

ITEM 1

**Town of Kittery
 Planning Board Meeting
 February 23, 2023**

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

Action: hold 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	Under review
YES	Determination of Completeness/Acceptance	Preliminary site plan application accepted as complete during 1/26/23 meeting.	Complete
NO	Site Visit	Held February 6, 2023 and continued to February 21, 2023. Abutter notices sent by staff on January 30, 2023 and February 13, 2023.	Pending/ held
YES	Public Hearing	Opened during February 9, 2023 meeting and continued to February 23, 2023 meeting.	Opened/ pending
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

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

26
27 The proposed use of the renovated existing building to the north has the allowed uses of retail sales, a
28 neighborhood grocery store as well as business and professional offices. This will be comprised of a
29 collective of social service agencies known as “Mainspring”; which will be home to Fair Tide’s thrift
30 store and administrative offices, Footprints Food Pantry, York Community Action and other programs
31 that service the community.

32
33 The southern portion of the property is the location of the proposed new 6-unit residential building owned
34 by Fair Tide and managed by York Housing. The required land area for each available unit will be 1500sf
35 per unit, the available lot can easily support the density of the 6 multifamily units based on the land area
36 (6 x 1500sf (9,000sf) < 54,000sf).

37 **Staff Review: Draft/ Preliminary Findings**

38 **Process (§16.7.10):**

39
40 Any mixed-use project that contains residential and non-residential uses is classified as a **major site plan**
41 per §16.7.5-A.2.c. Section 4402-6 of Maine Revised Statutes exempts division of structures from
42 subdivision requirements where a project is subject to municipal site plan review (applicable to the 6-unit
43 residential component of this project). Since Title 16 of Kittery’s Town Code (KTC) classifies this project
44 as a major site plan, subdivision review is not required and the provisions of KTC Chapter 16.7 General
45 Development Requirements apply.

46
47
48 Major site plan applicants may choose to submit a **sketch plan** for a proposal but are not required to do
49 so. The applicants submitted a sketch plan application for this project that was reviewed and accepted by
50 the Planning Board on December 8, 2022. The packet for that meeting can be reviewed at: [Planning
51 Board Meeting December 8th, 2022 | Kittery ME.](#)

52
53 Submittal and approval of a **preliminary site plan application is required** per §16.7.10-C. The applicant
54 submitted a preliminary site plan application and supporting plans and materials via the Town’s online
55 portal on January 6, 2023. Staff reviewed the documents and the submittal checklists provided by the
56 applicant and found the application to be generally complete. The Planning Board reviewed this
57 application during the January 26, 2023 meeting and voted 7-0 to accept the application and find it
58 complete. The January 26 meeting packet includes site plans, building elevations and renderings, a
59 photometric lighting plan, a stormwater management plan, a warranty deed, and verification of water and
60 sewer service availability, which can be reviewed at [item 1 22 shapleigh rd.pdf \(kitteryme.gov\)](#).

61
62 The Board held a **site walk** at the subject property on February 6, 2023 and voted to continue it on
63 February 21, 2023. The Board opened a **public hearing** during the February 9, 2023 meeting and voted to
64 continue the hearing to the February 23, 2023 meeting. Third party peer review of plans for compliance
65 with stormwater and engineering requirements was requested from CMA Engineers; comments were
66 received by Town staff on February 13, 2023. Their review memo is included in the packet for this
67 meeting.

68 Following Planning Board approval of a preliminary site plan application, submittal and approval
69 of a separate Final Site Plan application is required prior to construction.

70 **Other permit(s) needed:**

- 71 • Final site plan approval

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- 73 • Road Excavation Permit/ Driveway Entrance Permit (Kittery Public Works)
- 74 • Building Permit
- 75 • Sewer Connection Permit; other utility permits?
- 76 • Sign permit

77

78 Land Use Zone Regulations Chapter 16.4

79 Multifamily Dwellings are permitted in B-L1 zoning district per 16.4.18- B. A variety of office and retail
80 uses are also permitted.

81

82 16.4.18-D.1 Standards:

- 83 • a.3: one nonresidential use must be located on the first floor facing Shapleigh Rd. Staff and the Board
84 determined this requirement to be met via the commercial uses proposed for the existing building.
- 85 • a.4.a unit density: 1,500 square feet of land area per dwelling unit required (complies)
- 86 • a.4.b-g: dimensional standards (setbacks, building height, lot coverage): complies
- 87 • a.4.h: stormwater: LID and BMPs required for all stormwater generated onsite. Stormwater
88 Management Plan submitted by applicant. Applicant proposes to reduce impervious surfaces on the
89 northern portion of the property while adding approx. 7,700 square feet of impervious surfaces on the
90 southern portion of the property. Most stormwater runoff is proposed to flow to the on-site wetland,
91 which drains southwest to public facilities located in the Shapleigh Rd right-of-way and south via a
92 culvert which underlies abutting property. *Discussion item: are easements in place establishing
93 property rights for off-site drainage? ("Out 1" on drainage plans).*

94 Drainage plans were reviewed on the Board's behalf by a qualified peer review consultant (Jodie
95 Bray Strickland, CMA Engineers), who provided comments via a letter dated February 10, 2023. Ms.
96 Strickland noted the following:

- 97 ○ The proposed project will slightly increase stormwater runoff flows to affected outfall
98 facilities.
- 99 ○ Stormwater plan must be revised to include erosion control, post-construction inspection, and
100 other details
- 101 ○ Condition of pipes draining off-site westward and southward should be evaluated

102 Town staff verified that existing drainage facilities located south and west of this property are not
103 constructed to current standards and detailed conditions of these facilities are unknown. Staff generally
104 conclude that off-site impacts from stormwater runoff generated by the proposed development should
105 be insignificant due to the size and configuration of the existing wetland. However, additional measures
106 to reduce flows and improve quality of stormwater runoff into the wetland may be achievable and
107 should be considered in accordance with Town and State standards.

- 108 • a.4.j: **hours of operation and hours of exterior lighting** are required to be limited. Final plans
109 should be noted accordingly. *Discussed during Jan. 26 meeting. Notes to be added to final plans.*
- 110 • a.4.l: setback from streams & wetlands: 50 feet for buildings, 40 feet for 1-5 stall parking areas:
111 commercial building and parking area existing. Reduction in nonconformity for parking/ driveway
112 setback proposed. Proposed residential building and parking facilities comply with standard.

113

114 D.2 Parking:

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

119

120 D.3 Building Design:

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- 121 • materials and details consistent in all facades
122 • peaked roof form proposed
123

124 D.4 Landscaping:

- 125 • 15% of property to be landscaped or in natural condition per landscape plan and existing wetland
126 • outdoor spaces required. Garden beds proposed near commercial building. **Usable outdoor space**
127 limited near residential building. *Discussion item?*
128

129 D.7 Affordable Housing: **16.5.4** must be met. *Plan notes or covenants required to ensure affordability in*
130 *perpetuity?*
131

132 General Development Requirements Chapter 16.7 (Site Plans)

133 16.7.8 Waivers: *Waiver request for residential parking may be required. Submittal and approval by*
134 *Planning Board pending.*
135

136 16.7.11 Standards and approval criteria:

137 A. Water and B. Sewer

- 138 • Utilities are available to serve this development. Review by Town and District staff and peer review
139 engineers pending. Verification of availability has been provided.
140

141 C & D. Stormwater:

- 142 • See above. Peer review pending. Maintenance agreements and post-construction management plan
143 required for review.
144

145 E. Traffic:

- 146 • Vehicular access to the existing/ proposed commercial building is from Manson Ave and Shapleigh
147 Rd via existing driveways. Access to the proposed residential building will be from Shapleigh Rd via
148 a new driveway. Vehicular connectivity between the commercial and residential portions of the site is
149 infeasible due to the location of the on-site wetland. Driveway and paving plans were reviewed by
150 CMA Engineers and by Kittery's **Technical Review Committee** members, who did not have any
151 concerns about the proposed driveway configuration but had the following comments/ questions:
152 o Additional details needed regarding curb cuts (radius) and drainage between entrances @
153 Shapleigh. Additional culverts may be needed at site entrances (per CMA comments).
154 o Turning movements in/ out of Shapleigh Rd driveways may need to be limited to right-in/
155 right-out. **Sight distance** and trip generation information should be provided.
156 o Sidewalk improvements must be concrete (no asphalt in ROW)
157 o Traffic and parking controls are needed within the site, including fire lane/ no parking
158 markings in the residential driveway and one-way & do not enter signage for the angled-
159 parking portion of the commercial driveway.
160 • Number and spacing of driveways comply with E.3 and E.4. Internal vehicular circulation complies
161 with E.5.
162

163 F. Parking:

- 164 • 35 parking stalls proposed for commercial building, 6 parking stalls proposed for residential building.
165 *How many stalls required for commercial building? Should applicant provide parking count based on*
166 *square footage per use?* Waiver requested for reduction in residential parking requirements.
167 • **Snow storage** not shown on plans. Applicant should provide snow storage information for
168 subsequent review. Compatibility with landscape plans should be assessed.

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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 comments indicate that additional details must be provided for final approval. 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

Staff find that this proposal generally complies with applicable standards and is likely to improve conditions related to existing paving and stormwater runoff while having minimal impacts on infrastructure, traffic, or nearby properties. Outstanding items may be resolved during the Final Site Plan phase of the project. Staff recommend approval of this application with conditions requiring resolution of specific items. The Planning Board may elect to approve or deny this application after holding and closing the public hearing accordingly. The Board may also choose to continue review to a future meeting and advise the applicant and staff of items requiring resolution.

Recommended Motions

Move to close/ continue the public hearing

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217 ***Move to approve/ deny/ continue review of preliminary site plan.***
218 *Owner/applicant Fair Tide and acting agent Geoffrey R Aleva, PE of Civil Consultants propose to*
219 *redevelop an existing commercial building with proposed additions creating a footprint of 5,669sf, and to*
220 *add a 6-unit residential building consisting of a 2,058sf building footprint, at real property located at 22*
221 *Shapleigh Road (Tax Map 15, Lot 64) in the Business-Local (B-LI) and Residential-Urban (R-U) Zoning*
222 *Districts. Based on the plans and supporting information submitted to the Town through February 23, 2023,*
223 *I move to approve/ deny/ continue review of the preliminary site plan application for this project.*
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~~February 2, 2023~~

Updated February 10, 2023

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

**RE: Town of Kittery, Planning Board Services
Fair Tide, Inc. Development
Tax Map 15, Lot 64
CMA #591.152**

Dear Jason:

CMA Engineers has received the following information for Assignment #152, review of the Fair Tide preliminary plan for the proposed project at 22 Shapleigh Road (Tax Map 15, Lot 64). We have updated our comment letter dated February 2, 2023 upon receipt of the stormwater management plan.

- 1) Drawings for Fair Tide, Inc., Tax Map 15, Lot 64, 22 Shapleigh Road, Kittery, Maine Prepared by Civil Consultants of South Berwick, Maine dated January 5, 2023, 4 sheets.
- 2) Civil Consultants Memorandum dated November 11, 2022.
- 3) **Site Plan Application Stormwater Management Plan, "Fair Tide, Inc.", Kittery, Maine, Prepared for Fair Tide, Inc. by Civil Consultants, Inc. dated January 2023.**

We have reviewed the information submitted for conformance with the Kittery Land Use and Development Code (LUDC) and general engineering practices and offer the comments below that correspond directly to the Town's Ordinances.

The project is proposed as a redevelopment/addition to an existing building and parking areas and construction of new residential building with 6 affordable housing units. The project is located on Shapleigh Road in both the Business-Local 1 (B-L1) and the residential-urban (R-U) zone. All new development is proposed in the B-L1 zone with a zoning extension proposed for affordable housing provisions. The development is located on a 1.95-acre lot. Water supply is proposed off a Kittery Water District (KWD) main from Shapleigh Road. Wastewater disposal is proposed off a Town sewer main from Shapleigh Road. There is a wetland on the property with existing building and pavement located in the 50-ft wetland setback.

16.4 Zoning Regulations

16.4.18 Business – Local 1 (B-L1)

The proposed use, dwelling, multifamily, is a permitted use. The applicant has applied for a 50-ft zone extension to the B-L1 zone which would place the entire footprint of the new building in the B-L1 zone.

The project conforms to all zoning standards.

16.5 Wetland setbacks for special situations

16.5.30

The developed northern portion of the lot contains part of the building and parking within the 50-ft wetland setback. The applicant has requested to maintain these within the setback.

16.7 General Development Requirements

16.7.11 Performance Standards and Approval Criteria

16.7.11.A. Water Supply

The applicant should provide water service details (size, material, details of construction, etc.) for the project.

16.7.11.A.(2) The applicant should provide written documentation of conformance and water supply adequacy from the Kittery Water District.

16.7.11.B Sewage Disposal

The applicant should provide sewer service details (size, material, details of construction, etc.) for the project.

16.7.11.B.(1)(b) The applicant should provide written certification of capacity from the Superintendent of Sewer Services (SSS), and 16.7.11.B.(1)(d) The applicant should provide written approval of the construction drawings by the Town's SSS.

16.7.11.C. Stormwater and Surface Drainage

16.7.11.C.(4)(a). There are increased flows for the 2-year storm event at both outfall locations and at outfall 1 for the 25-year storm. We note that these increases are small. The applicant should apply for a waiver of this standard.

16.7.11.C.(4)(b). Has the applicant provided a 25% surplus for upstream development?

16.7.11.D. Post-construction Stormwater Management

16.7.11.D.(3)(d)(1)(a)&(c). The post-construction stormwater management plan should indicate that a qualified stormwater inspector should complete the inspections and indicate that reports should be filed with the Code Enforcement Officer by July 1st of each year.

16.7.11.D.(4)(c)[6]. Maintenance of the drainage pipes located outside of the right-of-ways should be detailed in the stormwater management plan.

16.7.11.E. Vehicular Traffic

16.7.11.E.(3)(a). The site distance at the entrances should be shown on the plans.

16.7.11.E.(5)(a)&[1]. Is the northern building to be served by delivery trucks? If so, please show that turning and backing is achievable.

16.7.11.E.(5)(b). The fire lane for the northern building should be shown on the plan.

16.7.11.F Parking and Loading

16.7.11.F.(4)(g). The applicant should provide parking landscaping with the required number of trees and interior parking landscaping.

16.7.11.G. Utilities

16.7.11.G.(1)&(2) All proposed utilities should be shown and be installed underground.

16.7.11.H. Exterior Lighting

Is exterior lighting proposed? If so, please provide a photometric plan.

Stormwater Management

We have the following additional comments on the stormwater management plan:

1. The majority of stormwater flow off-site is through an existing 12" HDPE drainage pipe on the southern side of the property. Has the condition of this pipe been assessed?
2. The plans indicate that the proposed building will have 6 units but the introduction states there are three units proposed.
3. The square footage of the existing building is 4,069 sf on the plans and 4, 070 sf in the narrative.
4. The existing Total Impervious Coverage calculation on Sheet EC is incorrect; the numbers add up to a different value than what is shown. Therefore the reduction in impervious area associated with the redevelopment is smaller and the site wide increase in impervious coverage listed in the narrative are larger.
5. The 24" RCP drainage pipe that crosses Shapleigh Rd and outlets onto the property is indicated "filled with 1.5' of silt". Is there a plan to clean this pipe? What effect does this have on drainage?

Stormwater Maintenance/Inspection Plan:

1. Define "major storm events".
2. Is the use of silt fence proposed? If so, the location should be shown on the plan and a detail should be provided in the plan set. If not, remove the silt fence section under During Construction.
3. The plans should show a detail for the storm drain inlet protection device(s).
4. The plans should provide a detail for erosion control blankets.
5. Remove the "water bars or open top culverts" line from the Sweeping table.
6. In the Vegetated Areas table, clarify "armor areas with...an appropriate lining".
7. Indicate that the maintenance logs must be provided to the CEO annually by July 1st.

Sheet D1:

1. Is the entire drainage area (including property north of Manson Avenue) soil type D? If so, remove the other soil types from the soils legend.
2. Remove the Tc Flow Path & Direction Post-Development linetype from the legend.
3. It isn't clear how stormwater from subcatchment 2S gets out of the depressed area north of the building to cross the parking lot.

Sheet D2:

1. Is the entire drainage area (including property north of Manson Avenue) soil type D? If so, remove the other soil types from the soils legend.
2. The proposed parking areas should be shaded for their respective soil type.
3. Remove the Tc Flow Path & Direction Pre-Development linetype from the legend.
4. Remove the edge of existing pavement line.
5. What is the significance of the red lines? Please define these in the legend or remove them or make them black or gray.
6. Without showing the final grading of the “area to be filled” to the north of the building, the stormwater flow path for subcatchment 2S does not appear to be correct.

General Comments

We have the following comments on the plans:

1. The plans should be signed and stamped by a licensed engineer.
2. The plans should contain a legend.
3. Proposed building additions to the redeveloped building should be clearly called out.
4. The applicant should provide architectural drawings.
5. The plans should contain details of the wetland delineation and be stamped by a wetland scientist.
6. The plans should contain a demolition sheet detailing what features are to be removed.
7. The plans show a chicken pen with fence at the southern side of the property that presumably belongs to Tax Map 15, Lot 67. Is this to remain or be relocated onto the abutting property?
8. The plan set should contain a landscaping plan.
9. Is exterior lighting proposed? If so, the plan set should contain a photometric plan.
10. The plans should contain a cover page with a sheet index.

Sheets L1 & L2:

1. The plans should contain a legend.
2. All existing and proposed utilities and structures should be labeled with size, material, inverts, etc.
3. The existing water main on Shapleigh Rd is shown terminating at a gate valve by the concrete pad on Sheet EC but extending south on Shapleigh Rd on this sheet. Is a water main extension proposed? Please clarify.
4. The existing sewer main on Shapleigh Rd is shown terminating at a manhole with a rim elevation of 52.6'. Is a sewer main extension proposed? Please clarify.
5. The 24" RCP drainage pipe that crosses Shapleigh Rd and outlets onto the property is indicated “filled with 1.5' of silt”. Is there a plan to clean this pipe? What effect does this have on drainage?
6. It appears that the Manson Avenue and Shapleigh Rd accesses are both entrances and exits, but the pavement marking arrows show one way traffic behind the northern building from west to east. We note that the aisle width behind the building is not sufficient for two-way traffic. Please provide details for signs and show their locations on the plans.
7. Locations of handicap accessible and compact car parking signs should be shown on the plan.
8. The “area to be filled” to the north of the existing building should be graded to show finished grades. Where does the water go that used to pond or infiltrate here?
9. Driveway culverts appear to be needed at the sit entrances.

Sheet L3:

- There are numerous details missing related to construction and stormwater management (silt fence, inlet protection, erosion control matting, etc.).

Existing Conditions Plan- EC:

1. The plan should contain notes.
2. The plan should contain a legend.
3. The Total Impervious Coverage adds up to 24,480 sf not 28,688 sf.
4. The existing utility sizes, materials and inverts should be labelled.
5. The existing sewer and water services and pipe materials should be labelled.
6. The existing water main on Shapleigh Rd is shown terminating at a gate valve by the concrete pad. Is this correct? Please clarify.
7. There is a gate valve south west of the concrete pad on Shapleigh Rd that doesn't connect to anything. Please clarify.
8. The existing sewer main on Shapleigh Rd is shown terminating at a manhole with a rim elevation of 52.6'. Is this correct? Please clarify.

Should you have any questions, please do not hesitate to call.

Very truly yours,

CMA ENGINEERS, INC.



Jodie Bray Strickland, P.E.

Senior Project Engineer

JBS:rol

cc: Geoffrey Aleva, P.E., Civil Consultants

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.

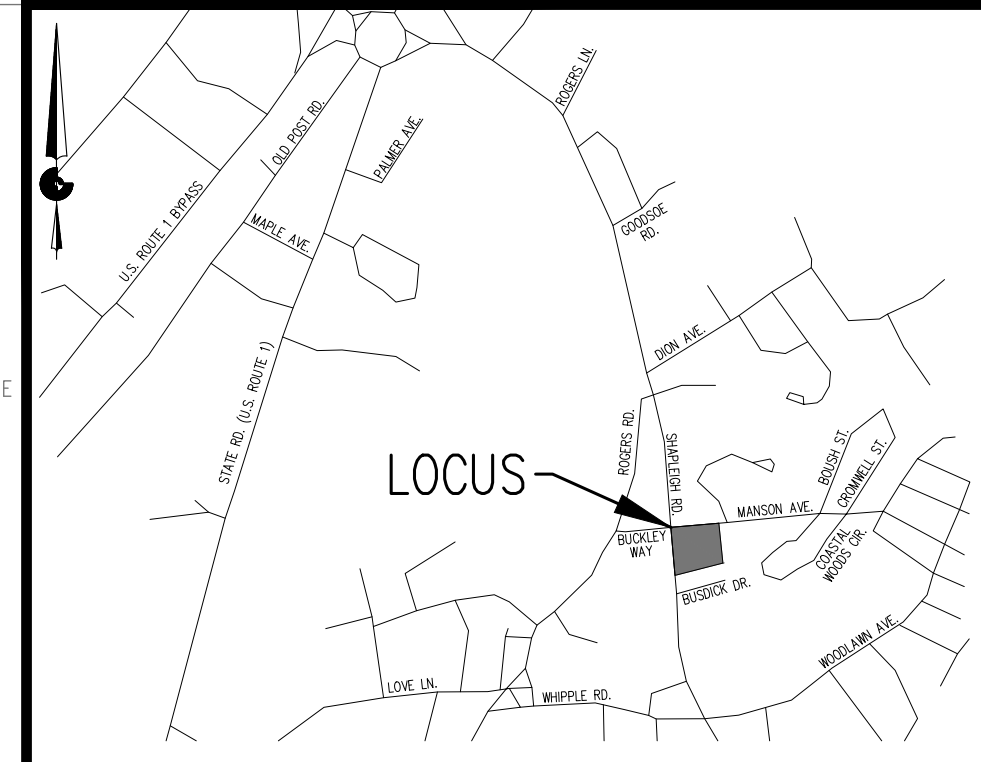
The intent is to redesign the pedestrian and vehicular access to the building and parking without increasing the impervious area within this setback. The new work will provide sidewalk access and diagonal parking to the lower food pantry use of the building. It is proposed that a canopy be placed over 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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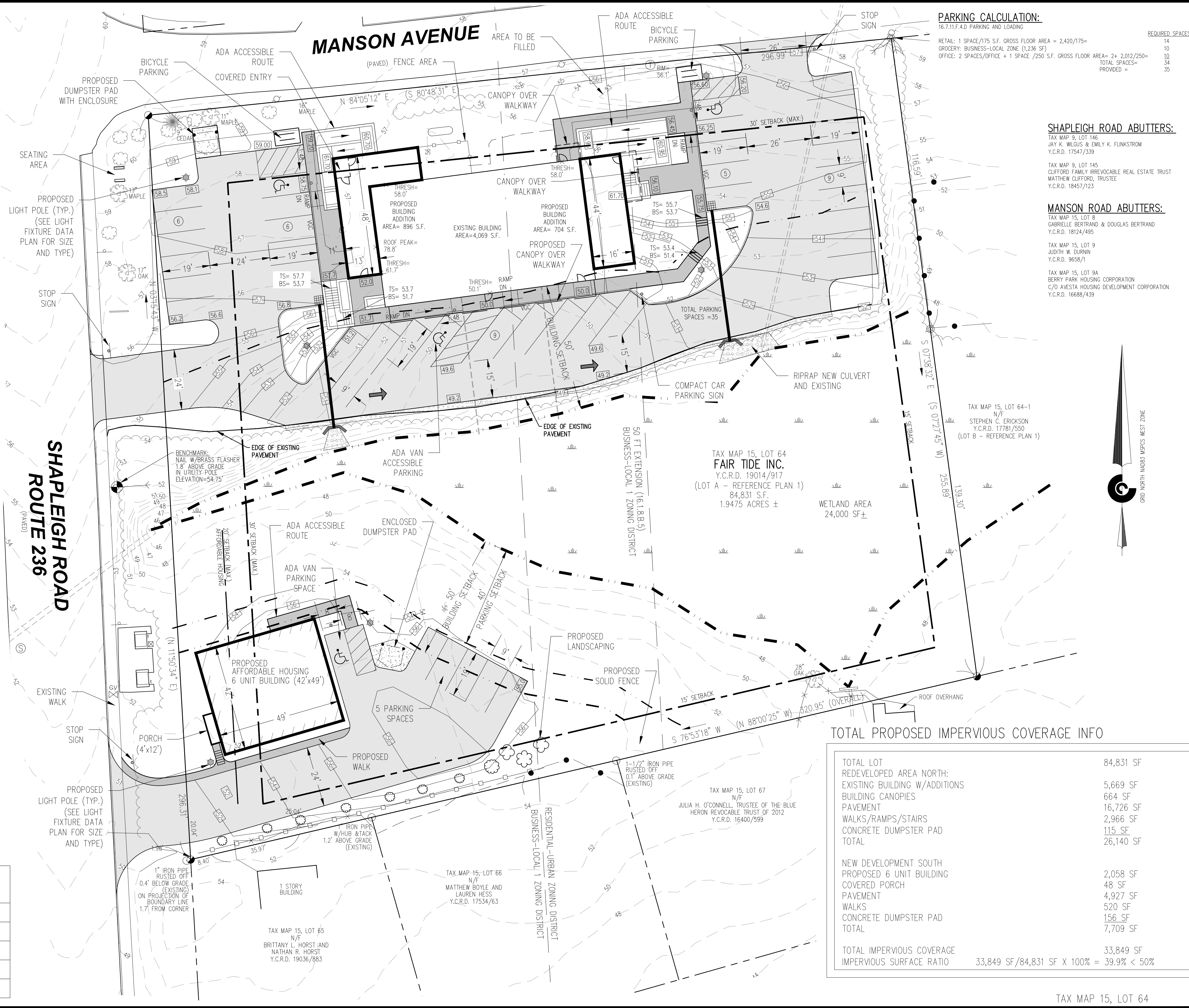


LOCATION PLAN
(NOT TO SCALE)

- NOTES:**
- ASSESSOR'S INFORMATION:
TOWN OF KITTEERY ASSESSOR'S MAP 16 LOT 64
 - RECORD OWNER:
FAIR TIDE INC
15 STATE RD
KITTEERY, MAINE
 - DEED REFERENCE:
Y.C.R.D. 19014/917
 - ZONING INFORMATION:
PORTION OF LOT TO BE DEVELOPED IS LOCATED IN BUSINESS-LOCAL 1 (B-1) 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 BMP'S)= 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 C AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR THE TOWN OF KITTEERY, 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.±)
 - 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:**
- "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 KITTEERY PLANNING BOARD	
	CHAIR
DATE:	



PARKING CALCULATION:
16.711F.4D PARKING AND LOADING

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= 24,202/250=	10
TOTAL SPACES=	34
PROVIDED =	35
REQUIRED SPACES	35

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

TAX MAP 9, LOT 145
CLIFFORD FAMILY IRREVOCABLE REAL ESTATE TRUST
MATHEW 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. DURBIN
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 REDEVELOPED AREA NORTH:	84,831 SF
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	2,058 SF
PROPOSED 6 UNIT BUILDING	48 SF
COVERED PORCH	4,927 SF
PAVEMENT	520 SF
WALKS	156 SF
CONCRETE DUMPSTER PAD	7,709 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%

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

RECORD OWNER: FAIR TIDE INC	DATE
OWNER ADDRESS: 15 STATE RD KITTEERY, MAINE	INT.
	REVISIONS
	NO.

