ITEM 1

Town of Kittery
Planning Board Meeting
January 26, 2023

ITEM 1 – 22 Shapleigh Road– Site Plan - Preliminary Plan Review

Action: Determine application completeness, schedule site walk, schedule public hearing. Owner/applicant Fair Tide and acting agent Geoffrey R Aleva, PE of Civil Consultants propose to redevelop an existing commercial building with additions creating a footprint of 5,669sf, and to add a 6-unit residential building consisting of a 2,058sf building footprint, at real property located at 22 Shapleigh Road (Tax Map 15, Lot 64) in the Business-Local (B-LI) and Residential-Urban (R-U) Zones respectively.

PROJECT TRACKING

REQ'D	ACTION	COMMENTS	STATUS
NO	Sketch Plan Review	Reviewed by Planning Board during December 8, 2022 meeting	Accepted 12/8/22
YES	Preliminary Plan Review	Application submitted to KDPD 1.6.23	
YES	Determination of Completeness/Acceptance	Pending review 1/26/23 meeting	
NO	Site Visit	To be scheduled	
YES	Public Hearing	To be scheduled	
YES	Final Plan Review and Decision	Separate application to be submitted after PB approval of preliminary application	

Plan Review Notes reflect comments and recommendations regarding applicability of Town Land Use Development Code, and standard planning and development practices. Only the PB makes final decisions on code compliance and approves, approves with conditions or denies final plans. 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 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.

Summary

The project is located at the intersection of Shapleigh Road and Manson Avenue, the total lot area is 84,831sf (1.95-acres), and the property is divided into two zones the Business-Local (B-L1) Zone and the Residential Urban (R-U) Zone. The parcel is crossed by a wetland that is approximately 24,000sf (or less than 1 acre) and was delineated in 2021 and determined to be a forested wetland related to stormwater directed to the location from several culverts in the vicinity. An important note is that this proposal is subject to the recently approved (10/2022) revision in the (B-L1) zone for affordable housing. See: Microsoft Word - 2022.03.14 Title 16 Affordable Housing BL-1 (ecode360.com) The project is

proposing to utilize the 50ft zone extension provision indicated in **§16.1.8.B.5.** The proposed extension would place all building footprint area in the (B-L1) zone.

The proposed use of the renovated existing building to the north has the allowed uses of retail sales, a neighborhood grocery store as well as business and professional offices. This will be comprised of a collective of social service agencies knows as "Mainspring"; which will be home to Fair Tide's thrift store and administrative offices, Footprints Food Pantry, York Community Action and other programs that service the community.

The southern portion of the property is the location of the proposed new 6-unit residential building owned by Fair Tide and managed by York Housing. The required land area for each available unit will be 1500sf per unit, the available lot can easily support the density of the 6 multifamily units based on the land area (6 x 1500sf (9,00sf) < 54,000sf).

Staff Review: Draft/ Preliminary Findings

Process (§16.7.10):
Any mixed-use project that contains residential and non-residential uses is classified as a **major site plan** per §16.7.5-A.2.c. Section 4402-6 of Maine Revised Statutes exempts division of structures from subdivision requirements where a project is subject to municipal site plan review (applicable to the 6-unit residential component of this project). Since Title 16 of Kittery's Town Code (KTC) classifies this project as a major site plan, subdivision review is not required and the provisions of KTC Chapter 16.7 General Development Requirements apply.

Major site plan applicants may choose to submit a **sketch plan** for a proposal but are not required to do so. The applicants submitted a sketch plan application for this project that was reviewed and accepted by the Planning Board on December 8, 2022. The packet for that meeting can be reviewed at: Planning Board Meeting December 8th, 2022 | Kittery ME

Submittal and approval of a **preliminary site plan application is required** per §16.7.10-C**.** The applicant submitted a preliminary site plan application and supporting plans and materials via the Town's online portal on January 6, 2023. Staff reviewed the documents and the submittal checklists provided by the applicant and found the application to be generally complete. The Planning Board must review the application and **vote on its completeness**, and may decide to schedule a **site inspection**. A **public hearing** must also be scheduled once the application is found complete. Following Planning Board approval of a preliminary site plan application, submittal and approval of a separate Final Site Plan application is required prior to construction.

Other permit(s) needed:

- Final site plan approval
- Road Excavation Permit/ Driveway Entrance Permit (Kittery Public Works)
- Building Permit
- Sewer Connection Permit; other utility permits?
- Sign permit

Land Use Zone Regulations Chapter 16.4
Multifamily Dwellings are permitted in B-L1 zoning district per 16.4.18- B. A variety of office and retail uses are also permitted.

ITEM 1

16.4.18-D.1 Standards:

- a.3: one nonresidential use must be located on the first floor facing Shapleigh Rd. Staff and the Board determined this requirement to be met via the commercial uses proposed for the existing building.
- a.4.a unit density: 1,500 square feet of land area per dwelling unit required (complies)
- a.4.b-g: dimensional standards (setbacks, building height, lot coverage): complies
- a.4.h: stormwater: LID and BMPs required for all stormwater generated onsite. Stormwater Management Plan submitted by applicant. Applicant proposes to reduce impervious surfaces on the northern portion of the property while adding approx. 7,700 square feet of impervious surfaces on the southern portion of the property. Most stormwater runoff is proposed to flow to the on-site wetland, which drains southwest to public facilities located in the Shapleigh Rd right-of-way and south via a culvert which underlies abutting property. *Discussion item: are easements in place establishing property rights for off-site drainage? ("Out 1" on drainage plans). Should the board request peer review for verification that off-site runoff will match pre-development conditions and Town requirements, including LID and BMP measures?*
- a.4.j: **hours of operation and hours of exterior lighting** are required to be limited. Final plans should be noted accordingly. *Discussion item?*
- a.4.l: setback from streams & wetlands: 50 feet for buildings, 40 feet for 1-5 stall parking areas: commercial building and parking area existing. Reduction in nonconformity for parking/ driveway setback proposed. Proposed residential building and parking facilities comply with standard.

D.2 Parking:

- must be located in rear of building: new parking complies
- access: provided via existing sidewalk. Further connectivity infeasible due to wetland location
- screening required: provided – see landscape plans. Trees, shrubs, and groundcovers provided per requirements.

D.3 Building Design:

- materials and details consistent in all facades
- peaked roof form proposed

D.4 Landscaping:

- 15% of property to be landscaped or in natural condition per landscape plan and existing wetland
- outdoor spaces required. Garden beds proposed near commercial building. **Usable outdoor space** limited near residential building. *Discussion item?*

D.7 Affordable Housing: **16.5.4** must be met. *Plan notes or covenants required to ensure affordability in perpetuity?*

General Development Requirements Chapter 16.7 (Site Plans)

16.7.8 Waivers:

16.7.11 Standards and approval criteria:

A. Water and B. Sewer

- Utilities are available to serve this development. Review by Town and District staff and peer review engineers pending. Verification of availability has been provided.

C & D. Stormwater:

- See above. Staff recommend for compliance with State and Town stormwater regulations to be verified by peer review engineers. Maintenance agreements and post-construction management plan required for review.

E. Traffic:

- Vehicular access to the existing/ proposed commercial building is from Manson Ave and Shapleigh Rd via existing driveways. Access to the proposed residential building will be from Shapleigh Rd via a new driveway. Vehicular connectivity between the commercial and residential portions of the site is infeasible due to the location of the on-site wetland. Driveway and paving plans were reviewed by Kittery's **Technical Review Committee** members, who did not have any concerns about the proposed driveway configuration but had the following comments/ questions during review of the sketch plan materials:
    - Additional details needed regarding curb cuts (radius) and drainage between entrances @ Shapleigh.
    - Turning movements in/ out of Shapleigh Rd driveways may need to be limited to right-in/ right-out. Sight distance information should be provided. *Discussion item: should anticipated trip counts (ITE) be provided for review by safety staff to help determine whether such restrictions are appropriate?*
    - Sidewalk improvements must be concrete (no asphalt in ROW)

  Staff/ TRC review of updated plans is pending.
- Number and spacing of driveways comply with E.3 and E.4. Internal vehicular circulation complies with E.5.

F. Parking:

- 35 parking stalls proposed for commercial building, 6 parking stalls proposed for residential building. *How many stalls required for commercial building? Should applicant provide parking count based on square footage per use? Does Planning Board need to grant waiver for residential standard (2 stalls per unit)?*
- **Snow storage** not shown on plans. Applicant should provide snow storage information for subsequent review. Compatibility with landscape plans should be assessed.

H. Lighting

- Lighting plans provided showing pole-mounted exterior lighting in parking/ driveway areas and canopy lighting near building entries. All fixtures are cut-off and not more than 20 feet above ground. Maximum illumination levels on-site and at property lines comply with standards.

I. Erosion Control:

- Erosion control plan provided. Peer review recommended. Erosion control measures required to be implemented and inspected during construction.

J. Water quality and Wastewater Pollution.

- Town standards for sewer facility design and construction apply and to be inspected by PW and CEO. Surface water impacts to be reviewed and minimized via stormwater plans.

P. Technical and Financial Capacity.

- The applicant and all contractors and consultants must demonstrate to the board's satisfaction the financial and technical capacity to construct the project in adherence to applicable standards.

16.7.12 Post-Approval

- Construction required to begin within 1 year of planning board approval. **Pre-construction meeting** with staff required prior to start of construction. Stormwater and erosion control inspection by qualified professional required during construction. Annual inspection of stormwater facilities required following project completion.

Discussion Items (Italicized above):

- Offsite/ downstream drainage
- Hours of operation and time restrictions of exterior lighting
- Usable outdoor space near residential building & landscape plans
- Affordable housing provisions
- Vehicle trip counts and driveway turning movement restrictions @ Shapleigh Rd
- Parking stall calculations for commercial building
- Snow storage

Recommendation

- Items requiring additional information, discussion, or revision are typical at this stage of project design and review. The Planning Board should advise the applicant and staff of items requiring additional information or revisions during this meeting.
- Staff find the preliminary site plan application for this project to be substantially complete and recommend the board to vote on application completeness during this meeting.
- Staff recommend scheduling a public hearing for this project as required.
- The Board may elect to schedule a site walk to evaluate existing/ proposed conditions.

Recommended Motions

Move to find preliminary site plan application as complete:

Owner/applicant Fair Tide and acting agent Geoffrey R Aleva, PE of Civil Consultants propose to redevelop an existing commercial building with proposed additions creating a footprint of 5,669sf, and to add a 6-unit residential building consisting of a 2,058sf building footprint, at real property located at 22 Shapleigh Road (Tax Map 15, Lot 64) in the Business-Local (B-LI) and Residential-Urban (R-U) Zoning Districts. Based on the plans and supporting information submitted to the Town on January 6, 2023, I move to find the preliminary site plan application for this project to be complete.

Move to schedule a public hearing during a future meeting on** date X, **2023.

Move to schedule a site walk of the subject property at** (time X, date X), **2023.

The Board may also choose to continue review of these preliminary plans prior to scheduling a hearing or determining application completeness and advise the applicant of information that is needed accordingly.

CIVIL CONSULTANTS MEMORANDUM

TO: Town of Kittery Planning Department

FROM: Geoffrey R. Aleva, PE

SUBJECT: SKETCH PLAN PROJECT NARRATIVE

DATE: 11/14/2022

PROJECT: 2133500 – FAIRTIDE / 22 SHAPLEIGH RD

This memorandum provides a project narrative and zoning information on the proposed unique redevelopment project at 22 Shapleigh Road, Map 15, lot 64 that will serve the community. The project will require a Major Site Plan review to redevelop the existing building, parking areas and new residential construction into what is proposed for the property. The redevelopment is divided into two distinct areas due to the onsite wetland that divides the property. The northern portion of the property where the existing building is to be redeveloped and the southern portion of the property where a new residential development is proposed.

The northern portion of the property will be comprised of a collective of social service agencies know as Mainspring. Mainspring will be home to Fair Tide's thrift store and administrative offices, Footprints Food Pantry, York County Community Action, and other programs and services that supports our community. Please refer to the link for Mainspring Collective website for additional information. (https://www.mainspringcollective.org).

The southern portion of the property will be developed to create 6 affordable housing units located in one structure on the southern portion of the property. The building will have 5 one-bedroom units and one studio unit. The 6-unit building will be owned by Fair Tide and managed by York Housing. Fair Tide will provide case management support to the residents, as needed. These households will also have easy access to the services provided by Mainspring.

Detailed information will be presented at the Planning Board meeting that indicates use and how this project will benefit the community. The project architect for the redevelopment of the existing building will be ARQ Architects, Kittery, Maine. The apartment building architect is Ryan Senatore Architecture, Portland, Maine. Copies of the building appearance and floor plans are included in this Sketch Plan submission.

This document for the project narrative will emphasize the zoning specific portions of the project, potential waiver requests and site design implications. The project is serviced by municipal water and sanitary services.

The project parcel is located at the intersection of Shapleigh Road and Manson Avenue. The building was constructed in the 1980's as a doctor's office and recently was used as office and storage space for the Old York Historical Society.

The northern redevelopment will utilize the existing driveway access locations onto the property. The entrances will be redesigned, and interior traffic flow will be modified to reduce vehicle access onto Shapleigh Road. The southern residential portion of the project will have a new driveway access onto Shapleigh Rd.

BASE ZONE INFORMATION

The property is divided into two zones, the western portion of the property is located in the Business-Local 1 (B-L1) zone, the eastern portion of the property is located in the Residential-Urban (R-U) zone. The proposed development also utilizes the recently approved (10/2022) revision in the B-L1 zone for affordable housing.

The project is proposing to utilize the 50 ft zone extension provision indicated in 16.1.8.B.5. The proposed extension would place all building footprint area on the property in the B-L1 zone. The proposed extension of the B-L1 zone will not prevent reasonable use of adjacent properties, as the adjacent properties are all developed. The proposed development and extension will not create negative environmental impacts nor reduce adjacent property values. The extension of the zone will not have impacts on traffic or create undue traffic congestion on the streets in the adjacent zone.

The proposed uses for the property will contain the zoning allowed uses of retail sales, neighborhood grocery store, business and professional offices and affordable multifamily housing.

The property lot area is 84,831 SF, with frontage on both Manson Avenue and Shapleigh Road. The lot area within the current B-L1 zone is 40,253 SF, if the 50 ft extension is approved, the land area in the B-L1 zone is 54,000 SF. The intent is to have the northern portion of the site be composed of the commercial uses and the southern portion of the site the multifamily residential use. The various uses will be connected via the existing sidewalk along Shapleigh Road.

The required land area for each affordable residential unit will be 1,500 SF per unit, since the project will have the residential use separated from the commercial use in two structures. The available lot areas can easily support the density of the 6 multifamily units based on land area, (6 x 1,500 (9,000 SF) < 54,000 SF).

The proposed development meets the zoning requirements for frontage, density and lot coverage, additional information is provided on the attached site plans.

The intent is to utilize and supplement existing landscaping on the property around the

commercial redevelopment in the north. Most of the existing street trees as depicted on the plans along Shapleigh Rd and Manson Ave will remain.

For the residential development, the intent is to provide new vegetation and fencing along the southern property line to provide visual buffers for the residential units located on Busdick Drive. Other than the new area to be developed, the existing tree cover will remain on site. The applicant has received commitments for donated services from many local businesses, one business is a tree removal and landscaping company. Since the majority of the existing trees will remain, it is requested of the Planning Board that a Landscape Architect not be required to prepare plans and details indicating the proposed vegetation.

A lighting plan will be presented with the application as the project moves forward. The lighting will indicate down lit fixtures that comply with the dark sky requirements.

The design intent is to provide stormwater BMP's to address the stormwater flows at the existing developed areas along the northern portion of the property. The redevelopment of the property will reduce the existing impervious surface values by 11%. The redevelopment is also investigating the use of vegetated green roof systems for the new building footprints to provide additional stormwater treatment. The use of these roofs will be dependent on project costs. If utilized these would provide further stormwater controls.

The new residential area will be designed utilizing stormwater LID and BMP's to address flows generated from the new work. A detailed report and maintenance plan will be prepared and submitted as the project moves forward.

Parking requirements on the property are based on The Town of Kittery.

WETLAND SETBACKS / CODE DETERMINATION:

As can be seen on the site plans, there is an existing wetland on the property that divides the upland areas to the north and south. The wetland on the property has been delineated by Mark Hampton Associates in 2021 and determined to be forested wetlands related to stormwater directed to the location from several culverts in the vicinity. The wetlands are not classified as wetlands of special significance following MDEP guidelines. The wetland area is approximately 24,000 SF, less than 1 acre.

Portions of the existing building and pavement are located within the 50 ft setback from the wetland. A waiver is being requested to maintain the existing building and pavement within the wetland setback. This paved area was previously approved on the original site plan before wetland setbacks were required by the ordinance.

Per Table 16.5.30, the required wetland setbacks are as follows: Buildings require 50 ft, parking for 6-20 stalls incorporating stormwater BMP require 40 ft, parking for 21 or more stalls incorporating stormwater BMP require 50 ft.

For the redevelopment of the property the applicant spoke with Planning Staff regarding this situation. Staff conferred with Code Enforcement, and it was determined that redevelopment with the setback can be completed provided no further increase in the nonconformity occurs. The proposed redevelopment shown on the plans does not increase this nonconformity.

The redesign of the pavement reduces the amount of impervious coverage in the 50 ft setback from the wetland. The proposed project is addressing stormwater quality by utilizing deep sumps in catch basins to capture sediment and installing a rip-rap edge along the edge of pavement to capture sediment along the paved edges. Currently there are not sediment controls from the pavement area along the wetland. Areas of existing pavement that will not be replaced will be landscaped and the building is investigating the potential for the installation of vegetated roofs to further reduce the untreated stormwater flows from the property. This redevelopment will not create a negative impact on the receiving wetland or downstream abutters.

The intent is to redesign the pedestrian and vehicular access to the building and parking without increasing the impervious area within this setback. The new work will provide sidewalk access and diagonal parking to the lower food pantry use of the building. It is proposed that a canopy be placed over the new sidewalk to provide weather protection for the users. This canopy would be located within the 50 ft setback area, over existing impervious surfaces. The proposed building additions have been located to meet the 50ft setback requirements.

CONCLUSION:

It is our opinion that this project will meet the needs of the greater Kittery community while redeveloping the existing property. The project will provide a much-needed service to the area. The site design incorporates redevelopment to existing property. The applicant looks forward to presenting the project at the next available meeting.

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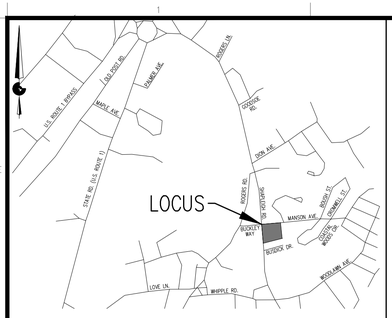


LOCATION PLAN
(NOT TO SCALE)

NOTES:

1. ASSESSOR'S INFORMATION:
   TOWN OF KITTERY ASSESSOR'S MAP 16 LOT 64
2. RECORD OWNER:
   FAIR TIDE INC
   15 STATE RD
   KITTERY, MAINE
3. DEED REFERENCE:
   Y.C.R.D. 19014/917
4. ZONING INFORMATION:
   PORTION OF LOT TO BE DEVELOPED IS LOCATED IN
   BUSINESS–LOCAL 1 (B–L1) DISTRICT WITH ZONING EXTENSION
   AFFORDABLE HOUSING PROVISIONS DATED OCTOBER 12, 2022

LOT SIZE:	8,000 S.F. (ALL FLOORS RESIDENTIAL)
MINIMUM FRONTAGE:	50'
SETBACKS:	
MAX. FRONT YARD:	30' (20' IF AFFORDABLE HOUSING)
SIDE YARD:	15'
REAR YARD:	15'
MAXIMUM BUILDING HEIGHT:	40'
MAXIMUM BUILDING COVERAGE:	50%

   MINIMUM WETLAND SETBACKS: (TABLE 16.9)
   BUILDING (INCLUDING PATIO OR DECK LARGER THAN 500 S.F.)= 50'
   PARKING AREAS (6 TO 20 STALL INCORPORATING BMPS)= 40'

   RESIDENTIAL URBAN (R–U) DISTRICT

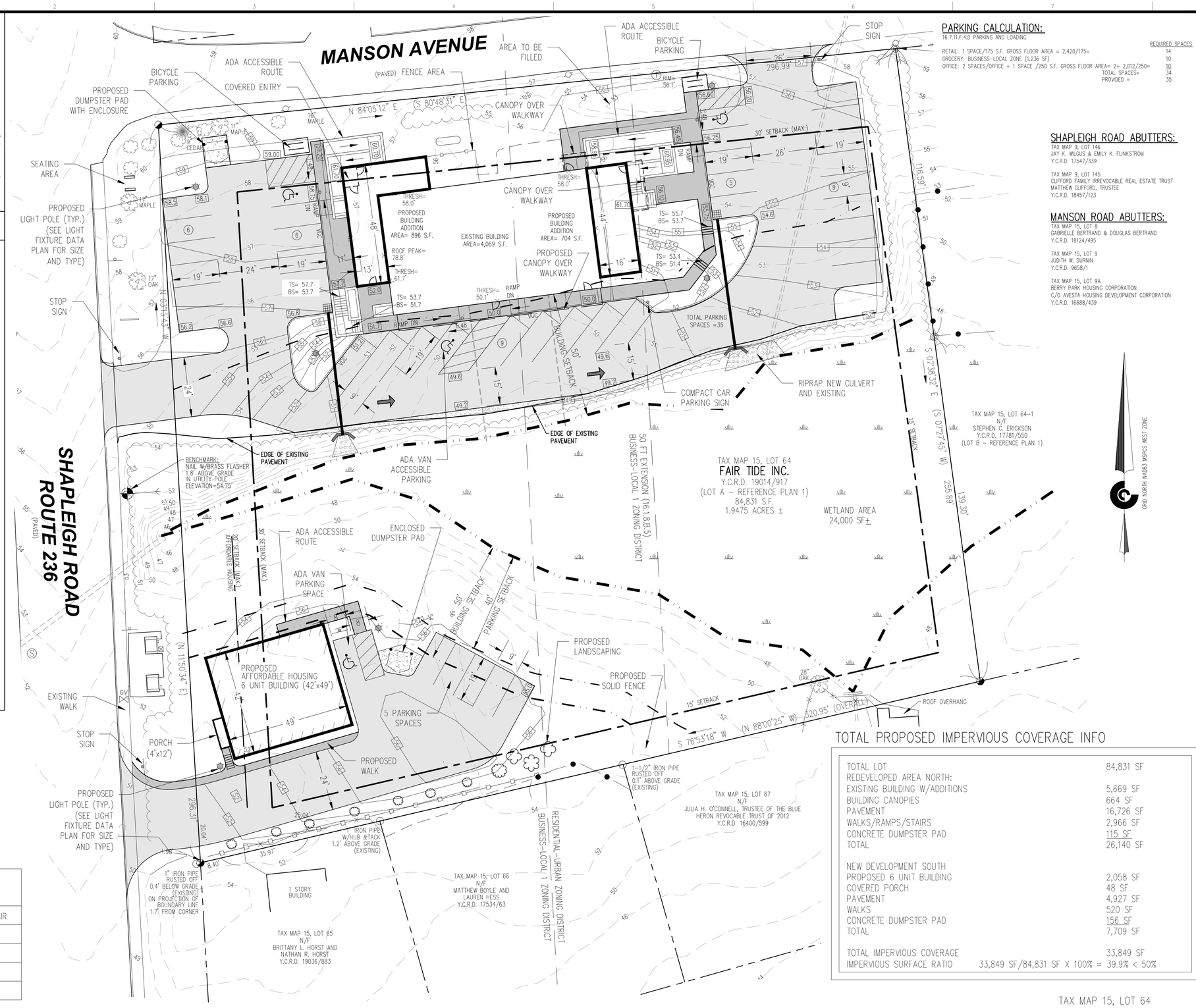
MIN LOT SIZE:	20,000 S.F.
MIN STREET FRONTAGE	100'
SETBACKS:	
MIN. FRONT YARD:	30'
MIN. REAR/SIDE YARD:	15'
MAXIMUM BLDG HEIGHT	35'
MAXIMUM BLDG COVERAGE	20%

5. THE PARCEL IS LOCATED IN FLOOD HAZARD ZONE ZONE C AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE TOWN OF KITTERY, COMMUNITY PANEL NO 203171 005 D, EFFECTIVE DATE JULY 3, 1986. ZONE C IS DEFINED AS "AREAS OF MINIMAL FLOODING".
6. LOCUS PARCEL CONTAINS 84,831 S.F. (1.9475 ACRES).
7. UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL CONTACT DIGSAFE (1–888–344–7233) FOR LOCATION OF ALL EXISTING UTILITIES.
8. WETLAND AREA IS LESS THAN 1 ACRE (24,000 S.F.±)
9. REDEVELOPMENT OF THE PROPERTY WITHIN THE WETLAND SETBACK AREA WILL NOT INCREASE THE NONCONFORMANCE. IMPERVIOUS AREA HAS BEEN REMOVED FROM THIS SETBACK AND REPLACED WITH VEGETATION.

REFERENCE PLAN:

1. "ALTA/NSPS LAND TITLE SURVEY OF LAND OF OLD YORK HISTORICAL SOCIETY, 22 SHAPLEIGH ROAD – TAX MAP 15, LOT 64", PRELIMINARY DATE 4/13/22, BY CIVIL CONSULTANTS, OFFICE PLAN #21335.00

PLAN APPROVED BY TOWN OF KITTERY PLANNING BOARD
CHAIR
DATE:



PARKING CALCULATION:
16.7.11.F.4.D PARKING AND LOADING

	REQUIRED SPACES
RETAIL: 1 SPACE/175 S.F. GROSS FLOOR AREA = 2,420/175=	14
GROCERY: BUSINESS–LOCAL ZONE (1,236 SF)	10
OFFICE: 2 SPACES/OFFICE + 1 SPACE /250 S.F. GROSS FLOOR AREA= 2+ 2,012/250=	10
TOTAL SPACES=	34
PROVIDED =	35

SHAPLEIGH ROAD ABUTTERS:
TAX MAP 9, LOT 146
JAY K. WILGUS & EMILY K. FLINKSTROM
Y.C.R.D. 17547/339

TAX MAP 9, LOT 145
CLIFFORD FAMILY IRREVOCABLE REAL ESTATE TRUST
MATTHEW CLIFFORD, TRUSTEE
Y.C.R.D. 18457/123

MANSON ROAD ABUTTERS:
TAX MAP 15, LOT 8
GABRIELLE BERTRAND & DOUGLAS BERTRAND
Y.C.R.D. 18124/495

TAX MAP 15, LOT 9
JUDITH W. DURNIN
Y.C.R.D. 9658/1

TAX MAP 15, LOT 9A
BERRY PARK HOUSING CORPORATION
C/O AVESTA HOUSING DEVELOPMENT CORPORATION
Y.C.R.D. 16688/439

TOTAL PROPOSED IMPERVIOUS COVERAGE INFO

TOTAL LOT	84,831 SF
REDEVELOPED AREA NORTH:	
EXISTING BUILDING W/ADDITIONS	5,669 SF
BUILDING CANOPIES	664 SF
PAVEMENT	16,726 SF
WALKS/RAMPS/STAIRS	2,966 SF
CONCRETE DUMPSTER PAD	115 SF
TOTAL	26,140 SF
NEW DEVELOPMENT SOUTH	
PROPOSED 6 UNIT BUILDING	2,058 SF
COVERED PORCH	48 SF
PAVEMENT	4,927 SF
WALKS	520 SF
CONCRETE DUMPSTER PAD	156 SF
TOTAL	7,709 SF
TOTAL IMPERVIOUS COVERAGE	33,849 SF
IMPERVIOUS SURFACE RATIO	33,849 SF/84,831 SF X 100% = 39.9% < 50%

TAX MAP 15, LOT 64

PREPARED FOR:
PRELIMINARY REVIEW
NOT FOR CONSTRUCTION
1/5/2023

© CIVIL CONSULTANTS
CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

NO.	REVISIONS	INT.	DATE
1			

RECORD OWNER:
FAIR TIDE INC

OWNER ADDRESS:
15 STATE RD
KITTERY, MAINE

PROPOSED BUILDING LAYOUT
TAX MAP 15, LOT 64
22 SHAPLEIGH ROAD
KITTERY, MAINE

PREPARED FOR:
FAIR TIDE INC
15 STATE ROAD KITTERY, MAINE 03904

CLIENT ADDRESS:

1"=20'
0' 20'

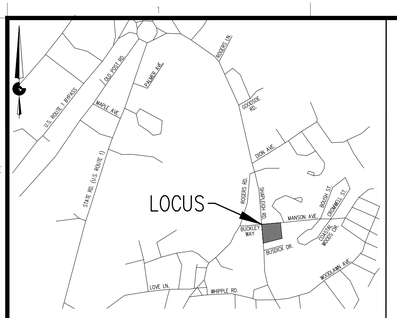
DATE: 01/05/2023
DRAWN BY: JAA/GRA
CHECKED BY:
APPROVED BY:

