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|---|---|
| Date | November 10, 2022 |
| To | Town of Cumberland Planning Board |
| From | Carla Nixon, Town Planner |
| **Subject** | **Preliminary Major Subdivision Plan Review: White Rock Terrace Apartments** |

## I. REQUEST/OVERVIEW:

The Applicant is The Szanton Company. The applicant is requesting major subdivision review for White Rock Terrace, a four story, 55 unit, senior, affordable apartment building. The building will be located off Sky View Drive on a portion of the lot shown on Tax Assessor Map R01, Lot 11-7 in the Cumberland Foreside Village subdivision. The parcel is located in the Office Commercial South (OC-S) zoning district within a contract zone.

Travis Letellier, P.E. of Acorn Engineering, Inc., is the Applicant's representative. Dan Diffin, P.E., of SYTDesign Engineers reviewed the plans for the Town of Cumberland.

## II. PROJECT HISTORY:

Sketch Plan Review: 9/20/22

### IV. OUTSIDE AGENCY APPROVALS STATUS:

| Agency | Type of Permit | Status |
|---|---|---|
| | | |
| MDEP | SLODA Amendment | Pending |
| | | |
| Maine Historic Preservation Commission | | On file |
| Maine Department of Agriculture, Conservation and Forestry | Rare & Exemplary Botanical Features. None documented. | On file. |
| Maine Dept. of Inland Fisheries & Wildlife | | On file. |

## VI. WAIVER REQUESTS:

1) Hydro-geologic study; project will be served by public water and sewer.
2) High Intensity Soil Survey.
3) Parking Requirement: To reduce the parking requirement from 2 spaces per dwelling unit to 1.4 spaces per dwelling unit.

## V11. DEPARTMENT HEAD REVIEWS:

**William Longley, CEO:** No comments.

**Police Chief Charles Rumsey:** No concerns.

**Fire Chief Dan Small:** No comments to date.

### VII1. CUMBERLAND LANDS & CONSERVATION COMMITTEE: No comments to date.

### IX. TOWN ENGINEER'S REVIEW:

November 7, 2022

Ms. Carla Nixon, Town Planner
Town of Cumberland
290 Tuttle Road
Cumberland, Maine 04021

Subject: Peer Review for Preliminary Major Subdivision & Site Plan Application
White Rock Terrace
Sky View Drive, Cumberland, Maine

Dear Ms. Nixon:

As requested, Sevee & Maher Engineers, Inc. (SME) has conducted a peer review of the Preliminary Major Subdivision and Site Plan Application for the proposed 55-unit apartment affordable senior housing development off Sky View Drive in Cumberland, Maine. The application materials received by SME were prepared by the Acorn Engineering, Inc., and consist of the following:

- Application package; and
- Progress Print of project plan set.

**PROJECT DESCRIPTION**

The applicant proposes to construct one 5 story 12,000 square foot apartment building with 55 units of affordable senior housing. The apartment building will be accessed through an extension of Sky View Drive and served by public water and sewer, and utility connections from Sky View Drive.

This project is being reviewed as a Major Subdivision as outlined in Chapter 250 - Subdivision of Land of the Town of Cumberland Ordinances, most recently amended and adopted on January 12, 2011, and Site Plan Review as outlined in Chapter 229 Sections 8 to 10 Site Plan Review of the Town of Cumberland Ordinances, most recently amended and adopted on October 13, 2020.

**Chapter 250: Subdivision of Land**

SME has reviewed the applicable sections of Chapter 250 and has provided comments for those sections not found to be addressed by the Application. The remaining sections have been reviewed and found to comply with Chapter 250 requirements.

Section 250-4(D) – Erosion

1. Erosion Control measures were provided on the Grading & Drainage Plan, Sheet C-30. Please show silt sacks on the catch basins, stone check dams in the drainage swales, and a stabilized construction entrance on the plans to meet the MEDEP requirements.

Section 250-4(N) – Stormwater

2. The peak flows during the 25-year storm exceed the predevelopment peak flows at Point of Analysis #1 by 1.6 cfs. The Stormwater Report attempts to combine the POI #1 and POI #2 peak flows to present only a 1 cfs increase, but the flows to each POI go in opposite directions and should be analyzed independently of each other. Please review additional detention measures to lower the 25-year runoff flows at POI #1 below pre-developed conditions.

3. Please confirm that flows from the underdrain pipes were accounted for in the model for Pond 1 Underdrain Soil Filter, Pond 2- Rain Garden, Pond 3, and 4 Drip Edge.
4. In Table 3 of the Stormwater Management Report, the calculation appears to indicate that the GUSF would need to be sized for a 1,763 square foot area. With the numbers included in the report (33,250 SF impervious and 8,500 SF landscaped), the MEDEP calculation would indicate that the GUSF should be 1,833 SF in size. Please confirm.
5. There does not appear to be a detail on the plans for the roof dripline filter. Please provide one in accordance with MEDEP requirements. Please also provide information on how much of the roof area will drain to the roof dripline filter and the sizing of the stone reservoir and depts of the filter media below.
6. Please provide information on why a 4.26" and 3.24" runoff analysis was provided for this work.
7. The "Post-development Calculations" in the Stormwater Management Report refers to porous pavement to control runoff. Please identify on the plans where the porous pavement will be installed and provide a detail for review.
8. Please provide sizing for the proposed rain garden if it is intended to provide treatment of stormwater runoff for the project.

Section 250-29 - Review and approval by other agencies

9. The project will require review by the Maine Department of Environmental Protection for an amendment to the existing Site Location of Development permit for the property. Please provide an update on whether this has been submitted to the Maine DEP.

Section 250-34—Water Supply

10. The apartment building will use public water therefore the project will need approval from the Portland Water District. Please provide the Portland Water District approval as part of the final plan application.

Section 250-35—Sewage Disposal

11. The apartment building will use public sewer; therefore, the project will need approval from the Town of Cumberland Sewer department. Please provide the Cumberland Sewer approval as part of the final plan application.

Section 250-45– Waivers and modifications.

12. Waiver Request 1 – Hydrogeological Study – SME recommends approval of this waiver.
13. Waiver Request 2 – High Intensity Soils Survey – SME recommends approval of this waiver.
14. Waiver Request 3 - Identification of 10-inch Trees on Existing Conditions Plan – SME recommends approval of this waiver.
15. Waiver Request 4 – Parking Requirement – The proposed parking ratio of 1.4 space per apartment is consistent with parking requirements in the OCS Zone north of the project area, which requires 1.5 parking spaces per apartment. Given the data presented from other Senior Housing projects and our similar experience working on senior housing, SME is in general agreement that 77 spaces are adequate parking for the proposed senior housing development.

**Chapter 229: Site Plan Review**

SME has reviewed the applicable sections of Chapter 229 and there were no site plan review sections provided in the package. SME has the following comments on applicable sections of Chapter 229.

Section 229(I) Buffering and Landscaping

16. Please provide a Landscape Plan as part of the final submission.

Section 229(J) Noise

17. Please provide details on any outdoor equipment required (generator, HVAC Unit, etc.) and how noise will be controlled at the adjacent property lines.

Section 229(L) Capacity of the Applicant

18. The Applicant should provide a letter from a funding institution demonstrating capacity to fund the $12 million portion of the construction project not from the Maine Housing Tax Credits. SME recommends that proof of the additional funding from Maine Housing be provided as a Condition of Approval prior to the preconstruction meeting.

**General Comments**

19. Plan Sheet C-10- Overall Site Plan - There was no ADA Van Accessible spot proposed. SME recommends the applicant adjust the parking layout to allow one ADA compliant Van Accessible Parking space per ADA requirements.
20. Plan Sheet C-20 – Utility Plan – The Portland Water District typically requires separated domestic and sprinkler services from the building with two tie-ins at the 12-inch water main. Please provide approval from the PWD for the single tie in.
21. Plan Sheet C-20 – Please confirm that a 4-foot by 4-foot transformer pad is large enough for this level of development. More typical sizes are 7-foot by 7-foot or 9-foot by 9-foot.
22. Plan Sheet C-30 - Grading and Drainage Plan – Please replace the 6-inch culvert at the driveway entrance with a minimum 15-inch culvert to minimize clogging. Please confirm cover and clearances with the sewer line in your response.
23. Plan Sheet C-30 – Grading and Drainage Plan – please provide dimensions for the rip rap emergency overflow on the GUSF.
24. Plan Sheet C-40 – Internal Bituminous Sidewalk Detail – Please remove the reference to the City of Portland requirements
25. Plan Sheet C-40 - Internal Access Drive detail on C-40 does not meet the standards for depth of gravel build-up under a drive area. SME recommends that the Applicant consider increasing the Type D Gravel depth to a minimum of 15-inches.

Please feel free to call me at 207.829.5016 or email me at with any questions, or if you would like, I could meet with you to discuss our comments.

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## IX. PROPOSED FINDINGS OF FACT - Chapter 250 - Subdivision of Land

The purpose of these standards shall be to assure the comfort, convenience, safety, health and welfare of the people, to protect the environment and to promote the development of an economically sound and stable community. To this end, in approving subdivisions within the Town of Cumberland, Maine, the Board shall consider the following criteria and before granting approval shall determine that the proposed subdivision:

1. Pollution. The proposed subdivision will not result in undue water or air pollution. In making this determination, it shall at least consider:
   A. The elevation of the land above sea level and its relation to the flood plains;
   B. The nature of soils and subsoil and their ability to adequately support waste disposal;
   C. The slope of the land and its effect on effluents;

D. The availability of streams for disposal of effluents; and

E. The applicable state and local health and water resource rules and regulations;

***There are no flood plains on site. The project will be served by public sewer. There are no streams on the site.***

***Based on the information provided, the Board finds that the standards of this section have been met.***

2. Sufficient Water. The proposed subdivision has sufficient water available for the reasonable foreseeable needs of the subdivision;

***The project will be served by public water.***

***Based on the information provided, The Board finds that the standards of this section have been met.***

3. Municipal Water Supply. The proposed subdivision will not cause an unreasonable burden on an existing water supply, if one is to be used;

***The 55 apartment units will not create a burden on the existing municipal water supply.***

***Based on the information provided, the Board finds the standards of this section have been met.***

4. Erosion. The proposed subdivision will not cause unreasonable soil erosion or a reduction in the land's capacity to hold water so that a dangerous or unhealthy condition results;

***An erosion and sedimentation control plan that includes housekeeping procedures for maintenance has been submitted and the plan has been reviewed by the Town Engineer who has asked for additional information for final review.***

***Based on the information provided, the Board finds that the standards of this section have been met for preliminary approval.***

5. Traffic. The proposed subdivision will not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads existing or proposed;

***A traffic impact assessment dated 10/24/22, was submitted that shows estimated trip counts indicating that the project will be a low trip generator and will not require a traffic movement permit from MDOT.***

***Based on the information provided, the Board finds that the standards of this section have been met.***

6. Sewage disposal. The proposed subdivision will provide for adequate sewage waste disposal and will not cause an unreasonable burden on municipal services, if they are utilized;

***The project will not cause an unreasonable burden on municipal sewer. A letter from the Town Manager is required for final review.***

***Based on the information provided, the Board finds that the standards of this section have been met for preliminary approval.***

7. Municipal solid waste disposal. The proposed subdivision will not cause an unreasonable burden on the municipality's ability to dispose of solid waste, if municipal services are to be utilized;

   ***The property management company or owner will be responsible for locating the solid waste and recyclable material to the space allocated for solid waste storage as noted on Site Plan Sheet C-10.***

   ***Based on the information provided, the Board finds that the standards of this section have been met.***

8. Aesthetic, cultural and natural values. The proposed subdivision will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife or the municipality, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline;

   ***Letters are on file from State agencies indicating that the proposed subdivision will have no adverse impact on any of the above features.***

   ***The Board finds that the standards of this section have been met.***

9. Conformity with local ordinances and plans. The proposed subdivision conforms to a duly adopted subdivision regulation or ordinance, comprehensive plan, development plan or land use plan, if any. In making this determination, the municipal reviewing authority may interpret these ordinances and plans;

   ***The plans have been reviewed and approved by the Town Planner, the Town Engineer and Town department heads. Additional information is required for final plan submission.***

   ***The Board finds that the standards of this section have been met for preliminary approval.***

10. Financial and technical capacity. The subdivider has adequate financial and technical capacity to meet the standards of this section;

    ***Financial Capacity: The total project budget is approximately $19,000,000. A statement of Financial Capacity, including funding sources, was submitted in the application packet.***

    ***Technical capacity is evidenced by the use of professional technical consultants as outlined in the application packet. In addition, a statement from the developer was provided that gave an overview of past projects completed in Maine and New Hampshire.***

    ***The Board finds that the standards of this section have been met.***

11. Surface waters; outstanding river segments. Whenever situated entirely or partially within the watershed of any pond or lake or within 250 feet of any wetland, great pond or river as defined in Title 38 chapter 3, subchapter I, article 2-B, the proposed subdivision will not adversely affect the quality of that body of water or unreasonably affect the shoreline of the body of water;

    ***The project is not situated in an area described above.***

    ***Based on the information provided, the Board finds that the standards of this section have been met.***

12. Ground water. The proposed subdivision will not alone, or in conjunction with, existing activities, adversely affect the quality or quantity of ground water;

***The residential apartments which will be served by public water and sewer will not adversely affect the quantity or quality of groundwater.***

***Based on the information provided, the Board finds that the standards of this section have been met.***

13. Flood areas. Based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and information presented by the applicant whether the subdivision is in a flood-prone area. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one foot above the 100-year flood elevation;

***The development is not located within a 100 year flood plain as shown on the applicable FEMA Flood Insurance Rate Map.***

***Based on the information provided, the Board finds that the standards of this section have been met.***

14. Storm water. The proposed subdivision will provide for adequate storm water management;

***A stormwater Management Report dated October, 2022 was included in the application. The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. The plan has been reviewed by the Town Engineer who has asked for additional information for final review.***

***Based on the information provided, the Board finds that the standards of this section have been met for preliminary approval.***

15. Freshwater wetlands. All potential freshwater wetlands, as defined in 30-A M.R.S.A. §4401 (2-A), within the proposed subdivision have been identified on any maps submitted as part of the application, regardless of the size of these wetlands. Any mapping of freshwater wetlands may be done with the help of the local soil and water conservation district.