TAX MAP 15, LOT 64-1
N/F
STEPHEN C. ERICKSON
Y.C.R.D. 17781/550
(LOT B - REFERENCE PLAN 1)

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

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

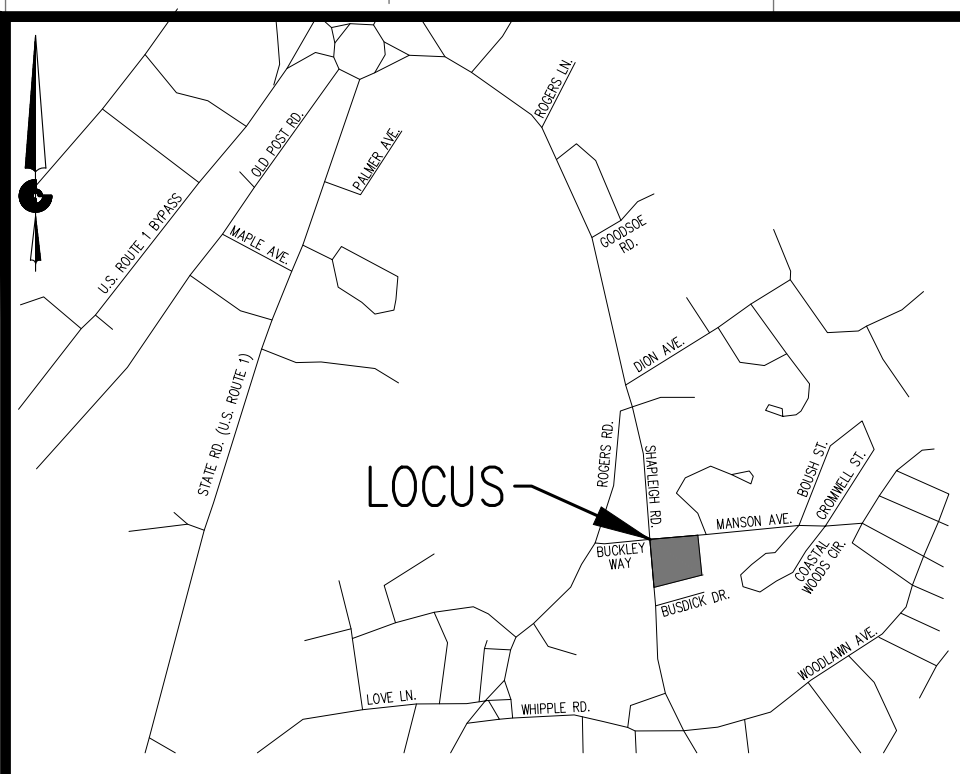
DATE: 01/05/2023
DRAWN BY: JAA/GRA
CHECKED BY:
APPROVED BY:

SITE PLAN

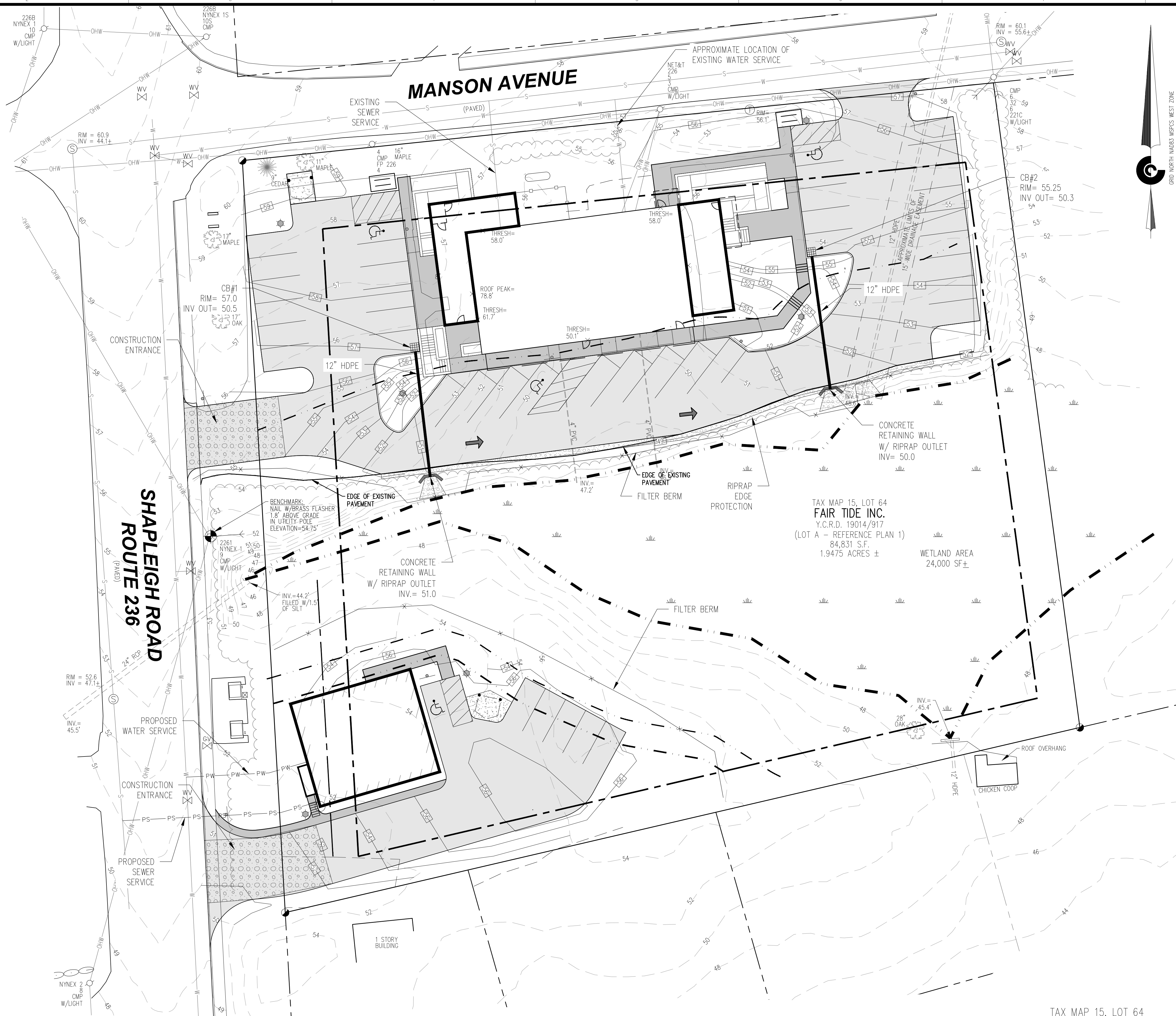
PROJECT NO: 21-335.00

L1

SHEET: 1 OF 3



LOCATION PLAN
(NOT TO SCALE)



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1/5/2023

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Engineers
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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

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:

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

UTILITY & EROSION CONTROL PLAN

PROJECT NO: 21-335.00

L2

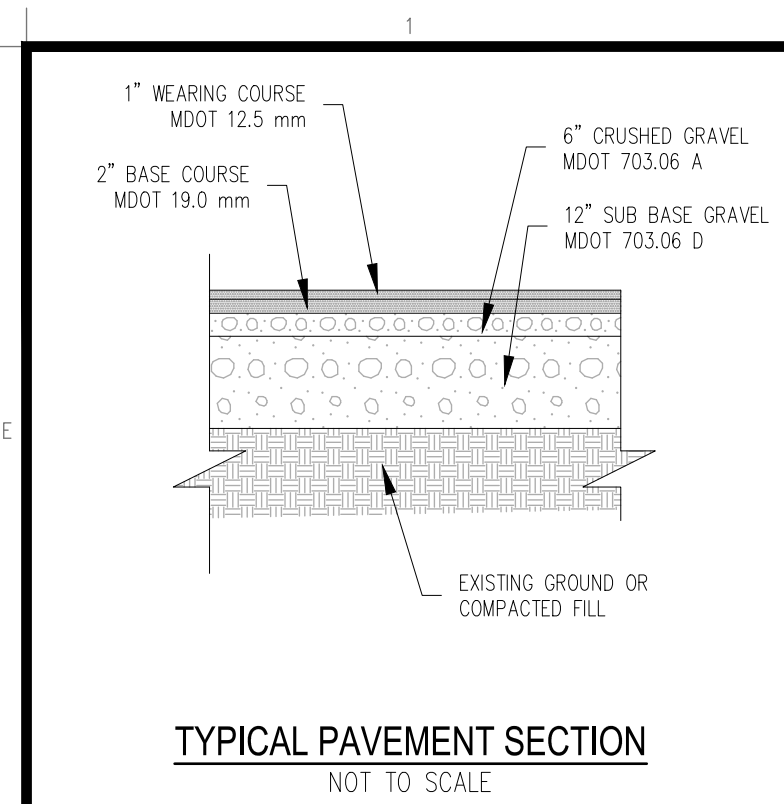
SHEET: 2 OF 3

PLAN APPROVED BY TOWN OF
KITTERY PLANNING BOARD

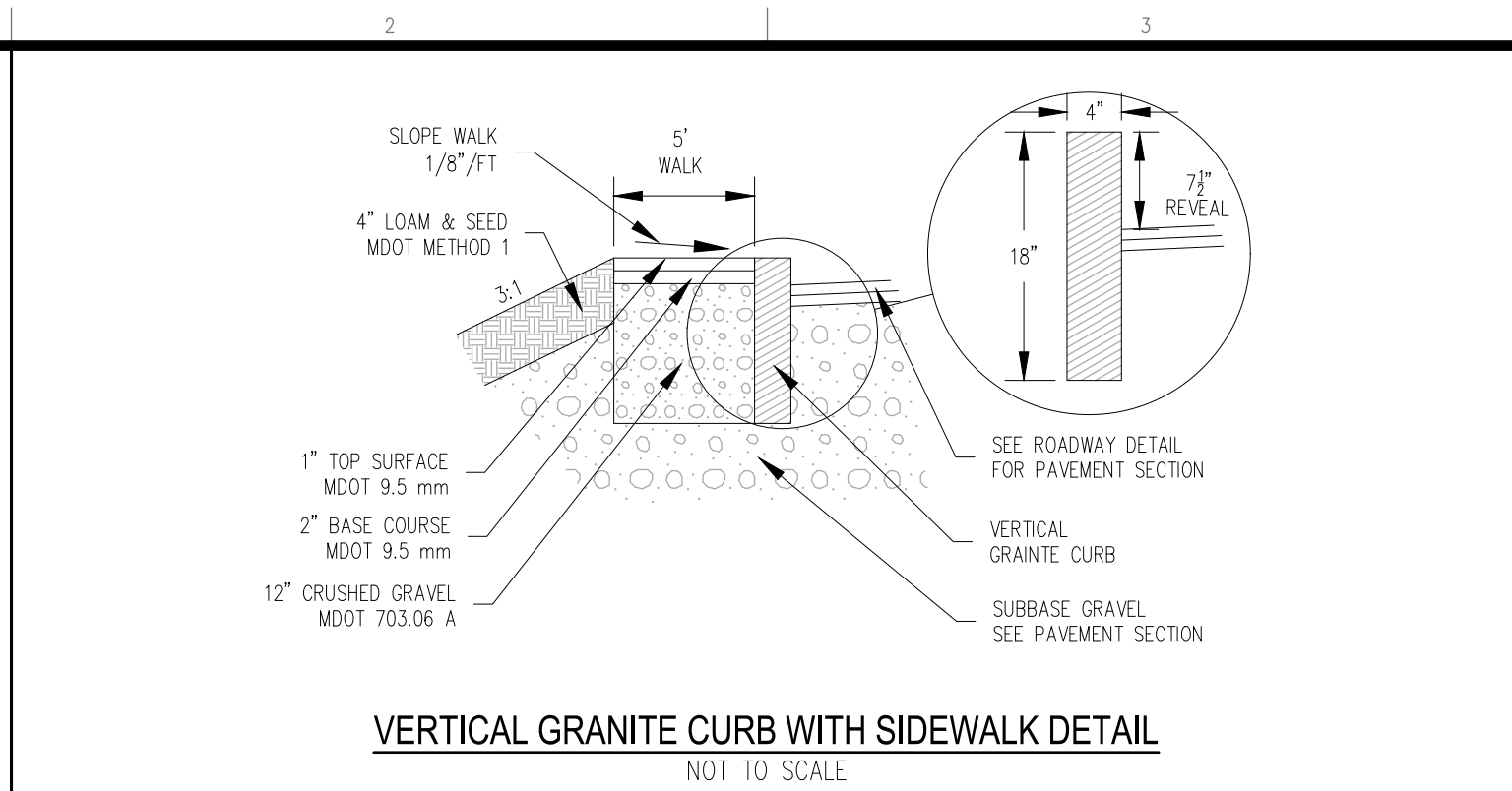
	CHAIR

DATE:

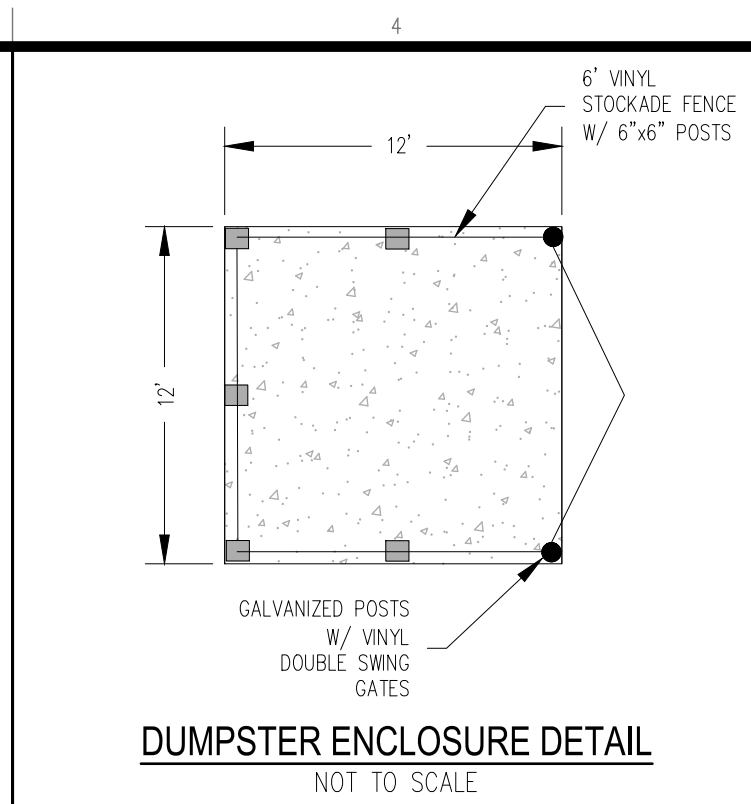
TAX MAP 15, LOT 64



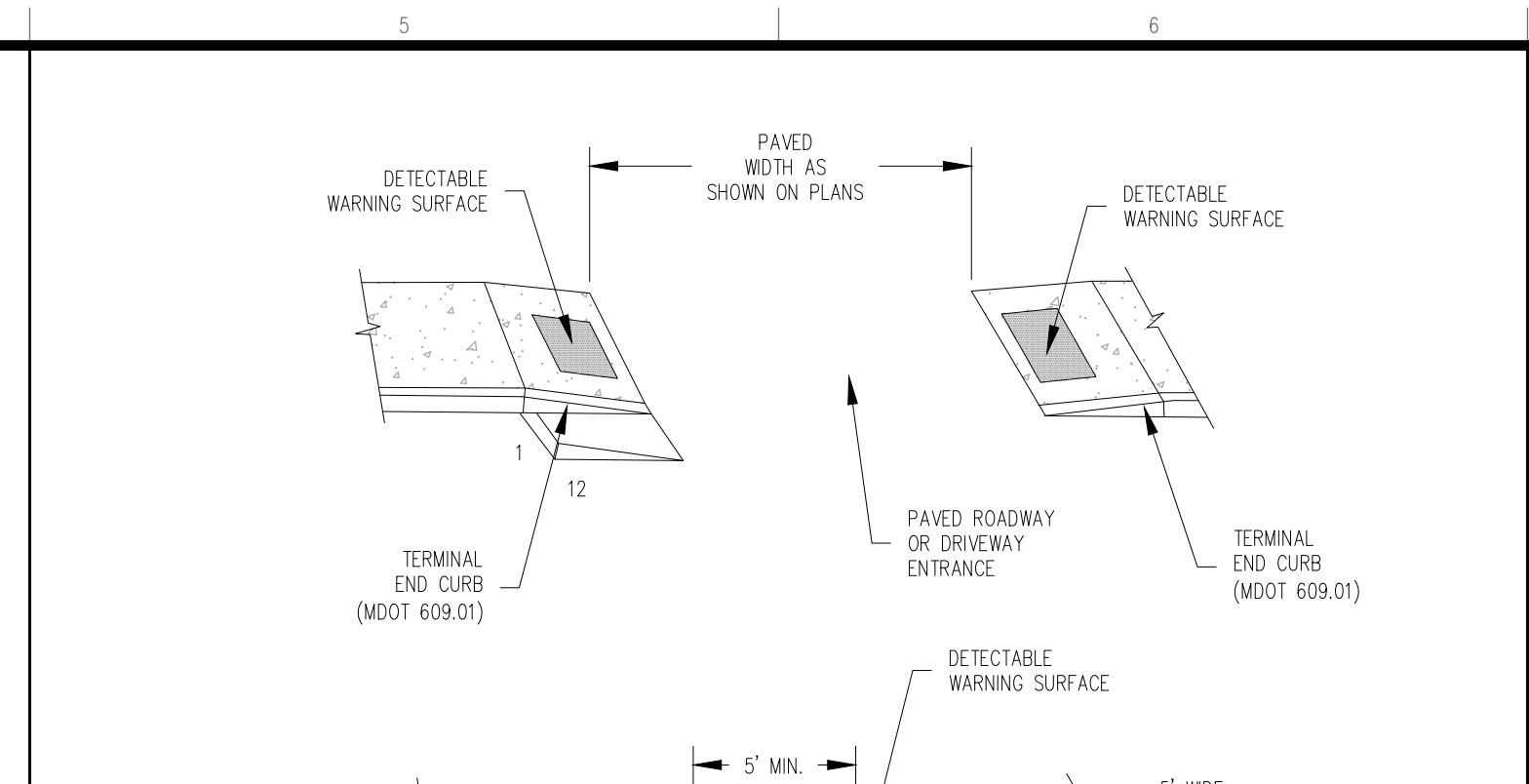
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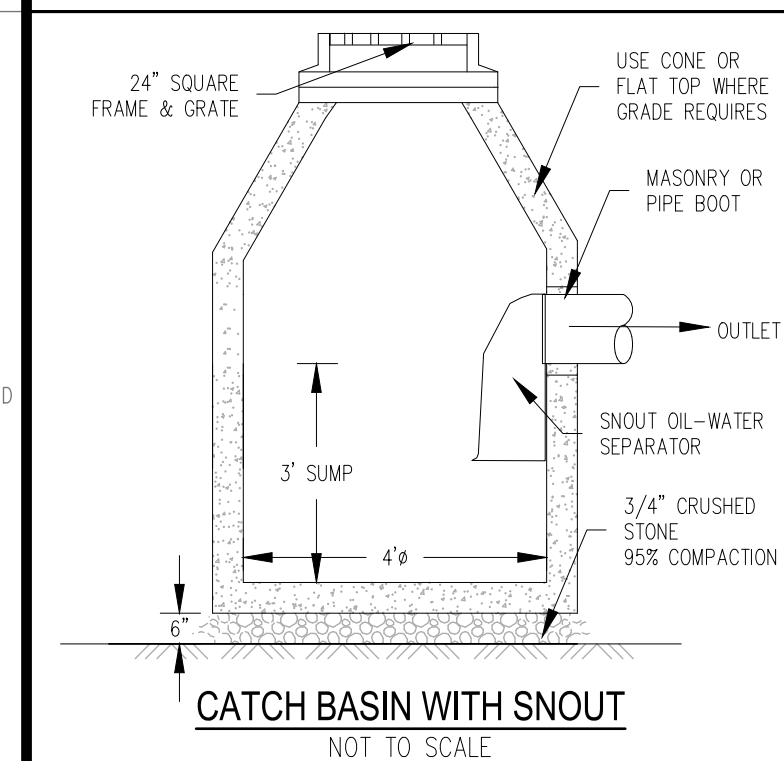
VERTICAL GRANITE CURB WITH SIDEWALK DETAIL
NOT TO SCALE



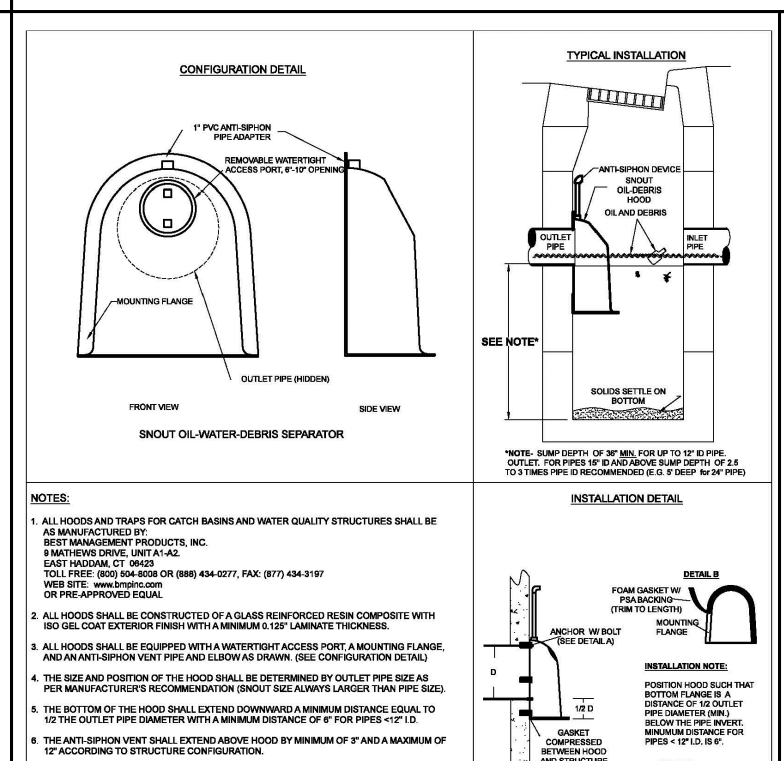
DUMPSTER ENCLOSURE DETAIL
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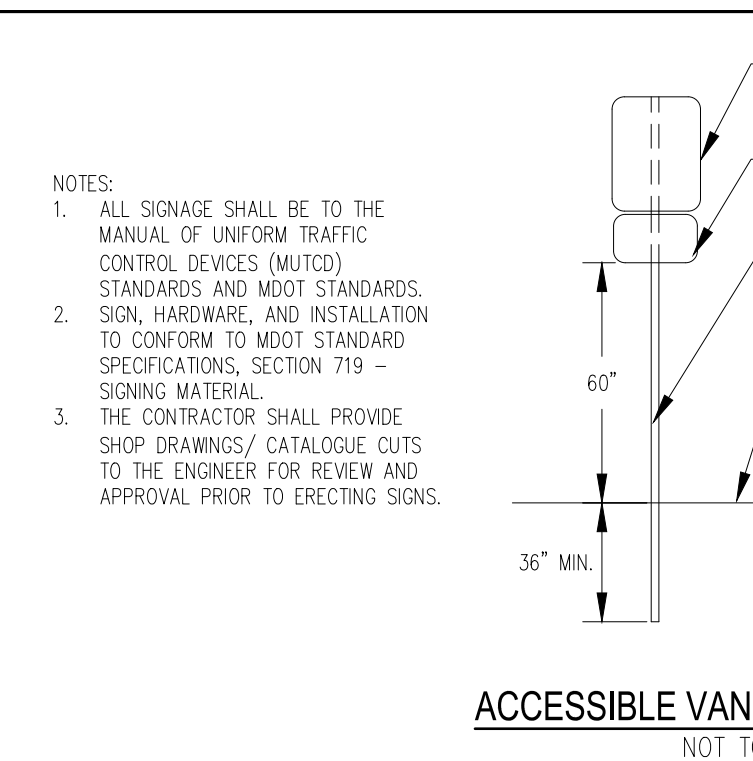
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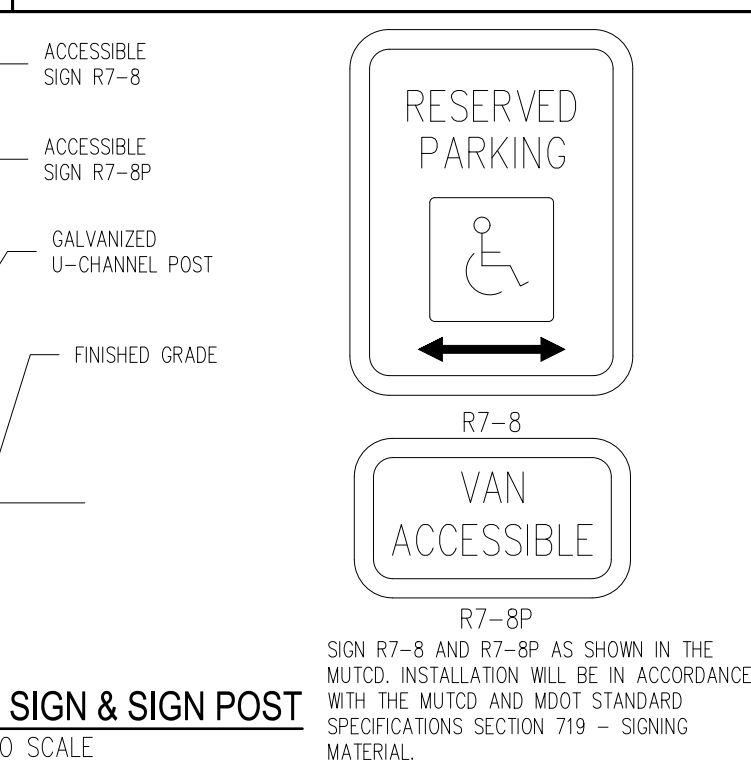
CATCH BASIN WITH SNOUT
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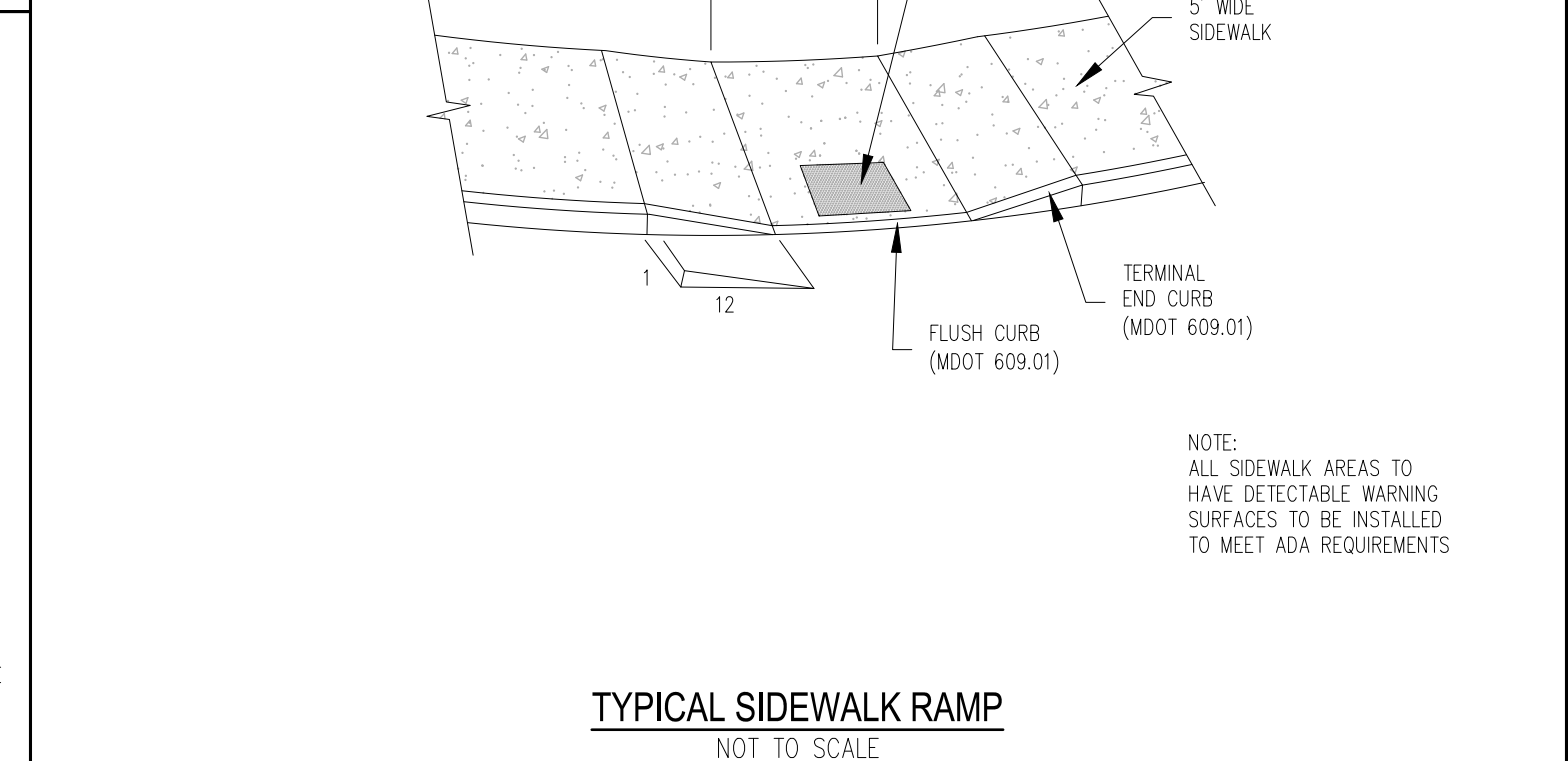
HOOD SPECIFICATION FOR
WATER QUALITY STRUCTURES



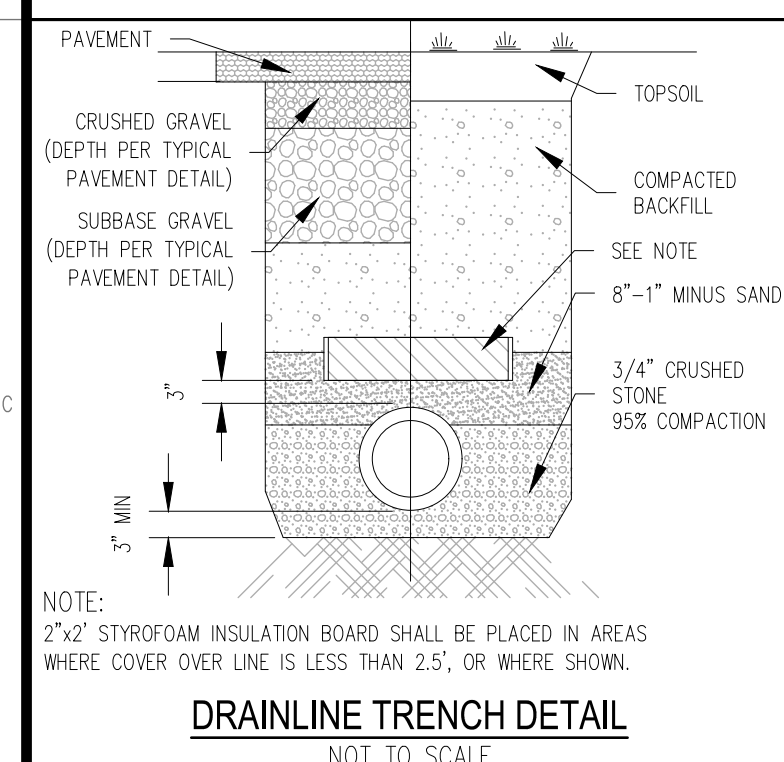
ACCESSIBLE VAN SIGN & SIGN POST
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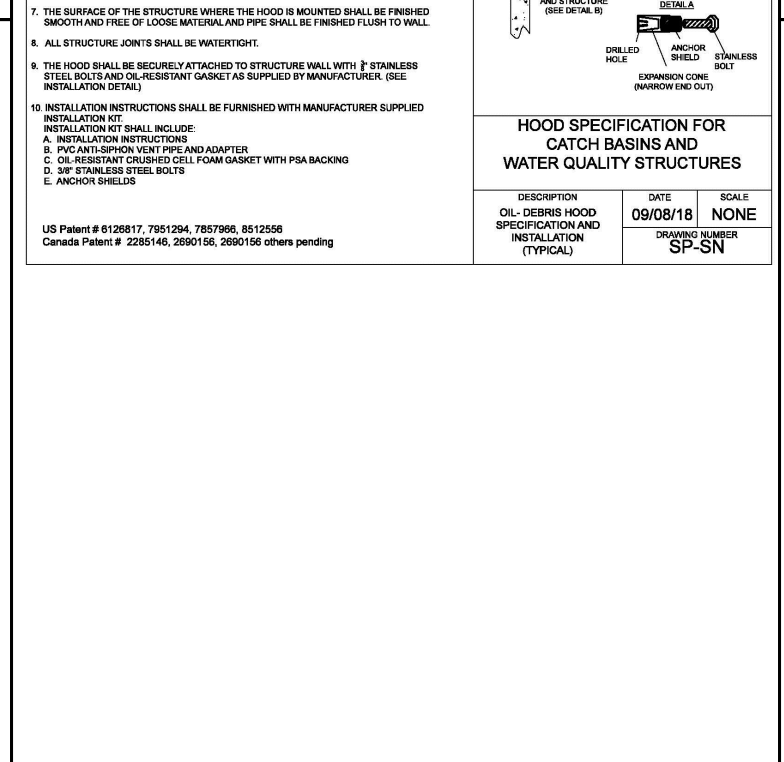
RESERVED PARKING
VAN ACCESSIBLE



