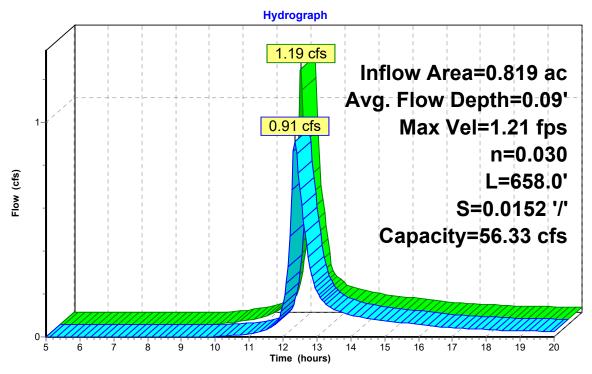
Side Slope Z-value= 3.0 '/' Top Width= 14.00'

Length= 658.0' Slope= 0.0152 '/'

Inlet Invert= 50.00', Outlet Invert= 40.00'



Reach 41BR: (new Reach)



Page 26

Summary for Pond D1: (new Pond)

Inflow Area = 36.762 ac, 3.88% Impervious, Inflow Depth > 0.87" for 2-YR event

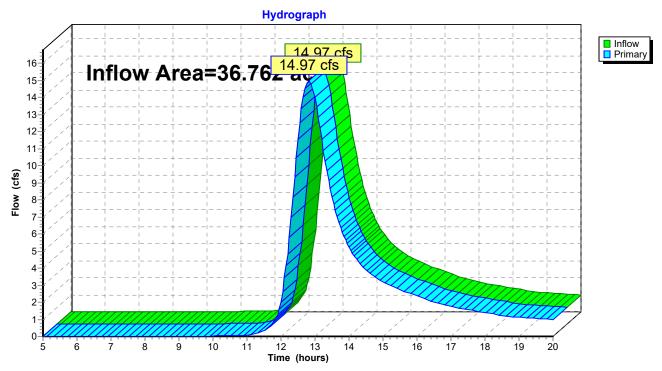
Inflow = 14.97 cfs @ 12.82 hrs, Volume= 2.657 af

Primary = 14.97 cfs @ 12.82 hrs, Volume= 2.657 af, Atten= 0%, Lag= 0.0 min

Routed to Pond D3: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond D1: (new Pond)



POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 27

Summary for Pond D2: D2

Inflow Area = 6.86% Impervious, Inflow Depth > 0.86" for 2-YR event 18.512 ac,

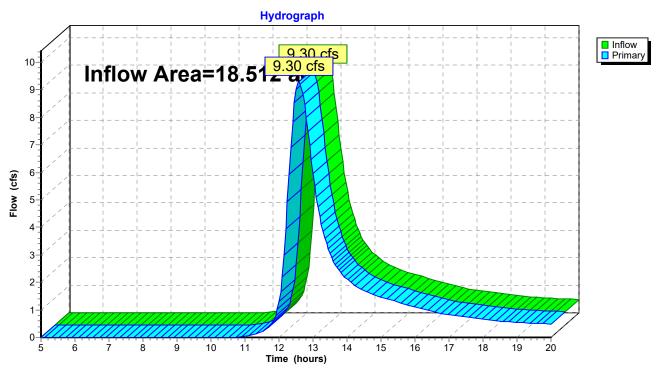
Inflow 1.331 af

9.30 cfs @ 12.59 hrs, Volume= 9.30 cfs @ 12.59 hrs, Volume= Primary 1.331 af, Atten= 0%, Lag= 0.0 min

Routed to Pond D3: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond D2: D2



POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Pond D3: (new Pond)

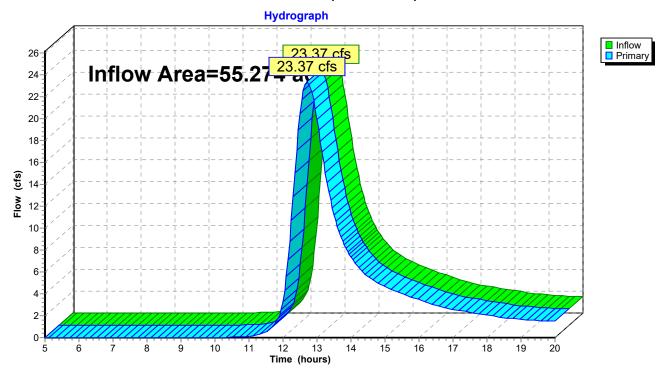
Inflow Area = 55.274 ac, 4.88% Impervious, Inflow Depth > 0.87" for 2-YR event

3.988 af Inflow

23.37 cfs @ 12.71 hrs, Volume= 23.37 cfs @ 12.71 hrs, Volume= 3.988 af, Atten= 0%, Lag= 0.0 min Primary

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond D3: (new Pond)



POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 29

Summary for Pond SP-1: (new Pond)

Inflow Area = 7.15% Impervious, Inflow Depth > 0.85" for 2-YR event 13.224 ac,

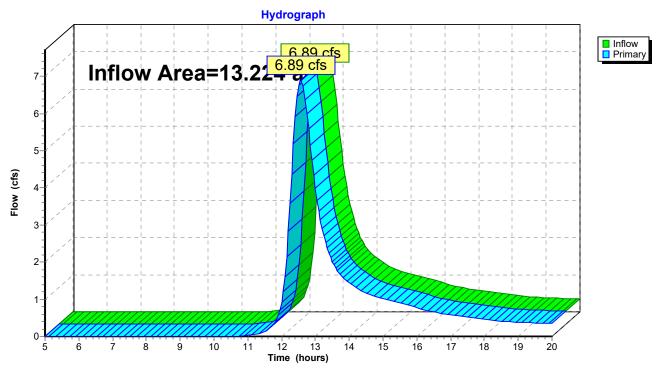
Inflow 0.932 af

6.89 cfs @ 12.56 hrs, Volume= 6.89 cfs @ 12.56 hrs, Volume= 0.932 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D2: D2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-1: (new Pond)



Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Pond SP-2: (new Pond)

6.15% Impervious, Inflow Depth > 0.91" for 2-YR event Inflow Area = 5.288 ac,

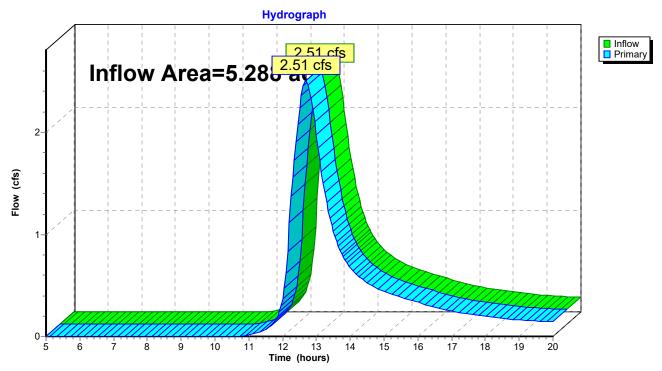
Inflow 0.399 af

2.51 cfs @ 12.69 hrs, Volume= 2.51 cfs @ 12.69 hrs, Volume= 0.399 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D2: D2

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-2: (new Pond)



HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Summary for Pond SP-3: (new Pond)

Inflow Area = 20.080 ac, 5.79% Impervious, Inflow Depth > 0.87" for 2-YR event

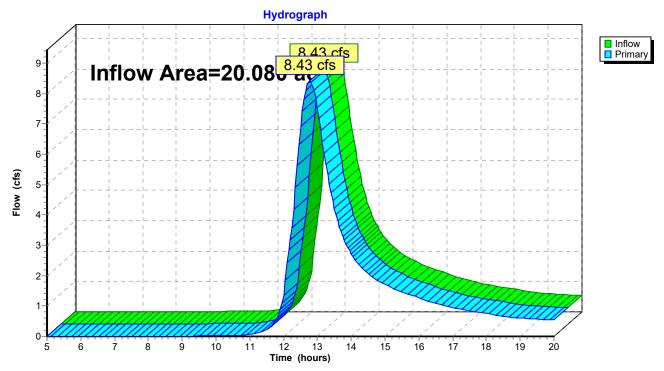
Inflow 1.463 af

8.43 cfs @ 12.78 hrs, Volume= 8.43 cfs @ 12.78 hrs, Volume= 1.463 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D1: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-3: (new Pond)



POST

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 32

Summary for Pond SP-4: (new Pond)

Inflow Area = 1.58% Impervious, Inflow Depth > 0.86" for 2-YR event 16.682 ac,

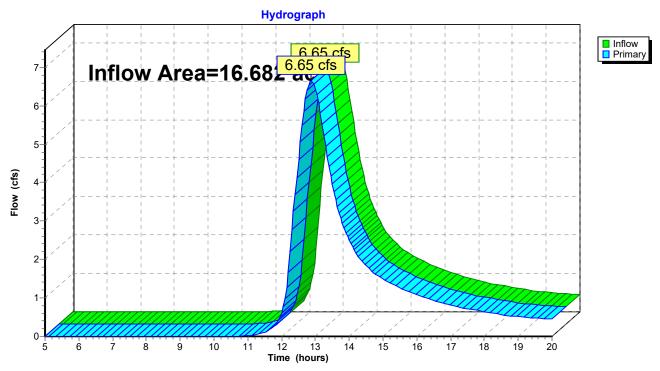
Inflow 1.194 af

6.65 cfs @ 12.88 hrs, Volume= 6.65 cfs @ 12.88 hrs, Volume= 1.194 af, Atten= 0%, Lag= 0.0 min Primary

Routed to Pond D1: (new Pond)

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond SP-4: (new Pond)



HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 1

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method
Subcatchment 10S: (new Subcat) Runoff Area=126,255 sf 3.96% Impervious Runoff Depth>1.81" Flow Length=309' Slope=0.0200 '/' Tc=32.9 min CN=76 Runoff=3.59 cfs 0.436 af
Subcatchment 11S: (new Subcat) Runoff Area=34,237 sf 21.91% Impervious Runoff Depth>2.05" Flow Length=150' Slope=0.0400 '/' Tc=10.1 min CN=79 Runoff=1.75 cfs 0.134 af
Subcatchment 12S: (new Subcat) Runoff Area=373,177 sf 4.70% Impervious Runoff Depth>1.73" Flow Length=309' Tc=41.3 min CN=75 Runoff=9.09 cfs 1.232 af
Subcatchment 13S: (new Subcat) Runoff Area=29,992 sf 20.01% Impervious Runoff Depth>2.05" Slope=0.0600 '/' Tc=6.3 min CN=79 Runoff=1.74 cfs 0.118 af
Subcatchment 14S: (new Subcat) Runoff Area=12,377 sf 41.45% Impervious Runoff Depth>2.47" Tc=5.0 min CN=84 Runoff=0.88 cfs 0.058 af
Subcatchment 20S: (new Subcat) Runoff Area=205,594 sf 4.46% Impervious Runoff Depth>1.87" Flow Length=478' Slope=0.0100 '/' Tc=49.5 min CN=77 Runoff=4.95 cfs 0.735 af
Subcatchment 21S: (new Subcat) Runoff Area=24,744 sf 20.21% Impervious Runoff Depth>1.98" Tc=5.0 min CN=78 Runoff=1.42 cfs 0.094 af
Subcatchment 30S: (new Subcat) Runoff Area=746,720 sf 2.40% Impervious Runoff Depth>1.79" Flow Length=1,362' Slope=0.0100 '/' Tc=56.8 min CN=76 Runoff=15.92 cfs 2.554 af
Subcatchment 31S: (new Subcat) Runoff Area=29,090 sf 52.12% Impervious Runoff Depth>2.74" Tc=5.0 min CN=87 Runoff=2.27 cfs 0.152 af
Subcatchment 32S: (new Subcat) Runoff Area=98,866 sf 17.70% Impervious Runoff Depth>1.88" Flow Length=194' Slope=0.0100 '/' Tc=26.6 min CN=77 Runoff=3.23 cfs 0.356 af
Subcatchment 40S: (new Subcat) Runoff Area=690,986 sf 0.00% Impervious Runoff Depth>1.78" Flow Length=852' Slope=0.0100 '/' Tc=62.0 min CN=76 Runoff=13.97 cfs 2.359 af
Subcatchment41S: (new Subcat) Runoff Area=35,691 sf 32.22% Impervious Runoff Depth>2.30" Tc=5.0 min CN=82 Runoff=2.37 cfs 0.157 af
Reach 11R: (new Reach) Avg. Flow Depth=0.04' Max Vel=0.60 fps Inflow=1.75 cfs 0.134 af n=0.050 L=387.0' S=0.0258'/' Capacity=78.06 cfs Outflow=1.35 cfs 0.131 af
Reach 13R: (new Reach) Avg. Flow Depth=0.17' Max Vel=0.61 fps Inflow=1.74 cfs 0.118 af n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=1.23 cfs 0.115 af
Reach 14R: (new Reach) Avg. Flow Depth=0.15' Max Vel=0.27 fps Inflow=0.88 cfs 0.058 af n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.75 cfs 0.058 af
Reach 21R: (new Reach) Avg. Flow Depth=0.20' Max Vel=1.48 fps Inflow=1.42 cfs 0.094 af n=0.030 L=479.0' S=0.0104 '/' Capacity=6.77 cfs Outflow=1.18 cfs 0.093 af