***Wetland areas have been identified.***

***Based on the information provided, the Board finds that the standards of this section have been met.***

16. River, stream or brook... Any river, stream, or brook within or abutting the proposed subdivision has been identified on any map submitted as a part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in Title 38, Section 480-B, Subsection 9. [Amended; Effective. 11/27/89]

***There were no streams identified on the site.***

***Based on the information provided, the Board finds that the standards of this section have been met.***

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**IX. STANDARD CONDITION OF APPROVAL**

This approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted by the applicant. Any variation from the plans, proposals and supporting documents, except deminimus changes as so determined by the Town Planner which do not affect approval standards, is subject to review and approval of the Planning Board prior to implementation.

## X. RECOMMENDED CONDITIONS OF PRELIMINARY PLAN APPROVAL:

# MAJOR SUBDIVISION APPLICATION

## WHITE ROCK TERRACE

### TOWN OF CUMBERLAND, ME





Prepared By:

**ACORN ENGINEERING, INC.**

For:

**THE SZANTON COMPANY**

OCTOBER 25, 2022

A C O R N Engineering, Inc. • www.acorn-engineering.com
207-775-2655 • PO Box 3372 • Portland • Maine • 04104

# Section A

## Cover Letter/Project Narrative

ACORN ENGINEERING, INC.

Cumberland Planning Board
Town of Cumberland, Maine
Cumberland, ME 04101

October 25, 2022

**Subject: Town of Cumberland Major Subdivision Application**
**White Rock Terrace**
**Applicant: The Szanton Group**

Ms. Nixon:

On behalf of The Szanton Group and the design team, Acorn Engineering, Inc. (Acorn) are pleased to submit the accompanying package of materials related to the proposed affordable senior housing multiplex development on Sky View Drive. A 4.47-acre site has been divided from the existing 25.67-acre parcel to facilitate the development.

**Building Description:**

White Rock Terrace is proposed as a 55-unit apartment building to be located on Sky View Drive in Cumberland. The building will contain 8 two-bedroom units and 47 one-bedroom units. All 55 units will be age-restricted for households whose head is aged 55+. Additionally, all 55 units will be income restricted for households earning at or below 60% of the area median income. The building will also have indoor bike storage, fitness room, community room, coin-op laundry, rooftop deck and outdoor community space. There will also be two offices for property management staff. There will be weekly hours for both the property manager and a resident services coordinator.

The attached project narrative and attached application materials go into further detail about how this proposal meets the subdivision standards outlined in the Town of Cumberland's Zoning Ordinance.

The application fee with review escrow of $7,200 is also attached to this submission. If there are any outstanding questions regarding the project or submitted materials, please don't hesitate to reach out at any time. We look forward to working with you and the Planning Board on this project.

Sincerely,

Travis Letellier, P.E.
Project Manager
Acorn Engineering, Inc.

The following documents and drawings will be uploaded onto the City's electronic submission site per the procedure outlined in the application:

Documents:

- Section A: Cover Letter/Project Narrative
- Section B: Major Subdivision Application
- Section C: Right, Title, & Interest
- Section D: Abutter List
- Section E: Financial & Technical Capacity
- Section F: Solid Waste Disposal Plan
- Section G: Stormwater Management Report
- Section H: Erosion & Sedimentation Control Report
- Section I: Lighting
- Section J: Architectural Design/Narrative
- Section K: Traffic Report

Drawings:

- Civil Site Plan Set, dated 10/24/2022
- Architectural Plan Set, dated 09/21/2022
- Landscape Plan, dated xxx

**Project Narrative – White Rock Terrace**

**Building Description:**

White Rock Terrace is proposed as a 55-unit apartment building to be located on Sky View Drive in Cumberland. The building will contain 8 two-bedroom units and 47 one-bedroom units. All 55 units will be age-restricted for households whose head is aged 55+. Additionally, all 55 units will be income restricted for households earning at or below 60% of the area median income. The building will also have indoor bike storage, fitness room, community room, coin-op laundry, rooftop deck and outdoor community space. There will also be two offices for property management staff. There will be weekly hours for both the property manager and a resident services coordinator.

**Building Developer:**

The Szanton Company, an affiliate of the Monks Companies, specializes in developing mixed-income rental housing in or near downtowns. We have completed eleven apartment projects in Maine and New Hampshire totaling 560 units. We have two apartment projects currently under construction totaling 115 units.

The mission of The Szanton Company is to create attractive and affordable rental housing that our residents are proud to call home. We do this by:

- Creating beautiful apartments of high quality in locations in or near downtowns, adding vitality to our cities and towns;
- Developing properties which provide a consistent, long-term return to their owners, thus ensuring their stability for residents, lenders, and neighborhoods;
- Serving people with diverse incomes;
- Creating amenities for our residents which enhance the quality of their lives;
- Incorporating environmental and energy sustainability in our properties, thereby reducing their impact on the earth's environment.

**Building Management:**

The Szanton Company is committed to long-term ownership of our apartment assets. In 2013, we founded Saco Falls Management, our property management arm, to ensure the highest standards of visual appearance and livability for our residents, neighbors, and communities. Saco Falls Management staff is dedicated to making residents the central focus of our organization and creating a rental experience which far exceeds our residents' expectations, both in level of upkeep of properties and responsiveness to their needs.

The proposed building will offer on-site office space for both a Property Manager as well as a Resident Services Coordinator that will provide office hours each week.

For more information on our management company, please visit www.sacofallsmanagement.com.

**Project Narrative – White Rock Terrace**

## MAJOR TRADITIONAL OR CLUSTERED SUBDIVISION SUBMISSION REQUIREMENTS AND CHECKLIST

The subdivision plan for a major traditional or clustered subdivision shall consist of an electronic submission and two (2) paper copies of all required application materials. Major subdivision review is a two-step process: 1) preliminary plan review and approval; 2) final plan review and approval. Occasionally, both preliminary and final approval may be granted by the Planning Board at the same meeting if all required information for both preliminary and final approval have been submitted, reviewed and approved by staff.

**Following each submission requirement, a response is provided indicating where in the packet the information can be found or if a waiver has been requested.**

## PRELIMINARY PLAN

**A.** Preliminary plan location map. The preliminary plan shall be accompanied by a location map drawn at a scale of not over 1,000 feet to the inch to show the relation of the proposed subdivision to the adjacent properties and to the general surrounding area. The preliminary plan shall show all the area within 1,000 feet of any property line of the proposed subdivision. Within such area the location map shall show:

1. All existing subdivisions and approximate tract lines of adjacent parcels together with the names of the record owners of all adjacent parcels of land, those directly abutting or directly across any street adjoining the proposed subdivision.
2. Locations, widths and names of existing, filed or proposed streets, easements, and building lines pertaining to the proposed subdivision and to the adjacent properties.
3. The boundaries and designations of zoning districts, parks and other public spaces.
4. An outline of the proposed subdivision together with its street system and an indication of the future probable street system of the remaining portion of the tract, if the preliminary plan submitted covers only part of the subdivider's entire holding.
   **The cover sheet includes a location plan that identifies this project in relation to the surrounding developments. The existing conditions plan also includes some information regarding the neighboring properties.**

**B.** Preliminary plan maps and information. The preliminary plan shall be submitted in 2 copies of one or more maps or drawings which may be printed or reproduced on paper with all dimensions shown in feet or decimals of a foot, drawn to a scale of one inch equals not more than 100 feet or, for plans describing construction of required improvements, a scale of one inch equals 40 feet; drawings are not to exceed 24 inches by 36 inches. All materials must also be provided in an electronic format. All plans shall be accompanied by the following information:

1. Proposed subdivision name or identifying title and the name of the municipality
   **Each plan within the plan set identifies the development along with its location.**

2. Name and address of record owner, subdivider and designer of preliminary plan.
   **Each plan within the plan set identifies the application along with the professional that prepared the plan, multiple professionals were involved in the design of this project.**

3. Date of plan submission, true North point and graphic scale.
   **Each plan within the plan set includes scales and north arrows as it applies.**

4. Number of acres within the proposed subdivision, location of property lines, existing easements, buildings, watercourses and other essential existing physical features.

**The existing condition plan includes the proposed lot area within this particular proposal. It also shows grading and other physical features associated with this development.**

5. The names of all subdivisions immediately adjacent and the names of owners of record of adjacent acreage.
**This parcel is within an existing subdivision, Cumberland Foreside Village, please see the Fifth Amended Subdivision plan for more details.**

6. The space standard and setback provisions of the Chapter 315, Zoning, applicable to the area to be subdivided and any zoning district boundaries affecting the subdivision.
**This parcel must meet the setbacks and zoning information within the Contract Zone Agreement its within. All applicable zoning has been adhered to for this development.**

7. The location and size of any existing or proposed sewers and water mains, culverts, hydrants, and drains on the property to be subdivided. This shall show the connections with existing sewer or water systems. Where public water and/or sewerage is not to be provided, alternative means of water supply and sewage treatment and disposal shall be shown, both horizontally and vertically. If on-site groundwater wells are proposed, the effect of withdrawal of groundwater may be required by the Board as set forth in this chapter.
**The extension of Sky View Drive includes public utilities that this building will connect into. The development will be served by public water and sewer services along with underground power and communications.**

8. If individual or collective private sewage disposal system(s) is (are) proposed, the location and results of tests to ascertain subsurface soils and groundwater conditions shall be signed and numbered by a licensed site evaluator. If a cluster system or collective private sewage disposal system(s) is (are) proposed, a hydrogeologic investigation shall be submitted meeting the sewage disposal standards as set forth in this chapter. A hydrogeologic investigation may be required by the Board for individual systems as set forth in this chapter.
**The development will connect into the public sewer line within Sky View Drive.**

9. Location, names and present and proposed widths of existing and proposed streets, highways, easements, building lines, alleys, parks and other public open spaces both within and abutting the subdivision. Grades and street profiles of all streets, sidewalks or other public ways proposed by the subdivider shall be shown.
**This information is included on the existing condition plan within the Plan Set.**

10. Contour lines at intervals of two feet or at such intervals as the Planning Board may require, based on United States Geological Survey datum and referred to mean sea level.
**The grading plan within the Plan Set includes both existing and proposed contours at an interval of 1 foot. Spot grades are also included to ensure minimum and maximum slopes are shown for the purposes of ADA requirements.**

11. A high-intensity soil survey shall be conducted by a certified soil scientist to identify soils within the proposed development in accordance with United States Department of Agriculture Natural Resources Conservation Service National Cooperative Soil Classification. The soil boundaries and names shall be superimposed on a plot plan of the proposed development.
**We are requesting a waiver from this submission requirement. Please see the waivers prepared for this application.**

12. Deed reference and map of survey of tract boundary made and certified by a registered land surveyor, tied into established reference points. Deed restrictions, if any, shall be described.

**The existing conditions/boundary survey plan is signed by a registered land surveyor. The lot proposed for this development is subject to a subdivision amendment currently being considered by the Planning Board, running parallel to this application. All plans regarding the existing and proposed boundary of this development will be signed and sealed by a professional land surveyor.**

**13.** A surface drainage plan or stormwater management plan, with profiles and cross sections drawn by a professional engineer registered in the State of Maine, showing preliminary design of all facilities and conveyances necessary to meet the stormwater management standards as set forth in this chapter.
**Drainage features are included on the grading plan and accompanying details. In addition a stormwater management report has been prepared to describe the overall drainage design.**

**14.** The proposed lot lines with dimensions and suggested locations of buildings.
**The site plan shows the proposed lot lines in addition to the location of the single proposed building associated with this development.**

**15.** The location of temporary markers adequate to enable the Board to locate readily and appraise the basic layout in the field.
**Stakes have been placed on the property to identify the locations of property corners, building corners and extents of the parking lot. A site walk was conducted and a plan provided that identified these locations.**

**16.** All parcels of land proposed to be dedicated to public use and the conditions of such dedication.
**No part of the property will be dedicated to public use.**

**17.** The location of all natural features or site elements to be preserved.
**A large stand of woodland will be preserved as part of this development. A minimum of 100 feet buffer from interstate 295 must be preserved per the Contract Zone Agreement, however as part of this plan, roughly 250 feet of woods will be preserved between interstate 295 and this development. The majority of this development will be located within an area that has been cleared of trees previously.**

**18.** A grading and landscaping plan, including natural features to be preserved.
**A landscaping plan has been included within the Plan Set.**

**19.** Plans shall bear the seals or numbers of the registered professionals responsible for preparing appropriate sections of the plan. Surveys shall be stamped by registered professional engineers, soil surveys shall bear the numbers of a soil scientist, subsurface sewage disposal plans shall bear the number of the professional site evaluator responsible for those evaluations, geological evaluations shall bear a registered geologist's number and architectural work shall bear the architect's seal.
**All plans are signed and sealed by the professional the prepared them. Please see the attached Plan Set for more details.**

**Project Narrative – White Rock Terrace**

# § 250-4. Subdivision approval criteria.

The Planning Board shall consider the following criteria and before granting approval shall determine that:
**For each approval criteria below a response in bold is provided to address how this application meets the ordinance.**

A. Pollution. The proposed subdivision will not result in undue water or air pollution. In making this determination, it shall at least consider:
   (1) The elevation of the land above sea level and its relation to the floodplains;
   **There are no floodplains located on this property**.