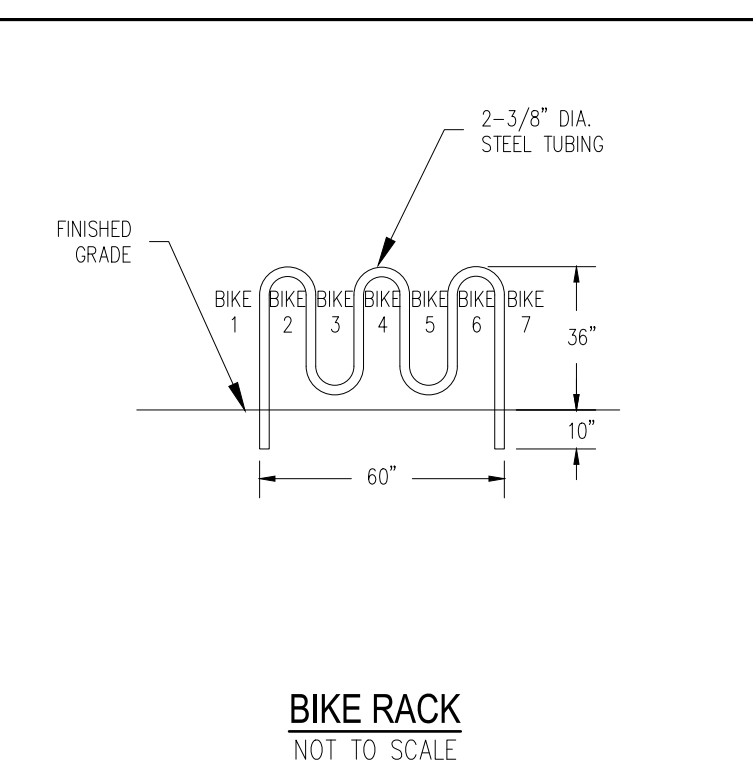
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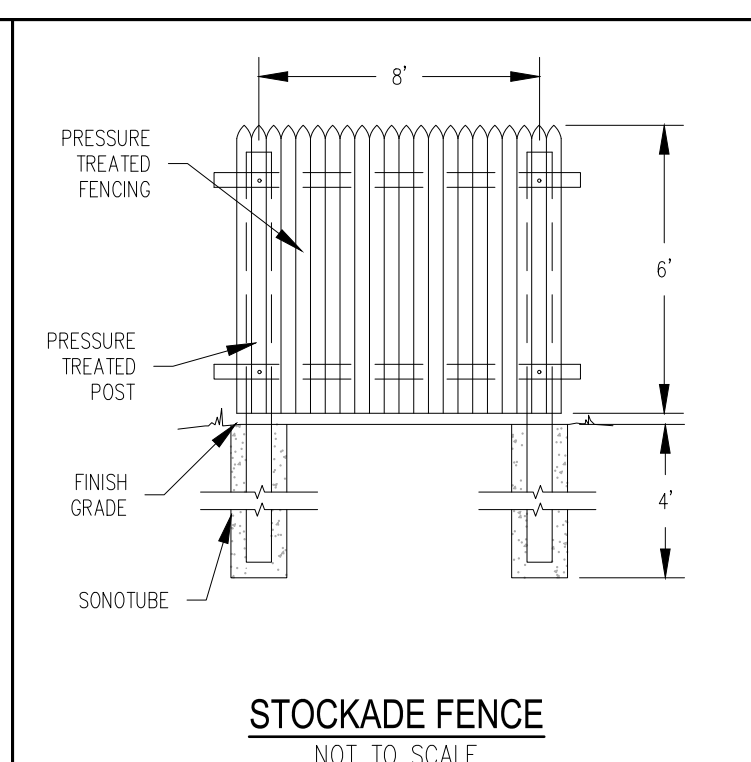
DRAINLINE TRENCH DETAIL
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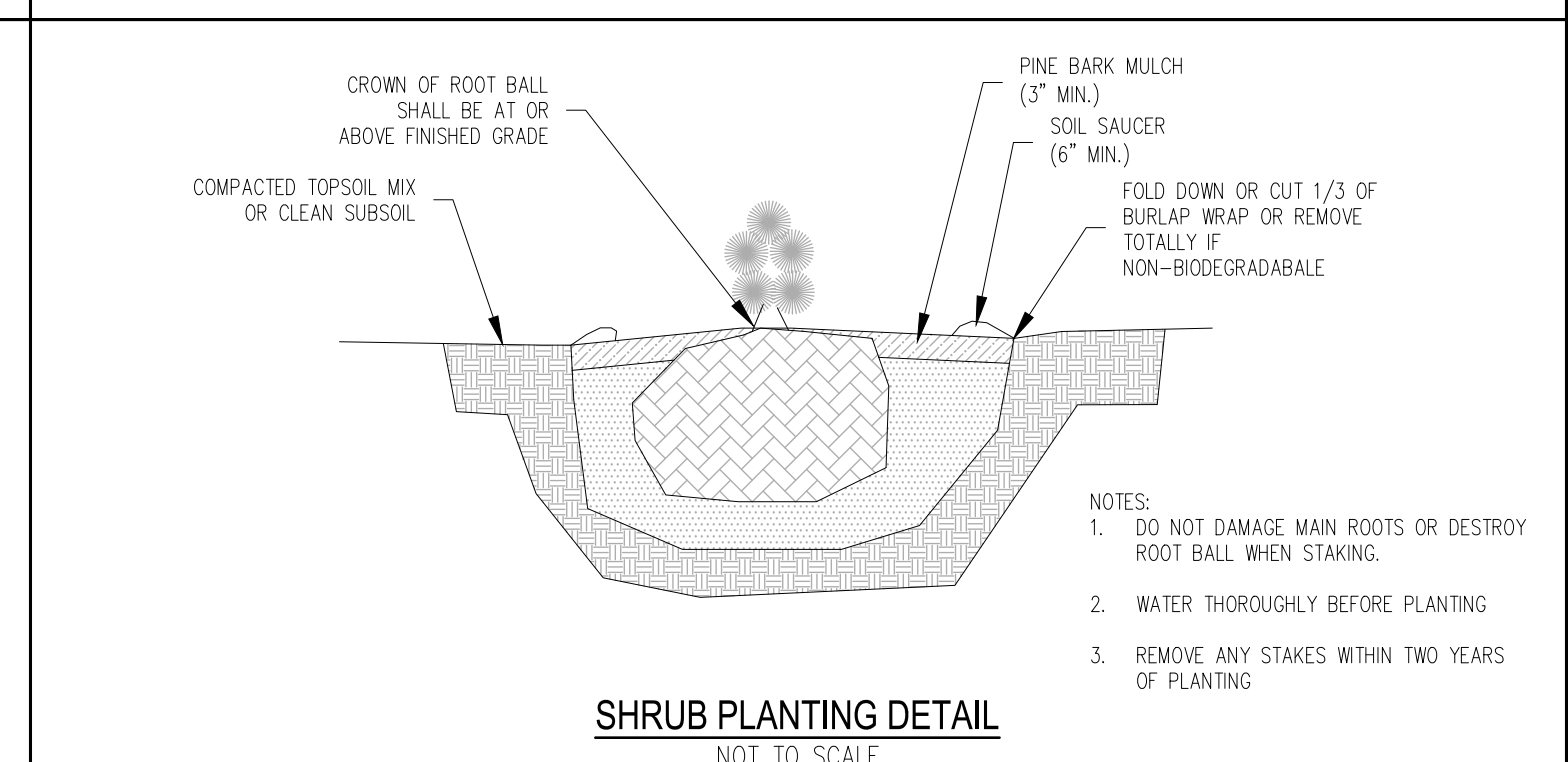
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WATER QUALITY STRUCTURES



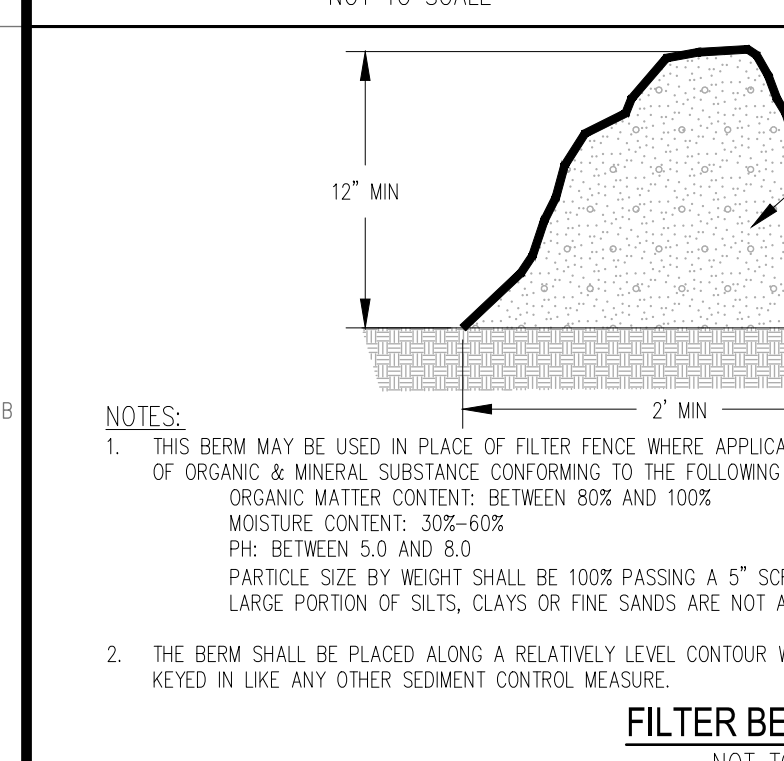
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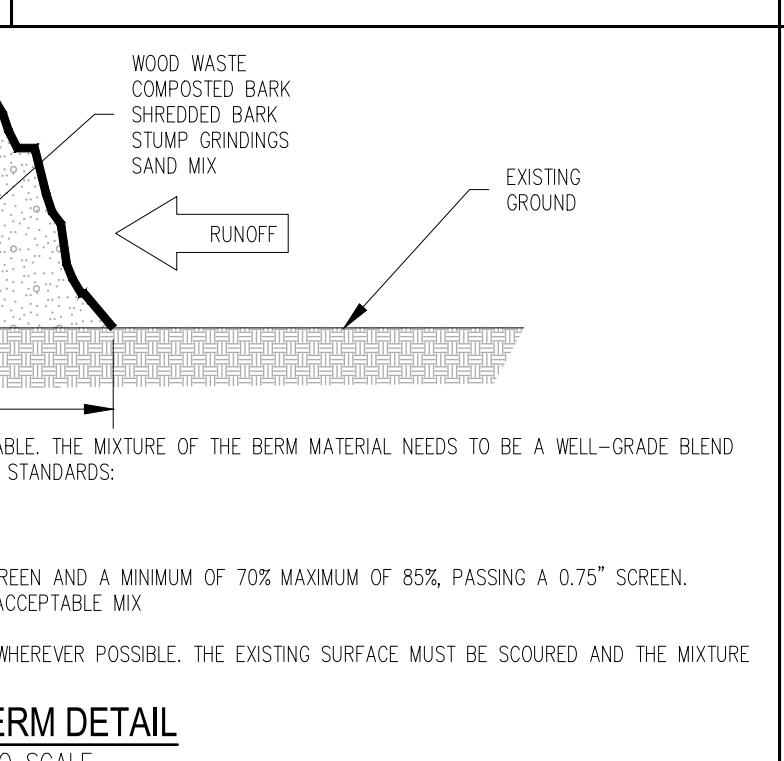
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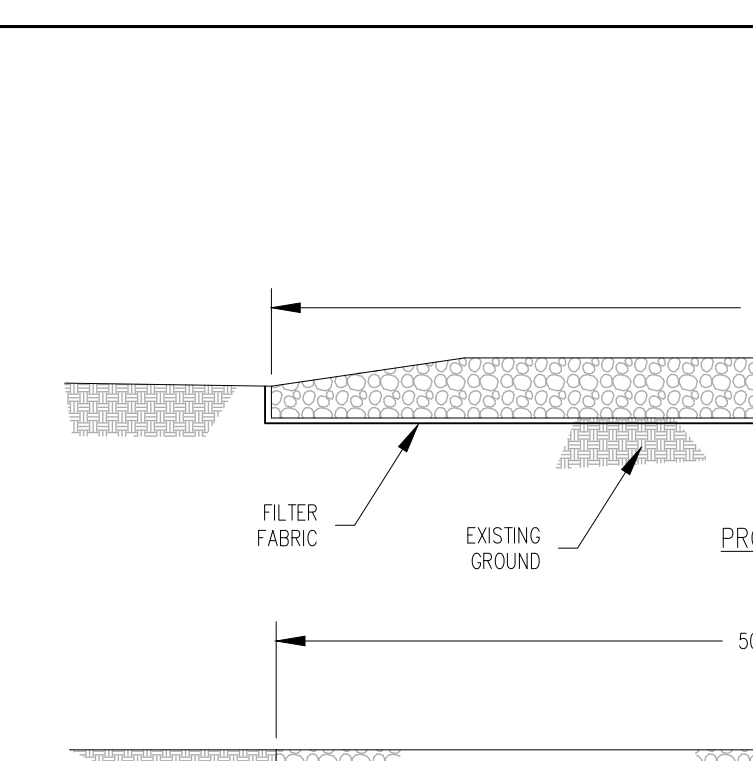
SHRUB PLANTING DETAIL
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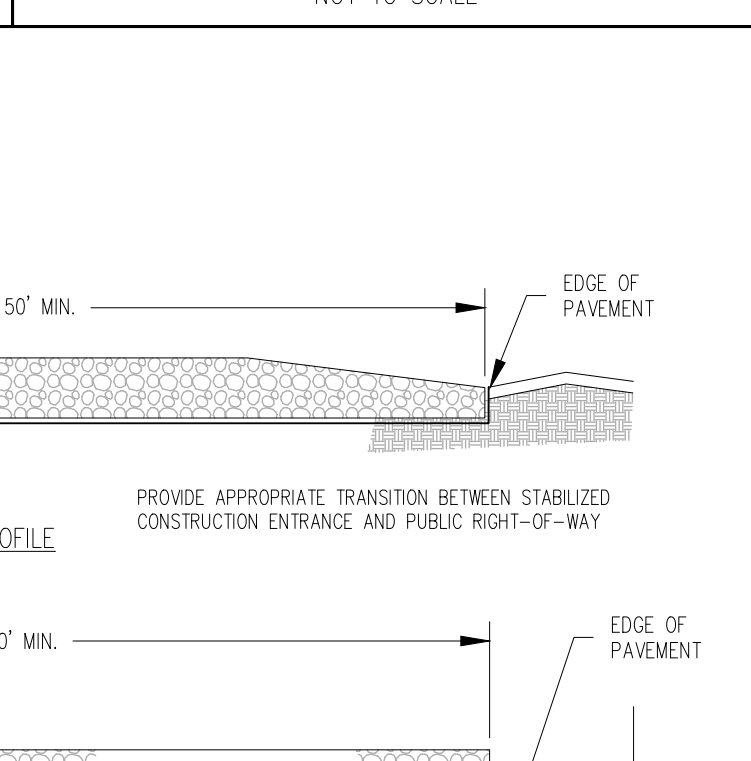
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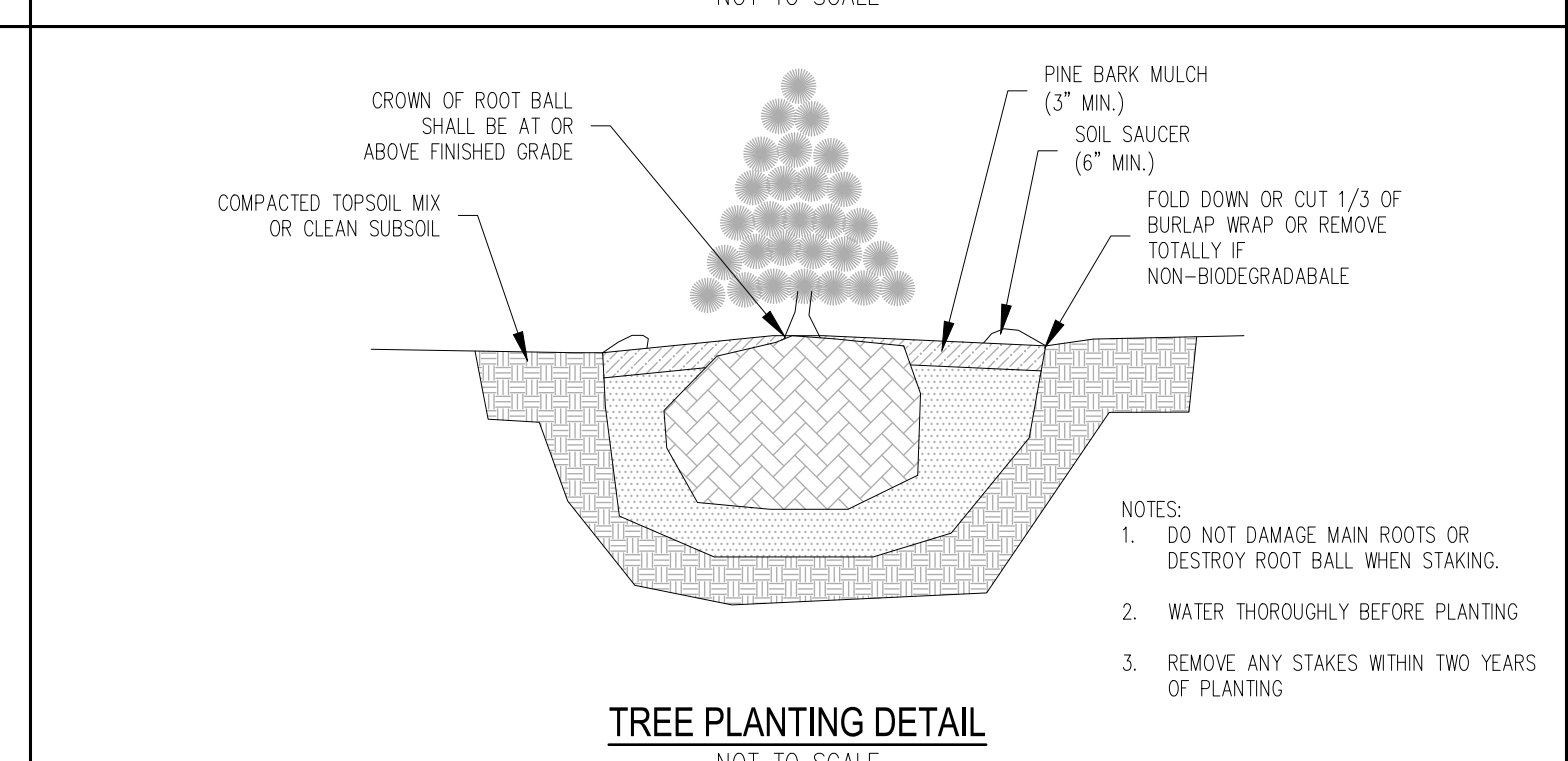
HOOD SPECIFICATION FOR
WATER QUALITY STRUCTURES



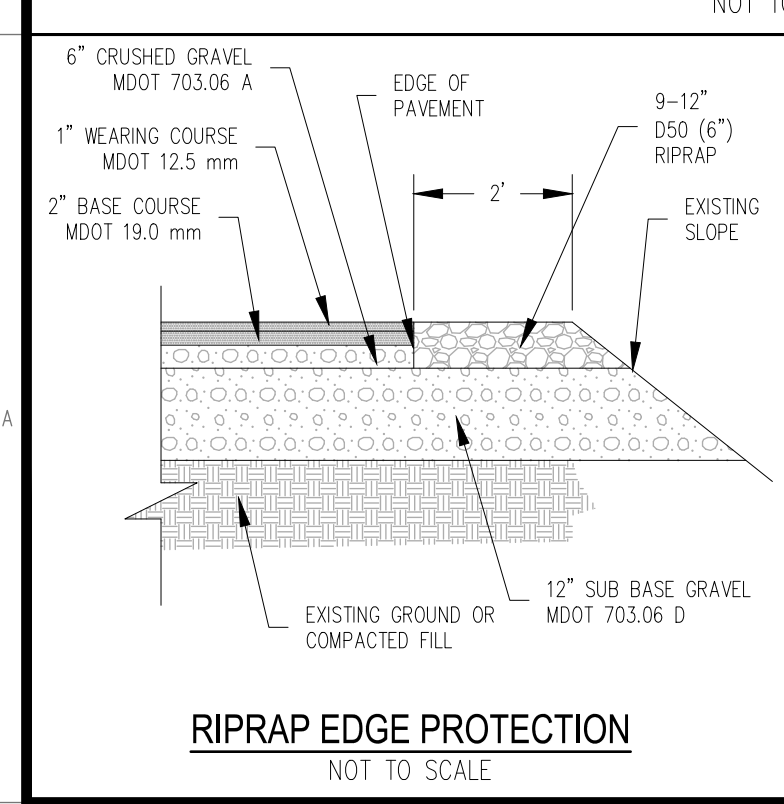
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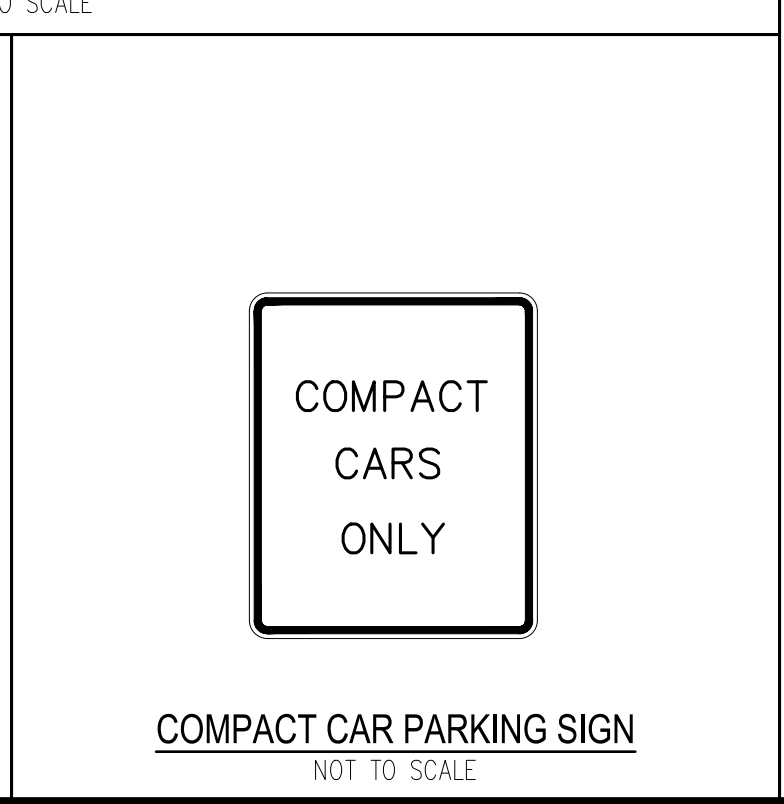
STABILIZED CONSTRUCTION ENTRANCE
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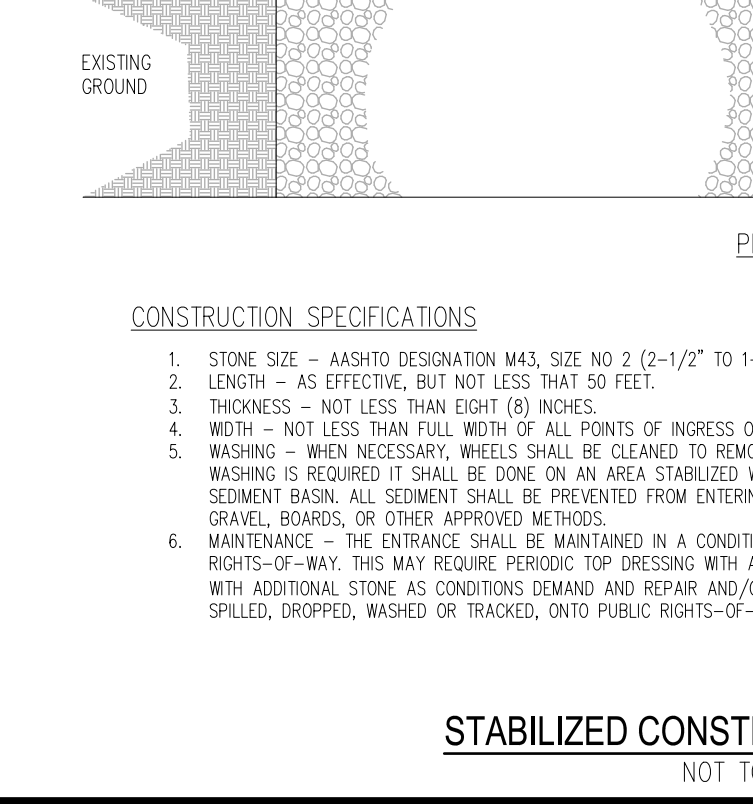
TREE PLANTING DETAIL
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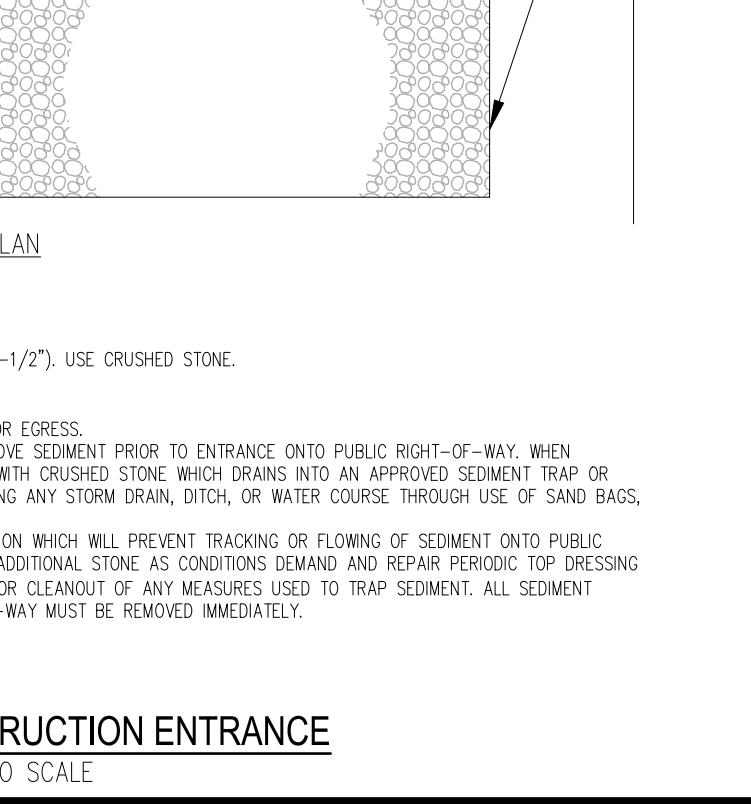
RIPRAP EDGE PROTECTION
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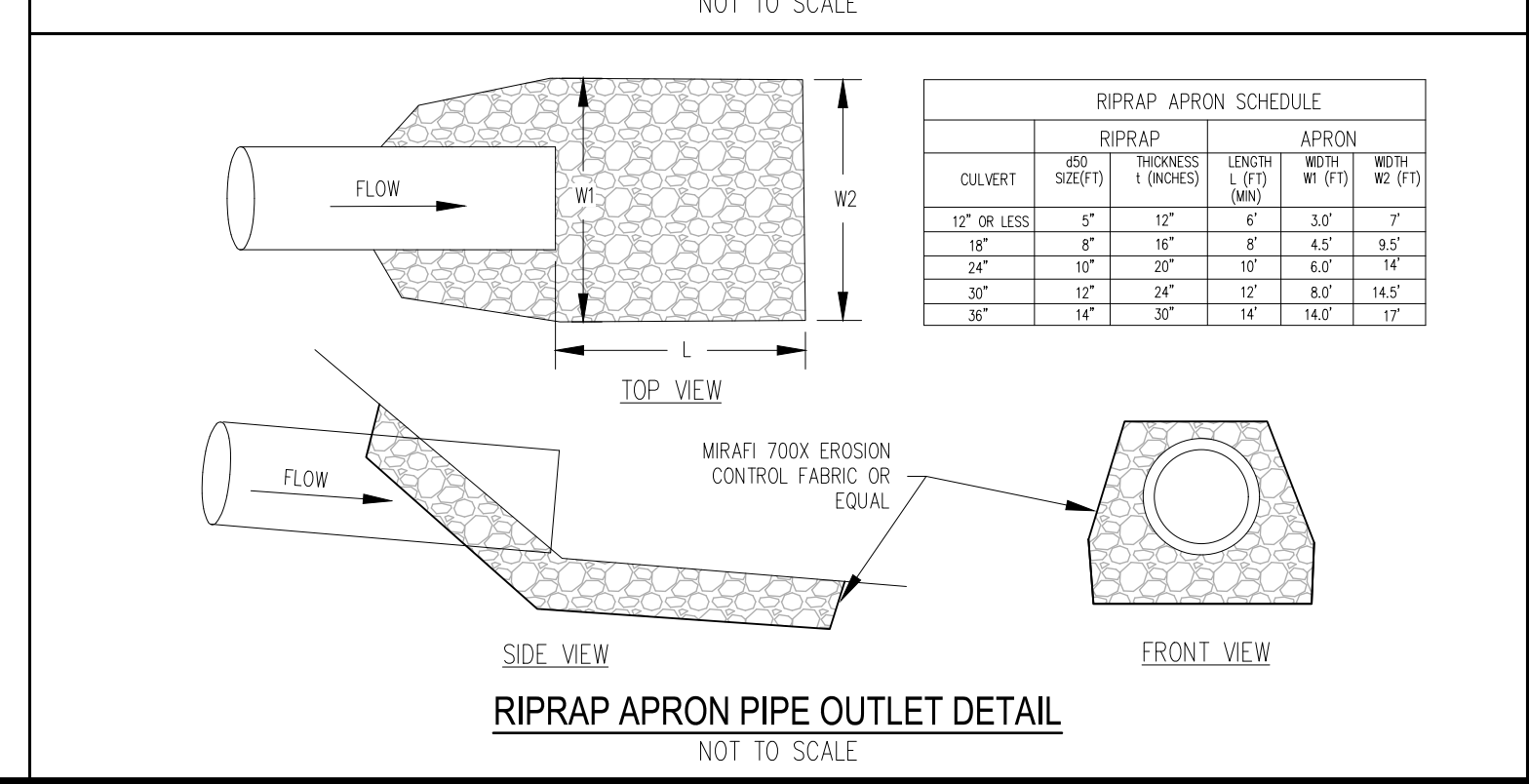
COMPACT CAR PARKING SIGN
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



RIPRAP APRON PIPE OUTLET DETAIL
NOT TO SCALE



EROSION AND SEDIMENT CONTROL PRACTICES

- 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.
- 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.
- 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).
- IF MULCH IS LIKELY TO BE REMOVED DUE 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.
- 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.
- 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.
- 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. RIRRAP, ROAD SURFACES, ETC.). THE VEGETATIVE COVER SHALL BE MAINTAINED.
- DISPOSAL OF COLLECTED DEBRIS MUST BE IN CONFORMANCE WITH MAINE SOLID WASTE LAW, TITLE 38 MRSA SECTION 1301 ET. SEQ.
- 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.