SITE PLAN

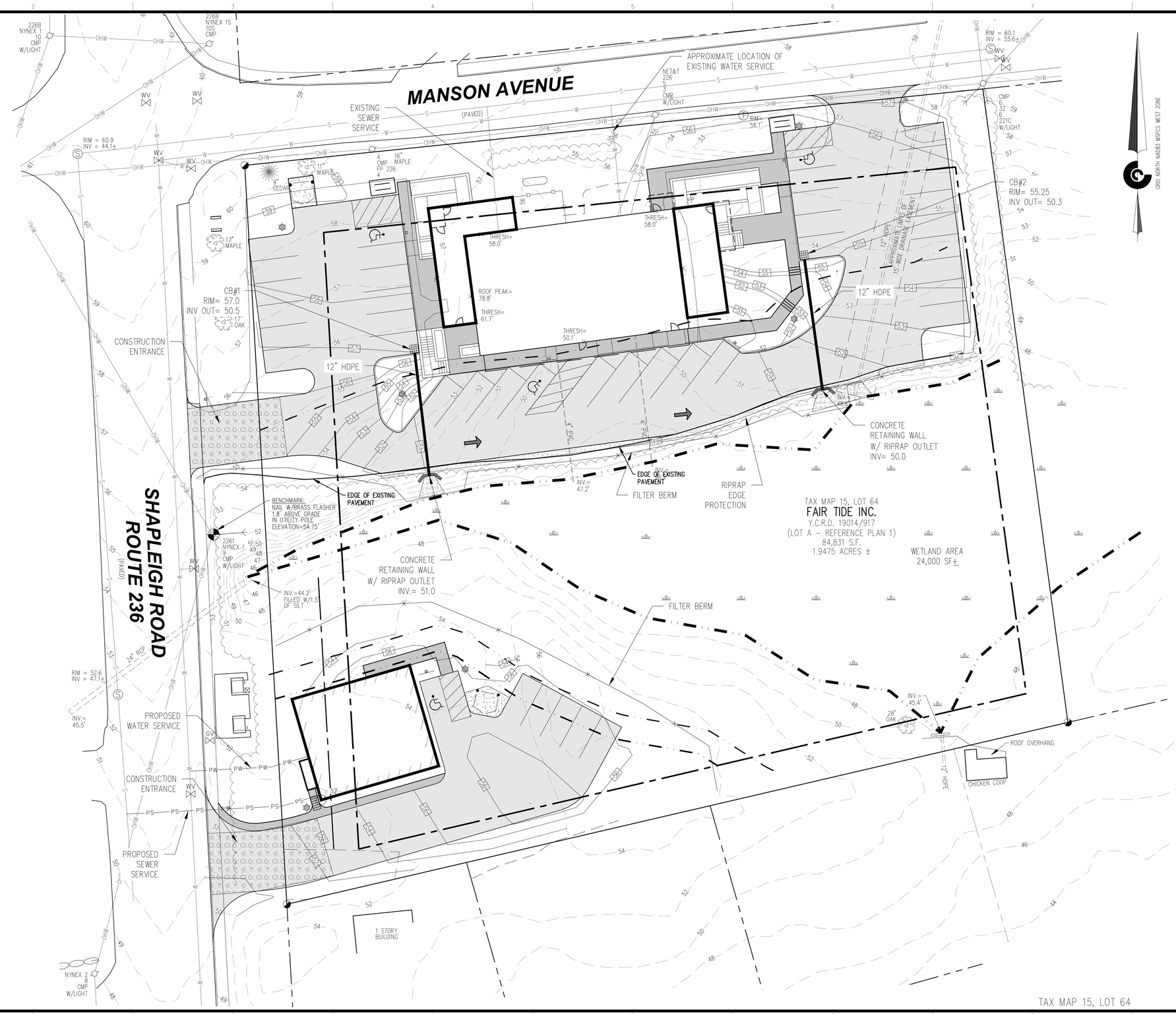
PROJECT NO: 21–335.00

L1

SHEET: 1 OF 3



LOCATION PLAN
(NOT TO SCALE)



PLAN APPROVED BY TOWN OF KITTERY PLANNING BOARD
CHAIR
DATE:

PREPARED FOR:
PRELIMINARY REVIEW
NOT FOR CONSTRUCTION
1/5/2023

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Planners
Surveyors
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Maine
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207-384-2550
www.civcon.com

NO.	REVISIONS	INT.	DATE
1			

RECORD OWNER:
FAIR TIDE, INC

OWNER ADDRESS:
15 STATE ROAD
KITTERY, ME 03904

PROPOSED BUILDING LAYOUT
TAX MAP 15, LOT 64
22 SHAPLEIGH ROAD
KITTERY, MAINE

PREPARED FOR:
FAIR TIDE INC.
15 STATE ROAD KITTERY, MAINE 03904

CLIENT ADDRESS:

1"=20'
0' 20'

DATE: 01/05/2023
DRAWN BY: JAA/GRA
CHECKED BY:
APPROVED BY:

UTILITY &
EROSION CONTROL
PLAN

PROJECT NO: 21-335.00

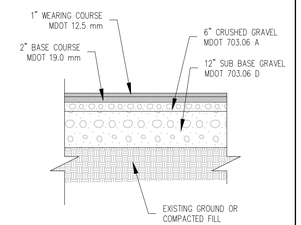
L2

SHEET: 2 OF 3

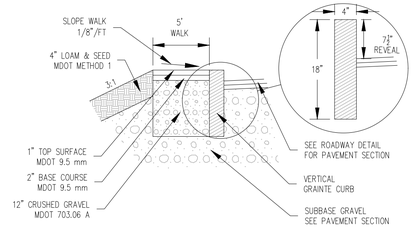
COORDINATE FILE: J:\AAA\(JOB NO)\CARLSON\SURVEYING\

CADD FILE: J:\aaa\2021\2133500\CARLSON\ENGR\2133500-SITE-OPT1.dwg

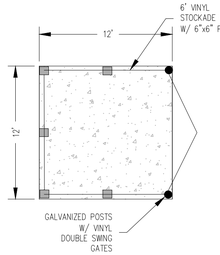
PLOT DATE: 1/5/2023



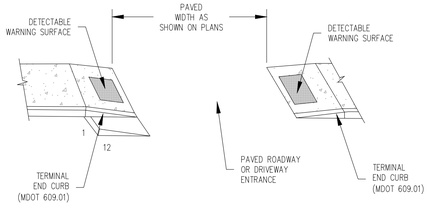
TYPICAL PAVEMENT SECTION
NOT TO SCALE

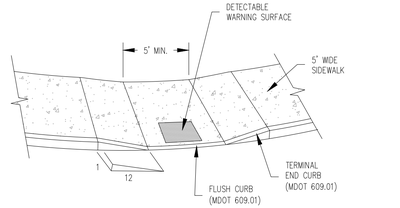


VERTICAL GRANITE CURB WITH SIDEWALK DETAIL
NOT TO SCALE



DUMPSTER ENCLOSURE DETAIL
NOT TO SCALE





NOTE:
ALL SIDEWALK AREAS TO HAVE DETECTABLE WARNING SURFACES TO BE INSTALLED TO MEET ADA REQUIREMENTS

TYPICAL SIDEWALK RAMP
NOT TO SCALE

EROSION AND SEDIMENT CONTROL PRACTICES

1. NO SOIL SHALL BE DISTURBED DURING THE PERIOD OF MARCH 1 THROUGH APRIL 15, NOR DURING ANY OTHER PERIOD WHEN SOILS ARE SATURATED DUE TO RAIN OR SNOW MELT.
2. DISTURBED SOILS SHALL BE STABILIZED WITHIN ONE (1) WEEK FROM THE TIME IT WAS LAST ACTIVELY WORKED USING TEMPORARY OR PERMANENT MEASURES SUCH AS PLACEMENT OF RIPRAP, MULCH OR EROSION CONTROL BLANKET, OR OTHER COMPARABLE MEASURES.
3. HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF AT LEAST ONE (1) BALE PER 500 SQUARE FEET (1–2 TONS PER ACRE).
4. IF MULCH IS LIKELY TO BE REMOVED DUE TO TO STEEP SLOPES OR WIND, IT SHALL BE ANCHORED WITH NETTING, PEG OR TWINE, OR OTHER SUITABLE METHOD AND SHALL BE MAINTAINED UNTIL A CATCH OF VEGETATION IS ESTABLISHED OVER THE ENTIRE DISTURBED AREA.
5. IN ADDITION TO PLACEMENT OF RIPRAP, MULCH OR EROSION CONTROL BLANKETS, ADDITIONAL STEPS SHALL BE TAKEN WHERE NECESSARY IN ORDER TO PREVENT SEDIMENTATION OF THE WATER. EVIDENCE OF SEDIMENTATION INCLUDES VISIBLE GULLY EROSION, DISCOLORATION OF WATER BY SUSPENDED PARTICLES AND SLUMPING OF BANKS, SILT FENCES, STAKED HAY BALES AND OTHER SEDIMENTATION CONTROL MEASURES, WHERE PLANNED FOR, SHALL BE IN PLACE PRIOR TO COMMENCEMENT OF WORK, BUT SHALL ALSO BE INSTALLED WHEREVER NECESSARY DUE TO SEDIMENTATION.
6. MULCH OR OTHER TEMPORARY MEASURES SHALL BE MAINTAINED UNTIL THE SITE IS PERMANENTLY STABILIZED WITH VEGETATION OR OTHER PERMANENT CONTROL MEASURES AFTER WHICH TEMPORARY MEASURES WILL BE REMOVED.
7. PERMANENT RE–VEGETATION OF ALL DISTURBED AREAS, USING NATIVE PLANT MATERIAL WHEN POSSIBLE, SHALL OCCUR WITHIN 30 DAYS FROM THE TIME THE AREAS WERE LAST ACTIVELY WORKED, OR FOR FALL AND WINTER ACTIVITIES, BY JUNE 15, EXCEPT WHERE PRECLUDED BY THE TYPE OF ACTIVITY (E.G. RIPRAP, ROAD SURFACES, ETC.). THE VEGETATIVE COVER SHALL BE MAINTAINED.
8. DISPOSAL OF COLLECTED DEBRIS MUST BE IN CONFORMANCE WITH MAINE SOLID WASTE LAW, TITLE 38 MRSA SECTION 1301 ET. SEQ.
9. LIME AND FERTILIZER APPLICATION RATES SHALL NOT EXCEED THE FOLLOWING:

   GROUND LIMESTONE: 3 TONS/ACRE (130 LBS./1000 S.F.)
   FERTILIZER, 10–10–10 OR EQUIVALENT: 600 LBS./ACRE
   (14 LBS./1000 S.F.)

FERTILIZER SHALL NOT BE APPLIED BEFORE START OF THE GROWING SEASON NOR AFTER SEPTEMBER 30. FERTILIZED AREAS SHALL BE MULCHED TO REDUCE OFF–SITE TRANSPORT OF NUTRIENTS UNTIL USED BY VEGETATIVE GROWTH.

SEEDING MIXTURE AND SCHEDULE:

SPREAD TOPSOIL UNIFORMLY 6" DEEP OVER AREAS TO BE RECLAIMED. THE FOLLOWING SEED MIXTURE SHALL BE USED:

LAWNS:

KENTUCKY BLUEGRASS	1.60 LBS./1000 S.F.
PERENNIAL RYE GRASS	0.40 LBS./1000 S.F.
TOTAL	2.00 LBS./1000 S.F.

APPLY LIME AND FERTILIZER AS SPECIFIED UNDER THE EROSION AND SEDIMENTATION CONTROL NOTES. WORK INTO THE TOP (4) INCHES OF SOIL PRIOR TO SEEDING. AFTER SEEDING, APPLY MULCH HAY AS SPECIFIED. ON FLAT AREAS AND NOT EXPOSED TO WIND, THE MULCH WILL BE ANCHORED BY WETTING DOWN. IN OTHER AREAS, JUTE NETTING SHALL BE USED FOR ANCHORAGE. THE ABOVE SEEDING SCHEDULE IS APPLICABLE IF SEEDING DURING THE GROWING SEASON (APRIL 15 TO JUNE 15 AND AUGUST 30 TO SEPTEMBER 30). BETWEEN JUNE 15 AND AUGUST 30, SEEDING WILL BE DELAYED UNTIL AUGUST 30. IF SOIL IS DISTURBED BETWEEN OCTOBER 1 AND NOVEMBER 1, DELAY SEEDING UNTIL NOVEMBER 1. AFTER NOVEMBER 1 AND BEFORE A SNOW COVER FORMS, THE SAME PROCEDURE WILL BE FOLLOWED EXCEPT THE SEED RATE WILL BE DOUBLED. AFTER SNOW COVER AND BEFORE APRIL 15, SEEDING WILL BE DELAYED UNTIL APRIL 15. HAY MULCH WILL BE APPLIED AT A RATE OF 150 LBS./1000 SQUARE FEET. THIS WILL BE ANCHORED BY NON–ASPHALTIC TACKIFIER SPRAYED ON LAWNS AND JUTE NETTING IN DRAINAGE WAYS AND OTHER AREAS.

PREPARED FOR:
PRELIMINARY
REVIEW
NOT FOR
CONSTRUCTION
1/5/2023

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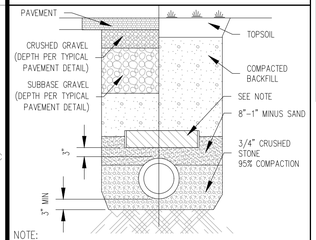
CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

NO.	REVISIONS	INT.	DATE
1			

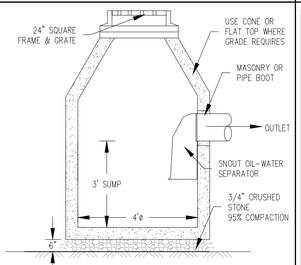
RECORD OWNER:
FAIR TIDE, INC

OWNER ADDRESS:
15 STATE ROAD
KITTERY, ME 03904

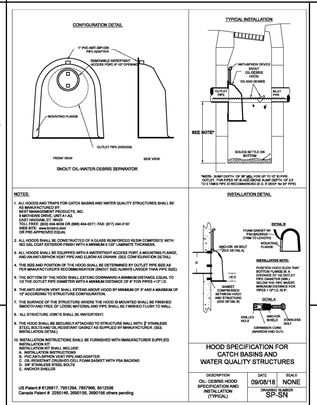


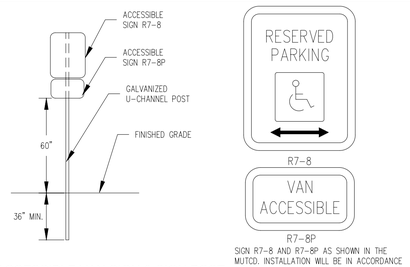
NOTE:
2"x2' STYROFOAM INSULATION BOARD SHALL BE PLACED IN AREAS WHERE COVER OVER LINE IS LESS THAN 2.5', OR WHERE SHOWN.

DRAINLINE TRENCH DETAIL
NOT TO SCALE



CATCH BASIN WITH SNOUT
NOT TO SCALE

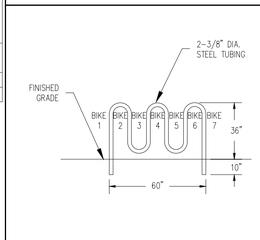




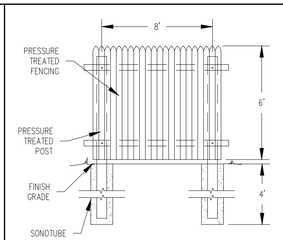
NOTES:
1. ALL SIGNAGE SHALL BE TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS AND MDOT STANDARDS.
2. SIGN, HARDWARE, AND INSTALLATION TO CONFORM TO MDOT STANDARD SPECIFICATIONS, SECTION 719 – SIGNING MATERIAL
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS/ CATALOGUE CUTS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ERECTING SIGNS.

SIGN R7–8 AND R7–8P AS SHOWN IN THE MUTCD. INSTALLATION WILL BE IN ACCORDANCE WITH THE MUTCD AND MDOT STANDARD SPECIFICATIONS SECTION 719 – SIGNING MATERIAL.

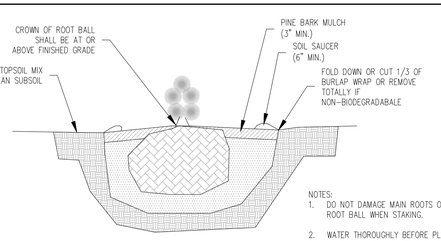
ACCESSIBLE VAN SIGN & SIGN POST
NOT TO SCALE



BIKE RACK
NOT TO SCALE

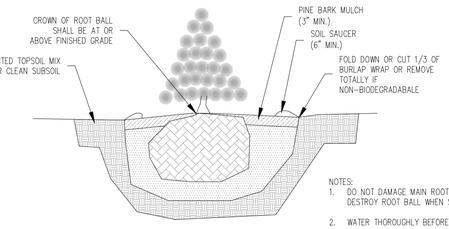


STOCKADE FENCE
NOT TO SCALE



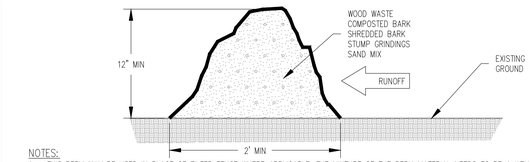
NOTES:
1. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN STAKING.
2. WATER THOROUGHLY BEFORE PLANTING
3. REMOVE ANY STAKES WITHIN TWO YEARS OF PLANTING

SHRUB PLANTING DETAIL
NOT TO SCALE



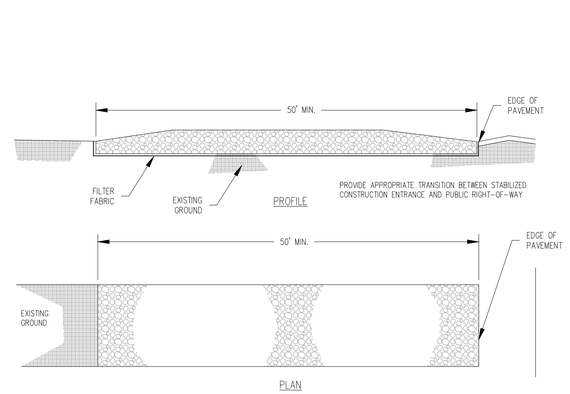
NOTES:
1. DO NOT DAMAGE MAIN ROOTS OR DESTROY ROOT BALL WHEN STAKING.
2. WATER THOROUGHLY BEFORE PLANTING
3. REMOVE ANY STAKES WITHIN TWO YEARS OF PLANTING

TREE PLANTING DETAIL
NOT TO SCALE



NOTES:
1. THIS BERM MAY BE USED IN PLACE OF FILTER FENCE WHERE APPLICABLE. THE MIXTURE OF THE BERM MATERIAL NEEDS TO BE A WELL–GRADE BLEND OF ORGANIC & MINERAL SUBSTANCE CONFORMING TO THE FOLLOWING STANDARDS:
   ORGANIC MATTER CONTENT: BETWEEN 80% AND 100%
   MOISTURE CONTENT: 30%–60%
   PH: BETWEEN 5.0 AND 8.0
   PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 5" SCREEN AND A MINIMUM OF 70% MAXIMUM OF 85%, PASSING A 0.75" SCREEN. LARGE PORTION OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE MIX
2. THE BERM SHALL BE PLACED ALONG A RELATIVELY LEVEL CONTOUR WHEREVER POSSIBLE. THE EXISTING SURFACE MUST BE SCOURED AND THE MIXTURE KEYED IN LIKE ANY OTHER SEDIMENT CONTROL MEASURE.

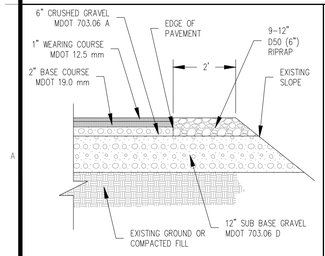
FILTER BERM DETAIL
NOT TO SCALE



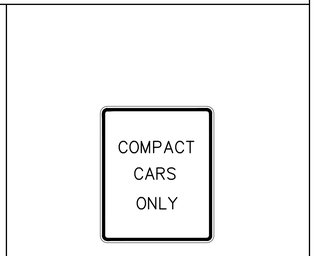
CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – AASHTO DESIGNATION M43, SIZE NO 2 (2–1/2" TO 1–1/2"). USE CRUSHED STONE.
2. LENGTH – AS EFFECTIVE, BUT NOT LESS THAT 50 FEET.
3. THICKNESS – NOT LESS THAN EIGHT (8) INCHES.
4. WIDTH – NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
5. WASHING – WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF–WAY. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH, OR WATER COURSE THROUGH USE OF SAND BAGS, GRAVEL, BOARDS, OR OTHER APPROVED METHODS.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS–OF–WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED, ONTO PUBLIC RIGHTS–OF–WAY MUST BE REMOVED IMMEDIATELY.

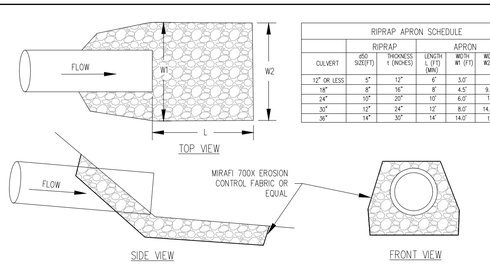
STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



RIPRAP EDGE PROTECTION
NOT TO SCALE



COMPACT CAR PARKING SIGN
NOT TO SCALE



RIPRAP APRON SCHEDULE					
	RIPRAP		APRON		
CULVERT	d50 SIZE(FT)	THICKNESS t (INCHES)	LENGTH L (FT) (MIN)	WIDTH W1 (FT)	WIDTH W2 (FT)
12" OR LESS	5"	12"	6'	3.0'	7'
18"	8"	16"	8'	4.5'	9.5'
24"	10"	20"	10'	6.0'	14'
30"	12"	24"	12'	8.0'	14.5'
36"	14"	30"	14'	14.0'	17'

RIPRAP APRON PIPE OUTLET DETAIL
NOT TO SCALE

UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL CONTACT DIGSAFE (1–888–344–7233) FOR LOCATION OF ALL EXISTING UTILITIES.

811 DigSafe MA·ME·NH·RI·VT

1"=20'
0' 20'

DATE: 01/05/2023
DRAWN BY: JAA/GRA
CHECKED BY:
APPROVED BY:

CONSTRUCTION DETAILS

PROJECT NO: 21–335.00

L3

SHEET: 3 OF 3

PROPOSED BUILDING LAYOUT
TAX MAP 15, LOT 64
22 SHAPLEIGH ROAD
KITTERY, MAINE

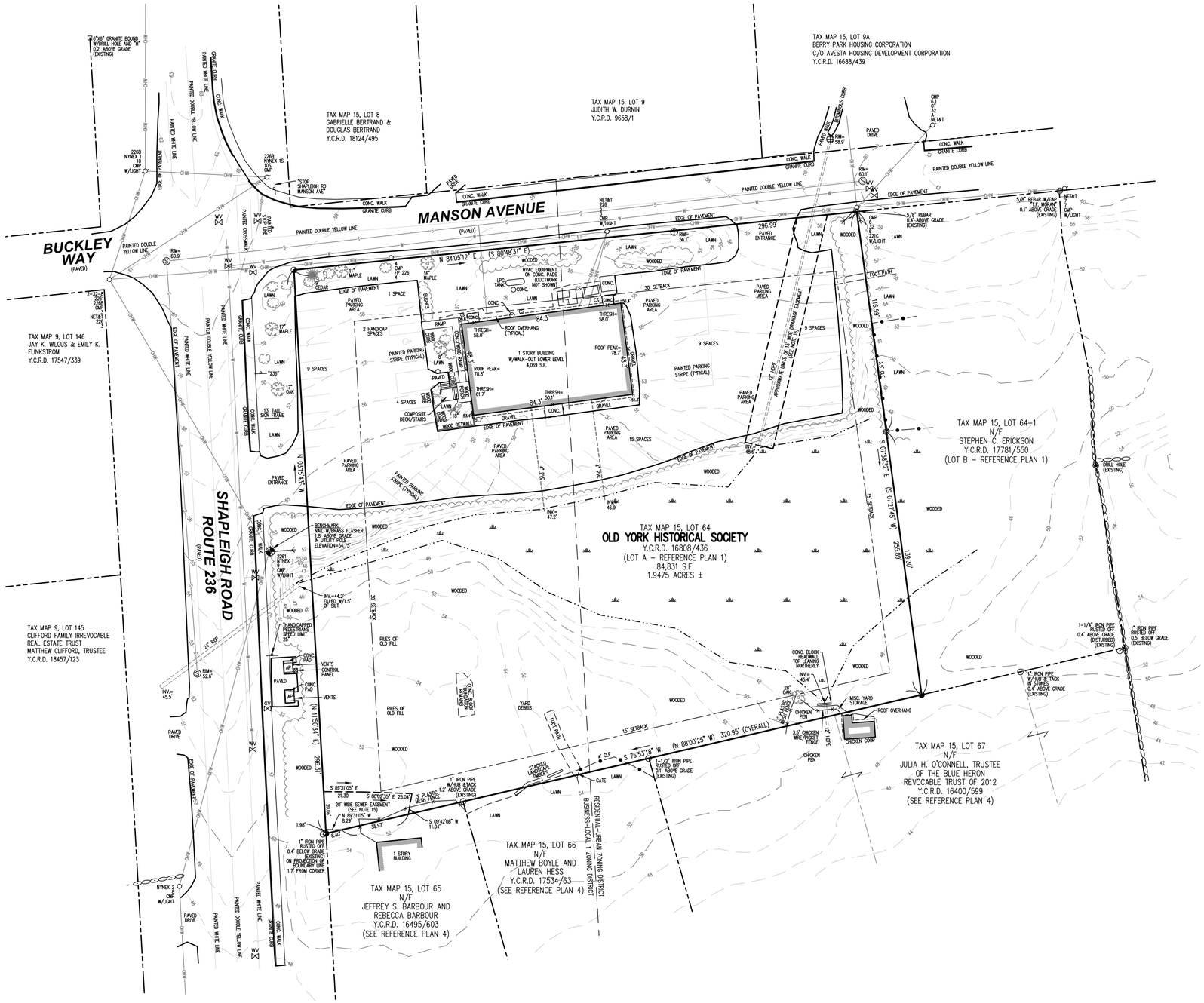
PREPARED FOR:
FAIR TIDE INC.
125 STATE ROAD KITTERY, MAINE 03904

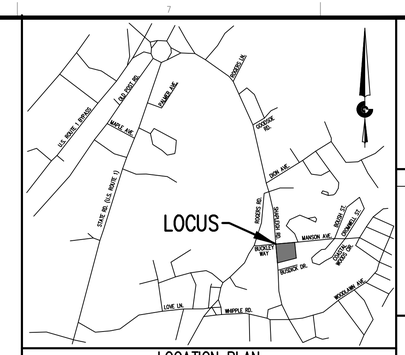
CLIENT ADDRESS:

COORDINATE FILE: J:\AAA\(JOB NO)\CARLSON\SURVEYING\

CADD FILE: J:\aaa\2021\2133500\CARLSON\ENGR\2133500–SITE–OPT1.dwg

PLOT DATE: 1/5/2023





GRID NORTH NAD83 MSPCS WEST ZONE

TOTAL EXISTING IMPERVIOUS COVERAGE INFO

TOTAL LOT		84,831 SF
PAVEMENT		22,446 SF
BUILDING FOOTPRINT W/ OVERHANG		4,589 SF
GRAVEL (SOUTH&EAST)		515 SF
GRAVEL (NORTH)		455 SF
CONCRETE UNDER UTILITIES (NORTH)		199 SF
CONCRETE/WOOD RAMP (WEST)		191 SF
WOOD CURB (WEST)		5 SF
DECK STAIRS (WEST)		69 SF
WOOD RETAINING WALL (WEST)		11 SF
TOTAL IMPERVIOUS COVERAGE		28,688 SF
IMPERVIOUS SURFACE RATIO	28,688 SF/84,831 SF X 100% =	33.82%

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CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

NO.	REVISIONS	INT.	DATE

RECORD OWNER:
OLD YORK HISTORICAL SOCIETY
ADDRESS:
P.O. BOX 312
YORK, ME 03909

EXISTING CONDITIONS PLAN
FAIR TIDE
22 SHAPLEIGH ROAD - TAX MAP 15, LOT 64
KITTERY, YORK COUNTY, MAINE

PREPARED FOR: FAIR TIDE
CLIENT ADDRESS: 15 STATE ROAD, KITTERY, ME 03904

1" = 30'
0' 30'

DATE: XXXXXXXXXXXX
DRAWN BY: MPP
CHECKED BY:
APPROVED BY:

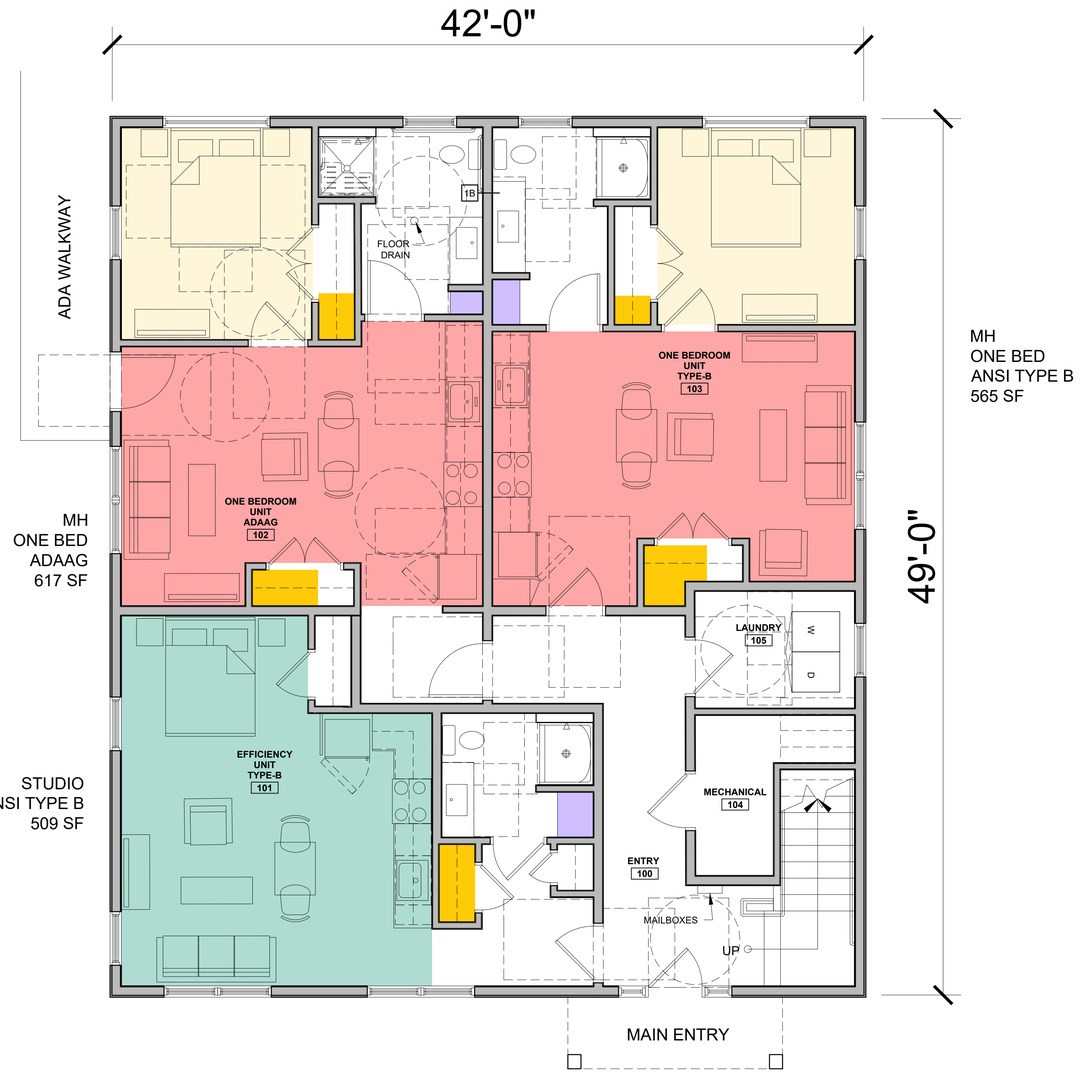
EXISTING SITE PLAN

PROJECT NO: 2133500

EC

SHEET: 1 OF 1

COORDINATE FILE: J:\AAA\2021\2133500\CARLSON\SURVEY\POINTS\2133500.CRD CADD FILE: J:\AAA\2021\2133500\CARLSON\ENGR\2133500-EX-SITE.DWG



MH
ONE BED
ADAAG
617 SF

MH
ONE BED
ANSI TYPE B
565 SF

STUDIO
ANSI TYPE B
509 SF

= BEDROOM (120 SF MIN. PRIMARY)
(80 SF MIN. SECONDARY)

= LIVING / DINING / KITCHEN
(270 SF 1 OR 2 BED) (300 SF 3 BED MIN.)

