Town of Kittery
Planning Board Meeting
October 26, 2023

ITEM 1—283 US Route 1—Master Site Plan — Preliminary Review
Action: accept site plan as complete. Schedule site walk/public hearing. Neil Hansen, on behalf of owner/applicant Two International Group, is proposing a multi-phase project to re-develop existing commercial retail facilities into a 107-unit housing complex, 119 room hotel, and 6,000 square feet commercial building intended for a restaurant, along with associated parking and utilities, located on the property of 283 US Route 1, Map 30 Lot 44, in the Route 1 Commercial (C-1) Zone.

PROCESS SUMMARY

REQ'D	ACTION	COMMENTS	STATUS
NO	Sketch Plan Acceptance/Approval	5/25/23	Accepted
YES	Planning board determination of completeness	Scheduled for 10/26/23	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
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.			

OTHER PERMITS AND REQUIREMENTS
- DOT Traffic movement pattern.
- State Fire Marshal NFPA #13 fire protection system approval.
- DEP construction permitting and site review.
- Site Location of Development Act (SLOTA) permit

PROJECT INTRODUCTION

This is the first preliminary review for a master site development project on a single parcel containing three existing strip retail buildings and paved parking. 283 Route 1 is a corner lot along the I-95 Interstate highway, with the property abutting the Kittery Trading Post and other commercial outlet buildings.

The development plans are for three phases, one for each of the proposed uses. The first phase of the project would be to develop a 119-room hotel. The second phase would be the development of a 5-story apartment totaling 107 units, 11 of which would be affordable. The third phase is for the development of a 6,000 square foot commercial building with the intention to house a food and beverage facility at a later date. If this project is approved, a subsequent site plan will be necessary when a plan for the commercial space is determined.

Public water and wastewater transmission facilities have been reviewed and are found not to require upgrades to support all phases of this project. Access to the site would be provided via existing driveways on Wilson and Old Wilson Road, with the curb cut on the Route 1 Bypass to be closed. In addition to parking and utilities, the applicant is proposing a dog park along a portion of the property facing I-295.

Since sketch plan acceptance, the size of the proposed commercial area has been reduced from ~10,000 sq ft to 6,000 sq ft. The applicant has confirmed their intention to seek a restaurant as a tenant should the plan be approved. The applicant has also increased the number of proposed parking spaces, including a 5th underground floor in the multi-family dwelling to provide spaces for residents. At the sketch review, the applicant was uncertain whether they would be subdividing the parcel; they have since confirmed they plan to keep a single property and move forward with a site plan application.

The applicant has provided the submission requirements for a preliminary site plan. Staff advise determining application completeness and providing initial feedback during this meeting.

WAIVERS REQUESTED

1. Traffic impact study deadline extension: the applicant is requesting a modification to allow plan acceptance before a fully completed traffic impact analysis. The traffic engineer is coordinating with MDOT to receive a traffic movement permit and is currently unable to provide all of the criteria required for an analysis in **§16.7.11.(2).** The applicant will complete this study before plan approval, but the applicant is requesting **acceptance** at this time to allow the scheduling of a site walk and hearing, as they wish to solicit feedback from the public as early as possible. All criteria currently completed, such as estimated trip generation, are included in this application packet.

STAFF COMMENTS

Listed below are additional comments provided by staff in addition to general review of standards:

1. Due to the size of the property and the proposed scope of work, this project constitutes a Master Site Development Plan per Chapter **§16.6** of Kittery Town Code and must meet ordinance requirements for any proposed project phasing.
2. Police and Public Works staff both requested the applicant remove the crosswalk connecting the property to the abutting Kittery Trading Post, as long as sidewalks are built along Wilson Road to guide pedestrians to the intersection at the southeast corner of the lot.
3. The site plan (sheet C-102) has proposed snow storage areas. Note 18 on this sheet details snow storage procedures.
4. The site plan does not show any canopy or overhanging area for the proposed hotel. If the hotel is providing one, this is considered a structure and must be included in building footprint calculations and meet NFPA standards.
5. The applicant was seeking a lot line adjustment on Old Wilson Road to get access from the Town to perform maintenance (shown on sheet C-102). Public Works does not believe a lot line adjustment is necessary, as maintenance responsibilities are already the burden of the private property owner.
6. Fire staff are concerned about the proposed portable water connections for the hotel, as that is usually the area that FTC is located.
7. One of the 5 stories in the multi-family dwelling is a below-ground parking area. If any electric vehicle charging stations are to be built, Fire staff strongly discourage any charging ports from being installed in below-ground floors.
8. Staff believe a buffer between the highway would be beneficial to the multi-family dwelling and proposed park.

PROJECT ANALYSIS

Staff reviewed the application and provided materials and have provided their determination on the requirements and standards below. All requirements that have not been met or require further discussion are highlighted.

Code Ref.	§16.4 Land Use Zone Standards	
	Standard	Determination
§16.4.19.B/C.	Permitted/Special Exception Uses	The proposed commercial uses are permitted. The proposed multi-

		family dwelling is a special exception use in this zone.
§16.4.19.E.(2).(a).	Lot size: 40,000 sq ft. minimum	It appears the standard is satisfied.
§16.4.19.E.(2).(b).	Street frontage: no requirements in C-1 Zone	It appears the standard is satisfied.
§16.4.19.E.(2).(c).	Front setback: 15 ft minimum NOTE: The Planning Board may, at its discretion, allow a greater setback when public amenities such as benches, pocket parks, outdoor dining or seating areas are proposed. Properties in the C-3 Zone with frontage on Old Post Road, including those lots which also have frontage on Route 1 Bypass, are required to have at least a fifteen-foot setback on Old Post Road.	It appears the standard is satisfied.
§16.4.19.E.(2).(d).	Rear and side setbacks: 10 ft minimum.	It appears the standard is satisfied.
§16.4.19.E.(2).(e).	Building height: 40 ft maximum NOTE: the maximum is 50 ft for multifamily dwellings on the west side of Route 1	It appears the standard is satisfied.
§16.4.19.E.(2).(f).	Imperious surface: 70% maximum for currently developed lots	It appears the standard is satisfied.
§16.4.19.E.(2).(g).	Water body setback for water-dependent uses: 0 ft minimum	Not applicable.
§16.4.19.E.(2).(k).	For 107 residential units, one of the two options are required: • 10 affordable units and a $70,000 payment in-lieu • 11 affordable units	This standard appears to be satisfied met, see note **§16.5.4** below for more detail.
§16.4.19.E.(2).(l)..	Mixed-use buildings must have non residential uses comprising at least 50% of the street-facing first floor	None of the buildings in the proposal are mixed-use. It appears the standard is satisfied.
§16.4.19.E.(2).(m)..	Underground utilities are required	It appears the standard is satisfied
§16.4.19.E.(3).(a).	Parking standards: parking areas must be visually screened when abutting residential properties.	The proposal does not abut any residential properties. It appears the standard is satisfied.

§16.4.19.E.(3).(a).[2]	Parking space dimensions: minimum 19’ x 9’	It appears the standard is satisfied.
§16.4.19.E.(4).(c).	Parking must be on-site unless meeting requirements is determined impractical. 20% of parking associated for multifamily dwellings may be designated for compact cars (if at least 10 spaces are required)	All parking is located on-site. It appears the standard is satisfied.
§16.4.19.E.(3).(b).	The proposal must meet Kittery’s building design standards.	The proposed developments appear to meet the design handbook guidelines.
§16.4.19.E.(3).(c)	Landscaping improvements: • minimum 30 ft vegetated landscape planter strips between the lot and adjacent all rights-of-way. • One street tree for every 25 feet of street frontage • 10 plants per 40 linear feet of street frontage unless existing woodlands or being retained. NOTE: per **§16.4.19.E.(4).(d),** for surface parking lots that service a multi-family dwelling and abut a street, the following conditions also apply: • street trees must be backed by a fence. • 50% of trees and shrubs must be evergreen species • A minimum of 10% of parking area must be landscaped	The applicant will show all standards are met in their landscaping plan before approval.
§16.4.19.E.(3).(d).	Traffic circulation standards: sidewalks are required along the entire portion of the lot facing Route 1 Wilson Road, and Old Wilson Road.	The standard appears to be satisfied.
§16.4.19.E.(3).(e).	Open Space standards: 25% minimum. NOTE: For multi-family dwellings, the minimum is 15%.	The plan meets the strictest minimum requirement of 25%. It appears the standard is satisfied.
§16.4.19.E.(4).(a).[1].	Sidewalks must be installed within the right-of-way	It appears the standard is satisfied.

§16.4.19.E.(4).(a).[2].	Housing development must be connected to new and existing commercial areas through sidewalks or walkways	The site plan shows sidewalks connecting the multi-family dwelling to the proposed hotel, restaurant, and dog park. It appears the standard is satisfied
§16.4.19.E.(4).(a).[3].	On-street parking is encouraged and can be considered a part of a joint use parking plan	On-street parking is not encouraged due to the property's location to the highway. All parking requirements are met on-site
§16.4.19.E.(4).(a).[4].	Areas for services such as dumpsters and generators must be screened by a fence at least 6 feet tall	All indicated dumpster pads are proposed to have an "enclosure." Staff request the applicant confirm said enclosure includes the required fence screening.
§16.4.19.E.(4).(a).[5].	Parking for residential units must be located so they do not face streets	283 Route 1 is a corner lot. Parking associated with the multi-family dwelling are located away from both roads to the greatest practical extent. It appears the standard is satisfied.
§16.4.19.E.(4).(a).[6].	Fixtures in a lighting plan must be cut off to prevent light trespass and meet all other photometric requirements	A photometric plan is required at the final plan review.
§16.4.19.E.(4).(e).	10 ft buffers, with a fence at least 6 feet high, are required between the following: • New residential uses and existing nonresidential uses • New residential uses and existing single-family uses	A buffer appears to be required between the multi-family dwelling and the abutting Kittery Trading Post.
Code Ref.	§16.5 Performance Standards	
	Standard	Determination
§16.5.14.C	Corner Lots	The property is considered a corner lot between Route 1 and Wilson Road. Access will be through a driveway along Wilson Road, meaning this is the road it "fronts."
§16.5.10	Essential Services	Wastewater and Water District staff have both confirmed sufficient capacity for the entire proposed development.
§16.5.25	Sprinkler Systems are required in all hotels and buildings of three or more stories	Sprinkler systems must meet NFPA standards.
§16.5.27	Street Standards: sidewalks are required along the entire ROW for the Route 1 Bypass and Wilson Road	The plan proposes sidewalks connecting the lot to the abutting intersection.

§16.5.4	Affordable housing requirements	The applicant has expressed their intent to provide 11 affordable housing units rather than pay any in-lieu fee. A housing plan must be submitted before preliminary approval
§16.7.11.F.(e).	A minimum of 276 parking spaces are required	The plan proposes a total of 316 parking spaces, including below ground spaces specifically servicing the residential property. The plan appears to meet ADA space requirements
Code Ref.	§16.6 Preliminary Master Site Plan Requirements	
	Standard	Determination
§16.6.1	Applicability for Master site plan: • The cumulative lot area is one acre of larger. • The site is designed as a cohesive development consisting of multiple buildings	The standard appears to be met
§16.6.2.B.(5).	Preliminary master site plan must follow requirements of Site Plan review in §16.7	The standard appears to be met
§16.6.3.A	Any applicable approval from Maine DEP, DOT, and Army Corps of engineers must be obtained or in the process of obtaining	The applicant is currently working with DOT to determine their traffic movement permit requirements.
§16.6.3.B.	Improvements to infrastructure, including sidewalks, streetlights, and guard rails, must be consistent in construction details	The standard appears to be satisfied
§16.6.3.C.	Each phase of the project must include stormwater treatment adequate to treat that phase of the project.	A phasing narrative was submitted to confirm adequate stormwater capacity for each phase.
§16.6.3.D.	New streets in the master site plan will include provisions for adequate turnaround between project phases.	A phasing narrative was submitted to confirm adequate parking capacity for each phase.
Code Ref.	§16.7.10 Preliminary Site Plan Requirements	
	Standard	Determination

§16.7.10.C.(4).(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
§16.7.10.C.(4).(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
§16.7.10.C.(4).(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
§16.7.10.C.(4).(l).	Natural features or site elements to be preserved.	Provided
§16.7.10.C.(4).(m).	Identified property encumbrances.	Provided
§16.7.10.C.(4).(n).	Kittery Water District approval letter.	Provided
§16.7.10.C.(4).(o).	Erosion and sedimentation control plan.	Provided
§16.7.10.C.(4).(p).	Stormwater management plan and drainage analysis.	Provided
§16.7.10.C.(4).(q).	Soil survey.	Provided
§16.7.10.C.(4).(r).	Vehicular traffic report.	Provided
§16.7.10.C.(4).(s).	Traffic impact analysis.	Full analysis is pending MDOT feedback. The applicant is requesting plan acceptance with the intention of submitting before preliminary approval, as detailed above.
§16.7.10.C.(4).(t).	Test pit analysis.	Not applicable

§16.7.10.C.(4).(u).	Approval letter from Town sewage.	Provided
§16.7.10.C.(4).(v).	Evaluation of development by Technical Review Committee department heads.	Provided
§16.7.10.C.(4).(w).	Additional submissions as required.	None identified 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 outstanding issues that have been identified are able to be modified at later iterations of the preliminary site plan. Staff believe the application meets all submission requirements for initial acceptance and support the modification request to accept the plan on the condition that a full traffic impact study will be submitted pending MDOT comments. Staff suggest the planning board provide initial feedback on the full plan set, the proposed changes from sketch plan, and the phasing plan.

RECOMMENDED MOTIONS

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

Motion to accept the application as complete

Move to accept the preliminary site plan by Neil Hansen, on behalf of owner/applicant Two International Group, proposing a multi-phase project to re-develop existing commercial retail facilities into a 107-unit housing complex, 119 room hotel, and 6,000 square feet commercial building intended for a restaurant, along with associated parking and utilities, located on the property of 283 US Route 1, Map 30 Lot 44, in the Route 1 Commercial (C-1) Zone.

Motion to schedule a site walk

Move to visit the site of the preliminary site plan by Neil Hansen, on behalf of owner/applicant Two International Group, proposing a multi-phase project to re-develop existing commercial retail facilities into a 107-unit housing complex, 119 room hotel, and 6,000 square feet commercial building intended for a restaurant, along with associated parking and utilities, located on the property of 283 US Route 1, Map 30 Lot 44, in the Route 1 Commercial (C-1) Zone.

Motion to schedule a public hearing

Move to schedule a public hearing for the preliminary site plan by Neil Hansen, on behalf of owner/applicant Two International Group, proposing a multi-phase project to re-develop existing commercial retail facilities into a 107-unit housing complex, 119 room hotel, and 6,000 square feet commercial building intended for a restaurant, along with associated parking and utilities, located on the property of 283 US Route 1, Map 30 Lot 44, in the Route 1 Commercial (C-1) Zone.

T5037-003
October 19, 2023

Mr. Jason Garnham, Director of Planning and Development
Town of Kittery Planning Department
200 Rogers Road
Kittery, Maine 03904

Re: Request for Preliminary Site Plan Review
Proposed Mixed Use Development, 283 US Route 1, Kittery, ME

Dear Jason,

On behalf of 283-360 Kittery, LLC (owner) and 283 Route 1, LLC, C/O Two International Group (applicant), we are pleased to submit one (1) set of hard copies and via the online portal the following information to support a request to meet with the Planning Board (PB) for Preliminary Site Plan Review at their next scheduled meeting for the above referenced project:

- One (1) full size & eight (8) half size copies of the Plan Set, dated October 5, 2023;
- Abutters List and Notice, dated October 5, 2023;
- Drainage Analysis, dated October 5, 2023;
- Trip Generation Memorandum, date October 19, 2023

The proposed project is located along US Route 1 on property identified as Map 30 Lot 44 on the Town of Kittery Tax Maps. The project includes the construction of three buildings consisting of hotel, restaurant, and residential use. The buildings consist of a 4-story, 119 key hotel along US Route 1, a restaurant building at the corner of US Roue 1 and Wilson Road, and a 5-story, 107 unit residential building to the rear of the site. The project also consists of on-site improvements including driveways, sidewalks, access improvements, stormwater management, lighting, landscaping, and utilities.

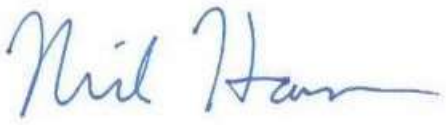
While the applicant hopes to develop the entire parcel at once, it is possible the project will be completed in phases. In the event of phasing, it is most likely the first phase would be the hotel site followed by the apartment building and finally the retail/restaurant. In the event of phasing it is the applicants hope that the apartment building and hotel would still overlap – which would mean most of the site improvements would be constructed during the same mobilization even if the hotel portion of the site is completed first. The retail/restaurant site could also be completed in the same mobilization, but unlike the hotel and apartment building "Phase 3" is tenant-driven. The stormwater, utilities, parking, and site access have been designed in a way where each of these sites can be constructed in isolation providing adequate stormwater and traffic systems to meet capacity needs for each phase.

The Planning Board voted to accept the Sketch Plan for this project during their May 25, 2023, meeting. The proposed project will require the following site related approvals from the Planning Board:

- Site Plan Review Permit
- Special Exception Request for Multifamily Dwelling

The applicant respectfully requests to be placed on the October 26, 2023, Planning Board meeting agenda for Preliminary Site Plan Review. If you have any questions or need any additional information, please contact Neil Hansen by phone at (603) 294-9213 or by email at nahansen@tighebond.com.

Sincerely,
TIGHE & BOND, INC.



Neil A. Hansen, PE
Project Manager

Patrick M. Crimmins, PE
Vice President

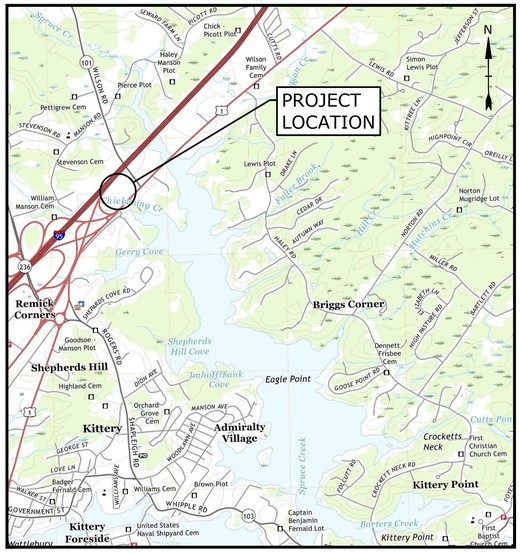
Copy: 283 Route 1, LLC (via email)

KITTERY MIXED-USEDEVELOPMENT

283 US ROUTE 1
KITTERY, MAINE
PERMIT DRAWINGS

OCTOBER 5, 2023

LIST OF DRAWINGS		
SHEET NO.	SHEET TITLE	LAST REVISED
	COVER SHEET	10/05/2023
NO. 1	BOUNDARY & TOPOGRAPHIC SURVEY	06/09/2023
C-101	EXISTING CONDITIONS / DEMOLITION PLAN	10/05/2023
C-102	SITE PLAN	10/05/2023
C-103	GRADING, DRAINAGE & EROSION CONTROL PLAN	10/05/2023
C-104	UTILITY PLAN	10/05/2023
C-105	LANDSCAPE PLAN	10/05/2023
C-501	EROSION CONTROL NOTES & DETAILS SHEET	10/05/2023
C-502	DETAILS SHEET	10/05/2023
C-503	DETAILS SHEET	10/05/2023
C-504	DETAILS SHEET	10/05/2023
C-505	DETAILS SHEET	10/05/2023
C-601	FIRE TRUCK TURNING PLAN	10/05/2023



LOCATION MAP
SCALE: 1" = 2,000'

CONSTRUCTION NOTES:
1. THE CONTRACTOR SHALL NOT RELY ON SCALED DIMENSIONS AND SHALL CONTACT THE ENGINEER FOR CLARIFICATION IF A REQUIRED DIMENSION IS NOT PROVIDED ON THE PLANS.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND FOR SITE CONDITIONS THROUGHOUT CONSTRUCTION. NEITHER THE PLANS NOR THE SEAL OF THE ENGINEER AFFIXED HEREON EXTEND TO OR INCLUDE SYSTEMS REQUIRED FOR THE SAFETY OF THE CONTRACTOR, THEIR EMPLOYEES, AGENTS OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND IMPLEMENTING SAFETY PROCEDURES AND SYSTEMS AS REQUIRED BY THE UNITED STATES OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AND ANY STATE OR LOCAL SAFETY REGULATIONS.

3. TIGHE & BOND. ASSUMES NO RESPONSIBILITY FOR ANY ISSUES LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION OF TIGHE & BOND.

PREPARED BY:
Tighe&Bond
177 Corporate Drive
Portsmouth, NH 03801

APPLICANT:
Two International Group
1 New Hampshire Ave, Suite 123
Portsmouth, NH 03801

SURVEY CONSULTANT:
Owen Haskell, Inc.
390 US Route 1, Unit 10
Falmouth, ME 04105

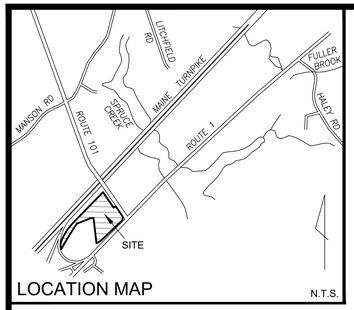
HOTEL ARCHITECT CONSULTANT:
BMA Architectural Group
12 Middle Street
Amherst, NH 03031

RESIDENTIAL ARCHITECT CONSULTANT:
Market Square Architects
104 Congress Street, Suite 203
Portsmouth, NH 03801

PRELIMINARY
COMPLETE SET 13 SHEETS

811 DigSafe MA-ME-NH-RI-VT

Last Save Date: October 5, 2023 3:35 PM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\TT5037 Two International Group\003 Kittery Mixed Use Development\Drawings\AutoCAD\Sheet\T5037-003_CS.dwg Layout Tab: T&B_CS_22x34



LOCATION MAP N.T.S.

GENERAL NOTES

1. OWNER OF RECORD:
   283-360 KITTERY, LLC
   TAX MAP 30 LOT 44
   Y.C.R.D. BOOK 18710 PAGE 790

2. BEARINGS ARE BASED ON2. THE BASIS OF BEARING FOR THIS SURVEY IS GRID PER PLAN REFERENCE 2, AS SHOWN HEREON.

3. SAID DESCRIBED PROPERTY IS LOCATED WITHIN AN AREA HAVING A ZONE DESIGNATION C BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 230171, WITH A DATE OF IDENTIFICATION OF JULY 5, 1984, FOR COMMUNITY NO. 4C, IN YORK COUNTY, STATE OF MAINE, WHICH IS THE CURRENT FLOOD INSURANCE RATE MAP FOR THE COMMUNITY IN WHICH SAID PREMISES IS SITUATED.

4. THE PROPERTY HAS DIRECT ACCESS TO U.S. ROUTE ONE AND ROUTE 101, DEDICATED PUBLIC STREETS OR HIGHWAYS.

5. THE TOTAL NUMBER OF STRIPED PARKING SPACES ON THE SUBJECT PROPERTY IS 316, INCLUDING 11 DESIGNATED HANDICAP SPACES.

6. THE BUILDING HEIGHT, SHOWN HEREON, WAS MEASURED BETWEEN THE HIGHEST POINT OF THE BUILDING AND THE FINISHED FLOOR ELEVATION IN THE APPROXIMATE LOCATION AS DEPICTED ON THE DRAWING.

7. ELEVATIONS ARE BASED ON NAVD88 PER GPS OBSERVATION.

PLAN REFERENCES

1. MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP, STATE HIGHWAY 95, FEDERAL AID PROJECT NO. I-95-1(2) SECTION 4, S.H.C. FILE NO. 16-181, SHEETS 24-25 OF 56, DATED JULY 1967.

2. MAINE TURNPIKE AUTHORITY, MAINE TURNPIKE, PROPERTY PLAN, SECTION 1, KITTERY TO PORTLAND, KITTERY SHEET 1 (AUG. 1946) AND KITTERY SUPPLEMENTAL SHEETS 2 & 3 (DEC. 1946), BY HOWARD, NEEDLES, TAMMEN & BERGENDOFF RECORDED AT YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 16, PAGES 95-97.

3. PLAN OF LAND OF PORTION OF OLD WILSON ROAD, KITTERY, MAINE FOR STANLEY TANGER BY CIVIL CONSULTANTS DATED MAY 19, 1986 RECORDED AT YORK COUNTY REGISTRY OF DEEDS DEED BOOK 5634, PAGE 63.

4. LAND TITLE SURVEY, TANGER OUTLET CENTER 1, ROUTE 1, KITTERY, YORK COUNTY, MAINE PREPARED FOR TANGER PROPERTIES LIMITED PARTNERSHIP DATED FEB. 11, 1999 BY CIVIL CONSULTANTS.

5. ALTA/ACSM LAND TITLE SURVEY, TANGER OUTLET CENTERS, STORE #1, 283 U.S. ROUTE ONE, KITTERY, YORK COUNTY, MAINE MADE FOR SMITH-ROBERTS NATIONAL CORPORATION DATED SEPTEMBER 10, 2019 REVISED SEPTEMBER 21, 2015 BY OWEN HASKELL, INC.

LEGEND

●	IRON PIPE OR ROD FOUND	X X	FENCE
■	MONUMENT FOUND		STONEWALL
	UTILITY POLE		CURB
○	MANHOLE	OHW	OVERHEAD WIRES
EM/GM	ELECTRIC/GAS METER	UGE	UNDERGROUND POWER
	GAS VALVE	W	WATER LINE
	SIGN	G	GAS LINE
	CATCH BASIN	T	TELEPHONE
	HYDRANT	SD	STORM DRAIN
	WATER VALVE OR SHUTOFF	SS	SANITARY SEWER
	LIGHT POLE	100	1' CONTOUR
	DECIDUOUS TREE		WOODS LINE
	CONIFEROUS TREE	IPF/IRF	IRON PIPE/ROD FOUND
		N/F	NOW OR FORMERLY
		000/000	DEED BOOK / PAGE
		L/S	LANDSCAPED AREA
		CONC.	CONCRETE
		EB	ELECTRIC BOX/METER
		TH=	THRESHOLD
		FFE	FINISHED FLOOR ELEVATION

SCALE : 1" = 40'
0' 20' 40' 80'

UTILITY NOTE

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEY HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

CERTIFICATE

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

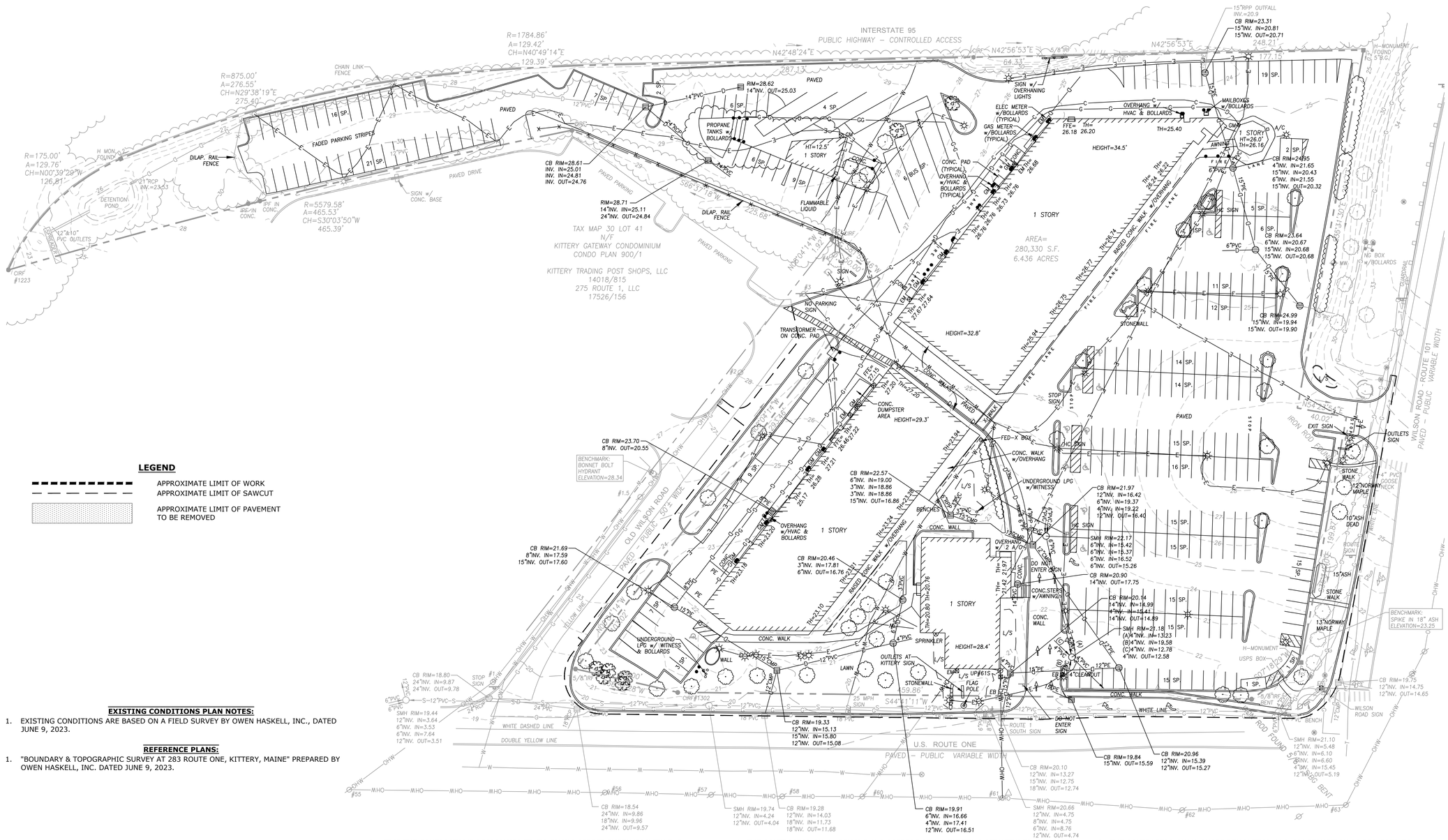
DATE

SAMUEL D. GLIDDEN, PLS #2520

Boundary & Topographic Survey
At
283 Route One, Kittery, Maine
Made for
283 Route 1, LLC
c/o Two International Group
1 New Hampshire Avenue, Suite 123
Portsmouth, New Hampshire

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 US ROUTE 1, UNIT 10, FALMOUTH, ME 04105 TEL. 207-774-0424

DRAWN BY: JLW	DATE: JUNE 9, 2023	JOB NO. 2023-105 K-Y	
CHECKED BY: SDG	SCALE: 1" = 40'	DRWG. NO. 1	



LEGEND

- APPROXIMATE LIMIT OF WORK
- APPROXIMATE LIMIT OF SAWCUT
- APPROXIMATE LIMIT OF PAVEMENT TO BE REMOVED

EXISTING CONDITIONS PLAN NOTES:

1. EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY BY OWEN HASKELL, INC., DATED JUNE 9, 2023.

REFERENCE PLANS:

1. "BOUNDARY & TOPOGRAPHIC SURVEY AT 283 ROUTE ONE, KITTERY, MAINE" PREPARED BY OWEN HASKELL, INC. DATED JUNE 9, 2023.

DEMOLITION NOTES:

1. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE START OF ANY CLEARING OR DEMOLITION ACTIVITIES.
2. THE LOCATIONS OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
3. THE CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES. CALL DIG SAFE AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION/CONSTRUCTION ACTIVITIES.
4. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, ORDINANCES AND CODES.
5. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
6. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/ DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
7. SAW CUT AND REMOVE PAVEMENT TWO (2) FEET OFF PROPOSED EDGE OF PAVEMENT OR EXISTING CURB LINE IN ALL AREAS WHERE PAVEMENT TO BE REMOVED ABUTS EXISTING PAVEMENT OR CONCRETE TO REMAIN.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
9. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK AND ARRANGE FOR AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
11. UTILITIES SHALL BE TERMINATED AT THE MAIN LINE PER UTILITY COMPANY STANDARDS. THE CONTRACTOR SHALL REMOVE ALL ABANDONED UTILITIES LOCATED WITHIN THE LIMITS OF WORK.
12. CONTRACTOR SHALL VERIFY ORIGIN OF ALL DRAINS AND UTILITIES PRIOR TO REMOVAL/TERMINATION TO DETERMINE IF DRAINS OR UTILITY IS ACTIVE, AND SERVICES ANY ON OR OFF-SITE STRUCTURE TO REMAIN. THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY OF ANY SUCH UTILITY FOUND AND SHALL MAINTAIN THESE UTILITIES UNTIL PERMANENT SOLUTION IS IN PLACE.
13. PAVEMENT REMOVAL LIMITS ARE SHOWN FOR CONTRACTOR'S CONVENIENCE. ADDITIONAL PAVEMENT REMOVAL MAY BE REQUIRED DEPENDING ON THE CONTRACTOR'S OPERATION. CONTRACTOR TO VERIFY FULL LIMITS OF PAVEMENT REMOVAL PRIOR TO BID.
14. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, CONCRETE PADS, UTILITIES AND PAVEMENT WITHIN THE WORK LIMITS SHOWN AS NEED TO COMPLETE THE WORK UNLESS SPECIFICALLY IDENTIFIED TO REMAIN. ITEMS TO BE REMOVED INCLUDE BUT ARE NOT LIMITED TO: CONCRETE, PAVEMENT, CURBS, LIGHTING, MANHOLES, CATCH BASINS, UNDER GROUND PIPING, POLES, STAIRS, SIGNS, FENCES, RAMPS, WALLS, BOLLARDS, BUILDINGS, FOUNDATION, TREES AND LANDSCAPING.
15. COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAYS WITH THE TOWN OF KITTERY.
16. REMOVE TREES AND BRUSH AS REQUIRED FOR COMPLETION OF WORK. CONTRACTOR SHALL GRUB AND REMOVE ALL STUMPS WITHIN LIMITS OF WORK AND DISPOSE OF OFF SITE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS.
17. CONTRACTOR SHALL PROTECT ALL PROPERTY MONUMENTATION THROUGHOUT DEMOLITION AND CONSTRUCTION OPERATIONS. SHOULD ANY MONUMENTATION BE DISTURBED BY THE CONTRACTOR, THE CONTRACTOR SHALL EMPLOY A MAINE LICENSED SURVEYOR TO REPLACE DISTURBED MONUMENTS.
18. PROVIDE INLET PROTECTION BARRIERS AT ALL CATCH BASINS/CURB INLETS WITHIN CONSTRUCTION LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. INLET PROTECTION BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT. INLET PROTECTION BARRIERS SHALL BE "HIGH FLOW SILT SACK" BY ACF ENVIRONMENTAL OR EQUAL. INSPECT BARRIERS WEEKLY AND AFTER EACH RAIN EVENT OF 0.25 INCHES OR GREATER. CONTRACTOR SHALL COMPLETE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED OR SEDIMENT HAS ACCUMULATED TO 1/3 THE DESIGN DEPTH OF THE BARRIER.
19. THE CONTRACTOR SHALL PHASE DEMOLITION AND CONSTRUCTION AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO EXISTING BUSINESSES AND HOMES THROUGHOUT THE CONSTRUCTION PERIOD. EXISTING BUSINESS AND HOME SERVICES INCLUDE, BUT ARE NOT LIMITED TO ELECTRICAL, COMMUNICATION, FIRE PROTECTION, DOMESTIC WATER AND SEWER SERVICES. TEMPORARY SERVICES, IF REQUIRED, SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. CONTRACTOR SHALL PROVIDE DETAILED CONSTRUCTION SCHEDULE TO OWNER PRIOR TO ANY DEMOLITION/CONSTRUCTION ACTIVITIES AND SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
20. THE CONTRACTOR SHALL PAY ALL COSTS NECESSARY FOR TEMPORARY PARTITIONING, BARRICADING, FENCING, SECURITY AND SAFETY DEVICES REQUIRED FOR THE MAINTENANCE OF A CLEAN AND SAFE CONSTRUCTION SITE.
21. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL UTILITIES TO BE REMOVED AND PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN.
22. BOLD LINETYPES WITHIN THE LIMITS OF WORK INDICATE SITE FEATURES TO BE REMOVED UNLESS SPECIFICALLY IDENTIFIED TO REMAIN.