POST

Prepared by Terradyn Consultants
HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Printed 7/5/2023 Page 2

H	ydroCAD®	10.10-6a	s/n 12055	© 2020 Hydro	CAD Software	e Solutions L	LC	

Reach 31R: (new Reach)	Avg. Flow Depth=0.27' Max Vel=2.87 fps Inflow=2.27 cfs 0.152 af n=0.035 L=268.0' S=0.0373 '/' Capacity=139.17 cfs Outflow=2.12 cfs 0.152 af
Reach 32AR: (new Reach)	Avg. Flow Depth=0.03' Max Vel=2.07 fps Inflow=3.23 cfs 0.356 af n=0.050 L=20.0' S=0.5000 '/' Capacity=336.50 cfs Outflow=3.22 cfs 0.356 af
Reach 33R: (new Reach)	Avg. Flow Depth=0.14' Max Vel=0.77 fps Inflow=3.22 cfs 0.356 af n=0.050 L=103.0' S=0.0097 '/' Capacity=28.48 cfs Outflow=3.20 cfs 0.355 af
Reach 41AR: (new Reach)	Avg. Flow Depth=0.14' Max Vel=3.06 fps Inflow=2.37 cfs 0.157 af n=0.030 L=157.0' S=0.0637 '/' Capacity=24.22 cfs Outflow=2.30 cfs 0.157 af
Reach 41BR: (new Reach)	Avg. Flow Depth=0.14' Max Vel=1.59 fps Inflow=2.30 cfs 0.157 af n=0.030 L=658.0' S=0.0152 '/' Capacity=56.33 cfs Outflow=1.85 cfs 0.155 af
Pond D1: (new Pond)	Inflow=32.32 cfs 5.574 af Primary=32.32 cfs 5.574 af
Pond D2: D2	Inflow=19.95 cfs 2.801 af Primary=19.95 cfs 2.801 af
Pond D3: (new Pond)	Inflow=50.23 cfs 8.375 af Primary=50.23 cfs 8.375 af
Pond SP-1: (new Pond)	Inflow=14.95 cfs 1.973 af Primary=14.95 cfs 1.973 af
Pond SP-2: (new Pond)	Inflow=5.27 cfs 0.827 af Primary=5.27 cfs 0.827 af
Pond SP-3: (new Pond)	Inflow=18.15 cfs 3.061 af Primary=18.15 cfs 3.061 af
Pond SP-4: (new Pond)	Inflow=14.37 cfs 2.513 af Primary=14.37 cfs 2.513 af

Total Runoff Area = 55.274 ac Runoff Volume = 8.386 af Average Runoff Depth = 1.82" 95.12% Pervious = 52.578 ac 4.88% Impervious = 2.696 ac

Reach 21R: (new Reach)