= KITCHEN / DINING / LIVING / SLEEPING
(320 SF MIN.)

= LINEN (10 / 15 SF MIN.)
(2 SF X 5 = 10 SF) (3 SF X 5 = 15 SF)

= STORAGE (50 / 100 / 150 FT3 MIN.)

PROJECT NORTH

0 4' 8' 16' 32'

1 FIRST FLOOR PLAN
1/4" = 1'-0"

APARTMENTS

22 SHAPLEIGH ROAD
KITTERY, MAINE

RSA
RYAN SENATORE
ARCHITECTURE
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
O: 207-747-5159
C: 207-650-6414
senatorearchitecture.com

CONSULTANTS:

REVISIONS:

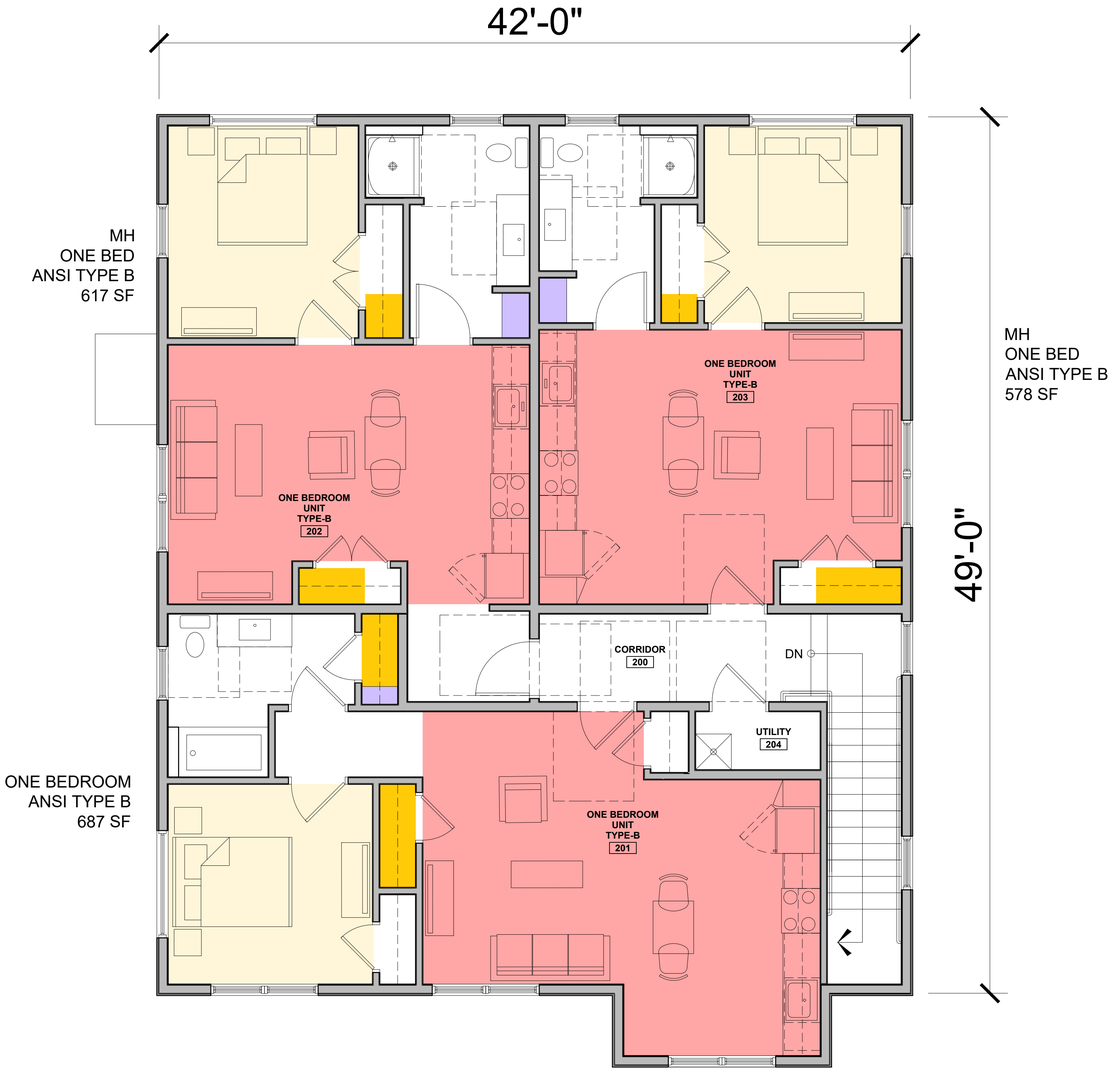
PROGRESS PRINT ONLY
Not for Construction
NOVEMBER 15, 2022

DATE:

PROJECT No.	2171
DRAWN BY:	RRT, RJS
CHECKED BY:	RJS
SCALE:	AS NOTED

SHEET TITLE:
FIRST FLOOR PLAN

A1-1



1 SECOND FLOOR PLAN
1/4" = 1'-0"

APARTMENTS

22 SHAPLEIGH ROAD
KITTERY, MAINE

RSA
RYAN SENATORE
ARCHITECTURE
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
O: 207-747-5159
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senatorearchitecture.com

CONSULTANTS:

REVISIONS:

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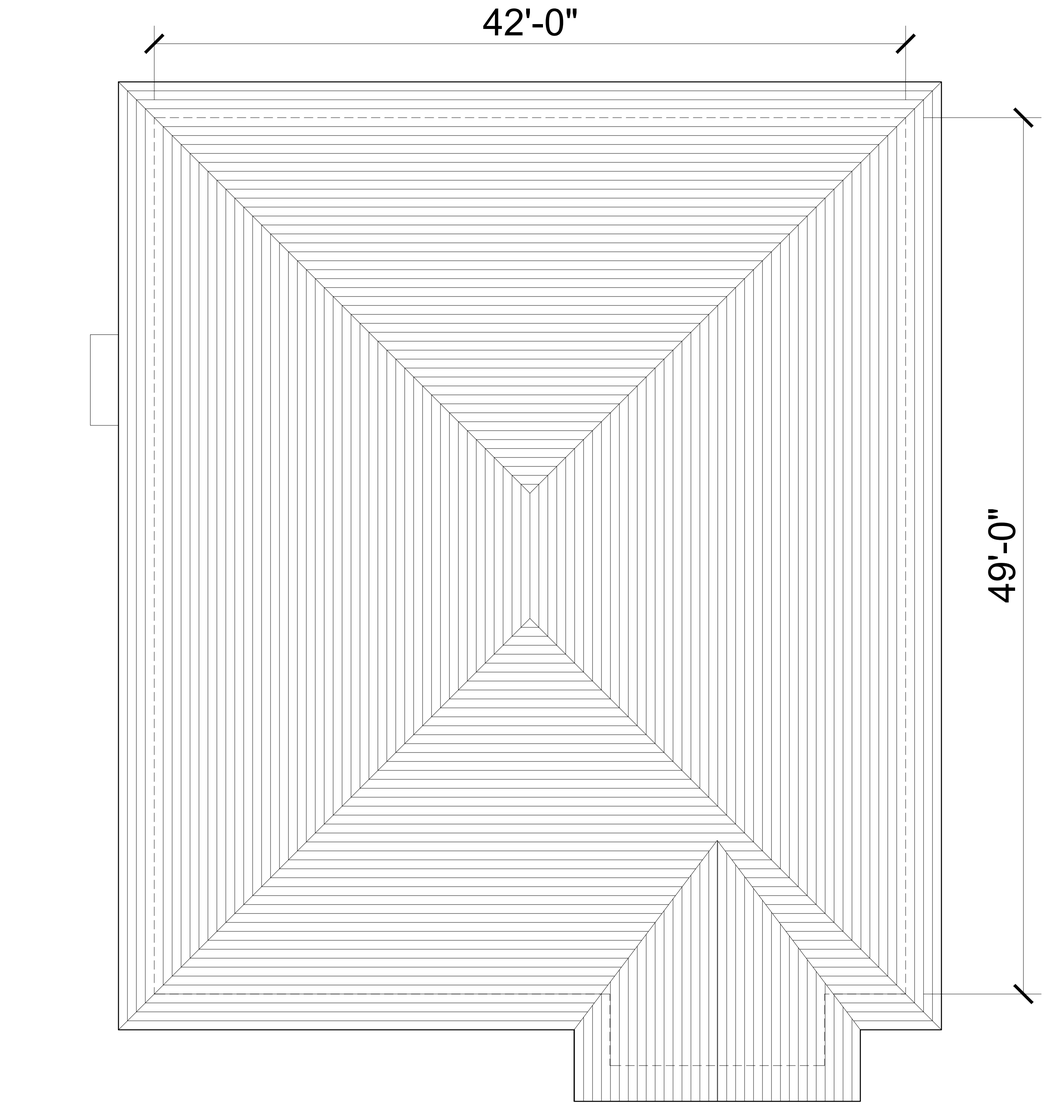
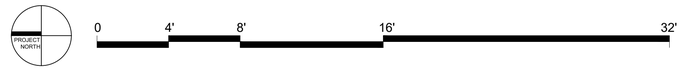
DATE:	
PROJECT No.	2171
DRAWN BY:	RRT, RJS
CHECKED BY:	RJS
SCALE:	AS NOTED

SHEET TITLE:
SECOND FLOOR PLAN

A1-2





1 ROOF PLAN
1/4" = 1'-0"

APARTMENTS

22 SHAPLEIGH ROAD
KITTERY, MAINE

RSA
RYAN SENATORE
ARCHITECTURE
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
O: 207-747-5159
C: 207-650-6414
senatorearchitecture.com

CONSULTANTS:

REVISIONS:

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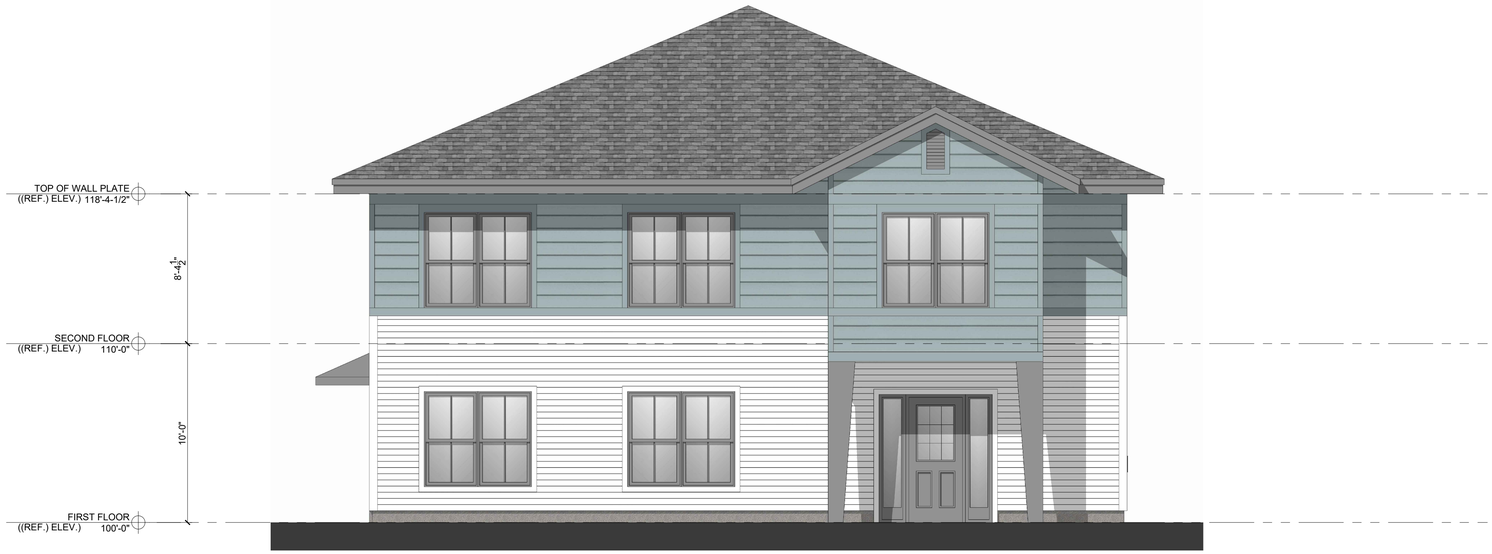
Not for Construction
NOVEMBER 15, 2022

DATE:

PROJECT No.	2171
DRAWN BY:	RRT, RJS
CHECKED BY:	RJS
SCALE:	AS NOTED

SHEET TITLE:
ROOF PLAN

A1-3



2 WEST ELEVATION
1/4" = 1'-0"

1 SOUTH ELEVATION
1/4" = 1'-0"

APARTMENTS

22 SHAPLEIGH ROAD
KITTERY, MAINE

RSA
RYAN SENATORE
ARCHITECTURE
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CHECKED BY:	RJS
SCALE:	AS NOTED

SHEET TITLE:
ELEVATIONS

A2-0

2 EAST ELEVATION
1/4" = 1'-0"

1 NORTH ELEVATION
1/4" = 1'-0"

APARTMENTS

22 SHAPLEIGH ROAD
KITTERY, MAINE

RSA
RYAN SENATORE
ARCHITECTURE
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
O: 207-747-5159
C: 207-650-6414
senatorearchitecture.com

CONSULTANTS:

REVISIONS:

PROGRESS PRINT ONLY
Not for Construction
NOVEMBER 15, 2022

DATE:	
PROJECT No.	2171
DRAWN BY:	RRT, RJS
CHECKED BY:	RJS
SCALE:	AS NOTED

SHEET TITLE:
ELEVATIONS

A2-1

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

NOVEMBER 11, 2022

1 COLOR OPTION 1-1
NTS

PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

NOVEMBER 11, 2022

1 COLOR OPTION 1-2
NTS

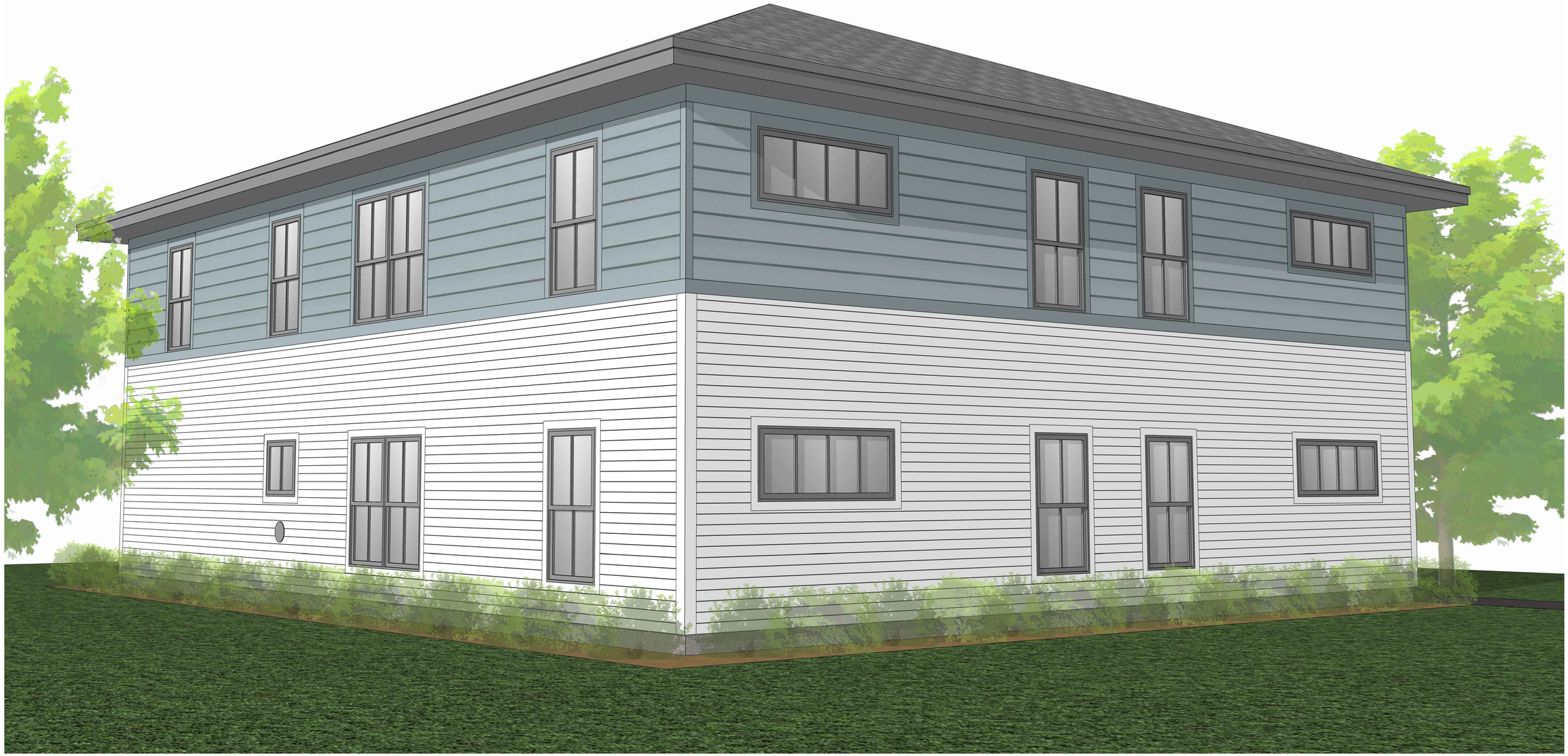
PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

NOVEMBER 11, 2022



1 COLOR OPTION 1-3
NTS

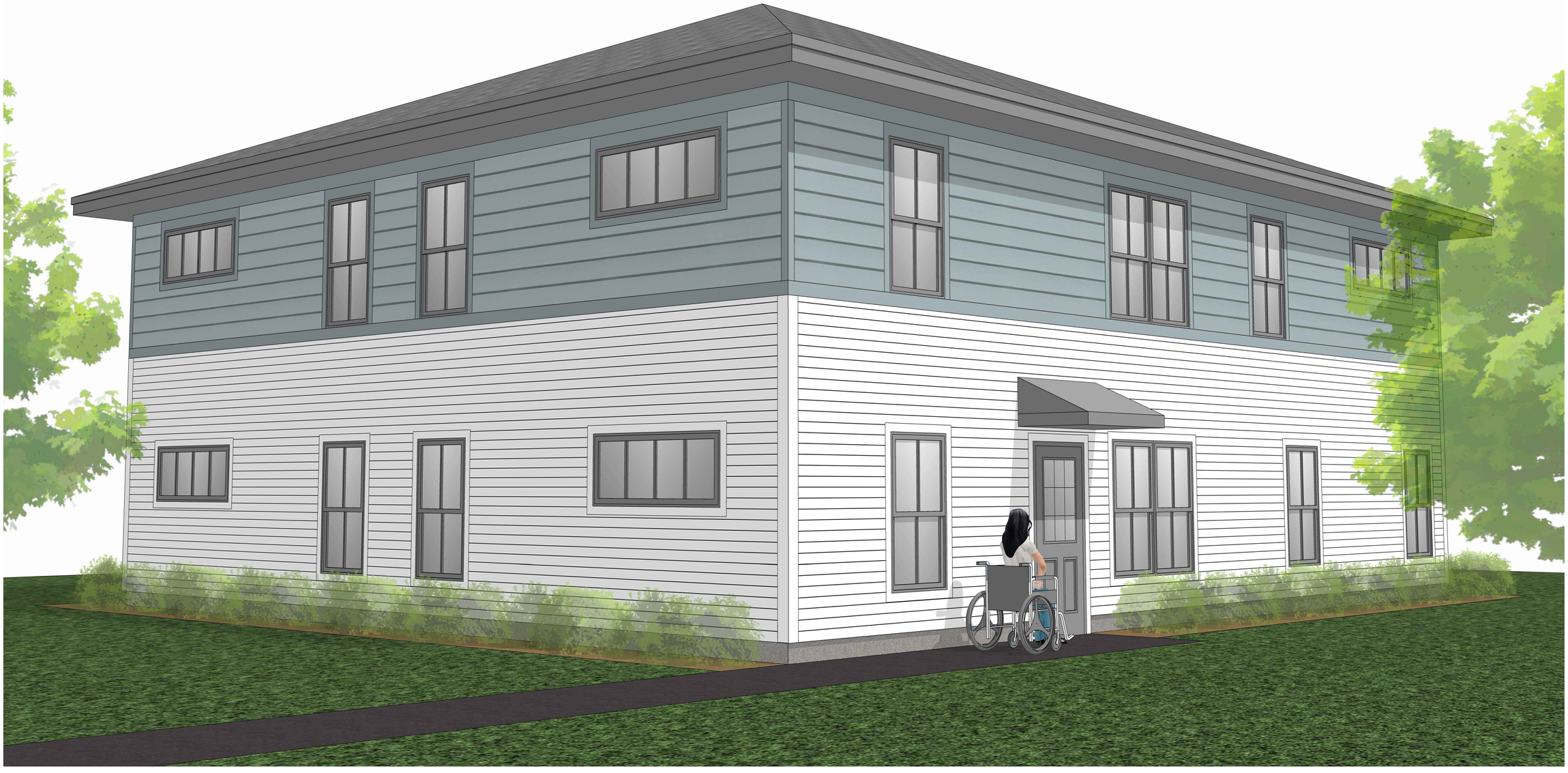
PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

NOVEMBER 11, 2022



1 COLOR OPTION 1-4
NTS

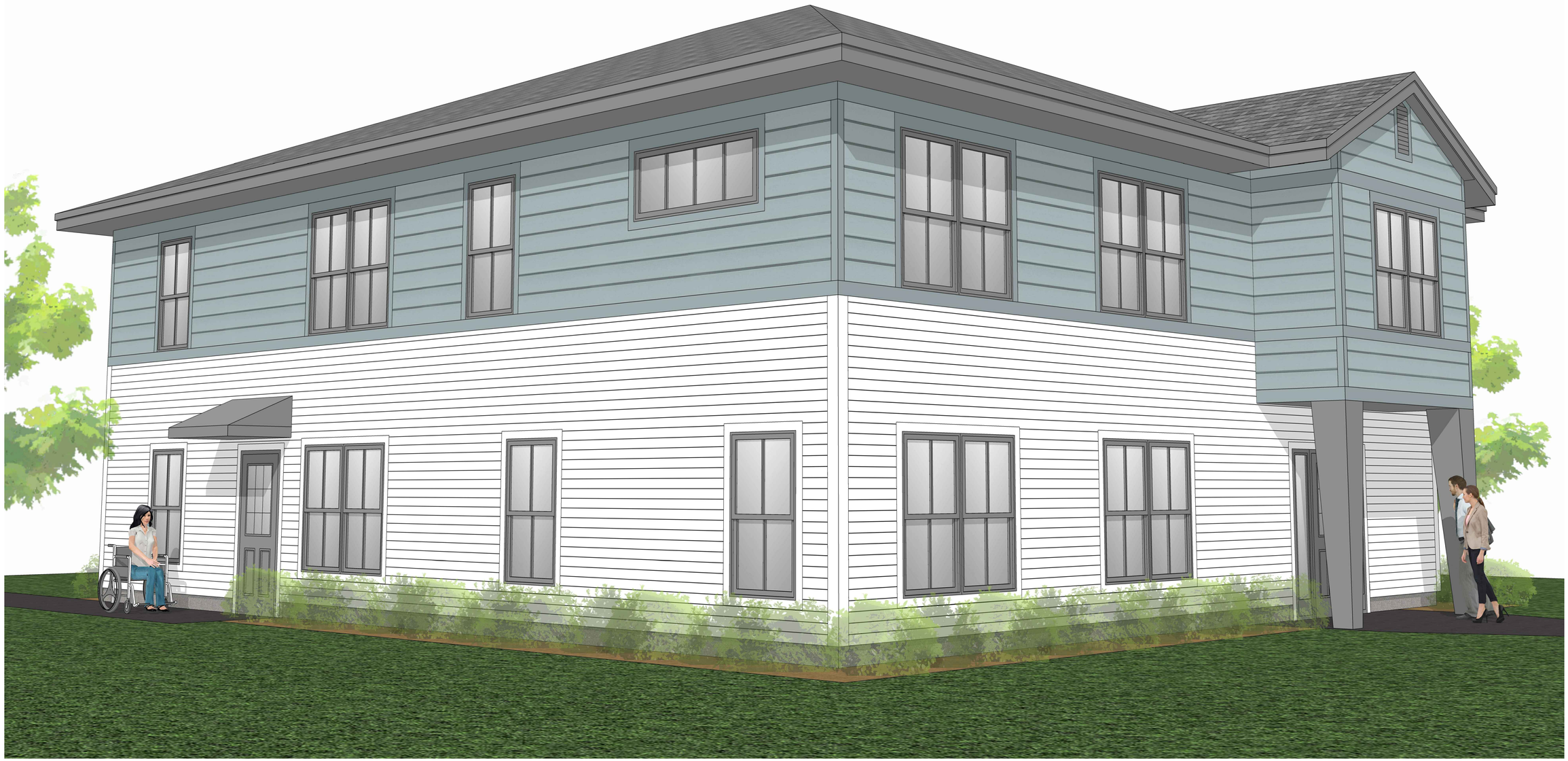
PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

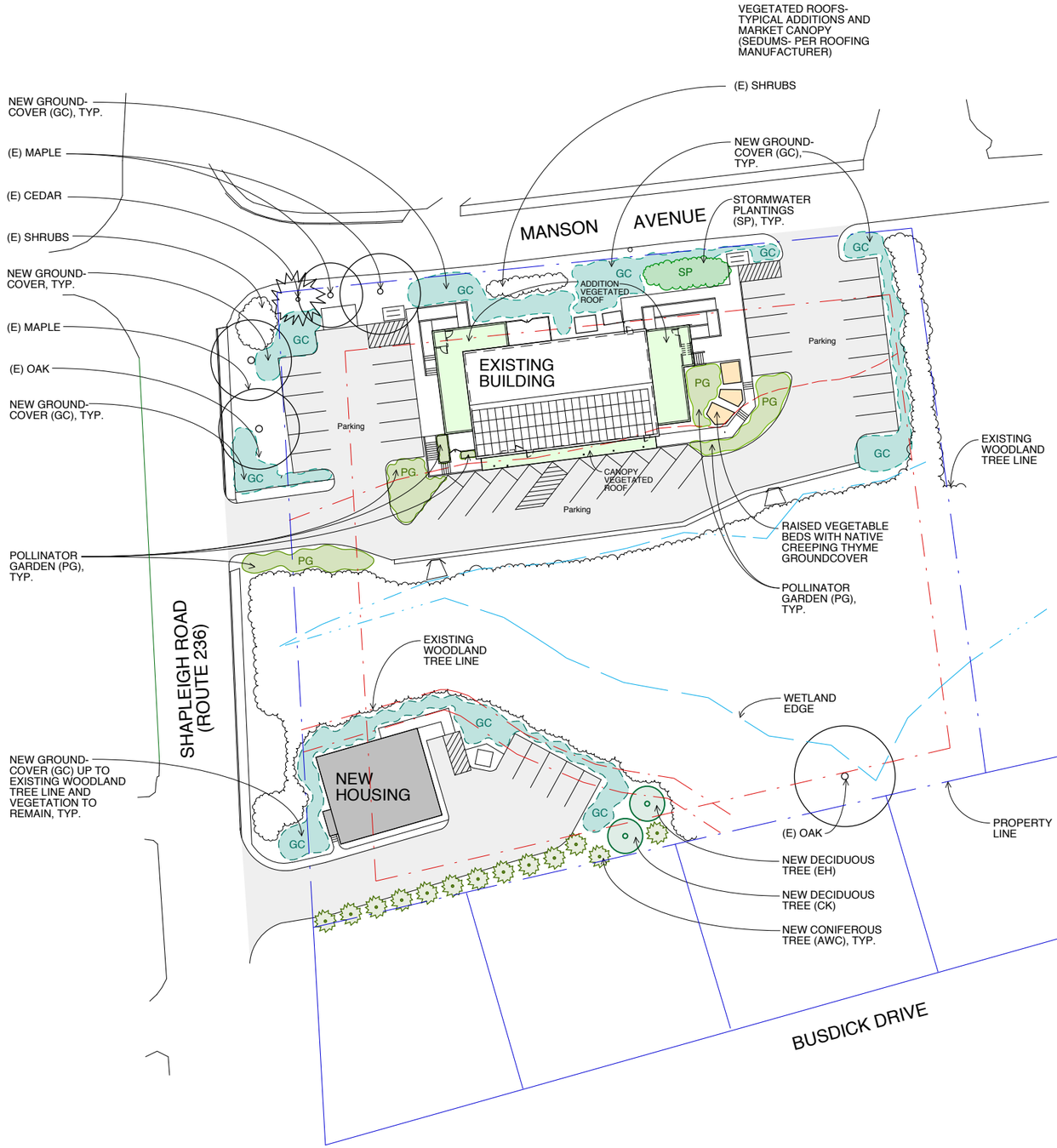
NOVEMBER 11, 2022



1 COLOR OPTION 1-5
NTS

PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**



DESIGN TEAM:

LANDSCAPE ARCHITECT:
SOREN DENOIRD DESIGN STUDIO
Portland, ME

MAINSPRING ARCHITECT:
ARQ ARCHITECTS
Kittery, ME

HOUSING ARCHITECT:
RYAN SENATORE ARCHITECTURE
Portland, ME

PLANT GROUPING NOTES:

PLANTS TO BE ARRANGED IN DRIFTS PER LANDSCAPE ARCHITECT IN FIELD PRIOR TO PLANTING

STORMWATER GARDEN (CS,CA,IV,IR,PA)

POLINATOR GARDEN (EP,EC,SA, SH,RA) @ BANK EDGE OF RAINGARDENS

DECIDUOUS TREES (CK,EH)

CONIFEROUS TREES (AWC)

PERENNIAL GROUNDCOVER, UON @ DISTURBED AREAS

VEGETATED ROOFS (SEDUMS- PER ROOFING MANUFACTURER)

PLANT SCHEDULE				
ID	BOTANICAL NAME	COMMON NAME	SIZE	
CONIFEROUS TREES				
AWC	CHAMAECYPARIS THYOIDES	ATLANTIC WHITE CEDAR 4' OC	4'-6'	
DECIDUOUS TREES				
CK	CORNUS KOUSA	KOUSA DOGWOOD	10'-12'	
EH	CARPINUS BETULUS	EUROPEAN HORNBEAM	10'-12'	
STORM-WATER GARDEN (SG)		Perennials/Grasses 24" OC, Shrubs 4' OC		
CS	CORNUS SERICEA	RED TWIGGED DOGWOOD	5 GAL.	
CA	CLETHRA ALN.	SUMMER SWEET	5 GAL.	
IV	ILEX VERTICILATTA	WINTERBERRY HOLLY	5 GAL.	
IR	IRIS VERSICOLOR	BLUE FLAG IRIS	PLUG	
PA	PANICUM	SWITCHGRASS	PLUG	
POLLINATOR GARDEN (PG)		Perennials/Grasses 24" OC, Shrubs 4' OC		
EP	EUTROCHIUM PURPUREAUM	JOE PYE WEED	1 GAL.	
EC	ECHINAEA PURPUREAUM	CONE FLOWER	1 GAL.	
SA	SALVIA	MEADOW SAGE "May Night"	1 GAL.	
SH	SPOROBOLUS HETEROLEPSIS	PRAIRIE DROP SEED	PLUG	
RA	RHUS AROMAICA	LOW GROUND SUMAC	5 GAL.	
VEGETATED ROOF - SEDUM TELEPHIUM - AUTUMN JOY SEDUM				
PERENNIAL GROUNDCOVER (GC)				
HS	HEMEROCALLIS SPECIES	DAYLILLIES	1 GAL.	
PAT	PEROVSKIA ATRIPLICIFOLA	RUSSIAN SAGE	1 GAL.	