   (2) The nature of soils and subsoils and their ability to adequately support waste disposal
   **The proposed project will be connected into the public sewer system in Sky View Drive, no subsurface disposal system will be utilized for this development.**

   (3) The slope of the land and its effect on effluents;
   **Stormwater will be collected and treated on site prior to being discharged to the adjacent property.**

   (4) The availability of streams for disposal of effluents; and
   **No streams are located on the property.**

   (5) The applicable state and local health and water resource rules and regulations.
   **All state and local health regulations will be adhered to for this development. It is not anticipated there will be any detrimental water pollution related to this project.**

B. Sufficient water. The proposed subdivision has sufficient water available for the reasonable, foreseeable needs of the subdivision;
   **The project will be served by public water provided by the Portland Water District. A watermain extension is required for the extension of Sky View Drive. An ability to serve letter and watermain extension approval will be provided once approved by the Portland Water District.**

C. Municipal water supply. The proposed subdivision will not cause an unreasonable burden on an existing municipal water supply, if one is to be used;
   **It is not anticipated that this development will be a burden to the municipal water supply its connecting into. An ability to serve letter and watermain extension approval will be provided once approved by the Portland Water District.**

D. Erosion. The proposed subdivision will not cause unreasonable soil erosion or a reduction in the land's capacity to hold water such that a dangerous or unhealthy condition results;
   **An Erosion and Sedimentation control plan is included within the plan set for this application. There are no detrimental effects anticipated by the development of this property.**

**Project Narrative – White Rock Terrace**

E. Traffic. The proposed subdivision will not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads, existing or proposed;
**A traffic assessment has been completed for this application. The existing road system will adequately provide access to this project.**

F. Sewage disposal. The proposed subdivision will provide for adequate sewage waste disposal and will not cause an unreasonable burden on municipal services, if they are utilized;
**The project will be connected into the municipal sewer system. An ability to serve letter will be provided once reviewed and approved by the sewer district.**

G. Municipal solid waste disposal. The proposed subdivision will not cause an unreasonable burden on the municipality's ability to dispose of solid waste, if municipal services are to be utilized;
**It is not anticipated that this development will be a burden to the sewer district its connecting into. An ability to serve letter will be provided once reviewed and approved by the sewer district.**

H. Aesthetic, cultural and natural values. The proposed subdivision will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the Department of Inland Fisheries and Wildlife or the municipality, rare and irreplaceable natural areas, or any public rights for physical or visual access to the shoreline;
**The property being developed is within a previously approved subdivision. There are no significant wildlife areas identified on the property.**

I. Conformity with local ordinances and plans. The proposed subdivision conforms to a duly adopted subdivision regulation or ordinance, comprehensive plan, development plan or land use plan, if any. In making this determination, the Planning Board may interpret these ordinances and plans;
**The plan conforms to all local ordinances, contract zones and comprehensive plan.**

J. Financial and technical capacity. The applicant has adequate financial and technical capacity to meet the standards of this section as set forth in § 250-48;
**The Szanton group has submitted an outline of the funding sources for the project. See section E of this application for more information.**

K. Surface waters; outstanding river segments. Whenever situated entirely or partially within the watershed of any pond or lake or within 250 feet of any wetland, great pond or river, as defined in Title 38, Chapter 3, Subchapter 1, Article 2-B, of the Maine Revised Statutes Annotated, the proposed subdivision will not adversely affect the quality of that body of water or unreasonably affect the shoreline of that body of water. When lots in a subdivision have frontage on an outstanding river segment, the proposed subdivision plan must require principal structures to have a combined lot shore frontage and setback from the normal high-water mark of 500 feet. To avoid circumventing the intent of this provision, whenever a proposed subdivision adjoins a shoreland strip narrower than 250 feet which is not lotted, the proposed subdivision shall be reviewed as if lot lines extend to the shore. The frontage and setback provisions of this subsection do not apply either within areas zoned as general

development or its equivalent under shoreland zoning, Title 38, Chapter 3, Subchapter 1, Article 2-B, of the Maine Revised Statutes Annotated or within areas designated by ordinance as densely developed. The determination of which areas are densely developed must be based on a finding that existing development met the definition requirements of 30-A M.R.S.A. § 4401, Subsection 1, on September 23, 1983;
**The property is not within a watershed of a pond or lake and is not within 250 feet of any wetland, pond or river.**

L. Groundwater. The proposed subdivision will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater;
**No septic fields or wells are proposed, and stormwater will be collected, detained and treated before discharged. No activity on site will adversely effect the quantity and quality of groundwater.**

M. Flood areas. Flood areas, or flood-prone areas, are based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps and information presented by the applicant whether the subdivision is in a flood-prone area. If the subdivision, or any part of it, is in such an area, the subdivider shall determine the 100-year flood elevation and flood hazard boundaries within the subdivision. The proposed subdivision plan must include a condition of plan approval requiring that principal structures in the subdivision will be constructed with their lowest floor, including the basement, at least one foot above the 100-year flood elevation;
**The property is not within a flood zone.**

N. Stormwater. The proposed subdivision will provide for adequate stormwater management;
**Stormwater will be collected and treated on site by a variety of BMP's. The attached stormwater management report details how these BMP's will collect, detain and treat stormwater derived from this development. No downstream detrimental effects are anticipated.**

O. Freshwater wetlands. All potential freshwater wetlands, as defined in 30-A M.R.S.A. § 4401, Subsection 2-A, within the proposed subdivision have been identified on any maps submitted as part of the application, regardless of the size of these wetlands. Any mapping of freshwater wetlands may be done with the help of the local soil and water conservation district; and
**No freshwater wetlands are identified on the property being developed.**

P. River, stream or brook. Any river, stream, or brook within or abutting the proposed subdivision has been identified on any map submitted as a part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S.A. § 480-B, Subsection 9.
**The Beginning with Habitat map attached within this application shows Norton Brook to the southeast of the property on the opposite side of Route 1, and Chenery Brook to the northwest of the property separated by Interstate 295. The project will have little to no effect on either of these brooks.**

# Section B

## Major Subdivision Application

## APPENDIX B

## APPLICATION FOR MAJOR OR MINOR SUBDIVISIONS

**Applicant's Contact Information**
Name: The Szanton Company, Kristin Martin
Mailing Address: 482 Congress Street, Suite 203, Portland, Maine 04101
Email Address: kmartin@szantoncompany.com
Phone#: Office: 207-245-6436 Cell: _____ Fax: _____
Interest in property: Purchase and Sales Sgreement
Interest in abutting properties, if any: none

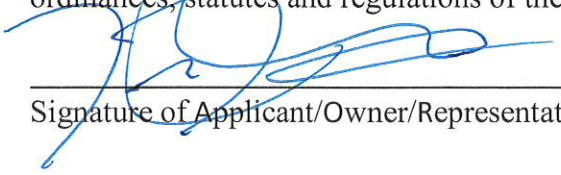
**Property Owner's Contact Information**
Name: Peter Kennedy
Mailing Address: _____
Email Address: pdkennedy4@gmail.com
Phone#: Office: _____ Cell: 207-831-4586 Fax: _____

**Applicant's Architect, Landscape Architect, Engineer, Planner or Surveyor Contact Information** (If more than one, please attach contact info for each one.)
Name: Acorn Engineering, Inc, Travis Letellier, P.E. (authorized agent) Application Section E for full list
Mailing Address: P.O. Box 3372, Portland, Maine 04104
Email Address: tletellier@acorn-engineering.com
Phone#: Office: 207-775-2655 Cell: _____ Fax: _____

**Project Information**
**Name of Project:** White Rock Terrace
Address of site: Sky View Drive
CCRD Book/Page #: _____ Tax Map/Lot #: _____
Zoning District: Heritage Village - Contract Zone Overlay District (If any): None
Site size (acres): 4.5 # of Lots: 1 # Buildings: 1 # Dwellings: 55
____ Minor Subdivision X Major Subdivision _____ Conservation Subdivision

**OTHER INFORMATION**
1. Is Board of Adjustment and Appeals approval required? None
2. Are any ordinance waivers requested? X Yes ___No (If yes, attach a list of waivers requested and reason for the request.)
3. Application fee per Town ordinance: $ 7,200
4. This application form and all accompanying materials must be submitted to the Town Planner at least 21 days prior to the meeting at which it is to be considered by the Planning Board.

The undersigned, being the applicant, owner or legally authorized representative, states that all information contained in this application is true and correct to the best of his/her knowledge and hereby does submit the information for review by the Town and in accordance with applicable ordinances, statutes and regulations of the Town, state and federal governments.



_____ 10/25/2022
Signature of Applicant/Owner/Representative Date

The Szanton Company
482 Congress St., Suite 203
Portland, ME 04101

October 17, 2022

RE: Authorizing Acorn Engineering, Inc.

To Whom it May Concern:

This letter is related to a proposed housing development to be located on Lot 7 off Sky View Drive in Cumberland, Maine. The building, to be called White Rock Terrace, is proposed to house 55 rental units reserved for households whose head is over the age of 55. The units are also restricted for households earning at or below 60% of the area median income. There would be 8 two-bedroom units and 47 one-bedroom units.

The Szanton Company is the developer and owner representative for this project and we authorize Acorn Engineering, Inc to act as the agent for The Szanton Company for the purpose of preparing and submitting all local and state permitting applications.

If there are any questions, please use kmartin@szantoncompany.com or 207-245-6436.

Thanks

Kristin Martin
Development Officer
The Szanton Company

## APPENDIX D

## MAJOR TRADITIONAL OR CLUSTERED SUBDIVISION SUBMISSION REQUIREMENTS AND CHECKLIST

The subdivision plan for a major traditional or clustered subdivision shall consist of an electronic submission and two (2) paper copies of all required application materials. Major subdivision review is a two-step process: 1) preliminary plan review and approval; 2) final plan review and approval. Occasionally, both preliminary and final approval may be granted by the Planning Board at the same meeting if all required information for both preliminary and final approval have been submitted, reviewed and approved by staff.

### PRELIMINARY PLAN

**A.** Preliminary plan location map. The preliminary plan shall be accompanied by a location map drawn at a scale of not over 1,000 feet to the inch to show the relation of the proposed subdivision to the adjacent properties and to the general surrounding area. The preliminary plan shall show all the area within 1,000 feet of any property line of the proposed subdivision. Within such area the location map shall show:

1. All existing subdivisions and approximate tract lines of adjacent parcels together with the names of the record owners of all adjacent parcels of land, those directly abutting or directly across any street adjoining the proposed subdivision.
2. Locations, widths and names of existing, filed or proposed streets, easements, and building lines pertaining to the proposed subdivision and to the adjacent properties.
3. The boundaries and designations of zoning districts, parks and other public spaces.
4. An outline of the proposed subdivision together with its street system and an indication of the future probable street system of the remaining portion of the tract, if the preliminary plan submitted covers only part of the subdivider's entire holding.

**B.** Preliminary plan maps and information. The preliminary plan shall be submitted in 2 copies of one or more maps or drawings which may be printed or reproduced on paper with all dimensions shown in feet or decimals of a foot, drawn to a scale of one inch equals not more than 100 feet or, for plans describing construction of required improvements, a scale of one inch equals 40 feet; drawings are not to exceed 24 inches by 36 inches. All materials must also be provided in an electronic format. All plans shall be accompanied by the following information:

1. Proposed subdivision name or identifying title and the name of the municipality.
2. Name and address of record owner, subdivider and designer of preliminary plan.
3. Date of plan submission, true North point and graphic scale.
4. Number of acres within the proposed subdivision, location of property lines, existing easements, buildings, watercourses and other essential existing physical features.
5. The names of all subdivisions immediately adjacent and the names of owners of record of adjacent acreage.

6. The space standard and setback provisions of the Chapter 315, Zoning, applicable to the area to be subdivided and any zoning district boundaries affecting the subdivision.

7. The location and size of any existing or proposed sewers and water mains, culverts, hydrants, and drains on the property to be subdivided. This shall show the connections with existing sewer or water systems. Where public water and/or sewerage is not to be provided, alternative means of water supply and sewage treatment and disposal shall be shown, both horizontally and vertically. If on-site groundwater wells are proposed, the effect of withdrawal of groundwater may be required by the Board as set forth in this chapter.