Tighe&Bond

PRELIMINARY

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

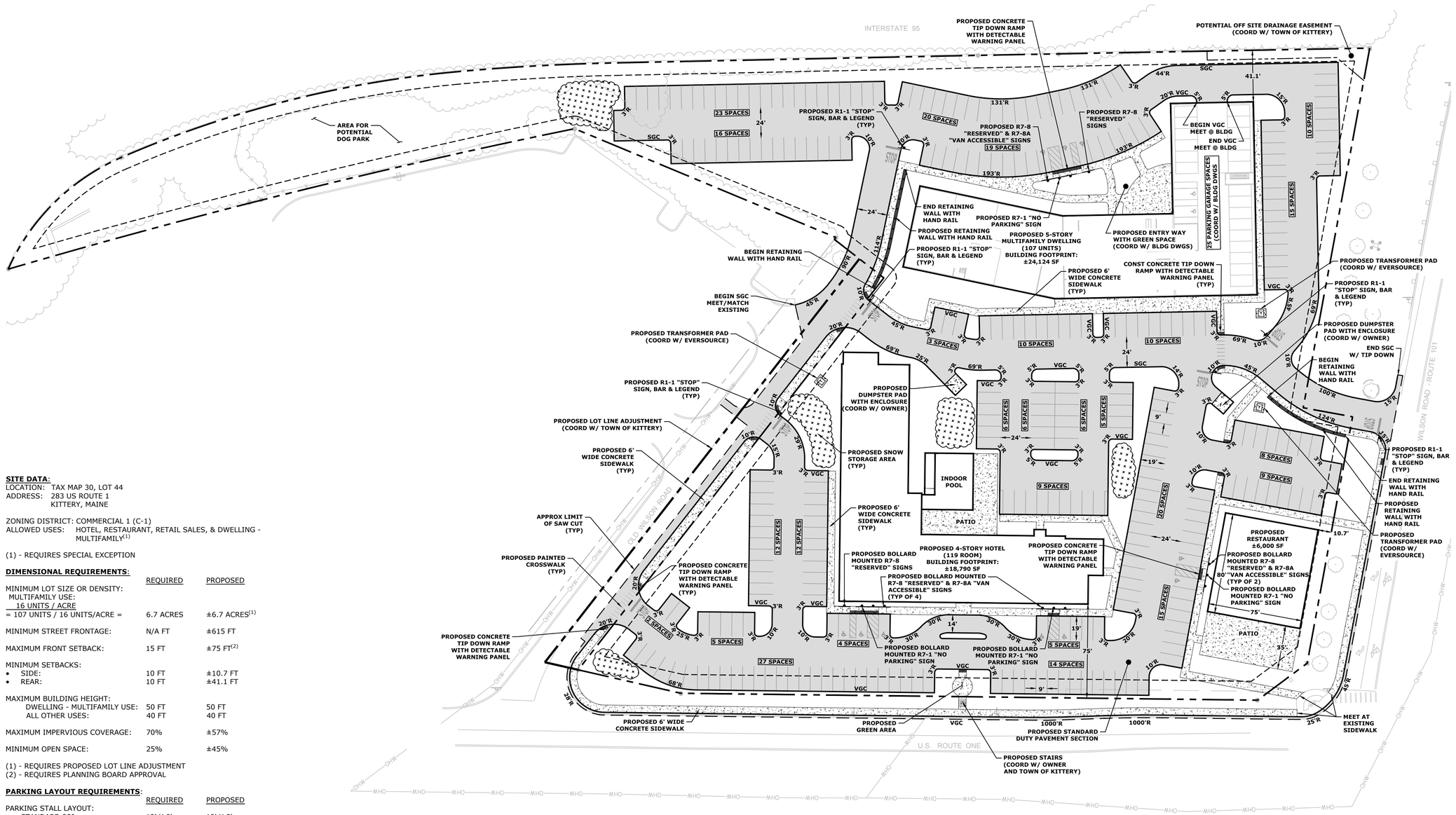
PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

EXISTING CONDITIONS / DEMOLITION PLAN

SCALE: AS SHOWN

C-101

Last Save Date: October 5, 2023 2:55 PM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Drawings\AutoCAD\Sheet\T5037-003_C-Design.dwg Layout Tab: Demo



SITE DATA:
LOCATION: TAX MAP 30, LOT 44
ADDRESS: 283 US ROUTE 1
KITTERY, MAINE

ZONING DISTRICT: COMMERCIAL 1 (C-1)
ALLOWED USES: HOTEL, RESTAURANT, RETAIL SALES, & DWELLING - MULTIFAMILY(1)

(1) - REQUIRES SPECIAL EXCEPTION

DIMENSIONAL REQUIREMENTS:

	REQUIRED	PROPOSED
MINIMUM LOT SIZE OR DENSITY: MULTIFAMILY USE: 16 UNITS / ACRE = 107 UNITS / 16 UNITS/ACRE =	6.7 ACRES	±6.7 ACRES(1)
MINIMUM STREET FRONTAGE:	N/A FT	±615 FT
MAXIMUM FRONT SETBACK:	15 FT	±75 FT(2)
MINIMUM SETBACKS:		
• SIDE:	10 FT	±10.7 FT
• REAR:	10 FT	±41.1 FT
MAXIMUM BUILDING HEIGHT: DWELLING - MULTIFAMILY USE:	50 FT	50 FT
ALL OTHER USES:	40 FT	40 FT
MAXIMUM IMPERVIOUS COVERAGE:	70%	±57%
MINIMUM OPEN SPACE:	25%	±45%

(1) - REQUIRES PROPOSED LOT LINE ADJUSTMENT
(2) - REQUIRES PLANNING BOARD APPROVAL

PARKING LAYOUT REQUIREMENTS:

	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	19' X 9'	19' X 9'
DRIVE AISLE WIDTH:		
• 90° (2-WAY TRAFFIC)	24 FT	24 FT
• 90° (1-WAY TRAFFIC)	13 FT	14 FT

PARKING SPACE REQUIREMENTS:

	REQUIRED	PROPOSED
MULTIFAMILY DWELLING: 1 SPACE / DWELLING UNIT = 107 UNITS / 1 SPACE/UNIT=	107 SPACES	147 SPACES
HOTEL: 1 SPACE / ROOMS +1 / 100SF OF MEETING ROOM = 119 ROOM / 1 SPACE/ROOM=	119 SPACES	119 SPACES
RESTAURANT: 1 SPACE / 3 SEATS = 150 SEATS / 1 SPACE/3 SEATS=	50 SPACES	50 SPACES
	169 SPACES	169 SPACES
TOTAL:	276 SPACES	316 SPACES

* TWELVE (12) TOTAL ADA SPACES PROVIDED

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A MAINE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE TOWN OF KITTERY.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A MAINE LICENSED LAND SURVEYOR.
11. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE TOWN OF KITTERY DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
15. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING DRAWINGS.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING RETAINING WALL DESIGN FROM STRUCTURAL ENGINEER AND/OR WALL MANUFACTURER. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO CONSTRUCT WALL IN ACCORDANCE WITH DESIGN APPROVED BY THE ENGINEER. RETAINING WALL SHALL BE SEGMENTAL BLOCK WALL SYSTEM AS OUTLINED IN THE DETAILS.
17. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. PROPERTY MANAGER WILL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PUBLIC WALKS, DRIVES, AND AIRSIDE PAVEMENT AREAS ON-SITE. SNOW SHALL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF, WHEN NECESSARY, WHEN SNOW STORAGE AREAS HAVE REACHED CAPACITY.

LEGEND

	PROPOSED CONCRETE
	PROPOSED PAVEMENT SECTION
	PROPOSED SNOW STORAGE AREA
	APPROXIMATE LIMIT OF SAWCUT
	BUILDING SET BACK LINE
	PROPOSED LIGHT POLE BASE
	PROPOSED SIGN
45'R	PROPOSED CURB RADIUS
VGC	VERTICAL GRANITE CURB
SGC	SLOPED GRANITE CURB

Tighe&Bond

PRELIMINARY

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

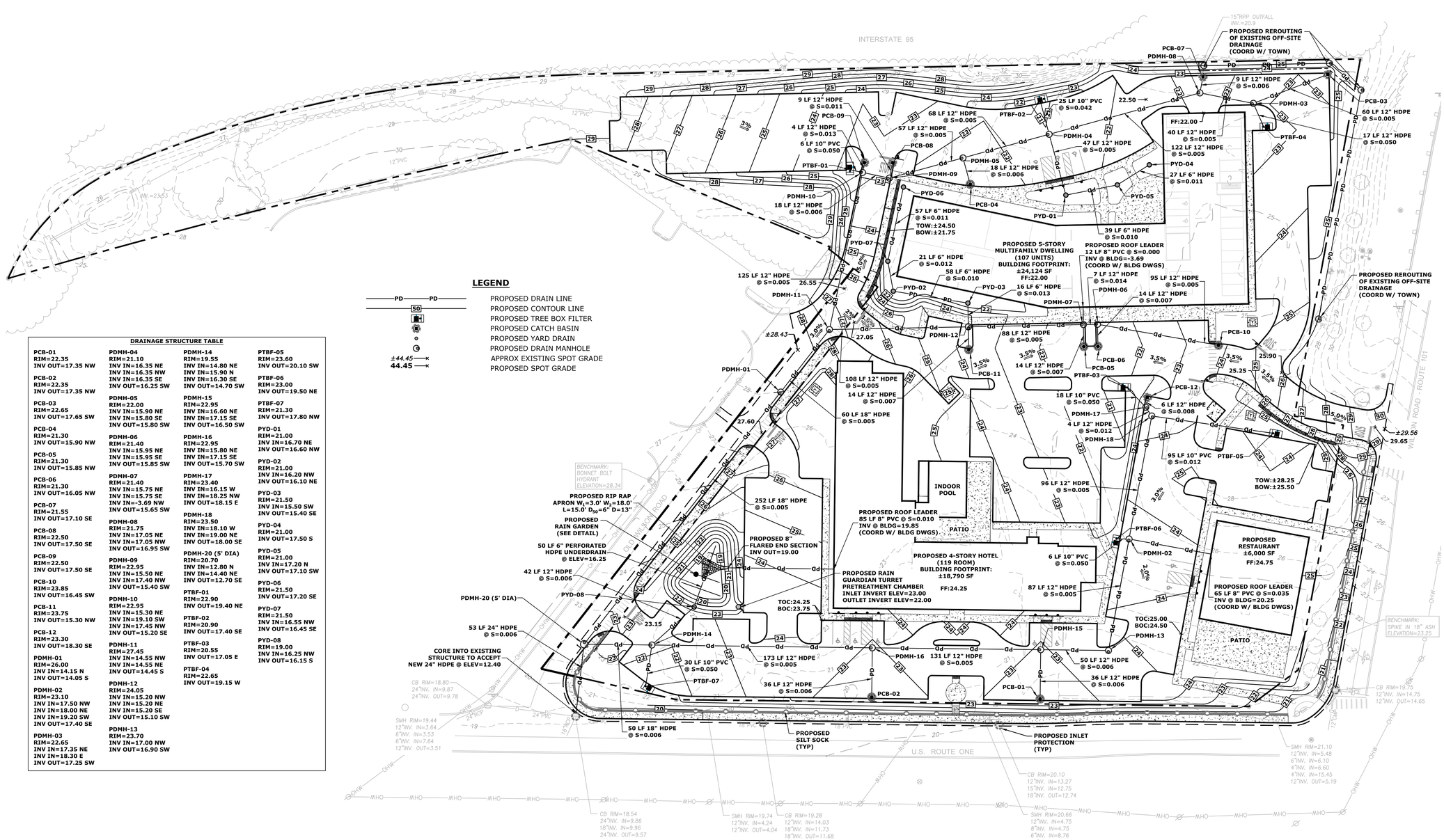
PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

SITE PLAN

SCALE: AS SHOWN

C-102

Last Save Date: October 5, 2023 2:55 PM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
File Location: J:\TT\5037 Two International Group\003 Kittery Mixed Use Development\Drawings\Autocad\Sheet\T5037-003_C-Design.dwg Layout Tab: Site



LEGEND

PD PD	PROPOSED DRAIN LINE
50	PROPOSED CONTOUR LINE
	PROPOSED TREE BOX FILTER
	PROPOSED CATCH BASIN
	PROPOSED YARD DRAIN
	PROPOSED DRAIN MANHOLE
±44.45	APPROX EXISTING SPOT GRADE
44.45	PROPOSED SPOT GRADE

DRAINAGE STRUCTURE TABLE

PCB-01
RIM=22.35
INV OUT=17.35 NW

PCB-02
RIM=22.35
INV OUT=17.35 NW

PCB-03
RIM=22.65
INV OUT=17.65 SW

PCB-04
RIM=21.30
INV OUT=15.90 NW

PCB-05
RIM=21.30
INV OUT=15.85 NW

PCB-06
RIM=21.30
INV OUT=16.05 NW

PCB-07
RIM=21.55
INV OUT=17.10 SE

PCB-08
RIM=22.50
INV OUT=17.50 SE

PCB-09
RIM=22.50
INV OUT=17.50 SE

PCB-10
RIM=23.85
INV OUT=16.45 SW

PCB-11
RIM=23.75
INV OUT=15.30 NW

PCB-12
RIM=23.30
INV OUT=18.30 SE

PDMH-01
RIM=26.00
INV IN=14.15 N
INV OUT=14.05 S

PDMH-02
RIM=23.10
INV IN=17.50 NW
INV IN=18.00 NE
INV IN=19.20 SW
INV OUT=17.40 SE

PDMH-03
RIM=22.65
INV IN=17.35 NE
INV IN=18.30 E
INV OUT=17.25 SW

PDMH-04
RIM=21.10
INV IN=16.35 NE
INV IN=16.35 NW
INV IN=16.35 SE
INV OUT=16.25 SW

PDMH-05
RIM=22.00
INV IN=15.90 NE
INV IN=15.80 SE
INV OUT=15.80 SW

PDMH-06
RIM=21.40
INV IN=15.95 NE
INV IN=15.95 SE
INV OUT=15.85 SW

PDMH-07
RIM=21.40
INV IN=15.75 NE
INV IN=15.75 SE
INV IN=-3.69 NW
INV OUT=15.65 SW

PDMH-08
RIM=21.75
INV IN=17.05 NE
INV IN=17.05 NW
INV OUT=16.95 SW

PDMH-09
RIM=22.95
INV IN=15.50 NE
INV IN=17.40 NW
INV OUT=15.40 SW

PDMH-10
RIM=22.95
INV IN=15.30 NE
INV IN=19.10 SW
INV IN=17.45 NW
INV OUT=15.20 SE

PDMH-11
RIM=27.45
INV IN=14.55 NW
INV IN=14.55 NE
INV OUT=14.45 S

PDMH-12
RIM=24.05
INV IN=15.20 NW
INV IN=15.20 NE
INV IN=15.20 SE
INV OUT=15.10 SW

PDMH-13
RIM=23.70
INV IN=17.00 NW
INV OUT=16.90 SW

PDMH-14
RIM=19.55
INV IN=14.80 NE
INV IN=15.90 N
INV IN=16.30 SE
INV OUT=14.70 SW

PDMH-15
RIM=22.95
INV IN=16.60 NE
INV IN=17.15 SE
INV OUT=16.50 SW

PDMH-16
RIM=22.95
INV IN=15.80 NE
INV IN=17.15 SE
INV OUT=15.70 SW

PDMH-17
RIM=23.40
INV IN=16.15 W
INV IN=18.25 NW
INV OUT=18.15 E

PDMH-18
RIM=23.50
INV IN=18.10 W
INV IN=19.00 NE
INV OUT=18.00 SE

PDMH-20 (5' DIA)
RIM=20.70
INV IN=12.80 N
INV IN=14.40 NE
INV OUT=12.70 SE

PTBF-01
RIM=22.90
INV OUT=19.40 NE

PTBF-02
RIM=20.90
INV OUT=17.40 SE

PTBF-03
RIM=20.55
INV OUT=17.05 E

PTBF-04
RIM=22.65
INV OUT=19.15 W

PTBF-05
RIM=23.60
INV OUT=20.10 SW

PTBF-06
RIM=23.00
INV OUT=19.50 NE

PTBF-07
RIM=21.30
INV OUT=17.80 NW

PYD-01
RIM=21.00
INV IN=16.70 NE
INV OUT=16.60 NW

PYD-02
RIM=21.00
INV IN=16.20 NW
INV OUT=16.10 NE

PYD-03
RIM=21.50
INV IN=15.50 SW
INV OUT=15.40 SE

PYD-04
RIM=21.00
INV OUT=17.50 S

PYD-05
RIM=21.00
INV IN=17.20 N
INV OUT=17.10 SW

PYD-06
RIM=21.50
INV OUT=17.20 SE

PYD-07
RIM=21.50
INV IN=16.55 NW
INV OUT=16.45 SE

PYD-08
RIM=19.00
INV IN=16.25 NW
INV OUT=16.15 S

GRADING AND DRAINAGE NOTES:

1. COMPACTION REQUIREMENTS:
   - BELOW PAVED OR CONCRETE AREAS — 95%
   - TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL — 95%
   - BELOW LOAM AND SEED AREAS — 90%

   * ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557, METHOD C FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH ASTM D-1556 OR ASTM-2922.
2. ALL STORM DRAINAGE PIPES SHALL BE HIGH DENSITY POLYETHYLENE (HANCOR HI-Q, ADS N-12 OR EQUAL) OR RCP CLASS IV, UNLESS OTHERWISE SPECIFIED.
3. SEE UTILITY PLAN FOR ALL SITE UTILITY INFORMATION.
4. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
5. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE AND LAWN AREAS FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCES, EXITS, RAMPS AND LOADING DOCK AREAS ADJACENT TO THE BUILDING.
6. CONTRACTOR SHALL THOROUGHLY CLEAN ALL CATCH BASINS AND DRAIN LINES, WITHIN THE LIMIT OF WORK, OF SEDIMENT IMMEDIATELY UPON COMPLETION OF CONSTRUCTION.
7. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE AND LOCAL CODES.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED FERTILIZER AND MULCH.
9. ALL STORM DRAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION.
10. ALL PROPOSED CATCH BASINS SHALL BE EQUIPPED WITH OIL/GAS SEPARATOR HOODS AND 4' SUMPS.
11. ALL WORK SHALL CONFORM TO THE TOWN OF KITTERY DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION.
12. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A MAINE LICENSED LAND SURVEYOR.
13. SEE REFERENCE PLAN #1 FOR BENCH MARK INFORMATION.

EROSION CONTROL NOTES:

1. INSTALL EROSION CONTROL BARRIERS AS SHOWN AS FIRST ORDER OF WORK.
2. SEE GENERAL EROSION CONTROL NOTES ON "EROSION CONTROL NOTES & DETAILS SHEET".
3. PROVIDE INLET PROTECTION AROUND ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AS WELL AS CATCH BASINS/CURB INLETS THAT RECEIVE RUNOFF FROM CONSTRUCTION ACTIVITIES. MAINTAIN FOR THE DURATION OF THE PROJECT.
4. INSTALL STABILIZED CONSTRUCTION EXIT(S).
5. INSPECT INLET PROTECTION AND PERIMETER EROSION CONTROL MEASURES DAILY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
6. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 6" LOAM, SEED, FERTILIZER AND MULCH.
7. CONSTRUCT EROSION CONTROL BLANKET ON ALL SLOPES STEEPER THAN 3:1.
8. PRIOR TO ANY WORK OR SOIL DISTURBANCE COMMENCING ON THE SUBJECT PROPERTY, INCLUDING MOVING OF EARTH, THE APPLICANT SHALL INSTALL ALL EROSION AND SILTATION MITIGATION AND CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL PERMITS AND APPROVALS.
9. CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE CONSTRUCTION PERIOD. DUST CONTROL MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, SPRINKLING WATER ON UNSTABLE SOILS SUBJECT TO ARID CONDITIONS.
10. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
11. ALL CATCH BASIN SUMPS AND PIPING SHALL BE THOROUGHLY CLEANED TO REMOVE ALL SEDIMENT AND DEBRIS AFTER THE PROJECT HAS BEEN FULLY PAVED.
12. TEMPORARY SOIL STOCKPILE SHALL BE SURROUNDED WITH PERIMETER CONTROLS AND SHALL BE STABILIZED BY TEMPORARY EROSION CONTROL SEEDING. STOCKPILE AREAS TO BE LOCATED AS FAR AS POSSIBLE FROM THE DELINEATED EDGE OF WETLANDS.
13. SAFETY FENCING SHALL BE PROVIDED AROUND STOCKPILES OVER 10 FT.
14. CONCRETE TRUCKS WILL BE REQUIRED TO WASH OUT (IF NECESSARY) SHOOTS ONLY WITHIN AREAS WHERE CONCRETE HAS BEEN PLACED. NO OTHER WASH OUT WILL BE ALLOWED.
15. ALL DEVELOPMENT MUST GENERALLY COMPLY WITH THE PROVISIONS OF THE "ENVIRONMENTAL QUALITY HANDBOOK, EROSION AND SEDIMENT CONTROL," PUBLISHED BY THE MAINE SOIL AND WATER CONSERVATION COMMISSION.

Tighe&Bond

PRELIMINARY

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

GRADING, DRAINAGE & EROSION CONTROL PLAN

SCALE: AS SHOWN

C-103

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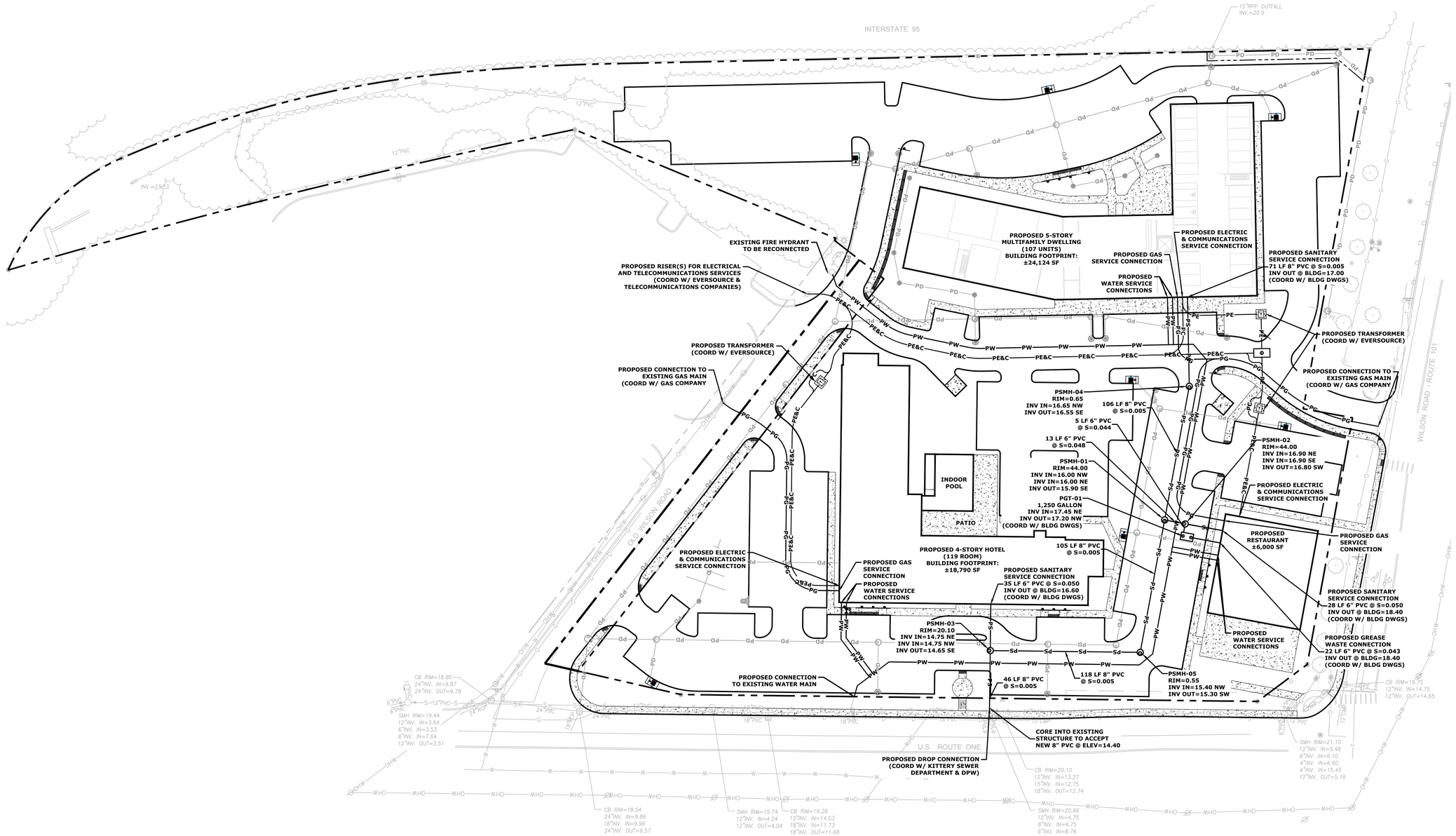

UTILITY NOTES:

1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATIONS ARE NOT GUARANTEED BY THE OWNER OR ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES, AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
2. COORDINATE ALL UTILITY WORK WITH APPROPRIATE UTILITY COMPANY.
   - NATURAL GAS - UNITIL
   - WATER - KITTERY WATER DISTRICT
   - SEWER - KITTERY SEWER DEPARTMENT
   - ELECTRIC - EVERSOURCE
   - COMMUNICATIONS - EXFINITY OR CONSOLIDATED COMMUNICATIONS
3. SEE REFERENCE PLAN #1 FOR BENCHMARK INFORMATION.
4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
5. ALL WATER MAIN INSTALLATIONS SHALL BE CLASS 52, CEMENT LINED DUCTILE IRON PIPE.
6. ALL WATER MAIN INSTALLATIONS SHALL BE PRESSURE TESTED AND CHLORINATED AFTER CONSTRUCTION PRIOR TO ACTIVATING THE SYSTEM. CONTRACTOR SHALL COORDINATE CHLORINATION AND TESTING WITH THE KITTERY WATER DEPARTMENT.
7. ALL SEWER PIPE SHALL BE PVC SDR 35 UNLESS OTHERWISE STATED.
8. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAYS WITH THE TOWN OF KITTERY.
9. CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO ABUTTING PROPERTIES THROUGHOUT CONSTRUCTION.
10. CONNECTION TO EXISTING WATER MAIN SHALL BE CONSTRUCTED TO TOWN OF KITTERY STANDARDS.
11. EXISTING UTILITIES TO BE REMOVED SHALL BE CAPPED AT THE MAIN AND MEET THE DEPARTMENT OF PUBLIC WORKS STANDARDS FOR CAPPING OF WATER AND SEWER SERVICES.
12. ALL ELECTRICAL MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE, LATEST EDITION, AND ALL APPLICABLE STATE AND LOCAL CODES.
13. THE EXACT LOCATION OF NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE BUILDING DRAWINGS AND THE APPLICABLE UTILITY COMPANIES.
14. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
15. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
16. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO THE COMPLETION OF THIS PROJECT.
17. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANHOLES, BOXES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
18. CONTRACTOR SHALL PROVIDE EXCAVATION, BEDDING, BACKFILL AND COMPACTION FOR NATURAL GAS SERVICES.
19. A 10-FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18-INCH MINIMUM OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER/SANITARY SEWER CROSSINGS.
20. THE CONTRACTOR SHALL CONTACT "DIG-SAFE" 72 HOURS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL HAVE THE "DIG-SAFE" NUMBER ON SITE AT ALL TIMES.
21. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A MAINE LICENSED LAND SURVEYOR.
22. SAW CUT AND REMOVE PAVEMENT AND CONSTRUCT PAVEMENT TRENCH PATCH FOR ALL PROPOSED UTILITIES LOCATED IN EXISTING PAVEMENT AREAS TO REMAIN
23. HYDRANTS, GATE VALVES, FITTINGS, ETC. SHALL MEET THE REQUIREMENTS OF THE TOWN OF KITTERY.
24. COORDINATE TESTING OF SEWER CONSTRUCTION WITH THE TOWN OF KITTERY.
25. ALL SEWER PIPE WITH LESS THAN 6' OF COVER IN PAVED AREAS OR LESS THAT 4' OF COVER IN UNPAVED AREAS SHALL BE INSULATED.
26. CONTRACTOR SHALL COORDINATE ALL ELECTRIC WORK INCLUDING BUT NOT LIMITED TO: CONDUIT CONSTRUCTION, MANHOLE CONSTRUCTION, UTILITY POLE CONSTRUCTION, OVERHEAD WIRE RELOCATION, AND TRANSFORMER CONSTRUCTION WITH POWER COMPANY.
27. CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION, PARTICULARLY WATER MAIN AND GAS MAIN CONSTRUCTION AS TO MAINTAIN CONTINUOUS SERVICE TO ABUTTING PROPERTIES. CONTRACTOR SHALL COORDINATE TEMPORARY SERVICES TO ABUTTERS WITH THE UTILITY COMPANY AND AFFECTED ABUTTER.
28. CONTRACTOR SHALL CONSTRUCT ALL UTILITIES AND DRAINS TO WITHIN 10' OF THE FOUNDATION WALLS AND CONNECT THESE TO SERVICE STUBS FROM THE BUILDING.