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Page 3

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method
Subcatchment 10S: (new Subcat) Runoff Area=126,255 sf 3.96% Impervious Runoff Depth>2.41" Flow Length=309' Slope=0.0200 '/' Tc=32.9 min CN=76 Runoff=4.81 cfs 0.582 af
Subcatchment11S: (new Subcat) Runoff Area=34,237 sf 21.91% Impervious Runoff Depth>2.69" Slope=0.0400 '/' Tc=10.1 min CN=79 Runoff=2.29 cfs 0.176 af
Subcatchment 12S: (new Subcat) Runoff Area=373,177 sf 4.70% Impervious Runoff Depth>2.32" Flow Length=309' Tc=41.3 min CN=75 Runoff=12.25 cfs 1.655 af
Subcatchment 13S: (new Subcat) Runoff Area=29,992 sf 20.01% Impervious Runoff Depth>2.70" Slope=0.0600 '/' Tc=6.3 min CN=79 Runoff=2.27 cfs 0.155 af
Subcatchment14S: (new Subcat) Runoff Area=12,377 sf 41.45% Impervious Runoff Depth>3.16" Tc=5.0 min CN=84 Runoff=1.12 cfs 0.075 af
Subcatchment20S: (new Subcat) Runoff Area=205,594 sf 4.46% Impervious Runoff Depth>2.48" Flow Length=478' Slope=0.0100 '/' Tc=49.5 min CN=77 Runoff=6.58 cfs 0.976 af
Subcatchment21S: (new Subcat) Runoff Area=24,744 sf 20.21% Impervious Runoff Depth>2.61" Tc=5.0 min CN=78 Runoff=1.86 cfs 0.123 af
Subcatchment30S: (new Subcat) Runoff Area=746,720 sf 2.40% Impervious Runoff Depth>2.39" Flow Length=1,362' Slope=0.0100 '/' Tc=56.8 min CN=76 Runoff=21.31 cfs 3.412 af
Subcatchment31S: (new Subcat) Runoff Area=29,090 sf 52.12% Impervious Runoff Depth>3.45" Tc=5.0 min CN=87 Runoff=2.83 cfs 0.192 af
Subcatchment 32S: (new Subcat) Runoff Area=98,866 sf 17.70% Impervious Runoff Depth>2.50" Flow Length=194' Slope=0.0100 '/' Tc=26.6 min CN=77 Runoff=4.29 cfs 0.473 af
Subcatchment 40S: (new Subcat) Runoff Area=690,986 sf 0.00% Impervious Runoff Depth>2.38" Flow Length=852' Slope=0.0100 '/' Tc=62.0 min CN=76 Runoff=18.70 cfs 3.151 af
Subcatchment41S: (new Subcat) Runoff Area=35,691 sf 32.22% Impervious Runoff Depth>2.97" Tc=5.0 min CN=82 Runoff=3.03 cfs 0.203 af
Reach 11R: (new Reach) Avg. Flow Depth=0.05' Max Vel=0.68 fps Inflow=2.29 cfs 0.176 af n=0.050 L=387.0' S=0.0258 '/' Capacity=78.06 cfs Outflow=1.83 cfs 0.173 af
Reach 13R: (new Reach) Avg. Flow Depth=0.21' Max Vel=0.67 fps Inflow=2.27 cfs 0.155 af n=0.050 L=389.0' S=0.0051 '/' Capacity=8.30 cfs Outflow=1.66 cfs 0.152 af
Reach 14R: (new Reach) Avg. Flow Depth=0.18' Max Vel=0.29 fps Inflow=1.12 cfs 0.075 af n=0.400 L=83.0' S=0.0723 '/' Capacity=6.03 cfs Outflow=0.96 cfs 0.074 af

Avg. Flow Depth=0.24' Max Vel=1.62 fps Inflow=1.86 cfs 0.123 af

n=0.030 L=479.0' S=0.0104 '/' Capacity=6.77 cfs Outflow=1.58 cfs 0.122 af

Prepared by Terradyn Consultants

HydroCAD® 10.10-6a s/n 12055 © 2020 HydroCAD Software Solutions LLC

Printed 7/5/2023 Page 4

Reach 31R: (new Reach)	Avg. Flow Depth=0.31' Max Vel=3.07 fps Inflow=2.83 cfs 0.192 af n=0.035 L=268.0' S=0.0373 '/' Capacity=139.17 cfs Outflow=2.65 cfs 0.192 af
Reach 32AR: (new Reach)	Avg. Flow Depth=0.04' Max Vel=2.32 fps Inflow=4.29 cfs 0.473 af n=0.050 L=20.0' S=0.5000'/' Capacity=336.50 cfs Outflow=4.28 cfs 0.473 af
Reach 33R: (new Reach)	Avg. Flow Depth=0.16' Max Vel=0.85 fps Inflow=4.28 cfs 0.473 af n=0.050 L=103.0' S=0.0097 '/' Capacity=28.48 cfs Outflow=4.25 cfs 0.471 af
Reach 41AR: (new Reach)	Avg. Flow Depth=0.16' Max Vel=3.33 fps Inflow=3.03 cfs 0.203 af n=0.030 L=157.0' S=0.0637 '/' Capacity=24.22 cfs Outflow=2.95 cfs 0.202 af
Reach 41BR: (new Reach)	Avg. Flow Depth=0.17' Max Vel=1.77 fps Inflow=2.95 cfs 0.202 af n=0.030 L=658.0' S=0.0152 '/' Capacity=56.33 cfs Outflow=2.48 cfs 0.200 af
Pond D1: (new Pond)	Inflow=43.13 cfs 7.426 af Primary=43.13 cfs 7.426 af
Pond D2: D2	Inflow=26.51 cfs 3.735 af Primary=26.51 cfs 3.735 af
Pond D3: (new Pond)	Inflow=66.90 cfs 11.161 af Primary=66.90 cfs 11.161 af
Pond SP-1: (new Pond)	Inflow=19.91 cfs 2.637 af Primary=19.91 cfs 2.637 af
Pond SP-2: (new Pond)	Inflow=6.98 cfs 1.098 af Primary=6.98 cfs 1.098 af
Pond SP-3: (new Pond)	Inflow=24.24 cfs 4.075 af Primary=24.24 cfs 4.075 af
Pond SP-4: (new Pond)	Inflow=19.18 cfs 3.351 af Primary=19.18 cfs 3.351 af

Total Runoff Area = 55.274 ac Runoff Volume = 11.173 af Average Runoff Depth = 2.43" 95.12% Pervious = 52.578 ac 4.88% Impervious = 2.696 ac

APPENDIX 5

HOUSEKEEPING

HOUSEKEEPING PERFORMANCE STANDARDS

FOR:

Bartlett Road Subdivision Kittery, MAINE

Project Developer: Beachwood Development Fund

P.O. Box 261

Kennebunk, ME 04043

Responsible Party: Beachwood Development Fund

P.O. Box 261

Kennebunk, ME 04043

Introduction:

The contractor shall be responsible for maintaining proper housekeeping standards throughout the construction phase of the project. After the construction phase has been completed, the owner or operator of the project will be responsible.

Standards:

In accordance with the housekeeping performance standards required by MDEP chapter 500 stormwater regulations, the following standards shall be met:

- 1. Spill prevention. Controls must be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.
- 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.
- **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.

Operations during wet months that experience tracking of mud off the site onto public roads should provide for sweeping of road areas at least once a week and prior to significant storm events. Where chronic mud tracking occurs, a stabilized construction entrance should be provided. Operations during dry months, that experience fugitive dust problems, should wet down the access roads once a week or more frequently as needed.