8. If individual or collective private sewage disposal system(s) is (are) proposed, the location and results of tests to ascertain subsurface soils and groundwater conditions shall be signed and numbered by a licensed site evaluator. If a cluster system or collective private sewage disposal system(s) is (are) proposed, a hydrogeologic investigation shall be submitted meeting the sewage disposal standards as set forth in this chapter. A hydrogeologic investigation may be required by the Board for individual systems as set forth in this chapter.

9. Location, names and present and proposed widths of existing and proposed streets, highways, easements, building lines, alleys, parks and other public open spaces both within and abutting the subdivision. Grades and street profiles of all streets, sidewalks or other public ways proposed by the subdivider shall be shown.

10. Contour lines at intervals of two feet or at such intervals as the Planning Board may require, based on United States Geological Survey datum and referred to mean sea level.

11. A high-intensity soil survey shall be conducted by a certified soil scientist to identify soils within the proposed development in accordance with United States Department of Agriculture Natural Resources Conservation Service National Cooperative Soil Classification. The soil boundaries and names shall be superimposed on a plot plan of the proposed development.

12. Deed reference and map of survey of tract boundary made and certified by a registered land surveyor, tied into established reference points. Deed restrictions, if any, shall be described.

13. A surface drainage plan or stormwater management plan, with profiles and cross sections drawn by a professional engineer registered in the State of Maine, showing preliminary design of all facilities and conveyances necessary to meet the stormwater management standards as set forth in this chapter.

14. The proposed lot lines with dimensions and suggested locations of buildings.

15. The location of temporary markers adequate to enable the Board to locate readily and appraise the basic layout in the field.

16. All parcels of land proposed to be dedicated to public use and the conditions of such dedication.

17. The location of all natural features or site elements to be preserved.

18. A grading and landscaping plan, including natural features to be preserved.

19. Plans shall bear the seals or numbers of the registered professionals responsible for preparing appropriate sections of the plan. Surveys shall be stamped by registered professional engineers, soil surveys shall bear the numbers of a soil scientist, subsurface sewage disposal plans shall bear the number of the professional site evaluator responsible for those evaluations, geological evaluations shall bear a registered geologist's number and architectural work shall bear the architect's seal.

**FINAL PLAN**

**C.** The final subdivision plan for a major traditional or clustered subdivision shall consist of an electronic submission and two (2) paper copies of all required application materials. All materials must also be provided in an electronic format.

The final plan shall show:

1. All of the information presented on the preliminary plan and location map and any amendments thereto required by the Board or otherwise added to the plan. Engineering plans submitted shall be final plans on which construction may be based.
2. The name, registration number and seal of the engineer, land surveyor, geologist, soil scientist, architect or planning consultant who prepared the plan.
3. Street names and lines, pedestrian ways, lanes, easements, rights-of-way and areas to be reserved for or dedicated to public use.
4. The length of all straight lines, the deflection angles, radii, length of curves and central angles of all curves, tangent distance and tangent bearings for each street.
5. An actual field survey of the boundary lines of the tract, giving complete descriptive data by bearings and distances, made and certified by a licensed land surveyor. The corners of the tract shall be located on the ground and marked by monuments as herein required and shall be referenced as shown on the plan.
6. Sufficient data acceptable to the municipal officials to determine readily the location, bearing and length of every lot line and boundary line and to reproduce such lines upon the ground. Where practical these should be tied to reference points previously established.
7. The survey of the outside boundaries of the tract and the computation of the lot lines shall be performed to an accuracy of one foot in 5,000 feet. If requested by the Planning Board, the surveyor shall furnish copies of computation sheets for outside boundaries showing.
   - **a.** Sketch of traverse lines.
   - **b.** Closures;
   - **c.** Adjustments;
   - **d.** Coordinates; and
   - **e.** Computation of outside boundaries.

8. By proper designation, all public open space for which offers of cession are made by the subdivider and those spaces to which the title is reserved by him.
9. Lots and blocks within the subdivision numbered in accordance with local practice.
10. Proposed homeowners' covenants and restrictions.
11. Required MDEP stormwater maintenance documents.

**D.** There shall be submitted to the Board with final plan:

1. Copies of declarations, agreements or other documents showing the manner in which open space or easements are to be held and maintained.
2. Where conveyance of public open space or easements to the Town is contemplated, a written offer to make such conveyance to the Town and written evidence that the municipal officers are willing to accept such conveyances and are satisfied with the terms and conditions of the proposed conveyance and with the legal sufficiency of the proposed transfer documents. Such written evidence shall not constitute an acceptance by the municipality of any such public open space.

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## COMPLETION CHECKLIST FOR MAJOR TRADITIONAL OR CLUSTERED SUBDIVISION SUBMISSION REQUIREMENTS

***Waivers:*** Please make a check in the *Waiver Request* column for any requested waivers. Attach a separate sheet citing the Subdivision Ordinance section number, description, and reason for the waiver request.

| | **Check if provided** | **Location of information in packet, e.g. plan #, page #** | **Waiver Request?** |
|---|---|---|---|
| **General Submissions:** | | | |
| 15 copies of plans and materials. All sheet sized to be 24" x 36" | ✔ | Application Submission | |
| 1"=100' scale for general plan | ✔ | Plan Set | |
| 1"=40' scale for construction of required improvements | ✔ | Plan Set | |
| Traffic Info? | ✔ | Application Section L | |
| Capacity to Serve letters? | | **forward upon receipt** | |
| Financial and Technical Capacity (Sec.14) | ✔ | Application Section E | |
| Sewer user permits required? Status? | | | |
| Deed restrictions, if any, describe on separate sheet | N/A | | |
| **Cover Sheet:** | | | |
| Proposed subdivision name | ✔ | Plan Set - Cover Sheet | |

| | Check if provided | Location of information in packet, e.g. plan #, page # | Waiver Request |
|---|---|---|---|
| Name & address of record owner, subdivider, and designer of preliminary plan | ✔ | | |
| **Location Map:** | | | |
| Scale 1"=1000' | ✔ | Plan Set | |
| Shows area 1000' from property lines | ✔ | Plan Set | |
| All existing subdivisions | ✔ | Plan Set | |
| Approximate tract lines of adjacent parcels | ✔ | Plan Set | |
| Approximate tract lines of parcels directly across street | ✔ | Plan Set | |
| *Location* of existing & proposed streets, easements, lot lines & bldg. lines of proposed subdivision & adjacent properties. | ✔ | Plan Set | |
| **Existing Conditions Plan:** | | | |
| Existing buildings | N/A | | |
| Watercourses | N/A | | |
| Legend | ✔ | Plan Set | |
| Wetlands | N/A | | |
| Existing physical features (trees 10" diameter or more. Stone walls | | | ✔ |
| Trail System? | N/A | | |
| **Subdivision Plan:** | | | |
| Date of plan submission, true north & graphic scale | ✔ | Plan Set | |
| Net residential acreage calculations | N/A | | |
| Legend | ✔ | Plan Set | |
| Trail (connecting?) | N/A | | |
| *Widths* of existing/proposed streets, easements & bldg. lines | N/A | | |
| *Names* of existing/ proposed streets, easements & bldg. lines | ✔ | Plan Set | |
| Boundaries & designations of zoning districts, parks, public spaces | ✔ | Plan Set | |
| Outline of proposed subdivision w/ street system | ✔ | Plan Set | |
| Future probable street system of remaining portion of tract. | N/A | | |

| | Check if provided | Location of information in packet, e.g. plan #, page # | Waiver Request |
|---|---|---|---|
| Opportunities for Connecting Road(s) (13.2D) | N/A | | |
| Space and Setback of district | ✓ | Plan Set | |
| Classification of road | N/A | | |
| Width of road(s) | N/A | | |
| Drainage type (open, closed, mix) | ✓ | Plan Set/Stormwater Management report | |
| Type of byway provided (8.4D) | N/A | | |
| Names of adjacent subdivisions | ✓ | Plan Set | |
| Names of owners of record of adjacent acreage | ✓ | Plan Set | |
| Any zoning district boundaries affecting subdivision | N/A | | |
| Location & size of existing or proposed sewers, water mains, culverts, hydrants and drains on property | ✓ | Plan Set | |
| Connections w/existing sewer or water systems | ✓ | Plan Set | |
| Private water supply shown | N/A | | |
| Private septic shown | N/A | | |
| Hydro-geologic study | | | ✓ |
| (option for Board) | | | |
| Test pit locations | ✓ | Plan Set | |
| Well locations | N/A | | |
| Signature & lic. # of site evaluator | N/A | | |
| Existing streets: location, name(s), widths w/in and abutting | ✓ | Plan Set | |
| Proposed streets: location, name(s), widths w/in and abutting | ✓ | Plan Set | |
| The above for any highways, easements, bldg. lines, alleys, parks, other open spaces w/in and abutting | N/A | | |
| Grades & street profiles of all streets, sidewalks or other public ways proposed | ✓ | Plan Set | |
| 2'contour lines | ✓ | Plan Set | |
| High intensity soil survey by cert. soil scientist | | | ✓ |
| Soil boundaries & names superimposed on plot plan | ✓ | Plan Set | |
| Deed reference & map of survey of tract boundary by reg. land surveyor tied to established reference points | ✓ | Plan Set | |

| | Check if provided | Location of information in packet, e.g. plan #, page # | Waiver Request |
|---|---|---|---|
| Surface drainage or stormwater mgmt plan w/profiles & cross sections by a P.E. showing prelim. design and conveyances | ✓ | Plan Set/Stormwater Management report | |
| Proposed lot lines w/ dimensions and suggested bldg. locations. | ✓ | Plan Set | |
| Location of temp. markers in field | ✓ | Site walk diagram | |
| All parcels proposed to be dedicated to public use and conditions of such. | N/A | | |
| Location of all natural features or site elements to be preserved | ✓ | Plan Set | |
| Street lighting details | ✓ | Plan Set | |
| Landscaping and grading plan including natural features to be preserved | ✓ | Plan Set - Landscape Plan | |
| Survey stamped by P.E. | ✓ | Plan Set | |
| Soil surveys w/# of soil scientist | N/A | | |
| Septic plan w/ # of prof. site evaluator | N/A | | |
| Geological evals w/ reg. geologists number | N/A | | |
| Architect's seal | ✓ | Plan Set - Arch Renderings | |
| For Rt. One: 75' undisturbed buffer applicable to all buildings, structures, parking areas, drainage facilities and uses. | N/A | | |
| Open Space? | ✓ | Plan Set | |
| Any part of parcel in a shoreland zone? | N/A | | |
| Flood Map Number and rating? | N/A | | |
| Stormwater Report? | ✓ | Application Section G | |
| Rivers, ponds, wetlands? | N/A | | |
| Historic, archeological features? | N/A | | |
| Solid waste disposal? | ✓ | Plan Set | |
| **Required Notes on Plan:** | | | |
| Fire Department notes | ✓ | Plan Set | |
| Clearing limits note | ✓ | Plan Set | |
| Re: approval limit of 90 days before recording or null p. 10 | ✓ | Plan Set | |
| Actual field survey of boundary lines w/ monumentation shown | ✓ | Plan Set | |
| Assessor's approval of street names and assignment of lot numbers. | N/A | | |

| | Check if provided | Location of information in packet, e.g. plan #, page # | Waiver Request |
|---|---|---|---|
| Designation of all open spaces w/ notes on ownership | N/A | | |
| Copies of declarations, agreements or other documents showing the manner in which open space or easements are to | N/A | | |
| Written offer for any conveyance to the Town of open space or easements along with written evidence that the Council is willing to accept such offer | N/A | | |
| Evidence of Outside Agency Approvals | | **forward upon receipt** | |

***As per Section 7.2 - REVIEW AND APPROVAL BY OTHER AGENCIES:***

***E.*** *Where review and approval of any subdivisions or site plan by any other governmental agency is required, such approval shall be submitted to the Planning Board in writing prior to the submission of the Final Plan.*

Please list below all outside agency approvals that are required for this subdivision.