SYMBOLS LEGEND	
EXISTING DECIDUOUS TREE	PROPOSED DECIDUOUS TREE (SHADED)
EXISTING EVERGREEN TREE	PROPOSED EVERGREEN TREE

PLANTING NOTES:

1. THE CONTRACTOR SHALL PREPARE PLANTING ZONES TO THE GRADES AND DEPTHS AS INDICATED ON THE DRAWINGS.

2. IF THE CONTRACTOR DETERMINES THE SUB-GRADE SOIL CONDITIONS ARE DELETERIOUS TO PLANT GROWTH OR WILL INHIBIT DRAINAGE, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY AND PRIOR TO INSTALLATION OF PLANT MATERIAL.

3. TOPSOIL SHALL BE FREE FROM SUBSOIL, STONES LARGER THAN 1", OR ANY UNDESIRABLE MATERIAL; CONTAIN 5% ORGANIC MATTER AND HAVE A pH SUITABLE TO THE LOCAL GROWING CONDITIONS.

4. ALL PLANTS TO BE SELECTED AND SEALED IN THE FIELD BY THE LANDSCAPE DESIGNER OR SELECTED BY THE LANDSCAPE CONTRACTOR, AND APPROVED BY LANDSCAPE DESIGNER.

5. THE PLANT LIST IS PROVIDED AS A CONVENIENCE TO THE CONTRACTOR. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLANT COUNT SHOWN IN THE SCHEDULE AND THE DRAWING, THE DRAWING SHALL TAKE PRECEDENCE.

6. ALL TRANSPLANTED SHRUBS SHALL BE "HEELED IN" OR HEAVILY MULCHED IN A SHADED AREA AND WATERED AS NECESSARY UNTIL THEY CAN BE PLANTED.

7. FINAL LOCATION OF ALL PLANTS TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECTS PRIOR TO INSTALLATION OF PLANT MATERIAL.

8. PLANTS SHALL BEAR SAME RELATIONSHIP TO FINISHED GRADE AS THE BORE TO THE EXISTING GRADE IN THE NURSERY.

9. CUT AND REMOVE BURLAP FROM TOP 1/3 OF BALL. CUT AND REMOVE AT LEAST 1/3-1/2 OF WIRE BASKET. NYLON ROPE AND / OR NYLON BALLING MATERIAL IS NOT ACCEPTABLE.

10. LOCATE GUY WIRES AROUND MAIN TRUNK OF TREE.

11. PLANT PERENNIALS AND GROUNDCOVER IN 12" DEEP TOPSOIL BED CONSISTING OF 2/3 TOPSOIL AND 1/3 HUMUS.

12. TOPSOIL AND SEED ALL AREAS DISTURBED AS A RESULT OF ANY AND ALL DISTURBANCES, CONSTRUCTION, OR STORAGE OF EQUIPMENT WHETHER SUCH AREAS ARE SHOWN ON THE PLANS OR NOT. (SEE GRADING PLAN)

13. ALL PLANTS AND ENTIRE SHRUB BEDS TO RECEIVE 12" OF CASSELA'S ORGANICS OR EQUAL (40% COMPOST / 60% LOAM) AND A 3" LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH.

14. UPON COMPLETION OF THE ONE (1) YEAR PLANT GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING OR REMOVING ALL STAKES. THIS SHALL BE DONE IN CONSULTATION WITH THE LANDSCAPE ARCHITECT.

15. ALL TREE PLANTING AND REMOVAL TO COMPLY WITH LOCAL AND STATE TREE ORDINANCES.

MAINSPRING

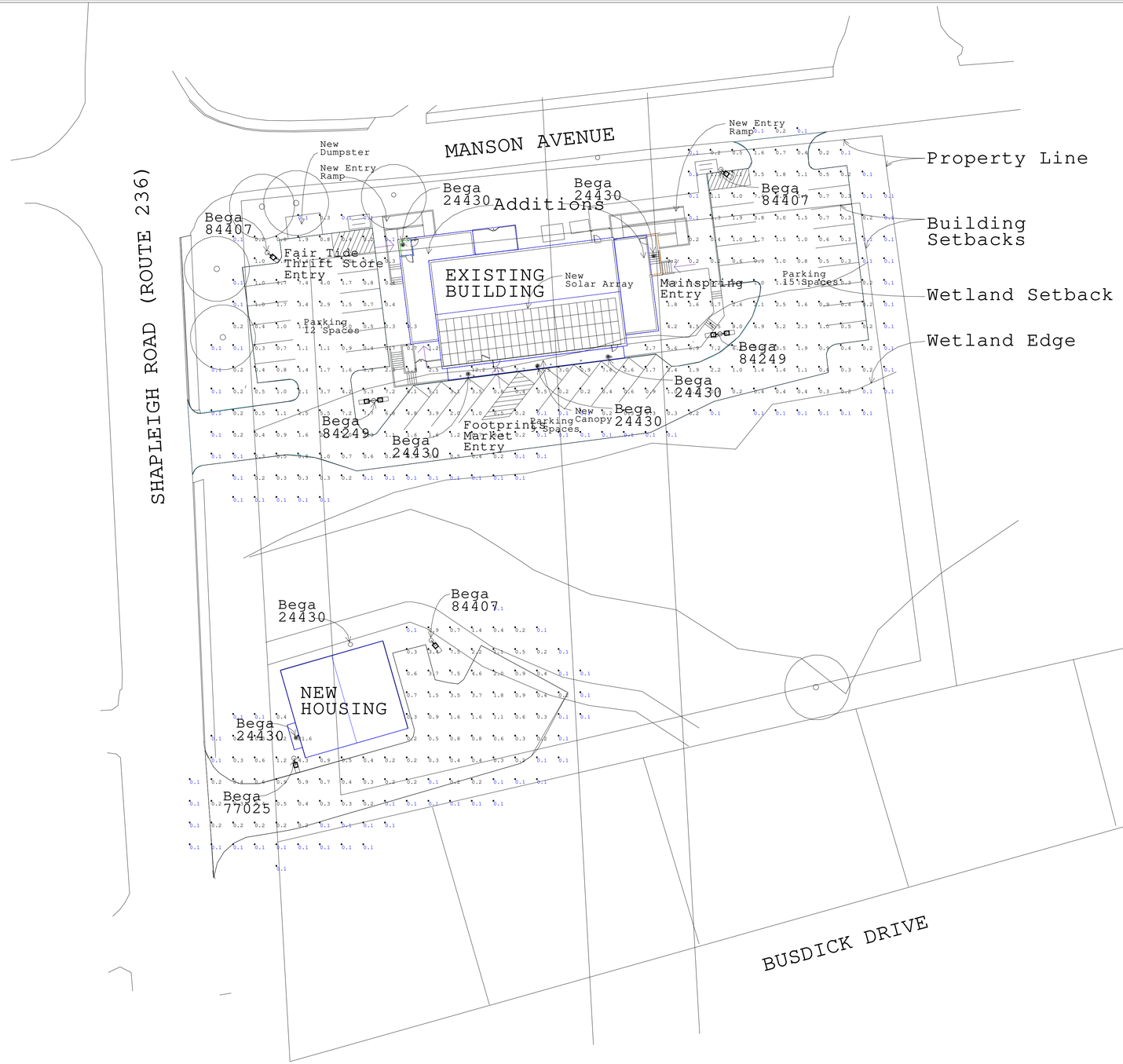
22 SHAPLEIGH ROAD, KITTERY, MAINE

JANUARY 5, 2023

Site Landscape Plan

N 0 6 12 24 48

ARQ Architects



SITE PLAN- OVERALL

Exterior Lighting Review
December 28, 2022

Luminaire Schedule

Symbol	Tag	Qty	Label	Arrangement	LLF	Description	Lum. Watts	Lum. Lumens
		2	84249K3_BEGA_IES	Back-Back	1.000	ASYMMETRIC TWIN POLE TOP LUMINAIRE	62	6672
		1	77025_BEGA_IES	Single	1.000	2000 LUMEN POLE TOP LUMINAIRE	20	2091
		6	24430K3_BEGA_IES	Single	1.000	2000 LUMEN SURFACE CYLINDER	20	2090
		3	84407_BEGA_IES	Single	1.000	6600 LUMEN POLE TOP LUMINAIRE	61	6672

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
ENTRY_Floor	Illuminance	Fc	18.04	21.7	13.6	1.33	1.60	0
GRID AT GRADE	Illuminance	Fc	1.24	21.6	0.1	12.40	216.00	0
NEW HOUSING PARKING	Illuminance	Fc	0.77	4.6	0.1	7.70	46.00	
STORE & MARKET PARKING	Illuminance	Fc	1.51	7.6	0.1	15.10	76.00	

illuminate

#	Date	Comments

Revisions

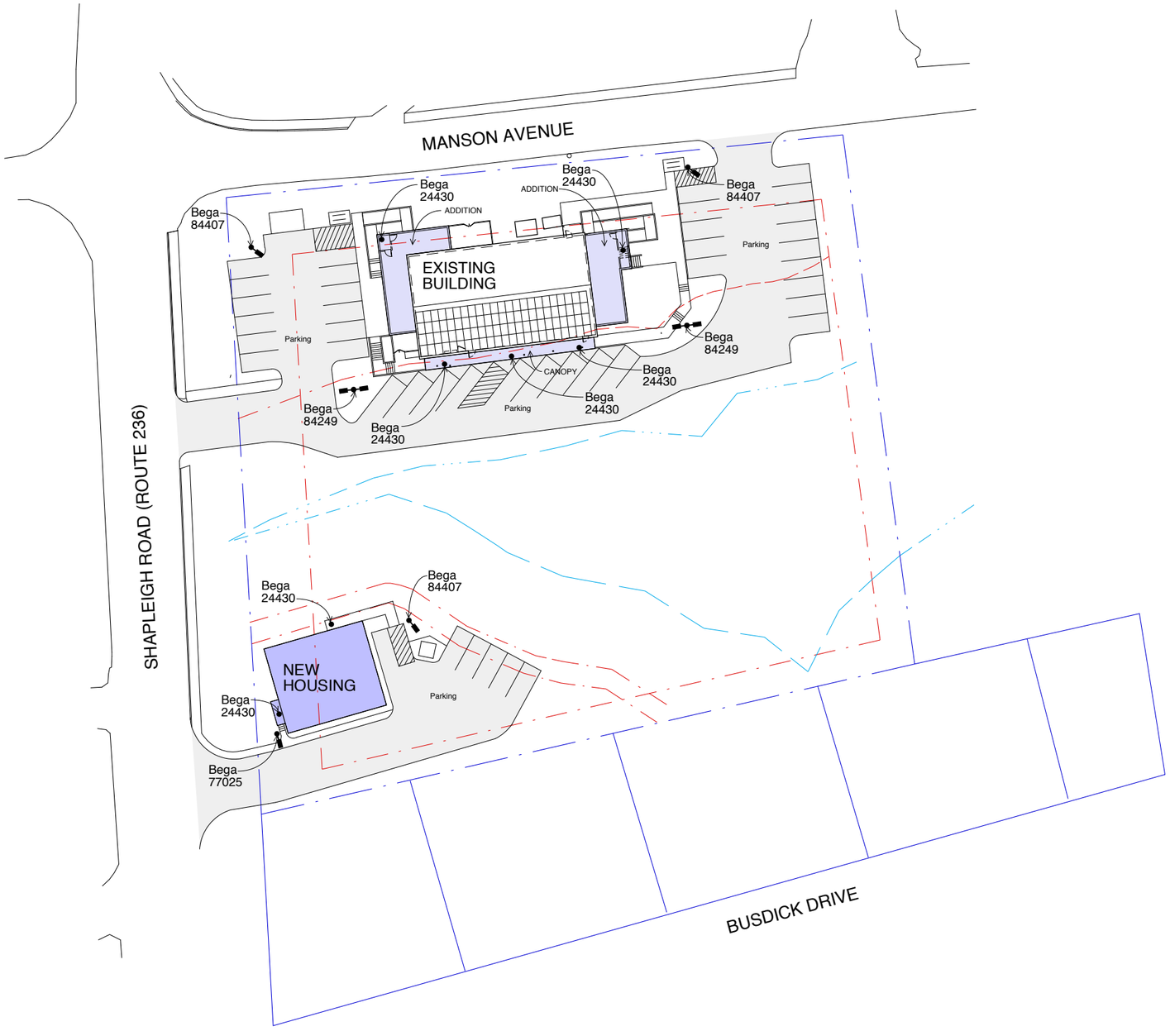
Drawn By:
Checked By:
Date:1/4/2023

Civil Consultants, 293 Main St, Berwick, ME

Scale: NTS

MAINSPRING
22 SHAPLEIGH RD, KITTERY, ME

PROPOSED SITE LIGHTING



FIXTURE TYPE 1: BEGA 84407

Single Head

Lamp:	55.3 W
CRI:	4000 K
Lumens:	6,672 lumen
Finish:	Black
BUG Rating:	B1-U0-G1

Full Cut-Off, Pole-Mounted 20'-0" Above ground

FIXTURE TYPE 2: BEGA 77025

Single Head

Lamp:	15.8 W
CRI:	4000 K
Lumens:	2,090 lumen
Finish:	Black
BUG Rating:	B1-U0-G1

Full Cut-Off, Pole-mounted 20'-0" Above ground

FIXTURE TYPE 3: BEGA 84249

Dual Head

Lamp:	55.3 W
CRI:	4000 K
Lumens:	6,672 lumen
Finish:	Black
BUG Rating:	B1-U0-G1

Full Cut-Off Pole-mounted 20'-0" Above ground

FIXTURE TYPE 4: BEGA 24430

Single-Head

Lamp:	15.8 W
CRI:	4000 K
Lumens:	2,134 lumen
Finish:	Black

Ceiling-Mounted Under Canopy - Concealed by Fascia

SITE LIGHTING NOTES:

1. Site lighting ixtures to follow the requirements of the Kittery Design Handbook and Town Code.

2. Pole-mounted fixtures to be full cut-off type mounted no higher than 20'-0" above ground as required by Town Code.

3. Lighting at the property lines abutting residential properties most not exceed 0.1 footcandles.

4. Unshielded light bulbs are not allowed.

5. Where commercial properties abut resdiential areas, lighting in parking lots should be reduced to an average of 0.2 footcabndles within one hour after closing.

6. The illumination of access drives must provide for a uniformity ratio of not more than 4:1 (ratio of average to minimum luminance). The illumination of parking lots and outdoor sales and service areas must provide for a uniformity ratio of not more than 20:1 (ratio of maximum to minimum luminance).

7. The maximum illumination level within access drives, parking lots and sales and service areas may not exceed eight footcandles measured at the ground suface.

MAINSPRING

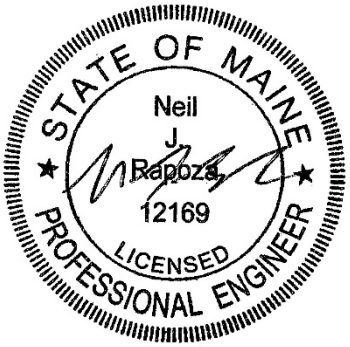
22 SHAPLEIGH ROAD, KITTERY, MAINE

JANUARY 5, 2023

Light Fixture Data

N 0 6 12 24 48

ARQ Architects



The seal affixed above applies to this report and all attachments including the HydroCAD calculations, Stormwater Plans D1, D2

Site Plan Application
Stormwater Management Plan

"FAIR TIDE, INC."
KITTERY, MAINE

Prepared for

Fair Tide, Inc.
15 State Road
Kittery, ME 03904

January 2023

Site Plan Application

STORMWATER MANAGEMENT PLAN

"Fair Tide, Inc."
22 Shapleigh Road
Kittery, Maine

Prepared for:

Fair Tide, Inc.
15 State Rd.
Kittery, ME 03904

January 2023

INTRODUCTION:

The proposed development is located at 22 Shapleigh Road in Kittery, Maine. The lot is known as Map 15, Lot 64 on the Town of Kittery tax map system. The existing lot contains approximately 1.95 acres of land, of which 0.61 acres is impervious coverage.

There is an existing 4,070 SF commercial building on the property. This building and the associated parking will be redeveloped for use as described in the site plan application.

The developed portion of the site contains a large parking lot and surrounding grass cover. A wetland is located in the middle of the lot that has an approximate area of 24,000 SF. Culverts convey flow into the on-site wetland across Shapleigh Road and Manson Avenue, with a single culvert outlet draining to the south.

The new development will consist of the construction of a building housing three units with a new associated parking lot. This portion of the development will gain access to the site via a new entrance from Shapleigh Road.

The project will disturb less than an acre and will not require DEP review. The impervious area of the site will increase by approximately 0.12 acres

DESIGN REQUIREMENTS:

Section 16.7.11.C(4) of the Town of Kittery Land Use and Development Code requires post-development peak discharges be limited to pre-development levels for a 2- year and 25-year, 24 hour storm (Portsmouth, NH storm intensities).

The analysis for this report includes the 2-year and 25-year events to predict the downstream effects of the proposed site coverage changes.

EXISTING DRAINAGE CONDITIONS:

The existing lot generally slopes from the perimeter inward to an on-site wetland. The wetland outlets to the south property line through a 12" culvert, modeled as OUT 1.

A small portion drains southwest to Shapleigh Road. The flows to this area are modeled as OUT 2.

The analysis of the existing drainage has been limited in extent to the property line. This is justified by the fact that all stormwater is directed away from the property due to natural grades.

Based on the Medium Intensity Soil Survey obtained from the NRCA Web Soil Survey website, soils in the watershed were found to be entirely hydrologic soil type D soils. See sheet D1 for the pre-development drainage conditions.

The area to be developed is not located in a flood zone. A copy of the applicable

FEMA map is included in the Town Site Plan Application.

PROPOSED DRAINAGE:

The proposed site has been designed to limit post-development flows off site to pre-development levels during 2-year and 25-year storms. This will ensure that there are minimal adverse downstream impacts as a result of the new development.

The redevelopment of the northern portion of the lot will result in a reduction of approximately 3,300 SF of impervious area, with some areas of existing pavement converted to grass and other areas of existing landscape planters becoming accessible walkways.

The portion of the development at the southwest corner will create approximately 7,700 SF of new impervious. The development as proposed will direct some of this subcatchment to the large on-site wetland, resulting in flows to Shapleigh Road that generally match those modeled in the pre-developed condition.

ANALYSIS:

The overall perimeter of the watershed remained the same for both Pre- and Post Development analyses. There were three sub-catchments identified in the Pre-Development analysis and eight in the Post-Development analysis.

Two distinct discharge points were used to compare the pre- and post-development storm water flows to ensure the town standards were met.

For further details regarding subcatchment determination, refer to the project drawings and D1 & D2 included with this report.

METHODOLOGY:

All runoff calculations were performed using methods based on USDA–SCS Technical Release No. 20 (also known as TR-20). The 2- and 25-year events for the city of Portsmouth, NH (Type III rainfall distribution) were used for the analysis to determine the pre- and post-development peak discharge rates per Town of Kittery requirements. Rainfall data was obtained from the Extreme Precipitation in New York & New England Web Tool by Cornell University.

Runoff curve numbers (CN) and times of concentration (Tc) were determined by the methods outlined in USDA-SCS Technical Release No. 55 (better known as TR-55). On site watershed areas were determined using two-foot contour data gathered from an on the ground field survey performed by Civil Consultants, with off-site topography obtained using available LIDAR data.

The detailed analysis for this project was performed by computer utilizing "HYDROCAD" stormwater modeling software. The computer printouts are attached.

The attached Pre- and Post Development plans (D1 & D2) show subcatchment boundaries, hydraulic flow lines, existing and development, and drainage features and facilities. Land cover type boundaries used in the model for on-site areas are also shown on the plan (i.e. tree lines, gravel, etc).

FLOW RATES:

TWO-YEAR EVENT -

Discharge Point Desig Pre/Post	Peak Runoff(in cfs) Pre	Post	Change (cfs)
OUT 1	3.97	3.98	+0.01
OUT 2	0.47	0.55	+0.05

TWENTY-FIVE-YEAR EVENT -

Discharge Point Desig Pre/Post	Peak Runoff(in cfs) Pre	Post	Change (cfs)
OUT 1	5.13	5.15	+0.02
OUT 2	1.37	1.27	-0.10

Although there are increases to individual analysis points OUT 1 and OUT 2, the proposed stormwater management design predicts essentially unchanged flows compared to the pre-development condition. This has been achieved by reducing impervious cover from land draining to OUT 1, and by directing new pavement to now drain to that outlet and away from OUT 2.

If additional BMP's were implemented to attempt to reduce the flows further, it would likely create more disturbance than would be reasonable for a development of this size. It is our opinion that the more prudent option is to allow the smallest footprint possible with the layout as proposed.

The slope and poor soils on site make it difficult to design and implement stormwater control. This includes a gravel drip edge around the revised parking area to lessen erosion of the adjacent slope and provide additional protection for the receiving wetland.

A stormwater maintenance and inspection plan has also been included as part of this submission.

CONCLUSIONS:

It is our opinion that there will be no adverse downstream impacts as a result of this project, and the surrounding lots have been sufficiently protected by the proposed stormwater management plan.

J:\aaa\2021\2133500\DRAINAGE\20230103-2133500-DRAINAGE_NARRATIVE.docx

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.763 degrees West
Latitude	43.072 degrees North
Elevation	0 feet
Date/Time	Tue, 03 Jan 2023 14:15:46 -0500

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	1.04	**1yr**	0.70	0.98	1.21	1.56	2.03	2.66	2.92	**1yr**	2.35	2.81	3.22	3.94	4.55	**1yr**
2yr	0.32	0.50	0.62	0.81	1.02	1.30	**2yr**	0.88	1.18	1.52	1.94	2.49	3.21	3.57	**2yr**	2.84	3.43	3.94	4.68	5.33	**2yr**
5yr	0.37	0.58	0.73	0.98	1.25	1.61	**5yr**	1.08	1.47	1.89	2.43	3.14	4.07	4.58	**5yr**	3.60	4.40	5.04	5.94	6.70	**5yr**
10yr	0.41	0.65	0.82	1.12	1.45	1.89	**10yr**	1.25	1.73	2.23	2.89	3.75	4.87	5.53	**10yr**	4.31	5.32	6.09	7.11	7.98	**10yr**
25yr	0.48	0.76	0.97	1.34	1.77	2.34	**25yr**	1.53	2.14	2.78	3.63	4.74	6.17	7.10	**25yr**	5.46	6.83	7.80	9.03	10.05	**25yr**
50yr	0.54	0.86	1.10	1.54	2.07	2.76	**50yr**	1.79	2.53	3.29	4.32	5.66	7.39	8.58	**50yr**	6.54	8.25	9.42	10.81	11.98	**50yr**
100yr	0.60	0.97	1.25	1.77	2.42	3.26	**100yr**	2.09	2.98	3.90	5.16	6.77	8.85	10.38	**100yr**	7.83	9.98	11.38	12.96	14.27	**100yr**
200yr	0.67	1.10	1.43	2.05	2.82	3.83	**200yr**	2.44	3.52	4.62	6.13	8.08	10.61	12.55	**200yr**	9.39	12.07	13.76	15.55	17.02	**200yr**
500yr	0.80	1.31	1.71	2.48	3.48	4.76	**500yr**	3.00	4.38	5.76	7.70	10.22	13.48	16.14	**500yr**	11.93	15.52	17.67	19.78	21.49	**500yr**