4. Debris and other materials. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

To prevent these materials from becoming a source of pollutants, construction and postconstruction 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. Trench or foundation de-watering. Trench 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 must be removed from the ponded area, either through gravity or pumping, and 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.
- **6. Non-stormwater discharges.** Identify and prevent contamination by non-stormwater discharges.

APPENDIX 6

STORMWATER INSPECTION & MAINTENENACE



BARTLETT ROAD SUBDIVISION KITTERY, MAINE

STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN

Project Owner/Developer: Beachwood Development Fund

P.O. Box 261

Kennebunk, Maine 04043

(207) 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 log book 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-constrction 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 resource and treatment buffers once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turn-outs must be used to ensure a more even distribution of flow into a buffer. Check down slope of all spreaders and turn-outs for erosion. If erosion is present, adjust or modify the spreader or turnout lip to ensure a better distribution of flow into a buffer. Clean-out any accumulation of sediment within the spreader bays or turn-out pools.

DOCUMENTATION

Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

The log attached at the end of this plan is from the *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers (May 2016)*. The log may be used or adapted for this project.

ATTACHMENTS:

Stormwater Management Facilities Inspection & Maintenance Log

Stormwater Management Facilities Post Construction Inspection & Maintenance Log Bartlett Road Subdivision, Kittery, Maine General Information: Inspected by: Date: Weather: Reason for Inspection: (Regular Inspection) (Major Rain Event, 1" in 24 hours)

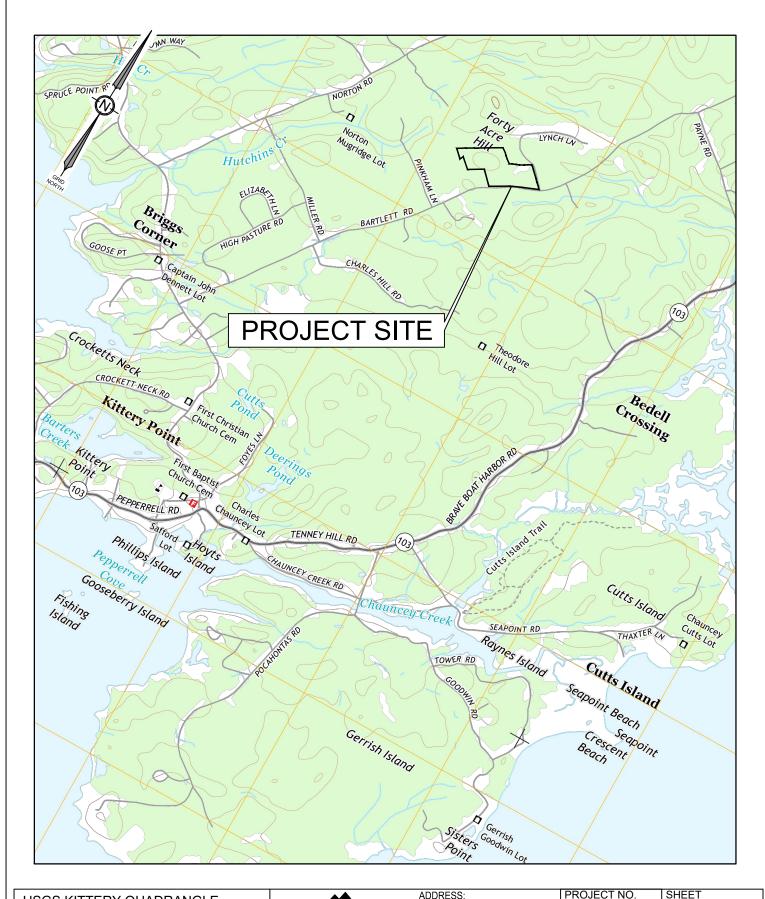
ВМР	Conditions Observed	Repairs Needed
1. Vegetated Areas		
2. Ditches, Swales, Open Channels		
3. Culverts		
4. Stormwater Buffers		

Detailed Repair Notes:

	Dotanio Ropan Notoci									
BMP Type	Date	Description of Repairs & Sediment Disposal								

Notes:

If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. A copy of this log shall be retained for a period of at least five years from the completion of permanent stabilization.





PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

PREPARED FOR: BEACHWOOD DEVELOPMENT FUND LP PO BOX 260 KENNEBUNK, MAINE 04043



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. 22-145 DATE 3/20/2023

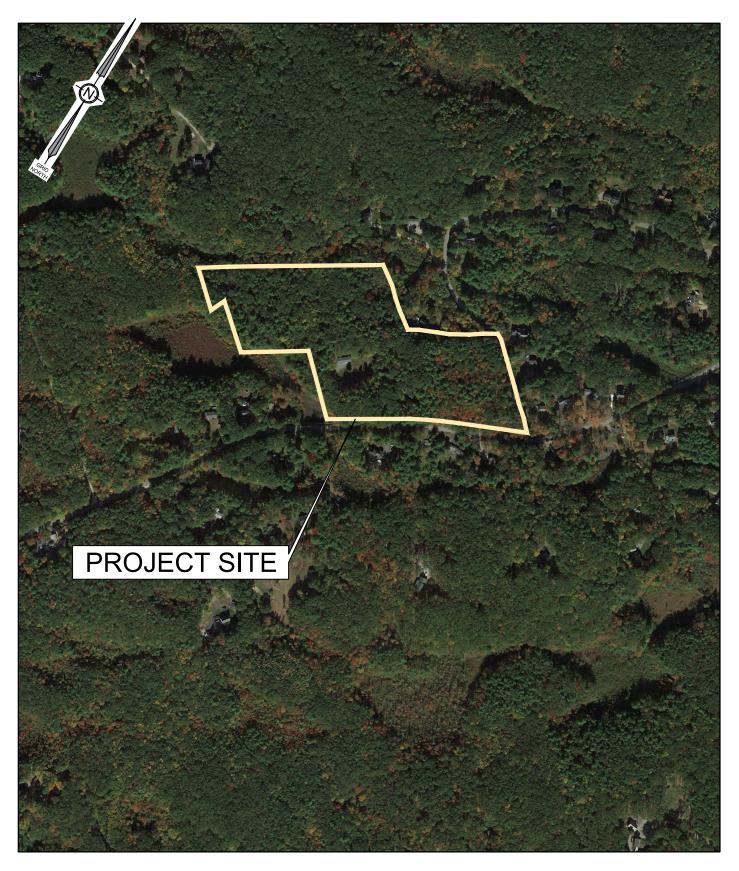
1" = 2,000'