- **Maine Department of Environmental Protection**: *List type of permit(s) required (e.g., SLODA, NRPA (tier type?), Maine Construction General Permit, etc.)*
  **Amendment to the SLODA permit is required through DEP**

**none** • ***US Army Corps of Engineers***

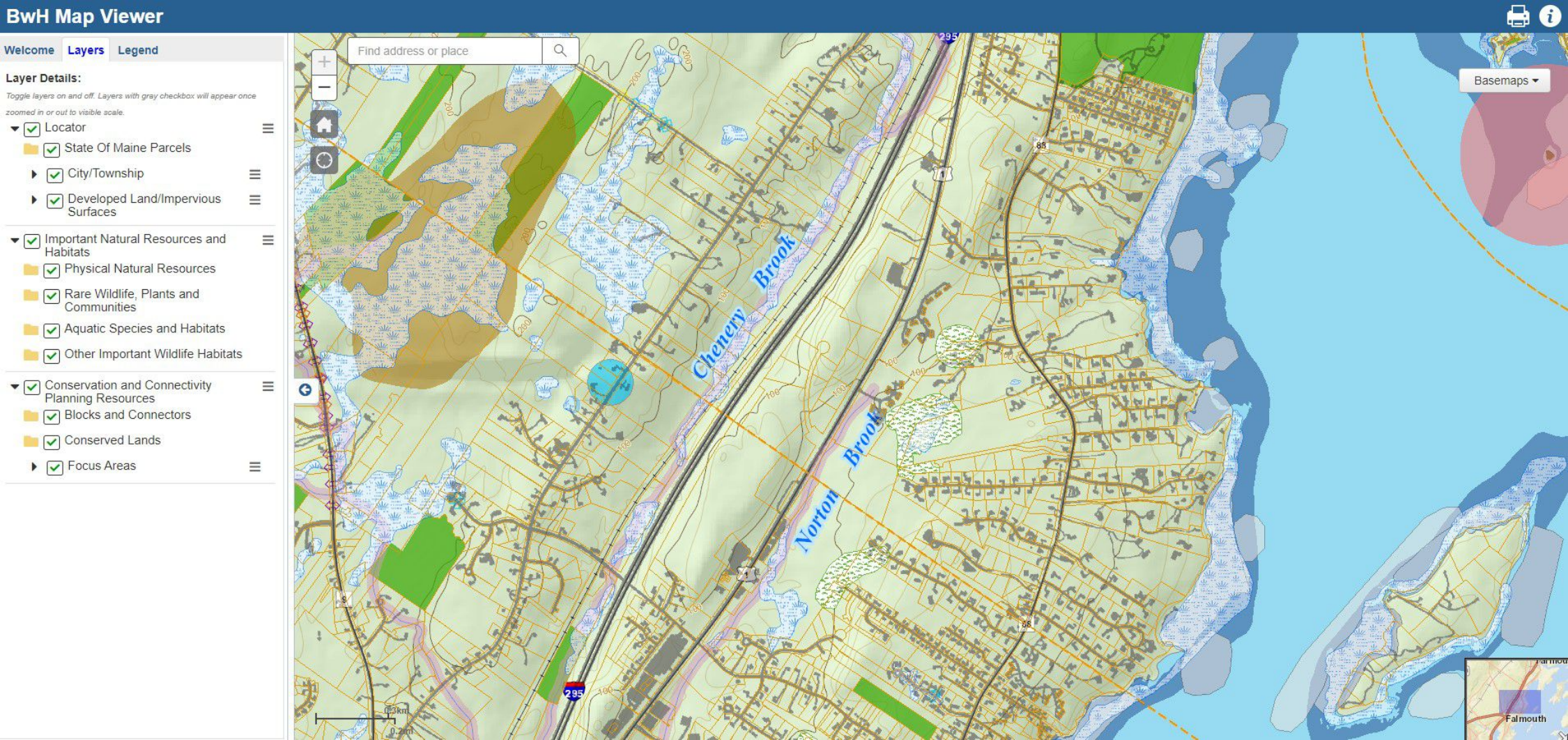
**none** • **Maine Department of Transportation**: *List type of permit(s) required*.

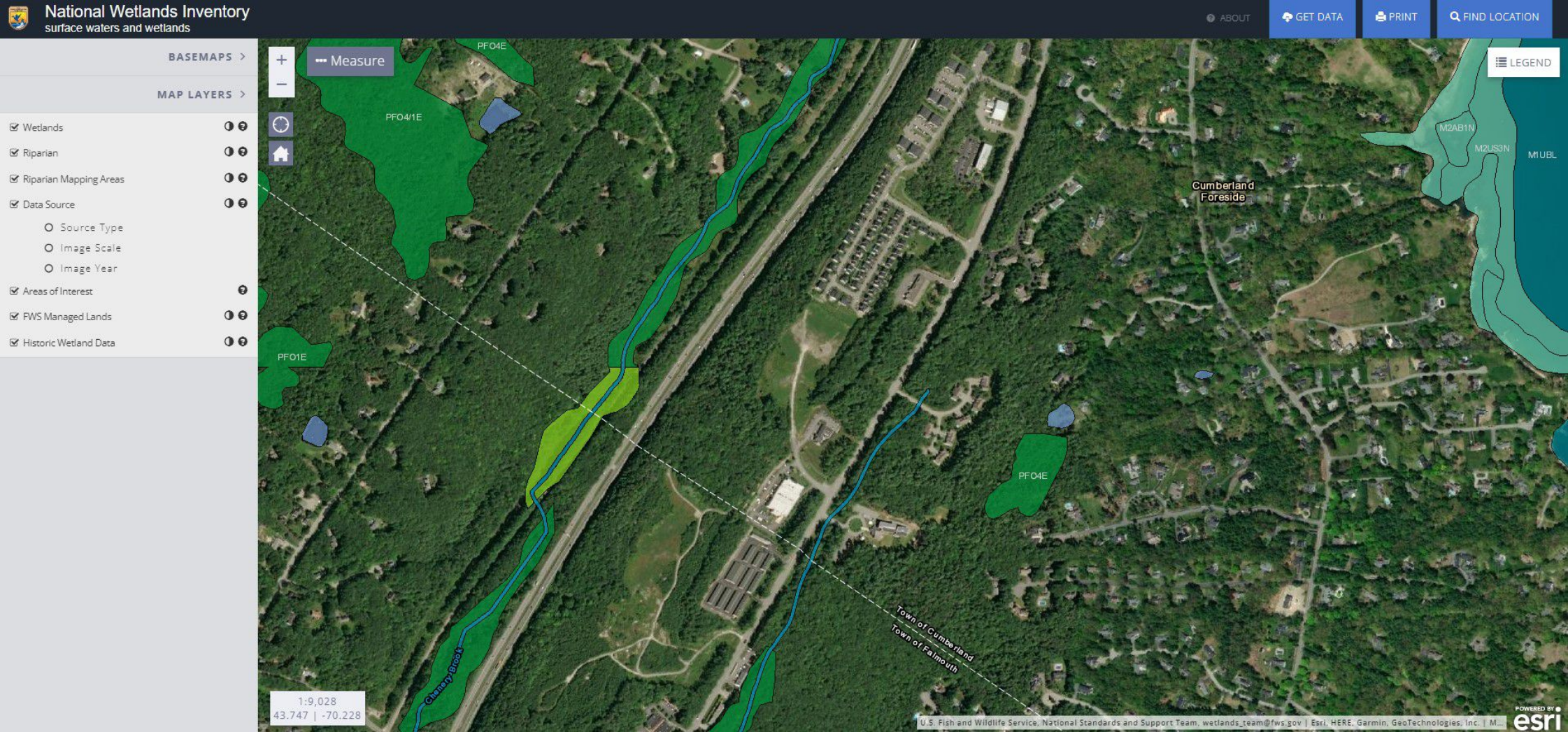
**none** • ***Maine Department of Inland Fisheries and Wildlife***

**none** • **Cumberland County Soils and Water Conservation Service:** Required by Town.

**Other:** (Please List):_____

# BwH Map Viewer




National Wetlands Inventory
surface waters and wetlands
ABOUT
GET DATA
PRINT
FIND LOCATION
BASEMAPS
MAP LAYERS
Wetlands
Riparian
Riparian Mapping Areas
Data Source
Source Type
Image Scale
Image Year
Areas of Interest
FWS Managed Lands
Historic Wetland Data
Measure
LEGEND
PFO4E
PFO4/1E
PFO1E
M2AB1N
M2US3N
M1UBL
Cumberland Foreside
Town of Cumberland
Town of Falmouth
Chenery Brook
1:9,028
43.747 | -70.228
U.S. Fish and Wildlife Service, National Standards and Support Team, wetlands_team@fws.gov | Esri, HERE, Garmin, GeoTechnologies, Inc. | M...
POWERED BY esri

***Waiver Request***

**Submission Requirement**

**Hydro-geologic study**

**Waiver Request**

Eliminate the requirement to submit a Hydro-Geologic Study

**Explanation**

This development will be served by both public water and public sewer systems located within Sky View Drive. In addition, stormwater is proposed to be detained and treated on site within lined systems designed to maintain a separation from groundwater. There is no anticipated detrimental effects to the groundwater nor a need to determine the capacity of groundwater on site for this development.

***Waiver Request***

**Submission Requirement**

**High Intensity soil survey by certified soil scientist**

**Waiver Request**

Reduce the requirement from High Intensity to Medium Intensity (Class C) soil survey.

**Explanation**

This development will be served by both public water and public sewer systems located within Sky View Drive. In addition, stormwater is proposed to be detained and treated on site within lined systems designed to maintain a separation from groundwater. The types of soils on site will not be used to determine type of sewerage disposal system or stormwater treatment system on site and a Medium Intensity survey provides accurate enough information for site stormwater modeling.

***Waiver Request***

**Submission Requirement**

**Existing physical features (trees 10" or greater)**

**Waiver Request**

Eliminate the requirement to include location of individual trees

**Explanation**

Most of the development is within a cleared area on the property. Trees will be removed from the site to make room for the building and some outdoor activity areas, however the vast majority of existing trees on the property will be retained.

***Waiver Request***

**Submission Requirement**

**Parking Requirement**

**Waiver Request**

Reduce parking requirement from 2 spaces per dwelling unit to 1.4 spaces per dwelling unit.

**Explanation**

The Szanton Company completed a parking study of 55+ residents at our own properties in 2018 in preparation for an apartment building in Portland. Our parking study showed that:

- Portland based properties (based on 100% building occupancy):
  - 13 out of 28, 55+ households had cars for a rate of 46.4%
- Biddeford based properties (based on 100% building occupancy):
  - 40 out of 55, 55+ households had cars for a rate of 72.7%

In 2018, we also commissioned a Parking Assessment that was completed by Traffic Solutions in preparation for an apartment building for 55+ residents. This parking assessment looked at two senior housing facilities managed by Avesta Housing in the Greater Portland Area. The following information was gathered:

**Table 1**
**Parking Utilization Data**
**Existing Greater Portland Area Senior Housing Facilities**

| Facility Location | # of Units | # of Site Spaces | July 2 Utilization Data | | July 3 Utilization Data | | July 5 Utilization Data | | TOTAL | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | AM | PM | AM | PM | AM | PM | | |
| Biddeford 5 Graham Street | 35 | 26 | n/a | 18 | 18 | 17 | 17 | 17 | 87 vehicles | 17.4 vehicles |
| Portland 47 Smith Street | 20 | 20 | n/a | 5 | 5 | 6 | 6 | 6 | 28 vehicles | 5.6 vehicles |
| TOTAL | 55 | 46 | n/a | 23 | 23 | 23 | 23 | 23 | 114 vehicles | 22.8 vehicles |

**NOTES:**

**(1) Avesta Housing provided information that all units at both identified senior housing facilities are currently occupied.**

The results of the survey show a combined average peak parking demand of **22.8** parking spaces for the two senior adult apartment sites, which include a total of 55 senior adult housing units. Accordingly, the peak parking demand of the two Avesta properties is estimated at 0.41 spaces per apartment unit (22.8 ÷ 55 = 0.41 spaces per apartment unit).

Traffic Solutions, applying the peak parking demand value of 0.41 spaces per unit, estimates the proposed 51 senior adult apartment units will require a minimum of 21 parking spaces to meet the estimated peak parking demand of the building tenants.

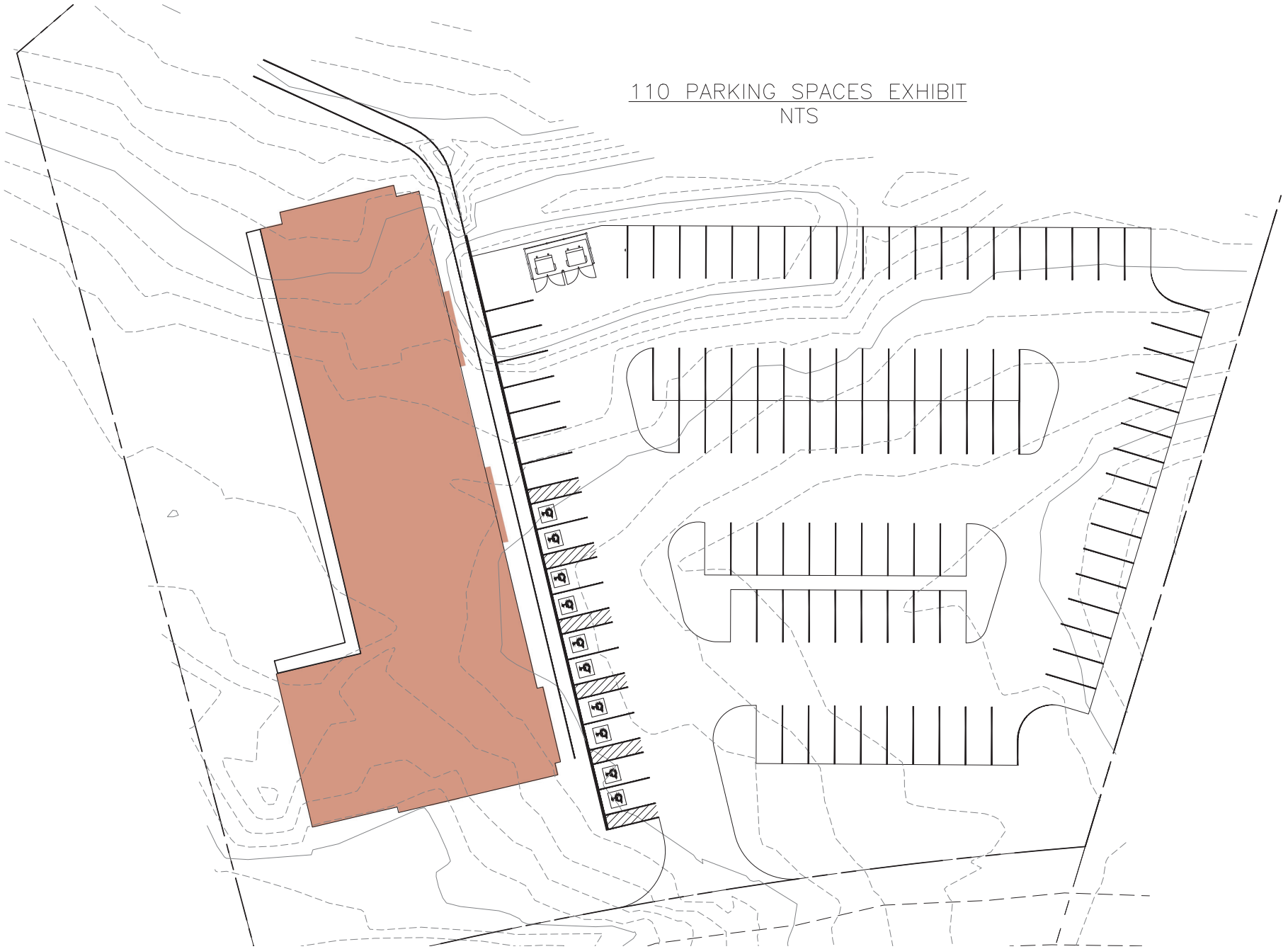
Unlike the Biddeford and Portland locations reviewed in these studies, the site located on Sky View Drive in Cumberland lacks access to public transportation and walkability to amenities

within a half-mile. Due to this fact we acknowledge that White Rock Terrace will require more parking than is indicated in these studies.