LEGEND

PS—PS	PROPOSED SEWER LINE
PG—PG	PROPOSED GAS LINE
PC—PC	PROPOSED COMMUNICATIONS LINE
PE—PE	PROPOSED ELECTRIC LINE
PE&C—PE&C	PROPOSED ELECTRIC & COMMUNICATIONS LINE
PW—PW	PROPOSED WATER LINE
	PROPOSED WATER GATE VALVE
	PROPOSED ELECTRIC MANHOLE
	PROPOSED SEWER MANHOLE
	PROPOSED GREASE TRAP

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PRELIMINARY

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

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UTILITY PLAN

SCALE: AS SHOWN

C-104

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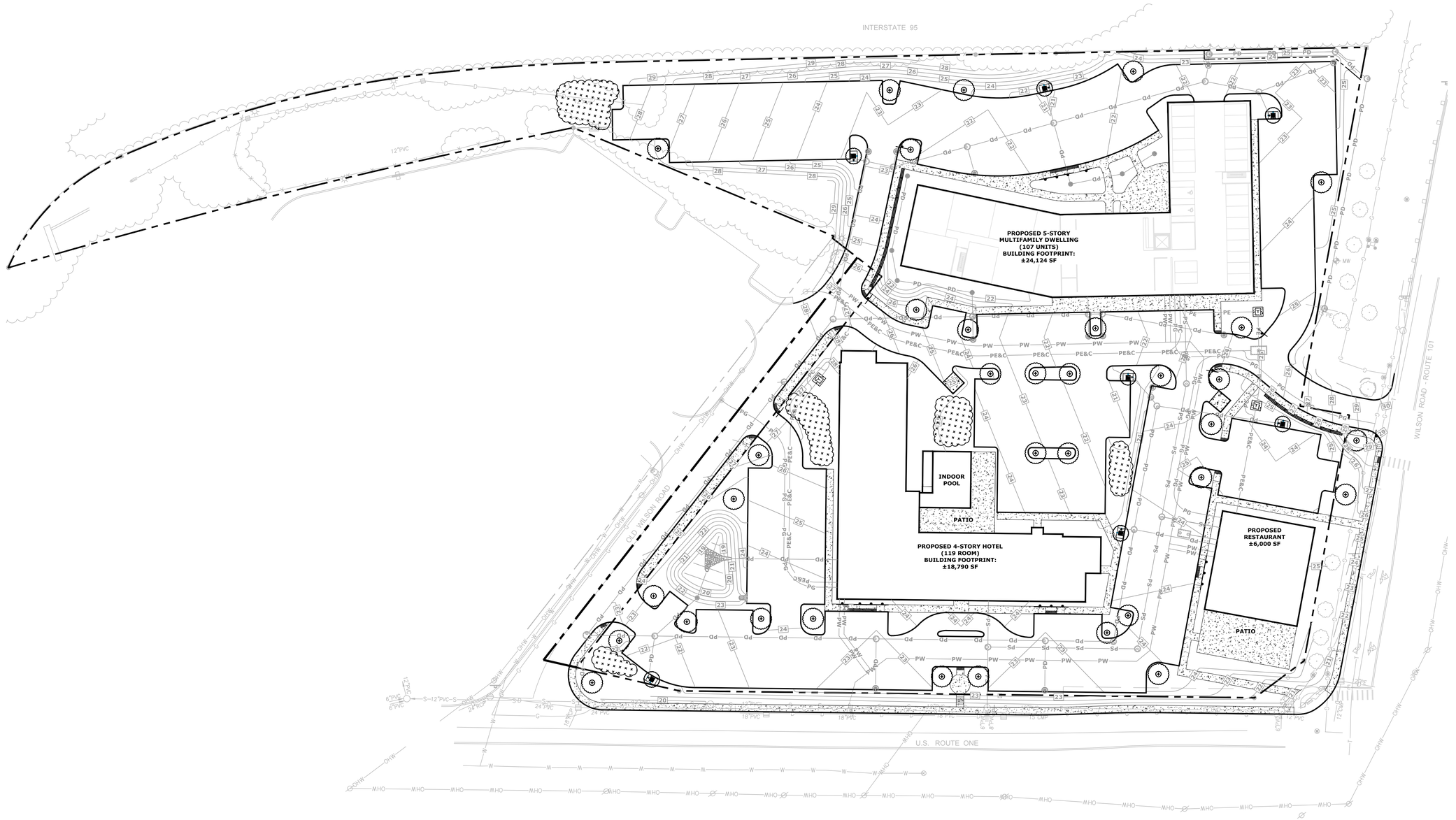

LANDSCAPE NOTES:

1. THE CONTRACTOR SHALL FURNISH AND PLANT ALL PLANTS IN QUANTITIES AS SHOWN ON THIS PLAN. NO SUBSTITUTIONS WILL BE PERMITTED UNLESS APPROVED BY OWNER. ALL PLANTS SHALL BE NURSERY GROWN.
2. ALL PLANTS SHALL BE NURSERY GROWN AND PLANTS AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS, INCLUDING BUT NOT LIMITED TO SIZE, HEALTH, SHAPE, ETC., AND SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO ARRIVAL ON-SITE AND AFTER PLANTING.
3. PLANT STOCK SHALL BE GROWN WITHIN THE HARDINESS ZONES 4 THRU 7 ESTABLISHED BY THE PLANT HARDINESS ZONE MAP, MISCELLANEOUS PUBLICATIONS NO. 814, AGRICULTURAL RESEARCH SERVICE, UNITED STATES DEPARTMENT AGRICULTURE, LATEST REVISION.
4. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
5. THE NUMBER OF EACH INDIVIDUAL PLANT TYPE AND SIZE PROVIDED IN THE PLANT LIST OR ON THE PLAN IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. IF A DISCREPANCY EXISTS BETWEEN THE NUMBER OF PLANTS ON THE LABEL AND THE NUMBER OF SYMBOLS SHOWN ON THE DRAWINGS, THE GREATER NUMBER SHALL APPLY.
6. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
7. THE CONTRACTOR SHALL LOCATE, VERIFY AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL IMMEDIATELY BE REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
8. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED, SHALL RECEIVE 6" OF LOAM AND SEED. NO FILL SHALL BE PLACED IN ANY WETLAND AREA.
9. THREE INCHES (3") OF BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS TO BE USED IN A CURBED ISLAND THE BARK MULCH SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 6" INCHES OF LOAM AND SEED.
10. LANDSCAPING SHALL BE LOCATED WITHIN 150 FT OF EXTERIOR HOSE ATTACHMENT OR SHALL BE PROVIDED WITH AN IRRIGATION SYSTEM.
11. SEE PLANTING DETAILS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
12. TREE STAKES SHALL REMAIN IN PLACE FOR NO LESS THAN 6 MONTHS AND NO MORE THAN 1 YEAR.
13. PLANTING SHALL BE COMPLETED FROM APRIL 15TH THROUGH OCTOBER 1ST. NO PLANTING DURING JULY AND AUGUST UNLESS SPECIAL PROVISIONS ARE MADE FOR DROUGHT.
14. PARKING AREA PLANTED ISLANDS TO HAVE MINIMUM OF 1'-0" TOPSOIL PLACED TO WITHIN 3 INCHES OF THE TOP OF CURB ELEVATION. REMOVE ALL CONSTRUCTION DEBRIS BEFORE PLACING TOPSOIL.
15. TREES SHALL BE PRUNED IN ACCORDANCE WITH THE LATEST EDITION OF ANSI A300 'TREES, SHRUBS AND OTHER WOOD PLANT MAINTENANCE STANDARD PRACTICES.
16. ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING. ALL PLANTS SHALL BE WATERED WEEKLY, OR MORE OFTEN, IF NECESSARY DURING THE FIRST GROWING SEASON. LANDSCAPE CONTRACTOR SHALL COORDINATE WATERING SCHEDULE WITH OWNER DURING THE ONE (1) YEAR GUARANTEE PERIOD.
17. EXISTING TREES AND SHRUBS SHOWN ON THE PLAN ARE TO REMAIN UNDISTURBED. ALL EXISTING TREES AND SHRUBS SHOWN TO REMAIN ARE TO BE PROTECTED WITH A 4-FOOT SNOW FENCE PLACED AT THE DRIP LINE OF THE BRANCHES OR AT 8 FEET MINIMUM FROM THE TREE TRUNK. ANY EXISTING TREE OR SHRUB SHOWN TO REMAIN, WHICH IS REMOVED DURING CONSTRUCTION, SHALL BE REPLACED BY A TREE OF COMPARABLE SIZE AND SPECIES TREE OR SHRUB.
18. THE CONTRACTOR SHALL GUARANTEE ALL PLANTINGS TO BE IN GOOD HEALTHY, FLOURISHING AND ACCEPTABLE CONDITION FOR A PERIOD OF ONE (1) YEAR BEGINNING AT THE DATE OF ACCEPTANCE OF SUBSTANTIAL COMPLETION. ALL GRASSES, TREES AND SHRUBS THAT, IN THE OPINION OF THE LANDSCAPE ARCHITECT, SHOW LESS THAN 80% HEALTHY GROWTH AT THE END OF ONE YEAR PERIOD SHALL BE REPLACED BY THE CONTRACTOR.
19. UPON EXPIRATION OF THE CONTRACTOR'S ONE YEAR GUARANTEE PERIOD, THE OWNER SHALL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE INCLUDING WATERING DURING PERIODS OF DROUGHT
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
21. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED IT MAY BE NECESSARY TO PRE-DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

LEGEND

- PROPOSED DECIDUOUS TREE (W/ BARK MULCH)
- PROPOSED DECICUOUS TREE (W/O BARK MULCH)
- PROPOSED SHRUBS (W/ BARK MULCH)
- PROPOSED SHRUBS (W/O BARK MULCH)
- PROPOSED GROUND COVER
- PROPOSED EVERGREEN TREE
- PROPOSED EVERGREEN SHRUB

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0 40' 80'
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LANDSCAPE PLAN

SCALE: AS SHOWN

C-105

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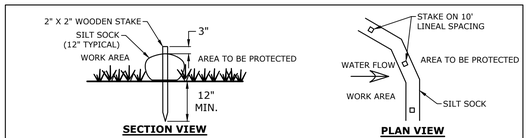
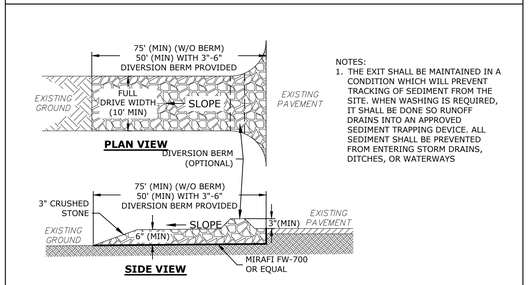
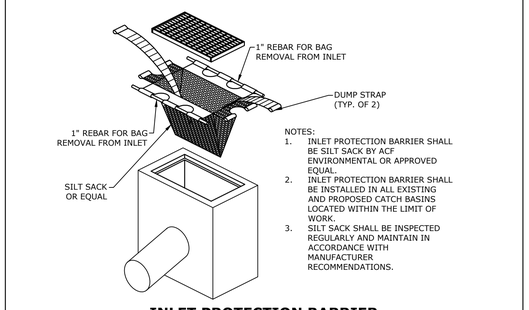
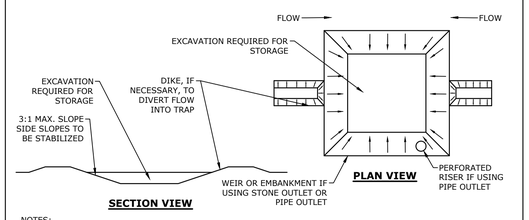








GENERAL PROJECT INFORMATION

PROJECT OWNER: 283-360 KITTERY, LLC
1 NEW HAMPSHIRE AVE, SUITE 123
PORTSMOUTH, NH 03801
PROJECT NAME: KITTERY MIXED-USE DEVELOPMENT
PROJECT ADDRESS: 283 US ROUTE 1
KITTERY, MAINE
PROJECT MAP / LOT: MAP 30 / LOT 44
PROJECT LATITUDE: 43°06'39.8"N
PROJECT LONGITUDE: 70°44'12.0"W

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF A MIXED-USE DEVELOPMENT THE WORK IS ANTICIPATED TO START IN SPRING OF 2024, AND BE COMPLETED BY SPRING OF 2025.

DISTURBED AREA

THE TOTAL AREA TO BE DISTURBED IS APPROXIMATELY ±5 ACRES.

SOIL CHARACTERISTICS

BASED ON THE NRCS WEB SOIL SURVEY FOR YORK COUNTY - MAINE, THE SOILS ON SITE CONSIST OF LYMAN LOAM, SCANTIC SILT LOAM, AND URBAN LAND SOILS WHICH ARE POOR DRAINING SOILS.

NAME OF RECEIVING WATERS

THE STORMWATER RUNOFF FROM THE SITE WILL BE DISCHARGED VIA OVERLAND FLOW TO A CLOSED DRAINAGE SYSTEM AND ULTIMATELY TO SPINNEY CREEK (ELIOT, KITTERY), SPRUCE AND CHAUNCEY CREEKS (KITTERY) (STATE WATERBODY ID: ME010600031001_SB_E).

CONSTRUCTION SEQUENCE OF MAJOR ACTIVITIES:

1. CUT AND CLEAR TREES.
2. CONSTRUCT TEMPORARY AND PERMANENT SEDIMENT, EROSION AND DETENTION CONTROL FACILITIES. EROSION, SEDIMENT AND DETENTION MEASURES SHALL BE INSTALLED PRIOR TO ANY EARTH MOVING OPERATIONS THAT WILL INFLUENCE STORMWATER RUNOFF SUCH AS:
    - NEW CONSTRUCTION
    - DISPOSAL OF SEDIMENT SPOIL, STUMP AND OTHER SOLID WASTE
    - CONTROL OF DUST
    - CONSTRUCTION OF ACCESS AND HAUL ROAD
    - NEARNESS OF CONSTRUCTION SITE TO RECEIVING WATERS
    - CONSTRUCTION DURING LATE WINTER AND EARLY SPRING
3. ALL PERMANENT DITCHES, SWALES, DETENTION, RETENTION AND SEDIMENTATION BASINS TO BE STABILIZED USING THE VEGETATIVE AND NON-STRUCTURAL BMPS PRIOR TO DIRECTING RUNOFF TO THEM.
4. CLEAR AND DISPOSE OF DEBRIS.
5. CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
6. GRADE AND GRAVEL ROADWAYS AND PARKING AREAS - ALL ROADS AND PARKING AREA SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
7. BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
8. DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, PERIMETER EROSION CONTROL MEASURES, SEDIMENT TRAPS, ETC., MULCH AND SEED AS REQUIRED.
9. SEDIMENT TRAPS AND/OR BASINS SHALL BE USED AS NECESSARY TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.
10. FINISH PAVING ALL ROADWAYS AND PARKING LOTS.
11. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES.
12. COMPLETE PERMANENT SEEDING AND LANDSCAPING.
13. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES.

SPECIAL CONSTRUCTION NOTES:

1. THE CONSTRUCTION SEQUENCE MUST LIMIT THE DURATION AND AREA OF DISTURBANCE.

EROSION CONTROL NOTES:

1. ALL EROSION CONTROL MEASURES AND PRACTICES SHALL CONFORM TO THE "ENVIRONMENTAL QUALITY HANDBOOK, EROSION AND SEDIMENT CONTROL," PUBLISHED BY THE MAINE SOIL AND WATER CONSERVATION COMMISSION.
2. PRIOR TO ANY WORK OR SOIL DISTURBANCE, CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR EROSION CONTROL MEASURES AS REQUIRED IN THE PROJECT MANUAL.
3. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL BARRIERS, INCLUDING HAY BALES, SILT FENCES, MULCH BERMS, SILT SACKS AND SILT SOCKS AS SHOWN IN THESE DRAWINGS AS THE FIRST ORDER OF WORK.
4. SILT SACK INLET PROTECTION SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASIN INLETS WITHIN THE WORK LIMITS AND BE MAINTAINED FOR THE DURATION OF THE PROJECT.
5. PERIMETER CONTROLS INCLUDING SILT FENCES, MULCH BERM, SILT SOCK, AND/OR HAY BALE BARRIERS SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT UNTIL NON-PAVED AREAS HAVE BEEN STABILIZED.
6. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF CONSTRUCTION.
7. ALL DISTURBED AREAS NOT OTHERWISE BEING TREATED SHALL RECEIVE 6" LOAM, SEED AND FERTILIZER.
8. INSPECT ALL INLET PROTECTION AND PERIMETER CONTROLS WEEKLY AND AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY OF FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE FILTER HEIGHT.
9. CONSTRUCT EROSION CONTROL BLANKETS ON ALL SLOPES STEEPER THAN 3:1.

STABILIZATION:

1. AN AREA SHALL BE CONSIDERED STABLE WHEN ONE OF THE FOLLOWING HAS OCCURRED:
    A. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
    B. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
    C. A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED;
    D. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.;
    E. IN AREAS TO BE PAVED, "STABLE" MEANS THAT BASE COURSE GRAVELS MEETING THE REQUIREMENTS OF STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION, ITEM 703.06 TYPE D HAVE BEEN INSTALLED.
2. WINTER STABILIZATION PRACTICES:
    A. ALL PROPOSED VEGETATED AREAS THAT DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS;
    B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85 PERCENT VEGETATIVE GROWTH BY OCTOBER 15, OR WHICH ARE DISTURBED AFTER OCTOBER 15, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
    C. AFTER OCTOBER 15, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER MEDOT ITEM 703.06 TYPE D, OR IF CONSTRUCTION IS TO CONTINUE THROUGH THE WINTER SEASON BE CLEARED OF ANY ACCUMULATED SNOW AFTER EACH STORM EVENT;
3. STABILIZATION SHALL BE INITIATED ON ALL LOAM STOCKPILES, AND DISTURBED AREAS, WHERE CONSTRUCTION ACTIVITY SHALL NOT OCCUR FOR MORE THAN TWENTY-ONE (21) CALENDAR DAYS BY THE FOURTEENTH (14TH) DAY AFTER CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED IN THAT AREA. STABILIZATION MEASURES TO BE USED INCLUDE:
    A. TEMPORARY SEEDING;
    B. MULCHING.
4. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
5. WHEN CONSTRUCTION ACTIVITY PERMANENTLY OR TEMPORARILY CEASES WITHIN 100 FEET OF NEARBY SURFACE WATERS OR DELINEATED WETLANDS, THE AREA SHALL BE STABILIZED WITHIN SEVEN (7) DAYS OR PRIOR TO A RAIN EVENT. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN THESE AREAS, SILT FENCES, MULCH BERMS, HAY BALE BARRIERS AND ANY EARTH/DIKES SHALL BE REMOVED ONCE PERMANENT MEASURES ARE ESTABLISHED.
6. DURING CONSTRUCTION, RUNOFF WILL BE DIVERTED AROUND THE SITE WITH EARTH DIKES, PIPING OR STABILIZED CHANNELS WHERE POSSIBLE. SHEET RUNOFF FROM THE SITE WILL BE FILTERED THROUGH SILT FENCES, MULCH BERMS, HAY BALE BARRIERS, OR SILT SOCKS. ALL STORM DRAIN BASIN INLETS SHALL BE PROVIDED WITH FLARED END SECTIONS AND TRASH RACKS. THE SITE SHALL BE STABILIZED FOR THE WINTER BY OCTOBER 15.

DUST CONTROL:

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST THROUGHOUT THE CONSTRUCTION PERIOD.
2. DUST CONTROL METHODS SHALL INCLUDE, BUT BE NOT LIMITED TO SPRINKLING WATER ON EXPOSED AREAS, COVERING LOADED DUMP TRUCKS LEAVING THE SITE, AND TEMPORARY MULCHING.
3. DUST CONTROL MEASURES SHALL BE UTILIZED SO AS TO PREVENT THE MIGRATION OF DUST FROM THE SITE TO ABUTTING AREAS.

STOCKPILES:

1. LOCATE STOCKPILES A MINIMUM OF 50 FEET AWAY FROM CATCH BASINS, SWALES, AND CULVERTS.
2. ALL STOCKPILES SHOULD BE SURROUNDED WITH TEMPORARY EROSION CONTROL MEASURES PRIOR TO THE ONSET OF PRECIPITATION.
3. PERIMETER BARRIERS SHOULD BE MAINTAINED AT ALL TIMES, AND ADJUSTED AS NEEDED TO ACCOMMODATE THE DELIVERY AND REMOVAL OF MATERIALS FROM THE STOCKPILE. THE INTEGRITY OF THE BARRIER SHOULD BE INSPECTED AT THE END OF EACH WORKING DAY.
4. PROTECT ALL STOCKPILES FROM STORMWATER RUN-OFF USING TEMPORARY EROSION CONTROL MEASURES SUCH AS BERMS, SILT SOCK, OR OTHER APPROVED PRACTICE TO PREVENT MIGRATION OF MATERIAL BEYOND THE IMMEDIATE CONFINES OF THE STOCKPILES.

OFF SITE VEHICLE TRACKING:

1. THE CONTRACTOR SHALL CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE(S) PRIOR TO ANY EXCAVATION ACTIVITIES.

VEGETATION:

1. TEMPORARY GRASS COVER:
    A. SEEDBED PREPARATION:
        a. APPLY FERTILIZER AT THE RATE OF 600 POUNDS PER ACRE OF 10-10-10. APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF THREE (3) TONS PER ACRE;
    B. SEEDING:
        a. UTILIZE ANNUAL RYE GRASS AT A RATE OF 40 LBS/ACRE;
        b. WHERE THE SOIL HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS, LOOSEN SOIL TO A DEPTH OF TWO (2) INCHES BEFORE APPLYING FERTILIZER, LIME AND SEED;
        c. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, OR HYDROSEEDER (SLURRY INCLUDING SEED AND FERTILIZER). HYDROSEEDINGS, WHICH INCLUDE MULCH, MAY BE LEFT ON SOIL SURFACE. SEEDING RATES MUST BE INCREASED 10% WHEN HYDROSEEDING;
    C. MAINTENANCE:
        a. TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED. AT A MINIMUM, 95% OF THE SOIL SURFACE SHOULD BE COVERED BY VEGETATION. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES USED IN THE INTERIM (MULCH, FILTER BARRIERS, CHECK DAMS, ETC.).
2. PERMANENT MEASURES AND PLANTINGS:
    A. LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF THREE (3) TONS PER ACRE IN ORDER TO PROVIDE A PH VALUE OF 5.5 TO 6.5;
    B. FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 800 POUNDS PER ACRE OF 10-20-20 FERTILIZER;
    C. SOIL CONDITIONERS AND FERTILIZER SHALL BE APPLIED AT THE RECOMMENDED RATES AND SHALL BE THOROUGHLY WORKED INTO THE LOAM. LOAM SHALL BE RAKED UNTIL THE SURFACE IS FINELY PULVERIZED, SMOOTH AND EVEN, AND THEN COMPACTED TO AN EVEN SURFACE CONFORMING TO THE REQUIRED LINES AND GRADES WITH APPROVED ROLLERS WEIGHING BETWEEN 4-1/2 POUNDS AND 5-1/2 POUNDS PER INCH OF WIDTH;
    D. SEED SHALL BE SOWN AT THE RATE SHOWN BELOW. SOWING SHALL BE DONE ON A CALM, DRY DAY, PREFERABLY BY MACHINE, BUT IF BY HAND, ONLY BY EXPERIENCED WORKMEN. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED. ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH;
    E. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AS INDICATED ABOVE;
    F. THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED WITH GRASS SHALL BE RESEEDED, AND ALL NOXIOUS WEEDS REMOVED;
    G. THE CONTRACTOR SHALL PROTECT AND MAINTAIN THE SEEDED AREAS UNTIL ACCEPTED;
    H. A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE APPLIED AT THE INDICATED RATE:

SEED MIX	APPLICATION RATE
CREEPING RED FESCUE	___ LBS/ACRE
TALL FESCUE	___ LBS/ACRE
REDTOP	___ LBS/ACRE

IN NO CASE SHALL THE WEED CONTENT EXCEED ONE (1) PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH STATE AND FEDERAL SEED LAWS. SEEDING SHALL BE DONE NO LATER THAN SEPTEMBER 15. IN NO CASE SHALL SEEDING TAKE PLACE OVER SNOW.

3. DORMANT SEEDING (SEPTEMBER 15 TO FIRST SNOWFALL):
    A. FOLLOW PERMANENT MEASURES SLOPE, LIME, FERTILIZER AND GRADING REQUIREMENTS. APPLY SEED MIXTURE AT TWICE THE INDICATED RATE. APPLY MULCH AS INDICATED FOR PERMANENT MEASURES.

CONCRETE WASHOUT AREA:

1. THE FOLLOWING ARE THE ONLY NON-STORMWATER DISCHARGES ALLOWED. ALL OTHER NON-STORMWATER DISCHARGES ARE PROHIBITED ON SITE:
    A. THE CONCRETE DELIVERY TRUCKS SHALL, WHENEVER POSSIBLE, USE WASHOUT FACILITIES AT THEIR OWN PLANT OR DISPATCH FACILITY;
    B. IF IT IS NECESSARY, SITE CONTRACTOR SHALL DESIGNATE SPECIFIC WASHOUT AREAS AND DESIGN FACILITIES TO HANDLE ANTICIPATED WASHOUT WATER;
    C. CONTRACTOR SHALL LOCATE WASHOUT AREAS AT LEAST 150 FEET AWAY FROM STORM DRAINS, SWALES AND SURFACE WATERS OR DELINEATED WETLANDS;
    D. INSPECT WASHOUT FACILITIES DAILY TO DETECT LEAKS OR TEARS AND TO IDENTIFY WHEN MATERIALS NEED TO BE REMOVED.

ALLOWABLE NON-STORMWATER DISCHARGES:

1. FIRE-FIGHTING ACTIVITIES;
2. FIRE HYDRANT FLUSHING;
3. WATERS USED TO WASH VEHICLES WHERE DETERGENTS ARE NOT USED;
4. WATER USED TO CONTROL DUST;
5. POTABLE WATER INCLUDING UNCONTAMINATED WATER LINE FLUSHING;
6. ROUTINE EXTERNAL BUILDING WASH DOWN WHERE DETERGENTS ARE NOT USED;
7. PAVEMENT WASH WATERS WHERE DETERGENTS ARE NOT USED;
8. UNCONTAMINATED AIR CONDITIONING/COMPRESSOR CONDENSATION;
9. UNCONTAMINATED GROUND WATER OR SPRING WATER;
10. FOUNDATION OR FOOTING DRAINS WHICH ARE UNCONTAMINATED;
11. UNCONTAMINATED EXCAVATION DEWATERING;
12. LANDSCAPE IRRIGATION.

WASTE DISPOSAL:

1. WASTE MATERIAL:
    A. ALL WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURELY LIDDED RECEPTACLES. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE SHALL BE DEPOSITED IN A DUMPSTER;
    B. NO CONSTRUCTION WASTE MATERIALS SHALL BE BURIED ON SITE;
    C. ALL PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL BY THE SUPERINTENDENT.
2. HAZARDOUS WASTE:
    A. ALL HAZARDOUS WASTE MATERIALS SHALL BE DISPOSED OF IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATION OR BY THE MANUFACTURER;
    B. SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES BY THE SUPERINTENDENT.
3. SANITARY WASTE:
    A. ALL SANITARY WASTE SHALL BE COLLECTED FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

SPILL PREVENTION:

1. CONTRACTOR SHALL BE FAMILIAR WITH SPILL PREVENTION MEASURES REQUIRED BY LOCAL, STATE AND FEDERAL AGENCIES. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE BEST MANAGEMENT SPILL PREVENTION PRACTICES OUTLINED BELOW.
2. THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES DURING CONSTRUCTION TO STORMWATER RUNOFF:
    A. GOOD HOUSEKEEPING - THE FOLLOWING GOOD HOUSEKEEPING PRACTICE SHALL BE FOLLOWED ON SITE DURING CONSTRUCTION:
        a. ONLY SUFFICIENT AMOUNTS OF PRODUCTS TO DO THE JOB SHALL BE STORED ON SITE;
        b. ALL REGULATED MATERIALS STORED ON SITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR PROPER (ORIGINAL IF POSSIBLE) CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE, ON AN IMPERVIOUS SURFACE;
        c. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL SHALL BE FOLLOWED;
        d. THE SITE SUPERINTENDENT SHALL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS;
        e. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
        f. WHENEVER POSSIBLE ALL OF A PRODUCT SHALL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
        g. THE TRAINING OF ON-SITE EMPLOYEES AND THE ON-SITE POSTING OF RELEASE RESPONSE INFORMATION DESCRIBING WHAT TO DO IN THE EVENT OF A SPILL OF REGULATED SUBSTANCES.
    B. HAZARDOUS PRODUCTS - THE FOLLOWING PRACTICES SHALL BE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS:
        a. PRODUCTS SHALL BE KEPT IN THEIR ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
        b. ORIGINAL LABELS AND MATERIAL SAFETY DATA SHALL BE RETAINED FOR IMPORTANT PRODUCT INFORMATION;
        c. SURPLUS PRODUCT THAT MUST BE DISPOSED OF SHALL BE DISCARDED ACCORDING TO THE MANUFACTURER'S RECOMMENDED METHODS OF DISPOSAL.
    C. PRODUCT SPECIFIC PRACTICES - THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ON SITE:
        a. PETROLEUM PRODUCTS:
            - ALL ON SITE VEHICLES SHALL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE LEAKAGE;
            - PETROLEUM PRODUCTS SHALL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT BASED SUBSTANCES USED ON SITE SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
            - SECURE FUEL STORAGE AREAS AGAINST UNAUTHORIZED ENTRY;
            - INSPECT FUEL STORAGE AREAS WEEKLY;
            - WHEREVER POSSIBLE, KEEP REGULATED CONTAINERS THAT ARE STORED OUTSIDE MORE THAN 50 FEET FROM SURFACE WATER AND STORM DRAINS, 75 FEET FROM PRIVATE WELLS, AND 400 FEET FROM PUBLIC WELLS;
            - COVER REGULATED CONTAINERS IN OUTSIDE STORAGE AREAS;
            - SECONDARY CONTAINMENT IS REQUIRED FOR CONTAINERS CONTAINING REGULATED SUBSTANCES STORED OUTSIDE, EXCEPT FOR ON PREMISE USE HEATING FUEL TANKS, OR ABOVEGROUND OR UNDERGROUND STORAGE TANKS OTHERWISE REGULATED.
            - THE FUEL HANDLING REQUIREMENTS SHALL INCLUDE:
                (1) EXCEPT WHEN IN USE, KEEP CONTAINERS CONTAINING REGULATED SUBSTANCES CLOSED AND SEALED;
                (2) PLACE DRIP PANS UNDER SPIGOTS, VALVES, AND PUMPS;
                (3) HAVE SPILL CONTROL AND CONTAINMENT EQUIPMENT READILY AVAILABLE IN ALL WORK AREAS;
                (4) USE FUNNELS AND DRIP PANS WHEN TRANSFERRING REGULATED SUBSTANCES;
                (5) PERFORM TRANSFERS OF REGULATED SUBSTANCES OVER AN IMPERVIOUS SURFACE.
            - FUELING AND MAINTENANCE OF EXCAVATION, EARTHMOVING AND OTHER CONSTRUCTION RELATED EQUIPMENT SHALL COMPLY WITH THE REGULATIONS OF THE MAINE DEPARTMENT OF ENVIRONMENTAL SERVICES.
        b. FERTILIZERS:
            - FERTILIZERS USED SHALL BE APPLIED ONLY IN THE MINIMUM AMOUNTS DIRECTED BY THE SPECIFICATIONS;
            - ONCE APPLIED FERTILIZER SHALL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORMWATER;
            - STORAGE SHALL BE IN A COVERED SHED OR ENCLOSED TRAILERS. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER SHALL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
            - PAINTS:
            - ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE;
            - EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM;
            - EXCESS PAINT SHALL BE DISPOSED OF PROPERLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
    D. SPILL CONTROL PRACTICES - IN ADDITION TO GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTION, THE FOLLOWING PRACTICES SHALL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
        a. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP SHALL BE CLEARLY POSTED AND SITE PERSONNEL SHALL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES;
        b. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP SHALL BE KEPT IN THE MATERIAL STORAGE AREA ON SITE. EQUIPMENT AND MATERIALS SHALL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST AND PLASTIC OR METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE;
        c. ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY;
        d. THE SPILL AREA SHALL BE KEPT WELL VENTILATED AND PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE;
        e. SPILLS OF TOXIC OR HAZARDOUS MATERIAL SHALL BE REPORTED TO THE APPROPRIATE LOCAL, STATE OR FEDERAL AGENCIES AS REQUIRED;
        f. THE SITE SUPERINTENDENT RESPONSIBLE FOR DAY-TO-DAY SITE OPERATIONS SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR.
    E. VEHICLE FUELING AND MAINTENANCE PRACTICE:
        a. CONTRACTOR SHALL MAKE AN EFFORT TO PERFORM EQUIPMENT/VEHICLE FUELING AND MAINTENANCE AT AN OFF-SITE FACILITY;
        b. CONTRACTOR SHALL PROVIDE AN ON-SITE FUELING AND MAINTENANCE AREA THAT IS CLEAN AND DRY;
        c. IF POSSIBLE THE CONTRACTOR SHALL KEEP AREA COVERED;
        d. CONTRACTOR SHALL KEEP A SPILL KIT AT THE FUELING AND MAINTENANCE AREA;
        e. CONTRACTOR SHALL REGULARLY INSPECT VEHICLES FOR LEAKS AND DAMAGE;
        f. CONTRACTOR SHALL USE DRIP PANS, DRIP CLOTHS, OR ABSORBENT PADS WHEN REPLACING SPENT FLUID.

EROSION CONTROL OBSERVATIONS AND MAINTENANCE PRACTICES

1. THIS PROJECT EXCEED ONE (1) ACRE OF DISTURBANCE AND THUS REQUIRE(S) A SWPPP. THE SWPPP SHALL BE PREPARED BY A QUALIFIED ENGINEER. THE CONTRACTOR SHALL BE FAMILIAR WITH THE SWPPP AND KEEP AN UPDATED COPY OF THE SWPPP ONSITE AT ALL TIMES.
2. THE FOLLOWING REPRESENTS THE GENERAL OBSERVATION AND REPORTING PRACTICES THAT SHALL BE FOLLOWED AS PART OF THIS PROJECT:
    A. OBSERVATIONS OF THE PROJECT FOR COMPLIANCE WITH THE SWPPP SHALL BE MADE BY A QUALIFIED PERSON AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF A STORM 0.25 INCHES OR GREATER;
    B. AN OBSERVATION REPORT SHALL BE MADE AFTER EACH OBSERVATION AND DISTRIBUTED TO THE ENGINEER, THE OWNER, AND THE CONTRACTOR;
    C. A REPRESENTATIVE OF THE SITE CONTRACTOR, SHALL BE RESPONSIBLE FOR MAINTENANCE AND REPAIR ACTIVITIES;
    D. IF A REPAIR IS NECESSARY, IT SHALL BE INITIATED WITHIN 24 HOURS OF REPORT.

NOTES:
1. SILT SOCK SHALL BE SILT SOXX BY FILTREXX OR APPROVED EQUAL.
2. SILT SOCK SHALL BE FILLED WITH FILTERMEDIA BY FILTREXX OR APPROVED EQUAL.
3. WHERE TWO SILT SOCKS ARE JOINED, A MINIMUM OF 2 FEET OF OVERLAP SHALL BE MAINTAINED.
4. SILT SOCKS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

SILT SOCK

NO SCALE

NOTES:
1. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT FROM THE SITE. WHEN WASHING IS REQUIRED, IT SHALL BE DONE SO RUNOFF DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS

STABILIZED CONSTRUCTION EXIT

NO SCALE

NOTES:
1. INLET PROTECTION BARRIER SHALL BE SILT SACK BY ACF ENVIRONMENTAL OR APPROVED EQUAL.
2. INLET PROTECTION BARRIER SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASINS LOCATED WITHIN THE LIMIT OF WORK.
3. SILT SACK SHALL BE INSPECTED REGULARLY AND MAINTAIN IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

INLET PROTECTION BARRIER

NO SCALE

NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING AREA TO A SINGLE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. TRAP OUTLET SHALL BE MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP.
5. TRAP SHALL DISCHARGE TO A STABILIZED AREA.
6. TRAP SHALL BE CLEANED WHEN 50 PERCENT OF THE ORIGINAL VOLUME IS FILLED.
7. MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AND STABILIZED.
8. SEDIMENT TRAPS MUST BE USED AS NEEDED TO CONTAIN RUNOFF UNTIL SOILS ARE STABILIZED.

SEDIMENT TRAP

NO SCALE

Tighe&Bond

PRELIMINARY

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

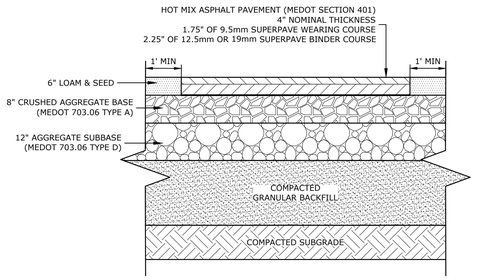
PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DETAIL.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

EROSION CONTROL NOTES & DETAILS SHEET

SCALE: AS SHOWN

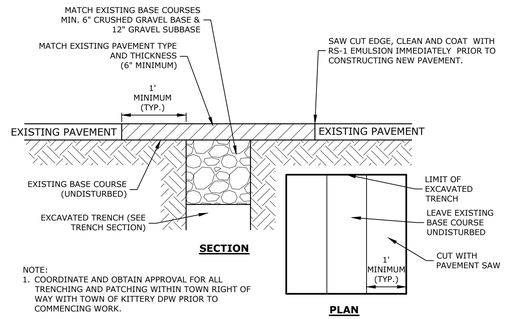
C-501

Last Save Date: October 5, 2023 11:47 AM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Drawings\AutoCAD\Sheet\T5037-003_C-Detail.dwg Layout Tab: C-501



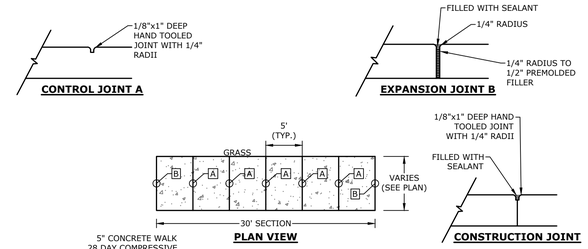
NOTES:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.
3. A TACK COAT SHALL BE PLACED ON TOP OF BINDER COURSE PAVEMENT PRIOR TO PLACING WEARING COURSE.
4. FINAL PAVEMENT SECTION DESIGN SHALL BE APPROVED BY THE PROJECTS GEOTECHNICAL ENGINEER.
5. THE PAVEMENT SECTION SHOULD BE THICKENED AT THE ENTRANCE AND EXIT WAY AREAS OVER A 5' SECTION TO MATCH THE EXISTING ROADWAY PAVEMENT DEPTHS.