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

RECORD OWNER:
FAIR TIDE, INC.
OWNER ADDRESS:
13 STATE ROAD
KITTERY, ME 03004

PREPARED FOR:
FAIR TIDE, INC.
125 STATE ROAD
KITTERY, MAINE 03004

CLIENT ADDRESS:

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

811 DigSafe MAINE NH RI VT

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

CONSTRUCTION DETAILS

PROJECT NO: 21-335.00

L3

SHEET: 3 OF 3

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

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

REVISIONS

NO.	DATE	DESCRIPTION
1 <td></td> <td></td>		

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

RECORD OWNER:
FAIR TIDE, INC.
OWNER ADDRESS:
13 STATE ROAD
KITTERY, ME 03004

PREPARED FOR:
FAIR TIDE, INC.
125 STATE ROAD
KITTERY, MAINE 03004

CLIENT ADDRESS:

1"=20'

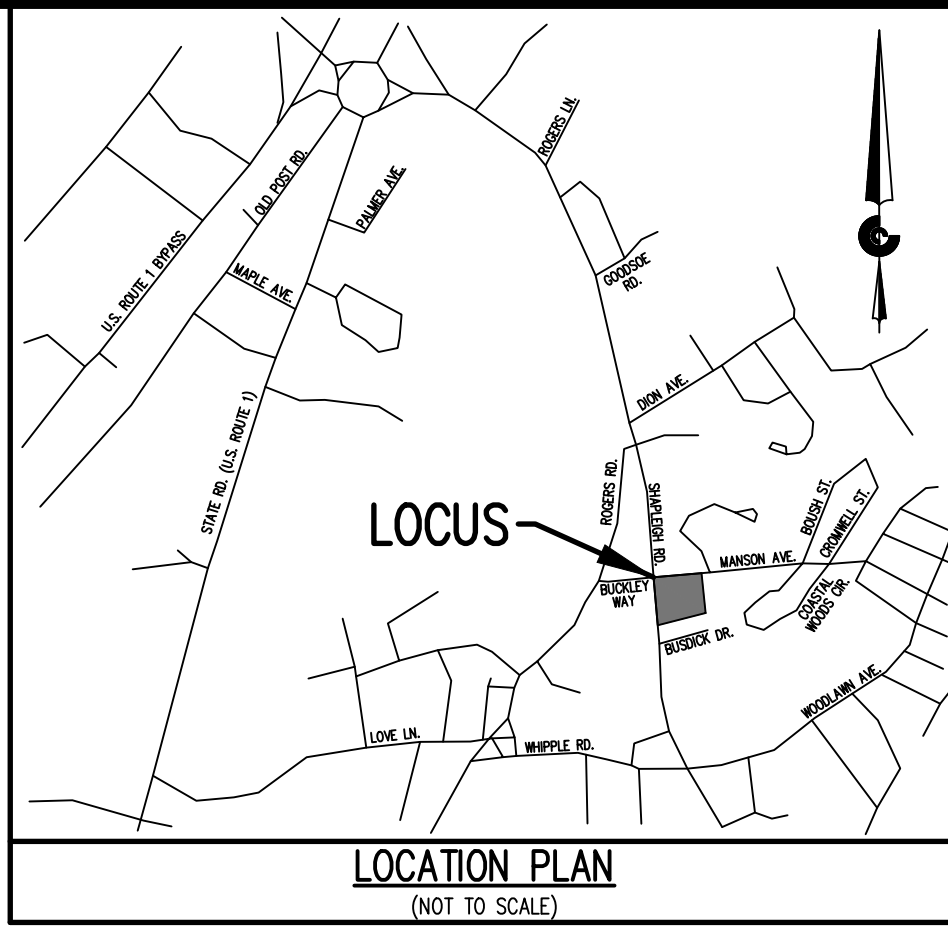
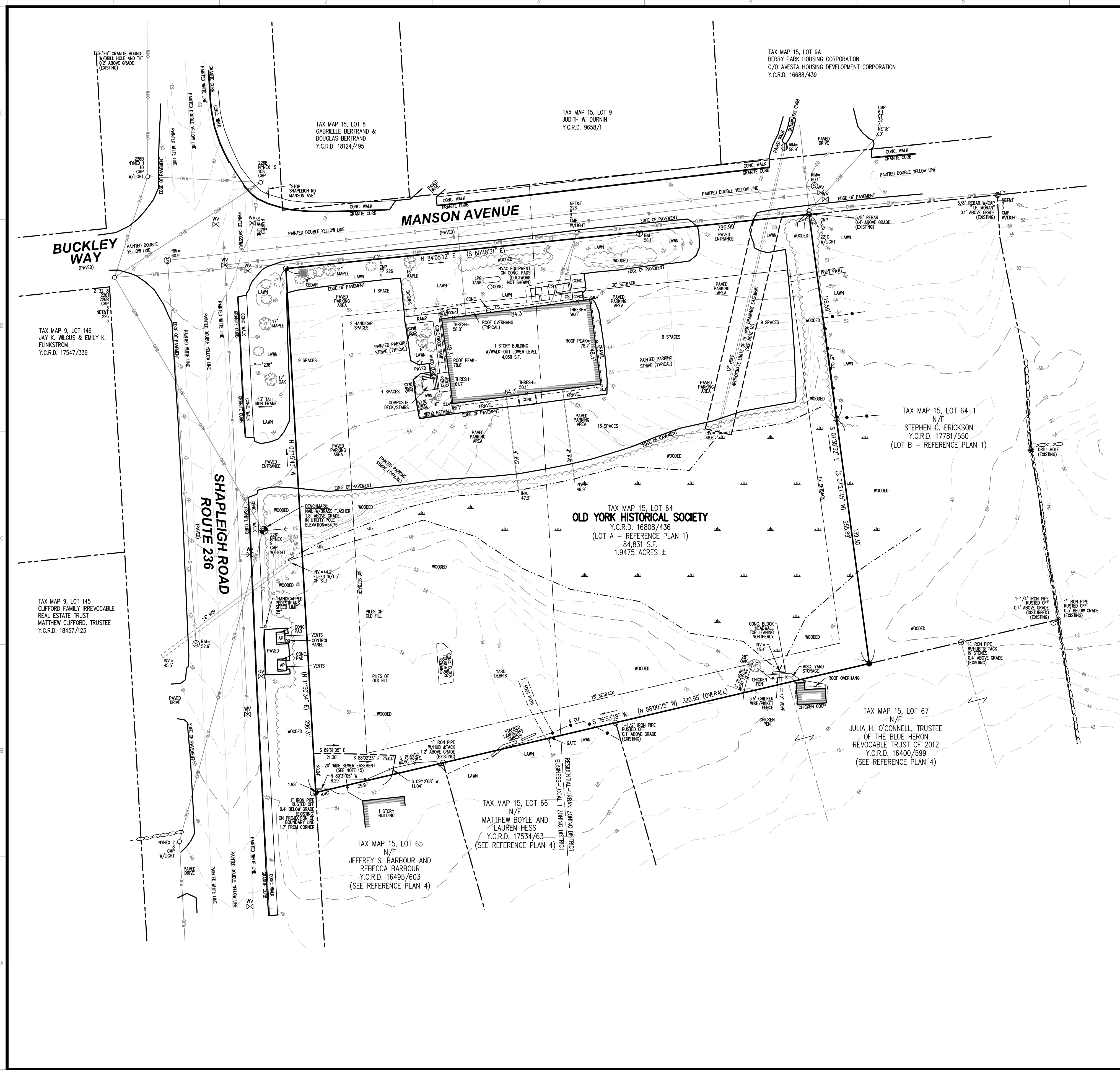
DATE: 01/05/2023
DRAWN BY: JAA/GRA
CHECKED BY:
APPROVED BY:

CONSTRUCTION DETAILS

PROJECT NO: 21-335.00

L3

SHEET: 3 OF 3



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%

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

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

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

EXISTING SITE PLAN

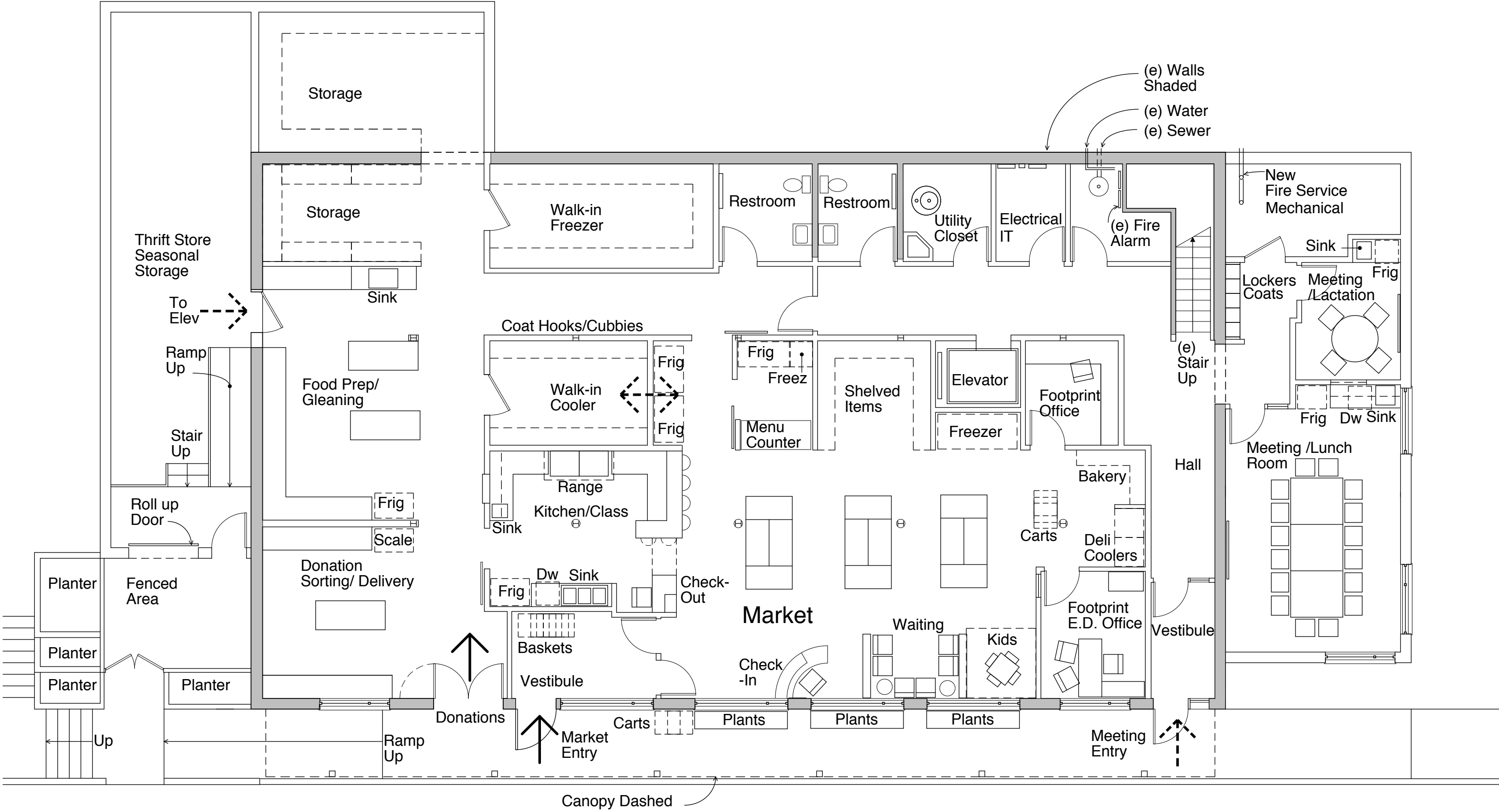
PROJECT NO: 2133500

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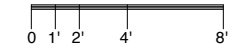
SHEET: 1 OF 1

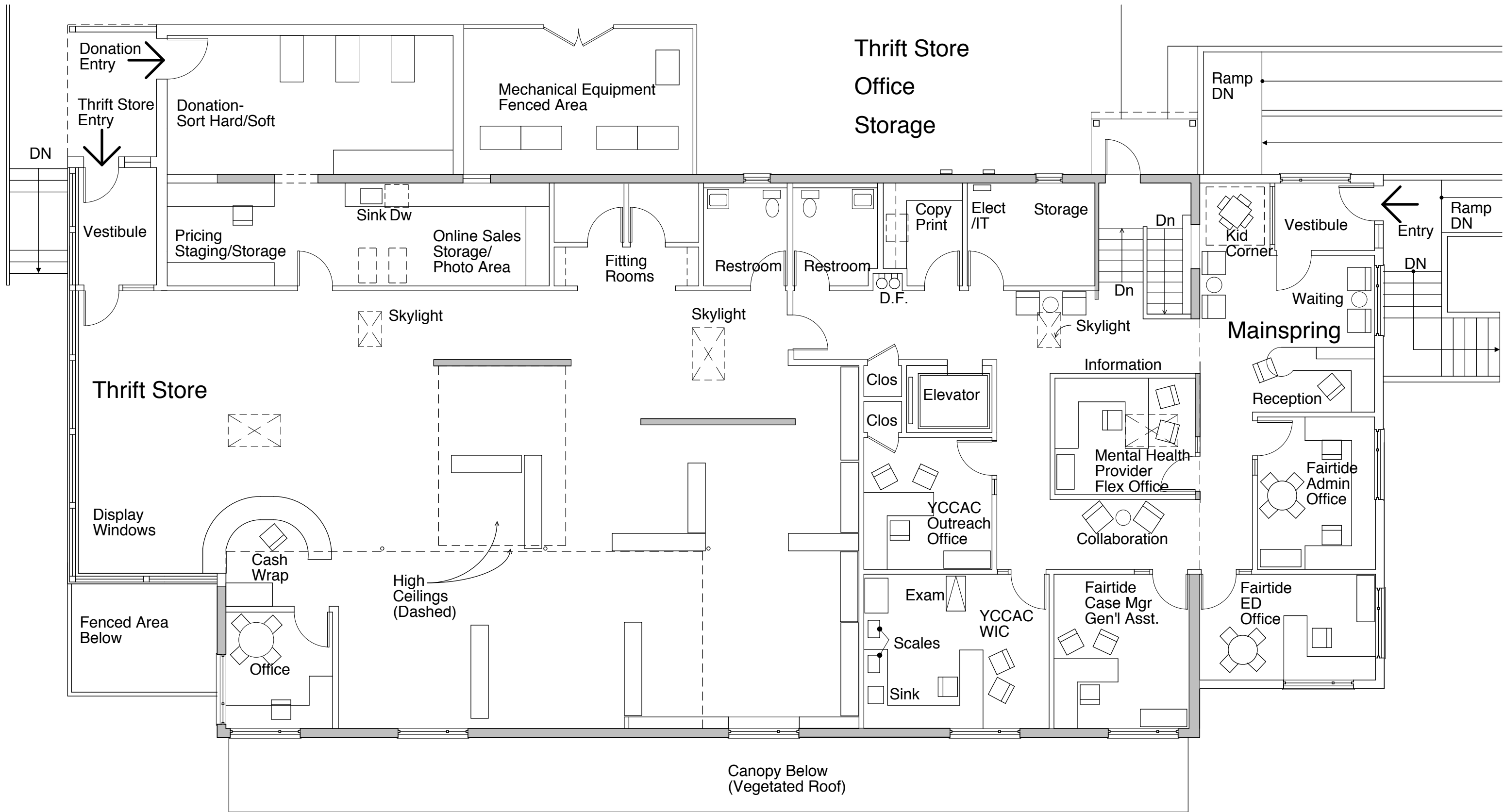
TAX MAP 15, LOT 64





LOWER LEVEL PLAN -MAINSRING
 Schematic Design
 January 5, 2023





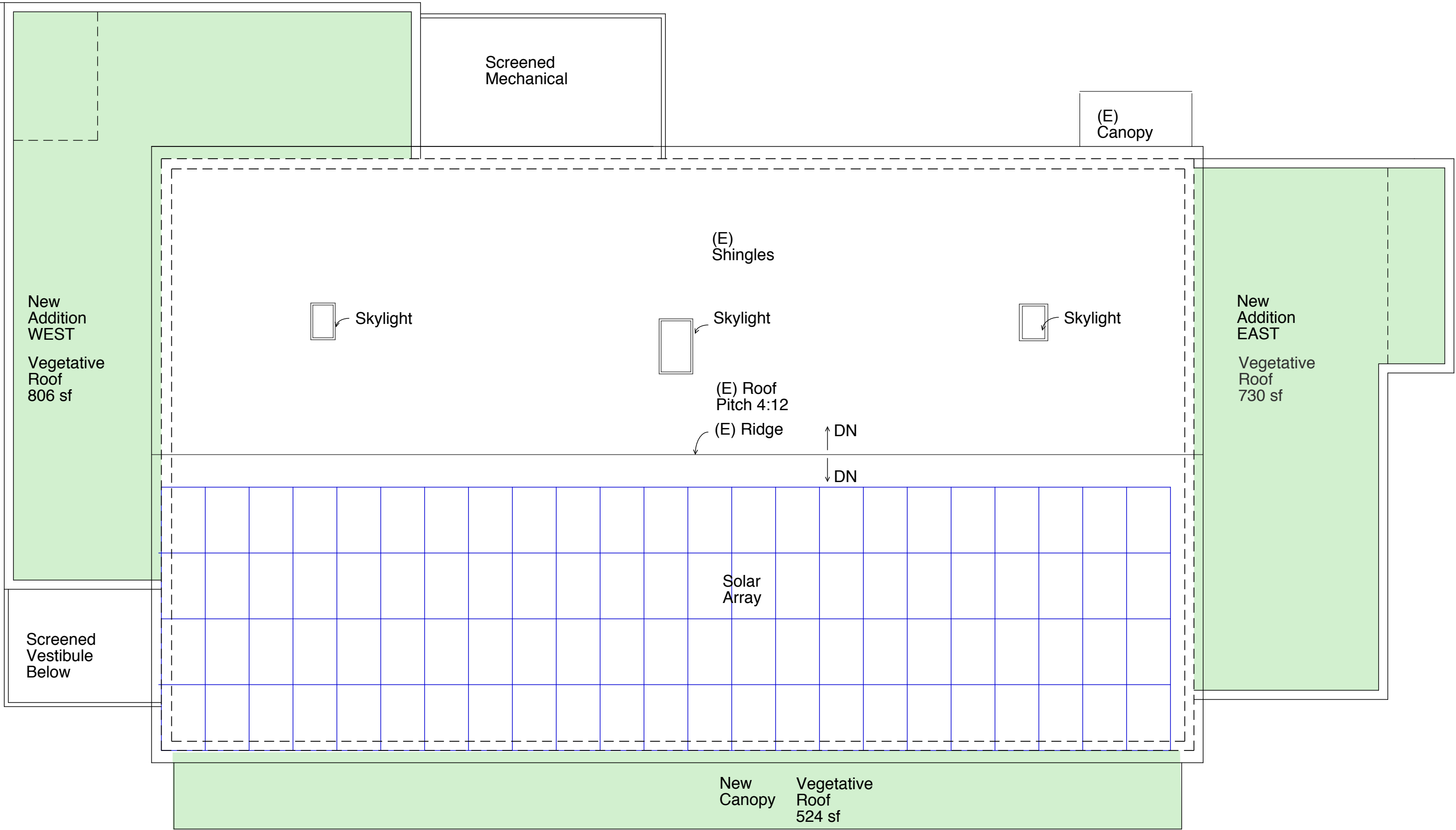
UPPER LEVEL PLAN-MAINSRING

Schematic Plan
 January 5, 2023

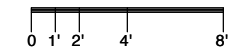


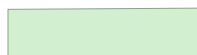
A 3

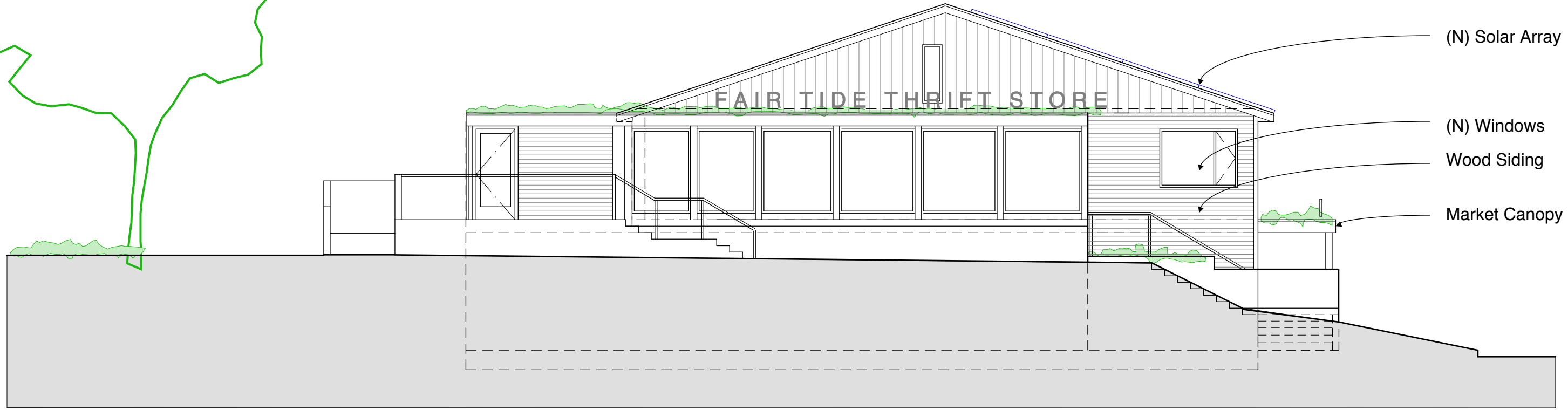
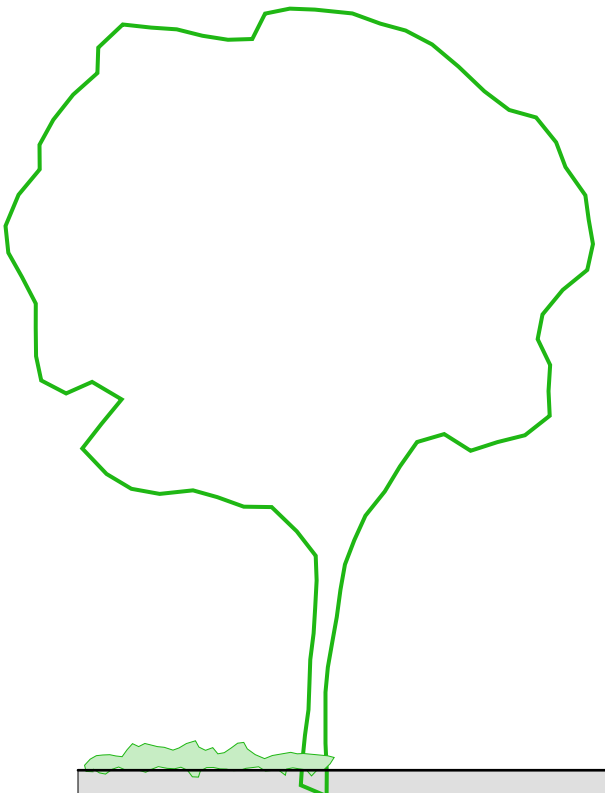
ARQ Architects