Zoning requires 2 spaces per apartment. White Rock Terrace is largely one-bedroom units with only 8 of the 55 units being two-bedrooms. Due to the large number of one-bedroom units it is expected that many of the units will be occupied by single-person households and therefore only require on car. Due to this fact we are requesting to reduce the parking requirement from 110 spaces to 77 spaces. This will provide 1.4 spaces per apartment.

In addition, we have developed an alternative site plan option that shows the ability to add parking in the future if it is determined that the allotted 77 spaces are insufficient for demand.

110 PARKING SPACES EXHIBIT
NTS



# Section C

## Right, Title, & Interest

TO: KRISTIN MARTIN F: 207-245-6442

FROM: PETER KENNEDY 207-831-4586

WELL DONE!

26 APRIL 22

# PURCHASE AND SALE AGREEMENT

This Purchase and Sale Agreement is entered into by the below-named parties as of the date on which the last to sign of Seller and Buyer have executed this Agreement as shown below next to their respective signatures (the "Effective Date").

1. PARTIES. HERITAGE VILLAGE DEVELOPMENT GROUP, LLC, a Florida limited liability company with a mailing address as set forth below ("Seller"), agrees to sell, and SZANTON MONKS PROPERTIES, LLC, a Maine limited liability company with a mailing address also set forth below ("Buyer"), agrees to buy, upon the terms and conditions hereinafter set forth, the real estate described in Paragraph 2 of this Agreement.

2. DESCRIPTION. The real estate to be sold by Seller to Buyer pursuant to this Agreement consists of a portion of the property of Seller located on Lot 7 ("Lot 7") of the Heritage Village Subdivision located on Rt. 1 in Cumberland, Maine, being generally shown on the sketch attached hereto as **Schedule A** thereto (the "Premises"). The boundaries of the Premises shall be determined by mutual agreement of the parties within 120 days of the Effective Date pending input from Town of Cumberland officials and the Buyer's engineering and design consultants, to be finalized by a survey of the Premises prepared by Owen Haskell, Inc. at Buyer's expense, and such metes and bounds surveyed description shall represent the Premises to be conveyed from Seller to Buyer at Closing.

The parties acknowledge the Buyer's intended use of the Premises to develop fifty-five (55) unit of high quality professionally managed rental housing for households headed by persons aged 55 years or more (the "Project") financed in part through the low-income housing tax credit and other sources provided or administered in part by Maine State Housing Authority and in compliance with the Amended and Restated Contract Zoning Agreement by and between the Town of Cumberland and Seller dated September 5, 2019 and recorded in Book 35978, Page 200 of the Cumberland County Registry of Deeds (the "Contract Zoning Agreement")

3. DEED. The Premises shall be conveyed by warranty deed (the "Deed"), which shall convey good and clear record and marketable title, free from all liens and encumbrances, with the exception of the easements, covenants and restrictions which do not, in the sole opinion of Buyer, adversely affect Buyer's proposed development of the Premises and do not violate or cause a violation of, or are otherwise inconsistent with, (i) any applicable local, state and federal laws, ordinances, rules and regulations; or (ii) any local, state or federal governmental permit, approval, license or consent which is necessary or convenient under applicable local, state and federal laws, ordinances, rules and regulations in order to permit Buyer's proposed development and use of the Premises.

4. PURCHASE PRICE. The purchase price (the "Purchase Price") for the Premises is Seven Hundred Seventy Thousand Dollars ($770,000.00), payable as follows:

(a) Within three (3) business days of the Effective Date, Buyer shall pay to Seller Three Thousand Dollars ($3,000.00) as an earnest money deposit (the "Deposit") to be

held by Drummond Woodsum, counsel for the Buyer, and disbursed in accordance with, the terms and conditions of this Agreement, and to be applied toward the Purchase Price at Closing. Provisions regarding the refundability and non-refundability of the Deposit are in Sections 7 and 19; and

(b) The balance of the Purchase Price is to be paid to Seller by the Buyer at the time of Closing by certified or cashier's check, or wire transfer, subject to the credits and prorations hereinafter set forth.

5. WITHHOLDING TAX. Seller is hereby notified that Buyer will withhold two and one-half percent (2.5%) of the Purchase Price for transfer to Maine Revenue Services pursuant to 36 M.R.S.A. §5250-A unless (a) Seller furnishes a certificate to Buyer at the Closing, as hereinafter defined, stating, under penalty of perjury, that as of the date of the Closing, Seller is a resident of the State of Maine, or (b) Seller furnishes a certificate from the Maine Revenue Services to Buyer at the Closing stating that no taxes are due on the gain from the transfer of the Premises or that Seller has provided adequate security to the Maine Revenue Services to cover the tax liability resulting from said transfer.

6. TIME FOR PERFORMANCE/DELIVERY OF DEED.

(a) Except as expressly set forth to the contrary in this Agreement, the use of the "days" in this Agreement, including all addenda that may be made a part hereof, shall mean calendar days.

(b) The Deed and other transfer documents are to be delivered via overnight mail or by personal appearance by the Seller, and the consideration paid (the "Closing") on (i) the date that is eighteen (18) months from the Effective Date, or (ii) on such earlier date not less than seven (7) days following notice from Buyer to Seller thereof, at 11:00 a.m. at Drummond Woodsum, 84 Marginal Way, Suite 600, Portland, Maine or such other location as may be agreed by Buyer and Seller (the "Closing Date"). Notwithstanding the foregoing, Buyer shall have the right to extend the Closing Date for up to three (3) separate extensions of thirty (30) days (each, an "Extension Period") with the first such Extension Period extending the Closing Date an additional 30 days and each subsequent Extension Period extending the Closing Date an additional thirty (30) days from the then-applicable Closing Date. Buyer shall provide notice to the Seller of its exercise of each Extension Period prior to the then-applicable Closing Date. Upon Buyer's exercise of the first Extension Period, the Deposit shall be non-refundable and not applied to the Purchase Price at Closing.

7. BUYER'S INSPECTIONS.

Prior to the date set for Closing hereunder, Buyer and Buyer's agents, at their own risk and expense, shall have the right to enter, inspect, survey and conduct such other activities on or around the Premises as are necessary in order to conduct any investigations or inspections or surveys or other research as Buyer may choose to conduct or have performed, including without limitation geotechnical borings. Buyer shall be obligated to reasonably restore the Premises in a

workmanlike manner promptly following the completion of any inspection or testing, except for the removal of any lead and asbestos sampling for which the Premises may be left as-is following the completion of such sampling. Buyer may terminate this Agreement prior to Closing if the results of Buyer's due diligence are unsatisfactory to Buyer in its sole discretion or for any other reason, by written notice to Seller. Upon any such termination within 120 days of the Effective Date, Buyer shall receive a full refund of the Deposit paid; after 120 days from the Effective Date, no amount of the Deposit shall be refunded to Buyer except if the Seller breaches or defaults under this Agreement or is unable to deliver title as required by this Agreement. Should after 120 days from the Effective Date Buyer notify Seller in writing that it no longer intends to close the transaction contemplated by this Agreement, Buyer shall assign and deliver to Seller all permits, approvals, surveys, drawings, environmental reports, any engineering reports affecting the Premises obtained by Buyer, if any, and to the extent permitted by law.

8. CLOSING DOCUMENTS. At the Closing, and in addition to any other documents referred to in this Agreement to be delivered to Buyer, Seller shall execute, acknowledge as necessary and deliver the following documents and such other documents as may be reasonably required to complete the transaction contemplated herein:

(a) Transfer Documents. The Deed and a Maine Real Estate Transfer Tax Declaration of Value; the real estate transfer tax imposed pursuant to 36 M.R.S.A. §4641-A shall be split equally between Seller and Buyer at Closing.

(b) Underground Oil Storage Tank Certification. A written notice certifying pursuant to 38 M.R.S.A. §563(6) an underground oil storage tank exists and shall disclose its registration number or numbers, the exact location of the facility, whether or not it has been abandoned in place, and that the facility is subject to regulation by the Maine Board of Environmental Protection; and

(c) Other Documents. Such other documents as are customarily delivered by Sellers to Buyers of real property in the State of Maine, including title insurance affidavits and reasonable evidence of Seller's company authority to sell the Premises.

9. SELLER'S WORK. Seller shall (i) preliminarily construct Skyview Drive, the road to the Premises from Route 1 as such is preliminarily depicted on Exhibit A of the Contract Zoning Agreement (the "Road"), sufficient for the passage of construction vehicles and including completion of a rough coat finish to the Road within six (6) months of the date of receipt of the Approvals, as such term is defined below; (ii) provide water, sewer, and electricity to the boundary of the Premises prior to Closing; and (iii) after Closing, complete the construction of the Road, including without limitation, the finish coat, within 3 months after receiving written notice from Buyer to proceed, which notice shall be given not later than 18 months after Closing. (collectively, the "Seller's Work"). Within a reasonable period of time after execution of this Agreement, Seller shall engage a contractor and other professionals as may be necessary to prepare plans and specifications for Seller's Work (the "Plans") and Seller shall deliver the Plans to Buyer within ten (10) days of Seller's receipt of the Plans for Buyer's approval, which shall not be unreasonably withheld. Buyer's approval or reasonable disapproval

shall be delivered to Seller within ten (10) days of Buyer's receipt of the Plans. If Buyer reasonably disapproves of any portion of the Plans, the parties shall meet, within five (5) business days after Buyer's disapproval, to agree upon revisions to the Plans to meet the reasonable satisfaction of Buyer. Buyer and Seller agree to cooperate in good faith to ensure the Plans are developed and approved in conjunction with Buyer's design and planning work for the Project so that governmental approval of the Plans and the Project can be concurrently obtained (collectively, the "Approvals"). Upon Buyer's approval of the Plans, Seller shall directly enter into an agreement(s) with third-party contractors to complete Seller's Work (each, a "Seller's Work Contract" and if more than one, collectively, the "Seller's Work Contracts") and to the extent required by law, Seller and its contractor(s) shall apply for and obtain all construction and/or any other permits, licenses or approvals from the Town of Cumberland required in order to perform Seller's Work. Seller shall provide Buyer with copies of all such Seller's Work Contracts and permits, licenses or approvals directly upon execution or receipt thereof. Seller's Work shall be conducted at Seller's sole cost and expense and in a good and workmanlike manner.