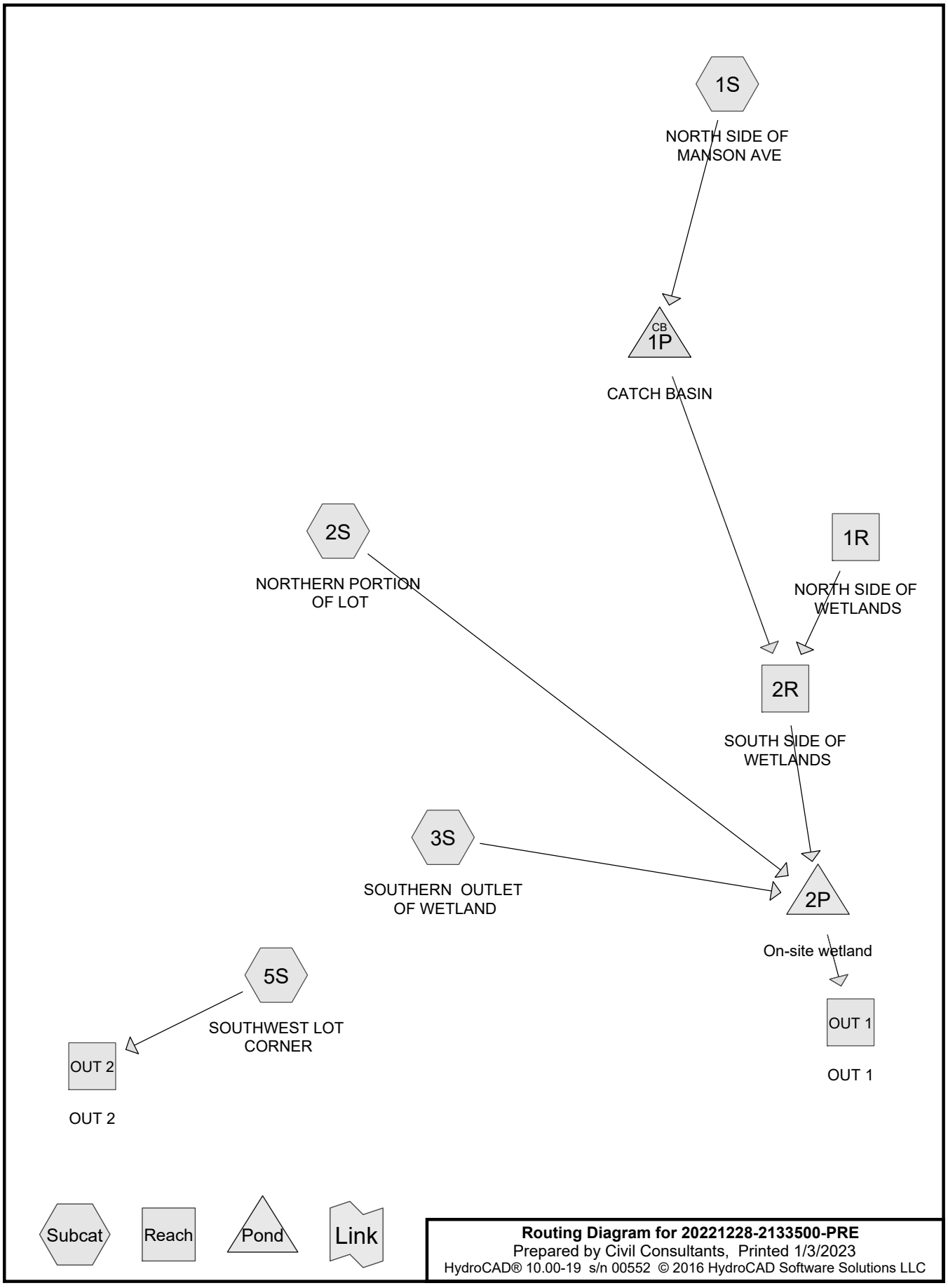
Lower Confidence Limits

	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	0.72	0.88	**1yr**	0.63	0.86	0.92	1.33	1.68	2.24	2.49	**1yr**	1.98	2.40	2.87	3.18	3.90	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.19	**2yr**	0.86	1.16	1.37	1.82	2.34	3.06	3.45	**2yr**	2.71	3.32	3.82	4.55	5.08	**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	3.79	4.19	**5yr**	3.35	4.03	4.72	5.53	6.24	**5yr**
10yr	0.39	0.59	0.73	1.03	1.33	1.60	**10yr**	1.14	1.56	1.80	2.39	3.06	4.37	4.86	**10yr**	3.87	4.67	5.44	6.41	7.20	**10yr**
25yr	0.44	0.67	0.83	1.19	1.56	1.90	**25yr**	1.35	1.86	2.10	2.75	3.53	4.72	5.89	**25yr**	4.18	5.66	6.65	7.79	8.68	**25yr**
50yr	0.48	0.73	0.91	1.31	1.76	2.17	**50yr**	1.52	2.12	2.35	3.07	3.93	5.33	6.80	**50yr**	4.72	6.54	7.72	9.04	10.02	**50yr**
100yr	0.54	0.81	1.01	1.47	2.01	2.47	**100yr**	1.73	2.41	2.63	3.41	4.35	6.00	7.85	**100yr**	5.31	7.55	8.98	10.51	11.56	**100yr**
200yr	0.59	0.89	1.13	1.63	2.28	2.81	**200yr**	1.96	2.75	2.93	3.78	4.79	6.72	9.06	**200yr**	5.95	8.71	10.42	12.22	13.37	**200yr**
500yr	0.68	1.02	1.31	1.90	2.71	3.36	**500yr**	2.34	3.29	3.41	4.31	5.45	7.82	10.94	**500yr**	6.92	10.52	12.69	14.96	16.19	**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	2.21	2.98	3.16	**1yr**	2.64	3.04	3.58	4.37	5.04	**1yr**
2yr	0.34	0.52	0.64	0.86	1.07	1.27	**2yr**	0.92	1.24	1.48	1.96	2.51	3.42	3.70	**2yr**	3.03	3.56	4.09	4.84	5.63	**2yr**
5yr	0.40	0.62	0.77	1.05	1.34	1.62	**5yr**	1.15	1.58	1.88	2.53	3.25	4.34	4.96	**5yr**	3.84	4.77	5.38	6.37	7.16	**5yr**
10yr	0.47	0.72	0.89	1.25	1.61	1.98	**10yr**	1.39	1.93	2.28	3.11	3.95	5.34	6.20	**10yr**	4.72	5.96	6.82	7.84	8.75	**10yr**
25yr	0.58	0.88	1.09	1.56	2.05	2.57	**25yr**	1.77	2.51	2.95	4.07	5.15	7.78	8.34	**25yr**	6.88	8.02	9.15	10.34	11.41	**25yr**
50yr	0.67	1.02	1.27	1.83	2.46	3.13	**50yr**	2.12	3.06	3.60	5.00	6.32	9.74	10.46	**50yr**	8.62	10.06	11.44	12.72	13.96	**50yr**
100yr	0.79	1.19	1.49	2.16	2.96	3.81	**100yr**	2.55	3.72	4.37	6.16	7.76	12.18	13.10	**100yr**	10.78	12.60	14.31	15.69	17.09	**100yr**
200yr	0.92	1.39	1.76	2.55	3.56	4.65	**200yr**	3.07	4.55	5.34	7.58	9.54	15.28	16.44	**200yr**	13.53	15.81	17.92	19.35	20.92	**200yr**
500yr	1.15	1.71	2.19	3.19	4.53	6.04	**500yr**	3.91	5.90	6.93	10.02	12.56	20.65	22.20	**500yr**	18.27	21.34	24.13	25.51	27.34	**500yr**

Powered by ACIS Northeast Regional Climate Center



Routing Diagram for 20221228-2133500-PRE
Prepared by Civil Consultants, Printed 1/3/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.004	87	1/4 acre lots, 38% imp, HSG D (2S)
0.034	80	>75% Grass cover, Good, HSG D (3S, 5S)
0.022	96	Gravel surface, HSG D (2S)
0.853	98	Paved parking, HSG D (1S, 2S, 3S, 5S)
0.524	93	Paved roads w/open ditches, 50% imp, HSG D (1S, 2S)
0.247	98	Roofs, HSG D (1S, 2S, 5S)
1.085	77	Woods, Good, HSG D (2S, 3S, 5S)
0.876	79	Woods/grass comb., Good, HSG D (1S, 2S)
4.645	**86**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
4.645	HSG D	1S, 2S, 3S, 5S
0.000	Other	
4.645		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchr Numbers
0.000	0.000	0.000	1.004	0.000	1.004	1/4 acre lots, 38% imp	
0.000	0.000	0.000	0.034	0.000	0.034	>75% Grass cover, Good	
0.000	0.000	0.000	0.022	0.000	0.022	Gravel surface	
0.000	0.000	0.000	0.853	0.000	0.853	Paved parking	
0.000	0.000	0.000	0.524	0.000	0.524	Paved roads w/open ditches, 50% imp	
0.000	0.000	0.000	0.247	0.000	0.247	Roofs	
0.000	0.000	0.000	1.085	0.000	1.085	Woods, Good	
0.000	0.000	0.000	0.876	0.000	0.876	Woods/grass comb., Good	
0.000	**0.000**	**0.000**	**4.645**	**0.000**	**4.645**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: NORTH SIDE OF Runoff Area=1.147 ac 38.49% Impervious Runoff Depth=1.92"
Flow Length=298' Tc=8.7 min CN=87 Runoff=2.35 cfs 0.184 af

Subcatchment 2S: NORTHERN PORTION Runoff Area=2.640 ac 48.11% Impervious Runoff Depth=2.09"
Flow Length=454' Tc=8.1 min CN=89 Runoff=5.98 cfs 0.460 af

Subcatchment 3S: SOUTHERN OUTLET OF Runoff Area=0.508 ac 1.77% Impervious Runoff Depth=1.22"
Flow Length=125' Tc=8.4 min CN=77 Runoff=0.65 cfs 0.052 af

Subcatchment 5S: SOUTHWEST LOT Runoff Area=0.350 ac 6.57% Impervious Runoff Depth=1.34"
Flow Length=138' Tc=10.0 min CN=79 Runoff=0.47 cfs 0.039 af

Reach 1R: NORTH SIDE OF WETLANDS Avg. Flow Depth=0.00' Max Vel=0.00 fps
n=0.030 L=51.3' S=0.0312 '/' Capacity=312.60 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: SOUTH SIDE OF WETLANDS Avg. Flow Depth=0.14' Max Vel=1.42 fps Inflow=2.35 cfs 0.184 af
n=0.030 L=75.0' S=0.0213 '/' Capacity=258.53 cfs Outflow=2.34 cfs 0.184 af

Reach OUT 1: OUT 1 Inflow=3.97 cfs 0.695 af
Outflow=3.97 cfs 0.695 af

Reach OUT 2: OUT 2 Inflow=0.47 cfs 0.039 af
Outflow=0.47 cfs 0.039 af

Pond 1P: CATCH BASIN Peak Elev=56.02' Inflow=2.35 cfs 0.184 af
Primary=2.35 cfs 0.184 af Secondary=0.00 cfs 0.000 af Outflow=2.35 cfs 0.184 af

Pond 2P: On-site wetland Peak Elev=47.00' Storage=4,827 cf Inflow=8.93 cfs 0.695 af
Primary=3.97 cfs 0.695 af Secondary=0.00 cfs 0.000 af Outflow=3.97 cfs 0.695 af

Total Runoff Area = 4.645 ac Runoff Volume = 0.735 af Average Runoff Depth = 1.90"
62.46% Pervious = 2.901 ac 37.54% Impervious = 1.744 ac

Summary for Subcatchment 1S: NORTH SIDE OF MANSON AVE

Runoff = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.223	93	Paved roads w/open ditches, 50% imp, HSG D
0.130	98	Roofs, HSG D
0.200	98	Paved parking, HSG D
0.594	79	Woods/grass comb., Good, HSG D
1.147	87	Weighted Average
0.706		61.51% Pervious Area
0.442		38.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 1.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.1	17	0.3529	2.97		**Shallow Concentrated Flow, 1.2** Woodland Kv= 5.0 fps
1.1	74	0.0541	1.16		**Shallow Concentrated Flow, 1.3** Woodland Kv= 5.0 fps
0.2	29	0.2069	2.27		**Shallow Concentrated Flow, 1.4** Woodland Kv= 5.0 fps
0.2	128	0.0711	13.59	62.83	**Trap/Vee/Rect Channel Flow, 1.5** Bot.W=3.00' D=0.50' Z= 10.0 & 15.0 '/' Top.W=15.50' n= 0.013 Asphalt, smooth
8.7	298	Total			

Summary for Subcatchment 2S: NORTHERN PORTION OF LOT

Runoff = 5.98 cfs @ 12.11 hrs, Volume= 0.460 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.293	77	Woods, Good, HSG D
0.282	79	Woods/grass comb., Good, HSG D
1.004	87	1/4 acre lots, 38% imp, HSG D
0.301	93	Paved roads w/open ditches, 50% imp, HSG D
0.626	98	Paved parking, HSG D
0.112	98	Roofs, HSG D
0.022	96	Gravel surface, HSG D
2.640	89	Weighted Average
1.370		51.89% Pervious Area
1.270		48.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 2.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.2	38	0.1800	2.97		**Shallow Concentrated Flow, 2.2** Short Grass Pasture Kv= 7.0 fps
0.2	101	0.0400	11.01	112.52	**Trap/Vee/Rect Channel Flow, 2.3** Bot.W=5.00' D=0.75' Z= 3.0 & 20.0 '/' Top.W=22.25' n= 0.016 Asphalt, rough
0.4	140	0.0210	5.94	18.93	**Trap/Vee/Rect Channel Flow, 2.4** Bot.W=2.00' D=0.75' Z= 3.0 '/' Top.W=6.50' n= 0.022 Earth, clean & straight
0.2	125	0.0600	12.64	111.20	**Trap/Vee/Rect Channel Flow, 2.5** Bot.W=15.00' D=0.40' Z= 15.0 & 20.0 '/' Top.W=29.00' n= 0.013 Asphalt, smooth
8.1	454	Total			

Summary for Subcatchment 3S: SOUTHERN OUTLET OF WETLAND

Runoff = 0.65 cfs @ 12.13 hrs, Volume= 0.052 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.353	77	Woods, Good, HSG D
0.009	98	Paved parking, HSG D
0.140	77	Woods, Good, HSG D
0.006	80	>75% Grass cover, Good, HSG D
0.508	77	Weighted Average
0.499		98.23% Pervious Area
0.009		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow, 3.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	30	0.1333	1.83		**Shallow Concentrated Flow, 3.2** Woodland Kv= 5.0 fps
0.1	45	0.0578	7.85	294.44	**Trap/Vee/Rect Channel Flow, 3.3** Bot.W=5.00' D=1.00' Z= 50.0 & 15.0 '/' Top.W=70.00' n= 0.030 Stream, clean & straight
8.4	125	Total			

Summary for Subcatchment 5S: SOUTHWEST LOT CORNER

Runoff = 0.47 cfs @ 12.14 hrs, Volume= 0.039 af, Depth= 1.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.005	98	Roofs, HSG D
0.299	77	Woods, Good, HSG D
0.018	98	Paved parking, HSG D
0.028	80	>75% Grass cover, Good, HSG D
0.350	79	Weighted Average
0.327		93.43% Pervious Area
0.023		6.57% Impervious Area

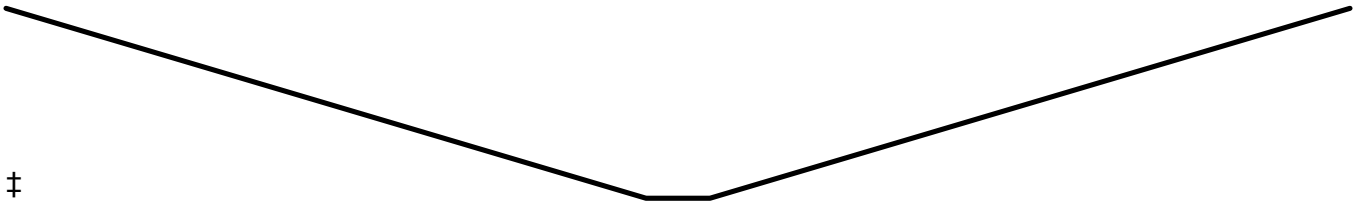
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0500	0.10		**Sheet Flow, 5.1** Woods: Light underbrush n= 0.400 P2= 3.17"
1.4	76	0.0350	0.94		**Shallow Concentrated Flow, 5.2** Woodland Kv= 5.0 fps
0.0	12	0.0208	7.49	29.98	**Trap/Vee/Rect Channel Flow, 5.3** Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
10.0	138	Total			

Summary for Reach 1R: NORTH SIDE OF WETLANDS

[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 51.3' Slope= 0.0312 '/'
Inlet Invert= 48.60', Outlet Invert= 47.00'



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Summary for Reach 2R: SOUTH SIDE OF WETLANDS

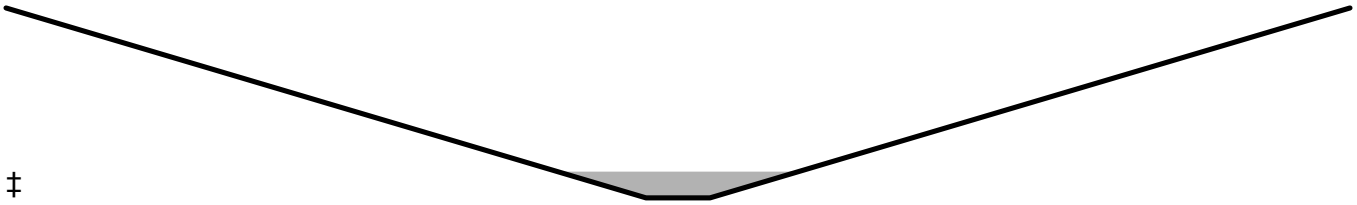
[61] Hint: Exceeded Reach 1R outlet invert by 0.14' @ 12.13 hrs

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 1.92" for 2 yr event
Inflow = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af
Outflow = 2.34 cfs @ 12.13 hrs, Volume= 0.184 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.42 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 2.4 min

Peak Storage= 123 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 258.53 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 75.0' Slope= 0.0213 '/'
Inlet Invert= 47.00', Outlet Invert= 45.40'



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Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.295 ac, 40.06% Impervious, Inflow Depth = 1.94" for 2 yr event
Inflow = 3.97 cfs @ 12.36 hrs, Volume= 0.695 af
Outflow = 3.97 cfs @ 12.36 hrs, Volume= 0.695 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 2: OUT 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.350 ac, 6.57% Impervious, Inflow Depth = 1.34" for 2 yr event
Inflow = 0.47 cfs @ 12.14 hrs, Volume= 0.039 af
Outflow = 0.47 cfs @ 12.14 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CATCH BASIN

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 1.92" for 2 yr event
Inflow = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af
Outflow = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 56.02' @ 12.12 hrs
Flood Elev= 60.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.90'	**12.0" Round Culvert** L= 163.3' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 54.90' / 48.60' S= 0.0386 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2 Secondary 59.50' **10.0' long x 30.0' breadth Broad-Crested Rectangular Weir**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.35 cfs @ 12.12 hrs HW=56.02' TW=47.14' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.35 cfs @ 2.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.90' TW=47.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: On-site wetland

[62] Hint: Exceeded Reach 2R OUTLET depth by 1.51' @ 12.40 hrs

Inflow Area = 4.295 ac, 40.06% Impervious, Inflow Depth = 1.94" for 2 yr event
Inflow = 8.93 cfs @ 12.12 hrs, Volume= 0.695 af
Outflow = 3.97 cfs @ 12.36 hrs, Volume= 0.695 af, Atten= 56%, Lag= 14.6 min
Primary = 3.97 cfs @ 12.36 hrs, Volume= 0.695 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 47.00' @ 12.36 hrs Surf.Area= 9,676 sf Storage= 4,827 cf

Plug-Flow detention time= 11.2 min calculated for 0.695 af (100% of inflow)
Center-of-Mass det. time= 11.1 min (829.8 - 818.6)

Volume	Invert	Avail.Storage	Storage Description
#1	45.40'	52,500 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
45.40	500	0	0	500
46.00	800	386	386	805
48.00	28,151	22,464	22,851	28,165
49.00	31,173	29,649	52,500	31,248

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.40' / 44.00' S= 0.0156 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	48.50'	**15.0' long x 40.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.97 cfs @ 12.36 hrs HW=47.00' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.97 cfs @ 5.06 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.40' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: NORTH SIDE OF Runoff Area=1.147 ac 38.49% Impervious Runoff Depth=4.68"
Flow Length=298' Tc=8.7 min CN=87 Runoff=5.57 cfs 0.447 af

Subcatchment 2S: NORTHERN PORTION Runoff Area=2.640 ac 48.11% Impervious Runoff Depth=4.90"
Flow Length=454' Tc=8.1 min CN=89 Runoff=13.53 cfs 1.078 af

Subcatchment 3S: SOUTHERN OUTLET OF Runoff Area=0.508 ac 1.77% Impervious Runoff Depth=3.63"
Flow Length=125' Tc=8.4 min CN=77 Runoff=1.99 cfs 0.154 af

Subcatchment 5S: SOUTHWEST LOT Runoff Area=0.350 ac 6.57% Impervious Runoff Depth=3.83"
Flow Length=138' Tc=10.0 min CN=79 Runoff=1.37 cfs 0.112 af

Reach 1R: NORTH SIDE OF WETLANDS Avg. Flow Depth=0.00' Max Vel=0.00 fps
n=0.030 L=51.3' S=0.0312 '/' Capacity=312.60 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: SOUTH SIDE OF WETLANDS Avg. Flow Depth=0.20' Max Vel=1.78 fps Inflow=5.57 cfs 0.447 af
n=0.030 L=75.0' S=0.0213 '/' Capacity=258.53 cfs Outflow=5.55 cfs 0.447 af

Reach OUT 1: OUT 1 Inflow=5.13 cfs 1.679 af
Outflow=5.13 cfs 1.679 af

Reach OUT 2: OUT 2 Inflow=1.37 cfs 0.112 af
Outflow=1.37 cfs 0.112 af

Pond 1P: CATCH BASIN Peak Elev=58.88' Inflow=5.57 cfs 0.447 af
Primary=5.57 cfs 0.447 af Secondary=0.00 cfs 0.000 af Outflow=5.57 cfs 0.447 af

Pond 2P: On-site wetland Peak Elev=47.87' Storage=19,269 cf Inflow=21.01 cfs 1.679 af
Primary=5.13 cfs 1.679 af Secondary=0.00 cfs 0.000 af Outflow=5.13 cfs 1.679 af

Total Runoff Area = 4.645 ac Runoff Volume = 1.791 af Average Runoff Depth = 4.63"
62.46% Pervious = 2.901 ac 37.54% Impervious = 1.744 ac

Summary for Subcatchment 1S: NORTH SIDE OF MANSON AVE

Runoff = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.223	93	Paved roads w/open ditches, 50% imp, HSG D
0.130	98	Roofs, HSG D
0.200	98	Paved parking, HSG D
0.594	79	Woods/grass comb., Good, HSG D
1.147	87	Weighted Average
0.706		61.51% Pervious Area
0.442		38.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 1.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.1	17	0.3529	2.97		**Shallow Concentrated Flow, 1.2** Woodland Kv= 5.0 fps
1.1	74	0.0541	1.16		**Shallow Concentrated Flow, 1.3** Woodland Kv= 5.0 fps
0.2	29	0.2069	2.27		**Shallow Concentrated Flow, 1.4** Woodland Kv= 5.0 fps
0.2	128	0.0711	13.59	62.83	**Trap/Vee/Rect Channel Flow, 1.5** Bot.W=3.00' D=0.50' Z= 10.0 & 15.0 '/' Top.W=15.50' n= 0.013 Asphalt, smooth
8.7	298	Total			

Summary for Subcatchment 2S: NORTHERN PORTION OF LOT

Runoff = 13.53 cfs @ 12.11 hrs, Volume= 1.078 af, Depth= 4.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.293	77	Woods, Good, HSG D
0.282	79	Woods/grass comb., Good, HSG D
1.004	87	1/4 acre lots, 38% imp, HSG D
0.301	93	Paved roads w/open ditches, 50% imp, HSG D
0.626	98	Paved parking, HSG D
0.112	98	Roofs, HSG D
0.022	96	Gravel surface, HSG D
2.640	89	Weighted Average
1.370		51.89% Pervious Area
1.270		48.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 2.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.2	38	0.1800	2.97		**Shallow Concentrated Flow, 2.2** Short Grass Pasture Kv= 7.0 fps
0.2	101	0.0400	11.01	112.52	**Trap/Vee/Rect Channel Flow, 2.3** Bot.W=5.00' D=0.75' Z= 3.0 & 20.0 '/' Top.W=22.25' n= 0.016 Asphalt, rough
0.4	140	0.0210	5.94	18.93	**Trap/Vee/Rect Channel Flow, 2.4** Bot.W=2.00' D=0.75' Z= 3.0 '/' Top.W=6.50' n= 0.022 Earth, clean & straight
0.2	125	0.0600	12.64	111.20	**Trap/Vee/Rect Channel Flow, 2.5** Bot.W=15.00' D=0.40' Z= 15.0 & 20.0 '/' Top.W=29.00' n= 0.013 Asphalt, smooth
8.1	454	Total			

Summary for Subcatchment 3S: SOUTHERN OUTLET OF WETLAND

Runoff = 1.99 cfs @ 12.12 hrs, Volume= 0.154 af, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.353	77	Woods, Good, HSG D
0.009	98	Paved parking, HSG D
0.140	77	Woods, Good, HSG D
0.006	80	>75% Grass cover, Good, HSG D
0.508	77	Weighted Average
0.499		98.23% Pervious Area
0.009		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow, 3.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	30	0.1333	1.83		**Shallow Concentrated Flow, 3.2** Woodland Kv= 5.0 fps
0.1	45	0.0578	7.85	294.44	**Trap/Vee/Rect Channel Flow, 3.3** Bot.W=5.00' D=1.00' Z= 50.0 & 15.0 '/' Top.W=70.00' n= 0.030 Stream, clean & straight
8.4	125	Total			

Summary for Subcatchment 5S: SOUTHWEST LOT CORNER

Runoff = 1.37 cfs @ 12.14 hrs, Volume= 0.112 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.005	98	Roofs, HSG D
0.299	77	Woods, Good, HSG D
0.018	98	Paved parking, HSG D
0.028	80	>75% Grass cover, Good, HSG D
0.350	79	Weighted Average
0.327		93.43% Pervious Area
0.023		6.57% Impervious Area

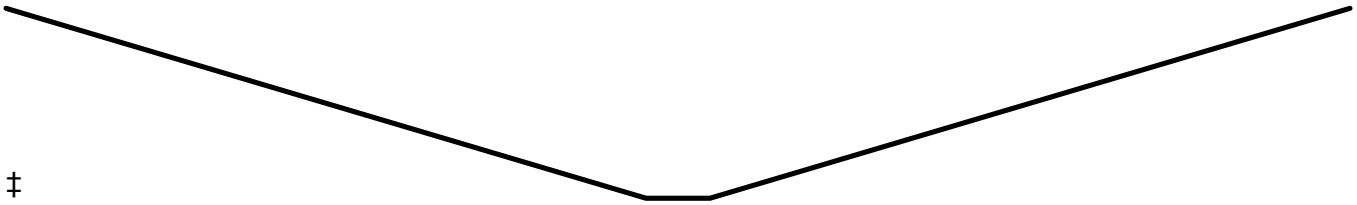
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0500	0.10		**Sheet Flow, 5.1** Woods: Light underbrush n= 0.400 P2= 3.17"
1.4	76	0.0350	0.94		**Shallow Concentrated Flow, 5.2** Woodland Kv= 5.0 fps
0.0	12	0.0208	7.49	29.98	**Trap/Vee/Rect Channel Flow, 5.3** Bot.W=3.00' D=0.50' Z= 10.0 '/' Top.W=13.00' n= 0.013 Asphalt, smooth
10.0	138	Total			

Summary for Reach 1R: NORTH SIDE OF WETLANDS

[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 51.3' Slope= 0.0312 '/'
Inlet Invert= 48.60', Outlet Invert= 47.00'



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Summary for Reach 2R: SOUTH SIDE OF WETLANDS

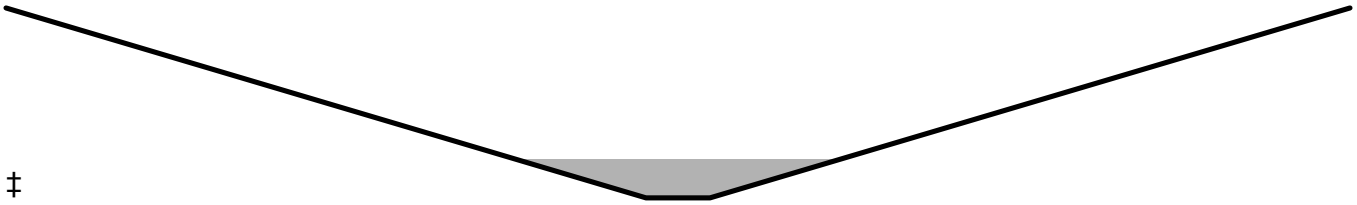
[61] Hint: Exceeded Reach 1R outlet invert by 0.20' @ 12.13 hrs

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 4.68" for 25 yr event
Inflow = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af
Outflow = 5.55 cfs @ 12.13 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.78 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 1.9 min

Peak Storage= 233 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 258.53 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 75.0' Slope= 0.0213 '/'
Inlet Invert= 47.00', Outlet Invert= 45.40'



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Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.295 ac, 40.06% Impervious, Inflow Depth = 4.69" for 25 yr event
Inflow = 5.13 cfs @ 12.53 hrs, Volume= 1.679 af
Outflow = 5.13 cfs @ 12.53 hrs, Volume= 1.679 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 2: OUT 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.350 ac, 6.57% Impervious, Inflow Depth = 3.83" for 25 yr event
Inflow = 1.37 cfs @ 12.14 hrs, Volume= 0.112 af
Outflow = 1.37 cfs @ 12.14 hrs, Volume= 0.112 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CATCH BASIN

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 4.68" for 25 yr event
Inflow = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af
Outflow = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.0 min
Primary = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 58.88' @ 12.12 hrs
Flood Elev= 60.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.90'	**12.0" Round Culvert** L= 163.3' CPP, projecting, no headwall, Ke= 0.900

Inlet / Outlet Invert= 54.90' / 48.60' S= 0.0386 '/' Cc= 0.900
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2 Secondary 59.50' **10.0' long x 30.0' breadth Broad-Crested Rectangular Weir**
Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.57 cfs @ 12.12 hrs HW=58.88' TW=47.20' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.57 cfs @ 7.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.90' TW=47.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: On-site wetland

[63] Warning: Exceeded Reach 2R INLET depth by 0.76' @ 12.60 hrs

Inflow Area = 4.295 ac, 40.06% Impervious, Inflow Depth = 4.69" for 25 yr event
Inflow = 21.01 cfs @ 12.12 hrs, Volume= 1.679 af
Outflow = 5.13 cfs @ 12.53 hrs, Volume= 1.679 af, Atten= 76%, Lag= 24.8 min
Primary = 5.13 cfs @ 12.53 hrs, Volume= 1.679 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 47.87' @ 12.53 hrs Surf.Area= 25,088 sf Storage= 19,269 cf

Plug-Flow detention time= 25.9 min calculated for 1.679 af (100% of inflow)
Center-of-Mass det. time= 26.0 min (820.4 - 794.5)