TYPICAL STANDARD DUTY PAVEMENT SECTION
NO SCALE



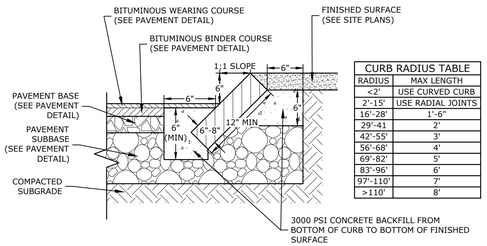
NOTE:
1. COORDINATE AND OBTAIN APPROVAL FOR ALL TRENCHING AND PATCHING WITHIN TOWN RIGHT OF WAY WITH TOWN OF KITTERY DPW PRIOR TO COMMENCING WORK.

ROADWAY TRENCH PATCH
NO SCALE



NOTES:
1. SEE SITE PLAN FOR SIDEWALK WIDTH AND LOCATIONS.
2. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR WALK AND SIDE SLOPE GRADES.
3. ISOLATION JOINTS ADJACENT TO BUILDING SHALL BE COORDINATED WITH BUILDING DRAWINGS.
4. CONCRETE SIDEWALKS WITHIN THE TOWN ROW SHALL BE SEALED WITH SILOXANE CONCRETE SEALER OR APPROVED EQUAL 30 DAYS AFTER SIDEWALK SETS.

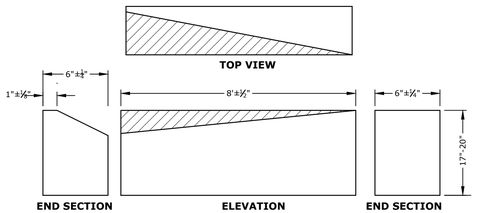
CONCRETE SIDEWALK
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<2'	USE CURVED CURB
2'-15'	USE RADIAL JOINTS
16'-28'	1'-6"
29'-41	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
>110'	8'

NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF SLOPED GRANITE CURB (SGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

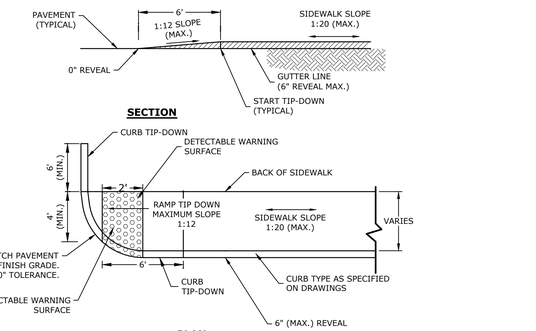
SLOPED GRANITE CURB
NO SCALE



TRANSITION SECTION
GRANITE SLOPE CURB TO VERTICAL GRANITE CURB

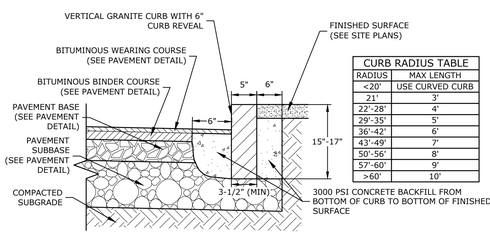
NOTES:
1. THE INTENT OF THIS ITEM IS TO PROVIDE A SMOOTH TRANSITION BETWEEN STRAIGHT GRANITE CURB AND SLOPE CURB WITHOUT REQUIRING FIELD CHIPPING DURING INSTALLATION. THE SLOPE CURB MAY REQUIRE ADJUSTMENTS TO MEET THE TRANSITION PIECE HEIGHT. TRANSITION SLOPE CURB TO STANDARD REVEAL AS QUICKLY AS POSSIBLE TO PROVIDE FOR THIS SMOOTH TRANSITION.

CURB TRANSITION
NO SCALE



NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. PROVIDE 8" COMPACTED CRUSHED GRAVEL BASE BENEATH RAMPS.
3. DETECTABLE WARNING STRIP SHALL BE ADA SOLUTIONS, INC. CAST IN PLACE RAMP. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

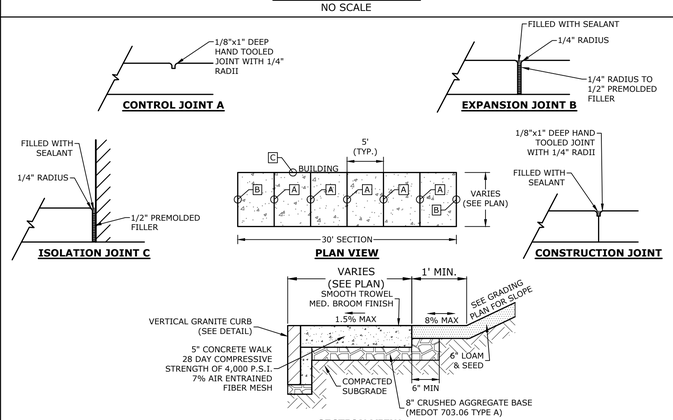
CONCRETE SIDEWALK TIP-DOWN RAMP WITH DETECTABLE WARNING PANEL
NO SCALE



CURB RADIUS TABLE	
RADIUS	MAX LENGTH
<20'	USE CURVED CURB
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
>60'	10'

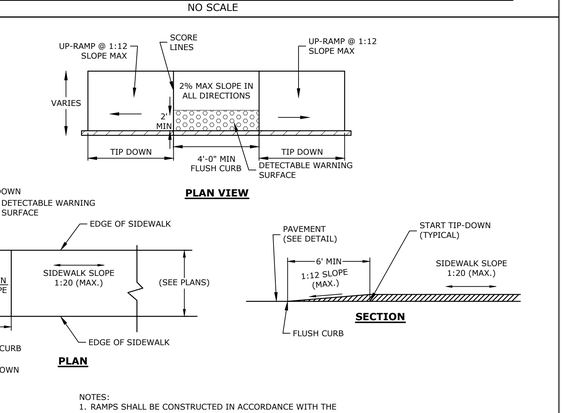
NOTES:
1. SEE SITE PLAN(S) FOR LIMITS OF VERTICAL GRANITE CURB (VGC).
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 3'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE TABLE).
6. ALL RADII 20 FEET AND SMALLER SHALL BE CONSTRUCTED USING CURVED SECTIONS.
7. JOINTS BETWEEN STONES SHALL HAVE A MAXIMUM SPACING OF 1/2" AND SHALL BE MORTARED.

VERTICAL GRANITE CURB
NO SCALE



NOTES:
1. SEE SITE PLAN FOR SIDEWALK WIDTH AND LOCATIONS.
2. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR WALK AND SIDE SLOPE GRADES.
3. ISOLATION JOINTS ADJACENT TO BUILDING SHALL BE COORDINATED WITH BUILDING DRAWINGS.
4. CONCRETE SIDEWALKS WITHIN THE TOWN ROW SHALL BE SEALED WITH SILOXANE CONCRETE SEALER OR APPROVED EQUAL 30 DAYS AFTER SIDEWALK SETS.

CONCRETE SIDEWALK WITH GRANITE CURB
NO SCALE



NOTES:
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
2. A 8" COMPACTED CRUSHED GRAVEL BASE (MEDOT 703.06 TYPE A) SHALL BE PROVIDED BENEATH RAMPS.
3. DETECTABLE WARNING PANEL SHALL BE CAST IRON WITH BLACK COATING

CONCRETE SIDEWALK TIP-DOWN RAMP WITH DETECTABLE WARNING PANEL
NO SCALE

Tighe&Bond

PRELIMINARY

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

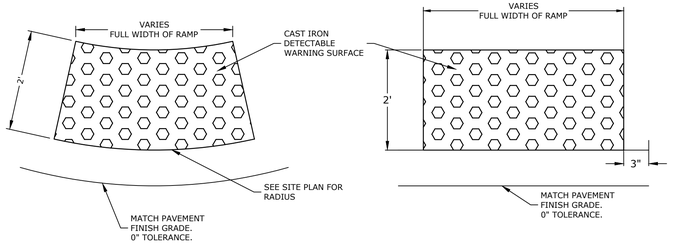
PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DETAIL.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

DETAILS SHEET

SCALE: AS SHOWN

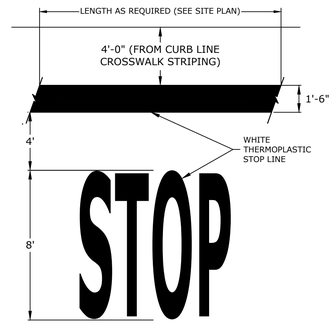
C-502

Last Save Date: October 5, 2023 11:47 AM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Drawings\AutoCAD\Sheet\T5037-003_C-Detail.dwg Layout Tab: C-502



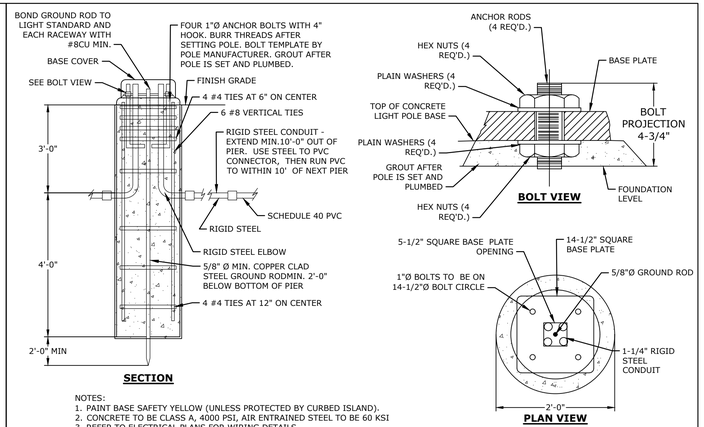
NOTES:
1. DETECTABLE WARNING SURFACE SHALL BE 2' X 3' CAST IRON PANEL SET IN CONCRETE.
2. DETECTABLE WARNING SURFACE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

CAST IRON DETECTABLE WARNING SURFACE
NO SCALE



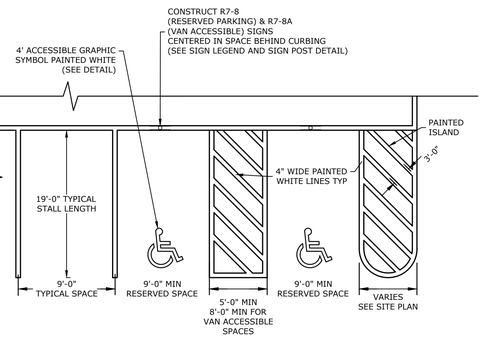
NOTES:
1. PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS AS SHOWN ON SITE PLAN.
2. STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

STOP BAR
NO SCALE



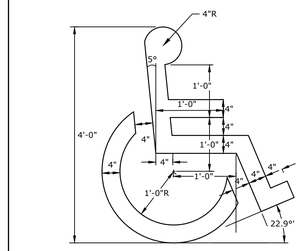
NOTES:
1. PAINT BASE SAFETY YELLOW (UNLESS PROTECTED BY CURBED ISLAND).
2. CONCRETE TO BE CLASS A, 4000 PSI, AIR ENTRAINED STEEL TO BE 60 KSI
3. REFER TO ELECTRICAL PLANS FOR WIRING DETAILS.

TYPICAL LIGHT POLE BASE
NO SCALE



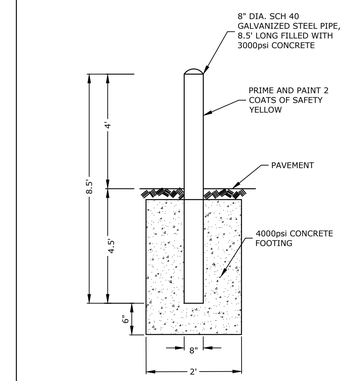
NOTE:
1. ALL PAINT SHALL BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT AND LOCAL AND STATE REQUIREMENTS.
3. FINISH PAVEMENT GRADES AT ALL HANDICAP ACCESSIBLE STALLS AND PAINTED ACCESS AISLES SHALL NOT EXCEED 2% IN ANY DIRECTION.

PARKING SPACE STRIPING
NO SCALE

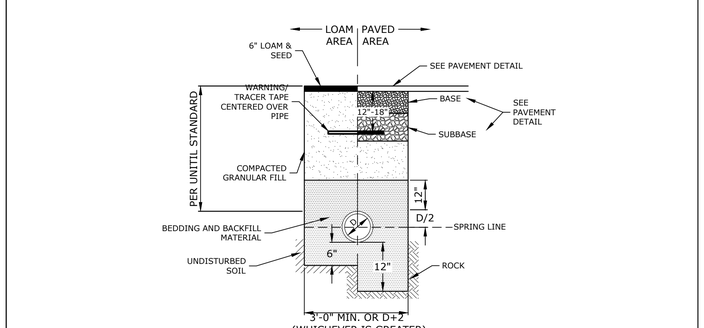


NOTES:
1. SYMBOL SHALL BE CONSTRUCTED IN ALL ACCESSIBLE SPACES USING FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248-TYPE F. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOL SHALL BE CONSTRUCTED TO THE LATEST ADA, STATE AND LOCAL REQUIREMENTS.

ACCESSIBLE SYMBOL
NO SCALE

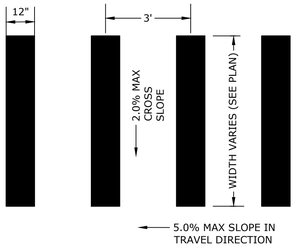


TYPICAL BOLLARD
NO SCALE



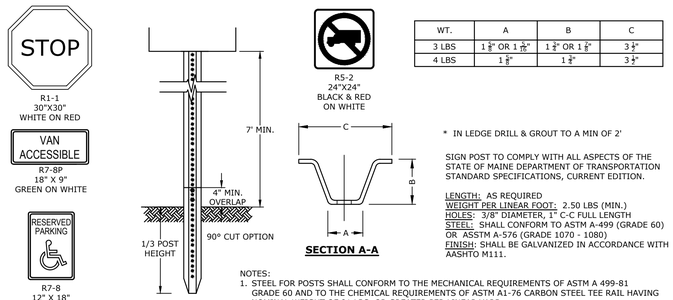
NOTE:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. GAS SHALL BE INSTALLED PER UNITIL STANDARDS. COORDINATE ALL INSTALLATIONS WITH UNITIL AND THE TOWN OF KITTERY.

TYPICAL GAS TRENCH
NO SCALE



NOTE:
STRIPING SHALL BE CONSTRUCTED USING WHITE THERMO PLASTIC, REFLECTERIZED PAVEMENT MARKING MATERIAL MEETING THE REQUIREMENTS OF ASTM D 4505

CROSSWALK STRIPING
NO SCALE



WT.	A	B	C
3 LBS	1 3/8" OR 1 25/32"	1 3/8" OR 1 3/8"	3 1/4"
4 LBS	1 3/8"	1 3/8"	3 1/2"

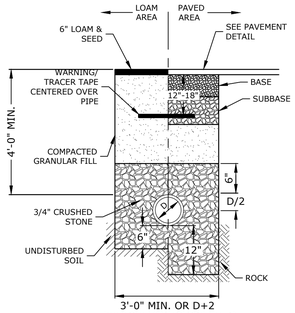
* IN LEDGE DRILL & GROUT TO A MIN OF 2'

SIGN POST TO COMPLY WITH ALL ASPECTS OF THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION.

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.

NOTES:
1. STEEL FOR POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTRM A 499-81 GRADE 60 AND TO THE CHEMICAL REQUIREMENTS OF ASTRM A1-76 CARBON STEEL TEE RAIL HAVING NOMINAL WEIGHT OF 91 LBS. OR GREATER PER LINEAR YARD.
2. AFTER FABRICATION, ALL STEEL POSTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A 123.
3. ALL SIGN POSTS SHALL HAVE "BREAKAWAY" FEATURES THAT MEET AASHTO REQUIREMENTS CONTAINED IN "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS-1985." THE "BREAKAWAY" FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CARRY THE SIGNS SHOWN IN THE PLANS AT 60 MPH WIND LOADINGS. INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
4. TYPE A POSTS - 3 LB/FT TYPE B POSTS - 4 LB/FT.
5. ALL SIGNS TO BE CONSTRUCTED PER THE LATEST EDITION OF THE FHWA STANDARD HIGHWAY SIGNS MANUAL AND INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
6. SIGNS SHALL MEET REQUIREMENTS OF OF STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION.

SIGN LEGEND & POST
NO SCALE



NOTE:
1. CRUSHED STONE BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 6" ABOVE TOP OF PIPE.
2. ALL UTILITIES SHALL BE INSTALLED PER THE INDIVIDUAL UTILITY COMPANY STANDARDS. COORDINATE ALL INSTALLATIONS WITH INDIVIDUAL UTILITY COMPANIES AND THE TOWN OF KITTERY.

STORM DRAIN TRENCH
NO SCALE

Tighe&Bond

PRELIMINARY

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

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CHECKED:	NAH
APPROVED:	PMC

DETAILS SHEET

SCALE: AS SHOWN

C-503

Last Save Date: October 5, 2023 11:47 AM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
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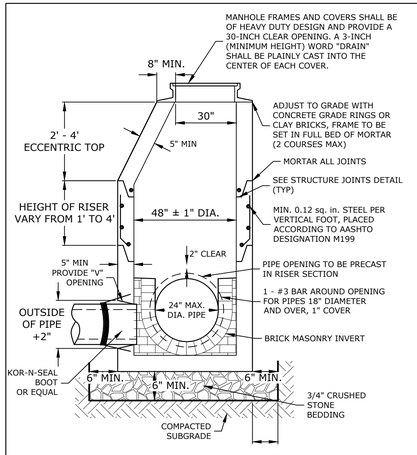
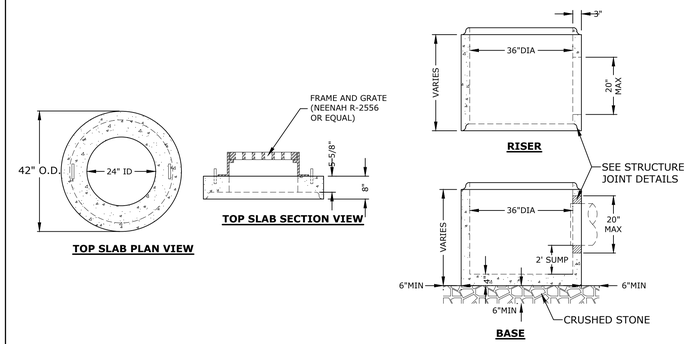


NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQUARE INCHES PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQUARE INCHES PER LINEAR FOOT.
4. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
5. CONSTRUCT CRUSHED STONE BEDDING AND BACKFILL UNDER (6" MINIMUM THICKNESS)
6. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
7. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
8. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
9. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
10. ALL STRUCTURES WITH MULTIPLE PIPES SHALL HAVE A MINIMUM OF 12" OF INSIDE SURFACE BETWEEN HOLES, NO MORE THAN 75% OF A HORIZNTAL CROSS SECTION SHALL BE HOLES, AND THERE SHALL BE NO HOLES CLOSER THAN 3" TO JOINTS.
11. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE DRAIN INVERT.
12. INVERT BRICKS SHALL BE LAID ON EDGE.

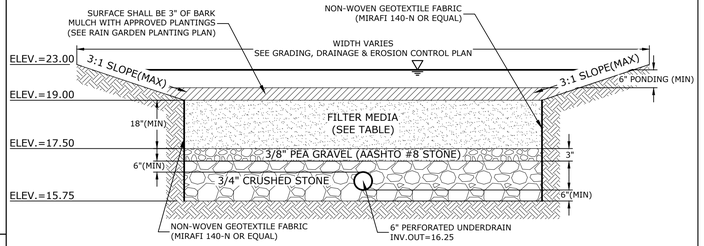
4' DIAMETER DRAIN MANHOLE
NO SCALE



NOTES:
1. ALL SECTIONS SHALL BE 4,000 PSI CONCRETE.
2. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
3. ALL JOINTS ON THE STRUCTURE AND PIPING SHALL BE WATERTIGHT.
4. PRECAST CONCRETE YARD DRAINS SHALL BE PHOENIX PRECAST PRODUCTS OR EQUAL.

YARD DRAIN
NO SCALE

RAIN GARDEN INSPECTION/MAINTENANCE REQUIREMENTS		
INSPECTION/ MAINTENANCE	**FREQUENCY**	**ACTION**
MONITOR TO ENSURE THAT RAIN GARDENS FUNCTION EFFECTIVELY AFTER STORMS	TWO (2) TIMES ANNUALLY AND AFTER ANY RAINFALL EVENT EXCEEDING 2.5" IN A 24-HR PERIOD	• TRASH AND DEBRIS TO BE REMOVED • ANY REQUIRED MAINTENANCE SHALL BE ADDRESSED
INSPECT VEGETATION	ANNUALLY	• INSPECT THE CONDITION OF ALL RAIN GARDEN VEGETATION • PRUNE BACK OVERGROWTH • REPLACE DEAD VEGETATION • REMOVE ANY INVASIVE SPECIES
INSPECT DRAWDOWN TIME: • THE SYSTEM SHALL DRAWDOWN WITHIN 48-HOURS FOLLOWING A RAINFALL EVENT.	ANNUALLY	• ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE THE FILTRATION FUNCTION, INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE FILTER



SECTION VIEW

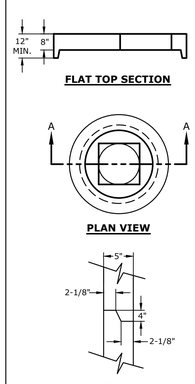
NOTES:
1. BARK MULCH SHALL BE AGED A MINIMUM OF 12 MONTHS AND SHALL NOT FLOAT.
2. RAIN GARDENS SHALL NOT BE PLACED INTO SERVICE UNTIL THE PRACTICE HAS BEEN PLANTED AND ITS CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
3. DO NOT TRAFFIC EXPOSED SOIL SURFACES WITH CONSTRUCTION EQUIPMENT. CONTRACTOR SHALL KEEP ALL EXCAVATION EQUIPMENT OUTSIDE OF THE LIMIT OF THE RAIN GARDEN.
4. SEE GRADING, DRAINAGE & EROSION CONTROL PLAN FOR LOCATIONS, LAYOUTS, AND ELEVATIONS.
5. THE SAND PORTION OF THE FILTER MEDIA SHALL MEET THE FOLLOWING GRADATION (ASTM C-33):

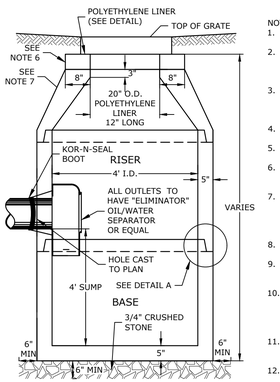
SIEVE SIZE	PERCENT PASSING
3/8"	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#50	5-30
#100	0-10

FILTER MEDIA COMPOSITION:

COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL SIEVE NO.	PERCENT PASSING
ASTM C-33 CONCRETE SAND	50-55	SEE NOTE #5	
LOAMY SAND TOPSOIL	20-30	200	15-25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH	20-30	200	5 MAX

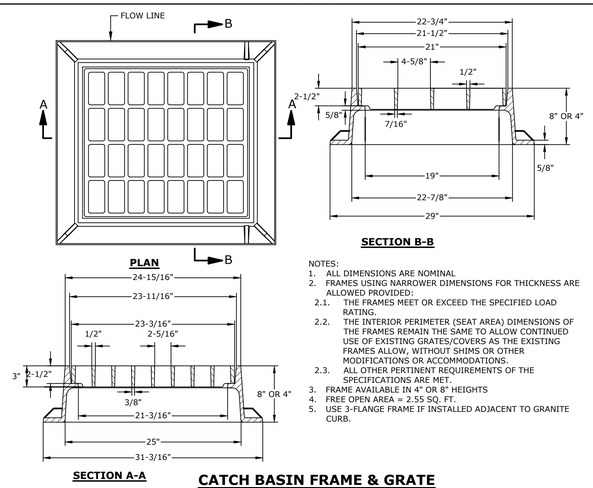
RAIN GARDEN
NO SCALE





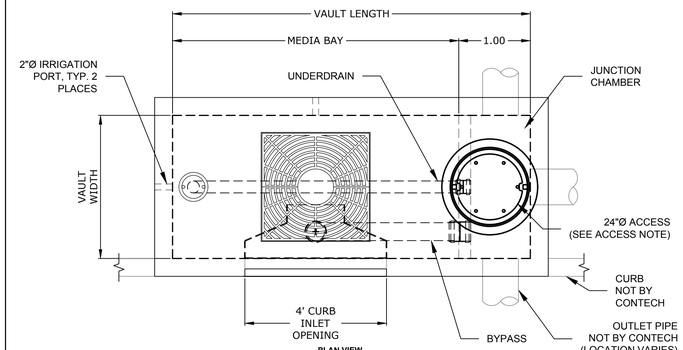
NOTES:
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA(4000 psi).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE AND GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. FITTING FRAME TO GRADE MAY BE DONE WITH PREFABRICATED ADJUSTMENT RINGS OR CLAY BRICKS (2 COURSES MAX.).
7. CONE SECTIONS MAY BE EITHER CONCENTRIC OR ECCENTRIC, OR FLAT SLAB TOPS MAY BE USED WHERE PIPE WOULD OTHERWISE ENTER INTO THE CONE SECTION OF THE STRUCTURE AND WHERE PERMITTED.
8. PIPE ELEVATIONS SHOWN ON PLANS SHALL BE FIELD VERIFIED PRIOR TO PRECASTING.
9. OUTSIDE EDGES OF PIPES SHALL PROJECT NO MORE THAN 3" BEYOND INSIDE WALL OF STRUCTURE.
10. PRECAST SECTIONS SHALL HAVE A TONGUE AND GROOVE JOINT 4" HIGH AT AN 11° ANGLE CENTERED IN THE WIDTH OF THE WALL AND SHALL BE ASSEMBLED USING AN APPROVED FLEXIBLE SEALANT IN JOINTS.
11. THE TONGUE AND GROOVE JOINT SHALL BE SEALED WITH ONE STRIP OF BUTYL RUBBER SEALANT.
12. "ELIMINATOR" OIL/WATER SEPARATOR SHALL BE INSTALLED TIGHT TO INSIDE OF CATCHBASIN.

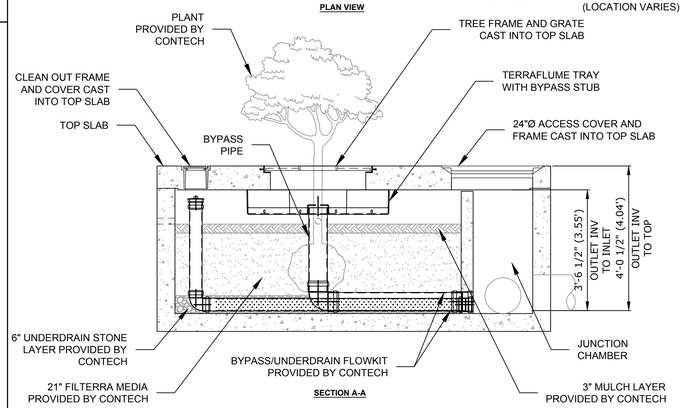
4' DIAMETER CATCH BASIN
NO SCALE



NOTES:
1. ALL DIMENSIONS ARE NOMINAL
2. FRAMES USING NARROWER DIMENSIONS FOR THICKNESS ARE ALLOWED PROVIDED:
   2.1. THE FRAMES MEET OR EXCEED THE SPECIFIED LOAD RATING.
   2.2. THE INTERIOR PERIMETER (SEAT AREA) DIMENSIONS OF THE FRAMES REMAIN THE SAME TO ALLOW CONTINUED USE OF EXISTING GRATES/COVERS AS THE EXISTING FRAMES ALLOW, WITHOUT SHIMS OR OTHER MODIFICATIONS OR ACCOMMODATIONS.
   2.3. ALL OTHER PERTINENT REQUIREMENTS OF THE SPECIFICATIONS ARE MET.
3. FRAME AVAILABLE IN 4" OR 8" HEIGHTS
4. FREE OPEN AREA = 2.55 SQ. FT.
5. USE 3-FLANGE FRAME IF INSTALLED ADJACENT TO GRANITE CURB.

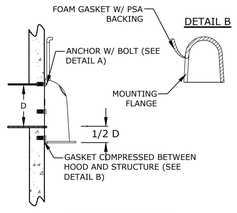
CATCH BASIN FRAME & GRATE
NO SCALE

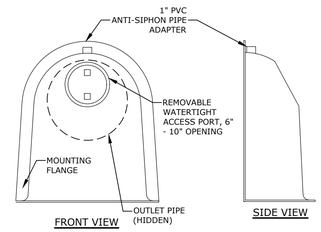




FTIBC LONG SIDE CURB INLET							
DESIGNATION	TREE BOX FILTER NUMBER	MEDIA BAY SIZE	VAULT SIZE (L x W)	MAX. OUTLET/BYPASS PIPE DIA.	MAX. BYPASS FLOW (CFS)	UNDERDRAIN PIPE DIA. (PERF.)	TREE GRATE QTY. & SIZE
FTIBC0806-C	1-9	8' X 6'	10' X 6'	10" SDR 35	2.37	4" SDR 35	(1) 4' X 4'

TYPICAL FILTERRA INTERNAL BYPASS CURB WITH CHAMBER (TREE BOX FILTER)
NO SCALE





PIPE SIZE (I.D.)	SNOUT MODEL REQ'D
12"	18R
15"	18R
18"	24R
24"	30R
30"	54R
36"	54R
42"	72F
48"	72F
54"	96F
60"	96F
66"	96F

F=SQUARE STRUCTURE
R=CIRCULAR STRUCTURE

OIL-WATER-DEBRIS SEPARATOR
NO SCALE

Tighe&Bond

PRELIMINARY

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283 US Route 1
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APPROVED:	PMC

DETAILS SHEET

SCALE: AS SHOWN

C-504

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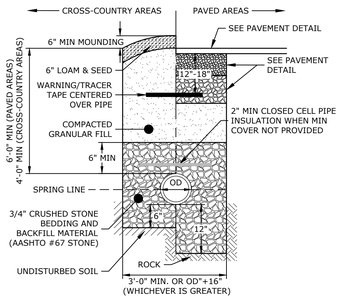
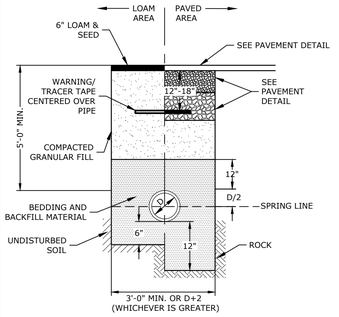


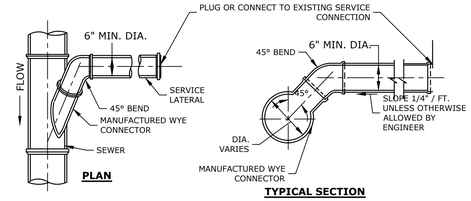
NOTES:
1. 3/4" CRUSHED STONE BEDDING AND BACKFILL MATERIAL FOR FULL WIDTH OF THE TRENCH FROM MINIMUM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO MINIMUM OF 6" OVER THE TOP OF THE PIPE.
2. SANITARY SEWER SHALL BE INSTALLED PER THE TOWN OF KITTERY DEPARTMENT OF PUBLIC WORKS STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE TOWN OF KITTERY.

TYPICAL SEWER TRENCH
NO SCALE

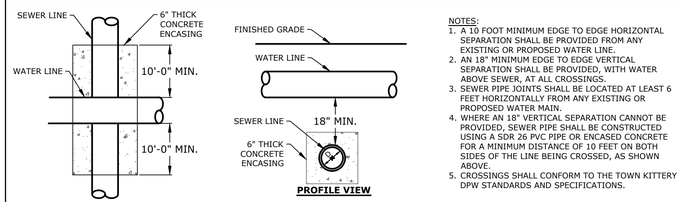


NOTES:
1. SAND BEDDING AND BACKFILL FOR FULL WIDTH OF THE TRENCH FROM 6" BELOW PIPE IN EARTH AND 12" BELOW PIPE IN ROCK UP TO 12" ABOVE TOP OF PIPE.
2. WATER MAIN SHALL BE INSTALLED PER TOWN OF KITTERY STANDARDS. COORDINATE ALL INSTALLATIONS WITH THE TOWN OF KITTERY.

TYPICAL WATER TRENCH
NO SCALE

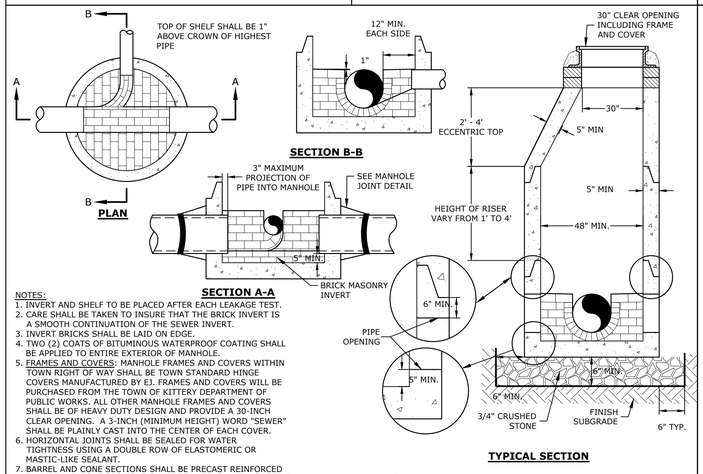


STANDARD SERVICE LATERAL CONNECTION
NO SCALE



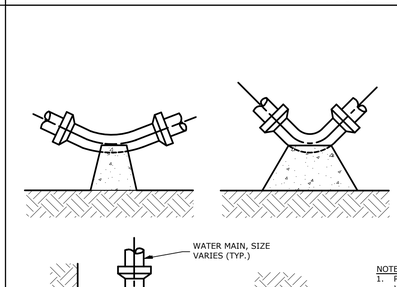
NOTES:
1. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED FROM ANY EXISTING OR PROPOSED WATER LINE.
2. AN 18" MINIMUM EDGE TO EDGE VERTICAL SEPARATION SHALL BE PROVIDED, WITH WATER ABOVE SEWER, AT ALL CROSSINGS.
3. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.
4. WHERE AN 18" VERTICAL SEPARATION CANNOT BE PROVIDED, SEWER PIPE SHALL BE CONSTRUCTED USING A SDR 26 PVC PIPE OR ENCASED CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET ON BOTH SIDES OF THE LINE BEING CROSSED, AS SHOWN ABOVE.
5. CROSSINGS SHALL CONFORM TO THE TOWN KITTERY DPW STANDARDS AND SPECIFICATIONS.