At Closing, Seller shall complete one of the following options to secure the completion of Seller's Work:

(i) An amount equal to One Hundred Fifty Percent (150%) of the sum of the costs per the Seller's Work Contracts to complete the portion of Seller's Work not completed by Closing shall be withheld from the Purchase Price and placed in a non-interest bearing escrow account by a mutually agreed upon escrow agent (the "Seller's Work Escrow") at Closing for application against Seller's obligations hereunder. Upon Seller's request, Buyer shall disburse reasonable monthly progress payments pursuant to Seller's Work Contract which shall be subject to a ten percent (10%) retainage payable on substantial completion of Seller's Work less 150% of punch list items. Upon completion of Seller's Work and payment for Seller's Work after Closing, any excess funds in Seller's Work Escrow shall be paid to Seller; or

(ii) Contingent on Buyer, Buyer's lenders, Buyer's low income housing tax credit investors, and Maine State Housing Authority's (collectively, "Buyer's Lenders") commercially reasonable approval, Seller shall deliver to Buyer an unconditional, clean, irrevocable letter of credit with a minimum term of twenty-four (24) months (the "Letter of Credit") in an amount equal to One Hundred Fifty Percent (150%) of the sum of the costs per the Seller's Work Contracts to complete the portion of Seller's Work not completed by Closing issued by a bank reasonably acceptable to Seller that accepts deposits, maintains accounts, and negotiates letters of credit. The Letter of Credit will be in form and content reasonably acceptable to Buyer, Buyer's lenders, Buyer's low income housing tax credit investors, and the Maine State Housing Authority. Buyer will pay all charges to obtain and maintain the Letter of Credit. The Letter of Credit will be payable solely upon its presentation with a sight draft and will be held by Buyer as security for the performance by Seller of its obligations to complete Seller's Work under this Agreement. If Seller fails to renew the Letter of Credit at least thirty (30) days before its expiration or replace it with a letter of credit satisfying the conditions of this Section, Buyer may draw upon the Letter of Credit in full and immediately deposit the proceeds with Buyer's attorney to be held in escrow for the purpose of securing Seller's obligation to complete Seller's

Work. If Seller completes Seller's Work, Buyer shall promptly return the Letter of Credit to Seller. Provided the bank issuing the Letter of Credit agrees, or provides its consent if necessary pursuant to the terms of the Letter of Credit, Buyer may assign the Letter of Credit, and Buyer's rights to issue a sight draft and present the Letter of Credit for payment and apply the proceeds thereof under this Agreement, to any one or more lender(s) providing or guarantying financing for the construction of the Project, or Buyer's performance of its obligations regarding the Project, without Seller's consent. Should Seller desire to elect this option (ii) to secure the completion of Seller's Work, Seller shall notify Buyer of the same and provide a draft of the proposed Letter of Credit to Buyer at least ninety (90) days prior to Closing for Buyer's and Buyer's Lenders' review, which consent shall be at Buyer's sole discretion, and Buyer's decision regarding such consent shall be given to Seller within thirty (30) days after Buyer's receipt of the proposed letter of credit. Should Seller fail to provide a draft of the proposed letter of credit to Buyer at least ninety (90) days prior to Closing or should Buyer not grant its consent in accordance with this Section, Seller shall proceed with option (i) above.

10. POSSESSION AND CONDITION OF PREMISES. Full possession of the Premises free of all tenants and occupants is to be delivered at the Closing, the Premises to be as is and in the same condition as they are now, reasonable wear and tear excepted. Seller agrees to make no change to the Premises in any manner inconsistent with the Contract Zoning Agreement, qualification of the Premises for low-income housing tax credits, and the development by Buyer thereof, as determined by Buyer in Buyer's sole discretion.

11. EXTENSION TO PERFECT TITLE OR MAKE PREMISES CONFORM. If Seller shall be unable to give title or to make conveyance, or to deliver possession of the Premises, all as herein stipulated, or, if at the time of the Closing the Premises do not conform with the terms and conditions hereof, then Seller shall use commercially reasonable efforts to remove any defects in title, or to deliver possession as provided herein; or to make the Premises conform to the terms and conditions hereof, as the case may be, in which event the time for performance hereof shall be extended for a period of up to forty-five (45) days, or such longer period as shall be agreed to by Buyer.

12. FAILURE TO PERFECT TITLE OR MAKE PREMISES CONFORM. If at the expiration of such extended time Seller shall have failed to remove any defects in title, deliver possession, or make the Premises conform, as the case may be, all as herein agreed, then, at Buyer's option, the full Deposit, together with all interest earned thereon, shall be promptly returned to Buyer and all other obligations of the parties hereto shall cease and this Agreement shall be void without recourse of the parties hereto.

13. BUYER'S ELECTION TO ACCEPT TITLE AND CONDITION. In addition to such other remedies available to Buyer under this Agreement, Buyer shall have the election to accept such title to the Premises in its then condition as Seller can deliver and to pay therefor the purchase price without deduction, in which case, Seller shall convey such title or deliver the Premises in such condition, except that in the event of such conveyance in accordance with the provisions of this clause the Premises shall have been damaged by fire or casualty insured against, then Seller shall, unless Seller have previously restored the Premises to its former

condition, and at Buyer's express election, pay over or assign to Buyer, on delivery of the deed, all amounts recovered or recoverable on account of such insurance, less any amounts reasonably expended by Seller for any partial restoration.

14. ACCEPTANCE OF DEED. The acceptance of the Deed and other transfer documents by Buyer shall be deemed to be a full performance and discharge of every agreement and obligation herein contained or expressed, except such as are, by the terms and conditions hereof, to be performed after the delivery of said documents or to otherwise survive the Closing hereunder.

15. USE OF PURCHASE MONEY TO CLEAR TITLE. To enable Seller to make conveyance as herein provided, Seller may, at the time of delivery of the Deed and other transfer documents, use the purchase money or any portion thereof, to clear the title of any or all encumbrances or interests, provided that all instruments so procured are recorded simultaneously with the delivery of said Deed and other transfer documents.

16. RISK OF LOSS. Until delivery of possession of the Premises from Seller to Buyer, risk of loss or damage to Premises by fire or otherwise shall be on Seller.

17. ADJUSTMENTS. All utilities shall be transferred to the Buyer as of the date of closing and the Seller shall be responsible for any utility charges prior to the date of closing, if any. The Buyer and Seller will each pay its share of the real estate transfer tax due on the sale as provided by law.

18. ADJUSTMENT OF UNASSESSED AND ABATED TAXES. Real estate taxes and any other municipal charges and assessments will be prorated as of the date of closing.

19. BROKERAGE. Seller and Buyer each represent and warrant to the other that no brokers, agents or consultants have been employed with respect to this transaction by either of them other than the following: Malone Commercial Brokers (acting through Seller). The commission and/or compensation of Malone Commercial Brokers shall be paid by Seller. Seller and Buyer agree to indemnify and hold the other harmless from any claim by any other broker or agent claiming compensation in respect of this transaction, alleging an agreement with Seller or Buyer, as the case may be. This agreement to indemnify and hold harmless shall survive the Closing.

20. DEFAULT. Should Seller fail to fulfill Seller's obligations hereunder, Buyer may elect to receive a refund of the Deposit, or to pursue all available remedies, including specific performance and reasonable attorney's fees. Should Buyer fail to fulfill Buyer's obligations hereunder, Seller shall retain the Deposit as liquidated damages as Seller's sole and exclusive remedy at law or in equity for Buyer's default without further recourse to Buyer and Buyer shall be relieved of all obligations hereunder.

21. SELLER'S WARRANTIES AND REPRESENTATIONS. Seller warrants and represents as of the date of execution by Seller of this Agreement and as of each date through and including the Closing that:

(a) That, to the best of Seller's knowledge, the information set forth in any property disclosures delivered by Seller to Buyer in connection with the delivery of this Agreement is accurate and complete;

(b) There is the best of Seller's knowledge, no hazardous or toxic wastes, substances, matters or materials, including but not limited to any material defined as hazardous or toxic from time to time by applicable state, local and federal law, are stored or otherwise located on the Premises or any adjacent property owned by Seller; and

In the event that changes occur as to any warranties and representations set forth in this Agreement, of which Seller has knowledge, Seller will immediately disclose same to Buyer when first available to Seller.

22. SELLER'S OBLIGATION TO PROVIDE DOCUMENTS.

Within ten (10) business days of the Effective Date, Seller shall provide access to Buyer of all documents (paper or electronic) in Seller's possession that could assist Buyer in the development of the Premises, including without limitation surveys, drawings, environmental reports, engineering reports, easements and any agreements affecting the Premises, together with any copies requested by the Buyer.

23. ASSIGNMENT. The rights and obligations of Buyer under this Agreement may be assigned, in whole or in part, by Buyer to an entity in which one of more of the principals of Buyer controls the entity or the entity's general partner, provided that such assignee agrees to assume all of Buyer's obligations hereunder not specifically retained by Buyer. The rights and obligations of Seller under this Agreement may not be assigned without the written consent of Buyer.

24. EXCLUSIVITY. Subject to the terms in Paragraph 2 above, Buyer shall have the exclusive right to purchase a portion of Lot 7 until the date that is 120 days after the Effective Date, and during such period the Seller shall not, directly or indirectly, engage in discussions or negotiations with any other person or entity relating to the sale, lease, or other disposition of all or any portion Lot 7.

25. MISCELLANEOUS.

(a) This Agreement shall be binding upon and inure to the benefit of the heirs, personal representatives, successors and assigns of the parties.

(b) Any notice relating in any way to this Agreement shall be in writing and shall be sent by (i) registered or certified mail, return receipt requested, (ii) overnight delivery by

a nationally recognized courier, or (iii) hand delivery obtaining a receipt therefor, addressed as follows:

| | |
|---|---|
| To Seller: | HERITAGE VILLAGE DEVELOPMENT GROUP, LLC<br>2341 Harbour Oaks Drive,<br>Longboat Key, Florida, 34228 |
| With copy to: | Philip H. Gleason, Esq.<br>24 Hillside Ave.<br>Cumberland, Maine 04021 |
| To Buyer. | SZANTON MONKS PROPERTIES, LLC<br>c/o The Szanton Company<br>10 Free Street, 3rd Floor<br>Portland, ME 04101<br>Attn: Nathan S. Szanton |
| With copy to: | John S. Kaminski, Esq.<br>Drummond Woodsum & MacMahon<br>84 Marginal Way, Suite 600<br>Portland, Maine 04101-2480 |

and such notice shall be deemed delivered when so posted in the case of notice by certified mail, the next business day in the case of notice by overnight courier and the business day when delivered in the case of notice by hand delivery. Either party may, by such manner of notice, substitute persons or addresses for notice other than those listed above.

(c) All paragraph headings in this Agreement are for convenience of reference only and are of no independent legal significance.

(d) This Agreement may not be modified, waived or amended except in a writing signed by the parties hereto. No waiver of any breach or term hereof shall be effective unless made in writing signed by the party having the right to enforce such a breach, and no such waiver shall be construed as a waiver of any subsequent breach. No course of dealing or delay or omission on the part of any party in exercising any right or remedy shall operate as a waiver thereof or otherwise be prejudicial thereto.

(e) Any and all prior and contemporaneous discussions, undertakings, agreements (including without limitation any prior Agreements or Memorandums of Agreement previously executed by the parties hereto) and understandings of the parties are superseded by and merged in this Agreement, which alone fully and completely expresses their entire agreement.

(f) This Agreement may be simultaneously executed in any number of counterparts, each of which when so executed and delivered shall be an original, but such counterparts shall constitute one and the same instrument. This Agreement may be transmitted between the parties by DocuSign, facsimile machine and signatures appearing on faxed or emailed instruments shall be treated as original signatures. Docusigned, faxed or emailed Agreement containing either original or faxed or emailed signatures of all parties, and multiple counterparts of the same Agreement each containing separate original or faxed or emailed signatures of the parties, shall be binding on them.

(g) If any term or provision of this Agreement or the application thereof to any person or circumstances shall, at any time or to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such term or provision to persons or circumstances other than those as to which this Agreement is held invalid or unenforceable, shall not be affected thereby, and each term and provision of this Agreement shall be valid and be enforced to the fullest extent permitted by law.

(h) It is expressly understood and agreed that time is of the essence in respect of this Agreement.

(i) This Agreement shall be governed by and construed and enforced in accordance with the laws in effect in the State of Maine.

IN WITNESS WHEREOF, Buyer and Seller have executed this Agreement as of the dates hereinafter set forth.