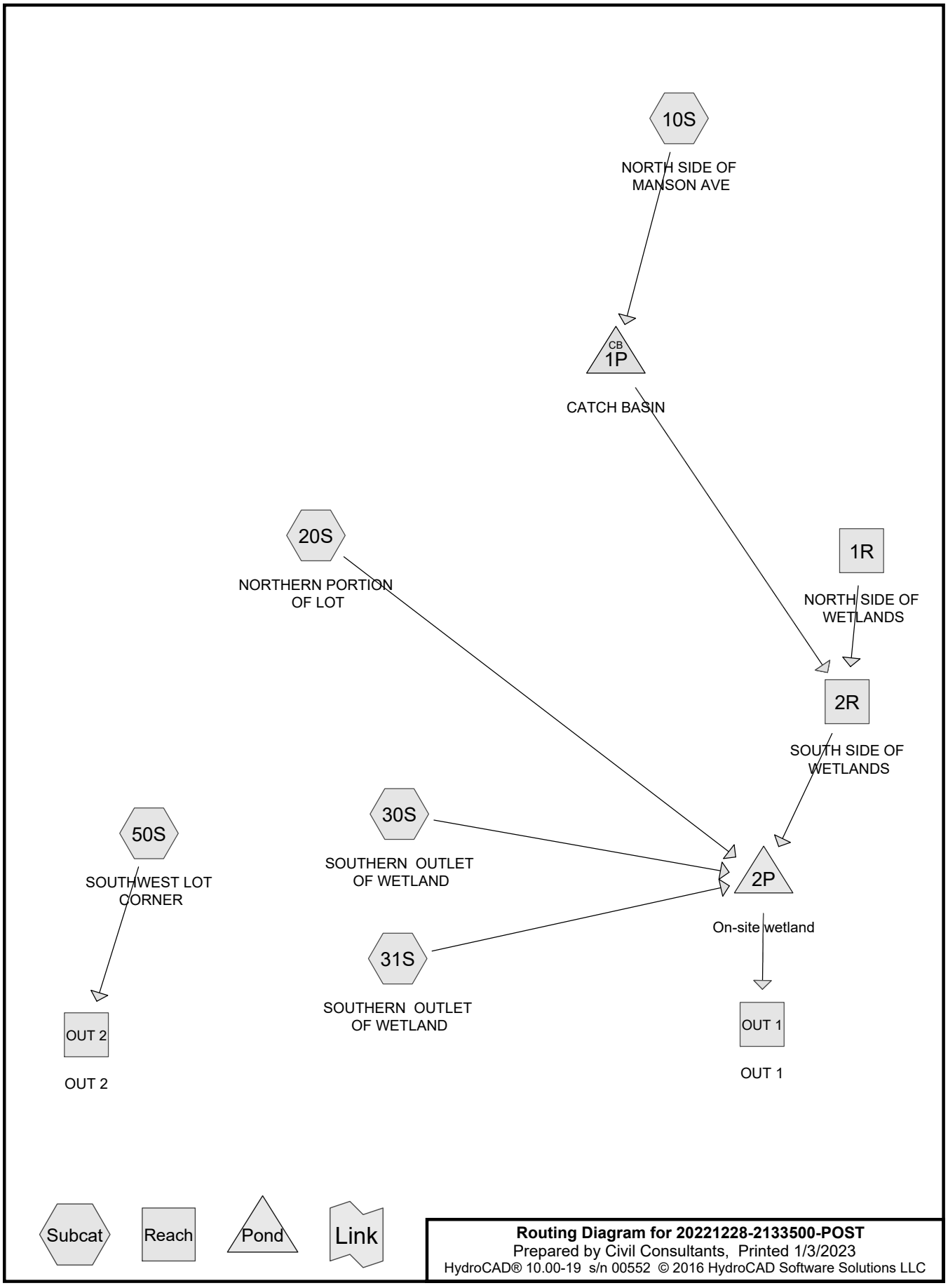
Volume	Invert	Avail.Storage	Storage Description
#1	45.40'	52,500 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
45.40	500	0	0	500
46.00	800	386	386	805
48.00	28,151	22,464	22,851	28,165
49.00	31,173	29,649	52,500	31,248

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert**
			L= 90.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 45.40' / 44.00' S= 0.0156 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	48.50'	**15.0' long x 40.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.13 cfs @ 12.53 hrs HW=47.87' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 5.13 cfs @ 6.53 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.40' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)



Routing Diagram for 20221228-2133500-POST
Prepared by Civil Consultants, Printed 1/3/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.004	87	1/4 acre lots, 38% imp, HSG D (20S)
0.149	80	>75% Grass cover, Good, HSG D (20S, 30S, 50S)
0.022	96	Gravel surface, HSG D (20S)
0.858	98	Paved parking, HSG D (10S, 20S, 30S, 50S)
0.524	93	Paved roads w/open ditches, 50% imp, HSG D (10S, 20S)
0.357	98	Roofs, HSG D (10S, 20S, 30S, 50S)
0.783	77	Woods, Good, HSG D (20S, 30S, 31S, 50S)
0.948	79	Woods/grass comb., Good, HSG D (10S, 20S, 50S)
4.645	**87**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
4.645	HSG D	10S, 20S, 30S, 31S, 50S
0.000	Other	
4.645		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchr Numbers
0.000	0.000	0.000	1.004	0.000	1.004	1/4 acre lots, 38% imp	
0.000	0.000	0.000	0.149	0.000	0.149	>75% Grass cover, Good	
0.000	0.000	0.000	0.022	0.000	0.022	Gravel surface	
0.000	0.000	0.000	0.858	0.000	0.858	Paved parking	
0.000	0.000	0.000	0.524	0.000	0.524	Paved roads w/open ditches, 50% imp	
0.000	0.000	0.000	0.357	0.000	0.357	Roofs	
0.000	0.000	0.000	0.783	0.000	0.783	Woods, Good	
0.000	0.000	0.000	0.948	0.000	0.948	Woods/grass comb., Good	
0.000	**0.000**	**0.000**	**4.645**	**0.000**	**4.645**	**TOTAL AREA**	

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NORTH SIDE OF Runoff Area=1.147 ac 38.49% Impervious Runoff Depth=1.92"
Flow Length=298' Tc=8.7 min CN=87 Runoff=2.35 cfs 0.184 af

Subcatchment 20S: NORTHERN PORTION Runoff Area=2.642 ac 45.46% Impervious Runoff Depth=2.01"
Flow Length=429' Tc=8.2 min CN=88 Runoff=5.74 cfs 0.442 af

Subcatchment 30S: SOUTHERN OUTLET Runoff Area=0.396 ac 23.48% Impervious Runoff Depth=1.55"
Flow Length=60' Tc=8.3 min CN=82 Runoff=0.66 cfs 0.051 af

Subcatchment 31S: SOUTHERN OUTLET Runoff Area=0.203 ac 0.00% Impervious Runoff Depth=1.22"
Flow Length=125' Tc=8.4 min CN=77 Runoff=0.26 cfs 0.021 af

Subcatchment 50S: SOUTHWEST LOT Runoff Area=0.257 ac 47.86% Impervious Runoff Depth=2.01"
Flow Length=98' Tc=8.7 min CN=88 Runoff=0.55 cfs 0.043 af

Reach 1R: NORTH SIDE OF WETLANDS Avg. Flow Depth=0.00' Max Vel=0.00 fps
n=0.030 L=51.3' S=0.0312 '/' Capacity=312.60 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: SOUTH SIDE OF WETLANDS Avg. Flow Depth=0.14' Max Vel=1.42 fps Inflow=2.35 cfs 0.184 af
n=0.030 L=75.0' S=0.0213 '/' Capacity=258.53 cfs Outflow=2.34 cfs 0.184 af

Reach OUT 1: OUT 1 Inflow=3.98 cfs 0.697 af
Outflow=3.98 cfs 0.697 af

Reach OUT 2: OUT 2 Inflow=0.55 cfs 0.043 af
Outflow=0.55 cfs 0.043 af

Pond 1P: CATCH BASIN Peak Elev=56.02' Inflow=2.35 cfs 0.184 af
Primary=2.35 cfs 0.184 af Secondary=0.00 cfs 0.000 af Outflow=2.35 cfs 0.184 af

Pond 2P: On-site wetland Peak Elev=47.01' Storage=4,872 cf Inflow=8.97 cfs 0.697 af
Primary=3.98 cfs 0.697 af Secondary=0.00 cfs 0.000 af Outflow=3.98 cfs 0.697 af

Total Runoff Area = 4.645 ac Runoff Volume = 0.740 af Average Runoff Depth = 1.91"
59.99% Pervious = 2.786 ac 40.01% Impervious = 1.859 ac

Summary for Subcatchment 10S: NORTH SIDE OF MANSON AVE

Runoff = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.223	93	Paved roads w/open ditches, 50% imp, HSG D
0.130	98	Roofs, HSG D
0.200	98	Paved parking, HSG D
0.594	79	Woods/grass comb., Good, HSG D
1.147	87	Weighted Average
0.706		61.51% Pervious Area
0.442		38.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 10.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.1	17	0.3529	2.97		**Shallow Concentrated Flow, 10.2** Woodland Kv= 5.0 fps
1.1	74	0.0541	1.16		**Shallow Concentrated Flow, 10.3** Woodland Kv= 5.0 fps
0.2	29	0.2069	2.27		**Shallow Concentrated Flow, 10.4** Woodland Kv= 5.0 fps
0.2	128	0.0711	13.59	62.83	**Trap/Vee/Rect Channel Flow, 10.5** Bot.W=3.00' D=0.50' Z= 10.0 & 15.0 '/' Top.W=15.50' n= 0.013 Asphalt, smooth
8.7	298	Total			

Summary for Subcatchment 20S: NORTHERN PORTION OF LOT

Runoff = 5.74 cfs @ 12.11 hrs, Volume= 0.442 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.293	77	Woods, Good, HSG D
0.282	79	Woods/grass comb., Good, HSG D
1.004	87	1/4 acre lots, 38% imp, HSG D
0.301	93	Paved roads w/open ditches, 50% imp, HSG D
0.506	98	Paved parking, HSG D
0.163	98	Roofs, HSG D
0.022	96	Gravel surface, HSG D
0.071	80	>75% Grass cover, Good, HSG D
2.642	88	Weighted Average
1.441		54.54% Pervious Area
1.201		45.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 20.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.2	38	0.1800	2.97		**Shallow Concentrated Flow, 20.2** Short Grass Pasture Kv= 7.0 fps
0.2	101	0.0400	11.01	112.52	**Trap/Vee/Rect Channel Flow, 20.3** Bot.W=5.00' D=0.75' Z= 3.0 & 20.0 '/' Top.W=22.25' n= 0.016 Asphalt, rough
0.4	140	0.0210	5.94	18.93	**Trap/Vee/Rect Channel Flow, 20.4** Bot.W=2.00' D=0.75' Z= 3.0 '/' Top.W=6.50' n= 0.022 Earth, clean & straight
0.1	50	0.0600	12.64	111.20	**Trap/Vee/Rect Channel Flow, 20.5** Bot.W=15.00' D=0.40' Z= 15.0 & 20.0 '/' Top.W=29.00' n= 0.013 Asphalt, smooth
0.2	50	0.0080	4.06	3.19	**Pipe Channel, 20.6** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
8.2	429	Total			

Summary for Subcatchment 30S: SOUTHERN OUTLET OF WETLAND

Runoff = 0.66 cfs @ 12.12 hrs, Volume= 0.051 af, Depth= 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.263	77	Woods, Good, HSG D
0.059	98	Paved parking, HSG D
0.034	98	Roofs, HSG D
0.040	80	>75% Grass cover, Good, HSG D
0.396	82	Weighted Average
0.303		76.52% Pervious Area
0.093		23.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25	0.0150	0.05		**Sheet Flow, 30.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	35	0.1500	1.94		**Shallow Concentrated Flow, 30.2** Woodland Kv= 5.0 fps
8.3	60	Total			

Summary for Subcatchment 31S: SOUTHERN OUTLET OF WETLAND

Runoff = 0.26 cfs @ 12.13 hrs, Volume= 0.021 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.203	77	Woods, Good, HSG D
0.203		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow, 31.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	30	0.1333	1.83		**Shallow Concentrated Flow, 31.2** Woodland Kv= 5.0 fps
0.1	45	0.0578	7.85	294.44	**Trap/Vee/Rect Channel Flow, 31.3** Bot.W=5.00' D=1.00' Z= 50.0 & 15.0 '/' Top.W=70.00' n= 0.030 Stream, clean & straight
8.4	125	Total			

Summary for Subcatchment 50S: SOUTHWEST LOT CORNER

Runoff = 0.55 cfs @ 12.12 hrs, Volume= 0.043 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 yr Rainfall=3.21"

Area (ac)	CN	Description
0.030	98	Roofs, HSG D
0.024	77	Woods, Good, HSG D
0.093	98	Paved parking, HSG D
0.072	79	Woods/grass comb., Good, HSG D
0.038	80	>75% Grass cover, Good, HSG D
0.257	88	Weighted Average
0.134		52.14% Pervious Area
0.123		47.86% Impervious Area

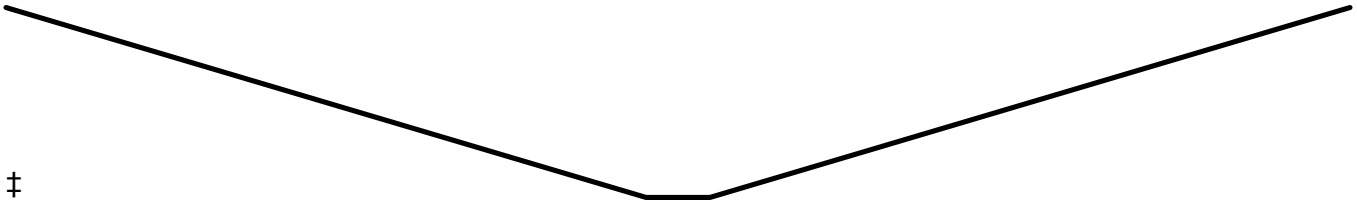
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0500	0.10		**Sheet Flow, 60.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.1	48	0.0310	8.84	46.41	**Trap/Vee/Rect Channel Flow, 60.2** Bot.W=3.00' D=0.50' Z= 10.0 & 20.0 '/' Top.W=18.00' n= 0.013 Asphalt, smooth
8.7	98	Total			

Summary for Reach 1R: NORTH SIDE OF WETLANDS

[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 51.3' Slope= 0.0312 '/'
Inlet Invert= 48.60', Outlet Invert= 47.00'



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Summary for Reach 2R: SOUTH SIDE OF WETLANDS

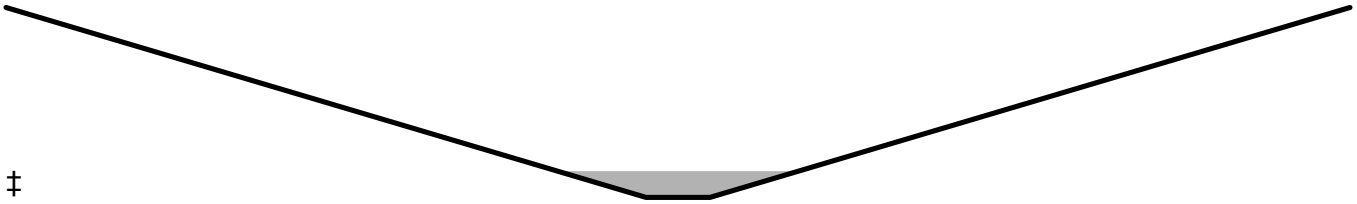
[61] Hint: Exceeded Reach 1R outlet invert by 0.14' @ 12.13 hrs

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 1.92" for 2 yr event
Inflow = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af
Outflow = 2.34 cfs @ 12.13 hrs, Volume= 0.184 af, Atten= 1%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.42 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 2.4 min

Peak Storage= 123 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 258.53 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 75.0' Slope= 0.0213 '/'
Inlet Invert= 47.00', Outlet Invert= 45.40'



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Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.388 ac, 39.55% Impervious, Inflow Depth = 1.91" for 2 yr event
Inflow = 3.98 cfs @ 12.37 hrs, Volume= 0.697 af
Outflow = 3.98 cfs @ 12.37 hrs, Volume= 0.697 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 2: OUT 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.257 ac, 47.86% Impervious, Inflow Depth = 2.01" for 2 yr event
Inflow = 0.55 cfs @ 12.12 hrs, Volume= 0.043 af
Outflow = 0.55 cfs @ 12.12 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CATCH BASIN

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 1.92" for 2 yr event
Inflow = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af
Outflow = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 12.12 hrs, Volume= 0.184 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 56.02' @ 12.12 hrs
Flood Elev= 60.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.90'	**12.0" Round Culvert** L= 163.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.90' / 48.60' S= 0.0386 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	59.50'	**10.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.35 cfs @ 12.12 hrs HW=56.02' TW=47.14' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.35 cfs @ 2.99 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.90' TW=47.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: On-site wetland

[62] Hint: Exceeded Reach 2R OUTLET depth by 1.52' @ 12.40 hrs

Inflow Area = 4.388 ac, 39.55% Impervious, Inflow Depth = 1.91" for 2 yr event
Inflow = 8.97 cfs @ 12.12 hrs, Volume= 0.697 af
Outflow = 3.98 cfs @ 12.37 hrs, Volume= 0.697 af, Atten= 56%, Lag= 14.8 min
Primary = 3.98 cfs @ 12.37 hrs, Volume= 0.697 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 47.01' @ 12.37 hrs Surf.Area= 9,740 sf Storage= 4,872 cf

Plug-Flow detention time= 11.3 min calculated for 0.697 af (100% of inflow)

Center-of-Mass det. time= 11.2 min (832.4 - 821.2)

Volume	Invert	Avail.Storage	Storage Description
#1	45.40'	52,500 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
45.40	500	0	0	500
46.00	800	386	386	805
48.00	28,151	22,464	22,851	28,165
49.00	31,173	29,649	52,500	31,248

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.40' / 44.00' S= 0.0156 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	48.50'	**15.0' long x 40.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.98 cfs @ 12.37 hrs HW=47.01' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 3.98 cfs @ 5.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.40' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NORTH SIDE OF Runoff Area=1.147 ac 38.49% Impervious Runoff Depth=4.68"
Flow Length=298' Tc=8.7 min CN=87 Runoff=5.57 cfs 0.447 af

Subcatchment 20S: NORTHERN PORTION Runoff Area=2.642 ac 45.46% Impervious Runoff Depth=4.79"
Flow Length=429' Tc=8.2 min CN=88 Runoff=13.28 cfs 1.055 af

Subcatchment 30S: SOUTHERN OUTLET Runoff Area=0.396 ac 23.48% Impervious Runoff Depth=4.14"
Flow Length=60' Tc=8.3 min CN=82 Runoff=1.76 cfs 0.137 af

Subcatchment 31S: SOUTHERN OUTLET Runoff Area=0.203 ac 0.00% Impervious Runoff Depth=3.63"
Flow Length=125' Tc=8.4 min CN=77 Runoff=0.79 cfs 0.061 af

Subcatchment 50S: SOUTHWEST LOT Runoff Area=0.257 ac 47.86% Impervious Runoff Depth=4.79"
Flow Length=98' Tc=8.7 min CN=88 Runoff=1.27 cfs 0.103 af

Reach 1R: NORTH SIDE OF WETLANDS Avg. Flow Depth=0.00' Max Vel=0.00 fps
n=0.030 L=51.3' S=0.0312 '/' Capacity=312.60 cfs Outflow=0.00 cfs 0.000 af

Reach 2R: SOUTH SIDE OF WETLANDS Avg. Flow Depth=0.20' Max Vel=1.78 fps Inflow=5.57 cfs 0.447 af
n=0.030 L=75.0' S=0.0213 '/' Capacity=258.53 cfs Outflow=5.55 cfs 0.447 af

Reach OUT 1: OUT 1 Inflow=5.15 cfs 1.700 af
Outflow=5.15 cfs 1.700 af

Reach OUT 2: OUT 2 Inflow=1.27 cfs 0.103 af
Outflow=1.27 cfs 0.103 af

Pond 1P: CATCH BASIN Peak Elev=58.88' Inflow=5.57 cfs 0.447 af
Primary=5.57 cfs 0.447 af Secondary=0.00 cfs 0.000 af Outflow=5.57 cfs 0.447 af

Pond 2P: On-site wetland Peak Elev=47.88' Storage=19,742 cf Inflow=21.33 cfs 1.700 af
Primary=5.15 cfs 1.700 af Secondary=0.00 cfs 0.000 af Outflow=5.15 cfs 1.700 af

Total Runoff Area = 4.645 ac Runoff Volume = 1.803 af Average Runoff Depth = 4.66"
59.99% Pervious = 2.786 ac 40.01% Impervious = 1.859 ac

Summary for Subcatchment 10S: NORTH SIDE OF MANSON AVE

Runoff = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af, Depth= 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.223	93	Paved roads w/open ditches, 50% imp, HSG D
0.130	98	Roofs, HSG D
0.200	98	Paved parking, HSG D
0.594	79	Woods/grass comb., Good, HSG D
1.147	87	Weighted Average
0.706		61.51% Pervious Area
0.442		38.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 10.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.1	17	0.3529	2.97		**Shallow Concentrated Flow, 10.2** Woodland Kv= 5.0 fps
1.1	74	0.0541	1.16		**Shallow Concentrated Flow, 10.3** Woodland Kv= 5.0 fps
0.2	29	0.2069	2.27		**Shallow Concentrated Flow, 10.4** Woodland Kv= 5.0 fps
0.2	128	0.0711	13.59	62.83	**Trap/Vee/Rect Channel Flow, 10.5** Bot.W=3.00' D=0.50' Z= 10.0 & 15.0 '/' Top.W=15.50' n= 0.013 Asphalt, smooth
8.7	298	Total			

Summary for Subcatchment 20S: NORTHERN PORTION OF LOT

Runoff = 13.28 cfs @ 12.11 hrs, Volume= 1.055 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.293	77	Woods, Good, HSG D
0.282	79	Woods/grass comb., Good, HSG D
1.004	87	1/4 acre lots, 38% imp, HSG D
0.301	93	Paved roads w/open ditches, 50% imp, HSG D
0.506	98	Paved parking, HSG D
0.163	98	Roofs, HSG D
0.022	96	Gravel surface, HSG D
0.071	80	>75% Grass cover, Good, HSG D
2.642	88	Weighted Average
1.441		54.54% Pervious Area
1.201		45.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0800	0.12		**Sheet Flow, 20.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.2	38	0.1800	2.97		**Shallow Concentrated Flow, 20.2** Short Grass Pasture Kv= 7.0 fps
0.2	101	0.0400	11.01	112.52	**Trap/Vee/Rect Channel Flow, 20.3** Bot.W=5.00' D=0.75' Z= 3.0 & 20.0 '/' Top.W=22.25' n= 0.016 Asphalt, rough
0.4	140	0.0210	5.94	18.93	**Trap/Vee/Rect Channel Flow, 20.4** Bot.W=2.00' D=0.75' Z= 3.0 '/' Top.W=6.50' n= 0.022 Earth, clean & straight
0.1	50	0.0600	12.64	111.20	**Trap/Vee/Rect Channel Flow, 20.5** Bot.W=15.00' D=0.40' Z= 15.0 & 20.0 '/' Top.W=29.00' n= 0.013 Asphalt, smooth
0.2	50	0.0080	4.06	3.19	**Pipe Channel, 20.6** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
8.2	429	Total			

Summary for Subcatchment 30S: SOUTHERN OUTLET OF WETLAND

Runoff = 1.76 cfs @ 12.12 hrs, Volume= 0.137 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.263	77	Woods, Good, HSG D
0.059	98	Paved parking, HSG D
0.034	98	Roofs, HSG D
0.040	80	>75% Grass cover, Good, HSG D
0.396	82	Weighted Average
0.303		76.52% Pervious Area
0.093		23.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25	0.0150	0.05		**Sheet Flow, 30.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	35	0.1500	1.94		**Shallow Concentrated Flow, 30.2** Woodland Kv= 5.0 fps
8.3	60	Total			

Summary for Subcatchment 31S: SOUTHERN OUTLET OF WETLAND

Runoff = 0.79 cfs @ 12.12 hrs, Volume= 0.061 af, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.203	77	Woods, Good, HSG D
0.203		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	50	0.0600	0.10		**Sheet Flow, 31.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.3	30	0.1333	1.83		**Shallow Concentrated Flow, 31.2** Woodland Kv= 5.0 fps
0.1	45	0.0578	7.85	294.44	**Trap/Vee/Rect Channel Flow, 31.3** Bot.W=5.00' D=1.00' Z= 50.0 & 15.0 '/' Top.W=70.00' n= 0.030 Stream, clean & straight
8.4	125	Total			

Summary for Subcatchment 50S: SOUTHWEST LOT CORNER

Runoff = 1.27 cfs @ 12.12 hrs, Volume= 0.103 af, Depth= 4.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 yr Rainfall=6.17"

Area (ac)	CN	Description
0.030	98	Roofs, HSG D
0.024	77	Woods, Good, HSG D
0.093	98	Paved parking, HSG D
0.072	79	Woods/grass comb., Good, HSG D
0.038	80	>75% Grass cover, Good, HSG D
0.257	88	Weighted Average
0.134		52.14% Pervious Area
0.123		47.86% Impervious Area

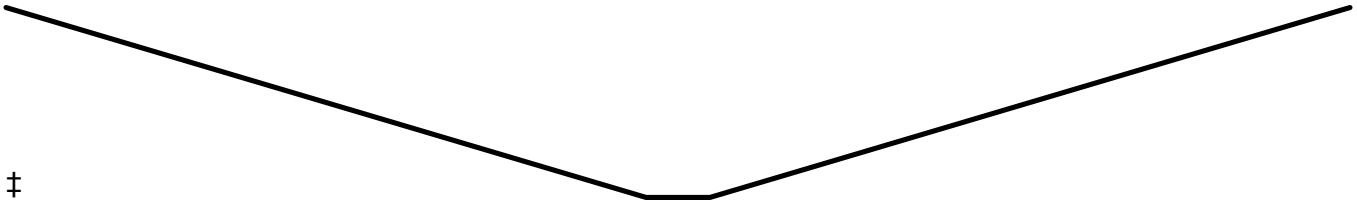
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	50	0.0500	0.10		**Sheet Flow, 60.1** Woods: Light underbrush n= 0.400 P2= 3.17"
0.1	48	0.0310	8.84	46.41	**Trap/Vee/Rect Channel Flow, 60.2** Bot.W=3.00' D=0.50' Z= 10.0 & 20.0 '/' Top.W=18.00' n= 0.013 Asphalt, smooth
8.7	98	Total			

Summary for Reach 1R: NORTH SIDE OF WETLANDS

[43] Hint: Has no inflow (Outflow=Zero)

Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 51.3' Slope= 0.0312 '/'
Inlet Invert= 48.60', Outlet Invert= 47.00'



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Summary for Reach 2R: SOUTH SIDE OF WETLANDS

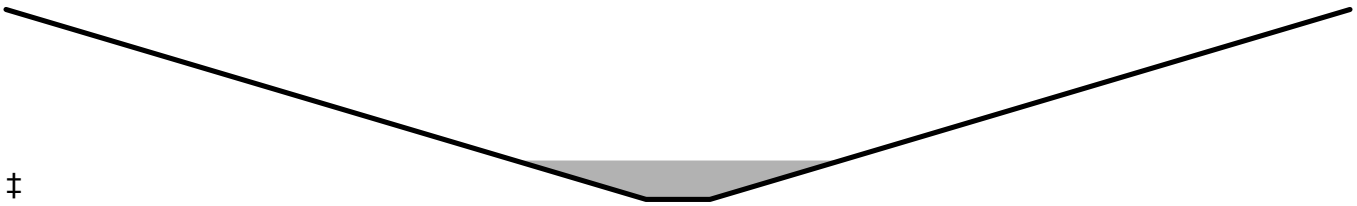
[61] Hint: Exceeded Reach 1R outlet invert by 0.20' @ 12.13 hrs

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 4.68" for 25 yr event
Inflow = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af
Outflow = 5.55 cfs @ 12.13 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 1.78 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 1.9 min

Peak Storage= 233 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 258.53 cfs

5.00' x 1.00' deep channel, n= 0.030 Stream, clean & straight
Side Slope Z-value= 50.0 '/' Top Width= 105.00'
Length= 75.0' Slope= 0.0213 '/'
Inlet Invert= 47.00', Outlet Invert= 45.40'



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Summary for Reach OUT 1: OUT 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 4.388 ac, 39.55% Impervious, Inflow Depth = 4.65" for 25 yr event
Inflow = 5.15 cfs @ 12.53 hrs, Volume= 1.700 af
Outflow = 5.15 cfs @ 12.53 hrs, Volume= 1.700 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Reach OUT 2: OUT 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.257 ac, 47.86% Impervious, Inflow Depth = 4.79" for 25 yr event
Inflow = 1.27 cfs @ 12.12 hrs, Volume= 0.103 af
Outflow = 1.27 cfs @ 12.12 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

Summary for Pond 1P: CATCH BASIN

Inflow Area = 1.147 ac, 38.49% Impervious, Inflow Depth = 4.68" for 25 yr event
Inflow = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af
Outflow = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.0 min
Primary = 5.57 cfs @ 12.12 hrs, Volume= 0.447 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 58.88' @ 12.12 hrs
Flood Elev= 60.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.90'	**12.0" Round Culvert** L= 163.3' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.90' / 48.60' S= 0.0386 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	59.50'	**10.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.57 cfs @ 12.12 hrs HW=58.88' TW=47.20' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.57 cfs @ 7.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.90' TW=47.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: On-site wetland

[63] Warning: Exceeded Reach 2R INLET depth by 0.78' @ 12.60 hrs

Inflow Area = 4.388 ac, 39.55% Impervious, Inflow Depth = 4.65" for 25 yr event
Inflow = 21.33 cfs @ 12.12 hrs, Volume= 1.700 af
Outflow = 5.15 cfs @ 12.53 hrs, Volume= 1.700 af, Atten= 76%, Lag= 25.0 min
Primary = 5.15 cfs @ 12.53 hrs, Volume= 1.700 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 47.88' @ 12.53 hrs Surf.Area= 25,503 sf Storage= 19,742 cf

Plug-Flow detention time= 26.6 min calculated for 1.700 af (100% of inflow)