ROOF PLAN- MAINSPRING
 Schematic Design Plan
 December 28, 2022



 Vegetative Roof Areas 2060 sf



FAIR TIDE THRIFT STORE

(N) Solar Array

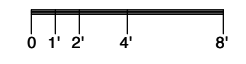
(N) Windows

Wood Siding

Market Canopy

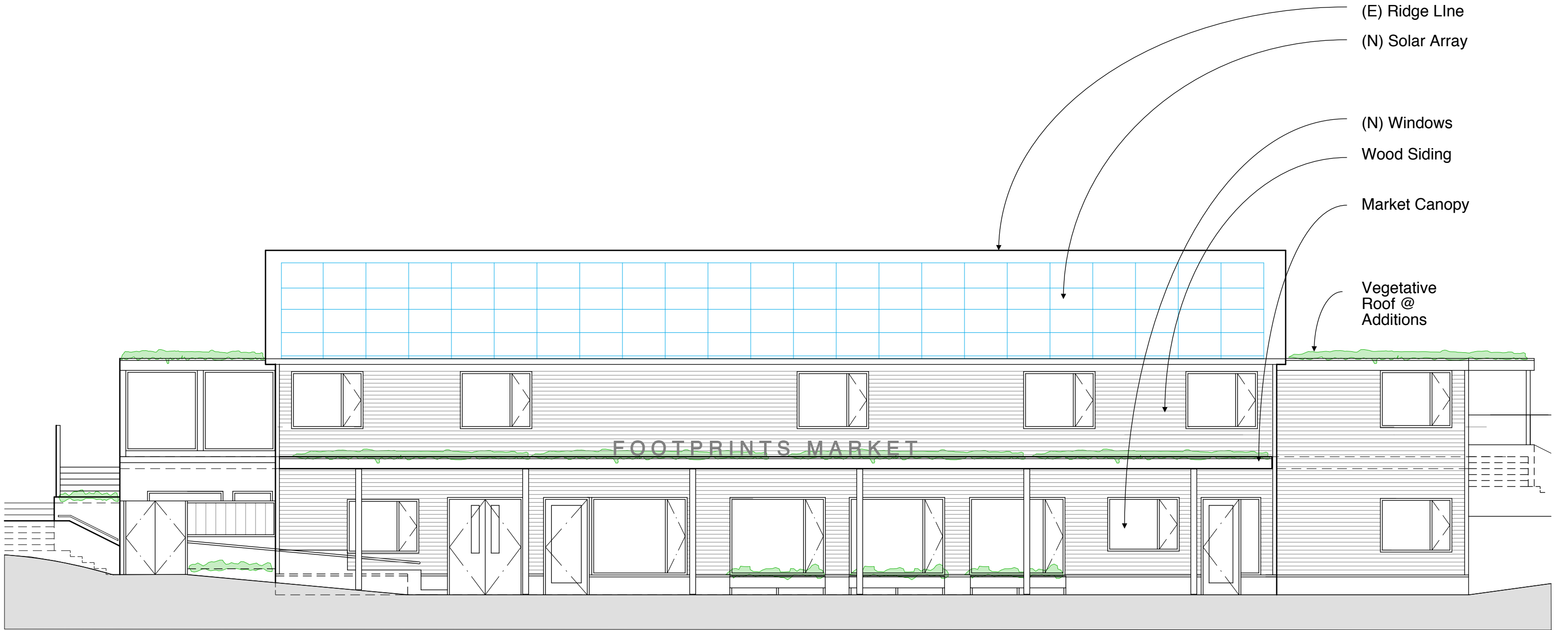
West Elevation

November 2, 2022



A 6

ARQ Architects



(E) Ridge Line
(N) Solar Array

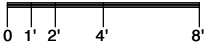
(N) Windows
Wood Siding

Market Canopy

Vegetative
Roof @
Additions

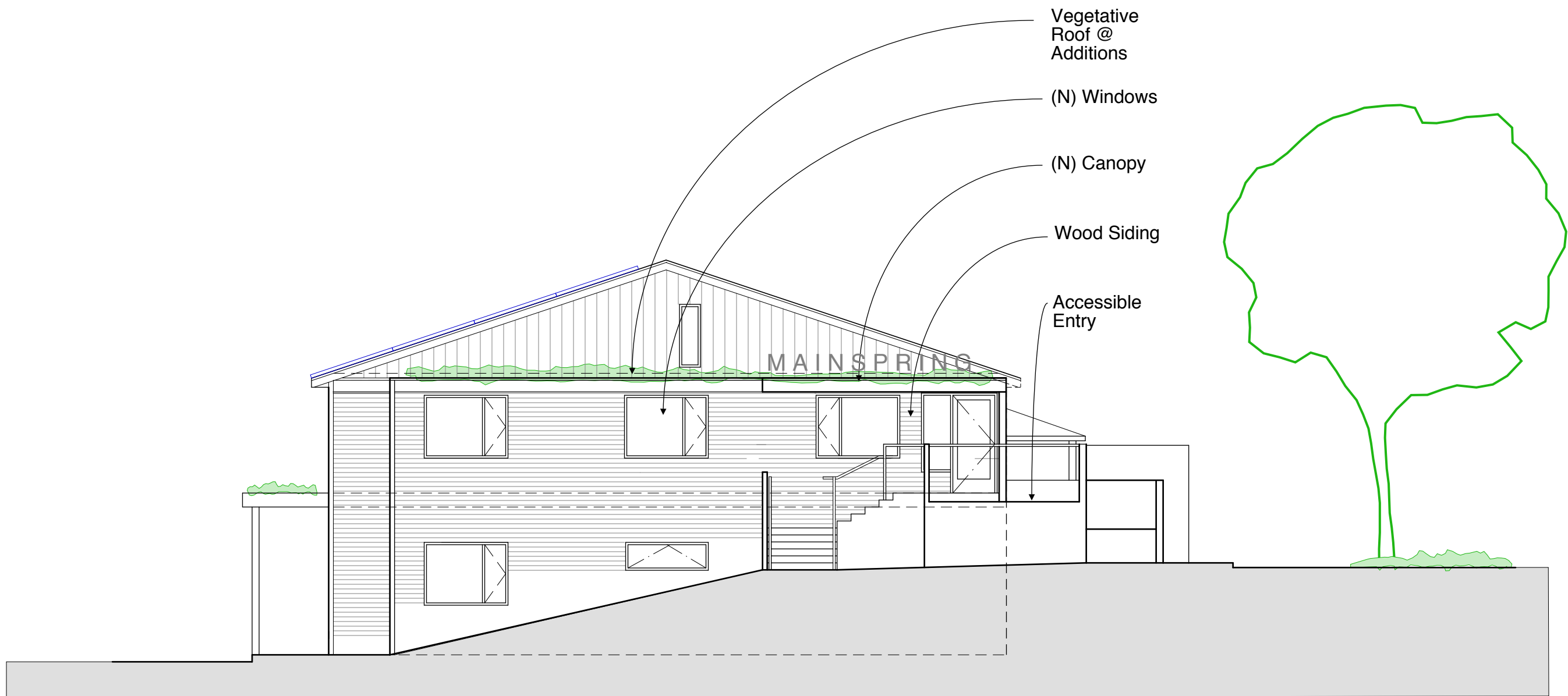
South Elevation

November 2, 2022



A 7

ARQ Architects



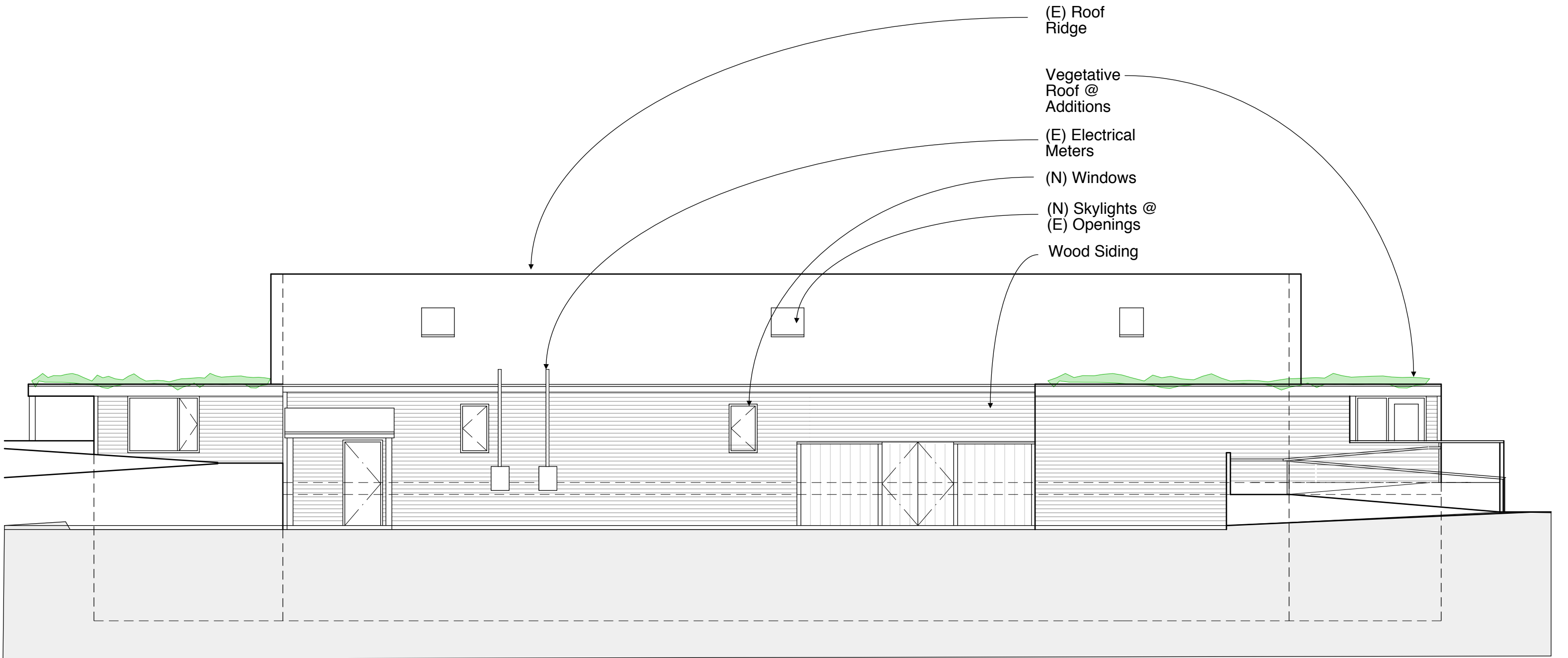
East Elevation

November 2, 2022



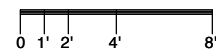
A 8

ARQ Architects



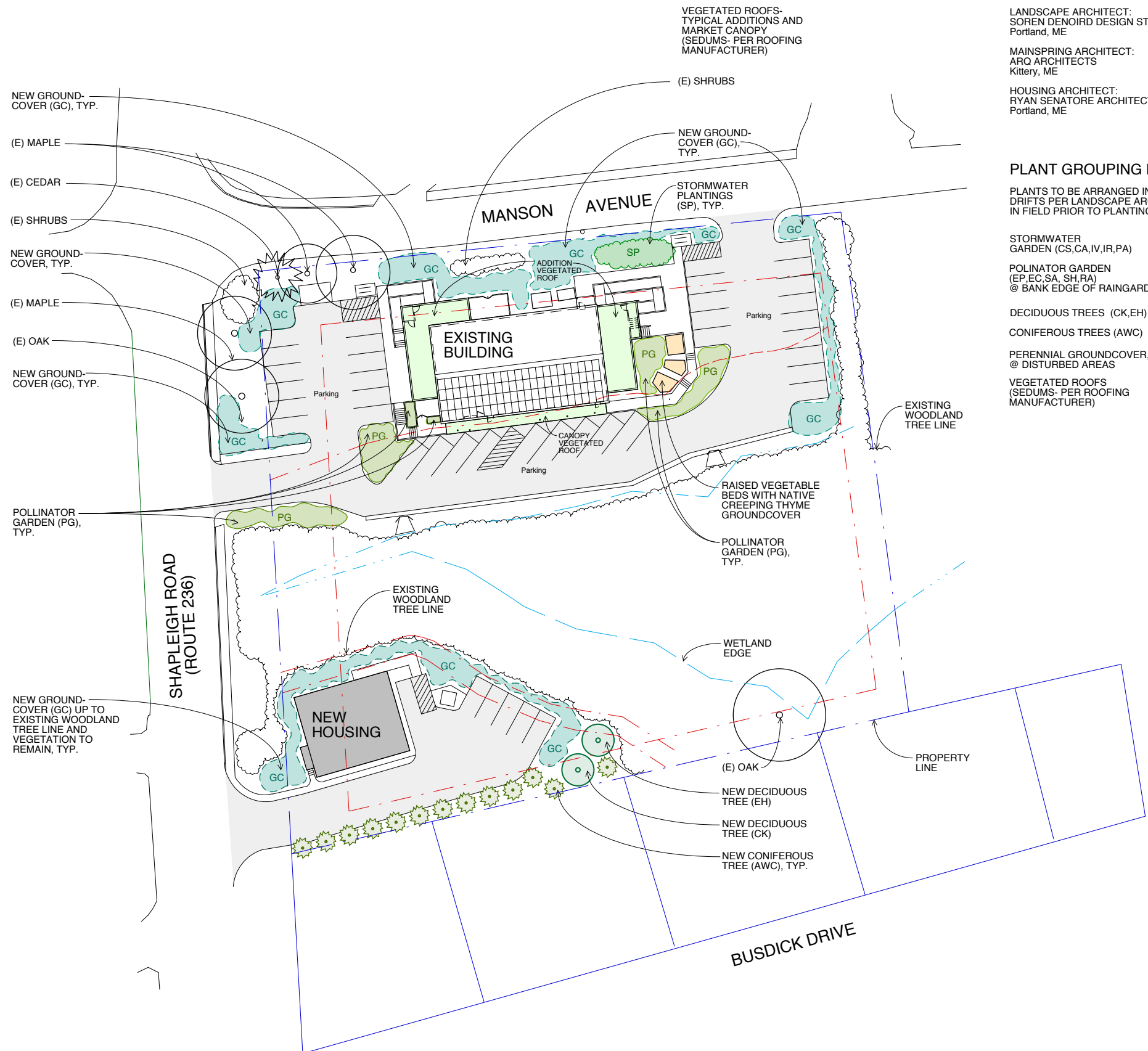
North Elevation

November 2, 2022



A 9

ARQ Architects



DESIGN TEAM:

LANDSCAPE ARCHITECT:
SOREN DENOIRD DESIGN STUDIO
Portland, ME

MAINSRING 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)

POLLINATOR 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	EUTROCHIMUM 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



PLANTING NOTES:

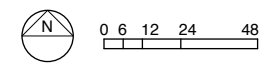
1. THE CONTRACTOR SHALL PREPARE PLANTING ZONES TO THE GRADES AND DEPTHS AS INDICATED ON THE DRAWINGS.
2. IF THE CONTRACTOR DETERMINES THE SUB-GRADE SOIL CONDITIONS ARE DELETERIOUS TO PLANT GROWTH OR WILL INHIBIT DRAINAGE, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY AND PRIOR TO INSTALLATION 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.

MAINSRING

22 SHAPLEIGH ROAD, KITTEERY, MAINE

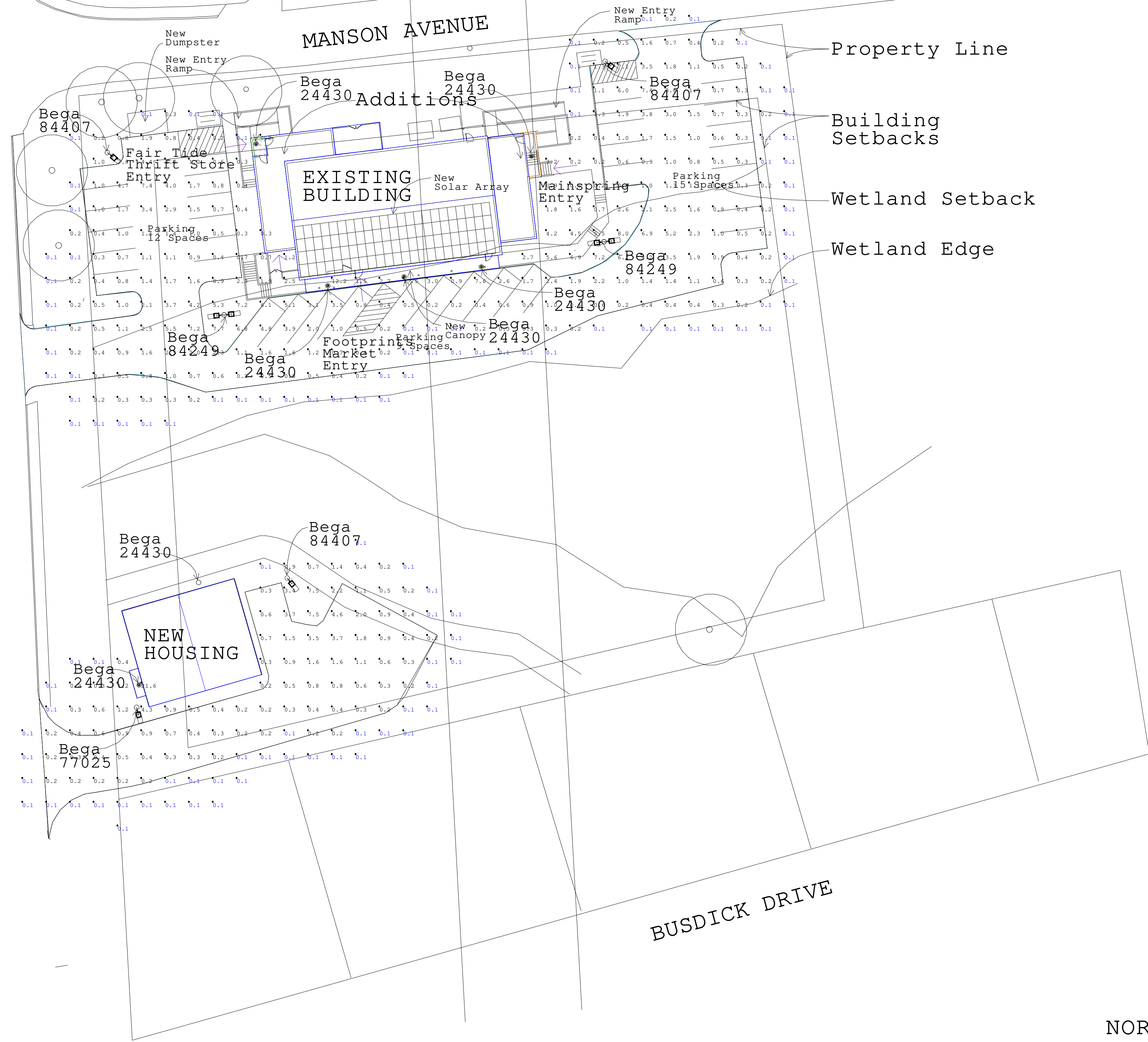
JANUARY 5, 2023

Site Landscape Plan



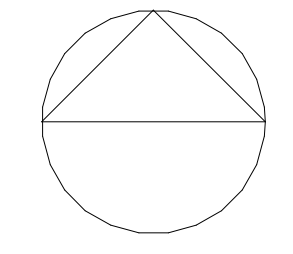
ARQ Architects

SHAPLEIGH ROAD (ROUTE 236)



SITE PLAN- OVERALL
 Exterior Lighting Review
 December 28, 2022

NORTH



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

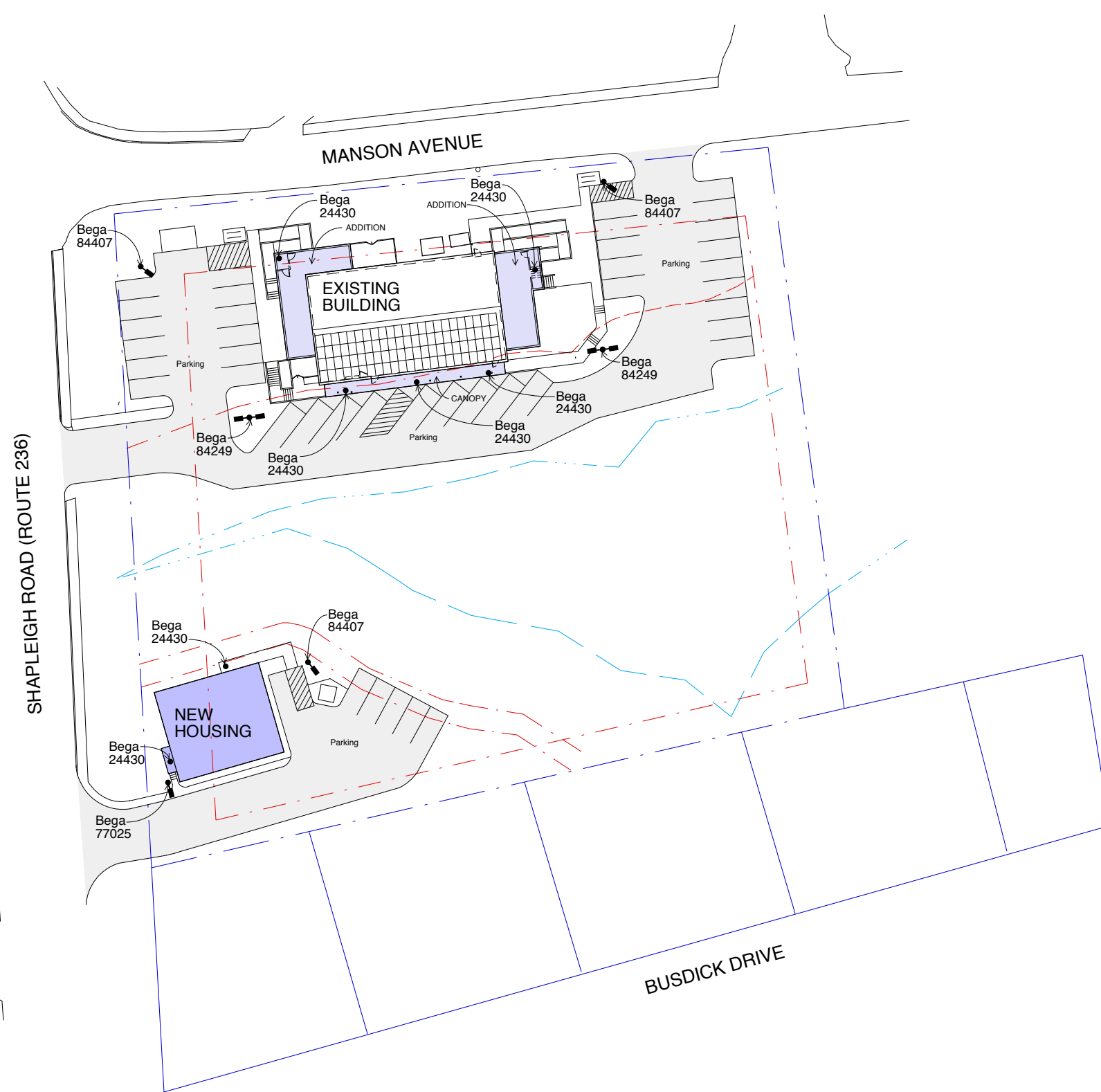
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
ENTRY Floor	Illuminance	Fc	18.04	21.7	13.6	1.33	1.60	0
GRID AT GRADE	Illuminance	Fc	1.24	21.6	0.1	12.40	216.00	0
NEW HOUSING PARKING	Illuminance	Fc	0.77	4.6	0.1	7.70	46.00	
STORE & MARKET PARKING	Illuminance	Fc	1.51	7.6	0.1	15.10	76.00	



#	Date	Comments

Drawn By:
 Checked By:
 Date: 1/4/2023
 Civil Consultants, 293 Main St, Berwick, ME
 Scale: NTS

MAINSRING
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

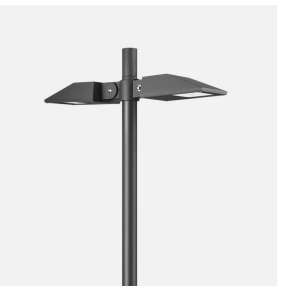


FIXTURE TYPE 3: BEGA 84249

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:

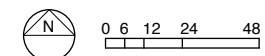
1. Site lighting fixtures to follow the requirements of the Kittery Design Handbook and Town Code.
2. Pole-mounted fixtures to be full cut-off type mounted no higher than 20'-0" above ground as required by Town Code.
3. Lighting at the property lines abutting residential properties must not exceed 0.1 footcandles.
4. Unshielded light bulbs are not allowed.
5. Where commercial properties abut residential areas, lighting in parking lots should be reduced to an average of 0.2 footcandles 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 surface.

MAINSRING

22 SHAPLEIGH ROAD, KITTERY, MAINE

JANUARY 5, 2023

Light Fixture Data



ARQ Architects



CONSULTANTS:

REVISIONS:

PROGRESS PRINT ONLY
Not for Construction
NOVEMBER 15, 2022

DATE:

PROJECT No. 2171

DRAWN BY: RRT, RJS

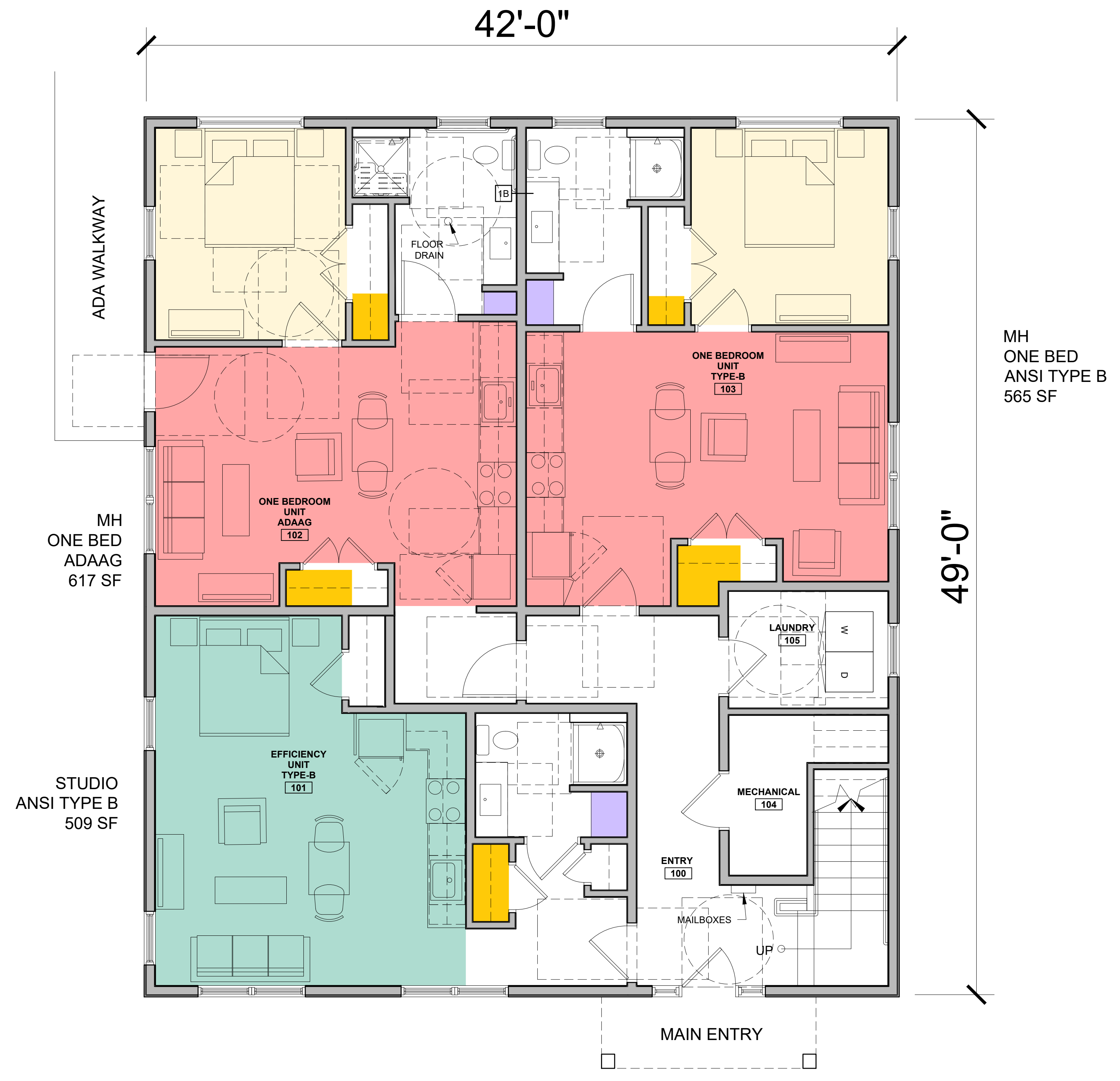
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SCALE: AS NOTED

SHEET TITLE:

FIRST FLOOR PLAN

A1-1



- = 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.)



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



CONSULTANTS:

REVISIONS:

PROGRESS PRINT ONLY
Not for Construction
NOVEMBER 15, 2022

DATE:

PROJECT No. 2171

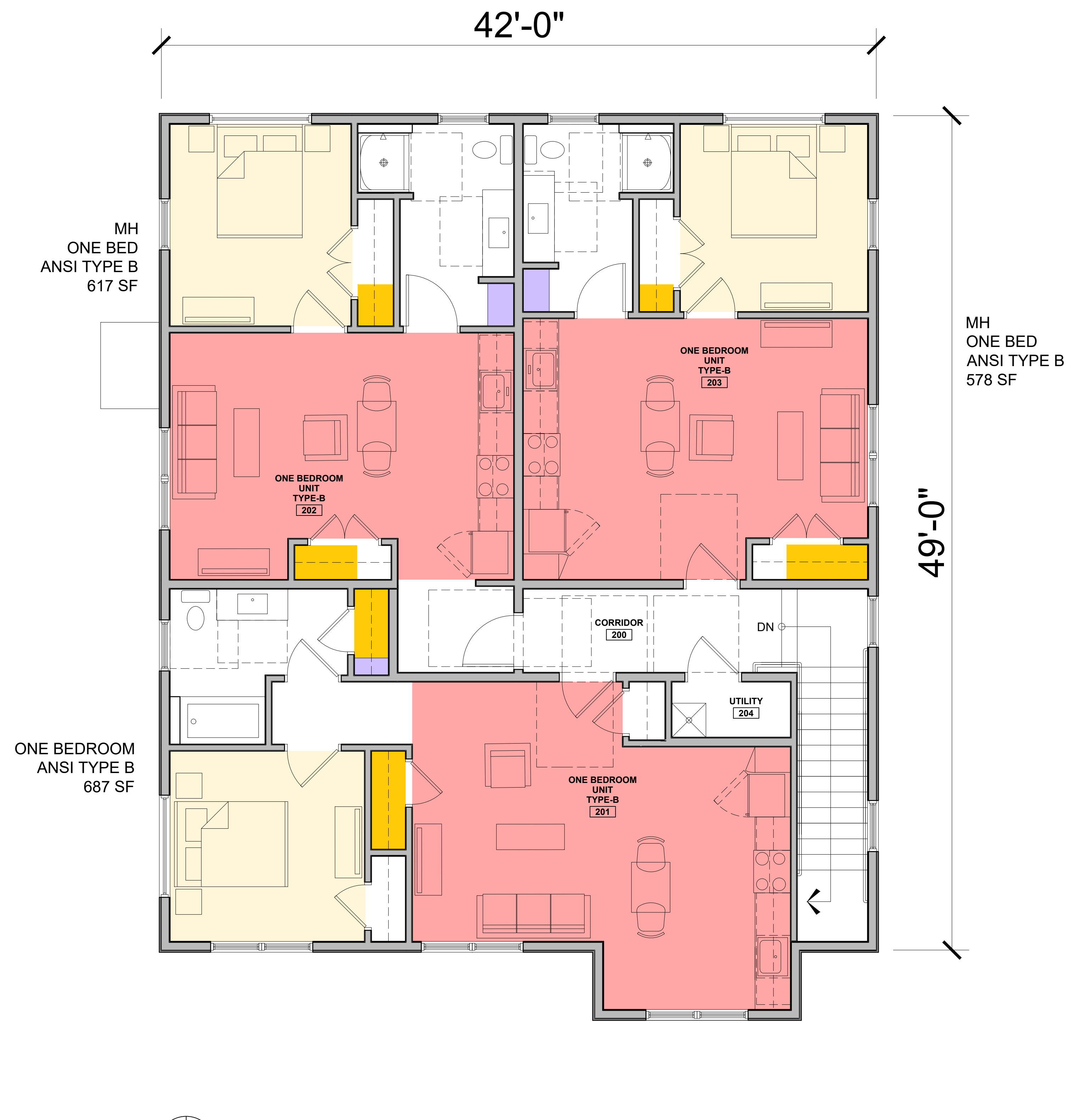
DRAWN BY: RRT, RJS

CHECKED BY: RJS

SCALE: AS NOTED

SHEET TITLE:

SECOND FLOOR PLAN



- = 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.)