WATER SEWER CROSSING
NO SCALE

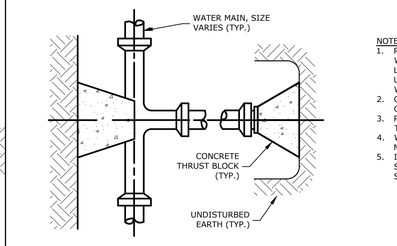


NOTES:
1. INVERT AND SHELF TO BE PLACED AFTER EACH LEAKAGE TEST.
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT.
3. INVERT BRICKS SHALL BE LAID ON EDGE.
4. TWO (2) COATS OF BITUMINOUS WATERPROOF COATING SHALL BE APPLIED TO ENTIRE EXTERIOR OF MANHOLE.
5. FRAMES AND COVERS: MANHOLE FRAMES AND COVERS WITHIN TOWN RIGHT OF WAY SHALL BE TOWN STANDARD HINGE COVERS MANUFACTURED BY EJ. FRAMES AND COVERS WILL BE PURCHASED FROM THE TOWN OF KITTERY DEPARTMENT OF PUBLIC WORKS. ALL OTHER MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. A 3-INCH (MINIMUM HEIGHT) WORD "SEWER" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
6. HORIZONTAL JOINTS SHALL BE SEALED FOR WATER TIGHTNESS USING A DOUBLE ROW OF ELASTOMERIC OR MASTIC-LIKE SEALANT.
7. BARREL AND CONE SECTIONS SHALL BE PRECAST REINFORCED CONCRETE DESIGNED FOR H20 LOADING, AND CONFORMING TO ASTM C478-06.

SEWER MANHOLE
NO SCALE

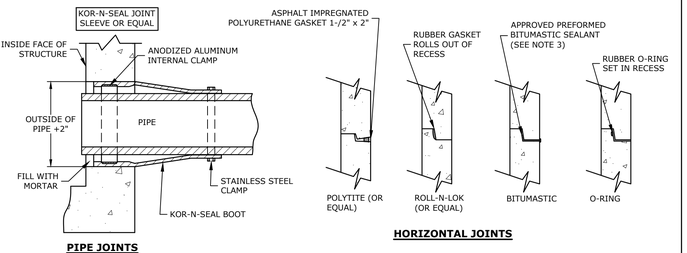


TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE	PIPE SIZE				
		4"	6"	8"	10"	12"
	A 90°	0.89	2.19	3.82	11.14	17.24
	B 180°	0.65	1.55	2.78	8.38	12.00
	C 45°	0.48	1.19	2.12	6.02	9.32
	D 22-1/2°	0.25	0.60	1.06	3.08	4.74
	E 11-1/4°	0.13	0.30	0.54	1.54	2.38



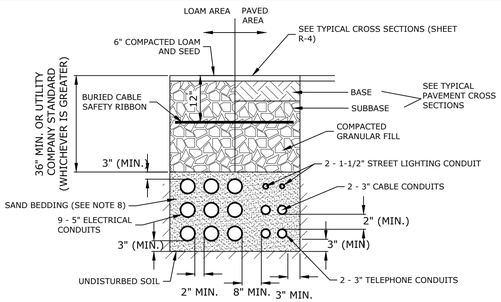
NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.
5. INSTALLATION AND STANDARD DIMENSIONAL REQUIREMENTS SHALL BE WITH TOWN OF KITTERY WATER DEPARTMENT STANDARDS.

THRUST BLOCKING
NO SCALE



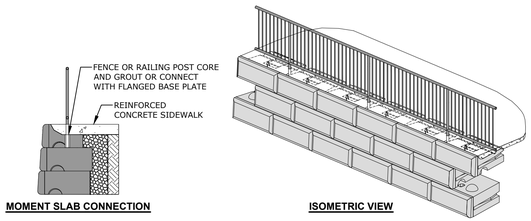
NOTES:
1. HORIZONTAL JOINTS BETWEEN THE SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE PER TOWN OF KITTERY DPW STANDARD AND SHALL BE SEALED FOR WATERTIGHTNESS USING A DOUBLE ROW ELASTOMERIC OR MASTIC-LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE PER TOWN OF KITTERY STANDARD.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. ALL GASKETS, SEALANTS, MORTAR, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS' WRITTEN INSTRUCTIONS.

STRUCTURE JOINTS
NO SCALE

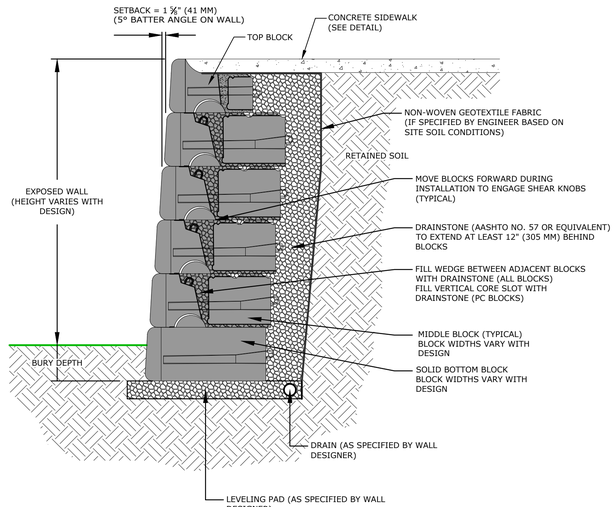


NOTES:
1. NUMBER, MATERIAL, AND SIZE OF UTILITY CONDUITS TO BE DETERMINED BY LOCAL UTILITY OR AS SHOWN ON ELECTRICAL DRAWINGS. CONTRACTOR TO PROVIDE ONE SPARE CONDUIT FOR EACH UTILITY TO BUILDING.
2. DIMENSIONS SHOWN REPRESENT OWNERS MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS MAY BE GREATER BASED ON UTILITY COMPANY STANDARDS, BUT SHALL NOT BE LESS THAN THOSE SHOWN.
3. NO CONDUIT RUN SHALL EXCEED 360 DEGREES IN TOTAL BENDS.
4. A SUITABLE PULLING STRING, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE UTILITY COMPANY IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT.
5. UTILITY COMPANY MUST BE GIVEN THE OPPORTUNITY TO INSPECT THE CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD THE UTILITY COMPANY BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND, WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE.
7. ALL 90° SWEEPS WILL BE MADE USING RIGID GALVANIZED STEEL. SWEEPS WITH A 36 TO 48 INCH RADIUS.
8. SAND BEDDING TO BE REPLACED WITH CONCRETE ENCASEMENT WHERE COVER IS LESS THAN 3 FEET, WHEN LOCATED BELOW PAVEMENT, WHEN WITHIN THE TOWN RIGHT OF WAY, OR WHERE SHOWN ON THE UTILITIES PLAN.

TYPICAL ELECTRICAL AND COMMUNICATION CONDUIT
NO SCALE



TYPICAL RETAINING WALL FENCE CONNECTION



TYPICAL RETAINING WALL SECTION

NOTES:
1. RETAINING WALL SHALL BE REDI ROCK (BASIS OF DESIGN), VERSA-LOK, MAGNUMSTONE, OR EQUAL.
2. THE CONTRACTOR SHALL SUBMIT DESIGN AND CALCULATIONS FOR THE RETAINING WALL THAT SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF MASSACHUSETTS. CALCULATIONS SHALL INCLUDE A GLOBAL STABILITY ANALYSIS.
3. MINIMUM DESIGN PARARMETERS:
   - GLOBAL STABILITY FACTOR OF SAFETY = 1.3
   - OVERTURNING FACTOR OF SAFETY UNDER STATIC LOADS = 1.5
   - SLIDING FACTOR OF SAFETY UNDER STATIC LOADS = 1.5
   - GEOGRID PULLOUT FACTOR OF SAFETY = 1.5
   - SEISMIC FACTOR OF SAFETY = 1.1
   - EQUIVALENT FLUID PRESSURE = 40 POUNDS PER CUBIC FOOT (PCF) FOR GRAVITY AND CANTILEVERED WALLS ABOVE GROUNDWATER AND WALLS WITH APPROPRIATE DRAINAGE BEHIND THE WALL.
   - HYDROSTATIC WATER PRESSURE ALONG THE HEIGHT OF THE WALL BELOW GROUNDWATER SHOULD BE INCLUDED IF DRAINAGE IS NOT PROVIDED.

   - WHERE THE CALCULATED EARTH PRESSURE BEHIND THE WALL IS LESS THAN 250 POUNDS PER SQUARE FOOT (PSF), IT SHOULD BE INCREASED TO 250 PSF TO ACCOUNT FOR STRESSES CREATED BY COMPACTION WITHIN 5 FEET OF THE WALL.

   - WALLS SHOULD BE DESIGNED FOR APPROPRIATE SLOPING BACKFILL

   - WALLS SHOULD BE DESIGNED TO RESIST AN EARTHQUAKE FORCE FW EVALUATED IN ACCORDANCE WITH
   - SECTION 1610.2 OF THE MSBC AS FOLLOWS:
   - FW=0.100 (SS)(FA)(GT)(H_2)
     WHERE:
     - SS IS THE SPECTRAL RESPONSE ACCELERATION PARAMETERS AT 0.2-SECOND PERIOD EQUAL TO 0.208
     - FA IS THE SITE COEFFICIENT FROM TABLE 1613.3.3(1) OF 2015 IBC (FA=2.5 FOR SEISMIC SITE CLASS C);
     - G_T IS THE SOIL TOTAL UNIT WEIGHT (G_T=130 PCF FOR COMPACTED GRAVEL BORROW);
     - H IS THE HEIGHT OF THE WALL.
4. WALL DESIGNS SHALL CONSIDER EFFECTS OF SLOPE, TRAFFIC LOADS, BUILDING LOADS, GUARDRAIL AND/OR FENCING AS REQUIRED.
5. WALL DESIGN ENGINEER SHALL CONSIDER HEIGHT AND SPECIFY SAFETY RAIL WHERE REQUIRED
6. ALL INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION MANUAL AND THE WALL DESIGN ENGINEER'S DESIGN PLANS AND SPECIFICATIONS.
7. THE WALL DESIGN ENGINEER SHALL COMPLETE SUFFICIENT INSPECTIONS DURING CONSTRUCTION TO CERTIFY WORK IS COMPLETED IN ACCORDANCE WITH DESIGN.
8. CONTRACTOR SHALL DIRECT SURFACE RUNOFF AWAY FROM THE WALL DURING CONSTRUCTION.
9. ANY SURFACE DRAINAGE FEATURES, FINISH GRADING, PAVEMENT OR OTHER SURFACE TREATMENT SHALL BE INSTALLED IN THE AREA OF THE WALL IMMEDIATELY AFTER THE WALL IS COMPLETE OR OTHER MEASURES SHALL BE TAKEN TO PROTECT THE WALL FROM RUNOFF.
10. CONTRACTOR SHALL SUPPLY SAMPLE TO THE OWNER FOR APPROVAL PRIOR TO WALL CONSTRUCTION.
11. FINAL DESIGN PLANS OF WALL SHOWING FENCING, SHALL BE SUBMITTED WITH THE FINAL DESIGN PLANS.
12. RETAINING WALL DESIGN SHALL BE FROM THE WALL MANUFACTURER AND SHALL INCLUDE A GLOBAL STABILITY ANALYSIS.
13. FINAL STRUCTURAL DESIGN TO BE SUBMITTED TO THE ENGINEER WITH ALL CALCULATIONS AND PLANS.
14. STRUCTURAL DESIGN TO BE COMPLETED AND STAMPED BY A MAINE LICENSED STRUCTURAL ENGINEER. DESIGN ENGINEER SHALL INSPECT WALL DURING CONSTRUCTION AND CERTIFY THAT IT HAS BEEN INSTALLED IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS SUBMITTED AS PART OF THE BUILDING PERMIT.
15. AN AS-BUILT PLAN SHOWING WALL LOCATION AND DIMENSIONS SHALL BE SUBMITTED TO THE OWNER UPON COMPLETION.
16. THESE DETAILS ARE FOR REFERENCE ONLY. DETERMINATION OF THE SUITABILITY AND/OR MANNER OF USE OF ANY DETAILS CONTAINED IN THIS DOCUMENT IS THE SOLE RESPONSIBILITY OF THE WALL DESIGN ENGINEER OF RECORD. FINAL PROJECT DESIGNS, INCLUDING ALL CONSTRUCTION DETAILS, SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER USING THE ACTUAL CONDITIONS OF THE PROPOSED SITE.
17. ANY UNSUITABLE SOIL SUCH AS FROZEN OR ORGANIC SOILS SHOULD BE REMOVED FROM BEHIND THE PROPOSED RETAINING WALLS AND REPLACED WITH FREE DRAINING BACKFILL SUCH AS GRAVEL BORROW.
18. EXISTING FILL SHOULD NOT BE USED WITHIN THREE FEET OF GRAVITY WALLS.

TYPICAL GRAVITY WALL
NO SCALE

Tighe&Bond

PRELIMINARY

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DETAIL.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

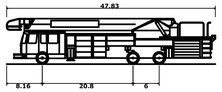
DETAILS SHEET

SCALE: AS SHOWN

C-505

Last Save Date: October 5, 2023 11:47 AM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Drawings\AutoCAD\Sheet\T5037-003_C-Detail.dwg Layout Tab: C-505

INTERSTATE 95



Portsmouth Fire Truck	
Overall Length	47.830ft
Overall Width	8.500ft
Overall Body Height	10.432ft
Min Body Ground Clearance	0.862ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	38.00°

LEGEND

FIRE TRUCK WHEEL PATH

FIRE TRUCK BODY ENVELOPE

PROPOSED 5-STORY
MULTIFAMILY DWELLING
(107 UNITS)
BUILDING FOOTPRINT:
±24,124 SF

INDOOR
POOL

PATIO

PROPOSED 4-STORY HOTEL
(119 ROOM)
BUILDING FOOTPRINT:
±18,790 SF

PROPOSED
RESTAURANT
±6,000 SF

PATIO

WILSON ROAD

WILSON ROAD - ROUTE 101

U.S. ROUTE ONE

Portsmouth Fire Truck

Tighe&Bond

PRELIMINARY

SCALE IN FEET
0 30' 60'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

FIRE TRUCK TURNING PLAN

SCALE: AS SHOWN

C-601

Last Save Date: October 5, 2023 2:55 PM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Drawings\AutoCAD\Sheet\T5037-003_C-Design.dwg Layout Tab: Fire Truck

T5037-003
October 5, 2023

Mr. Jason Garnham, Director of Planning and Development
Town of Kittery Planning Department
200 Rogers Road
Kittery, Maine 03904

Re: Request for Preliminary Site Plan Review
Proposed Mixed Use Development, 283 US Route 1, Kittery, ME

Dear Jason,

On behalf of 283-360 Kittery, LLC (owner) and 283 Route 1, LLC, C/O Two International Group (applicant), we are pleased to submit one (1) set of hard copies and via the online portal the following information to support a request to meet with the Planning Board (PB) for Preliminary Site Plan Review at their next scheduled meeting for the above referenced project:

- One (1) full size & eight (8) half size copies of the Plan Set, dated October 5, 2023;
- Abutters List and Notice, dated October 5, 2023;
- Drainage Analysis, dated October 5, 2023;

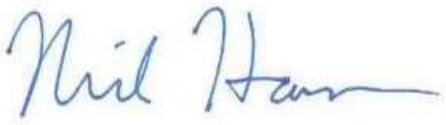
The proposed project is located along US Route 1 on property identified as Map 30 Lot 44 on the Town of Kittery Tax Maps. The project includes the construction of three buildings consisting of hotel, restaurant, and residential use. The buildings consist of a 4-story, 119 key hotel along US Route 1, a restaurant building at the corner of US Roue 1 and Wilson Road, and a 5-story, 107 unit residential building to the rear of the site. The project also consists of on-site improvements including driveways, sidewalks, access improvements, stormwater management, lighting, landscaping, and utilities.

The Planning Board voted to accept the Sketch Plan for this project during their May 25, 2023, meeting. The proposed project will require the following site related approvals from the Planning Board:

- Site Plan Review Permit
- Special Exception Request for Multifamily Dwelling

The applicant respectfully requests to be placed on the October 26, 2023, Planning Board meeting agenda for Preliminary Site Plan Review. If you have any questions or need any additional information, please contact Neil Hansen by phone at (603) 294-9213 or by email at nahansen@tighebond.com.

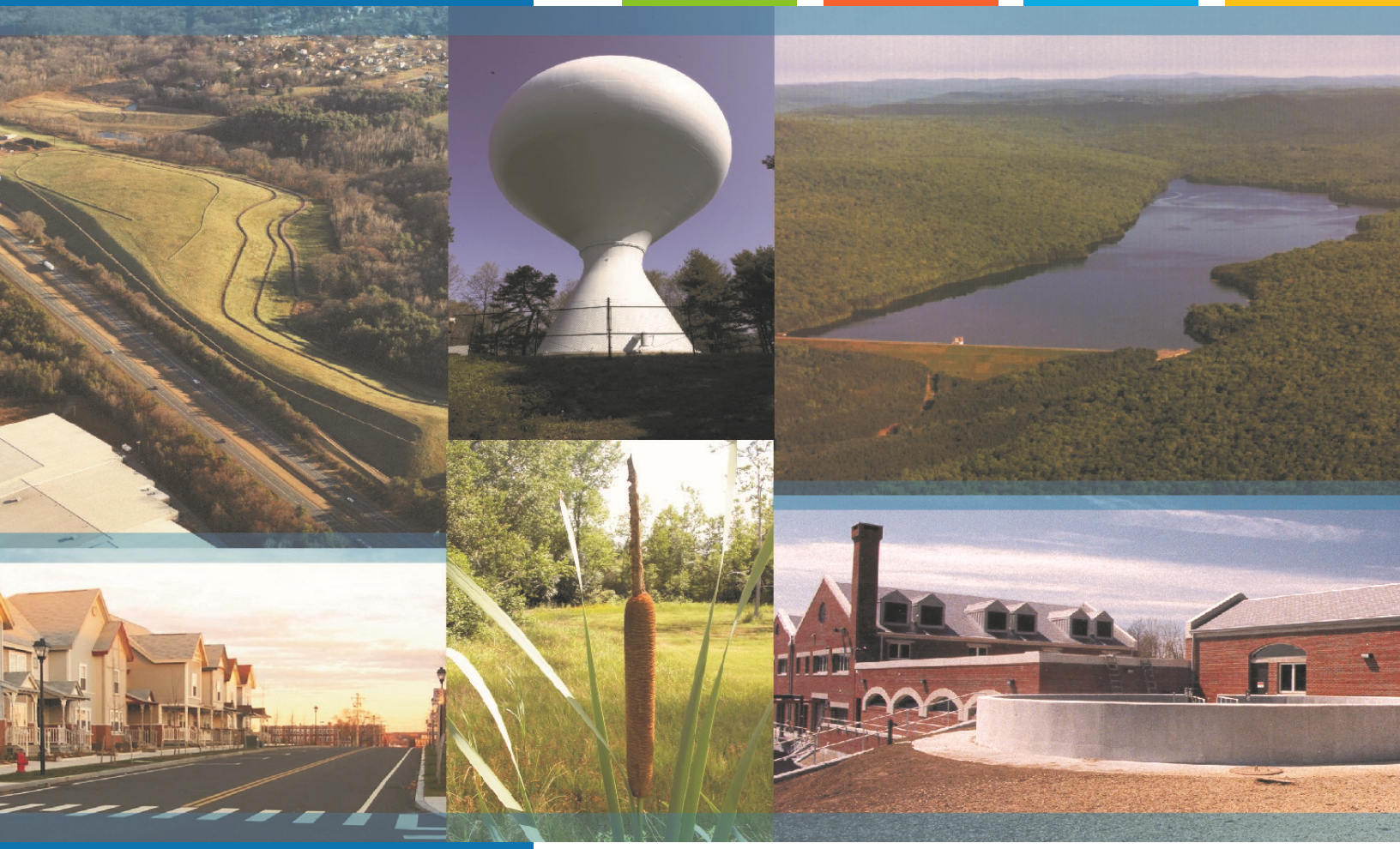
Sincerely,
TIGHE & BOND, INC.



Neil A. Hansen, PE
Project Manager

Patrick M. Crimmins, PE
Vice President

Copy: 283 Route 1, LLC (via email)



Kittery Mixed-Use Development

Kittery, Maine

Drainage Analysis

Prepared For:

Two International Group
1 New Hampshire Ave, Suite 123
Portsmouth, NH 03801

October 5, 2023

Section 1 Drainage Analysis

Appendices

J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Reports - Evaluations\Drainage\Docs\T5037-003_Drainage Analysis.docx

Section 1
Drainage Analysis

The proposed project site is identified as Map 30 Lot 44 of the Town of Kittery's Tax Map. The site is located at 283 US Route 1. The proposed project is for the redevelopment of the site. The existing site is comprised of four (4) former commercial retail buildings and associated parking areas. The proposed redevelopment is to consist of three (3) buildings; a 5-story multi family dwelling, a 4-story hotel, and a restaurant, associated parking facilities, and site improvements consisting of underground utilities, landscaping, lighting, and an upgraded stormwater management system. As part of the proposed redevelopment there will be a reduction of impervious area from the existing condition of approximately 38,500 SF.

The Stormwater Management System was designed in accordance with the redevelopment requirements of the Maine Department of Environmental Protection, Chapter 500 – Stormwater Management, rules and regulations. The system includes deep sump catch basins with oil water separator hoods, a proprietary Rain Guardian Turret pretreatment unit, a rain garden, and proprietary Filterra treatment units (Tree Box Filters).

1.1 Calculation Methods

The design storms analyzed in this study are the 2-year, 10-year, and 25-year 24-hour Type III duration storm events. The stormwater modeling system, HydroCAD 10.0 was utilized to predict the peak runoff rates from these storm events. A Type III storm pattern was used in the model. The rainfall data for these storm events was obtained from the data published by the Northeast Regional Climate Center (NRCC) at Cornell University.

The time of concentration was computed using the TR-55 Method, which provides a means of determining the time for an entire watershed to contribute runoff to a specific location via sheet flows, shallow concentrated flow, and channel flow. Runoff curve numbers were calculated by estimating the coverage areas and then summing the curve number for the coverage area as a percent of the entire watershed.

References:

1. HydroCAD Stormwater Modeling System, by HydroCAD Software Solutions LLC, Chocorua, New Hampshire.

2. Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers, October 2016.

3. "Extreme Precipitation in New York & New England." Extreme Precipitation in New York & New England by Northeast Regional Climate Center (NRCC), 26 June 2012.

1.2 Pre-Development Conditions

To analyze the Pre-Development condition, the site has been modeled utilizing two (2) watershed areas of PRE-1.0 & PRE-2.0 with the distinct point of analysis PA-1 & PA-2 respectively. These points of analysis and watersheds are depicted on the plan entitled "Pre-Development Watershed Plan", Sheet C-801.

The points of analysis and their contributing watershed area is described below:

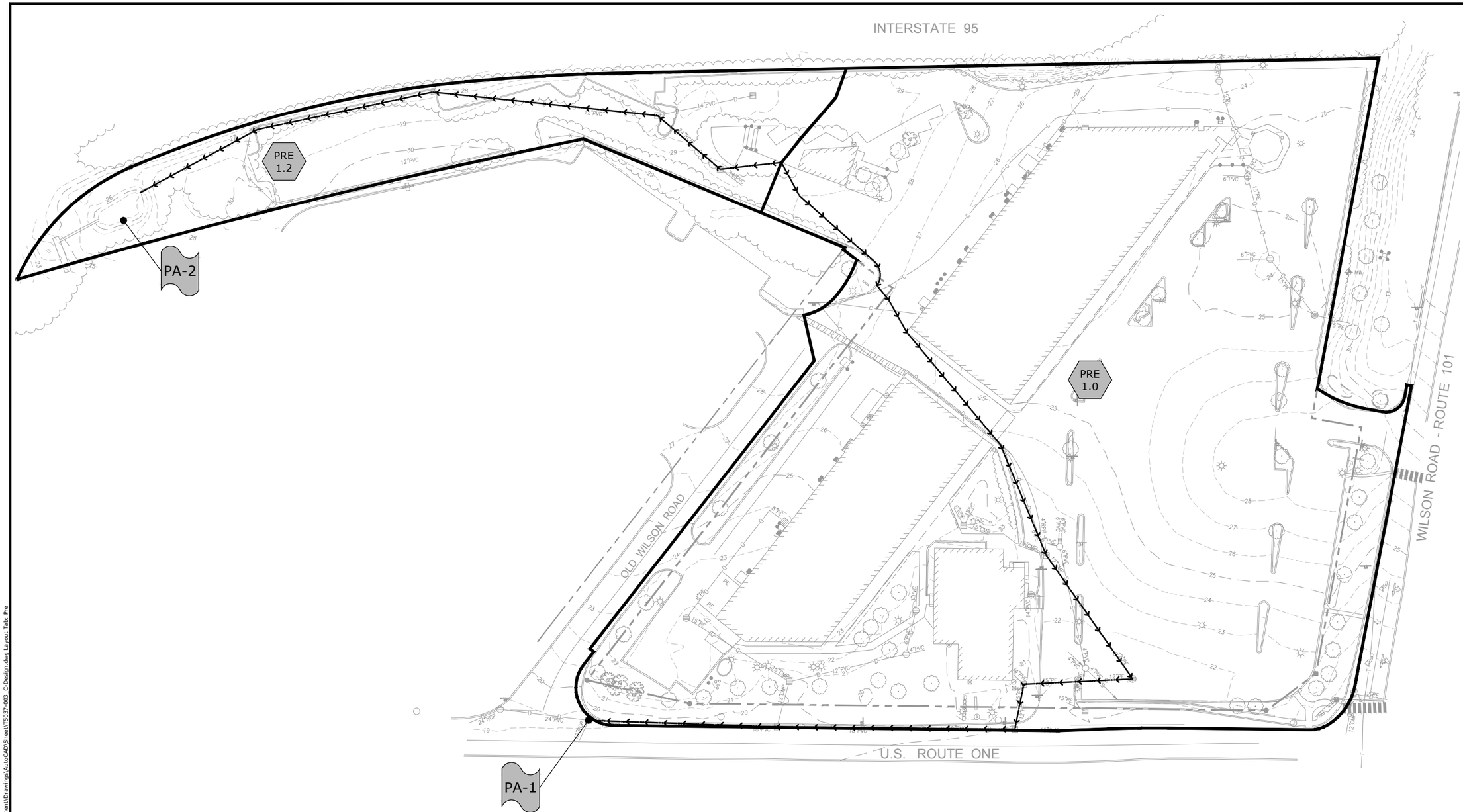
Point of Analysis One (PA-1)

Point of analysis PA-1 is comprised of one (1) watershed area (PRE-1.0). This area includes a majority of the developed site consisting of buildings, parking areas, and minimal landscaped islands. Runoff from this area travels from the rear of the site via overland flow and is then collected in a closed drainage system withing US Route 1 the Point of Analysis 1 (PA-1) is the existing drainage structure at the corner of Old Wilson Road and US Route 1.

Point of Analysis Two (PA-2)

Point of analysis PA-2 is comprised of one (1) watershed area (PRE-2.0). This area consists of a small parking area in the rear of the with some grass and wooded areas. Runoff from this area travels from the rear of the site southwest across the parking area via overland flow and is then collected in a closed drainage system and discharged to an existing detention pond (PA-2).

1.2.1 Pre-Development Watershed Plan



LEGEND

- PRE-DEVELOPMENT WATERSHED BOUNDARY
- LONGEST FLOW PATH
- PRE 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- PA-1 — POINT OF ANALYSIS

Tighe&Bond

PRELIMINARY

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
1	10/5/2023	Preliminary Site Plan Review

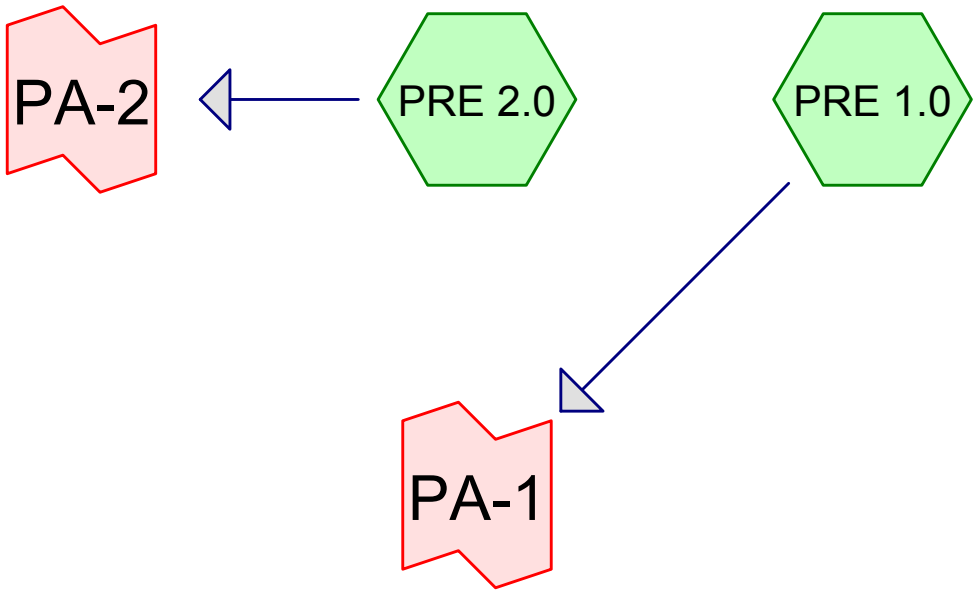
PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	CML

PRE-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-801

1.2.2 Pre-Development Calculation



Subcat Reach Pond Link

Routing Diagram for T5037-003_Pre
Prepared by Tighe & Bond, Printed 10/3/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.224	74	>75% Grass cover, Good, HSG C (PRE 1.0)
4.252	98	Paved parking, HSG C (PRE 1.0, PRE 2.0)
1.164	98	Roofs, HSG C (PRE 1.0)
0.421	72	Woods/grass comb., Good, HSG C (PRE 2.0)
7.061	**92**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=263,780 sf 79.78% Impervious Runoff Depth=2.44"
Tc=4.0 min CN=93 Runoff=17.58 cfs 1.229 af

SubcatchmentPRE 2.0: Runoff Area=43,789 sf 58.16% Impervious Runoff Depth=1.91"
Tc=4.0 min CN=87 Runoff=2.36 cfs 0.160 af

Link PA-1: Inflow=17.58 cfs 1.229 af
Primary=17.58 cfs 1.229 af

Link PA-2: Inflow=2.36 cfs 0.160 af
Primary=2.36 cfs 0.160 af

Total Runoff Area = 7.061 ac Runoff Volume = 1.389 af Average Runoff Depth = 2.36"
23.30% Pervious = 1.645 ac 76.70% Impervious = 5.416 ac

Summary for Subcatchment PRE 1.0:

Runoff = 17.58 cfs @ 12.06 hrs, Volume= 1.229 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
159,738	98	Paved parking, HSG C
50,712	98	Roofs, HSG C
53,330	74	>75% Grass cover, Good, HSG C
263,780	93	Weighted Average
53,330		20.22% Pervious Area
210,450		79.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment PRE 2.0:

Runoff = 2.36 cfs @ 12.06 hrs, Volume= 0.160 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
25,467	98	Paved parking, HSG C
18,322	72	Woods/grass comb., Good, HSG C
43,789	87	Weighted Average
18,322		41.84% Pervious Area
25,467		58.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Link PA-1:

Inflow Area = 6.056 ac, 79.78% Impervious, Inflow Depth = 2.44" for 2-yr event
Inflow = 17.58 cfs @ 12.06 hrs, Volume= 1.229 af
Primary = 17.58 cfs @ 12.06 hrs, Volume= 1.229 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 1.005 ac, 58.16% Impervious, Inflow Depth = 1.91" for 2-yr event
Inflow = 2.36 cfs @ 12.06 hrs, Volume= 0.160 af
Primary = 2.36 cfs @ 12.06 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=263,780 sf 79.78% Impervious Runoff Depth=4.03"
Tc=4.0 min CN=93 Runoff=28.30 cfs 2.034 af

SubcatchmentPRE 2.0: Runoff Area=43,789 sf 58.16% Impervious Runoff Depth=3.41"
Tc=4.0 min CN=87 Runoff=4.15 cfs 0.285 af

Link PA-1: Inflow=28.30 cfs 2.034 af
Primary=28.30 cfs 2.034 af

Link PA-2: Inflow=4.15 cfs 0.285 af
Primary=4.15 cfs 0.285 af

Total Runoff Area = 7.061 ac Runoff Volume = 2.320 af Average Runoff Depth = 3.94"
23.30% Pervious = 1.645 ac 76.70% Impervious = 5.416 ac

Summary for Subcatchment PRE 1.0:

Runoff = 28.30 cfs @ 12.06 hrs, Volume= 2.034 af, Depth= 4.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
159,738	98	Paved parking, HSG C
50,712	98	Roofs, HSG C
53,330	74	>75% Grass cover, Good, HSG C
263,780	93	Weighted Average
53,330		20.22% Pervious Area
210,450		79.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment PRE 2.0:

Runoff = 4.15 cfs @ 12.06 hrs, Volume= 0.285 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
25,467	98	Paved parking, HSG C
18,322	72	Woods/grass comb., Good, HSG C
43,789	87	Weighted Average
18,322		41.84% Pervious Area
25,467		58.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Link PA-1:

Inflow Area = 6.056 ac, 79.78% Impervious, Inflow Depth = 4.03" for 10-yr event
Inflow = 28.30 cfs @ 12.06 hrs, Volume= 2.034 af
Primary = 28.30 cfs @ 12.06 hrs, Volume= 2.034 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 1.005 ac, 58.16% Impervious, Inflow Depth = 3.41" for 10-yr event
Inflow = 4.15 cfs @ 12.06 hrs, Volume= 0.285 af
Primary = 4.15 cfs @ 12.06 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPRE 1.0: Runoff Area=263,780 sf 79.78% Impervious Runoff Depth=5.30"
Tc=4.0 min CN=93 Runoff=36.64 cfs 2.675 af

SubcatchmentPRE 2.0: Runoff Area=43,789 sf 58.16% Impervious Runoff Depth=4.63"
Tc=4.0 min CN=87 Runoff=5.56 cfs 0.388 af

Link PA-1: Inflow=36.64 cfs 2.675 af
Primary=36.64 cfs 2.675 af

Link PA-2: Inflow=5.56 cfs 0.388 af
Primary=5.56 cfs 0.388 af

Total Runoff Area = 7.061 ac Runoff Volume = 3.063 af Average Runoff Depth = 5.21"
23.30% Pervious = 1.645 ac 76.70% Impervious = 5.416 ac

Summary for Subcatchment PRE 1.0:

Runoff = 36.64 cfs @ 12.06 hrs, Volume= 2.675 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
159,738	98	Paved parking, HSG C
50,712	98	Roofs, HSG C
53,330	74	>75% Grass cover, Good, HSG C
263,780	93	Weighted Average
53,330		20.22% Pervious Area
210,450		79.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment PRE 2.0:

Runoff = 5.56 cfs @ 12.06 hrs, Volume= 0.388 af, Depth= 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
25,467	98	Paved parking, HSG C
18,322	72	Woods/grass comb., Good, HSG C
43,789	87	Weighted Average
18,322		41.84% Pervious Area
25,467		58.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Link PA-1:

Inflow Area = 6.056 ac, 79.78% Impervious, Inflow Depth = 5.30" for 25-yr event
Inflow = 36.64 cfs @ 12.06 hrs, Volume= 2.675 af
Primary = 36.64 cfs @ 12.06 hrs, Volume= 2.675 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 1.005 ac, 58.16% Impervious, Inflow Depth = 4.63" for 25-yr event
Inflow = 5.56 cfs @ 12.06 hrs, Volume= 0.388 af
Primary = 5.56 cfs @ 12.06 hrs, Volume= 0.388 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

1.3 Post-Development Conditions

The post-development drainage condition is characterized by two (2) overall watershed areas of POST-1.0 to POST-1.8 and POST-2.0 modeled at the same point of analysis as the pre-development condition. These points of analysis and watersheds are depicted on the plan entitled "Post Development Watershed Plan", Sheets C-802.