Center-of-Mass det. time= 26.6 min (823.0 - 796.4)

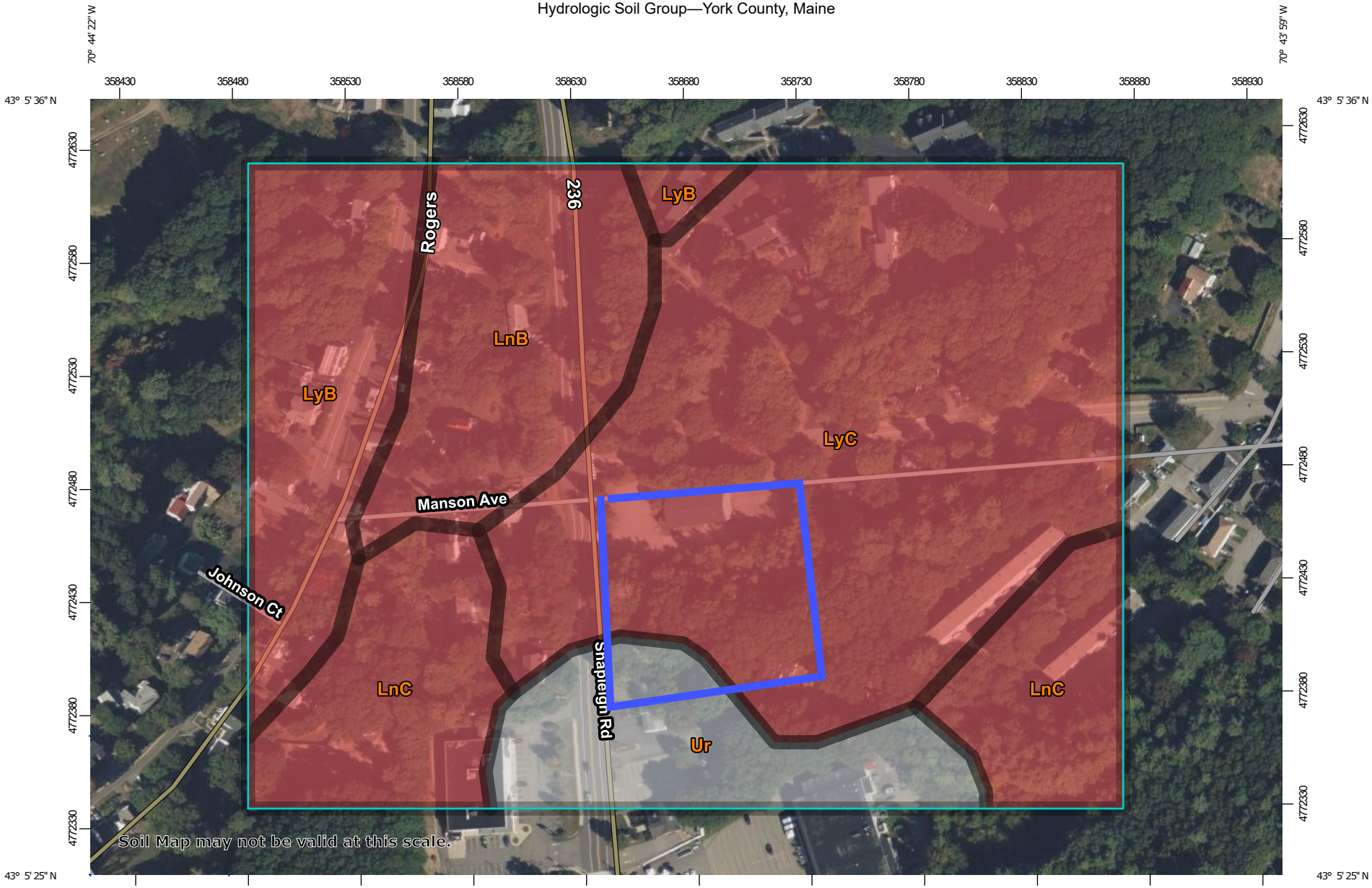
Volume	Invert	Avail.Storage	Storage Description
#1	45.40'	52,500 cf	**Custom Stage Data (Conic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
45.40	500	0	0	500
46.00	800	386	386	805
48.00	28,151	22,464	22,851	28,165
49.00	31,173	29,649	52,500	31,248

Device	Routing	Invert	Outlet Devices
#1	Primary	45.40'	**12.0" Round Culvert** L= 90.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 45.40' / 44.00' S= 0.0156 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	48.50'	**15.0' long x 40.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.15 cfs @ 12.53 hrs HW=47.88' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 5.15 cfs @ 6.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=45.40' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Map Scale: 1:2,420 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

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 21, Aug 30, 2022

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
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	3.8	13.7%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	4.4	16.0%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	3.8	13.7%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	12.8	46.6%
Ur	Urban land		2.7	9.9%
Totals for Area of Interest			**27.5**	**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

Stormwater Maintenance/Inspection Plan

During the construction of parking and drainage facilities, maintenance of all erosion, sedimentation, and stormwater flow control structures and devices will be the responsibility of the contractor performing the site work. The contractor will be notified of this prior to the start of work by Fair Tide, Inc.

Fair Tide, Inc. will be responsible for the continued maintenance of the stormwater systems after final stabilization.

During construction, all erosion control devices and structures shall be checked weekly and after each "significant rainfall"**. Necessary repairs will be made to correct undermining or deterioration of the devices and/or structures.

After construction, all stormwater BMPs shall be checked annually and after major storm events. Sediment in the catch basins will be removed annually or as needed to maintain functionality of the facility.

Fair Tide, Inc shall maintain inspection logs (attached) of all stormwater and erosion control measures. The log shall reflect the dates of the inspections and describe actions taken. The log shall be kept on file for a minimum of 5 years and be made available to the Town upon request.

If invasive species are observed in any of the stormwater facilities, they shall be removed immediately. Any damage to the surface of slope adjacent to wetlands shall be repaired and stabilized as soon as possible after disturbance.

The activities listed in the inspection log will be accomplished in early spring and in late fall.

A major storm event is classified as a rainfall exceeding 2.0 inches in a 24-hr storm event.

** Significant rainfall is 0.5" in 24 hr

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During Construction

During construction, maintenance shall be performed routinely on all erosion and sediment control BMPs. Refer to the following list of erosion and sediment control procedures.

Dust Control

Stabilize all laydown areas and all unpaved surfaces with a base gravel or coarse gravel as soon as possible. Use traffic control to restrict speed and route.
Water Application with frequent reapplication during warm sunny days will mitigate dust. The distribution of water should not cause turbid runoff.
Sweep and Vacuum paved road surface when dry. Sweep from the centerline to the edge of the travel way. Do not sweep into a waterbody or wetland. The public roadway may also require sweeping.

Construction Entrance

The entrance/exit pad should have a length of 50 feet or more and a 12-foot minimum width (or as appropriate to contain the wheel base of construction vehicles plus 3 feet on either side). The pad should be 6 inches or more thick with angular aggregate (2-3 inch diameter). Appropriate reclaimed concrete material may be used. The aggregate should be placed over a geotextile filter to prevent the stones from pushing into the native soil. At the bottom of slopes, a diversion ridge should be provided to intercept runoff. Berms may be necessary to divert water around any exposed soil, and runoff should be directed to a sediment trap. The pad should be inspected weekly, and before and after each storm. The pad may have to be replaced if the voids become filled with sediment. Street sweeping may be necessary.

Sediment Controls – All sediment controls shall be checked weekly and after significant rainfalls.

Silt Fence - The fence should be anchored to resist pull-out, and be stretched tightly between stakes to prevent sagging. A 6-inch wide and 6-inch deep trench should be excavated upgradient of the fence line to key the "flap" of the fabric. The trench is backfilled and compacted. When joints are necessary, filter cloth should be spliced by wrapping end stakes together. In areas where the flap cannot be keyed properly (due to frozen ground, bedrock, stony soil, roots, near a protected natural resource, etc.), the silt fence should be anchored with aggregate, crushed stone, erosion control mix, or other material.

Erosion Control Mix Berm - It may be necessary to cut, pack down or remove tall grasses, brush or woody vegetation to avoid voids and bridges that allow the washing away of fine soil particles. The ECM berm should be a minimum of 12" high and a minimum of two feet wide. On longer or steeper slopes, the berm will need to be wider and higher. Berms composed of ECM can be reshaped when necessary.

Storm Drain Inlet Protection - An inlet protection (storm drain drop inlet or curb inlet) captures sediment before runoff enters a catch basin. It is not effective for silts and clays. Various types of off-the-shelf devices are acceptable if installed, used, and maintained as specified by the manufacturer.

Overwinter Construction – The winter construction period runs from November 1st through April 15th; however no vegetation growth should be anticipated past October 15th in southern Maine. Additional stabilization measures should be provided by November 1st for winter and spring snowmelt if a construction site is not permanently stabilized with pavement, a gravel road base, 90% mature vegetation cover, erosion control mulch, or riprap. Ideally, permanent seeding should occur 45 days before the first killing frost (different dates for different Maine locations); otherwise, overwinter mulching is necessary.

Mulching – Mulching is the application of an organic cover over exposed soil to protect its structure from the impact of raindrops, to reduce the potential for erosion, and to maintain soil permeability and moisture for vegetation uptake. Erosion will occur where the soil does not have firm and continuous contact with an erosion control cover. Mulch must remain until the site is permanently stabilized or revegetated. Mulching shall be performed per weather prediction, soil erodibility, season, extent of disturbance, etc. within 7 days in sensitive areas (within 100 feet of a natural resource) or within 14 to 30 days in other areas.

Hay/Straw Mulch - Hay (straw will not import weeds) mulch prevents rain drop erosion, protects new seeding from sun exposure, and maintains moisture during germination. Loose mulch is not effective in windy areas, in areas of groundwater seepage or in channels with concentrated flows. Temporary mulch should be applied to areas that will not be actively worked for more than 14 days (7 days in sensitive areas). Application rate should be 2 bales (70-90 pounds) per 1000 square feet or 1.5 to 2 tons (90-100 bales) per acre and must be evenly distributed. Provide a mulch cover to soil stockpiles. Anchoring should be provided in areas with strong wind or on slopes greater than 5%. Hay mulch should be limited to slopes flatter than 2:1 unless short (less than 10 feet), and in non-seepage areas. Another measure should be used on steeper slopes with a high runoff potential. Anchoring can be accomplished by punching, crimping the mulch into the soil or tracking with a punch-roller or a knife blade roller. Walking and punching with a spade or shovel may be practicable on very small sites. Peg and twine or netting should be installed per the manufacturer's recommendations. Non-biodegradable plastic netting should be removed after the site is revegetated. Apply additional mulch if not revegetated with 90% grass uptake.

Erosion Control Blankets - An erosion control blanket could be used in the following conditions:

- Vegetated waterways and ditches; but not in areas of groundwater seepage
- Steep slopes (15% or greater and up to 2:1)
- In protected natural resource areas
- On areas that may be slow to revegetate
- For overwinter stabilization (November 1st - April 15th)

The soil surface should be finely graded and smooth for the blanket to have direct contact with the soil and to prevent undermining. Erosion control blankets perform best on loamy soils and should not be used on rocky sites or shallow soils. Seed should be sown before installing the erosion control blanket. Always unroll the blanket downhill without stretching and anchor the upslope edge in a 12 inch deep trench that is backfilled and tamped. Overlap shingle style a minimum of 12 inches at the top of each row and 4 inches at the edges of parallel rows. Anchor along the overlap with a maximum spacing of 3 feet or as required by the manufacturer.

Erosion Control Mix - Erosion control mix can be used on frozen ground, forested areas, on cut and fill slopes, and on roadside embankments. Apply a thickness of 2 inches on 3:1 slopes or less and add an additional 1/2 inch per 20 feet of slope or up to 4 inches for a 100 foot slope. On slopes greater than 3:1, 4 inches or more of material is recommended; and if slopes are greater than 60 feet long, 5 inches are needed. Erosion control mix is not recommended for slopes steeper than 1:1. The mix must be distributed evenly with a hydraulic bucket, pneumatic blower, or by hand. Other reinforcement BMPs (i.e. riprap) should be used on slopes with groundwater seepage, within drainage channels and their outlets, or in gullies.

Slopes – To be effective, slope stabilization and reinforcement should be adapted to the soil type, angle and length of the slope, presence of surface or groundwater, depth to bedrock, etc. Consultation with a civil engineer is advised for slopes that are over six feet, steeper than 1.5:1 grade, on unstable soils, with groundwater seeps, or where a structure is located near the top of the bank. A proper permit and design may be required for an embankment repair near a waterbody.

Cuts and Fills - Erosion potentials on fill slopes depend upon the depth of the fill, steepness, watershed size and presence of water. Fill slopes are more unstable than cut slopes from being disturbed or if lacking fines for proper compaction. In a wet area, gravel fill is preferred; but is at risk of being unstable. Terracing prevents surface runoff and promotes vegetation establishment by retaining moisture. The time between initial exposure and final stabilization should be minimized to prevent soil loss. Divert clean water away from the area and disperse to an undisturbed buffer or swale. For a fill slope, the native area should be cleared, grubbed, and scarified to a 3-inch depth. When working in below freezing temperatures, the ground should be scarified immediately before adding fill. The fill should be free of brush, rocks, or roots, and should not include frozen, soft or mucky material. The fill should be placed and compacted in 8-inch lifts to reduce lenses of loose soil. When filling or cutting a long slope (greater than 20 feet), benches (or terraces) should be provided to direct runoff away from the slope. The number of benches should be based upon the erodibility of the soil, steepness of the slope, and groundwater seeps. Mulch any soil exposed for longer than 7 days and with seed if ready for revegetation. Rill or gully erosion should be repaired immediately. Use winter stabilization practices if the construction is stopped for the winter months.

Geotextiles - Geotextiles should be placed with 12 inch overlaps and keyed 6 to 12 inches at the top and bottom of the area. Avoid using damaged cloth. ***Woven Geotextiles*** are mostly used for soil reinforcement beneath sharp, angular aggregates if dropped more than 5 feet; and where the cover will be more than 10 feet thick. It may be used for seepage management if the fabric's openings are smaller than the soil gradation. A woven filter fabric is usually used in a road base to provide bearing capacity and linear strength over soft subsoil. ***Nonwoven Geotextiles*** will retain more fine particles than woven geotextiles; and may allow water seepage without clogging. Nonwoven geotextiles have a rough surface that will bond soil layers and resists sliding along the planes of contact.

Riprap Protection - Riprap is used for structural support when a slope cannot be vegetated due to length or steepness of the slope, groundwater or surface water seepage, poor soil conditions, flowing water, etc. On a long slope, larger stones are used and placed at the bottom of the embankment and gradually grading down to smaller stones toward the top. A riprap stabilization project is composed of three sections:
• The surface armor layer of rough, angular rocks.
• The filter layer (a sand and gravel layer and/or a geotextile fabric) that supports the stones against settlement, allows groundwater to drain through the structure, and prevents the soil beneath from being washed through the riprap layer.
• The toe protection that reinforce the slope and prevents movement of the riprap. It is usually anchored in a trench at the toe of the slope.

Pipe Outlet Protection – Pipe outlet protection is the armor and/or plunge pool at the outlet of a culvert that prevents scour or turbulence, and will dissipate the flow energy from the pipe to the channel. For channels with a continuous flow, the culvert should be imbedded one quarter (1/4) its diameter to prevent a 'hanging' condition (drop from the pipe outlet to channel).

Post Construction

Sweeping

Paved surfaces shall be swept or vacuumed at least annually in the Spring to remove all Winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events. **Applicable to: All parking lots and travel ways on site.**

Roadways and Parking Surfaces				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Clear accumulated winter sand in parking lots and along roadways	**X**			
Sweep pavement to remove sediment	**X**			
Clean-out the sediment within water bars or open top culverts	**X**			
Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	**X**			

Vegetated Areas

All areas of maintained lawn are to be inspected regularly for signs of erosions and channelization. Areas where erosion is occurring or areas of sparse growth shall be replanted and stabilized. Channelized flows from the eroded land shall be diverted to buffers or other areas able to withstand the high sediment load in the erosive runoff. **Applicable to: Lawn areas receiving/conveying flows in any storm event.**

Vegetated Areas				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Inspect all slopes and embankments	**X**		**X**	
Replant bare areas or areas with sparse growth	**X**		**X**	
Armor areas with fill erosions with an appropriate lining or divert the erosive flows to on-site areas able to withstand concentrated flows	**X**		**X**	

Ditches, Swales and Culverts

Open swales and ditches need to be inspected on a monthly basis or after a major rainfall event to assure that debris or sediments do not reduce the effectiveness of the system. Debris needs to be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the structure and proper functioning.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated.

If sediment in culverts or piped drainage systems exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to not flush the sediments into the retention/detention pond as it will reduce the pond's capacity and hasten the time when it must be cleaned. All pipes should be inspected on an annual basis.

Stormwater Channels				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Inspect ditches, swales and other open stormwater channels	**X**	**X**	**X**	
Remove any obstructions and accumulated sediments or debris	**X**	**X**		
Control vegetated growth and woody vegetation		**X**		
Repair any erosion of the ditch lining		**X**		
Mow vegetated ditches		**X**		
Remove woody vegetation growing through riprap		**X**		
Repair any slumping side slopes	**X**	**X**		
Replace riprap where underlying filter fabric or underdrain gravel is showing or where stones have dislodge	**X**			**X**

Catch Basins/Manholes

All catch basins, and any other field inlets throughout the collection system, need to be inspected on a monthly basis to assure that the inlet entry point is clear of debris and will allow the intended water entry. These will be cleared, if necessary on a yearly basis or when sediment reaches two thirds of total volume. Catch basins and manholes need to be vacuumed and cleaned of all accumulated sediment. This work must be done by a vacuum truck. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

Catch Basin/Manhole Systems				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	**X**	**X**		
Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	**X**	**X**		

Stormwater Maintenance
Fair Tide, Inc.

Post Construction Maintenance Checklist

This log is intended to accompany the Stormwater Management Facilities Maintenance Plan for Fair Tide, Inc's Site Plan. The following items shall be checked, cleaned and maintained on regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five years and shall be available for review by the Town upon request. Qualified personnel familiar with drainage systems and soils shall perform all inspections.

Item	Maintenance Required & Frequency	Date Completed	Maintenance Personnel	Comments
Sweeping of Paved areas	Sweep annually in the Spring.			
Ditches, Swales and Culverts	Inspect after major rainfall event. Repair erosion or drainage immediately. Remove sediment if filtration times become greater than 12 hours. Clean culverts when sediment occupies more than 20% of pipe diameter.			
Vegetated Areas	Inspected regularly for signs of erosions and channelization. Areas where erosion is occurring or areas of sparse growth shall be replanted and stabilized.			
Catch Basins/ Manhole	Clean sumps with vacuum pump annually or when sediment occupies more than two thirds of the sump capacity.			

Stormwater Management System

Fair Tide, Inc.

Inspection & Maintenance Log

BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed *(List Items/Comments)*	Date of Cleaning/Repair	Performed By

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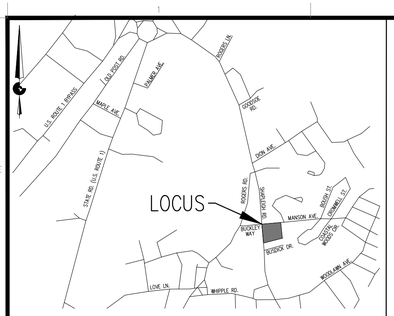


LOCATION PLAN
(NOT TO SCALE)

DRAINAGE LEGEND

POND — 4 — POND NUMBER

SUBCATCHMENT — 11 / 0.56 — SUBCATCHMENT NUMBER / SUBCATCHMENT ACREAGE

REACH — 50 / L=100 — REACH NUMBER / REACH LENGTH

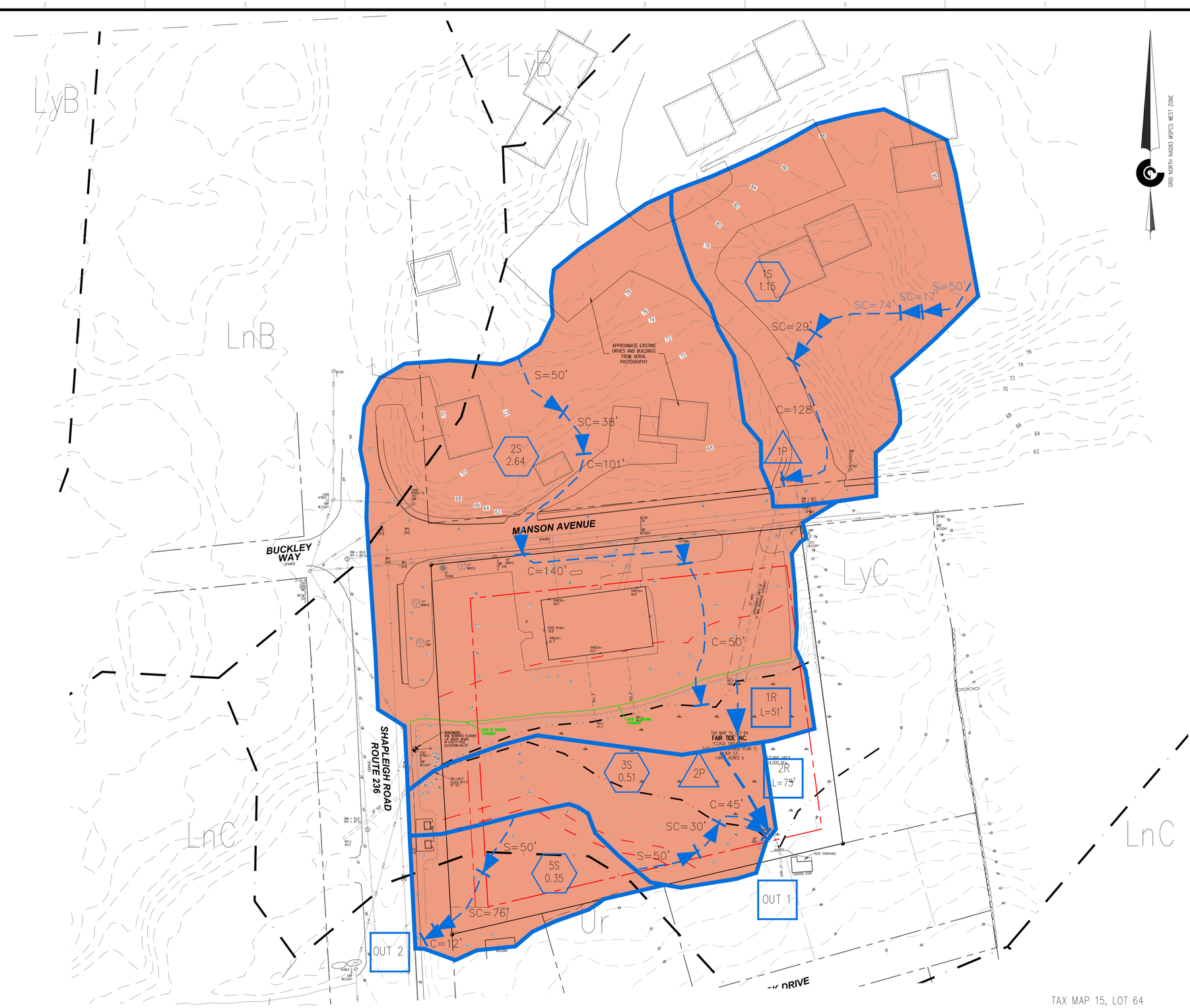
Tc COMPONENTS — S = Sheet; SC = Shallow Concentrated; C = Channel

ROUTING DIRECTION

SOILS LEGEND

- A Soils: SCS Soils: HISS Soils:
- B Soils: SCS Soils: HISS Soils:
- C Soils: SCS Soils: HISS Soils:
- D Soils: SCS Soils: Lyman, Lyman-Rock HISS Soils:

- Subcatchment Boundaries Pre-Development
- Subcatchment Boundaries Post-Development
- SCS Soil Line
- High Intensity Soil Line
- Tc Flow Path & Direction Pre-Development
- Tc Flow Path & Direction Post-Development



GRID NORTH NAD83 MAINE WEST ZONE

STATE OF MAINE
Neil J. Bezanson
12169
LICENSED PROFESSIONAL ENGINEER
1/3/2023

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NO.	REVISIONS	INT.	DATE
1			

RECORD OWNER:
FAIR TIDE, INC

OWNER ADDRESS:
15 STATE ROAD
KITTERY, ME 03904

SITE MODIFICATIONS
TAX MAP 15, LOT 64
22 SHAPLEIGH ROAD
KITTERY, MAINE

PREPARED FOR:
FAIR TIDE INC.
15 STATE ROAD KITTERY, MAINE 03904

CLIENT ADDRESS:

1"=20'
0' 20'

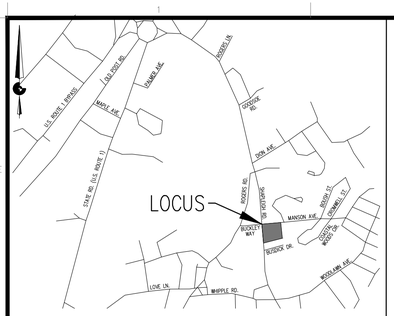
DATE: 01/03/2023
DRAWN BY: NJR
CHECKED BY:
APPROVED BY:

PRE-DEVELOPMENT STORMWATER MANAGEMENT PLAN

PROJECT NO: 21-335.00

D1

SHEET: 1 OF 2



LOCATION PLAN
(NOT TO SCALE)

DRAINAGE LEGEND

POND — 4 — POND NUMBER

SUBCATCHMENT — 11 / 0.56 — SUBCATCHMENT NUMBER / SUBCATCHMENT ACREAGE

REACH — 50 / L=100 — REACH NUMBER / REACH LENGTH

Tc COMPONENTS — S = Sheet; SC = Shallow Concentrated; C = Channel

ROUTING DIRECTION

SOILS LEGEND

- A Soils: SCS Soils: HISS Soils:
- B Soils: SCS Soils: HISS Soils:
- C Soils: SCS Soils: HISS Soils:
- D Soils: SCS Soils: Lyman, Lyman-Rock HISS Soils:

- Subcatchment Boundaries Pre-Development
- Subcatchment Boundaries Post-Development
- SCS Soil Line
- High Intensity Soil Line
- Tc Flow Path & Direction Pre-Development
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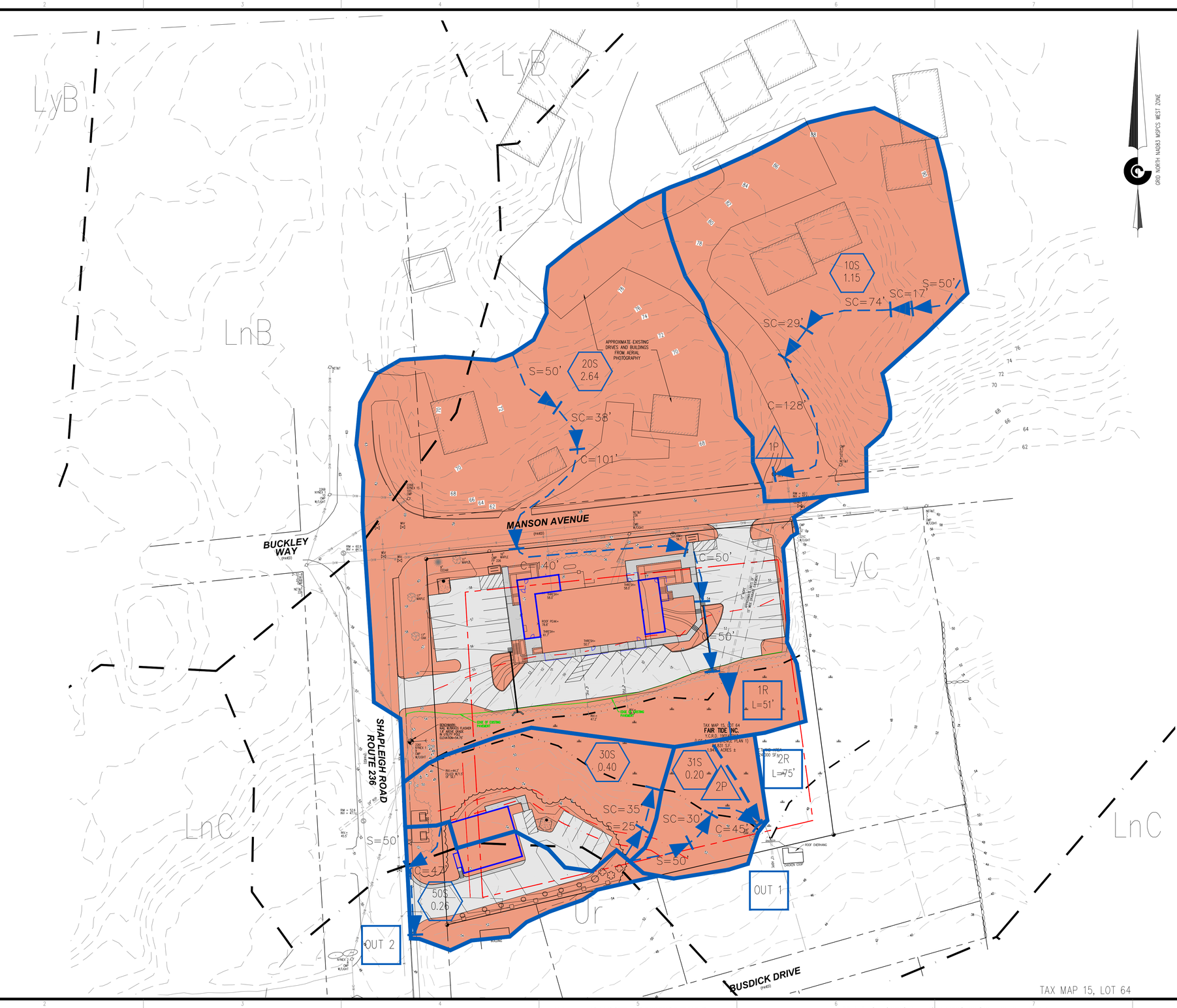

STATE OF MAINE
Neil J. Regonia
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LICENSED PROFESSIONAL ENGINEER
1/3/2023

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NO.	REVISIONS	INT.	DATE
1			

RECORD OWNER:
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SITE MODIFICATIONS
TAX MAP 15, LOT 64
22 SHAPLEIGH ROAD
KITTERY, MAINE

PREPARED FOR:
FAIR TIDE INC.
15 STATE ROAD KITTERY, MAINE 03904

CLIENT ADDRESS:

1"=20'
0' 20'

DATE: 11/01/2022
DRAWN BY: NJR
CHECKED BY:
APPROVED BY:

POST-DEVELOPMENT STORMWATER MANAGEMENT PLAN

PROJECT NO: 21-335.00

D2

SHEET: 2 OF 2

NANCY E HAMMOND, REGISTER OF DEEDS
E-RECORDED **Bk 19014 PG 917**
Instr # 2022019069
05/02/2022 11:36:03 AM
Pages 2 YORK CO

RECORD AND RETURN TO:
Fair Tide, Inc.
15 State Road
Kittery, ME 03904
File No. FP-001040
Parcel No. 15-64

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS that,

Old York Historical Society, a nonprofit corporation organized under the laws of the State of Maine, with a mailing address of 394 Southside Road, York, ME 03909

for consideration paid, grants to

Fair Tide, Inc., a nonprofit corporation organized under the laws of the State of Maine, with a mailing address of 15 State Road, Kittery, ME 03904, **with WARRANTY COVENANTS, the following:**

Maine R.E. Transfer Tax Paid

A certain lot or parcel of land situated on the easterly sideline of Shapleigh Road, so-called, and the southerly sideline of Manson Avenue, so-called, and being Lot "a" as shown on Plan of lots, H & M Development Corporation, Inc. prepared by Thomas F. Moran, Inc. dated October 25, 1983 and recorded in the York County Registry of Deeds, to which plan reference is hereby made for a more particular description.