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

APARTMENTS
22 SHAPLEIGH ROAD
KITTERY, MAINE



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

CONSULTANTS:

REVISIONS
PROGRESS PRINT ONLY
Not for Construction
NOVEMBER 15, 2022

DATE:

PROJECT No. 2171

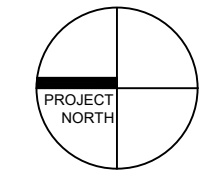
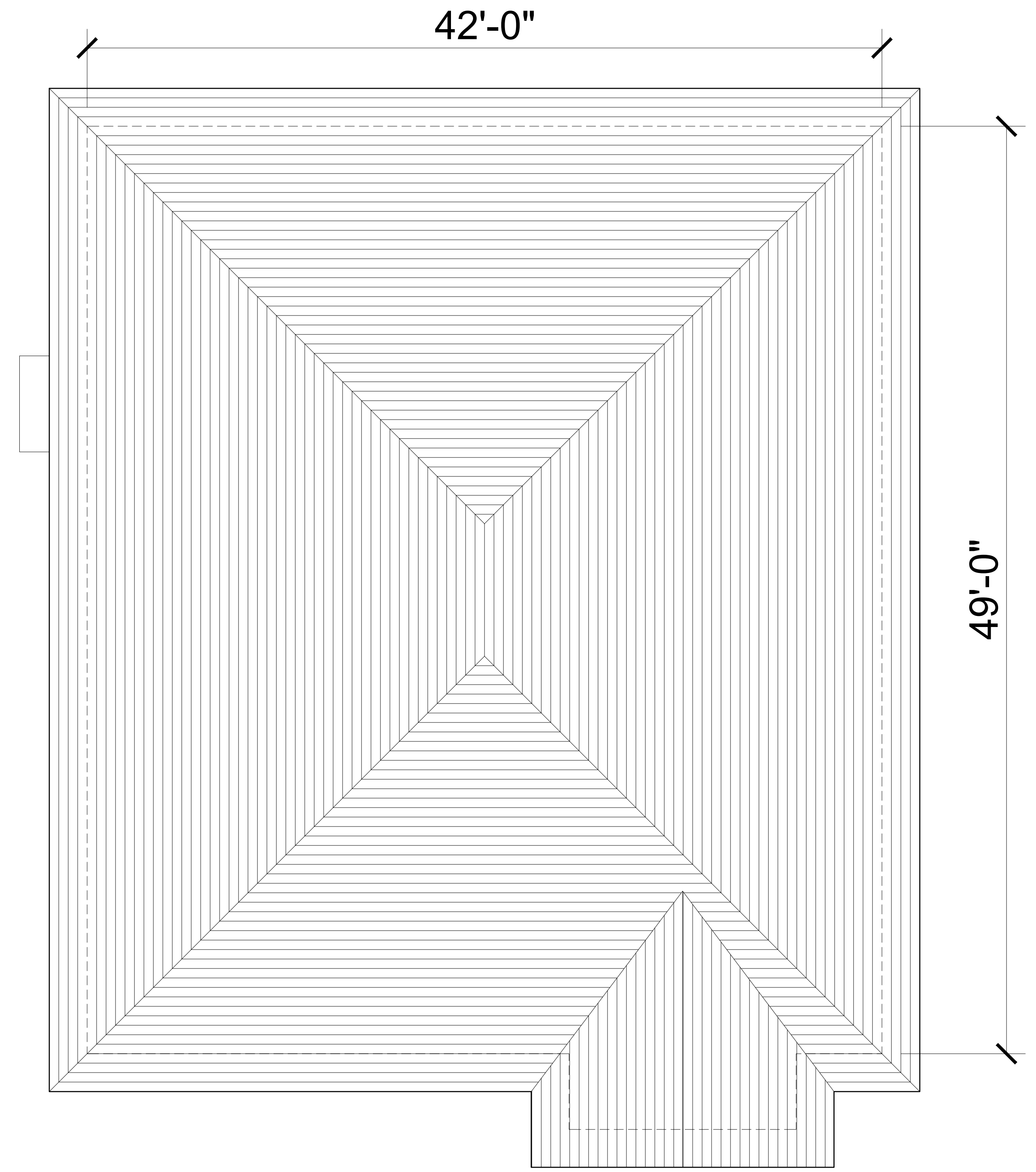
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CHECKED BY: RJS

SCALE: AS NOTED

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ROOF PLAN

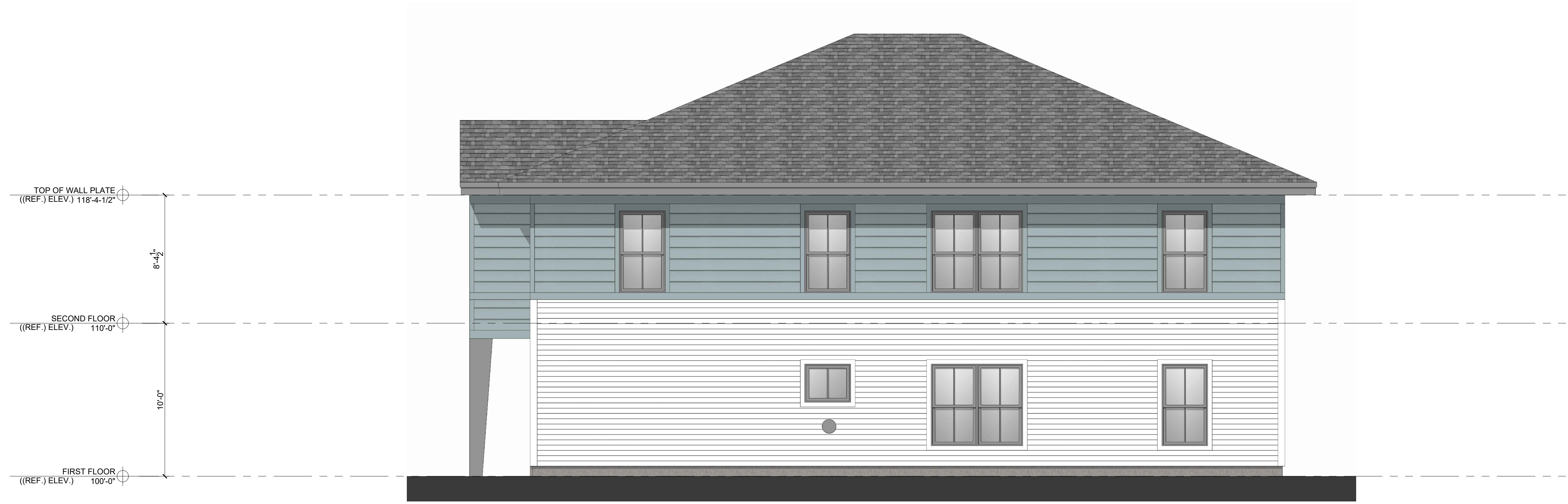
A1-3



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



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



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



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

TOP OF WALL PLATE
((REF.) ELEV.) 118'-4-1/2"

8'-4 1/2"

SECOND FLOOR
((REF.) ELEV.) 110'-0"

10'-0"

FIRST FLOOR
((REF.) ELEV.) 100'-0"



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

TOP OF WALL PLATE
((REF.) ELEV.) 118'-4-1/2"

8'-4 1/2"

SECOND FLOOR
((REF.) ELEV.) 110'-0"

10'-0"

FIRST FLOOR
((REF.) ELEV.) 100'-0"



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

© 2022 RYAN SENATORE ARCHITECTURE

APARTMENTS
22 SHAPLEIGH ROAD
KITTERY, MAINE

RSA
RYAN SENATORE
ARCHITECTURE
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
P: 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

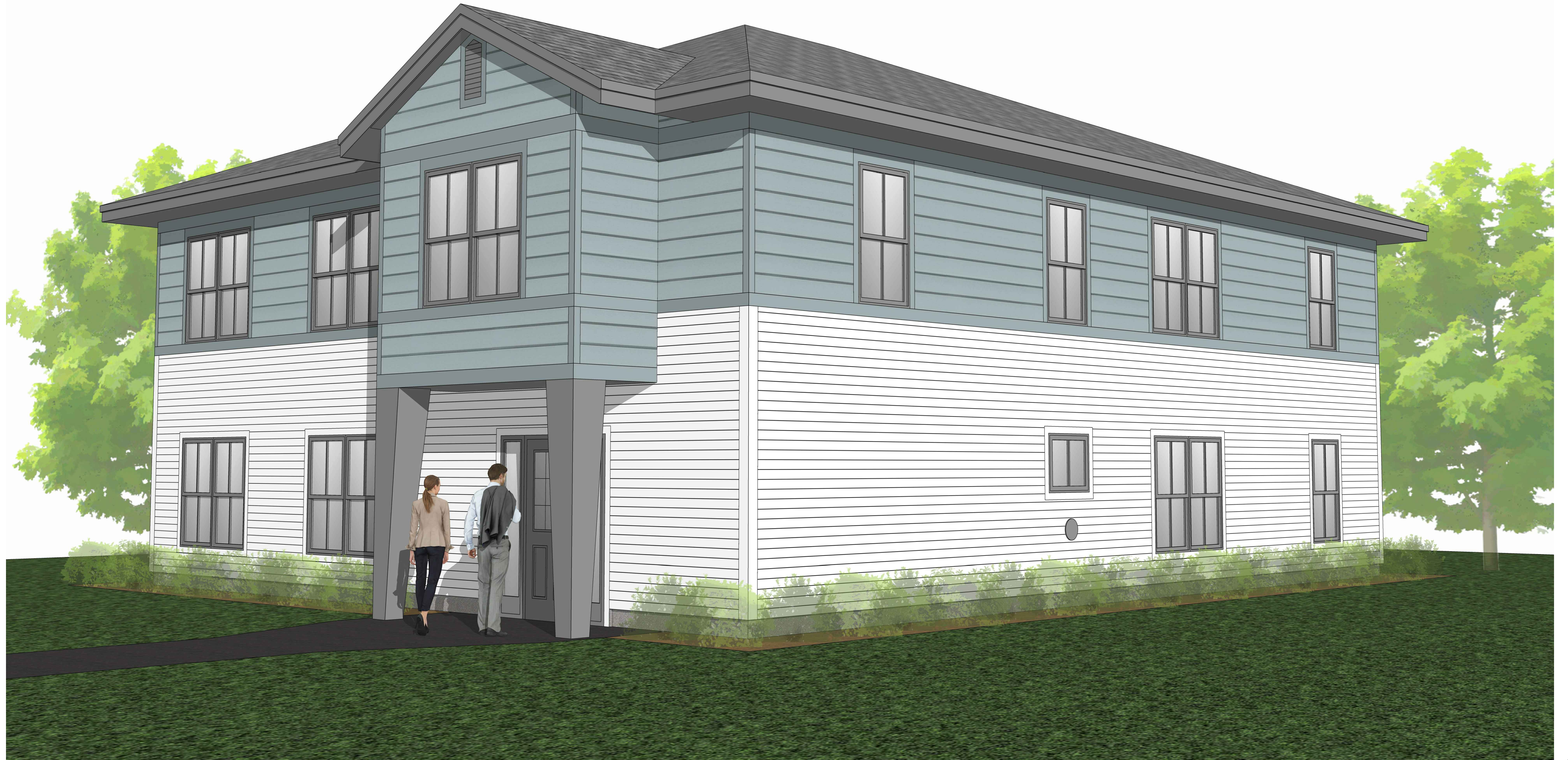
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RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

NOVEMBER 11, 2022



1 COLOR OPTION 1-2
NTS

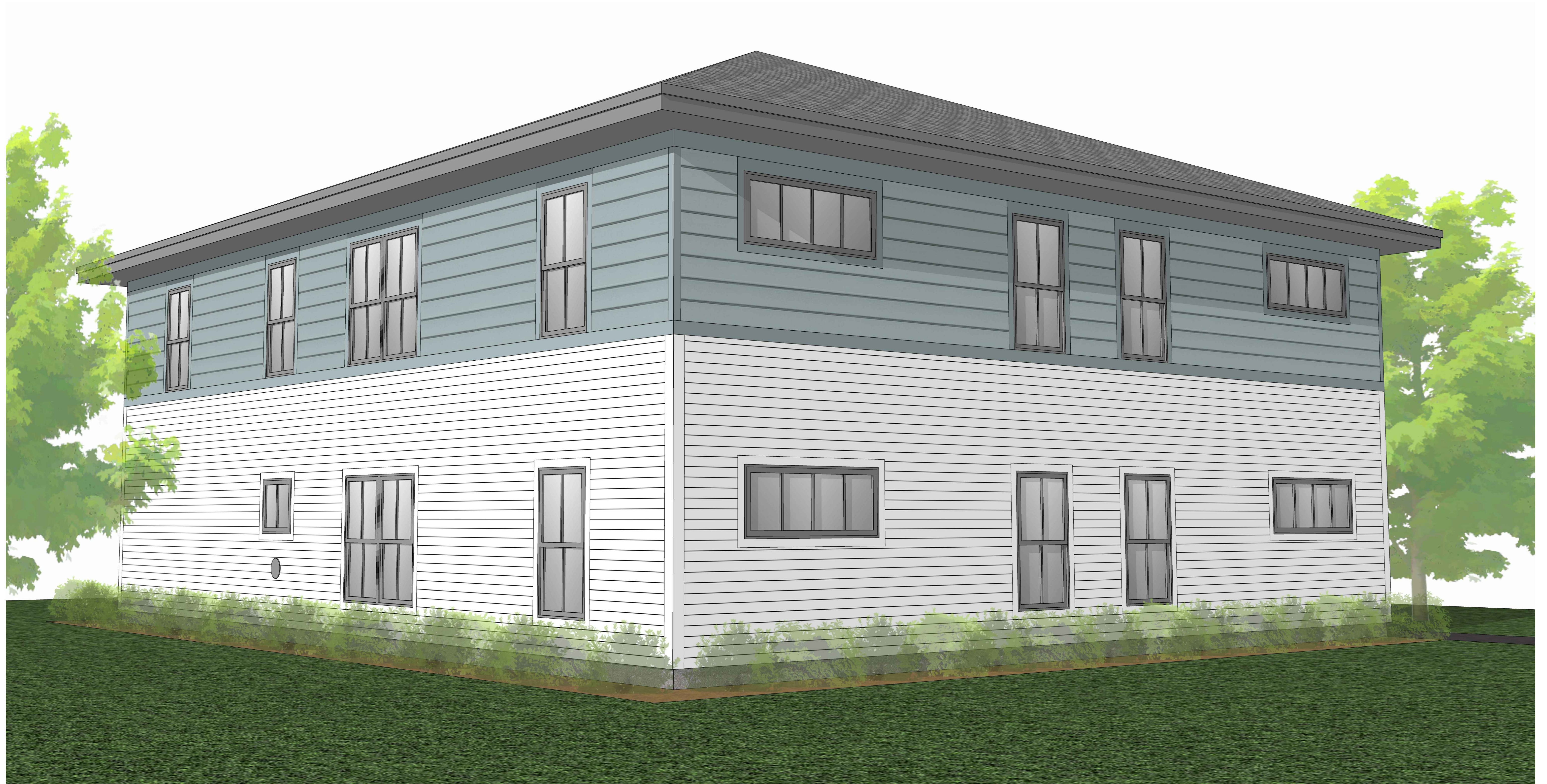
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RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

NOVEMBER 11, 2022



1 COLOR OPTION 1-3
NTS

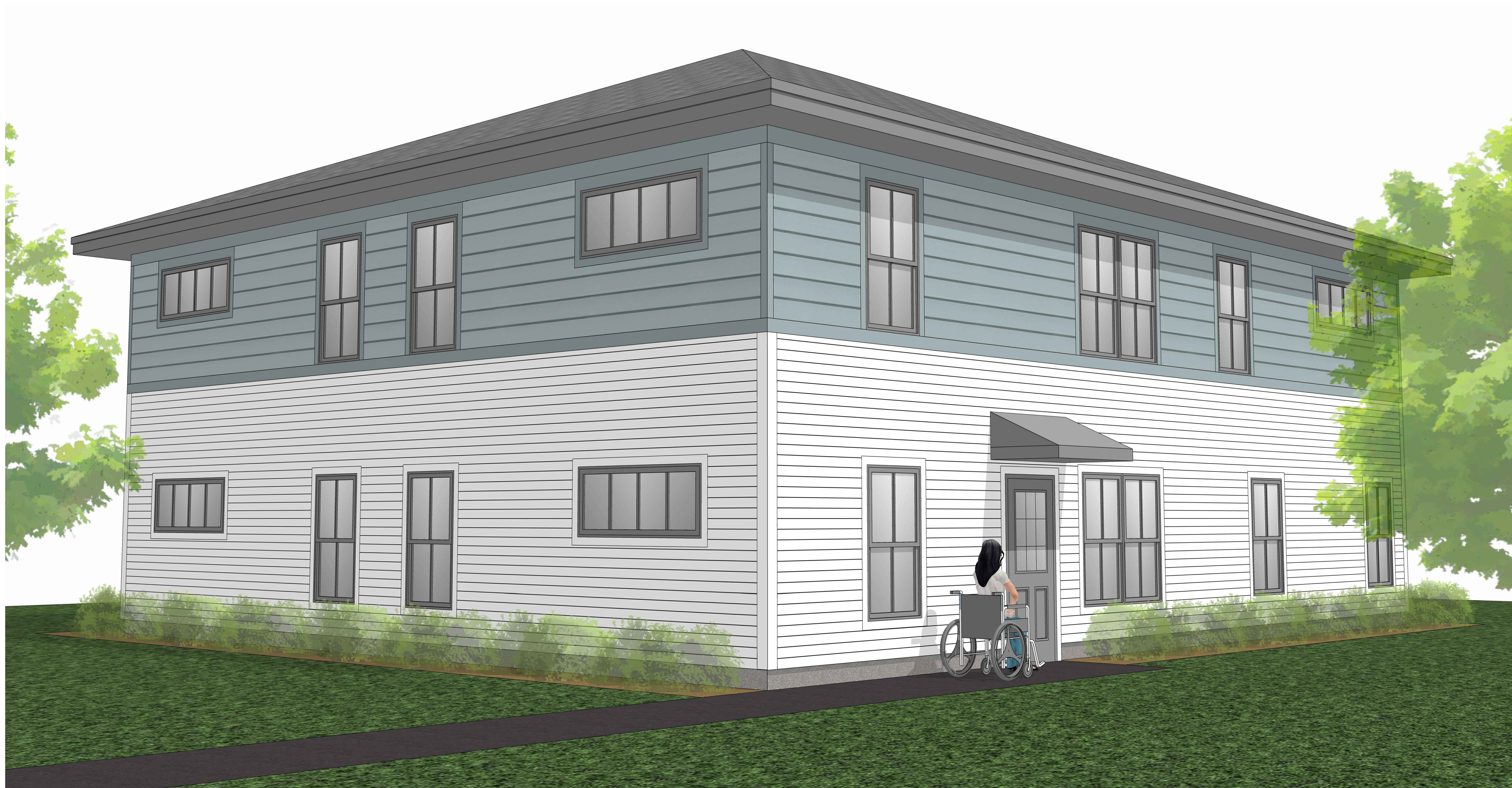
PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

NOVEMBER 11, 2022



1 COLOR OPTION 1-4
NTS

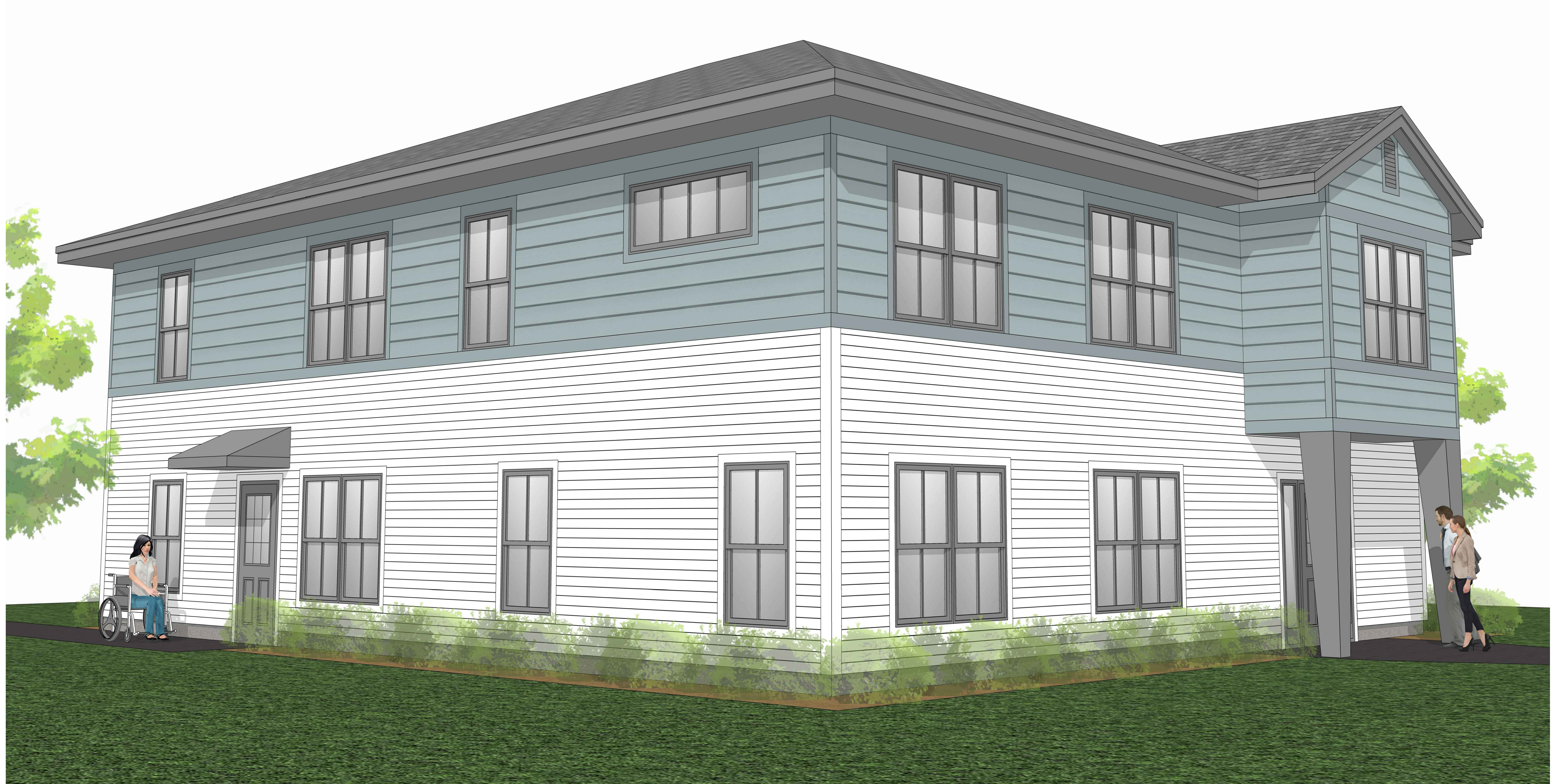
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Not for Construction

RYAN SENATORE **ARCHITECTURE**

RESIDENCES

22 SHAPLEIGH RD, KITTERY, MAINE

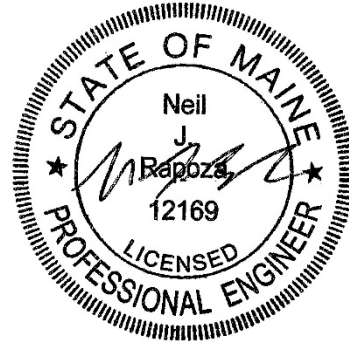
NOVEMBER 11, 2022



1 COLOR OPTION 1-5
NTS

PROGRESS PRINT ONLY
Not for Construction

RYAN SENATORE **ARCHITECTURE**



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.

project drawings and D1 & D2 included with this report.

PROPOSED DRAINAGE:

METHODOLOGY:

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.

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.

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.

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 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.

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

ANALYSIS:

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).

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



FLOW RATES:

TWO-YEAR EVENT -

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

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.

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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.



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

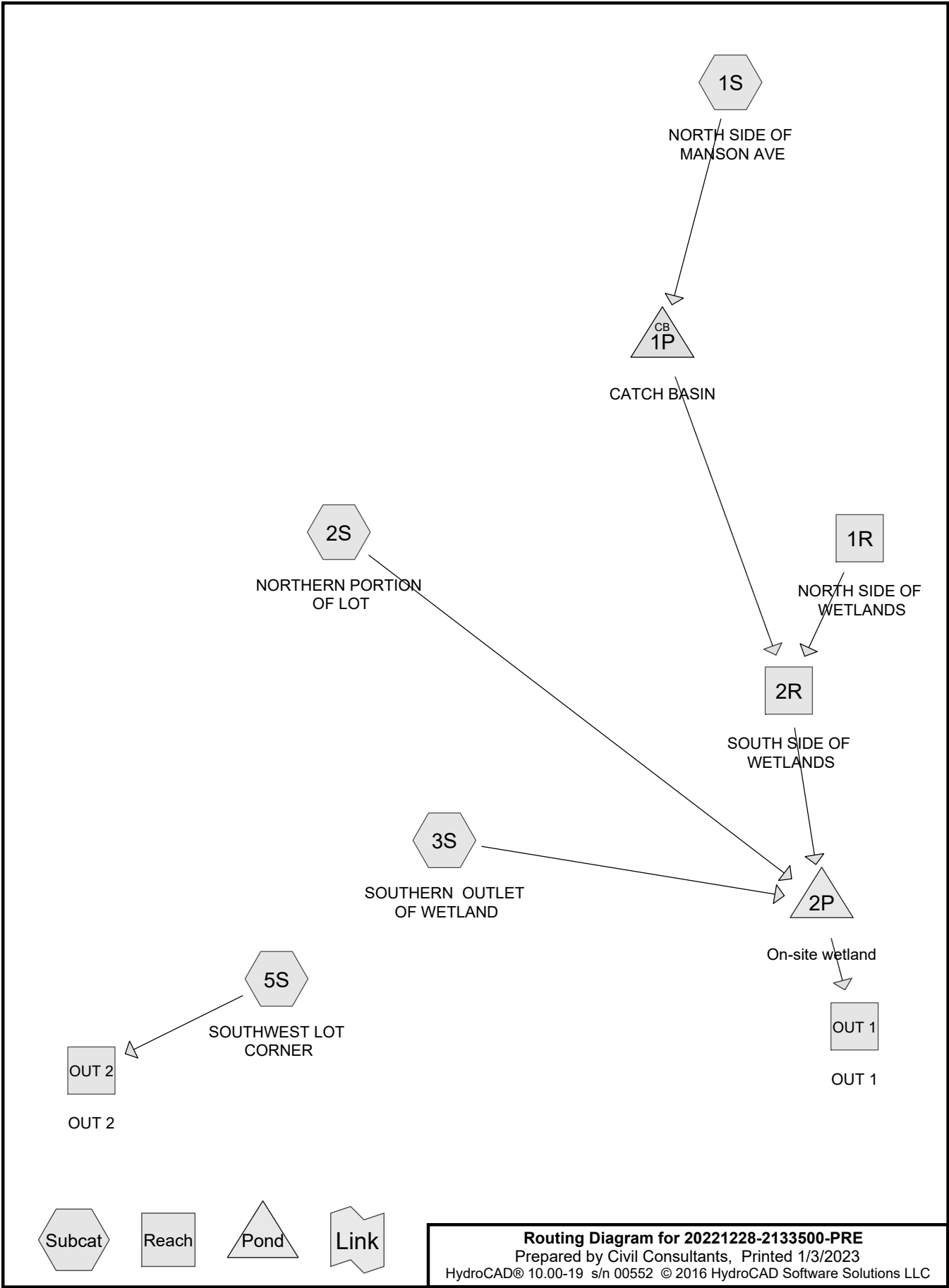
Lower Confidence Limits

	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





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	Subcatchment 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)

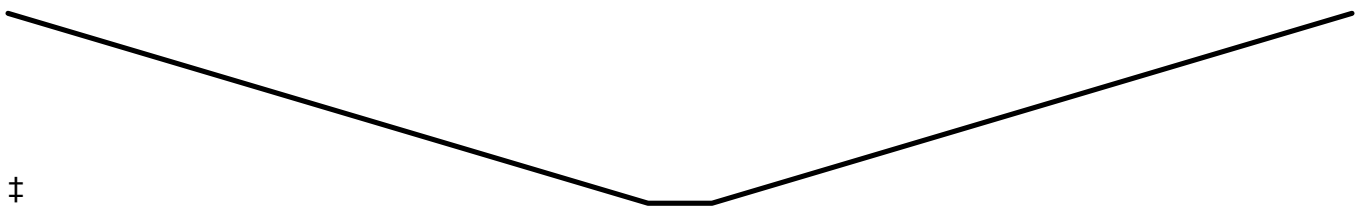
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

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'



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

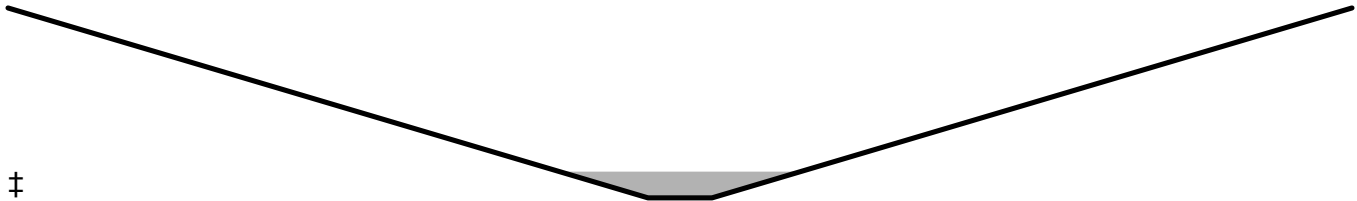
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

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'



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

#2 Secondary 59.50' Inlet / Outlet Invert= 54.90' / 48.60' S= 0.0386 1/ S= 0.0386 1/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
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 1/ S= 0.0156 1/ 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)

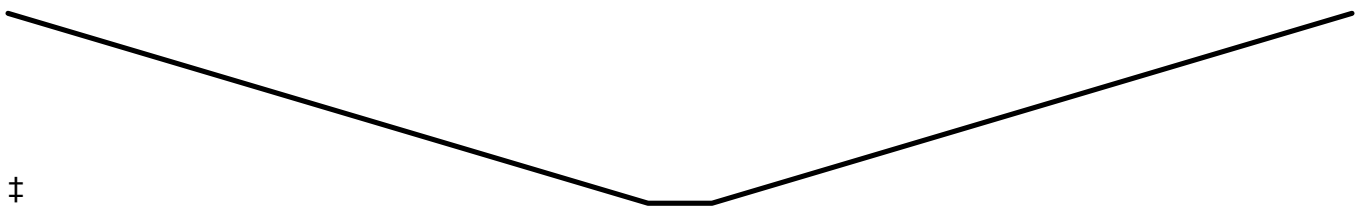
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

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'



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

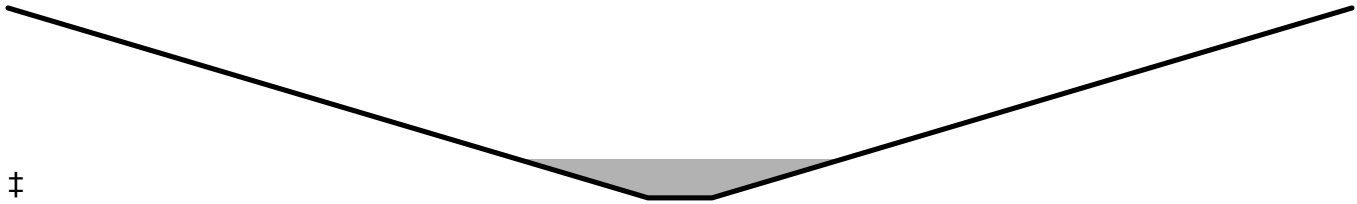
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 3

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'