The points of analysis and their contributing watershed area is described below:

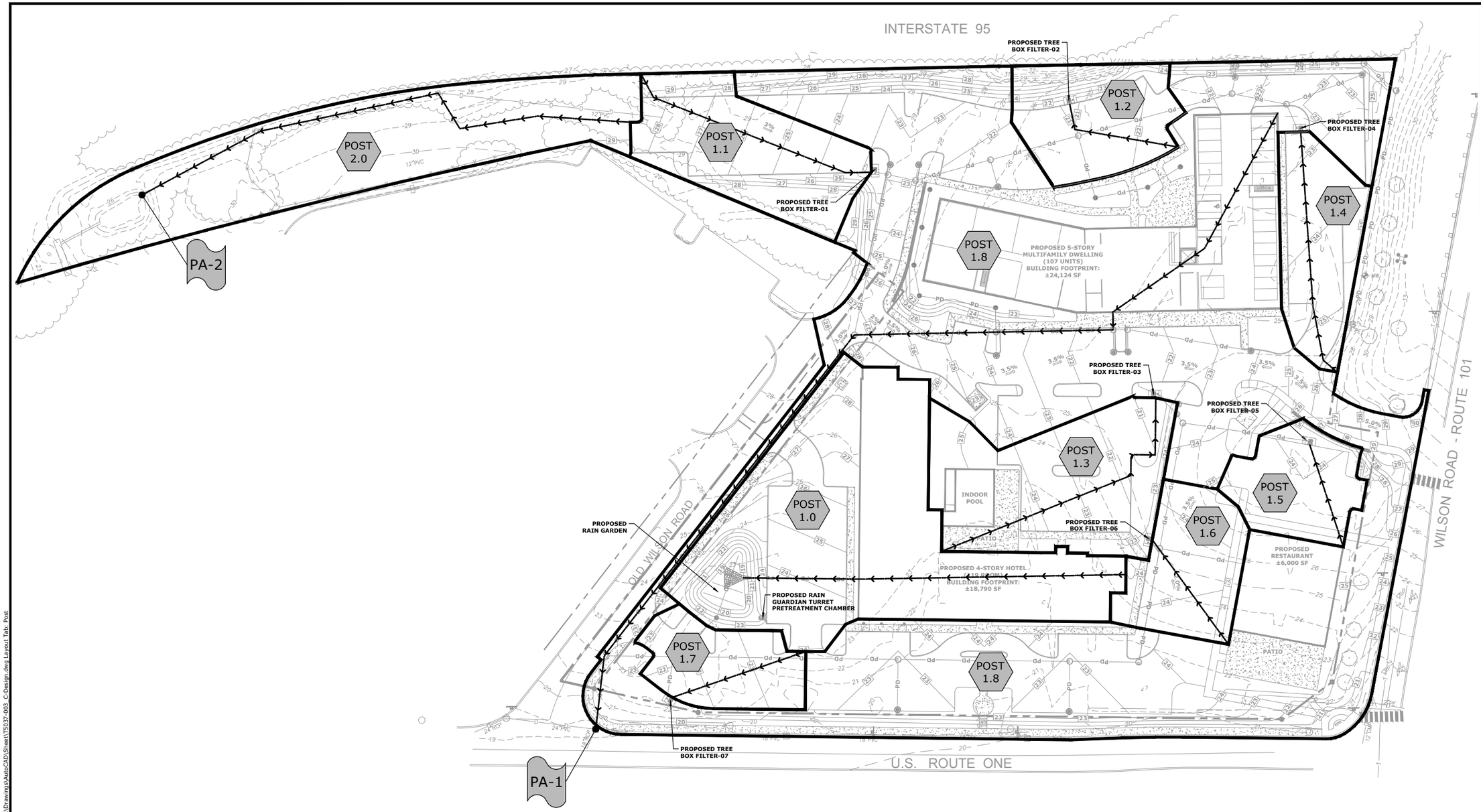
Point of Analysis One (PA-1)

Point of analysis PA-1 is comprised of eight (8) sub watershed areas POST-1.0 – POST-1.8. These sub watershed areas are made up of all the proposed impervious areas of the proposed condition. These areas were broken out to determine flows to the proposed Filterra Tree Box Filters and for the sizing of the proposed Rain Garden. Ultimately the runoff from these areas are collected in the proposed closed drainage system and directed to Point of Analysis 1 (PA-1), via a proposed inlet connection at the existing drainage structure at the corner of Old Wilson Road and US Route 1.

Point of Analysis One (PA-1)

Point of analysis PA-2 is comprised of one (1) watershed area (POST-2.0). This area consists of the area of the small parking field that us to be removed and converted to green space. Runoff from this area travels from the rear of the site southwest across the green area via overland flow and is then collected in a closed drainage system and discharged to an existing detention pond (PA-2).

1.3.1 Post-Development Watershed Plan



LEGEND

- POST-DEVELOPMENT WATERSHED BOUNDARY
- LONGEST FLOW PATH
- POST 1.0 — PRE DEVELOPMENT WATERSHED AREA DESIGNATION
- PA-1 — POINT OF ANALYSIS

Tighe&Bond

PRELIMINARY

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
1	10/5/2023	Preliminary Site Plan Review

PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

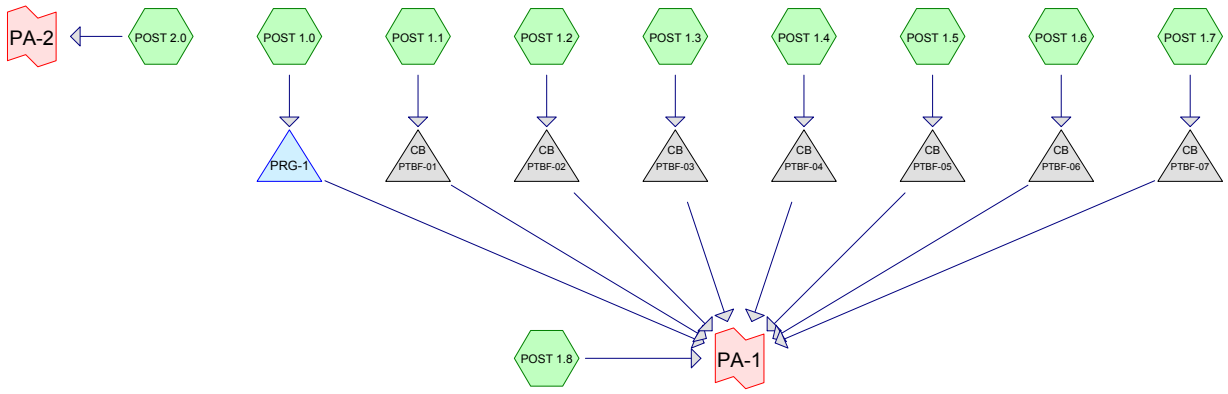
POST-DEVELOPMENT WATERSHED PLAN

SCALE: AS SHOWN

C-802

Last Save Date: October 4, 2023 9:07 AM By: CML
Plot Date: Wednesday, October 04, 2023 Plotted By: Craig M. Langton
T&B File Location: J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Drawings\AutoCAD\Sheet\T5037-003_C-Design.dwg Layout Tab: Post

1.3.2 Post-Development Calculation



Subcat Reach Pond Link

Routing Diagram for T5037-003_Post
Prepared by Tighe & Bond, Printed 10/4/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.846	74	>75% Grass cover, Good, HSG C (POST 1.0, POST 1.1, POST 1.2, POST 1.3, POST 1.4, POST 1.5, POST 1.6, POST 1.7, POST 1.8)
3.346	98	Paved parking, HSG C (POST 1.0, POST 1.1, POST 1.2, POST 1.3, POST 1.4, POST 1.5, POST 1.6, POST 1.7, POST 1.8)
1.168	98	Roofs, HSG C (POST 1.0, POST 1.3, POST 1.8)
0.701	72	Woods/grass comb., Good, HSG C (POST 2.0)
7.061	**89**	**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=39,807 sf 73.40% Impervious Runoff Depth=2.34"
Tc=4.0 min CN=92 Runoff=2.57 cfs 0.178 af

SubcatchmentPOST 1.1: Runoff Area=14,521 sf 57.92% Impervious Runoff Depth=1.99"
Tc=4.0 min CN=88 Runoff=0.81 cfs 0.055 af

SubcatchmentPOST 1.2: Runoff Area=10,399 sf 68.43% Impervious Runoff Depth=2.16"
Tc=4.0 min CN=90 Runoff=0.63 cfs 0.043 af

SubcatchmentPOST 1.3: Runoff Area=19,196 sf 67.51% Impervious Runoff Depth=2.16"
Tc=4.0 min CN=90 Runoff=1.16 cfs 0.079 af

SubcatchmentPOST 1.4: Runoff Area=9,981 sf 77.76% Impervious Runoff Depth=2.44"
Tc=4.0 min CN=93 Runoff=0.67 cfs 0.047 af

SubcatchmentPOST 1.5: Runoff Area=7,833 sf 81.30% Impervious Runoff Depth=2.53"
Tc=4.0 min CN=94 Runoff=0.54 cfs 0.038 af

SubcatchmentPOST 1.6: Runoff Area=9,460 sf 85.99% Impervious Runoff Depth=2.64"
Tc=4.0 min CN=95 Runoff=0.67 cfs 0.048 af

SubcatchmentPOST 1.7: Runoff Area=7,755 sf 90.88% Impervious Runoff Depth=2.74"
Tc=4.0 min CN=96 Runoff=0.56 cfs 0.041 af

SubcatchmentPOST 1.8: Runoff Area=158,101 sf 69.35% Impervious Runoff Depth=2.25"
Tc=4.0 min CN=91 Runoff=9.88 cfs 0.680 af

SubcatchmentPOST 2.0: Runoff Area=30,516 sf 0.00% Impervious Runoff Depth=0.92"
Tc=4.0 min CN=72 Runoff=0.73 cfs 0.054 af

Pond PRG-1: Peak Elev=19.08' Storage=931 cf Inflow=2.57 cfs 0.178 af
Outflow=1.52 cfs 0.178 af

Pond PTBF-01: Peak Elev=19.90' Inflow=0.81 cfs 0.055 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=0.81 cfs 0.055 af

Pond PTBF-02: Peak Elev=17.83' Inflow=0.63 cfs 0.043 af
10.0" Round Culvert n=0.010 L=28.0' S=0.0375 '/' Outflow=0.63 cfs 0.043 af

Pond PTBF-03: Peak Elev=17.67' Inflow=1.16 cfs 0.079 af
10.0" Round Culvert n=0.010 L=22.0' S=0.0409 '/' Outflow=1.16 cfs 0.079 af

Pond PTBF-04: Peak Elev=19.59' Inflow=0.67 cfs 0.047 af
10.0" Round Culvert n=0.010 L=20.0' S=0.0425 '/' Outflow=0.67 cfs 0.047 af

Pond PTBF-05: Peak Elev=21.64' Inflow=0.54 cfs 0.038 af
10.0" Round Culvert n=0.010 L=63.0' S=0.0357 '/' Outflow=0.54 cfs 0.038 af

Pond PTBF-06: Peak Elev=19.94' Inflow=0.67 cfs 0.048 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=0.67 cfs 0.048 af

Pond PTBF-07: Peak Elev=19.90' Inflow=0.56 cfs 0.041 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=0.56 cfs 0.041 af

Link PA-1: Inflow=16.26 cfs 1.209 af
Primary=16.26 cfs 1.209 af

Link PA-2: Inflow=0.73 cfs 0.054 af
Primary=0.73 cfs 0.054 af

Total Runoff Area = 7.061 ac Runoff Volume = 1.263 af Average Runoff Depth = 2.15"
36.06% Pervious = 2.546 ac 63.94% Impervious = 4.515 ac

Summary for Subcatchment POST 1.0:

Runoff = 2.57 cfs @ 12.06 hrs, Volume= 0.178 af, Depth= 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
10,217	98	Paved parking, HSG C
19,000	98	Roofs, HSG C
10,590	74	>75% Grass cover, Good, HSG C
39,807	92	Weighted Average
10,590		26.60% Pervious Area
29,217		73.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.1:

Runoff = 0.81 cfs @ 12.06 hrs, Volume= 0.055 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
8,411	98	Paved parking, HSG C
0	98	Roofs, HSG C
6,110	74	>75% Grass cover, Good, HSG C
14,521	88	Weighted Average
6,110		42.08% Pervious Area
8,411		57.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.2:

Runoff = 0.63 cfs @ 12.06 hrs, Volume= 0.043 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
7,116	98	Paved parking, HSG C
0	98	Roofs, HSG C
3,283	74	>75% Grass cover, Good, HSG C
10,399	90	Weighted Average
3,283		31.57% Pervious Area
7,116		68.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.3:

Runoff = 1.16 cfs @ 12.06 hrs, Volume= 0.079 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
11,200	98	Paved parking, HSG C
1,760	98	Roofs, HSG C
6,236	74	>75% Grass cover, Good, HSG C
19,196	90	Weighted Average
6,236		32.49% Pervious Area
12,960		67.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.4:

Runoff = 0.67 cfs @ 12.06 hrs, Volume= 0.047 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
7,761	98	Paved parking, HSG C
0	98	Roofs, HSG C
2,220	74	>75% Grass cover, Good, HSG C
9,981	93	Weighted Average
2,220		22.24% Pervious Area
7,761		77.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.5:

Runoff = 0.54 cfs @ 12.06 hrs, Volume= 0.038 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
6,368	98	Paved parking, HSG C
0	98	Roofs, HSG C
1,465	74	>75% Grass cover, Good, HSG C
7,833	94	Weighted Average
1,465		18.70% Pervious Area
6,368		81.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.6:

Runoff = 0.67 cfs @ 12.06 hrs, Volume= 0.048 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
8,135	98	Paved parking, HSG C
0	98	Roofs, HSG C
1,325	74	>75% Grass cover, Good, HSG C
9,460	95	Weighted Average
1,325		14.01% Pervious Area
8,135		85.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.7:

Runoff = 0.56 cfs @ 12.06 hrs, Volume= 0.041 af, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
7,048	98	Paved parking, HSG C
0	98	Roofs, HSG C
707	74	>75% Grass cover, Good, HSG C
7,755	96	Weighted Average
707		9.12% Pervious Area
7,048		90.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.8:

Runoff = 9.88 cfs @ 12.06 hrs, Volume= 0.680 af, Depth= 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
79,517	98	Paved parking, HSG C
30,125	98	Roofs, HSG C
48,459	74	>75% Grass cover, Good, HSG C
158,101	91	Weighted Average
48,459		30.65% Pervious Area
109,642		69.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 2.0:

Runoff = 0.73 cfs @ 12.07 hrs, Volume= 0.054 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.19"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
30,516	72	Woods/grass comb., Good, HSG C
30,516	72	Weighted Average
30,516		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Pond PRG-1:

Inflow Area = 0.914 ac, 73.40% Impervious, Inflow Depth = 2.34" for 2-yr event
Inflow = 2.57 cfs @ 12.06 hrs, Volume= 0.178 af
Outflow = 1.52 cfs @ 12.16 hrs, Volume= 0.178 af, Atten= 41%, Lag= 6.1 min
Primary = 1.52 cfs @ 12.16 hrs, Volume= 0.178 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.08' @ 12.16 hrs Surf.Area= 3,041 sf Storage= 931 cf
Flood Elev= 23.00' Surf.Area= 5,112 sf Storage= 8,720 cf

Plug-Flow detention time= 11.5 min calculated for 0.178 af (100% of inflow)
Center-of-Mass det. time= 11.8 min (807.8 - 796.0)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	7,868 cf	**Ponding Area (Prismatic)** Listed below (Recalc)
#2	17.50'	451 cf	**Filter Media (Prismatic)** Listed below (Recalc) 1,505 cf Overall x 30.0% Voids
#3	16.25'	401 cf	**Reservoir Course (Prismatic)** Listed below (Recalc) 1,003 cf Overall x 40.0% Voids
		8,720 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,003	0	0
20.00	1,424	1,214	1,214
21.00	1,901	1,663	2,876
22.00	2,488	2,195	5,071
23.00	3,106	2,797	7,868

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	1,003	0	0
19.00	1,003	1,505	1,505

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.25	1,003	0	0
17.25	1,003	1,003	1,003

Device	Routing	Invert	Outlet Devices
#1	Primary	16.15'	**12.0" Round Culvert** L= 46.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.15' / 15.90' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	16.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	21.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.52 cfs @ 12.16 hrs HW=19.07' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.52 cfs of 5.41 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 1.52 cfs @ 7.72 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond PTBF-01:

Inflow Area = 0.333 ac, 57.92% Impervious, Inflow Depth = 1.99" for 2-yr event
Inflow = 0.81 cfs @ 12.06 hrs, Volume= 0.055 af
Outflow = 0.81 cfs @ 12.06 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.06 hrs, Volume= 0.055 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.90' @ 12.06 hrs
Flood Elev= 22.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.40'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.40' / 19.10' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.79 cfs @ 12.06 hrs HW=19.89' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.79 cfs @ 2.38 fps)

Summary for Pond PTBF-02:

Inflow Area = 0.239 ac, 68.43% Impervious, Inflow Depth = 2.16" for 2-yr event
Inflow = 0.63 cfs @ 12.06 hrs, Volume= 0.043 af
Outflow = 0.63 cfs @ 12.06 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
Primary = 0.63 cfs @ 12.06 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.83' @ 12.06 hrs
Flood Elev= 20.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.40'	**10.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.40' / 16.35' S= 0.0375 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.61 cfs @ 12.06 hrs HW=17.82' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.61 cfs @ 2.21 fps)

Summary for Pond PTBF-03:

Inflow Area = 0.441 ac, 67.51% Impervious, Inflow Depth = 2.16" for 2-yr event
Inflow = 1.16 cfs @ 12.06 hrs, Volume= 0.079 af
Outflow = 1.16 cfs @ 12.06 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
Primary = 1.16 cfs @ 12.06 hrs, Volume= 0.079 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.67' @ 12.06 hrs
Flood Elev= 20.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.05'	**10.0" Round Culvert** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.05' / 16.15' S= 0.0409 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.12 cfs @ 12.06 hrs HW=17.66' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.12 cfs @ 2.65 fps)

Summary for Pond PTBF-04:

Inflow Area = 0.229 ac, 77.76% Impervious, Inflow Depth = 2.44" for 2-yr event
Inflow = 0.67 cfs @ 12.06 hrs, Volume= 0.047 af
Outflow = 0.67 cfs @ 12.06 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.06 hrs, Volume= 0.047 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.59' @ 12.06 hrs
Flood Elev= 22.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.15'	**10.0" Round Culvert** L= 20.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.15' / 18.30' S= 0.0425 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.65 cfs @ 12.06 hrs HW=19.58' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.65 cfs @ 2.25 fps)

Summary for Pond PTBF-05:

Inflow Area = 0.180 ac, 81.30% Impervious, Inflow Depth = 2.53" for 2-yr event
Inflow = 0.54 cfs @ 12.06 hrs, Volume= 0.038 af
Outflow = 0.54 cfs @ 12.06 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.54 cfs @ 12.06 hrs, Volume= 0.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.64' @ 12.06 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.25'	**10.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.25' / 19.00' S= 0.0357 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.52 cfs @ 12.06 hrs HW=21.64' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.52 cfs @ 2.12 fps)

Summary for Pond PTBF-06:

Inflow Area = 0.217 ac, 85.99% Impervious, Inflow Depth = 2.64" for 2-yr event
Inflow = 0.67 cfs @ 12.06 hrs, Volume= 0.048 af
Outflow = 0.67 cfs @ 12.06 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 0.67 cfs @ 12.06 hrs, Volume= 0.048 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.94' @ 12.06 hrs
Flood Elev= 23.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.50'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.50' / 19.20' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.65 cfs @ 12.06 hrs HW=19.94' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.65 cfs @ 2.25 fps)

Summary for Pond PTBF-07:

Inflow Area = 0.178 ac, 90.88% Impervious, Inflow Depth = 2.74" for 2-yr event
Inflow = 0.56 cfs @ 12.06 hrs, Volume= 0.041 af
Outflow = 0.56 cfs @ 12.06 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Primary = 0.56 cfs @ 12.06 hrs, Volume= 0.041 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.90' @ 12.06 hrs
Flood Elev= 23.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.50'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.50' / 19.20' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.54 cfs @ 12.06 hrs HW=19.89' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.54 cfs @ 2.14 fps)

Summary for Link PA-1:

Inflow Area = 6.360 ac, 70.98% Impervious, Inflow Depth = 2.28" for 2-yr event
Inflow = 16.26 cfs @ 12.06 hrs, Volume= 1.209 af
Primary = 16.26 cfs @ 12.06 hrs, Volume= 1.209 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 0.701 ac, 0.00% Impervious, Inflow Depth = 0.92" for 2-yr event
Inflow = 0.73 cfs @ 12.07 hrs, Volume= 0.054 af
Primary = 0.73 cfs @ 12.07 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=39,807 sf 73.40% Impervious Runoff Depth=3.92"
Tc=4.0 min CN=92 Runoff=4.20 cfs 0.299 af

SubcatchmentPOST 1.1: Runoff Area=14,521 sf 57.92% Impervious Runoff Depth=3.51"
Tc=4.0 min CN=88 Runoff=1.41 cfs 0.097 af

SubcatchmentPOST 1.2: Runoff Area=10,399 sf 68.43% Impervious Runoff Depth=3.71"
Tc=4.0 min CN=90 Runoff=1.05 cfs 0.074 af

SubcatchmentPOST 1.3: Runoff Area=19,196 sf 67.51% Impervious Runoff Depth=3.71"
Tc=4.0 min CN=90 Runoff=1.95 cfs 0.136 af

SubcatchmentPOST 1.4: Runoff Area=9,981 sf 77.76% Impervious Runoff Depth=4.03"
Tc=4.0 min CN=93 Runoff=1.07 cfs 0.077 af

SubcatchmentPOST 1.5: Runoff Area=7,833 sf 81.30% Impervious Runoff Depth=4.14"
Tc=4.0 min CN=94 Runoff=0.85 cfs 0.062 af

SubcatchmentPOST 1.6: Runoff Area=9,460 sf 85.99% Impervious Runoff Depth=4.25"
Tc=4.0 min CN=95 Runoff=1.05 cfs 0.077 af

SubcatchmentPOST 1.7: Runoff Area=7,755 sf 90.88% Impervious Runoff Depth=4.36"
Tc=4.0 min CN=96 Runoff=0.87 cfs 0.065 af

SubcatchmentPOST 1.8: Runoff Area=158,101 sf 69.35% Impervious Runoff Depth=3.82"
Tc=4.0 min CN=91 Runoff=16.36 cfs 1.155 af

SubcatchmentPOST 2.0: Runoff Area=30,516 sf 0.00% Impervious Runoff Depth=2.07"
Tc=4.0 min CN=72 Runoff=1.76 cfs 0.121 af

Pond PRG-1: Peak Elev=19.95' Storage=1,994 cf Inflow=4.20 cfs 0.299 af
Outflow=1.76 cfs 0.299 af

Pond PTBF-01: Peak Elev=20.11' Inflow=1.41 cfs 0.097 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=1.41 cfs 0.097 af

Pond PTBF-02: Peak Elev=17.98' Inflow=1.05 cfs 0.074 af
10.0" Round Culvert n=0.010 L=28.0' S=0.0375 '/' Outflow=1.05 cfs 0.074 af

Pond PTBF-03: Peak Elev=18.01' Inflow=1.95 cfs 0.136 af
10.0" Round Culvert n=0.010 L=22.0' S=0.0409 '/' Outflow=1.95 cfs 0.136 af

Pond PTBF-04: Peak Elev=19.74' Inflow=1.07 cfs 0.077 af
10.0" Round Culvert n=0.010 L=20.0' S=0.0425 '/' Outflow=1.07 cfs 0.077 af

Pond PTBF-05: Peak Elev=21.76' Inflow=0.85 cfs 0.062 af
10.0" Round Culvert n=0.010 L=63.0' S=0.0357 '/' Outflow=0.85 cfs 0.062 af

Pond PTBF-06: Peak Elev=20.08' Inflow=1.05 cfs 0.077 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=1.05 cfs 0.077 af

Pond PTBF-07: Peak Elev=20.02' Inflow=0.87 cfs 0.065 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=0.87 cfs 0.065 af

Link PA-1: Inflow=26.23 cfs 2.042 af
Primary=26.23 cfs 2.042 af

Link PA-2: Inflow=1.76 cfs 0.121 af
Primary=1.76 cfs 0.121 af

Total Runoff Area = 7.061 ac Runoff Volume = 2.162 af Average Runoff Depth = 3.67"
36.06% Pervious = 2.546 ac 63.94% Impervious = 4.515 ac

Summary for Subcatchment POST 1.0:

Runoff = 4.20 cfs @ 12.06 hrs, Volume= 0.299 af, Depth= 3.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
10,217	98	Paved parking, HSG C
19,000	98	Roofs, HSG C
10,590	74	>75% Grass cover, Good, HSG C
39,807	92	Weighted Average
10,590		26.60% Pervious Area
29,217		73.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.1:

Runoff = 1.41 cfs @ 12.06 hrs, Volume= 0.097 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
8,411	98	Paved parking, HSG C
0	98	Roofs, HSG C
6,110	74	>75% Grass cover, Good, HSG C
14,521	88	Weighted Average
6,110		42.08% Pervious Area
8,411		57.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.2:

Runoff = 1.05 cfs @ 12.06 hrs, Volume= 0.074 af, Depth= 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
7,116	98	Paved parking, HSG C
0	98	Roofs, HSG C
3,283	74	>75% Grass cover, Good, HSG C
10,399	90	Weighted Average
3,283		31.57% Pervious Area
7,116		68.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.3:

Runoff = 1.95 cfs @ 12.06 hrs, Volume= 0.136 af, Depth= 3.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
11,200	98	Paved parking, HSG C
1,760	98	Roofs, HSG C
6,236	74	>75% Grass cover, Good, HSG C
19,196	90	Weighted Average
6,236		32.49% Pervious Area
12,960		67.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.4:

Runoff = 1.07 cfs @ 12.06 hrs, Volume= 0.077 af, Depth= 4.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
7,761	98	Paved parking, HSG C
0	98	Roofs, HSG C
2,220	74	>75% Grass cover, Good, HSG C
9,981	93	Weighted Average
2,220		22.24% Pervious Area
7,761		77.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.5:

Runoff = 0.85 cfs @ 12.06 hrs, Volume= 0.062 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
6,368	98	Paved parking, HSG C
0	98	Roofs, HSG C
1,465	74	>75% Grass cover, Good, HSG C
7,833	94	Weighted Average
1,465		18.70% Pervious Area
6,368		81.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.6:

Runoff = 1.05 cfs @ 12.06 hrs, Volume= 0.077 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
8,135	98	Paved parking, HSG C
0	98	Roofs, HSG C
1,325	74	>75% Grass cover, Good, HSG C
9,460	95	Weighted Average
1,325		14.01% Pervious Area
8,135		85.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.7:

Runoff = 0.87 cfs @ 12.06 hrs, Volume= 0.065 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
7,048	98	Paved parking, HSG C
0	98	Roofs, HSG C
707	74	>75% Grass cover, Good, HSG C
7,755	96	Weighted Average
707		9.12% Pervious Area
7,048		90.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.8:

Runoff = 16.36 cfs @ 12.06 hrs, Volume= 1.155 af, Depth= 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
79,517	98	Paved parking, HSG C
30,125	98	Roofs, HSG C
48,459	74	>75% Grass cover, Good, HSG C
158,101	91	Weighted Average
48,459		30.65% Pervious Area
109,642		69.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 2.0:

Runoff = 1.76 cfs @ 12.07 hrs, Volume= 0.121 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.83"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
30,516	72	Woods/grass comb., Good, HSG C
30,516	72	Weighted Average
30,516		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Pond PRG-1:

Inflow Area = 0.914 ac, 73.40% Impervious, Inflow Depth = 3.92" for 10-yr event
Inflow = 4.20 cfs @ 12.06 hrs, Volume= 0.299 af
Outflow = 1.76 cfs @ 12.23 hrs, Volume= 0.299 af, Atten= 58%, Lag= 10.5 min
Primary = 1.76 cfs @ 12.23 hrs, Volume= 0.299 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.95' @ 12.23 hrs Surf.Area= 3,408 sf Storage= 1,994 cf
Flood Elev= 23.00' Surf.Area= 5,112 sf Storage= 8,720 cf

Plug-Flow detention time= 12.4 min calculated for 0.299 af (100% of inflow)
Center-of-Mass det. time= 12.6 min (794.6 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	7,868 cf	**Ponding Area (Prismatic)** Listed below (Recalc)
#2	17.50'	451 cf	**Filter Media (Prismatic)** Listed below (Recalc) 1,505 cf Overall x 30.0% Voids
#3	16.25'	401 cf	**Reservoir Course (Prismatic)** Listed below (Recalc) 1,003 cf Overall x 40.0% Voids
		8,720 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,003	0	0
20.00	1,424	1,214	1,214
21.00	1,901	1,663	2,876
22.00	2,488	2,195	5,071
23.00	3,106	2,797	7,868

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	1,003	0	0
19.00	1,003	1,505	1,505

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.25	1,003	0	0
17.25	1,003	1,003	1,003

Device	Routing	Invert	Outlet Devices
#1	Primary	16.15'	**12.0" Round Culvert** L= 46.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.15' / 15.90' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	16.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	21.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.75 cfs @ 12.23 hrs HW=19.95' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.75 cfs of 6.41 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.75 cfs @ 8.94 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond PTBF-01:

Inflow Area = 0.333 ac, 57.92% Impervious, Inflow Depth = 3.51" for 10-yr event
Inflow = 1.41 cfs @ 12.06 hrs, Volume= 0.097 af
Outflow = 1.41 cfs @ 12.06 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min
Primary = 1.41 cfs @ 12.06 hrs, Volume= 0.097 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.11' @ 12.06 hrs
Flood Elev= 22.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.40'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.40' / 19.10' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.37 cfs @ 12.06 hrs HW=20.09' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.37 cfs @ 2.83 fps)

Summary for Pond PTBF-02:

Inflow Area = 0.239 ac, 68.43% Impervious, Inflow Depth = 3.71" for 10-yr event
Inflow = 1.05 cfs @ 12.06 hrs, Volume= 0.074 af
Outflow = 1.05 cfs @ 12.06 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min
Primary = 1.05 cfs @ 12.06 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 17.98' @ 12.06 hrs
Flood Elev= 20.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.40'	**10.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.40' / 16.35' S= 0.0375 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.03 cfs @ 12.06 hrs HW=17.97' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.03 cfs @ 2.57 fps)

Summary for Pond PTBF-03:

Inflow Area = 0.441 ac, 67.51% Impervious, Inflow Depth = 3.71" for 10-yr event
Inflow = 1.95 cfs @ 12.06 hrs, Volume= 0.136 af
Outflow = 1.95 cfs @ 12.06 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Primary = 1.95 cfs @ 12.06 hrs, Volume= 0.136 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.01' @ 12.06 hrs
Flood Elev= 20.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.05'	**10.0" Round Culvert** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.05' / 16.15' S= 0.0409 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.90 cfs @ 12.06 hrs HW=17.99' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.90 cfs @ 3.47 fps)

Summary for Pond PTBF-04:

Inflow Area = 0.229 ac, 77.76% Impervious, Inflow Depth = 4.03" for 10-yr event
Inflow = 1.07 cfs @ 12.06 hrs, Volume= 0.077 af
Outflow = 1.07 cfs @ 12.06 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 12.06 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.74' @ 12.06 hrs
Flood Elev= 22.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.15'	**10.0" Round Culvert** L= 20.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.15' / 18.30' S= 0.0425 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.04 cfs @ 12.06 hrs HW=19.73' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.04 cfs @ 2.59 fps)

Summary for Pond PTBF-05:

Inflow Area = 0.180 ac, 81.30% Impervious, Inflow Depth = 4.14" for 10-yr event
Inflow = 0.85 cfs @ 12.06 hrs, Volume= 0.062 af
Outflow = 0.85 cfs @ 12.06 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Primary = 0.85 cfs @ 12.06 hrs, Volume= 0.062 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.76' @ 12.06 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.25'	**10.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.25' / 19.00' S= 0.0357 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.83 cfs @ 12.06 hrs HW=21.75' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.83 cfs @ 2.42 fps)

Summary for Pond PTBF-06:

Inflow Area = 0.217 ac, 85.99% Impervious, Inflow Depth = 4.25" for 10-yr event
Inflow = 1.05 cfs @ 12.06 hrs, Volume= 0.077 af
Outflow = 1.05 cfs @ 12.06 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
Primary = 1.05 cfs @ 12.06 hrs, Volume= 0.077 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.08' @ 12.06 hrs
Flood Elev= 23.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.50'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.50' / 19.20' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.02 cfs @ 12.06 hrs HW=20.07' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.02 cfs @ 2.57 fps)

Summary for Pond PTBF-07:

Inflow Area = 0.178 ac, 90.88% Impervious, Inflow Depth = 4.36" for 10-yr event
Inflow = 0.87 cfs @ 12.06 hrs, Volume= 0.065 af
Outflow = 0.87 cfs @ 12.06 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min
Primary = 0.87 cfs @ 12.06 hrs, Volume= 0.065 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.02' @ 12.06 hrs
Flood Elev= 23.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.50'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.50' / 19.20' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.85 cfs @ 12.06 hrs HW=20.01' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.85 cfs @ 2.43 fps)

Summary for Link PA-1:

Inflow Area = 6.360 ac, 70.98% Impervious, Inflow Depth = 3.85" for 10-yr event
Inflow = 26.23 cfs @ 12.06 hrs, Volume= 2.042 af
Primary = 26.23 cfs @ 12.06 hrs, Volume= 2.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 0.701 ac, 0.00% Impervious, Inflow Depth = 2.07" for 10-yr event
Inflow = 1.76 cfs @ 12.07 hrs, Volume= 0.121 af
Primary = 1.76 cfs @ 12.07 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

SubcatchmentPOST 1.0: Runoff Area=39,807 sf 73.40% Impervious Runoff Depth=5.19"
Tc=4.0 min CN=92 Runoff=5.46 cfs 0.395 af

SubcatchmentPOST 1.1: Runoff Area=14,521 sf 57.92% Impervious Runoff Depth=4.74"
Tc=4.0 min CN=88 Runoff=1.88 cfs 0.132 af

SubcatchmentPOST 1.2: Runoff Area=10,399 sf 68.43% Impervious Runoff Depth=4.96"
Tc=4.0 min CN=90 Runoff=1.39 cfs 0.099 af

SubcatchmentPOST 1.3: Runoff Area=19,196 sf 67.51% Impervious Runoff Depth=4.96"
Tc=4.0 min CN=90 Runoff=2.56 cfs 0.182 af

SubcatchmentPOST 1.4: Runoff Area=9,981 sf 77.76% Impervious Runoff Depth=5.30"
Tc=4.0 min CN=93 Runoff=1.39 cfs 0.101 af

SubcatchmentPOST 1.5: Runoff Area=7,833 sf 81.30% Impervious Runoff Depth=5.42"
Tc=4.0 min CN=94 Runoff=1.10 cfs 0.081 af

SubcatchmentPOST 1.6: Runoff Area=9,460 sf 85.99% Impervious Runoff Depth=5.53"
Tc=4.0 min CN=95 Runoff=1.34 cfs 0.100 af

SubcatchmentPOST 1.7: Runoff Area=7,755 sf 90.88% Impervious Runoff Depth=5.65"
Tc=4.0 min CN=96 Runoff=1.11 cfs 0.084 af

SubcatchmentPOST 1.8: Runoff Area=158,101 sf 69.35% Impervious Runoff Depth=5.07"
Tc=4.0 min CN=91 Runoff=21.41 cfs 1.535 af

SubcatchmentPOST 2.0: Runoff Area=30,516 sf 0.00% Impervious Runoff Depth=3.09"
Tc=4.0 min CN=72 Runoff=2.66 cfs 0.180 af

Pond PRG-1: Peak Elev=20.63' Storage=3,059 cf Inflow=5.46 cfs 0.395 af
Outflow=1.92 cfs 0.395 af

Pond PTBF-01: Peak Elev=20.33' Inflow=1.88 cfs 0.132 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=1.88 cfs 0.132 af

Pond PTBF-02: Peak Elev=18.10' Inflow=1.39 cfs 0.099 af
10.0" Round Culvert n=0.010 L=28.0' S=0.0375 '/' Outflow=1.39 cfs 0.099 af

Pond PTBF-03: Peak Elev=18.42' Inflow=2.56 cfs 0.182 af
10.0" Round Culvert n=0.010 L=22.0' S=0.0409 '/' Outflow=2.56 cfs 0.182 af

Pond PTBF-04: Peak Elev=19.85' Inflow=1.39 cfs 0.101 af
10.0" Round Culvert n=0.010 L=20.0' S=0.0425 '/' Outflow=1.39 cfs 0.101 af

Pond PTBF-05: Peak Elev=21.85' Inflow=1.10 cfs 0.081 af
10.0" Round Culvert n=0.010 L=63.0' S=0.0357 '/' Outflow=1.10 cfs 0.081 af

Pond PTBF-06: Peak Elev=20.18' Inflow=1.34 cfs 0.100 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=1.34 cfs 0.100 af

Pond PTBF-07: Peak Elev=20.10' Inflow=1.11 cfs 0.084 af
10.0" Round Culvert n=0.010 L=10.0' S=0.0300 '/' Outflow=1.11 cfs 0.084 af

Link PA-1: Inflow=33.91 cfs 2.709 af
Primary=33.91 cfs 2.709 af

Link PA-2: Inflow=2.66 cfs 0.180 af
Primary=2.66 cfs 0.180 af

Total Runoff Area = 7.061 ac Runoff Volume = 2.889 af Average Runoff Depth = 4.91"
36.06% Pervious = 2.546 ac 63.94% Impervious = 4.515 ac

Summary for Subcatchment POST 1.0:

Runoff = 5.46 cfs @ 12.06 hrs, Volume= 0.395 af, Depth= 5.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
10,217	98	Paved parking, HSG C
19,000	98	Roofs, HSG C
10,590	74	>75% Grass cover, Good, HSG C
39,807	92	Weighted Average
10,590		26.60% Pervious Area
29,217		73.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.1:

Runoff = 1.88 cfs @ 12.06 hrs, Volume= 0.132 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
8,411	98	Paved parking, HSG C
0	98	Roofs, HSG C
6,110	74	>75% Grass cover, Good, HSG C
14,521	88	Weighted Average
6,110		42.08% Pervious Area
8,411		57.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.2:

Runoff = 1.39 cfs @ 12.06 hrs, Volume= 0.099 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
7,116	98	Paved parking, HSG C
0	98	Roofs, HSG C
3,283	74	>75% Grass cover, Good, HSG C
10,399	90	Weighted Average
3,283		31.57% Pervious Area
7,116		68.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.3:

Runoff = 2.56 cfs @ 12.06 hrs, Volume= 0.182 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
11,200	98	Paved parking, HSG C
1,760	98	Roofs, HSG C
6,236	74	>75% Grass cover, Good, HSG C
19,196	90	Weighted Average
6,236		32.49% Pervious Area
12,960		67.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.4:

Runoff = 1.39 cfs @ 12.06 hrs, Volume= 0.101 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
7,761	98	Paved parking, HSG C
0	98	Roofs, HSG C
2,220	74	>75% Grass cover, Good, HSG C
9,981	93	Weighted Average
2,220		22.24% Pervious Area
7,761		77.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.5:

Runoff = 1.10 cfs @ 12.06 hrs, Volume= 0.081 af, Depth= 5.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
6,368	98	Paved parking, HSG C
0	98	Roofs, HSG C
1,465	74	>75% Grass cover, Good, HSG C
7,833	94	Weighted Average
1,465		18.70% Pervious Area
6,368		81.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.6:

Runoff = 1.34 cfs @ 12.06 hrs, Volume= 0.100 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
8,135	98	Paved parking, HSG C
0	98	Roofs, HSG C
1,325	74	>75% Grass cover, Good, HSG C
9,460	95	Weighted Average
1,325		14.01% Pervious Area
8,135		85.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.7:

Runoff = 1.11 cfs @ 12.06 hrs, Volume= 0.084 af, Depth= 5.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
7,048	98	Paved parking, HSG C
0	98	Roofs, HSG C
707	74	>75% Grass cover, Good, HSG C
7,755	96	Weighted Average
707		9.12% Pervious Area
7,048		90.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 1.8:

Runoff = 21.41 cfs @ 12.06 hrs, Volume= 1.535 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
79,517	98	Paved parking, HSG C
30,125	98	Roofs, HSG C
48,459	74	>75% Grass cover, Good, HSG C
158,101	91	Weighted Average
48,459		30.65% Pervious Area
109,642		69.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Subcatchment POST 2.0:

Runoff = 2.66 cfs @ 12.06 hrs, Volume= 0.180 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (sf)	CN	Description
0	98	Paved parking, HSG C
30,516	72	Woods/grass comb., Good, HSG C
30,516	72	Weighted Average
30,516		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.0					**Direct Entry,**

Summary for Pond PRG-1:

Inflow Area = 0.914 ac, 73.40% Impervious, Inflow Depth = 5.19" for 25-yr event
Inflow = 5.46 cfs @ 12.06 hrs, Volume= 0.395 af
Outflow = 1.92 cfs @ 12.30 hrs, Volume= 0.395 af, Atten= 65%, Lag= 14.3 min
Primary = 1.92 cfs @ 12.30 hrs, Volume= 0.395 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.63' @ 12.30 hrs Surf.Area= 3,731 sf Storage= 3,059 cf
Flood Elev= 23.00' Surf.Area= 5,112 sf Storage= 8,720 cf

Plug-Flow detention time= 15.2 min calculated for 0.395 af (100% of inflow)
Center-of-Mass det. time= 14.3 min (789.0 - 774.7)

Volume	Invert	Avail.Storage	Storage Description
#1	19.00'	7,868 cf	**Ponding Area (Prismatic)** Listed below (Recalc)
#2	17.50'	451 cf	**Filter Media (Prismatic)** Listed below (Recalc) 1,505 cf Overall x 30.0% Voids
#3	16.25'	401 cf	**Reservoir Course (Prismatic)** Listed below (Recalc) 1,003 cf Overall x 40.0% Voids
		8,720 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
19.00	1,003	0	0
20.00	1,424	1,214	1,214
21.00	1,901	1,663	2,876
22.00	2,488	2,195	5,071
23.00	3,106	2,797	7,868

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
17.50	1,003	0	0
19.00	1,003	1,505	1,505

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
16.25	1,003	0	0
17.25	1,003	1,003	1,003

Device	Routing	Invert	Outlet Devices
#1	Primary	16.15'	**12.0" Round Culvert** L= 46.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 16.15' / 15.90' S= 0.0054 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	16.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	21.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.92 cfs @ 12.30 hrs HW=20.63' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.92 cfs of 7.09 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.92 cfs @ 9.78 fps)
  └─**3=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond PTBF-01:

Inflow Area = 0.333 ac, 57.92% Impervious, Inflow Depth = 4.74" for 25-yr event
Inflow = 1.88 cfs @ 12.06 hrs, Volume= 0.132 af
Outflow = 1.88 cfs @ 12.06 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.06 hrs, Volume= 0.132 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.33' @ 12.06 hrs
Flood Elev= 22.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.40'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.40' / 19.10' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.83 cfs @ 12.06 hrs HW=20.30' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.83 cfs @ 3.35 fps)

Summary for Pond PTBF-02:

Inflow Area = 0.239 ac, 68.43% Impervious, Inflow Depth = 4.96" for 25-yr event
Inflow = 1.39 cfs @ 12.06 hrs, Volume= 0.099 af
Outflow = 1.39 cfs @ 12.06 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.06 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.10' @ 12.06 hrs
Flood Elev= 20.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.40'	**10.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.40' / 16.35' S= 0.0375 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.35 cfs @ 12.06 hrs HW=18.09' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.35 cfs @ 2.82 fps)

Summary for Pond PTBF-03:

Inflow Area = 0.441 ac, 67.51% Impervious, Inflow Depth = 4.96" for 25-yr event
Inflow = 2.56 cfs @ 12.06 hrs, Volume= 0.182 af
Outflow = 2.56 cfs @ 12.06 hrs, Volume= 0.182 af, Atten= 0%, Lag= 0.0 min
Primary = 2.56 cfs @ 12.06 hrs, Volume= 0.182 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 18.42' @ 12.06 hrs
Flood Elev= 20.55'

Device	Routing	Invert	Outlet Devices
#1	Primary	17.05'	**10.0" Round Culvert** L= 22.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 17.05' / 16.15' S= 0.0409 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.50 cfs @ 12.06 hrs HW=18.37' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.50 cfs @ 4.58 fps)

Summary for Pond PTBF-04:

Inflow Area = 0.229 ac, 77.76% Impervious, Inflow Depth = 5.30" for 25-yr event
Inflow = 1.39 cfs @ 12.06 hrs, Volume= 0.101 af
Outflow = 1.39 cfs @ 12.06 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min
Primary = 1.39 cfs @ 12.06 hrs, Volume= 0.101 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 19.85' @ 12.06 hrs
Flood Elev= 22.65'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.15'	**10.0" Round Culvert** L= 20.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.15' / 18.30' S= 0.0425 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.35 cfs @ 12.06 hrs HW=19.84' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.35 cfs @ 2.82 fps)

Summary for Pond PTBF-05:

Inflow Area = 0.180 ac, 81.30% Impervious, Inflow Depth = 5.42" for 25-yr event
Inflow = 1.10 cfs @ 12.06 hrs, Volume= 0.081 af
Outflow = 1.10 cfs @ 12.06 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 12.06 hrs, Volume= 0.081 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 21.85' @ 12.06 hrs
Flood Elev= 24.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	21.25'	**10.0" Round Culvert** L= 63.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 21.25' / 19.00' S= 0.0357 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.07 cfs @ 12.06 hrs HW=21.84' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.07 cfs @ 2.61 fps)

Summary for Pond PTBF-06:

Inflow Area = 0.217 ac, 85.99% Impervious, Inflow Depth = 5.53" for 25-yr event
Inflow = 1.34 cfs @ 12.06 hrs, Volume= 0.100 af
Outflow = 1.34 cfs @ 12.06 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Primary = 1.34 cfs @ 12.06 hrs, Volume= 0.100 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.18' @ 12.06 hrs
Flood Elev= 23.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.50'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.50' / 19.20' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.31 cfs @ 12.06 hrs HW=20.17' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.31 cfs @ 2.79 fps)

Summary for Pond PTBF-07:

Inflow Area = 0.178 ac, 90.88% Impervious, Inflow Depth = 5.65" for 25-yr event
Inflow = 1.11 cfs @ 12.06 hrs, Volume= 0.084 af
Outflow = 1.11 cfs @ 12.06 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Primary = 1.11 cfs @ 12.06 hrs, Volume= 0.084 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 20.10' @ 12.06 hrs
Flood Elev= 23.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	19.50'	**10.0" Round Culvert** L= 10.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 19.50' / 19.20' S= 0.0300 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.08 cfs @ 12.06 hrs HW=20.09' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.08 cfs @ 2.62 fps)

Summary for Link PA-1:

Inflow Area = 6.360 ac, 70.98% Impervious, Inflow Depth = 5.11" for 25-yr event
Inflow = 33.91 cfs @ 12.06 hrs, Volume= 2.709 af
Primary = 33.91 cfs @ 12.06 hrs, Volume= 2.709 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Link PA-2:

Inflow Area = 0.701 ac, 0.00% Impervious, Inflow Depth = 3.09" for 25-yr event
Inflow = 2.66 cfs @ 12.06 hrs, Volume= 0.180 af
Primary = 2.66 cfs @ 12.06 hrs, Volume= 0.180 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

1.4 Peak Rate Comparisons

The following table summarizes and compares the pre- and post-development peak runoff rates from the 1-year, 2-year, 10-year, 25-year and 50-year storm events at each point of analysis.

Table 1.4 – Comparison of Pre- and Post-Development Flows (CFS)			
Point of Analysis	**2-Year Storm**	**10-Year Storm**	**25-Year Storm**
Pre-Development Watershed (PA-1)	17.58	28.30	36.64
Post-Development Watershed (PA-1)	16.26	26.23	33.91
Pre-Development Watershed (PA-2)	2.36	4.15	5.56
Post-Development Watershed (PA-2)	0.73	1.76	2.66

As shown in Table 1.4 the Post-Development flows are decreased from the Pre-Development conditions at both points of analysis.

1.5 Mitigation Description

1.5.1 Mitigation Calculations

The proposed project area has been designed to provide stormwater treatment in accordance with the redevelopment standards of the Maine Department of Environmental Protection, Chapter 500 – Stormwater Management, rules and regulations. These calculations have been provided in appendix F of this report.

1.5.2 Pre-Treatment Methods for Protecting Water Quality

Pretreatment methods for protecting water quality on this site include offline deep sump catch basins with oil water separator hoods and a proprietary Rain Guardian Turret pretreatment unit.

Table 1.5 – Pollutant Removal Efficiencies		
BMP	Total Suspended Solids	Total Phosphorus
Deep Sump Catch Basin w/Hood[1]	15%	5%
BMP	Sediment Capture	Gross Solids Capture
Rain Guardian Turret[2]	75% - 90%	60% - 85%

1. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix B.
2. Pollutant removal efficiencies Erickson, A.J., M.A. Hernick, and J.D. Marr. (2018). "Capture of Gross Solids and Sediment by Pretreatment Practices for Bioretention." University of Minnesota St. Anthony Falls Laboratory Project Report No. 586.

1.5.3 Treatment Methods for Protecting Water Quality

The runoff from a majority of the proposed impervious areas will be directed to one of the eight (8) proposed Tree Box Filters or the proposed Rain Garden to be treated.

Table 1.6 below, shows design pollutant removal efficient for the proposed Filttera Tree Box Filters and the proposed Rain Garden.

Table 1.6 – Pollutant Removal Efficiencies

BMP	Total Suspended Solids	Total Phosphorus
Filttera Tree Box Filter[1]	86%	70%
Rain Garden[2]	90%	65%

1. Pollutant removal efficiencies per Contech Engineered Solutions Filterra Performance Testing Results.
2. Pollutant removal efficiencies from NH Stormwater Manual Volume 2, Appendix B.

APPENDIX A

APPENDIX B

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Metadata for Point	
Smoothing	Yes
State	Maine
Location	Maine, United States
Latitude	43.111 degrees North
Longitude	70.737 degrees West
Elevation	0 feet
Date/Time	Tue Oct 03 2023 13:13:42 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.21	1.55	2.02	2.64	2.90	**1yr**	2.34	2.79	3.20	3.92	4.52	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.51	1.93	2.48	3.19	3.55	**2yr**	2.82	3.42	3.92	4.66	5.30	**2yr**
5yr	0.37	0.58	0.73	0.97	1.25	1.60	**5yr**	1.08	1.47	1.88	2.42	3.12	4.04	4.55	**5yr**	3.57	4.38	5.01	5.90	6.66	**5yr**
10yr	0.41	0.65	0.82	1.11	1.45	1.89	**10yr**	1.25	1.72	2.22	2.88	3.73	4.83	5.49	**10yr**	4.27	5.28	6.04	7.05	7.92	**10yr**
25yr	0.48	0.76	0.97	1.33	1.77	2.33	**25yr**	1.53	2.14	2.77	3.62	4.71	6.12	7.05	**25yr**	5.41	6.78	7.74	8.94	9.96	**25yr**
50yr	0.53	0.86	1.10	1.54	2.07	2.75	**50yr**	1.79	2.52	3.28	4.30	5.62	7.32	8.52	**50yr**	6.48	8.19	9.34	10.70	11.86	**50yr**
100yr	0.59	0.96	1.24	1.77	2.42	3.25	**100yr**	2.08	2.97	3.89	5.13	6.72	8.76	10.30	**100yr**	7.75	9.90	11.28	12.81	14.12	**100yr**
200yr	0.67	1.10	1.43	2.04	2.82	3.83	**200yr**	2.44	3.51	4.60	6.10	8.02	10.49	12.45	**200yr**	9.28	11.97	13.62	15.35	16.83	**200yr**
500yr	0.80	1.31	1.71	2.48	3.47	4.76	**500yr**	3.00	4.37	5.75	7.66	10.13	13.32	16.00	**500yr**	11.79	15.39	17.49	19.50	21.22	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	**1yr**	0.63	0.86	0.93	1.33	1.69	2.22	2.42	**1yr**	1.96	2.33	2.85	3.20	3.86	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.36	1.82	2.34	3.04	3.42	**2yr**	2.69	3.29	3.79	4.51	5.06	**2yr**
5yr	0.35	0.54	0.67	0.92	1.17	1.40	**5yr**	1.01	1.37	1.61	2.12	2.73	3.75	4.14	**5yr**	3.32	3.98	4.68	5.47	6.17	**5yr**
10yr	0.38	0.59	0.73	1.02	1.32	1.60	**10yr**	1.14	1.56	1.80	2.39	3.06	4.32	4.78	**10yr**	3.82	4.60	5.35	6.31	7.09	**10yr**
25yr	0.44	0.66	0.83	1.18	1.55	1.90	**25yr**	1.34	1.86	2.10	2.76	3.54	4.67	5.77	**25yr**	4.13	5.54	6.50	7.63	8.53	**25yr**
50yr	0.48	0.73	0.91	1.30	1.75	2.16	**50yr**	1.51	2.11	2.34	3.07	3.93	5.27	6.63	**50yr**	4.66	6.38	7.51	8.81	9.81	**50yr**
100yr	0.53	0.80	1.00	1.45	1.99	2.46	**100yr**	1.72	2.41	2.62	3.42	4.34	5.91	7.62	**100yr**	5.23	7.33	8.68	10.20	11.30	**100yr**
200yr	0.58	0.88	1.11	1.61	2.25	2.81	**200yr**	1.94	2.75	2.93	3.78	4.78	6.60	8.75	**200yr**	5.84	8.42	9.99	11.82	13.04	**200yr**
500yr	0.67	1.00	1.29	1.88	2.67	3.36	**500yr**	2.30	3.28	3.40	4.32	5.43	7.65	10.51	**500yr**	6.77	10.11	12.04	14.39	15.75	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	**1yr**	0.77	1.06	1.26	1.74	2.20	2.96	3.16	**1yr**	2.62	3.04	3.55	4.36	5.00	**1yr**
2yr	0.34	0.52	0.64	0.86	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.52	3.40	3.70	**2yr**	3.01	3.56	4.09	4.82	5.60	**2yr**
5yr	0.40	0.62	0.76	1.05	1.33	1.62	**5yr**	1.15	1.58	1.88	2.54	3.26	4.32	4.97	**5yr**	3.82	4.78	5.36	6.37	7.14	**5yr**
10yr	0.47	0.72	0.89	1.24	1.61	1.97	**10yr**	1.39	1.93	2.28	3.11	3.97	5.31	6.22	**10yr**	4.70	5.98	6.86	7.84	8.75	**10yr**
25yr	0.58	0.88	1.09	1.55	2.05	2.57	**25yr**	1.77	2.51	2.96	4.08	5.17	7.73	8.39	**25yr**	6.84	8.07	9.25	10.35	11.41	**25yr**
50yr	0.67	1.02	1.27	1.83	2.46	3.13	**50yr**	2.12	3.06	3.60	5.01	6.35	9.68	10.55	**50yr**	8.56	10.15	11.61	12.74	13.98	**50yr**
100yr	0.79	1.19	1.50	2.16	2.96	3.81	**100yr**	2.56	3.72	4.38	6.16	7.81	12.11	13.25	**100yr**	10.72	12.75	14.58	15.73	17.12	**100yr**
200yr	0.92	1.39	1.76	2.55	3.56	4.65	**200yr**	3.07	4.54	5.35	7.59	9.60	15.20	16.67	**200yr**	13.45	16.03	18.35	19.42	20.97	**200yr**
500yr	1.15	1.71	2.20	3.19	4.54	6.03	**500yr**	3.92	5.90	6.95	10.03	12.65	20.54	22.59	**500yr**	18.18	21.72	24.87	25.65	27.43	**500yr**

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APPENDIX C

Filterra Owner's Manual

filterra®

Bioretention Systems

CONTECH®

ENGINEERED SOLUTIONS

filterra®
Bioretention Systems

Table of Contents

Enclosed

Local Area Filterra Plant List

CONTECH®
ENGINEERED SOLUTIONS

Introduction

Thank you for your purchase of the Filterra® Bioretention System. Filterra is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. The system's biota (vegetation and soil microorganisms) then further breakdown and absorb captured pollutants. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra system.

Included with your purchase is Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system and 1-year of routine maintenance (mulch replacement, debris removal, and pruning of vegetation) up to twice during the first year after activation.

Design and Installation

Each project presents different scopes for the use of Filterra systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra box sizing (by rainfall region) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra units as shown in approved plans. A comprehensive installation manual is available at www.ContechES.com.

Activation Overview

Activation of the Filterra system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra systems.

Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra systems.

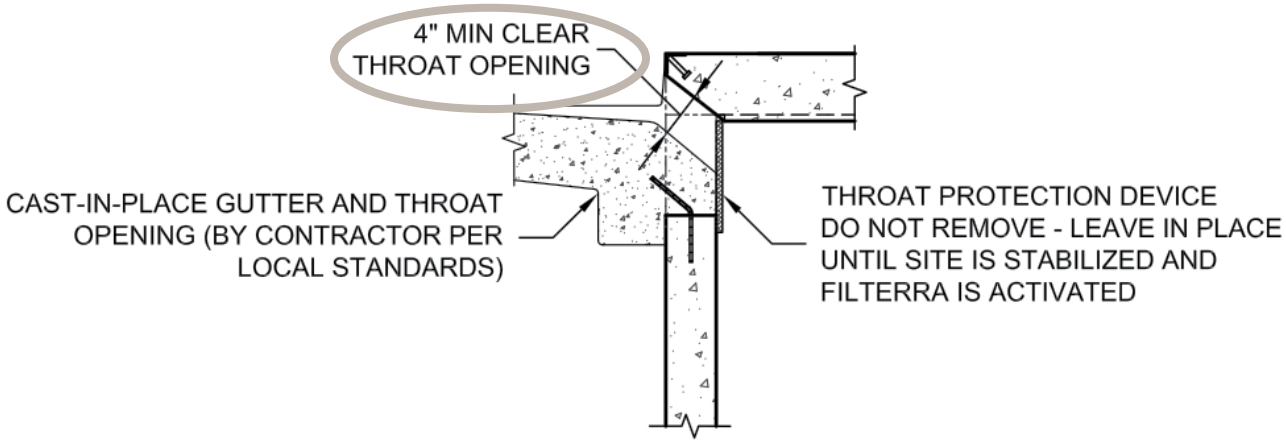
Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.

2. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.

3. Filterra throat opening should be at least 4" in order to ensure adequate capacity for inflow and debris.



An Activation Checklist is included on page 12 to ensure proper conditions are met for Contech to perform the Activation services. A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra Plant Selection Overview

A Plant List has been enclosed with this packet highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra system. Plants installed in the Filterra system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra system.

The "Planting Requirements for Filterra Systems" document is included as an appendix and discusses proper selection and care of the plants within Filterra systems.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra system's warranty and waive the manufacturer provided Activation and Maintenance services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra system or runoff protection devices
- Removal of any Filterra system components
- Failure to prevent construction related runoff from entering the Filterra system
- Failure to properly store and protect any Filterra components (including media and underdrain stone) that may be shipped separately from the vault

Routine Maintenance Guidelines

With proper routine maintenance, the biofiltration media within the Filterra system should last as long as traditional bioretention media. Routine maintenance is included by the manufacturer on all Filterra systems for the first year after activation. This includes a maximum of 2 visits to remove debris, replace pretreatment mulch, and prune the vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra systems also contain pretreatment or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the first year of maintenance, and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan of your Filterra media.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The unit will recycle and accumulate pollutants within the biomass, but is also subjected to other materials entering the inlet. This may include trash, silt and leaves etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra's flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

When to Maintain?

Contech includes a 1-year maintenance plan with each system purchase. Annual included maintenance consists of a maximum of two (2) scheduled visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated.

Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency; e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the (maintenance) Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance to the Supplier (i.e. no pruning or fertilizing) during the first year.

Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the Supplier maintenance contract. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra (where the cleaned runoff drains to, such as drop inlet) and block off the throat of the Filterra. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra and surrounding area
2. Removal of tree grate and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation and pruning or replacement as necessary
6. Clean area around Filterra
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates (up to 170 lbs ea.). Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media available from the Supplier.

Box Length	Box Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	4	4	2
6	4	6	6	3
8	4	8	8	4
6	6	9	9	5
8	6	12	12	6
10	6	15	15	8
12	6	18	18	9
13	7	23	23	12

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.

1. Inspection of Filterra and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).

2. Removal of tree grate and erosion control stones

- Remove cast iron grates for access into Filterra box.
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____

- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____

4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3".
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra inlet to allow for entry of trash during a storm event.
- Replace Filterra grates correctly using appropriate lifting or moving tools, taking care not to damage the plant.

5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above Grate	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no

6. Clean area around Filterra

- Clean area around unit and remove all refuse to be disposed of appropriately.

7. Complete paperwork

- Deliver Maintenance Report and photographs to appropriate location (normally Contech during maintenance contract period).
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____ **Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3″*	*Lowe's Premium Brown Mulch*	*4′*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Activation Checklist

Project Name: ______________________________ Company: ______________________________

Site Contact Name: ______________________________ Site Contact Phone/Email: ______________________

Site Owner/End User Name: ______________________ Site Owner/End User Phone/Email: ______________________

Preferred Activation Date: ______________________ (provide 2 weeks minimum from date this form is submitted)

Site Designation	System Size	Final Pavement / Top Coat Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height	Plant Species Requested
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	

Attach additional sheets as necessary.

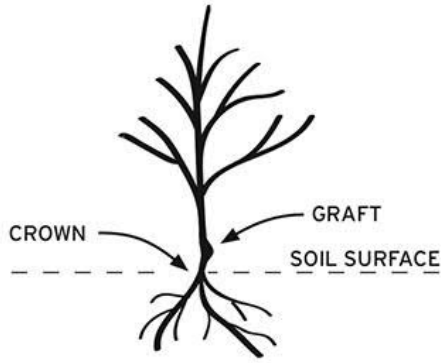
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized Activations will void the system warranty and waive manufacturer supplied Activation and 1st Year Maintenance.

____ ______________________

Signature Date

Appendix 2 – Planting Requirements for Filterra® Systems

Plant Material Selection



- Select plant(s) as specified in the engineering plans and specifications.
- Select plant(s) with full root development but not to the point where root bound.
- Use local nursery container plants only. Ball and burlapped plants are not permitted.
- For precast Filterra systems with a tree grate, plant(s) must not have scaffold limbs at least 14 inches from the crown due to spacing between the top of the mulch and the tree grate. Lower branches can be pruned away provided there are sufficient scaffold branches for tree or shrub development.
- For precast Filterra systems with a tree grate, at the time of installation, it is required that plant(s) must be at least 6" above the tree grate opening at installation for all Filterra configurations. This DOES NOT apply to Full Grate Cover designs.
- Plant(s) shall not have a mature height greater than 25 feet.
- For standard 21" media depth, a 7 – 15 gallon container size shall be used. Media less than 21" (Filterra boxes only) will require smaller container plants.
- For precast Filterra systems, plant(s) should have a single trunk at installation, and pruning may be necessary at activation and maintenance for some of the faster growing species, or species known to produce basal sprouts.

Plant Installation

- During transport protect the plant leaves from wind and excessive jostling.
- Prior to removing the plant(s) from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
- Cut away any roots which are growing out of the container drain holes. Plants with excessive root growth from the drain holes should be rejected.
- Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively the pot can be cut away to minimize root ball disturbance.
- Remove any excess soil from above the root flare after removing plant(s) from container.
- Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
- If plant(s) have any circling roots from being pot bound, gently tease them loose without breaking them.
- If root ball has a root mat on the bottom, it should be shaved off with a knife just above the mat line.
- Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
- All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
- With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
- To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
- Plant staking may be required.

Mulch Installation

- Only mulch that has been meeting Contech Engineered Solutions' mulch specifications can be used in the Filterra system.
- Mulch must be applied to a depth of 3" evenly over the surface of the media.

Irrigation Requirements

- Each Filterra system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore if dry periods exceed 3 weeks, irrigation may be required. It is also important to recognize that plants which are exposed to windy areas and reflected heat from paved surfaces may need more frequent irrigation. Long term care should develop a history which is more site specific.

** Five gallons per square yard approximates 1 inch of water Therefore for a 6' by 6' Filterra approximately 20-60 gallons of water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five gallon bucket to estimate the applied water flow rate then calculate the time needed to irrigate the Filterra. For example, if the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6' by 6' filter.

Notes

filterra®
Bioretention Systems

CONTECH®
ENGINEERED SOLUTIONS

9025 Centre Pointe Drive, Suite 400
West Chester, OH 45069
info@conteches.com | 800-338-1122
www.ContechES.com

APPENDIX D

RAIN GUARDIAN

U.S. PATENT NOS. 8,501,016 AND 8,858,804


TURRET


FOXHOLE


BUNKER

PRETREATMENT FOR BIORETENTION

Rain Gardens • Swales • Filtration Basins • Infiltration Basins

Maintenance Guide

Rain Guardian pretreatment chambers simplify bioretention maintenance by collecting sand, leaves, grass clippings, and other debris in an easy to clean, confined location. Regularly maintaining the Rain Guardian sustains its functionality by maximizing storage and filtration capacities. Maintenance frequency is variable and depends on many factors such as rainfall frequency, drainage area size and land use type, and season of the year. The general cleaning process is similar for all Rain Guardian models (i.e. Bunker, Foxhole, and Turret).

Following rain events, inspect the pretreatment chamber for debris on the top grate, within the chamber, and on the vertical, drop-in filter wall. The maintenance steps described below should be completed if areas of the top grate are clogged, the chamber is >75% full, or the vertical filter wall is clogged. Maintenance should be completed when stormwater has completely drained from the bioretention practice. The filter wall allows the chamber to dry between rain events, which further simplifies maintenance by ensuring removed debris is largely dry. Ensure all debris collected during cleaning of the chamber is completely removed from the site and properly disposed of according to local environmental rules. Once cleaning is complete, reinstall the filter wall with filter fabric facing the inside of the chamber and replace the top grate. For the Foxhole, reinstall the top lid, including optional lid anchor screws if equipped.