SCALE

OF

5

1



AERIAL MAP

PROJECT: BARTLETT ROAD SUBDIVISION 77 BARTLETT ROAD, KITTERY, MAINE

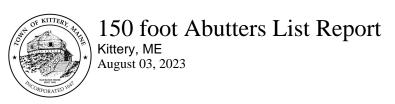
PREPARED FOR:
BEACHWOOD DEVELOPMENT FUND LP PO BOX 260 KENNEBUNK, MAINE 04043



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

www.terradynconsultants.com

PROJECT NO. SHEET 22-145 2 DATE OF 3/20/2023 SCALE 5 1" = 500'



Subject Property:

Parcel Number: 62-26 CAMA Number: 62-26

Property Address: 77 BARTLETT ROAD

Mailing Address: BEACHWOOD DEVELOPMENT FUND LP

BEACHWOOD DEVELOPMENT FUND LP

PO BOX 261

KENNEBUNK, ME 04043

ΑI	bu	tte	rs
----	----	-----	----

Parcel Number: 62-18 Mailing Address: REED, TED RAY REED, TED RAY

CAMA Number: 62-18 27 OLD GORDON ROAD
Property Address: PINKHAMS LANE BRENTWOOD, NH 03833-6213

Parcel Number: 62-19 Mailing Address: ICHOR REV. TRUST ICHOR REV. TRUST

CAMA Number: 62-19 P.O. BOX 102
Property Address: 57 BARTLETT ROAD KITTERY, ME 03904

Parcel Number: 62-23 Mailing Address: PIERCE, PAUL R. PIERCE, PAUL R.

CAMA Number: 62-23 5361 MILL DAM ROAD
Property Address: 65 BARTLETT ROAD WAKE FOREST, NC 27587

Parcel Number: 62-23-1 Mailing Address: KIMBALL, ROBERT W KIMBALL,

CAMA Number: 62-23-1 ROBERT W

Property Address: 67 BARTLETT ROAD 67 BARTLETT ROAD

KITTERY POINT, ME 03905-5640

Parcel Number: 62-24A Mailing Address: POWERS, COREY POWERS, COREY

CAMA Number: 62-24A 78 BARTLETT ROAD

Property Address: 78 BARTLETT ROAD KITTERY POINT, ME 03905

Parcel Number: 62-26A Mailing Address: RECU TR, KENNETH S RECU TR,

CAMA Number: 62-26A KENNETH S

Property Address: 69 BARTLETT ROAD KENNETH S RECU TRUST 69 BARTLETT

ROAD KITTERY POINT, ME 03905-5640

Parcel Number: 62-29 Mailing Address: PAARLBERG, WILLIAM T PAARLBERG,

CAMA Number: 62-29 WILLIAM T

Property Address: 82 BARTLETT ROAD 82 BARTLETT ROAD

KITTERY POINT, ME 03905-5636

Parcel Number: 62-29-1 Mailing Address: NILES, KEVIN A NILES, KEVIN A

CAMA Number: 62-29-1 80 BARTLETT ROAD

Property Address: 80 BARTLETT ROAD KITTERY POINT, ME 03905-5636

Parcel Number: 62-29-2 Mailing Address: BARAN, ADAM W BARAN, ADAM W

CAMA Number: 62-29-2 84 BARTLETT ROAD

Property Address: 84 BARTLETT ROAD KITTERY POINT, ME 03905

are not responsible for any use for other purposes or misuse or misrepresentation of this report.



62-30

68-4A-2

Property Address: 88 BARTLETT ROAD

Property Address: 4 LYNCH LANE

Property Address: 6 LYNCH LANE

CAMA Number:

CAMA Number:

CAMA Number:

Parcel Number: 62-29-3 Mailing Address: MICHAEL LANDGARTEN 2012 REV.

CAMA Number: 62-29-3 TRUST MICHAEL LANDGARTEN 2012 Property Address: 86 BARTLETT ROAD

REV. TRUST

86 BARTLETT ROAD KITTERY POINT, ME 03905

Parcel Number: 62-30 Mailing Address: MARTIN, HENRY I MARTIN, HENRY I

88 BARTLETT ROAD

KITTERY POINT, ME 03905-5636

Parcel Number: 68-4A-1 Mailing Address: BLAKE, SHARON JEAN BLAKE, SHARON

68-4A-1 **JEAN**

4 LYNCH LANE

KITTERY POINT, ME 03905

Parcel Number: 68-4A-2 Mailing Address: PELKEY, ROY N PELKEY, ROY N

6 LYNCH LANE

KITTERY POINT, ME 03905

Parcel Number: KITTERY LAND TRUST INC KITTERY 68-4A-23 Mailing Address:

CAMA Number: 68-4A-23 LAND TRUST INC Property Address: 10 LYNCH LANE **PO BOX 467**

KITTERY, ME 03904

Parcel Number: 68-4A-3 Mailing Address: FULLER, TR, MICHAEL FULLER, TR,

CAMA Number: 68-4A-3 MICHAEL Property Address: 7 LYNCH LANE 7 LYNCH LANE

KITTERY POINT, ME 03905

Parcel Number: 68-4A-4 Mailing Address: HERSCOTT, MICHAEL JOSEPH 68-4A-4 HERSCOTT, MICHAEL JOSEPH CAMA Number:

Property Address: 81 BARTLETT ROAD 81 BARTLETT ROAD

KITTERY POINT, ME 03905

Parcel Number: 68-4A-8 Mailing Address: FULLER, TR, MICHAEL FULLER, TR,

CAMA Number: 68-4A-8 MICHAEL

Property Address: 9 LYNCH LANE 7 LYNCH LANE KITTERY POINT, ME 03905

Parcel Number: 68-4A-9 Mailing Address: MAY, GRETCHEN MAY, GRETCHEN

68-4A-9 CAMA Number: 11 LYNCH LANE

Property Address: 11 LYNCH LANE KITTERY POINT, ME 03905

MCINTIRE, KYLIE R. MCINTIRE, KYLIE R. Parcel Number: 68-7 Mailing Address:

CAMA Number: 68-7 90 BARTLETT ROAD

Property Address: 90 BARTLETT ROAD KITTERY POINT, ME 03905



August 3, 2023 Project #22-145

Abutting Property Owner:

This is to inform you that Terradyn Consultants, LLC plans to submit a Preliminary Subdivision Application to the Kittery Planning Board for a 9-lot residential subdivision on the parcel located at 77 Bartlett Road in Kittery on behalf of the property owner, Beachwood Development Fund, LP.