The above-described premises are conveyed subject to a 15-foot wide drainage easement as shown on said Plan and as set forth in deed of H & M Development Corporation to Foxwell at Kittery Associates dated June 24, 1980.

The above-described premises are conveyed subject to a sewer pipeline easement from Shapleigh Professional Building, LLP to William Briggs dated July 23, 2002 and recorded in the York County Registry of Deeds in Book 11844, Page 304.

Meaning and intending to convey the same premises conveyed to Old York Historical Society from Shapleigh Professional Building, LLP, by deed dated April 23, 2014, and recorded on 04/24/2014, in Book 16808, Page 0436.

The improvement being known as 22 Shapleigh Road, Kittery, ME 03904

Tax ID: 15-64

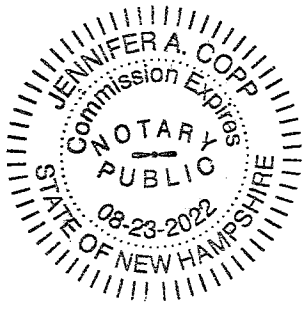
Dated this 29th day of April, 2022.

OLD YORK ~~HISTORICAL~~ SOCIETY

By: _____{SEAL}
Joel Lefever, Executive Director

STATE OF NEW HAMPSHIRE
COUNTY OF ROCKINGHAM

Then personally appeared before me on this 29th day of April, 2022, the said Joel Lefever who acknowledged himself to the duly authorized Executive Director of Old York Historical Society and that he acknowledged the foregoing to be his voluntary act and deed in said capacity.



Before me, _____
Notary Public

22 Shapleigh Road - Vicinity Map

Kittery, ME

November 2, 2022

1 inch = 200 Feet

0 200 400 600

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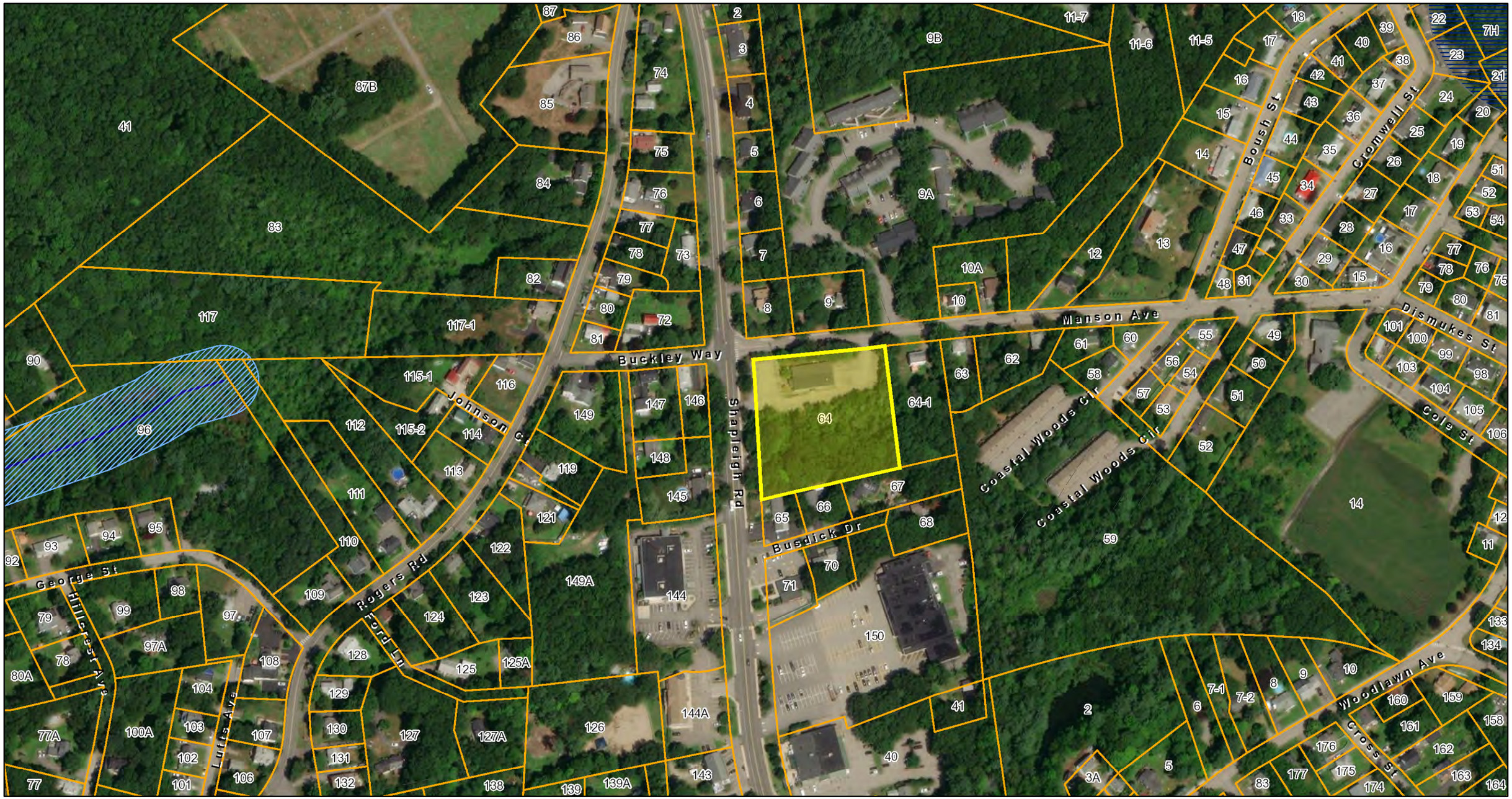
Precision Mapping Geospatial Solutions

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

From: Jake Roger
To: geoff@civcon.com
Cc: Timothy Babkirk
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)
Date: Wednesday, December 21, 2022 6:59:39 AM

Nope, no issues.
Thanks,

Jake Roger
Chief Plant Operator
Town of Kittery Maine WWTF
T: 207-315-9409 M: 603-312-3622
E: Jroger@kitteryme.org

From: geoff@civcon.com <geoff@civcon.com>
Sent: Tuesday, December 20, 2022 4:13 PM
To: Jake Roger <JRoger@kitteryme.org>
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Thank you! Do you see any issues with the proposed connection in Shapleigh for the housing portion of the project?

Geoff Aleva
CIVIL CONSULTANTS

From: Jake Roger <JRoger@kitteryme.org>
Sent: Tuesday, December 20, 2022 12:41 PM
To: geoff@civcon.com
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Geoff,
We do not have a list of required contractors. The only required specifications are the ones listed in that attachment.
Thanks,

Jake Roger
Chief Plant Operator
Town of Kittery Maine WWTF
T: 207-315-9409 M: 603-312-3622
E: Jroger@kitteryme.org

From: geoff@civcon.com <geoff@civcon.com>
Sent: Tuesday, December 20, 2022 12:26 PM
To: Jake Roger <JRoger@kitteryme.org>
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Jake

We will be for the existing building. Any issues or concerns for the new apartment building. Is there a list of contractors that are needed. What do you want for a connection to the existing?

Geoff Aleva
CIVIL CONSULTANTS

From: Jake Roger <JRoger@kitteryme.org>
Sent: Tuesday, December 20, 2022 12:23 PM
To: geoff@civcon.com
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Geoff,
If you are using the existing connection, we should be all set. Here are the required specifications.
Thanks,

Jake Roger
Chief Plant Operator
Town of Kittery Maine WWTF
T: 207-315-9409 M: 603-312-3622
E: Jroger@kitteryme.org

From: geoff@civcon.com <geoff@civcon.com>
Sent: Tuesday, December 20, 2022 11:56 AM
To: Jake Roger <JRoger@kitteryme.org>
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Jake

Please see the attached Utility plan we have prepared for the proposed project. The project received sketch approval and we working on our Preliminary review. Would you like to meet and discuss?

I understand that Manson was recently paved, but we would like to maintain the existing connect here. Do you have standard construction details that you would like for us to use on our plans.

What are your recommendations for the connection for the housing portion?

Thanks, Geoff

Geoff Aleva
CIVIL CONSULTANTS

From: Jake Roger <JRoger@kitteryme.org>
Sent: Monday, October 31, 2022 3:15 PM
To: geoff@civcon.com
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Geoff,
Unfortunately, this was installed a long time ago so we do not have a service card. You can submit your plan for a new connection when you apply. The size, slope, alignment, materials of construction of a building sewer, and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench must all conform to the requirements of the state and town building and plumbing code or other applicable rules and regulations of the Town. In the absence of code provisions or in amplification thereof, the materials and procedures set forth in appropriate specifications of the ASTM and WPCF Manual of Practice No. 9 apply.
Thanks,

Jake Roger
Chief Plant Operator
Town of Kittery Maine WWTF
T: 207-315-9409 M: 603-312-3622
E: Jroger@kitteryme.org

From: geoff@civcon.com <geoff@civcon.com>
Sent: Monday, October 31, 2022 2:27 PM
To: Jake Roger <JRoger@kitteryme.org>
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Jake

Sorry, yes I was asking for some additional information. Can I get a copy of the service card for the existing building. I am not sure where it connects along the frontage on Manson.

Second, I was wondering what kinds of information you will need to indicate a future connection for the apartment building on Shapleigh.

We will be submitting for Planning Board sketch plan review this week.

Sorry for the lack of information.

Geoff

Geoff Aleva
CIVIL CONSULTANTS

From: Jake Roger <JRoger@kitteryme.org>
Sent: Monday, October 31, 2022 2:22 PM
To: geoff@civcon.com
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Geoffrey,
I believe part of your email was cut out, where you were asking for more information. You will need a capacity letter during the application process. If you determine that the current service will not suffice, you can apply for a new one during that process as well.
Thanks,

Jake Roger
Chief Plant Operator
Town of Kittery Maine WWTF
T: 207-315-9409 M: 603-312-3622
E: Jroger@kitteryme.org

From: geoff@civcon.com <geoff@civcon.com>
Sent: Monday, October 31, 2022 2:05 PM
To: Jake Roger <JRoger@kitteryme.org>
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Jake

Thank you for the information. Do you have any information on the

Do I need to get a capacity letter, what information do you need from me to determine if the existing building needs and upgrade service and where the service should tie in for the new apartment building.

I am available to meet at your convenience.

Geoff

Geoff Aleva
CIVIL CONSULTANTS

From: Jake Roger <JRoger@kitteryme.org>
Sent: Monday, October 31, 2022 1:00 PM
To: geoff@civcon.com
Cc: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: RE: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Hello Geoffrey,
Here are the depths of the inverts in each manhole.
Thanks,

Jake Roger
Chief Plant Operator
Town of Kittery Maine WWTF
T: 207-315-9409 M: 603-312-3622
E: Jroger@kitteryme.org

From: Timothy Babkirk <TBabkirk@kitteryme.org>
Sent: Monday, October 31, 2022 10:44 AM
To: Jake Roger <JRoger@kitteryme.org>
Subject: FW: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Thank You
Tim

Timothy Babkirk
Superintendent
Of Sewer Services
Town of Kittery
200 Rogers Road
Kittery, Maine 03904
tbabkirk@kitteryme.org
(207) 439-4646

From: geoff@civcon.com <geoff@civcon.com>
Sent: Friday, October 21, 2022 8:12 AM
To: Timothy Babkirk <TBabkirk@kitteryme.org>
Subject: 22 SHAPLEIGH RD - Map 15, lot 64 - Sewer Service (cc2133500)

Tim, I hope all is well.

We are working on the site design for the redevelopment on this property. I noticed that the area was marked for Geotech work. Is it possible to get additional information on the adjacent SMH invert elevations and lines in the area.

Attached is the concept site plan.

The existing building will be modified and expanded to include the Fairtide organization, office space and a food pantry. The flows are a little difficult to determine, the uses will be retail thrift store, food panty, clothes storage and office area. I have estimated 20 employees on a max shift at 12 GPD. The food panty may have some cleaning and washing, and I have estimated 125 GPD for that work. A total flow would be approximately 365-375 GPD.

A portion of the southern portion of the property will be developed into 6 affordable rental units. The break down will be 5 one bedroom and 1 studio unit. The flows will be approximately (120gpd/unit) = 720 GPD.

Please let me know if you would like to meet and discuss.

Thank you for your time.

Geoff

Geoffrey R. Aleva, PE
President
Structural / Civil Engineer
CIVIL CONSULTANTS
PO Box 100 / 293 Main Street
South Berwick, Maine 03908
ph: 207-384-2550
fx: 207-384-2112
mobile: 603-781-1402

OFFICE OF

KITTERY WATER DISTRICT

17 State Road
Kittery, ME 03904-1565
TEL: 207-439-1128
FAX: 207-439-8549
E-Mail: kitterywater@comcast.net

Kittery Planning Board
200 Rogers Road
Kittery, ME 03904

December 20, 2022

RE: 22 Shapleigh Road, Kittery

Dear Planning Board Members,

Please accept this letter as verification that the Kittery Water District does have the capacity to supply municipal water service to the proposed structures at 22 Shapleigh Road, Kittery. Both domestic and fire protection service is available.

Sincerely,

Michael S. Rogers
Superintendent

Cc: Geoffrey R. Aleva, PE – Civil Consultants

CIVIL CONSULTANTS

Engineers
Planners
Surveyors
P.O. Box 100
293 Main Street
South Berwick
Maine
03908
207-384-2550

January 6, 2023

RE: **Preliminary Site Plan Review Notification**
22 Shapleigh Road
Kittery, ME 03904

This letter is to inform you that a Preliminary Site plan Review application will be filed with the Planning Department for a redevelopment project at 22 Shapleigh Road (Tax Map 15, Lot 64). Work is being done for Fair Tide Inc located at 15 State Road, Kittery, ME. Which proposes work abutting your property.

The project consists of the redevelopment of the existing site and building to create a community service space called Mainspring. You can find more information at the following website on the services to be provided. (https://www.mainspringcollective.org/). The project will also construct a residential building that will house 6 units of affordable housing.

The project will require a Major Site Plan review to redevelop the existing building, parking areas and new residential construction into what is proposed for the property.

Detailed information will be presented at the Planning Board meeting that indicates use and how this project will benefit the community. Information is available to review at the Town Hall or at Civil Consultants.

Should you have any questions or comments, please call at your convenience.

Respectfully yours,
CIVIL CONSULTANTS

Geoffrey R. Aleva, P.E.,
Vice President
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LIST OF ABUTTERS

22 Shapleigh Road
Kittery, ME
Map 15 Lot 64
January 2023

MAP	*LOT*	*NAME & MAILING ADDRESS*
15	64 (locus)	Fair Tide Inc 15 State Road Kittery Me 03904
15	65	Brittany Horst Nathan Horst 16 Shapleigh Road Kittery ME 03904
15	66	Matthew Boyle 5 Busdick Drive Kittery ME 03904
15	67	Julia O'Connell Trustee The Blue Heron Rev. Trust of 2012 9 Busdick Drive Kittery ME 03904
15	64-1	Stephen Erickson 616 E Devonhurst Lane Ponte Vedre, FL 32081
15	8	Gabrielle Bertrand Douglas Bertrand 24 Shapleigh Road Kittery ME 03904
15	9	Judith Durnin PO Box 833 Kittery ME 03904
15	9A	Berry Park Housing Corp C/O Avesta Housing Development Corp 307 Cumberland Avenue Portland, ME 04101
9	146	Jay Wilgus Emily Flinkstrom 12 Buckley Way Kittery ME 03904
9	145	Clifford Family IRR R.E. Trust Matthew Clifford TR 79 York Woods Road South Berwick, ME 03908

CIVIL CONSULTANTS MEMORANDUM

TO:	**Town of Kittery Planning Department**	**FROM:**	**Geoffrey R. Aleva, P.E.**	**DATE:**	**1/4/2023**
SUBJECT:	**§ 16.7.10. Review process and submission requirements. PRELIMINARY**				
PROJECT:	**C.C. Project # 2133500 – FAIRTIDE / 22 SHAPLEIGH RD**				

Following please find CIVIL CONSULTANTS's responses to the memorandum from § 16.7.10. Review process and submission requirements. PRELIMINARY

COMMENT	RESPONSE
§ 16.7.10. Review process and submission requirements.	
(4) Plan requirements.	
(a) Plan sheets drawn on a reproducible medium and must measure no less than 11 inches by 17 inches and no larger than 24 inches by 36 inches;	*Provided*
(b) With scale of the drawings no greater than one inch equals 30 feet for developments less than 10 acres, and one inch equals 50 feet for all others;	*Provided*
(c) Code block in the lower right-hand corner. The block must contain: [1] Name(s) and address(es) of the applicant and owner; [2] Name of the project; [3] Name and address of the preparer of the plan, with professional seal, if applicable; [4] Date of plan preparation/revision, and a unique ID number for the plan and any revisions;	*Provided*
(d) Standard boundary survey conducted by a surveyor licensed in the State of Maine, in the manner recommended by the State Board of Registration for Land Surveyors;	*Provided*
(e) An arrow showing true North and the magnetic declination, a graphic scale, and signature blocks for the owner(s) and members of the Planning Board;	*Provided*
(f) Locus map showing the property in relation to surrounding roads, within 2,000 feet of any property line of the development;	*Provided*
(g) Vicinity map and aerial photograph showing the property in relation to surrounding properties, roads, geographic, natural resource (wetland, etc.), historic sites, applicable comprehensive plan features such as proposed	*Provided*

park locations, land uses, zones, and other features within 500 feet from any boundary of the proposed development;	
(h) Surveyed acreage of the total parcel, of rights-of-way, wetlands, and area to be disturbed and amount of street frontage;	*Provided*
(i) Names and addresses of all owners of record of property abutting the development, including those across a street;	*Provided*
(j) Existing development area conditions, including but not limited to: [1] Location and description of all structures, including signs, existing on the site, together with accesses located within 100 feet of the property line; [2] Essential physical features such as watercourses, wetlands, floodplains, wildlife habitat areas, forest cover, and outcroppings; [3] Utilities existing, including power, water, sewer, holding tanks, bridges, culverts and drainageways;	*Provided*
(k) Proposed development area conditions including, but not limited to: [1] Structures: their location and description, including signs, to be placed on the site, floor plans and elevations of principal structures as well as detail of all structures, showing building materials and colors, and accesses located within 100 feet of the property line; [2] Utilities proposed including power, water, sewer, holding tanks, bridges, culverts and drainageways; [3] Sewage facilities type and placement. Test pit locations, at least two of which must meet the State of Maine Plumbing Code requirements, must be shown; [4] Domestic water source; [5] Parks, open space, or conservation easement locations; [6] Lot lines, interior and exterior, right-of-way, and street alignments; [7] Road and other paved ways plans, profiles and typical sections including all relevant data; [8] Setbacks existing and proposed; [9] Machinery permanently installed locations likely to cause appreciable noise at the lot lines; [10] Raw, finished or waste materials to be stored outside the buildings, and any stored material of a toxic or hazardous nature; [11] Topographic contours of existing contours and finished grade elevations within the development; [12] Pedestrian ways/sidewalks, curbs, driveways, fences, retaining walls and other artificial features locations and dimensions proposed; [13] Temporary marker locations adequate to enable the Planning Board to readily locate and appraise the layout of the development;	*Provided*

[14] Land proposed to be dedicated to public use and the conditions of such dedication;	
(l) Natural features or site elements to be preserved. Written submission requirements legal interest documents showing legal interest of the applicant in the property to be developed. Such documents must contain the description upon which the survey was based;	*Provided*
(m) Property encumbrances currently affecting the property, as well as any proposed encumbrances;	*N/A*
(n) Water district approval letter, if public water is used, indicating there is adequate supply and pressure to be provided to the development;	
(o) Erosion and sedimentation control plan endorsed by the York County Soil and Water Conservation District or the Town's engineering consultant;	*Provided*
(p) Stormwater management preliminary plan for stormwater and other surface water drainage prepared by a registered professional engineer including the general location of stormwater and other surface water drainage areas;	
(q) Soil survey for York County covering the development. Where the soil survey shows soils with severe restrictions for development, a high intensity Class "A" soil survey must be provided;	*Waiver?*
(r) Vehicular traffic report estimating the amount and type of vehicular traffic that will be generated by the development on a daily basis and for peak hours;	
(s) Traffic impact analysis in accordance with § 16.5.27E for developments involving 40 or more parking spaces or which are projected to generate more than 400 vehicle trips per day;	*N/A*
(t) Test pit(s) analysis prepared by a licensed site evaluator when sewage disposal is to be accomplished by subsurface disposal, pits, prepared by a licensed site evaluator;	*N/A*
(u) Town Sewage Department or community system authority letter, when sewage disposal is to be through a public or community system, approving the connection and its location;	
(v) Letters of evaluation of the development by the Chief of Police, Fire Chief, Commissioner of Public Works, and, for residential applications, the superintendent of schools, must be collected and provided by the Town Planner;	
(w) Additional submissions as may be required by other sections of this title such as for clustered development, mobile home parks, or junkyards must be provided.	*N/A*
(5) Additional requirements. In its consideration of an application/plan, the Planning Board may at any point in the review require the applicant to submit additional materials, studies, analyses, and agreement proposals as it may deem	

necessary for complete understanding of the application. Such materials may include:	
(a) Traffic impact analysis, for projects that are not otherwise required to submit a traffic impact analysis by submission requirement in Subsection C(4)(s), above.	
(b) Environmental analysis. An analysis of the effects that the development may have upon surrounding lands and resources, including intensive study of groundwater, ecosystems, or pollution control systems.	
(c) Hydrologic analysis. An analysis of the effects that the development may have on groundwater must be conducted in accordance with § 16.7.11J. This analysis is always required for mobile home park proposals.	
(6) Additional submittal content required for review of wireless communication services facilities (WCSF).	
(a) A visual impact analysis prepared by a landscape architect or other qualified professional acceptable to the Town that quantifies the amount of visual impact on properties located within 500 feet, within 2,500 feet and within two miles of the WCSF. This analysis will include recommendations to mitigate adverse visual impacts on such properties;	*N/A*
(b) An analysis prepared by a qualified professional acceptable to the Town that describes why this site and structure is critical to the operation for which it is proposed. The analysis must address, at a minimum, existing and proposed service area; how this WCSF is integrated with other company operations, particularly other structures in Kittery and surrounding communities; future expansion needs in the area; the effect on company operations if this structure is not constructed in this location; other sites evaluated for location of this structure and how such sites compare to the proposed site; other options, if any, which could be used to deliver similar services, particularly if the proposed equipment can be co-located (shared use) on an existing structure; and an analysis to the projected life cycle of this structure and location;	*N/A*
(c) Certification by a structural engineer that construction of the structure satisfies all federal, state and local building code requirements as well as the requirement of maximum permitted co-location at the site as approved by the Planning Board/Town Planner;	*N/A*
(d) A plan note stating the payment of all required performance guarantees as a condition of plan approval;	*N/A*
(e) Payment of the Planning Board application fees;	*Provided*
(f) And all other requirements per this chapter.	

CIVIL CONSULTANTS MEMORANDUM

TO:	**Town of Kittery Planning Department**	**FROM:**	**Geoffrey R. Aleva, P.E.**	**DATE:**	**1/4/2023**
SUBJECT:	**Application Info:** **Related Kittery Land Use and Development Code Provisions: PRELIMINARY**				
PROJECT:	**C.C. Project # 2133500 – FAIRTIDE / 22 SHAPLEIGH RD**				

Following please find CIVIL CONSULTANTS's responses to the memorandum from § 16.7.10. Review process and submission requirements. PRELIMINARY

COMMENT	RESPONSE
Application Info: **Related Kittery Land Use and Development Code Provisions: PRELIMINARY**	
PRIOR TO STARTING THE REVIEW PROCESS, THE PLANNING BOARD WILL DECIDE WHETHER SUFFICIENT INFORMATION HAS BEEN PROVIDED AND WILL VOTE TO DETERMINE COMPLETENESS/ACCEPTANCE	
A) Paper Size •No less than 11" x 17" (reduced) or greater than 24" x 36" (full)	*Provided*
B) Scale size •Under 10 acres: no greater than 1" = 30' •10+ acres: 1" = 50'	*Provided*
C) Title block: •Applicant's name and address •Name of preparer of plans with professional information and professional seal •Parcel's tax map and identification (map -lot) •Date of plan preperation	*Provided*
D) Boundary survey performed and sealed by licensed surveyor •Identify all existing boundary markers •Show all proposed boundary monuments (per ordinance)	*Provided*
E) Provide orientation •Arrow showing true north and magnetic declination •Graphic scale •Parcel Owners and map and lot •Deed docket and page numbers •Draft Deed of Covenants •Signature block for planning board	*Provided*
F) Show locations and description of •Elevations of dwelling units. If applicable. •All structures and accesses within 100 feet	*N/A*

G) Show parcel data •Zoning District(s) •Lots •Lot Widths •Lot Depths •Street Frontage •Building setback lines •Lot areas •Rights-of-way •ROW area •Exist & new street names •Wetlands •Wetland area •Wetlands setbacks •Common tracts •Easements •Parcel areas •Shoreland Zoning setbacks •Undisturbed areas •Note on the subdivision plan regarding areas to be tapered off and protected until project construction is completed	*Provided*
H) Show names and addresses of all owners of record on abutting parcels and the assessor's map and lot numbers	*Provided*
I) Label all zoning districts abutting the property boundaries	*Provided*
J) Show locations of natural physical features such as water bodies, watercourses, forest cover, and ledge outroppings	*Provided*
K) Show the location of existing and proposed Utilities and identify which utilities are to be privately owned/ municipally owned: •Overhead electric •Underground electric •Water mains •Wells •Gas mains •Cable TV •Sewer mains •Test pits •Septic tanks •Leach fields	*Provided*

•Storm drain lines •Catch basins •Culverts •Gutters •Stormwater storage basins •Rain gardens •Nearest fire hydrant	
L) Indicate required landscaping including: •Type of plan material •Plant/Tree sizes •Placement •Irrigation systems	*Provided*
M) Show natural and historical topography •Rock walls •Railroad beds •The location of all natural features or site elements to be preserved	*Provided*
N) Provide a vicinity map and aerial photograph at a scale not more than 400 feet to the inch showing the relation to other properties and geographic features and show •All the area within 500 feet of the boundary line of the proposed development including roads, geographic features, natural resources (wetlands, etc.), historic sites, applicable comprehensive plan features such as proposed park locations, land uses, Zones and other features •Any smaller area between the tract and all existing streets, provided any part of such a street used as part of the perimeter for the vicinity map is at least 500 feet from any boundary of the proposed development	*Provided*
O) Show the locations of any •Parks •Preserved open space •Conservation easements •Note on the subdivision plan regarding areas to be dedicated for public use and conditions of such dedication	*N/A*
P) Identify and locate each: •Easements •Rights-of-way •Street alignments •All intersecting property lines within 50 feet of the parcel	*Provided*
Q) Include plans, profiles and typical sections of all roads and other paved ways, including all relevant street data •Intersection or •Distance to nearest intersection •Driveways onsite •Distance to nearest driveway •Sight visibility lines	*N/A*
R) Show all existing and proposed lighting •Map of all street lighting, attached lighting, and area lighting •Location of lighted signs	*Provided*

•Photo-metric map	
S) Indicate the location of any permanently installed machinery likely to cause appreciable noise at the lot lines	*N/A*
T) Provide description of these materials stored on the property: •Hazardous •Toxic •Raw Waste	*N/A*
U) Show existing contours and finished grade elevations onsite and sufficiently offsite to demonstrate how the project is situated in the surrounding environment	*Provided*
V) Indicate the location and dimensions of •Sidewalks •Curbs •Driveways •Fences •Retaining walls •Other artificial features	*Provided*
W) Copies of State and Local permit applications •Notice of intent •NRPA •Permit by Rule •All other applicable permits	
X) Copy of FIRM Map showing the proposed subdivision boundary to scale	

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