Clear Debris from Top Grate

- Foxhole only—remove top lid, including optional lid anchor screws if equipped
- Leaf litter and garbage commonly accumulate on the top grate
- Simply remove and dispose of debris by hand or with a shovel prior to removing top grate

Remove Debris from Inside Chamber

- Remove top grate and place on paved inlet to avoid damage to nearby plants
- Remove and dispose of accumulated debris within chamber using a shovel

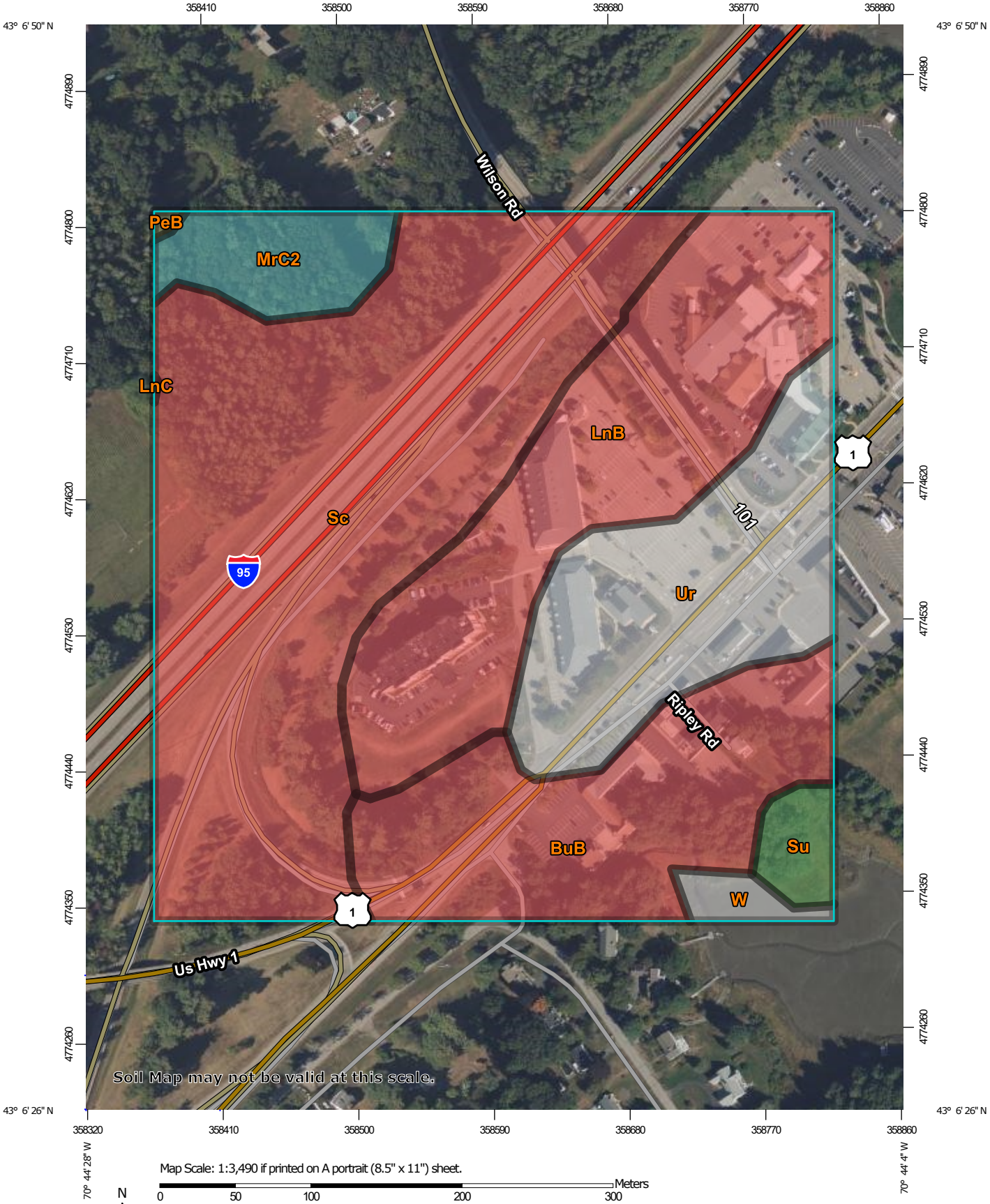
Clean Filter Wall

- Remove drop-in filter by lifting vertically
- Clean filter wall with a stiff bristled broom or rinse clean with pressurized water

www.RainGuardian.biz

ANOKA CONSERVATION DISTRICT
1318 McKay Dr. NE, Suite 300
Ham Lake, MN 55304
(763) 434-2030 (M-F 8:00-4:30)

APPENDIX E



Map Scale: 1:3,490 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Lines

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Soil Rating Points

A
A/D
B
B/D
C
C/D
D
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
Survey Area Data: Version 22, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BuB	Buxton silt loam, 3 to 8 percent slopes	D	8.5	16.2%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	11.0	20.9%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	0.0	0.0%
MrC2	Marlow fine sandy loam, 8 to 15 percent slopes	C	2.3	4.4%
PeB	Peru fine sandy loam, 3 to 8 percent slopes	C/D	0.1	0.1%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	21.5	41.0%
Su	Pemaquid, Todds point, and Damariscotta soils, 0 to 2 percent slopes	A/D	0.9	1.7%
Ur	Urban land		7.6	14.5%
W	Water bodies		0.6	1.1%
Totals for Area of Interest			**52.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Tighe&Bond

APPENDIX F

REDEVELOPMENT STORMWATER TREATMENT REQUIREMENT CALCULATION SHEET		
TOTAL WATERSHED AREA (AC)	7.06	

EXISTING CONDITIONS		
LAND USE POLLUTANT RANKING # (SEE TABLE 2) Column-1	LAND USE AREA (AC) Column-2	RANKING# = Column-1 x Column-2
5	-	-
4	4.03	16.13
3	-	-
2	1.16	2.33
1	1.86	1.86
0	-	-
TOTAL EXISTING IMPACT RATING		**20.32**
RATING / REDEVELOPMENT AREA		**2.88**

PROPOSED DEVELOPMENT CONDITIONS		
LAND USE POLLUTANT RANKING # (SEE TABLE 2) Column-1	LAND USE AREA (AC) Column-2	RANKING# Column-1 x Column-2
5	-	-
4	2.76	11.05
3	-	-
2	2.17	4.34
1	2.13	2.13
0	-	-
PROPOSED IMPACT RATING		17.52
RATING / REDEVELOPMENT AREA		**2.48**
RANKED IMPACK CHANGE DUE TO REDEVELOPMENT (PROPOSED RATING - EXISTING RATING)		**(0.40)**

TOTAL PROPOSED IMPREVIOUS AREA (SF)	197,764
PERCENT OF DEVELOPMENT TO BE TREATED	50%
AREA REQUIRED TO BE TREATED (SF)	98,882
PROPOSED AREA TO BE TREATED (SF)	118,952
PERCENT OF DEVELOPMENT AREA TREATED	**60.1%**

Table 2
Pollutant Impact Rankings of Various Redevelopment Land Uses

Land Use	Pollutant Ranking
Roads where idling may occur periodically due to traffic volume and intersections; High use parking lots	5
Other roads; Medium use parking lots	4
Other parking lots and driveways; Flat asphalt rooftops; Roofs on an industrial facility	3
Other rooftops; Bikeways; Grassed areas mowed more than twice per year; Walkways/foot traffic-only pavement	2
Non-grass landscaped areas; Stormwater treatment/storage systems (except buffers)	1
Forest; Meadow mowed no more than twice per year;	0

Table 3
Treatment Levels for Redevelopment Projects

Ranked Impact Change Due to Redevelopment	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects) 50% (Site projects)
≥ 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development

APPENDIX G

Tighe&Bond

Project: Kittery Mixed-Use Development
Location: Kittery, Maine
T&B #: T5037-003
Calculations By: CML
Checked By: NAH
Date: 10/3/2023

APRON DESIGN

Terms: FES 1

length of apron (ft.)	L_a	
discharge from pipe (cfs)	Q	(10 YR STORM EVENT)
pipe dia. or channel width (ft.)	Do	
tailwater depth (ft.)	T_w	
width of apron (at outlet)(ft)	W1	
width of apron (downstream)(ft)	W2	
median stone diameter (ft.)	d_{50}	

Equations Used:

Length of Apron (L_a)

when Tw < .5*Do $L_a = \frac{1.8(Q)}{Do^{(3/2)}} + 7Do$

when Tw >= .5*Do $L_a = \frac{3(Q)}{Do^{(3/2)}} + 7Do$

Width of Apron (W1)

$W1 = 3Do$

Width of Apron (W2)

when Tw < .5*Do $W2 = 3Do + La$

when Tw >= .5*Do $W2 = 3Do + 0.4La$

Median Diameter $d_{50} = \frac{0.02 * Q^{(1.3)}}{(Tw * Do)}$

Input:

Q (cfs)	4.20	cfs
Do (ft.)	1.00	ft
T_w (ft.)	0.40	ft

Output:

Width of Apron (W1)	3	ft.
Width of Apron (W2)	18	ft.
Length of Apron (L_a)	15	ft.
Median Diameter	0.50	ft.
Riprap min. depth	1.13	ft.

T5037-001
October 19, 2023

Mr. Randy Illian, P.E.
Southern Region Traffic Engineer
Maine Department of Transportation
51 Pleasant Hill Road
Scarborough, ME 04074

Re: **Trip Generation Memorandum**
Proposed Mixed-Use Redevelopment – 283 U.S. Route 1
Kittery, Maine

Dear Randy:

Tighe & Bond has prepared this trip generation memorandum to outline the anticipated study area of the Traffic Impact Assessment (TIA) for the proposed mixed-use development located at 283 US Route 1 in Kittery, Maine. The site, currently occupied by the Outlets at Kittery, is bounded by I-95 to the west, Route 101 (Wilson Road) to the north, U.S. Route 1 to the east, and Old Wilson Road and the Hampton Inn to the south. The project proposes to demolish the existing Outlets at Kittery and construct a 119-room hotel, 107-unit residential building, and 6,000 square foot restaurant. Existing access to the site is provided via an enter-only driveway on U.S. Route 1, and a full-access driveway on Wilson Road. Old Wilson Road, the access road between the Kittery Outlets and the Hampton Inn, provides two driveways to the site. The proposed development will maintain the driveway on Wilson Road and close the existing enter-only driveway on U.S. Route 1. Both existing access points along Old Wilson Road will be replaced with four entrances to the site. The project proposes to close the existing enter-only driveway on U.S. Route 1. The trip generation estimate for the proposed development will serve as the basis for the traffic impact assessment.

Study Area

Based on a preliminary review of expected trip generation and distribution for the surrounding area, the following intersections have been identified to be included in the study area:

- US Route 1 at US Route 101 (Wilson Road) (Signalized)
- US Route 1 at Outlets Entrance Driveway (Unsignalized)
- US Route 1 at Old Wilson Road (Hampton Inn/ Kittery Outlets access road) (Unsignalized)
- US Route 1 at Adams Drive (Unsignalized)
- US Route 101 (Wilson Road) at Outlets Driveway (Unsignalized)
- US Route 101 (Wilson Road) at Kittery Trading Post Driveway (Unsignalized)

Turning movement counts were collected on September 13, 2023 during the weekday morning and afternoon peak periods and on September 16 during the Saturday midday peak period. The collected data was supplemented with available turning movement count data from MaineDOT collected in July 2022 at the US Route 1 intersections during the weekday morning and afternoon time periods. The turning movement counts will be balanced and adjusted per the MaineDOT Weekly Group Mean Factors using Groups II+III as necessary.

Automatic traffic recorder (ATR) counts were collected on US Route 1, south of US Route 101. The ATR was installed for a 96-hour period between Wednesday, September 13, 2023 through Saturday, September 16, 2023, collecting directional traffic volume flows and vehicular travel speeds. The location was chosen to align with Count Station ID 233113001106 and compared to available July 2022 volumes. The study area intersections and ATR location are shown in Figure 1.

Trip Generation

Trips generated by the proposed development were estimated using the Institute of Transportation Engineers (ITE) Trip Generation, 11th Edition, 2021. Hotel (LUC-310), Residential - Multifamily Housing (Mid-Rise) (LUC 221), and High-Turnover (Sit-Down) Restaurant (LUC 932) were used to estimate vehicle trips generated by the development based on the currently proposed development program.

Since the proposed development will replace the existing retail outlet use, a credit was applied to account for existing retail trips. Existing traffic counts and retail occupancy levels were reviewed when estimating the existing trip generation. While existing turning movement counts indicate existing demand, the site was at or near full occupancy within the last ten years, as confirmed by the owner. ITE LUC 821 was used to estimate existing retail trips for the purpose of the trip generation estimate. An assumed occupancy rate of 80% was applied to conservatively account for spot vacancies in the existing outlets over the last 10 years. The estimated trips were then credited against the projected trips for the new uses proposed.

Based on the ITE data, the proposed development is estimated to generate a net gain of 80 trips (26 entering, 54 exiting) during the weekday morning peak hour, 49 fewer trips (10 entering, 39 exiting) during the weekday afternoon peak hour, and 59 trips (29 entering, 30 exiting) during the Saturday midday peak hour as compared to the previous retail use. Table 1 provides a detailed summary of the trip generation assumptions. Site generated volumes and resultant Build condition analyses in the TIA will not reduce volumes based on the net reduction in trips in the weekday afternoon and Saturday midday peak hours but will assume a net zero gain between No Build and Build conditions during these periods.

Trip Distribution

The distribution of the proposed site-generated traffic entering and exiting the Site was reviewed based on US Census Journey-to-Work data, and existing and anticipated travel patterns to and from the site for each use. The following arrival/departure distributions are anticipated for the residential use:

- 40% to/ from the South via I-95
- 15% to/ from the North via US Route 1
- 15% to/ from the South via US Route 1 Bypass
- 10% to/ from the Northwest via Route 101
- 5% to/ from the North via I-95
- 5% to/ from the South via US Route 1
- 5% to/ from the Northwest via Route 236
- 5% to/ from the South via Route 236

The following arrival/departure distributions are anticipated for the commercial uses on site:

- 25% to/ from the North via US Route 1

- 25% to/ from the South via US Route 1 Bypass
- 15% to/from the Northwest via Route 101
- 10% to/ from the South via I-95
- 10% to/ from the South via US Route 1
- 5% to/ from the North via I-95
- 5% to/ from the Northwest via Route 236
- 5% to/ from the South via Route 236

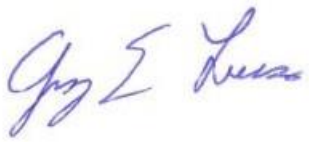
Figure 1 presents the anticipated regional site traffic distributions of the traffic through the study area roadways.

Conclusion

The proposed 283 US Route 1 redevelopment includes the demolition of the existing Outlets at Kittery and construction of a 119-room hotel, 107-unit residential building, and 6,000 square foot restaurant. The TIA will analyze traffic operations at the study intersections during the weekday morning, weekday afternoon, and Saturday midday peak periods based on the estimated trip generation and trip distribution.

Sincerely,

TIGHE & BOND, INC.



Greg Lucas, PE (MA, NH), PTOE, RSP1
Senior Project Manager

Enclosures: Study Area Map (Figure 1)
Site-Generated Trip Summary (Table 1)
Site Plan (C-102)

Copy: Maxim Zakian, Town Planner, Town of Kittery
Ryan Plummer, Two International Group

J:\T\T5037 Two International Group\003 Kittery Mixed Use Development\Reports - Evaluations\Trip Generation Memo\T5037-001 Trip Gen Memo.docx

283 ROUTE 1 REDEVELOPMENT
KITTERY, ME

STUDY AREA

DATE:	10/16/2023
SCALE:	1" = 750'
FIGURE:	1

Tighe&Bond

TABLE 1
Site-Generated Traffic Summary

Existing 80% Occupied Demand - 41,390 SF Retail Space			**LUC 821**
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	45	27	72
Weekday Afternoon	105	110	215
Saturday Midday	134	123	257
Weekday	1,398	1,397	2,795
Saturday	1,678	1,677	3,355

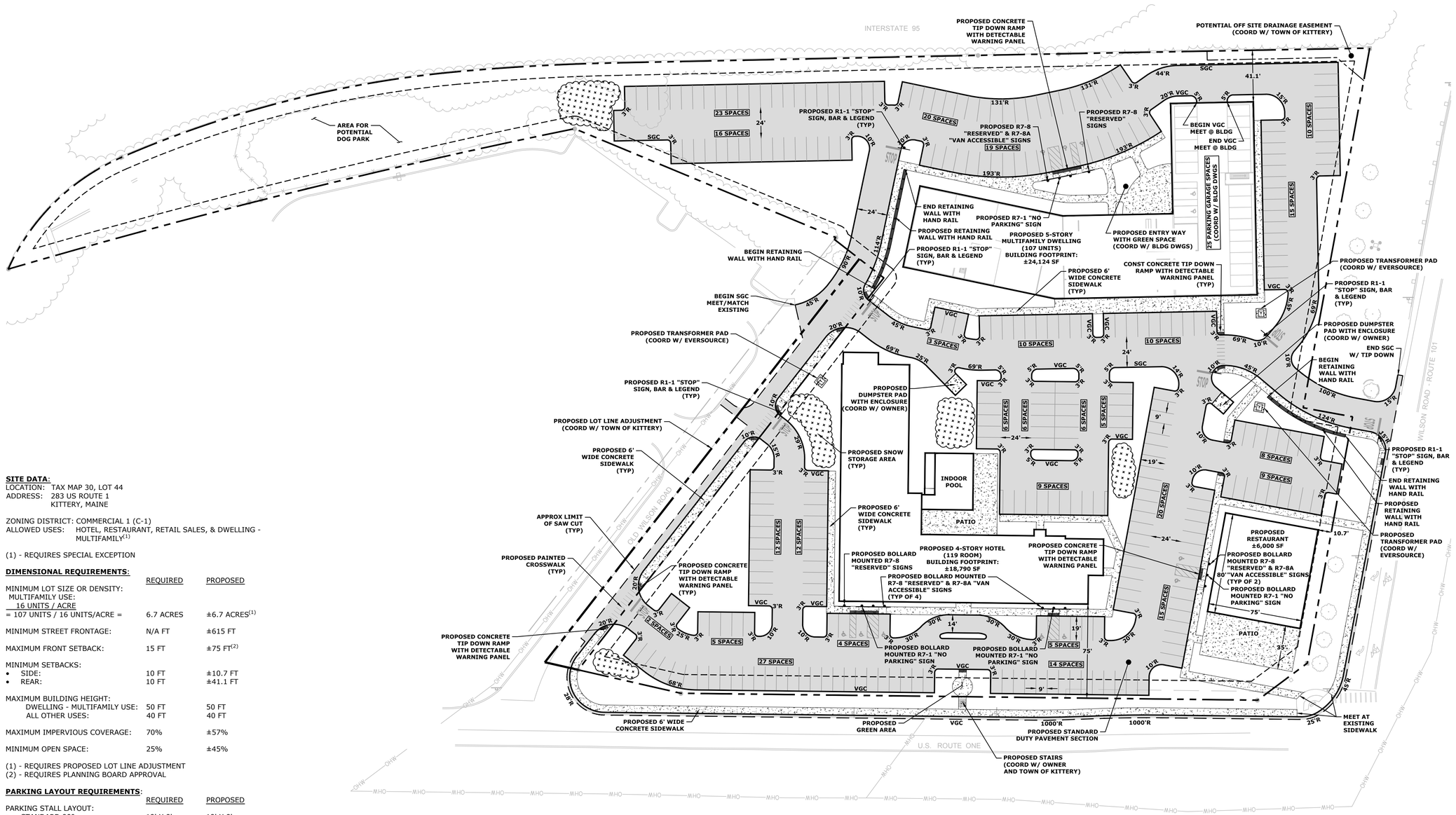
Proposed - 119-Room Hotel			**LUC 310**
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	31	24	55
Weekday Afternoon	36	34	70
Saturday Midday	49	39	88
Weekday	476	475	951
Saturday	480	480	960

Proposed - 107 Units Residential			**LUC 221**
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	9	31	40
Weekday Afternoon	26	16	42
Saturday Midday	22	21	43
Weekday	243	243	486
Saturday	255	254	509

Proposed - 6,000 SF Restaurant			**LUC 932**
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	31	26	57
Weekday Afternoon	33	21	54
Saturday Midday	34	33	67
Weekday	322	321	643
Saturday	367	367	734

Net Vehicular Trips (Proposed minus Existing 80% Occupied Demand)			
Peak Hour Period	**Enter**	**Exit**	**Total**
Weekday Morning	**26**	**54**	**80**
Weekday Afternoon	**-10**	**-39**	**-49**
Saturday Midday	**-29**	**-30**	**-59**
Weekday	**-357**	**-358**	**-715**
Saturday	**-576**	**-576**	**-1,152**

Source: Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021
Land Use - 221 [Residential - Multifamily Housing (Mid-Rise)]
Land Use - 310 [Hotel]
Land Use - 821 [Shopping Plaza (40-150k)]
Land Use - 932 [High-Turnover (Sit-Down) Restaurant



SITE DATA:
LOCATION: TAX MAP 30, LOT 44
ADDRESS: 283 US ROUTE 1
KITTERY, MAINE

ZONING DISTRICT: COMMERCIAL 1 (C-1)
ALLOWED USES: HOTEL, RESTAURANT, RETAIL SALES, & DWELLING - MULTIFAMILY(1)

(1) - REQUIRES SPECIAL EXCEPTION

DIMENSIONAL REQUIREMENTS:

	REQUIRED	PROPOSED
MINIMUM LOT SIZE OR DENSITY: MULTIFAMILY USE: 16 UNITS / ACRE = 107 UNITS / 16 UNITS/ACRE =	6.7 ACRES	±6.7 ACRES(1)
MINIMUM STREET FRONTAGE:	N/A FT	±615 FT
MAXIMUM FRONT SETBACK:	15 FT	±75 FT(2)
MINIMUM SETBACKS:		
• SIDE:	10 FT	±10.7 FT
• REAR:	10 FT	±41.1 FT
MAXIMUM BUILDING HEIGHT: DWELLING - MULTIFAMILY USE:	50 FT	50 FT
ALL OTHER USES:	40 FT	40 FT
MAXIMUM IMPERVIOUS COVERAGE:	70%	±57%
MINIMUM OPEN SPACE:	25%	±45%

(1) - REQUIRES PROPOSED LOT LINE ADJUSTMENT
(2) - REQUIRES PLANNING BOARD APPROVAL

PARKING LAYOUT REQUIREMENTS:

	REQUIRED	PROPOSED
PARKING STALL LAYOUT:		
• STANDARD 90°	19' X 9'	19' X 9'
DRIVE AISLE WIDTH:		
• 90° (2-WAY TRAFFIC)	24 FT	24 FT
• 90° (1-WAY TRAFFIC)	13 FT	14 FT

PARKING SPACE REQUIREMENTS:

	REQUIRED	PROPOSED
MULTIFAMILY DWELLING: 1 SPACE / DWELLING UNIT = 107 UNITS / 1 SPACE/UNIT=	107 SPACES	147 SPACES
HOTEL: 1 SPACE / ROOMS +1 / 100SF OF MEETING ROOM = 119 ROOM / 1 SPACE/ROOM=	119 SPACES	119 SPACES
RESTAURANT: 1 SPACE / 3 SEATS = 150 SEATS / 1 SPACE/3 SEATS=	50 SPACES	50 SPACES
	169 SPACES	169 SPACES
TOTAL:	276 SPACES	316 SPACES

* TWELVE (12) TOTAL ADA SPACES PROVIDED

SITE NOTES:

1. STRIPE PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, ADA SYMBOLS, PAINTED ISLANDS, CROSS WALKS, ARROWS, LEGENDS AND CENTERLINES ALL MARKINGS EXCEPT CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT. CENTERLINE AND MEDIAN ISLANDS TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE "F").
2. ALL PAVEMENT MARKINGS AND SIGNS TO CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS, LATEST EDITIONS.
3. SEE DETAILS FOR PARKING STALL MARKINGS, ADA SYMBOLS, SIGNS AND SIGN POSTS.
4. CENTERLINES SHALL BE FOUR (4) INCH WIDE YELLOW LINES. STOP BARS SHALL BE EIGHTEEN (18) INCHES WIDE.
5. PAINTED ISLANDS SHALL BE FOUR (4) INCH WIDE DIAGONAL LINES AT 3'-0" O.C. BORDERED BY FOUR (4) INCH WIDE LINES.
6. THE CONTRACTOR SHALL EMPLOY A MAINE LICENSED LAND SURVEYOR TO DETERMINE ALL LINES AND GRADES.
7. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAW CUT LINE WITH RS-1 EMULSION IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
8. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES & SPECIFICATIONS.
9. COORDINATE ALL WORK WITHIN PUBLIC RIGHT OF WAY WITH THE TOWN OF KITTERY.
10. CONTRACTOR TO SUBMIT AS-BUILT PLANS IN DIGITAL FORMAT (.DWG AND .PDF FILES) ON DISK TO THE OWNER AND ENGINEER UPON COMPLETION OF THE PROJECT. AS-BUILTS SHALL BE PREPARED AND CERTIFIED BY A MAINE LICENSED LAND SURVEYOR.
11. SEE ARCHITECTURAL/BUILDING DRAWINGS FOR ALL CONCRETE PADS & SIDEWALKS ADJACENT TO BUILDING.
12. ALL WORK SHALL CONFORM TO THE TOWN OF KITTERY DEPARTMENT OF PUBLIC WORKS, STANDARD SPECIFICATIONS AND WITH THE STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION.
13. CONTRACTOR TO PROVIDE BACKFILL AND COMPACTION AT CURB LINE AFTER CONCRETE FORMS FOR SIDEWALKS AND PADS HAVE BEEN STRIPPED. COORDINATE WITH BUILDING CONTRACTOR.
14. ALL LIGHT POLE BASES NOT PROTECTED BY A RAISED CURB SHALL BE PAINTED YELLOW.
15. COORDINATE ALL WORK ADJACENT TO BUILDING WITH BUILDING DRAWINGS.
16. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING RETAINING WALL DESIGN FROM STRUCTURAL ENGINEER AND/OR WALL MANUFACTURER. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO CONSTRUCT WALL IN ACCORDANCE WITH DESIGN APPROVED BY THE ENGINEER. RETAINING WALL SHALL BE SEGMENTAL BLOCK WALL SYSTEM AS OUTLINED IN THE DETAILS.
17. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
18. PROPERTY MANAGER WILL BE RESPONSIBLE FOR TIMELY SNOW REMOVAL FROM ALL PUBLIC WALKS, DRIVES, AND AIRSIDE PAVEMENT AREAS ON-SITE. SNOW SHALL BE HAULED OFF-SITE AND LEGALLY DISPOSED OF, WHEN NECESSARY, WHEN SNOW STORAGE AREAS HAVE REACHED CAPACITY.

LEGEND

	PROPOSED CONCRETE
	PROPOSED PAVEMENT SECTION
	PROPOSED SNOW STORAGE AREA
	APPROXIMATE LIMIT OF SAWCUT
	BUILDING SET BACK LINE
	PROPOSED LIGHT POLE BASE
	PROPOSED SIGN
45'R	PROPOSED CURB RADIUS
VGC	VERTICAL GRANITE CURB
SGC	SLOPED GRANITE CURB

Tighe&Bond

PRELIMINARY

SCALE IN FEET
0 40' 80'
GRAPHIC SCALE

Kittery Mixed-Use Development

Two International Group

283 US Route 1
Kittery, Maine

MARK	DATE	DESCRIPTION
A	10/5/2023	Preliminary Site Plan Review

PROJECT NO:	T5037-003
DATE:	10/5/2023
FILE:	T5037-003_C-DESIGN.DWG
DRAWN BY:	CML
CHECKED:	NAH
APPROVED:	PMC

SITE PLAN

SCALE: AS SHOWN

C-102

Last Save Date: October 5, 2023 2:55 PM By: CML
Plot Date: Thursday, October 05, 2023 Plotted By: Craig M. Langton
File Location: J:\TT\5037 Two International Group\003 Kittery Mixed Use Development\Drawings\Autocad\Sheet\T5037-003_C-Design.dwg Layout Tab: Site

TOWN OF KITTERY, MAINE

SEWER DEPARTMENT

200 Rogers Road, Kittery, ME 03904

Telephone: (207) 439-4646 Fax: (207) 439-2799

October 18, 2023

Re: Treatment Plant Capacity-Acceptance letter
283 US Route 1
Kittery, ME 03904

This letter is to confirm the acceptance of sanitary sewer discharge for the proposed Project at 283 US Route 1 in the Town of Kittery Maine. The sewer system (piping and pumping stations) and the treatment plant will have the capacity and ability to handle the discharge flow requiring treatment and disposal.

This project must follow all specifications in accordance with design and performance standards set by the Kittery Sewer Department found in Title 13 of the Town Code.

Before the connection to the Kittery Sewer line, you will need to obtain a sewer permit from the Town of Kittery and pay all Impact and Entrance fees.

During the engineering and construction process plans may change, if they do, consideration for acceptance may change. Please notify me of any changes in design or construction.

If you have further questions or concerns, please contact me.

Sincerely,

Timothy Babkirk
Town of Kittery
Superintendent of Sewer Services
1-207-439-4646
tbabkirk@kitteryme.org

OFFICE OF

KITTERY WATER DISTRICT

17 State Road
Kittery, ME 03904-1565
TEL: 207-439-1128
FAX: 207-439-8549
Email: info@kitterywater.org

Kittery Planning Board
200 Rogers Road
Kittery, ME 03904

October 17, 2023

Re: 283 US Route 1, Kittery

Dear Planning Board Members,

Please accept this letter as verification that the Kittery Water District does have the capacity to supply the proposed Kittery Mixed-Use Development located at 283 US Route 1, Kittery with Municipal Water Service.

Sincerely,

Michael S. Rogers
Superintendent

cc: Tighe & Bond – Engineering Consultants

150 foot Abutters List Report

Kittery, ME
October 05, 2023

Subject Property:

Parcel Number:	30-44	Mailing Address:	283-360 KITTERY, LLC 283-360 KITTERY, LLC ATTN. MANAGEMENT OFFICE 283 US ROUTE 1 SUITE #13 KITTERY, ME 03904
CAMA Number:	30-44		
Property Address:	283 US ROUTE 1		

Abutters:

Parcel Number:	30-41	Mailing Address:	KITTERY TRADING POST SHOPS LLC KITTERY TRADING POST SHOPS LLC PO BOX 904 KITTERY, ME 03904-0904
CAMA Number:	30-41		
Property Address:	275 US ROUTE 1		
Parcel Number:	30-41	Mailing Address:	275 ROUTE 1, LLC 275 ROUTE 1, LLC 1 NH AVENUE STE 101 PORTSMOUTH, NH 03801
CAMA Number:	30-41-1		
Property Address:	275 US ROUTE 1		
Parcel Number:	30-41	Mailing Address:	KITTERY TRADING POST SHOPS LLC KITTERY TRADING POST SHOPS LLC PO BOX 904 KITTERY, ME 03904-0904
CAMA Number:	30-41-2		
Property Address:	US ROUTE 1		
Parcel Number:	31-2	Mailing Address:	290 US ROUTE 1 LLC 290 US ROUTE 1 LLC PO BOX 630 KITTERY, ME 03904
CAMA Number:	31-2		
Property Address:	290 US ROUTE 1		
Parcel Number:	31-4	Mailing Address:	WOODSIDE KITTERY LLC WOODSIDE KITTERY LLC C/O APPLEGREEN USA TAX DEPT 279 CEDARCREST DRIVE LEXINGTON, SC 29072
CAMA Number:	31-4		
Property Address:	286 US ROUTE 1		
Parcel Number:	31-6	Mailing Address:	SHAFMASTER, JONATHAN S SHAFMASTER, JONATHAN S 158 SHATTUCK WAY NEWINGTON, NH 03801
CAMA Number:	31-6		
Property Address:	284 US ROUTE 1		
Parcel Number:	38-14	Mailing Address:	RIPLEY ROAD ASSOCIATES LLC RIPLEY ROAD ASSOCIATES LLC PO BOX 6120 INDIANAPOLIS, IN 46206
CAMA Number:	38-14		
Property Address:	294 US ROUTE 1		
Parcel Number:	38-2	Mailing Address:	KEVIN INC KEVIN INC PO BOX 904 KITTERY, ME 03904-0904
CAMA Number:	38-2		
Property Address:	301 US ROUTE 1		

T5037-003
October 5, 2023

PUBLIC NOTICE

NOTICE OF INTENT TO FILE

Please take notice that 283 Route 1, LLC, applicant, through their agent, Tighe & Bond, Inc. is intending to file a Preliminary Application for Major Site Plan review for proposed site improvements at 283 Route 1 in Kittery, Maine with the Town of Kittery on or around October 5, 2023.

The proposed project is located along US Route 1 on property identified as Map 30 Lot 44 on the Town of Kittery Tax Maps. The applicants proposed project includes the construction of three buildings consisting of hotel, restaurant, and residential use. The buildings consist of a 4-story, 119 key hotel along US Route 1, a restaurant building at the corner of US Roue 1 and Wilson Road, and a 5-story, 107 unit residential building to the rear of the site. The project also consists of on-site improvements including driveways, sidewalks, access improvements, stormwater management, lighting, landscaping, and utilities.

Any questions or comments can be directed to the Town of Kittery Planning and Development office located at 200 Rogers Road, Kittery ME 03904.

177 Corporate Drive • Portsmouth, NH 03801-6825 • Tel 603.433.8818
www.tighebond.com

Tighe&Bond
Engineers | Environmental Specialists

177 Corporate Drive
Portsmouth, NH 03801

30-41
KITTERY TRADING POST SHOPS LLC
PO BOX 904
KITTERY, ME 03904-0904

Tighe&Bond
Engineers | Environmental Specialists

177 Corporate Drive
Portsmouth, NH 03801

30-41
275 ROUTE 1, LLC
1 NH AVENUE STE 101
PORTSMOUTH, NH 03801

Tighe&Bond
Engineers | Environmental Specialists

177 Corporate Drive
Portsmouth, NH 03801

stamps.com
$0.63 0
US POSTAGE
FIRST-CLASS
062S0006911843
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31-2
290 US ROUTE 1 LLC
PO BOX 630
KITTERY, ME 03904

Tighe&Bond
Engineers | Environmental Specialists

177 Corporate Drive
Portsmouth, NH 03801

stamps.com
$0.63 0
US POSTAGE
FIRST-CLASS
062S0006911843
FROM 03801
B86720.23

31-4
WOODSIDE KITTERY LLC
C/O APPLEGREEN USA TAX DEPT
279 CEDARCREST DRIVE
LEXINGTON, SC 29072

Tighe&Bond
Engineers | Environmental Specialists

177 Corporate Drive
Portsmouth, NH 03801

31-6
SHAFMASTER, JONATHAN S
158 SHATTUCK WAY
NEWINGTON, NH 03801

Tighe&Bond
Engineers | Environmental Specialists

177 Corporate Drive
Portsmouth, NH 03801

38-14
RIPLEY ROAD ASSOCIATES LLC
PO BOX 6120
INDIANAPOLIS, IN 46206

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177 Corporate Drive
Portsmouth, NH 03801

38-2
KEVIN INC
PO BOX 904
KITTERY, ME 03904-0904