The application will be available for review at the Planning and Development Department located in Town Hall at 200 Rogers Road. You can contact the Planning and Development department for more information on the application review process.

Sincerely,

TERRADYN CONSULTANTS, LLC

Michael Tadema-Wielandt, P.E.

Vice President



TOWN OF KITTERY MAINE TOWN PLANNING AND DEVELOPMENT DEPARTMENT

200 Rogers Road, Kittery, Maine 03904 PHONE: (207) 475-1323 Fax: (207) 439-6806 www.kittery.org

APPLICATION: SUBDIVISION PLAN REVIEW

FEE FOR		M	\$500, 00 PLUS		00 DI US		\$50.00/LOT OR DWELLING UNIT		ıR	Minor Subdivision: not more than 4 lots Fee Paid: Date:				\$	
REVIEW	:	\$500). 00 PLUS						Major Subdivision: 5 or more lots				Escrow Fee Paid: \$ te:	
PROPER	RTY		Parce	arcel ID		Мар	62	Lot	26	Zone(s): Base: Overlay MS4		R-R OZ- Yes		Total Land Area	19.11 acres
DESCRIP					77 Bartlett Road			d							
				Nam	е	Beachwood	Developmen	t Fund LP					O. Box 261	240	
PROPER	_		r'S	Phor	ie	207-9	985-36	46		Mailing Address		Ke	Kennebunk ME 04043		
INFORMATIO				Fax											
				Ema	I	geoff@bowleybuilders.com			m						
				Nam	е	Michael	Tadema-	Wieland	t, P.E.	P.E. Name of Business		Terradyn Consultants, LLC			
APPLICA AGENT	NT'S	Phone Fax		ie	207-632-9010						565 Congress Street Suite 201 Portland ME 04101				
INFORM	IATION														
		Email		mtw@terradynconsultants.com											
-	Existin	The existing parcel is wooded with pockets of freshwater wetlands, and contains a single family residential home with a paved driveway accessing Bartlett Road. An old cemetery is located centrally													
	residential hor to the souther						with a palf of th	e site	driv	eway access	ing Ba	ırtle	ett Road. An old cer	netery	is located centrally
NO	Numb	er of	Propo	sed Lo	ots	g Sul		Sub	Subdivision Name		Bartlett Road Subdivision				
DESCRIPTION	Propo	sed S	Subdiv	ision:											
DESC	Design	v (ch	ock)			Conven	tional				т	Total Development La		Landscaping	
	Desigi	i. (Ci	ieckj		\checkmark	Cluster	Develo	oment	Re	esponsibilities: (check)		Othe	er	7	Road
PROJECT	Owne	rshin	: (chec	ck)	$\underline{\checkmark}$	Fee- Simple					<u></u> P	ost-	Construction Storm Wate	r Runoff	System Maintenance
- -	Ownership: (check)				_ Condominium										
_	Home Associ				\checkmark	YES _	NO								

V	WAIVER REQUEST (Submittal Information or Development Standard)								
	Ordinance Section	Describe why this request is being made.							
	EXAMPLE 16.32.560 (B)- OFFSTREET PARKING.	***EXAMPLE*** Requesting a waiver of this ordinance since the proposed professional offices have a written agreement with the abutting Church owned property to share parking.							
έν									
Waivers									
Rela	ited Kittery Land Use	and Development Code Provisions:							

16.10.8.2.5 Conditions or Waivers.

Conditions required by the Planning Board at the final plan review phase must have been met before the final plan may be given final approval unless so specified in the condition or specifically waived, upon written request by the applicant, by formal Planning Board action wherein the character and extent of such waivers which may have been requested are such that they may be waived without jeopardy to the public health, safety and general welfare.

16.7.4.1 Objectives Met. In granting modifications or waivers, the Planning Board must require such conditions as will, in its judgment, substantially meet the objectives of the requirements so waived or modified.