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

#2 Secondary 59.50' Inlet / Outlet Invert= 54.90' / 48.60' S= 0.0386 1/ S= 0.0386 1/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
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)

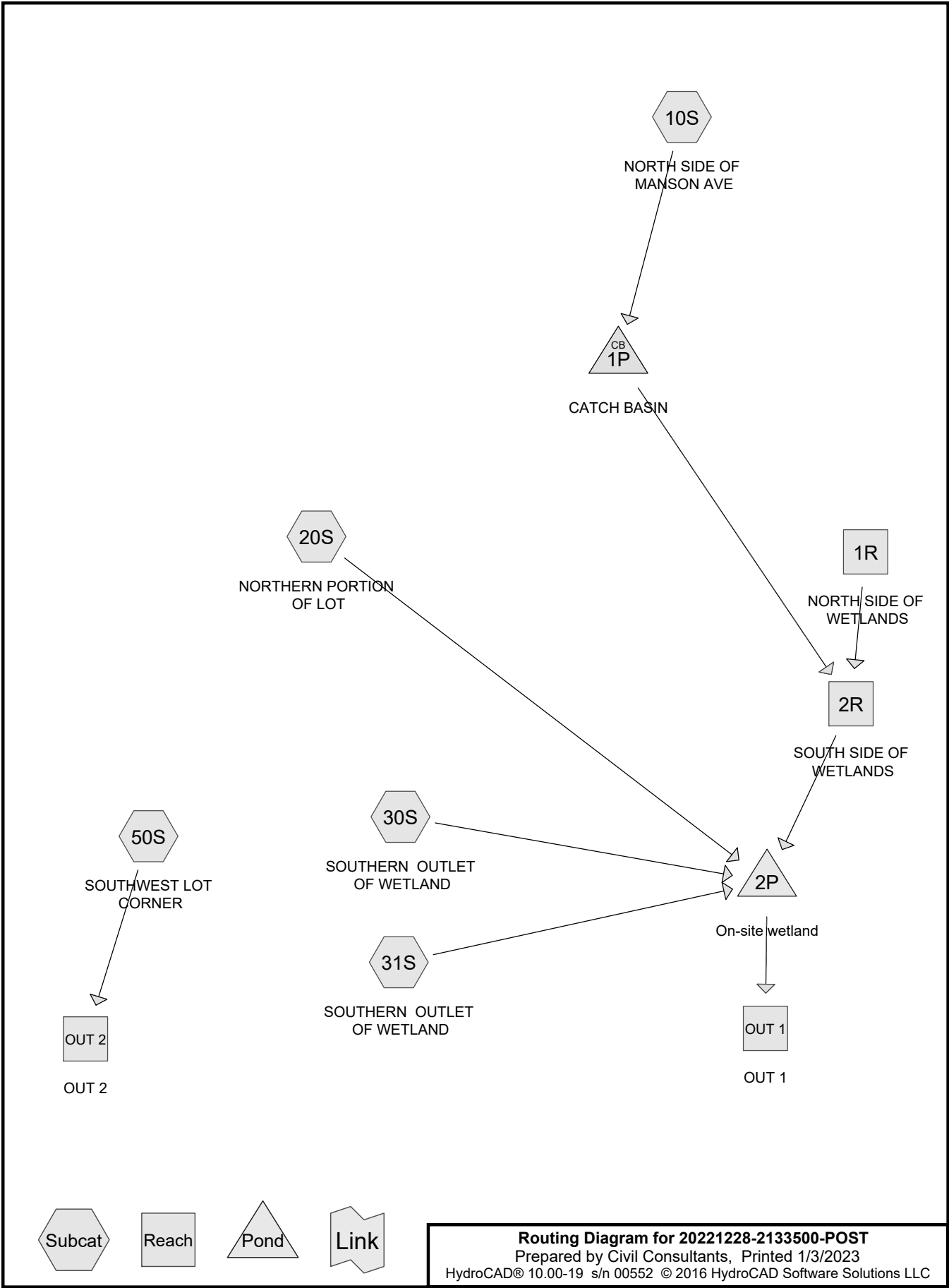
Volume	Invert	Avail.Storage	Storage Description
#1	45.40'	52,500 cf	Custom Stage Data (Conic) Listed below (Recalc)

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 1/ S= 0.0156 1/ 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)



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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	Subcatchment 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

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Type III 24-hr 2 yr Rainfall=3.21"

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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)

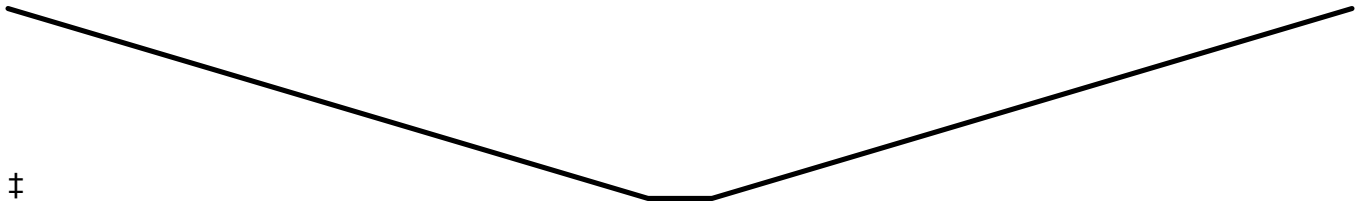
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

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'



Summary for Reach 2R: SOUTH SIDE OF WETLANDS

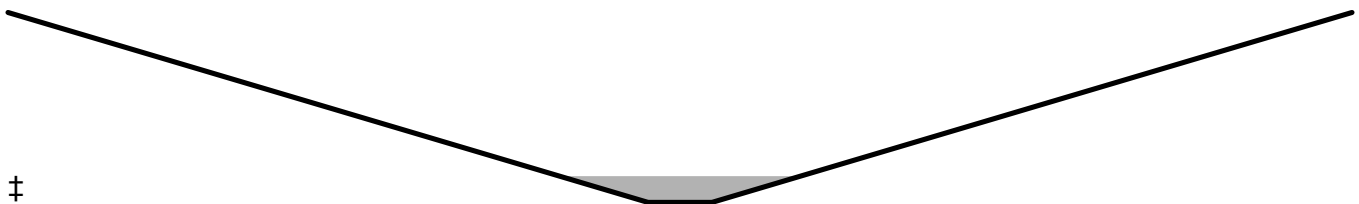
[61] Hint: Exceeded Reach 1R outlet invert by 0.14' @ 12.13 hrs

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'



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)

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Type III 24-hr 2 yr Rainfall=3.21"

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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

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Type III 24-hr 25 yr Rainfall=6.17"

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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)

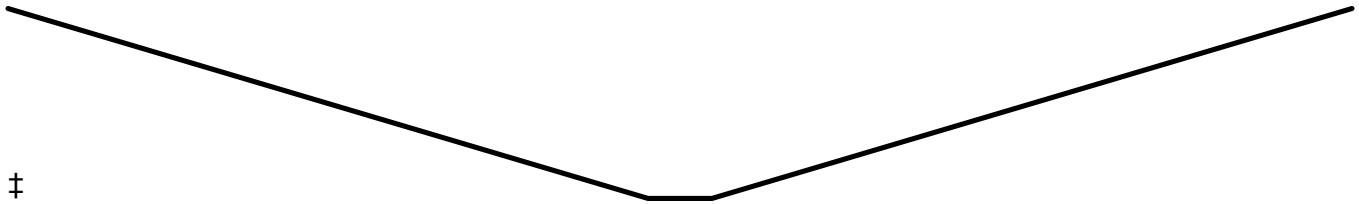
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 312.60 cfs

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'



Summary for Reach 2R: SOUTH SIDE OF WETLANDS

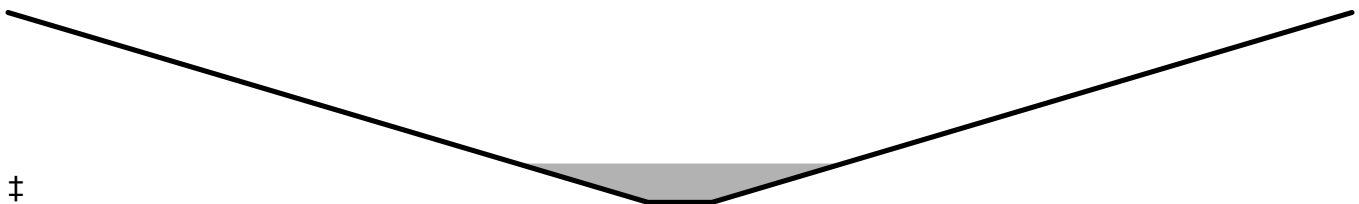
[61] Hint: Exceeded Reach 1R outlet invert by 0.20' @ 12.13 hrs

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'



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 ' 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)

20221228-2133500-POST

Prepared by Civil Consultants

HydroCAD® 10.00-19 s/n 00552 © 2016 HydroCAD Software Solutions LLC

Type III 24-hr 25 yr Rainfall=6.17"

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

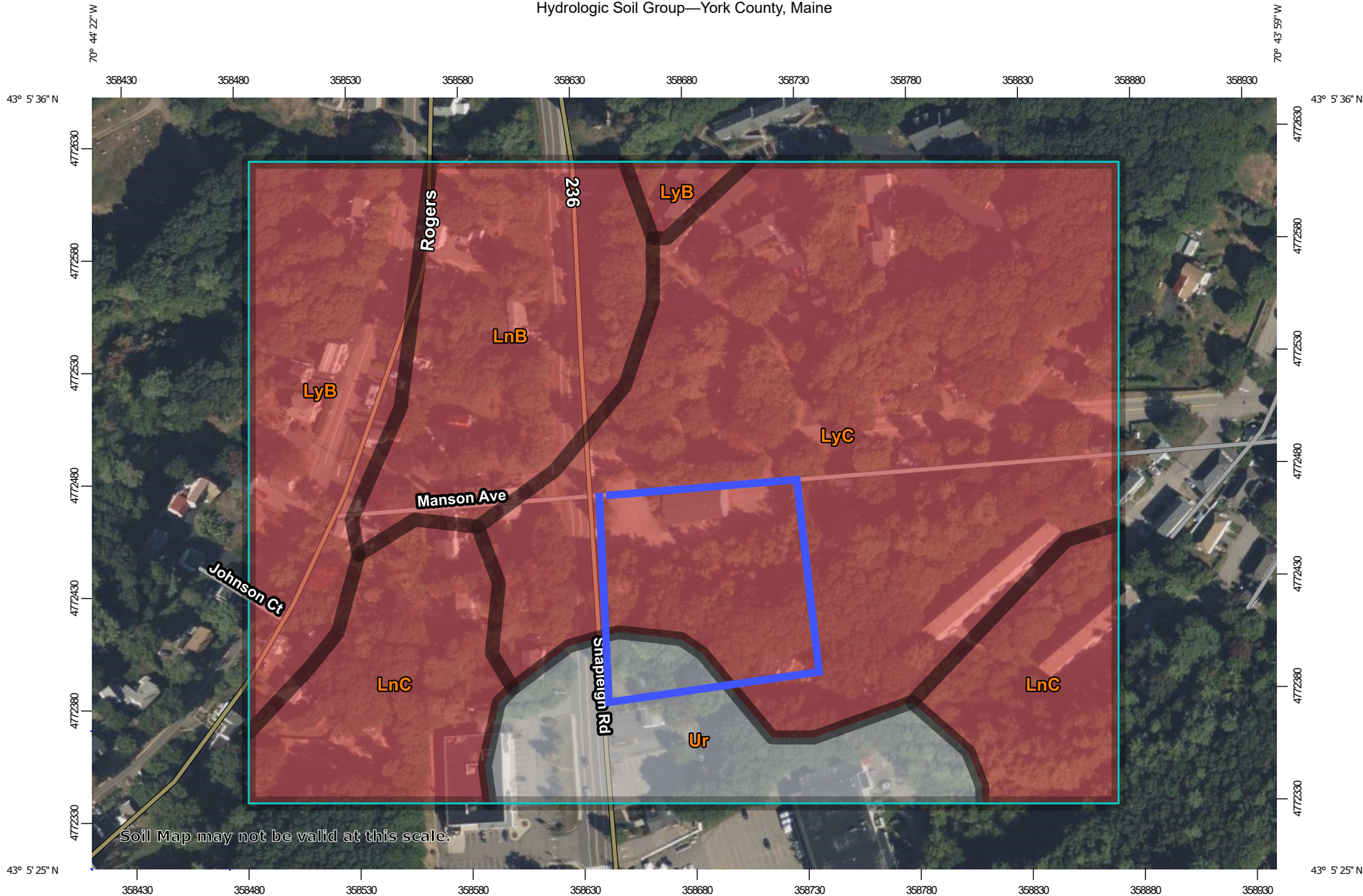
Volume	Invert	Avail.Storage	Storage Description
#1	45.40'	52,500 cf	Custom Stage Data (Conic) Listed below (Recalc)

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

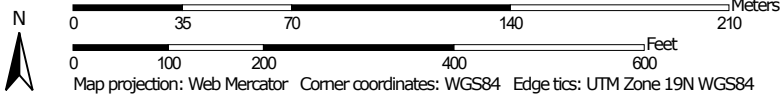
Primary OutFlow Max=5.15 cfs @ 12.53 hrs HW=47.88' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 5.15 cfs @ 6.55 fps)**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=45.40' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Hydrologic Soil Group—York County, Maine




Soil Map may not be valid at this scale.

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



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

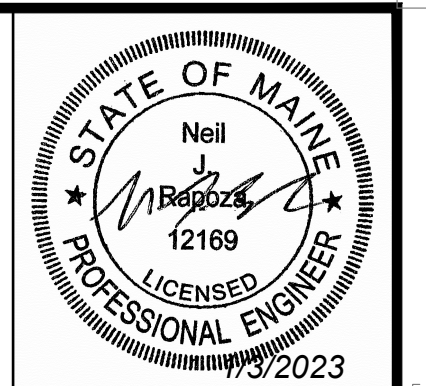
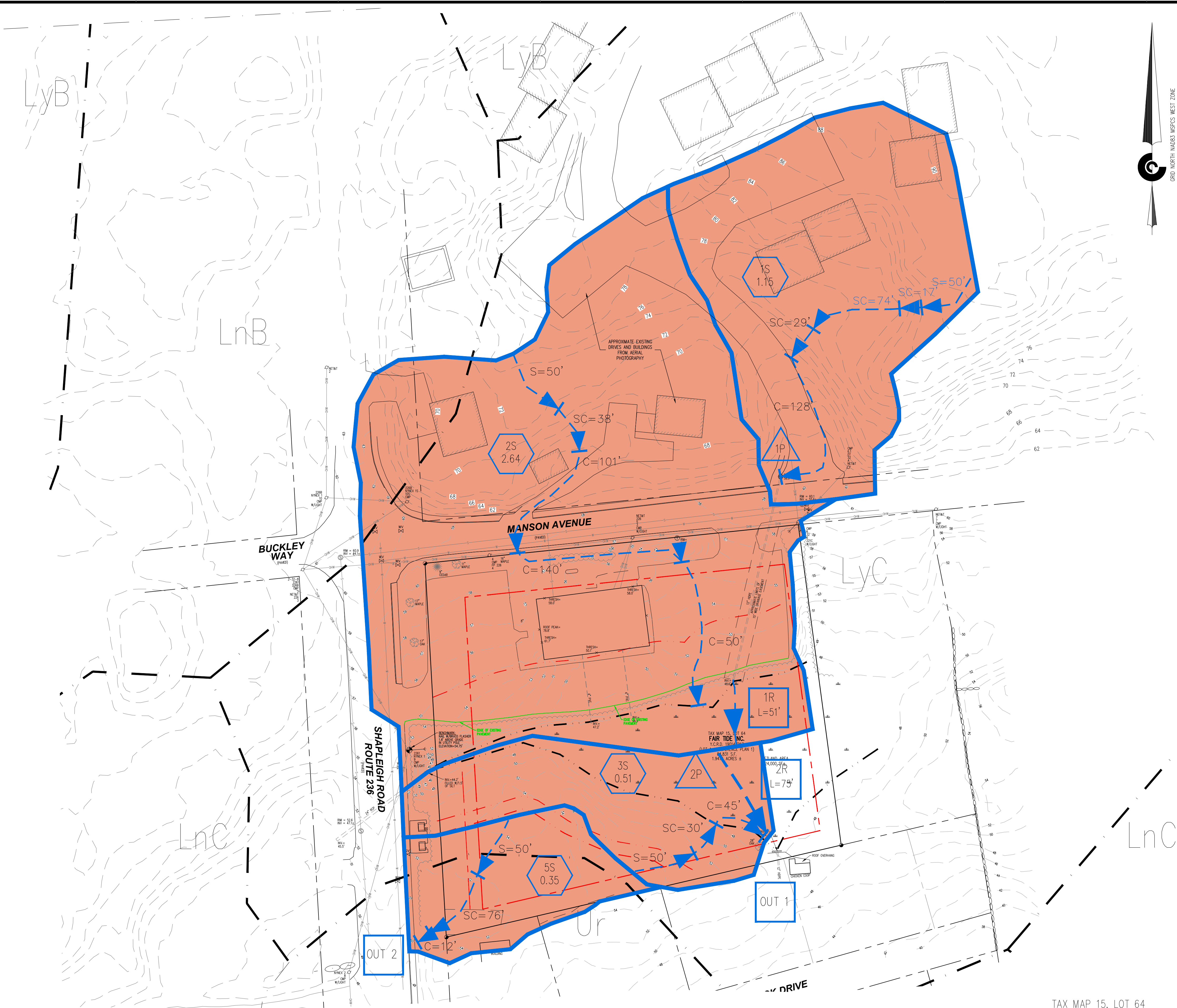
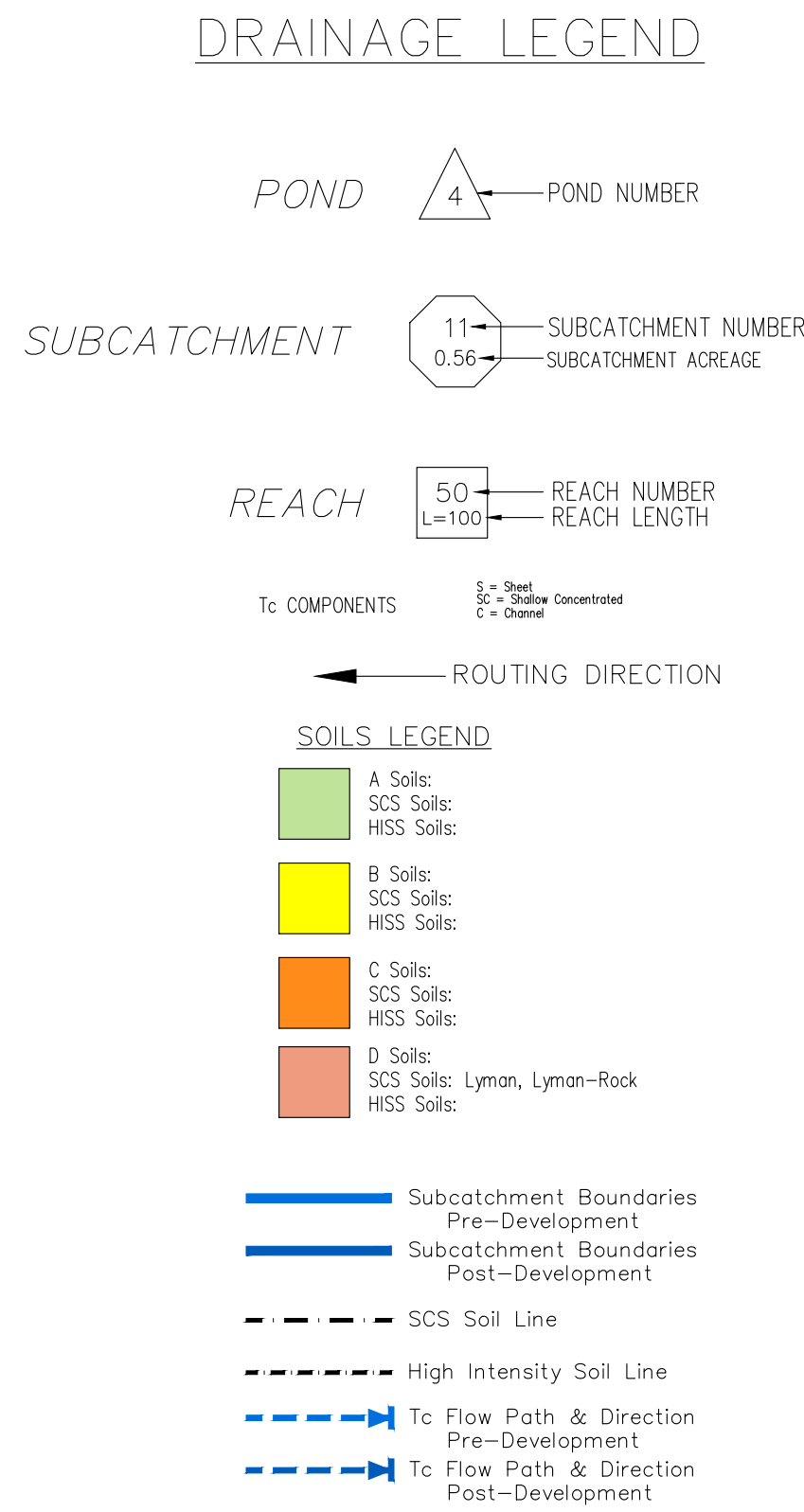
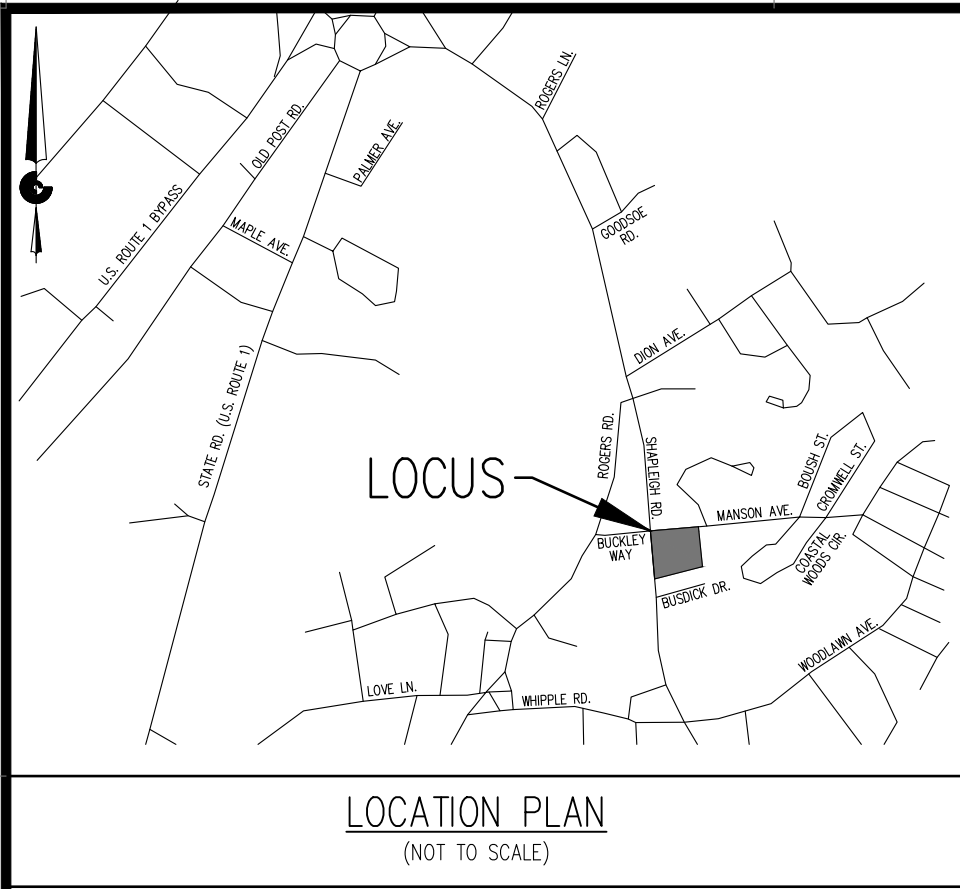
BMP/System Component	Date Inspected	Inspector	Cleaning/Repair Needed (List Items/Comments)	Date of Cleaning/Repair	Performed By

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P.O. Box 100
South Berwick
Maine
03908
207-384-2550
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NO.	REVISIONS	INT.	DATE
1			

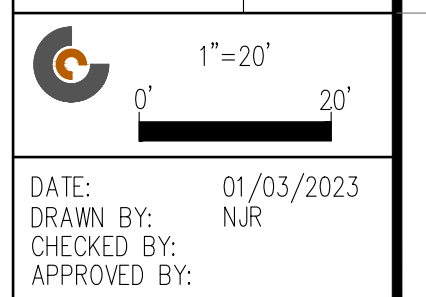
RECORD OWNER:
FAIR TIDE, INC

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:



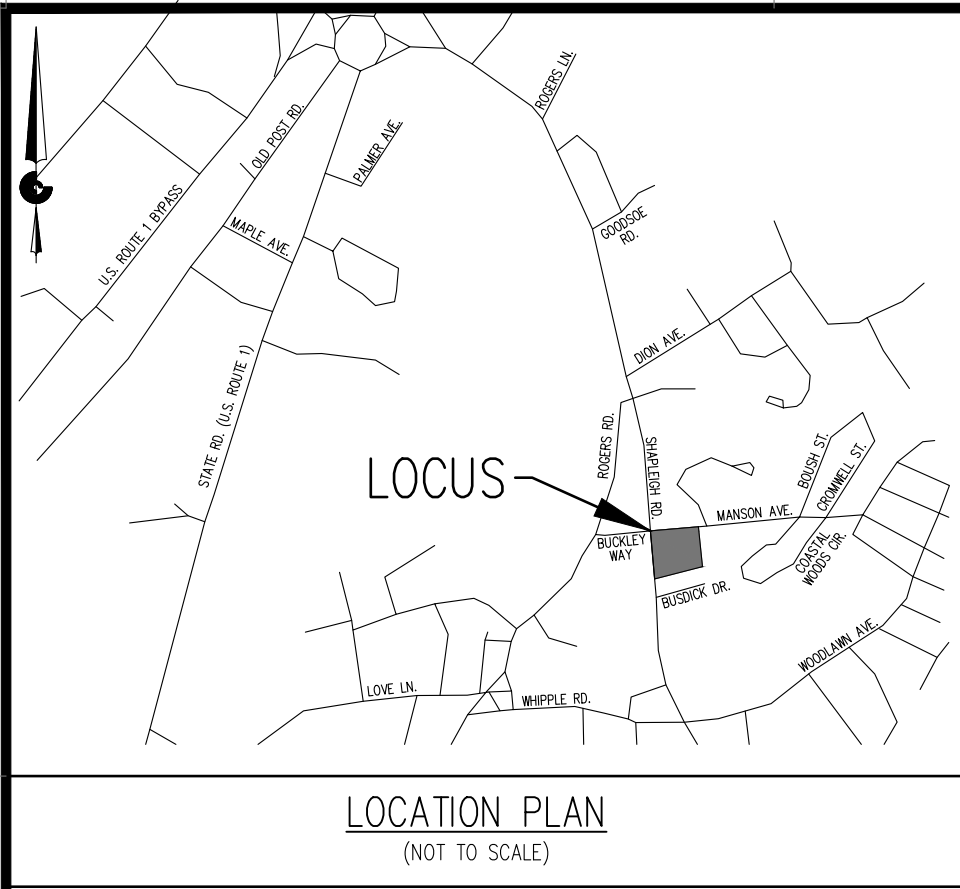
DATE: 01/03/2023
DRAWN BY: NJR
CHECKED BY:
APPROVED BY:

PRE-DEVELOPMENT
STORMWATER
MANAGEMENT PLAN

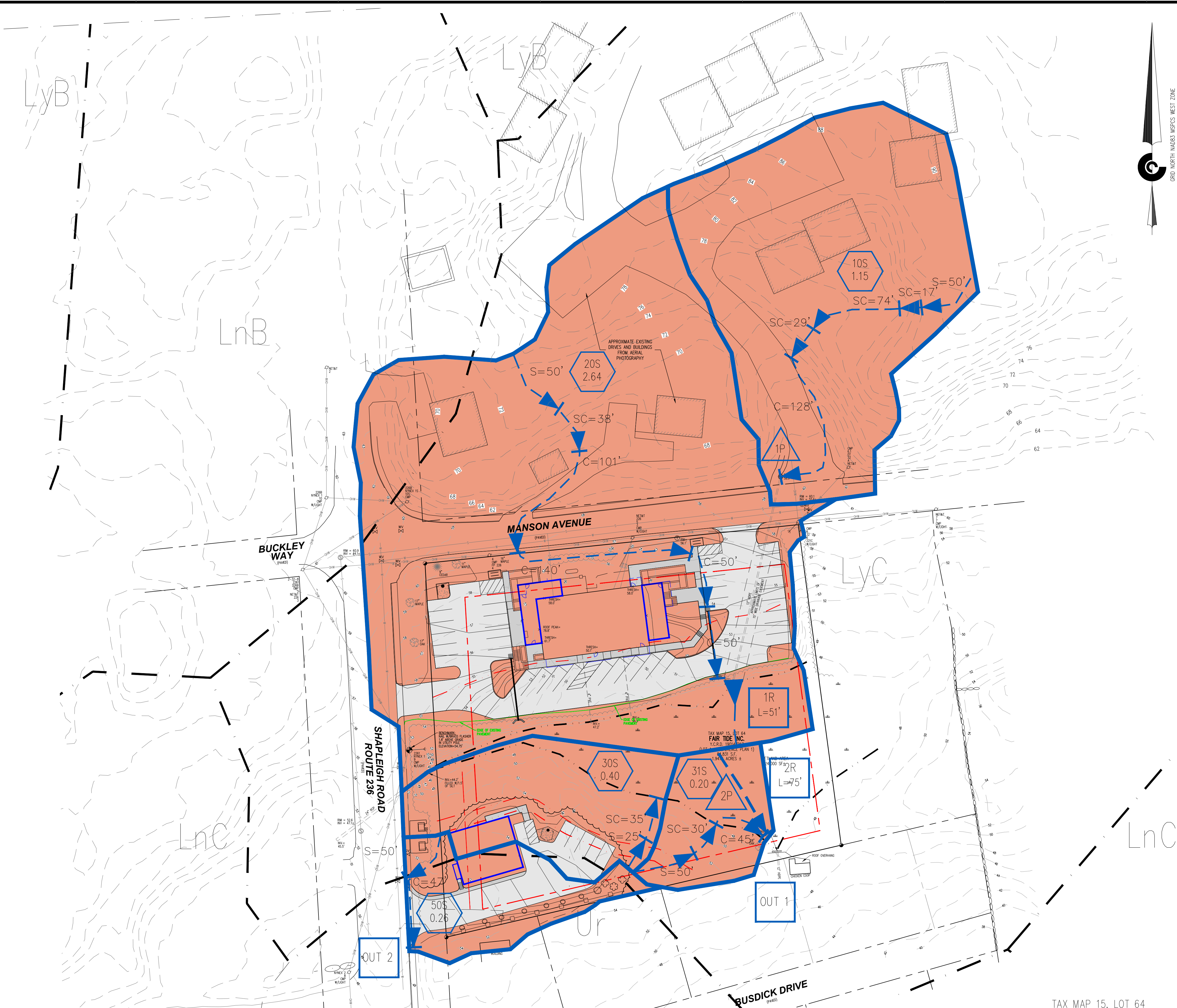
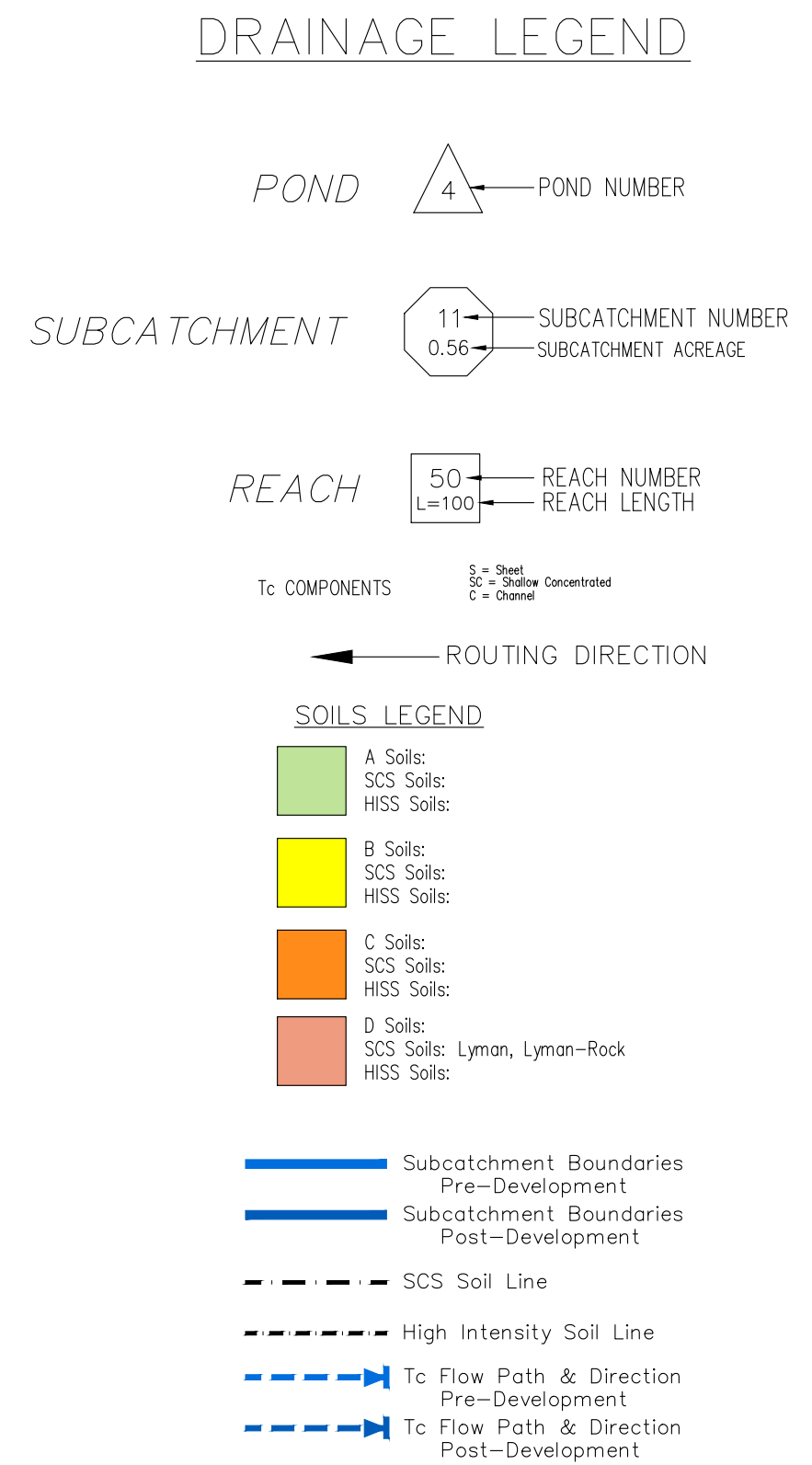
PROJECT NO: 21-335.00

D1

SHEET: 1 OF 2



LOCATION PLAN
(NOT TO SCALE)



STATE OF MAINE
 Neil Repozz
 12169
 LICENSED PROFESSIONAL ENGINEER
 03/2023

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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

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



22 Shapleigh Road - Vicinity Map

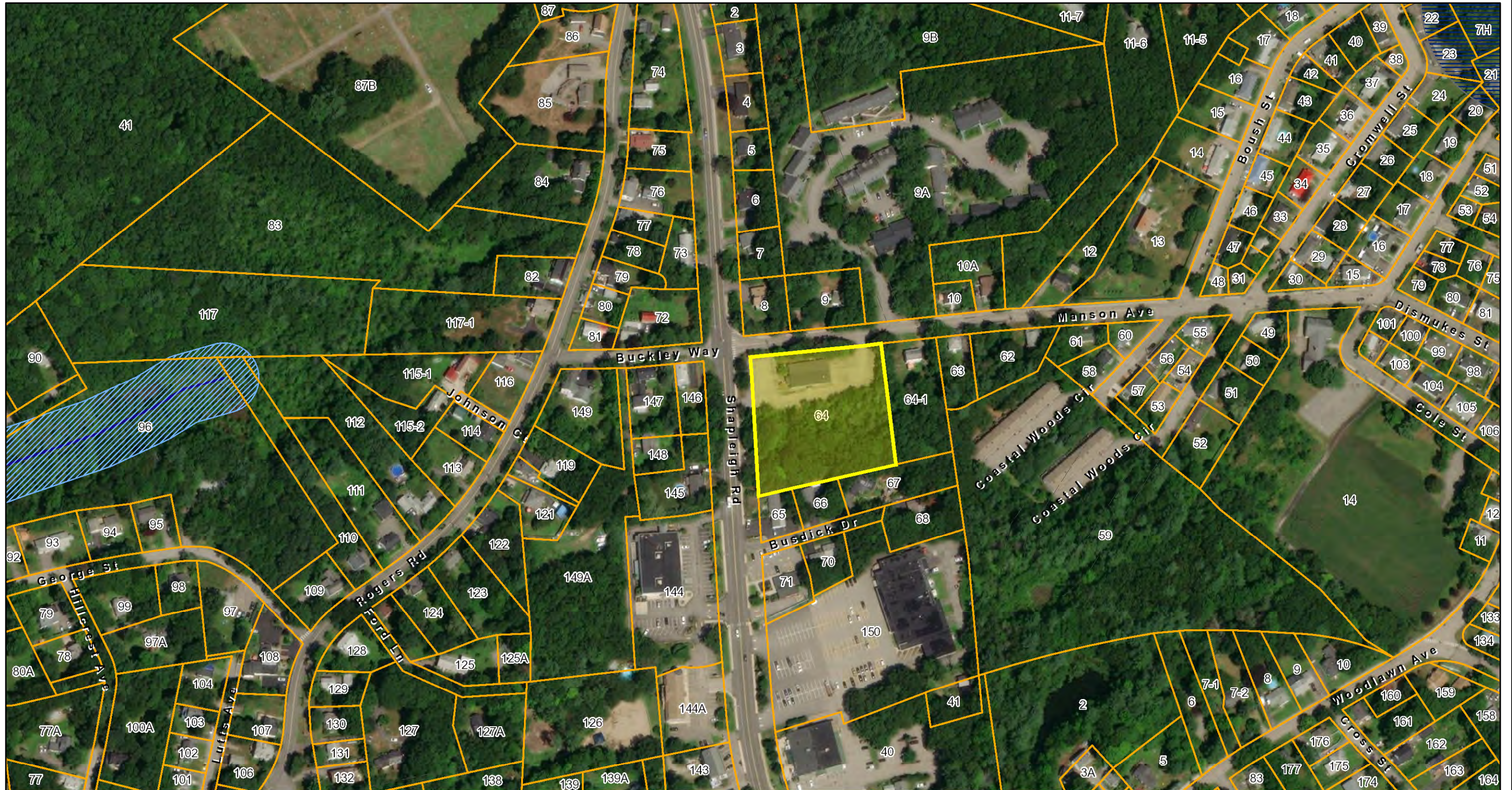
Kittery, ME



November 2, 2022

1 inch = 200 Feet

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 pantry, clothes storage and office area. I have estimated 20 employees on a max shift at 12 GPD. The food pantry 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

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John C. Perry, President
James E. Golter, Treasurer
Robert A. Gray, Clerk

Michael H. Melhorn, Trustee
Carla J. Robinson, Trustee
Michael S. Rogers, Superintendent

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

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

Maine R.E. Transfer Tax Paid

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:**

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

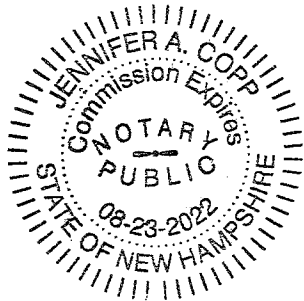
Dated this 29th day of April, 2022.

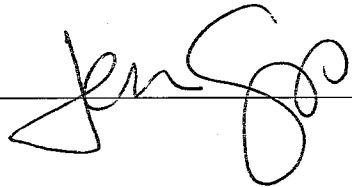
OLD YORK HISTORICAL SOCIETY

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



**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

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

Jason Garnham

From: Ali Goodwin, Realtor® Haven Homes + Lifestyle at KWCLM <ali@aligoodwin.com>
Sent: Thursday, February 9, 2023 11:11 AM
To: Jason Garnham
Subject: Letter of Support for Mainspring Project at 22 Shapleigh Rd.

Mr. Graham,

I am writing to express my sincere support for the Mainspring project at 22 Shapleigh Rd.. Never in the history of our collective seacoast, have we needed more cohesive support of our most vulnerable and marginalized community members. The need has never been greater. We are extremely fortunate to have Emily Flinkstrom and Megan Shapiro Ross in such substantive rolls that they can create real change for so many. With their keen foresight, we are able to take advantage of an opportunity to turn 22 Shapleigh Rd. into a one-stop-shop of social services that will not only make it easier for community members to get the help they need, it will turn an otherwise under-utilized property into a positively thriving HUB of community support and much-needed affordable housing.

Thank you for your consideration of the important work that organizations like Fair Tide and Footprints are doing every day to change lives.

Warmly,

Ali Goodwin, Fair Tide Board Chair

Ali Goodwin, Realtor®
Haven Homes & Lifestyle | KW Luxury International
Keller Williams Coastal And Lakes & Mountains Realty
Fair Tide, Inc. Board Chair
Call/Text: 603-957-8466



<http://www.havenhomeslifestyle.com>

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Jason Garnham

From: Diane Harvey <harveyheinl@comcast.net>
Sent: Wednesday, February 8, 2023 4:05 PM
To: Jason Garnham
Subject: Letter of Support for Mainspring

Dear members of the Planning Board,

My husband and I are full supporters of Mainspring and early donors to the Capital Campaign. As a member of Trustees of Trusts for the past four years, I am well aware of the needs in our community, and how organizations such as Fair Tide, Footprints, York County Community Outreach, Fuel and More and others are working overtime to serve people who live in Kittery. To be able to work cooperatively and efficiently in one central location and to make it easier for people to access the services they need is a win-win; and we are excited for Mainspring to help Kittery grow healthy and resilient residents. In fact, I believe this model of offering services will not only better serve clients but will also be able to finally begin to address the root causes of hunger and homelessness.

We moved here 17 years ago and with two professional incomes were able to purchase a home. Given the current prices however, we would not be able now to afford a house. I know from my work on the Trustees of Trusts, that the Town of Kittery has lost staff because of the lack of affordable housing; my doctor's office cannot be open full time because they can't find nursing staff due to the lack of housing; the congregation we attend has looked for an associate minister for over a year and no one wants to come because there is no affordable housing, restaurants have closed because of lack of staffing due to lack of housing. For Kittery to thrive as a community, we need affordable housing for teachers, nurses, firefighters, chefs, servers, nursing home staff, - housing for all sorts of people at all income levels. We strongly urge you to support not only Mainspring's cooperative services hub, but also the 6 units of affordable housing that will be built. They are absolutely needed.

Thank you,
Diane L. Harvey
John M. Heint
190 Brave Boat Harbor Rd.
Kittery Point, ME 03905

Jason Garnham

From: Debora Martin <dclairem1@comcast.net>
Sent: Thursday, February 9, 2023 6:52 AM
To: Jason Garnham
Subject: 22 Shapleigh Road

I am writing to express my support for the proposed development at 22 Shapleigh Road. Kittery's local nonprofits have worked tirelessly to make this increase in affordable housing possible. I applaud them.

Debora C. Martin
97 Pepperrell Road
Kittery Point, Maine 03903

Jason Garnham

From: Erin Brochu <brochuerin@gmail.com>
Sent: Tuesday, February 7, 2023 8:17 AM
To: Jason Garnham
Cc: Emily Flinkstrom
Subject: 22 Shapleigh Rd Public comment for Thursday's meeting

Hi Jay,

Please share this letter of support at Thursday's planning board meeting.

My name is Erin Brochu. I live on School Street in Kittery. I have supported Fairtide and Footprints for years and am thrilled to hear of their upcoming Mainspring project on 22 Shapleigh Rd. I live just around the corner from this property and couldn't think of a better place to put these services in town. Putting these two non-profits under the same roof is a WIN WIN for the entire community!

The current building is sad and in need of an update. The proposed designs add vitality to the location, and the addition of 6 affordable housing units is a huge plus!

Please support Fairtide and Footprints in making this project a reality. I know that my family does!

Thank you,
Erin Brochu
School St Kittery

Jason Garnham

From: Jill Farrell <jill@fsgworks.com>
Sent: Thursday, February 9, 2023 12:51 PM
To: Jason Garnham
Cc: Tim Farrell
Subject: Public Comment in support of 22 Shapleigh Rd.

Hi there,

My name is Jill Farrell and together with my husband, Tim (CC'd) I am a resident of 11 Cross St., Kittery. I am submitting public comment in full and enthusiastic support of the Site Plan for 22 Shapleigh Rd. I believe the addition of a 6-unit residential building is a perfect fit for both the site and the neighborhood. The location of the building and the layout of the architectural plans are in keeping with the district and its location will allow for the residents of the building to walk to many needed places including Walgreens, Kittery Hardware, Corner Store, restaurant and post office. This is a great move for the town to enable a more walkable and accessible environment in the Kittery Center Village which is so desperately needed. Slowing traffic is a must in that particular stretch of Shapleigh Rd. especially with the connectivity to the KCC. Having a more walkable and bikable Kittery is something I feel strongly about and hope to see more efforts towards supporting. Having more residential activity as well as the plans for the Footprints Market and Fair Tide Thrift Store in that location will serve to create more of a village center which the space is ripe for. Secondly and equally as important the fact that these units will be affordable housing is hugely important to me both as a neighbor and tax payer. Kittery prioritizing efforts to support and uplift affordable housing options is essential to the town continuing to be a welcoming and diverse town for all - not just the wealthy. Enabling all who want to live, work and play here to do so is something I fully and wholeheartedly support.

Thank you,
Jill Farrell
11 Cross St., Kittery, ME

--

"Trust your gut, forgive yourself, be grateful." - Cheryl Strayed

Jill Farrell, Founder
Farrell Strategic Group
www.FarrellStrategicGroup.com
781.724.3230
[linkedin.com/jillanfarrell](https://www.linkedin.com/jillanfarrell)

Jason Garnham

From: Lindsay Elitharp <l.j.elitharp@gmail.com>
Sent: Wednesday, February 8, 2023 9:32 AM
To: Jason Garnham
Subject: Planning Board Meeting - Mainspring

Good morning Mr. Garnham,

I'm a Kittery resident writing in enthusiastic support of Mainspring's development at 22 Shapleigh. Like most of the Seacoast, Kittery is in great need of affordable housing. Mainspring's proposed addition of 6 affordable housing units is a win for Kittery, even if some don't see it that way. The development is being led by two local agencies with deep roots and investment in making Kittery a stronger and healthier community, and I trust that they will manage this new initiative with great care for their surrounding neighbors.

Thank you,
Lindsay Elitharp
16 Whipple Rd, Kittery, ME 03904

Jason Garnham

From: Lillian Buckley <sisbuck@gmail.com>
Sent: Thursday, February 9, 2023 12:00 AM
To: Jason Garnham
Subject: 22 Shapleigh Road Kittery ME

Dear Mr Garnham: I am sending you this email because I will not be able to attend the public hearing on 2/9/23 regarding the proposed development of the property located at 22 Shapleigh Road in Kittery Maine. My family and I live at 3 and 5 Buckley Way in Kittery, Maine, adjacent to the property to be developed for the housing of Fair Tide, the food pantry and a 6 unit residential building. We are in full support of repurposing the property at 22 Shapleigh Road. With the shortage of affordable housing here in the Seacoast area, the 6 unit residential building will enable individuals to live in this area and work at the numerous locations nearby that are looking for seasonal as well as year-round employees. The pantry provides very healthy food choices for those needing assistance and the Fair Tide Office provides support for homeless in their quest for housing at an affordable price. Having these three entities in one central location sends a message about Kittery: we are serious about helping those who are struggling financially to find adequate housing and a better way of life. The Buckley Family has lived at this location since 1978 and we enthusiastically support this upgrade here in Kittery.

Sincerely
Rev Dr Lillian J Buckley

Lillian Buckley
sisbuck@gmail.com

Jason Garnham

From: Lisa von Schlegell <lvs@saber.net>
Sent: Tuesday, February 7, 2023 10:16 PM
To: Jason Garnham
Subject: Public comment to 2023 Feb 07 Planning Board ITEM 1 – 22 Shapleigh Road– Preliminary Site Plan Review

Re: 2023 Feb 07 Planning Board ITEM 1 – 22 Shapleigh Road– Preliminary Site Plan Review

I'm writing in support of the Fair Tide proposal for 22 Shapleigh Road. Fair Tide provides many needed services in Kittery, and that seems like a good location for additional residential units. I'm speaking as a near neighbor of the proposed development.

With the additional traffic, I do think the light on the intersection of Buckley Way/Manson Ave and Shapleigh Road should change to a controlled intersection rather than yield.

I'd also like to see, at least as a goal, protected pedestrian and bicycle access ideally from the Navy Yard gate 2 to Route 1 on Shapleigh, and then on Route 1 to Walker Road.

Thank you,

Lisa von Schlegell
8 Buckley Way

Jason Garnham

From: Michael Lee <mlee1347@gmail.com>
Sent: Wednesday, February 8, 2023 11:58 AM
To: Jason Garnham
Subject: Mainspring

To the Planning Board: I am writing to express my full support for the proposed Mainspring project on Shapleigh Road. I believe the project will enhance our community on many levels, and will be seen as an asset to our town, as it continues to be a welcoming place to people of all socioeconomic strata.

Thank you,
Michael Lee
591 Haley Rd.
Kittery Point
(207) 216-0027

Jason Garnham

From: SUSAN AVIS <sjamountaintop@comcast.net>
Sent: Tuesday, February 7, 2023 8:01 PM
To: Jason Garnham
Subject: Full support for Mainspring

To be considered at the February 9th Kittery Public Hearing:

I am fully in favor of the plans to use the lot at 22 Shapleigh to consolidate the services of Footprints and Fair Tide.

1. This project will provide 6 affordable housing units, which are very much needed in Kittery.
2. Mainspring is a model to be proud of. It will house several agencies who can collaborate and serve community members-in-need. I look forward to volunteering.

Thank you for the work being done to strengthen our community.

Sincerely,

Susan Jacobsohn Avis
9 Cook Street
Unit 2
Kittery, Maine 03904

Public input by Suzanne (Suzy Courage) Johnson Admiralty Village Abutter

KITTERY PLANNING BOARD PUBLIC HEARING FEBRUARY 9, 2023 - MainSpring development

Hello, My name is Suzanne (Suzy Courage) Johnson. I am a client recipient & donor of Food Bank Pantry called "Foot Prints". I ask that you hear & record and make public my input please.

The valuable information I am destined to give now concerns all facets of plans for

"MainSpring" 22 Shapleigh Road, Kittery, Maine tonight, thank you. *I am an abutter. My roots are in Kittery, though I VOLUNTEER + help in 3rd world countries,*

My paternal heritage is recorded back to 1612 in Kittery Maine & New Hampshire seacoast.

My father, was born in Kittery in the 1800's, same as his ancestors were hundreds of centuries ago. He disliked automobiles, so we use to walk through Kittery & 22 Shapleigh Road during the late 1940's and mid 1950's where rabbits, birds, and deer near the creek abounded & flourished there. Presently a few struggling, scared deer pass near 22 Shapleigh Rd area.

Our deer need planning consideration and protection to continue co-existence with humans.

The small creek there suffers from lack of environmental protection & needs planning consideration too. The major entrance and exit for people who live in Admiralty Village located at Manson Avenue & Shapleigh Road proposed multi services site is highly dangerous and accident prone. Community Services including Fair Tide Thrift Store and Foot Prints Food Pantry is needed and appreciated when properly set-up. the composition of Food Pantries, Food Banks, and Food Kitchens must do no harm to humans beings nor to animals species.

The necessity for homing and feeding needy people should not take away from the necessity of safety, good health and compassion. USDA (US Dept of Agriculture) demands that food pantries take, push, and supply hungry people with the excesses from massive slaughterhouses OR ELSE no funding will be extended ! Raising by the billions & slaughtering animals for food consumption is inhumane, unnecessary, unhealthy, cruel, draconian, bloody and obscene. Ongoing viruses here such as Covid is Zoonotic in source.

The Plans show large refrigeration and kitchen areas inside the building at 22 Shapleigh Road.

USDA with billions of cows pigs, chickens, ^{FISH} & other sentient creatures stacking up in slaughterhouses demands & requires food pantries accept distribution of these dead animal bodies or forfeit funding in the billions of dollars. The building must not be a "dumping ground" for dead animal bodies and stolen animal secretions such as chickens' eggs and cow milk intended for baby calves and not natural nor healthy for human beings.

It is year 2023 and people need and want healthy availability of plant based vegan food. Cruel slavery involving trillions of animals with no rights to a humane peaceful life, and whose (excess) bodies end up sent to food banks; food pantries; food kitchens;-and other places for the poor who actually get sick from it has to stop. Needy people must be respected along with needs & wants of all animals species to coincide ,live naturally and not be used, abused or eaten. Also, there are many brands of healthy Vegan dog food and vegan cat food which should be offered at Food Prints instead of harmful animal to animal pet food industry products which Foot Prints offers for clients to pick up.

Healthy food results in fewer Doctor's and Veterinarian's visits too.

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BY: _____

People don't want the cancers nor Zoonotic viruses and diabetes which come eating dead carcasses of animals and their body secretions. Some say "people have a choice eating". But the choice of cruelty in blood foods, and ignoring the victim's voice to live without abuse and being slaughtered & eaten by people is unfair & damaging acts of **SPECIESISM**. Fair Tide Thrift store must not promote nor deal in offering dead animal- skin or animal fur clothing to the public. Needy folks need help and not through or via the victimizing of other species anywhere.

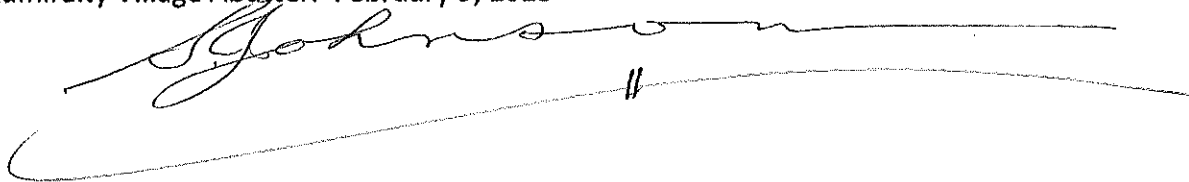
I am a poor artist and a lifetime Vegan. I brought my single parent family up vegan in Kittery, land of my paternal ancestors. When I won an online vegan recipe contest, I donated the check- money to Footprints. Yet, recently, when there were reoccurring incidents involving a Footprints volunteer, I reported it to Foot Prints Director.

The reaction was a Voice Mail to me in which the Foot Prints director told me to "Go somewhere else,- Go to another food pantry" and listed places to disappear to. Such inappropriate message (which I still retain) and damaging words, should never be told to a person seeking help. Handling a complaint or a civil suggestion that way, must never be part of what happens inside or outside any building meant to be benevolent and non-discriminatory.

Please, in the name of the needy, hungry and homeless, do make sure that MainSpring organizations respects people, and don't build a complex for dead animal dumping grounds. Honorable caring for each other and the rights for all species to co-exist and not be killed locally or Federally must include hearing the cries of Kittery, Maine's diminishing wildlife in need of protection and rights too.

Thank you, Suzanne (Suzy Courage) Johnson

Admiralty Village Abutter. February 9, 2023

A handwritten signature in cursive script, appearing to read "Suzanne Johnson", with a long horizontal flourish underneath. There is a small vertical mark in the middle of the flourish.

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BY: _____

Jason Garnham

From: Suzanne Patrakis <smpatrakis@yahoo.com>
Sent: Wednesday, February 8, 2023 5:47 PM
To: Jason Garnham
Subject: Support for the Development of Mainspring at 22 Shapleigh Road

Hello,

I live on Woodlawn Avenue and look forward to the development of this property by Footprints and Fairtide.

Sincerely,
Suzanne Patrakis
19 Woodlawn Ave.

Jason Garnham

From: Tim Brochu <tim@adraarchitecture.com>
Sent: Thursday, February 9, 2023 10:51 AM
To: Jason Garnham
Subject: Support for 22 Shapleigh Rd project

Planning Board,

I am writing in support of the proposed Mainspring project at 22 Shapleigh Road. I live in the nearby Dion Ave. neighborhood and I'm excited to see this underused site being developed into such a fantastic project.

This project will strengthen two essential Kittery non-profits and allow them to better provide for the communities they serve. The location of the project is ideal for walkable access from the most densely populated areas of Kittery, including areas with lower-cost housing and rental units. With its mix of retail space and six new affordable housing units, this project fulfills the Town's goal of encouraging more dense mixed-use development and affordable housing in the Business Local 1 zone.

The proposed design reuses an existing building on a developed site that is challenged by a wetland dividing it in half. Proposed stormwater runoff impacts are very minimal, there is good access to existing utilities, proposed parking counts are sufficient for the programmed uses, and traffic is consistent with other uses on this portion of Shapleigh Road.

The design of the additions and canopies give a lively facelift to this tired building and provide new accessible entrances protected from the elements. The new apartment building design is nicely composed, fitting six dwelling units into a simple, compact building form that can be constructed affordably.

Please vote to approve this project as submitted.

Thank you,

Tim Brochu *Principal and Manager*

adra ARCHITECTURE LLC

[207-475-6844](tel:207-475-6844) | adraarchitecture.com

6 School Street | Kittery Maine 03904

ME | NH | MA Licensed Architect

Jason Garnham

From: Chrissie Penney <chrissiep315@gmail.com>
Sent: Thursday, February 9, 2023 4:54 PM
To: Jason Garnham
Subject: support tor Mainspring

Dear Planning Board,

I write today to voice my fervent support for the development of Mainspring. This project will make a remarkable difference in our community, utilizing collaboration and innovation to provide more efficient and effective care for our community members-in-need. Additionally, Kittery has made affordable housing a top priority, and the site of the Mainspring project will be home to six units of much-needed affordable housing and will turn an outdated building at 22 Shapleigh into an energy-efficient, thoughtfully designed, and visually appealing development.

Finally, I personally know the leadership from the Footprints side of the project, and the passion, commitment, and strategic thinking of Megan Shapiro Ross (Executive Director) and Lorianne Saniuk (Board President) is unparalleled. I can think of no two better leaders and invested community members to thoughtfully and successfully bring this project to fruition.

Mainspring has my full support, and I look forward to hearing the good news that the Planning Board has moved this project forward.

Best regards,
Christine Penney
Kittery resident

Jason Garnham

From: Suzanne Patrakis <smpatrakis@yahoo.com>
Sent: Wednesday, February 8, 2023 5:47 PM
To: Jason Garnham
Subject: Support for the Development of Mainspring at 22 Shapleigh Road

Hello,

I live on Woodlawn Avenue and look forward to the development of this property by Footprints and Fairtide.

Sincerely,
Suzanne Patrakis
19 Woodlawn Ave.

"Comments"

February 15, 2023

Kittery Planning Board, + other boards
council

We ask you to use your common sense. 22 Shapleigh Road, Kittery

cannot accommodate all the projects planned and presented.

There is not enough space for the many **TRASH BINS** needed.

RATS and mice frequent and infest + infect food pantries, grocery stores, thrift shops and storage bins areas.

Using **RAT** poison is dangerous to the stored food, whether it be donated or bought dead animal body parts or plant based food for human consumption. **RAT** poison and traps also kill chipmunks, squirrels, birds and others.

It seems the "ultimate motive" is to have one project at the site. Again, keep considering the bordering environment too. Thank you,
Sury Johnson
Cory Johnson