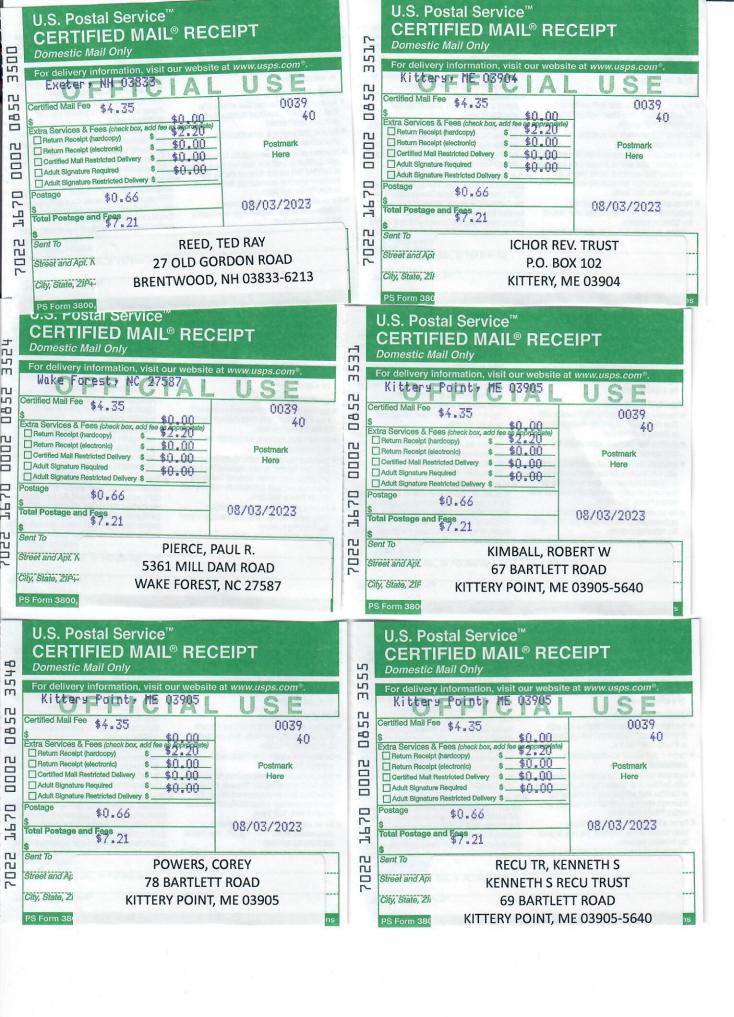
ABUTTER NOTIFICATION

16.10.5.1.1. Preliminary Plan Application Filing and Completeness Review. ... The application must be accompanied by a Plan and the required fee together with a certification the applicant has notified abutters by mail of the filing of the Plan application for approval.

Submitted Application must include a list showing the names and addresses of the abutters notified and date mailed.

The Abutter Notice must include a copy of page one and where applicable page 2 of a signed Application.

I certify, to the best of my knowledge, the information provided in this Application is true and correct, abutters to the project have								
been notified, and I will not deviate from the Plan submitted without notifying the Kittery Planning Department of any changes.								
Applicant's Agent	Michaels, V/VVT	Owner's Agent	Michael S. M. W.					
Signature:	0/2/2022	Signature:	8/3/2023					
Date:	8/3/2023	Date:	0/3/2023					



U.S. Postal Service™ CERTIFIED MAIL® REC	EIPT	79	U.S. Postal Service™ CERTIFIED MAIL® REC Domestic Mail Only	CEIPT
For delivery information, visit our website Kittery Foint, NE 03905	at www.usps.com®.	E 5	For delivery information, visit our websit Kittery Point, IE 03905	e at www.usps.com®.
Certified Mail Fee \$4.35 \$ \$1.00 Extra Services & Fees (check box, add fee as exprepriate) Return Receipt (nardcopy) Return Receipt (electronic) Certified Mail Restricted Delivery Adult Signature Required \$0.00	0039 40 Postmark Here	0002 0852	Certified Mail Fee \$4.35 Extra Services & Fees (check box, add fee & appropriate) Return Receipt (hardcopy) Return Receipt (electronic) Certified Mail Restricted Delivery Adult Signature Required	0039 40 Postmark Here
Adult Signature Restricted Delivery \$ Postage \$0.66 \$ Total Postage and Facs 21 \$	08/03/2023	11670	Postage \$0.66 Total Postage and Fees \$7.21	08/03/2023
Sent To PAARLBERG, W Street and A 82 BARTLET City, State, 2 KITTERY POINT, M	TROAD	7022	Street and Apt. No., 80 BART City, State, ZIP+4* KITTERY POINT	KEVIN A LETT ROAD T, ME 03905-5636
U.S. Postal Service [™] CERTIFIED MAIL [®] REC Domestic Mail Only		E	U.S. Postal Service™ CERTIFIED MAIL® REC	CEIPT
For delivery information, visit our website Kittery Foint (15 03985) Certified Mall Fee \$4,35 \$ Extra Services & Fees (check box, add fee \$25000000000000000000000000000000000000	at www.usps.com®. USE 0039 40 Postmark Here	0002 0852 359	For delivery information, visit our website Kittery Foint, HE 03905 Certified Mall Fee \$4.35 \$ Extra Services & Fees (check box, add fee exprepriate) Return Receipt (hardcopy) Return Receipt (electronic) Certified Mall Restricted Delivery \$ Adult Signature Required Adult Signature Restricted Delivery \$	e at www.usps.com*. USE 0039 40 Postmark Here
\$ Total Postage and Fees \$ 7.21	08/03/2023	1670	Postage \$0.66 \$ Total Postage and \$95.21	08/03/2023
BARAN, ADA Street and A; City, State, 2 PS Form 36 BARAN, ADA 84 BARTLETT KITTERY POINT,	ROAD	7022	Sent To MICHAEL LANDGAR Street and A TRUST City, State, 2 86 BARTLETT PS Form 31 KITTERY POINT,	ROAD
U.S. Postal Service [™] CERTIFIED MAIL [®] REC Domestic Mail Only For delivery information, visit our website		16	U.S. Postal Service [™] CERTIFIED MAIL [®] REC Domestic Mail Only	EIPT
Kitters Foint, HE 03905 Certified Mail Fee \$4,35 \$ \$0.00 Extra Services & Fees (check box, add fee at appropriate)	USE 0039 40	1852 36	For delivery information, visit our website Kittery Point, ME 03905 Certified Mail Fee \$4.35	at www.usps.com*. USE 0039 40
Return Receipt (hardcopy) \$ \$2.20 Return Receipt (electronic) \$ \$0.00 Certified Mail Restricted Delivery \$ \$0.00 Adult Signature Required \$ \$0.00 Adult Signature Restricted Delivery \$ Postage \$0.66	Postmark Here	2000	Extra Services & Fees (check box, add fee a expressible) Return Receipt (hardcopy)	Postmark Here
S Total Postage and Fees 7 21	08/03/2023	167	Postage \$0.66 Fotal Postage and Fee: 21	08/03/2023
MARTIN, HE Street and A; 88 BARTLETT City, State, Z KITTERY POINT, ME PS Form 38	ROAD	702	Sent To BLAKE, SHARON Street and 4 LYNCH LAN KITTERY POINT, M PS Form	NE