WITNESS:

SZANTON MONKS PROPERTIES, LLC

By: Nathan Szanton
Its: Manager

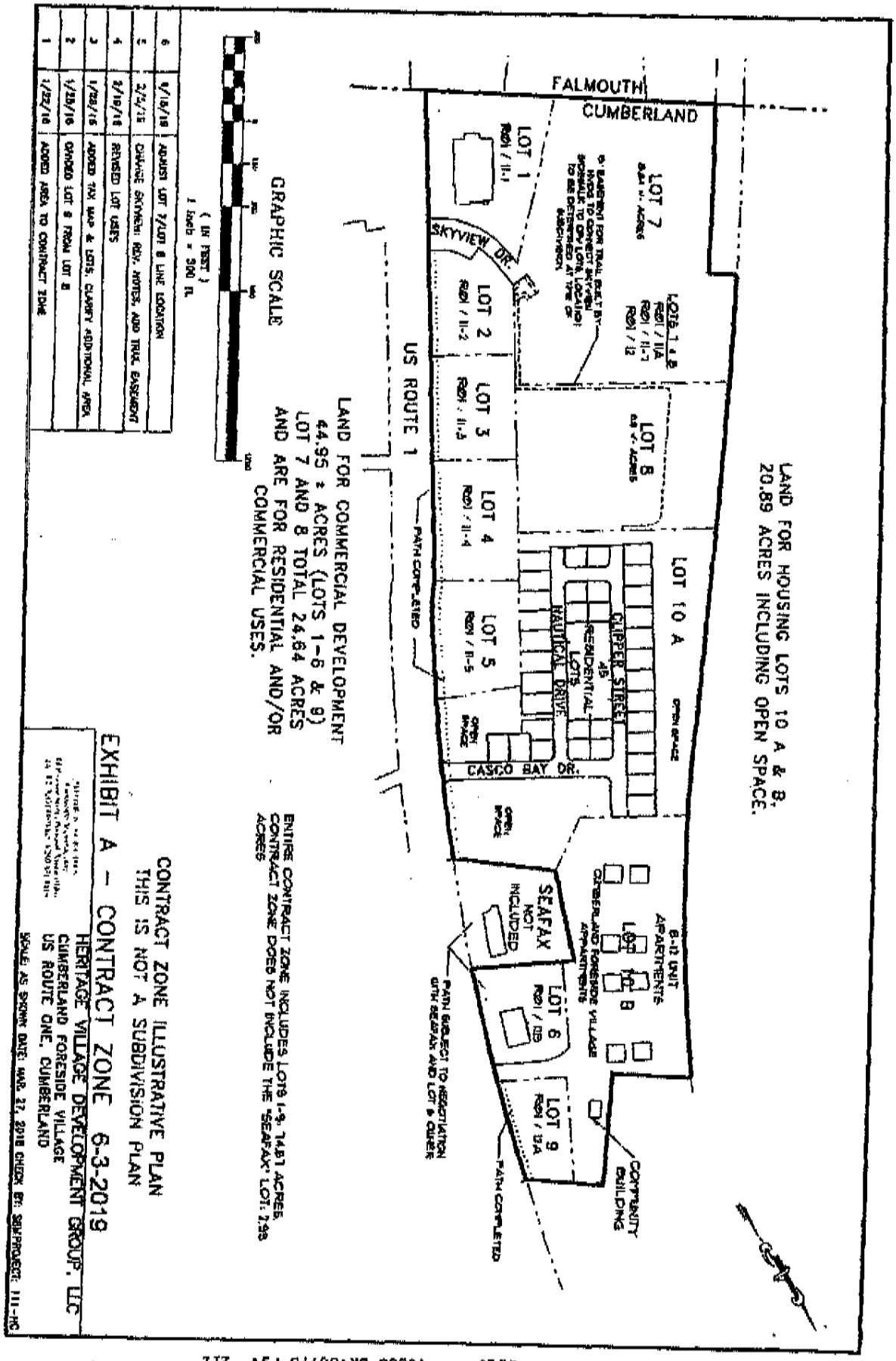
Date of Buyer's execution of this Agreement: April 22, 2022.

WITNESS:

HERITAGE VILLAGE DEVELOPMENT GROUP, LLC

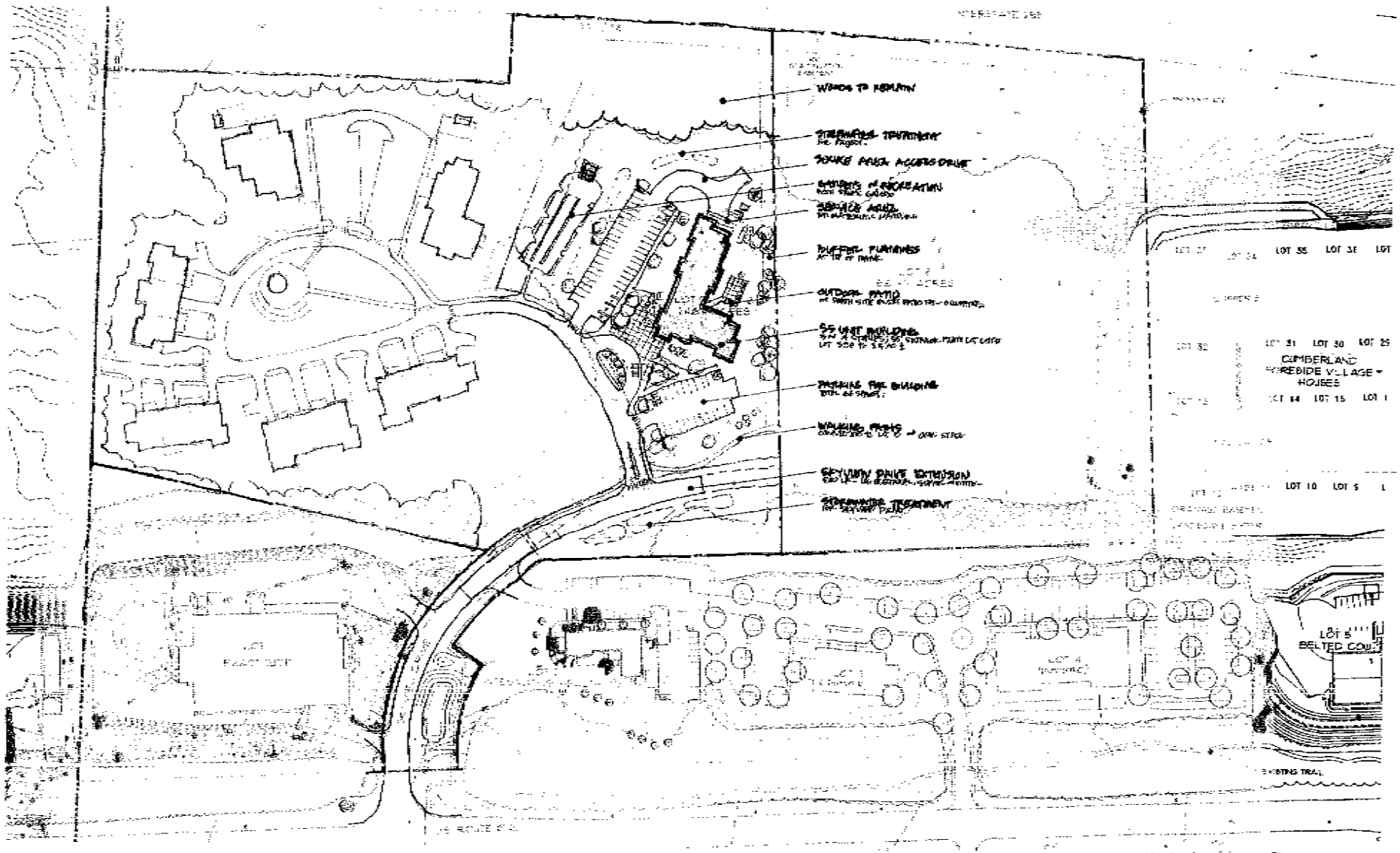
By: Peter Kennedy
Its: President

Date of Seller's execution of this Agreement: April 26, 2022.




| | | |
|---|---|---|
| 6 | 4/18/19 | ADJUST LOT 7/LOT 8 LINE LOCATION |
| 5 | 2/4/19 | CHANGE SKYVIEW; REV. NOTES; ADD TRAIL EASEMENT |
| 4 | 8/18/18 | REVISED LOT USES |
| 3 | 1/28/18 | ADDED TAX MAP & LOTS; CLARIFY ADDITIONAL AREA |
| 2 | 1/25/18 | CHANGED LOT 8 FROM LOT B |
| 1 | 1/22/18 | ADDED AREA TO CONTRACT ZONE |

Exhibit A




Per OZA Filing Amendment Language

## Lot Division Plan

U.S. Route One, Cumberland, Maine
Heritage Village Development Group, LLC

LOT DEVELOPMENT STUDY
STANTON MONROE PROPERTIES, LLC
APRIL 2022
HERITAGE VILLAGE DEVELOPMENT GROUP, LLC

WALSH

# Section D

## 200 Foot Radius Abutter List

STATE OF MAINE
DIV 24 STATE HOUSE STATION
AUGUSTA, ME 04333

HARDY, STREET, LLC
70 SUNSET PARK RD
ELLSWORTH, ME 04605

INTEGRATIVE, HEALTH CENTER OF ME
15 SKYVIEW DR, UNIT 1
CUMBERLAND FSDE, ME 04110

15 SKYVIEW HOLDINGS, LLC
15 SKYVIEW DR, SUITE 101
CUMBERLAND FSDE, ME 04110

LOLA IN PEARLS, LLC
12 RAILROAD ST
NEWPORT, ME 04953

ELIKRIS, REALTY LLC
11 COLEMAN WAY
FALMOUTH, ME 04105

BELTED COW REALTY LLC
42 US ROUTE 1, SUITE 2
CUMBERLAND FSDE, ME 04110

CUMBERLAND FORESIDE, VILLAGE HOMEOWNERS ASSOCIATION
190 US RTE 1, PMB 3197
FALMOUTH, ME 04105

IVES, ELIZABETH R
18 NAUTICAL DR
CUMBERLAND FSDE, ME 04110

BELL, RONNIE-LYNN
20 NAUTICAL DR
CUMBERLAND FSDE, ME 04110

MCKENNEY, PETER C
639 GUILD DR.
VENICE, FL 34285

MAGEE, RHION
26 CLIPPER ST
CUMBERLAND FSDE, ME 04110

YOUNG, KIMBERLY
25 CLIPPER ST
CUMBERLAND FSDE, ME 04110

PAYNE, ERIC M
23 CLIPPER ST
CUMBERLAND FSDE, ME 04110

# Section E

## Financial & Technical Capacity

# E. Technical Capacity

Please find attached descriptions and examples of technical capacity for The Szanton Company and Acorn Engineering.

**White Rock Terrace**

In the last 19 years, The Szanton Company has developed 11 buildings located in Portland, Biddeford, Lewiston, Auburn, Bath, Maine and Exeter, New Hampshire. There are a total of 560 apartments in these 11 buildings. There are 2 additional buildings in under construction and 3 in pre-development including White Rock Terrace.

All of these buildings have been developed using MaineHousing's Low Income Housing Tax Credit Program. Under this program MaineHousing awards Low-Income Housing Tax Credits that are sold for equity providing funds for construction. Additionally, MaineHousing provides subsidy and a mortgage for funding.

The Szanton Company plans to use this same model in the development of White Rock Terrace. Our pre-application was submitted to MaineHousing in October of 2022 to be awarded tax credits. Additionally, an application was submitted to the Cumberland County HOME Consortium for an award of HOME funds

Statement of Financial Capacity

The total project budget is approximately $19,000,000. Financing sources are projected as follows:

After Occupancy

| Amount | Source | Description / Notes |
|---|---|---|
| $6,418,000 | Low-Income Housing Tax Credit (LIHTC) Equity | An application has been submitted to the MaineHousing 4% PLA program in October 2022.<br><br>MaineHousing allocates the right to take these tax credits, which are spaced out over ten years. These tax credits are sold to investors and the proceeds are used as equity to pay for the construction and other costs of the development.<br><br>We have a long standing relationship with Evernorth, as an investor in this type of project through the purchase of LIHTC. |
| $6,490,000 | Low-Income Housing Subsidy | Subsidy from MaineHousing that is tied to the allocation of LIHTCs. |
| $4,912,000 | MaineHousing debt | An interest-bearing mortgage on the property and improvements from MaineHousing. |
| $600,000 | HOME Funds through the Cumberland County Consortium | Deferred loan from the Cumberland County HOME Consortium County HOME Funding. We applied for this source in 2022. |

During Construction

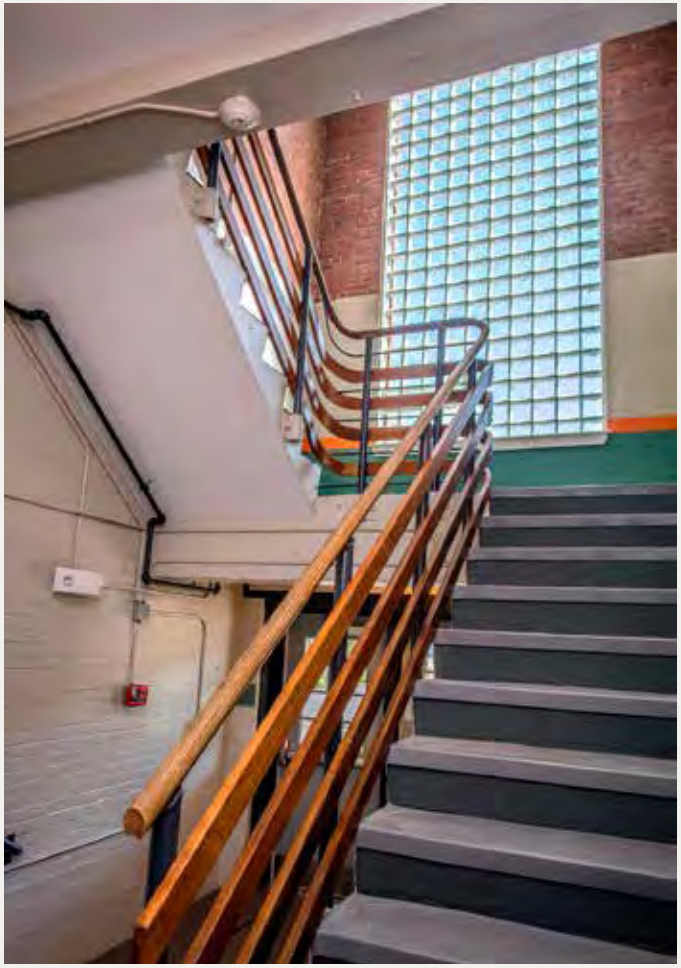
Note: total amount needed during construction is approximately $17,000,000, which is the portion of the total budget required during construction. This total does not include approximately $2,000,000 that is paid at permanent loan closing, including a portion of developer fees; tax/insurance reserves; operating reserves; rent-up reserves; capital replacement reserves; and tax credit monitoring fees.

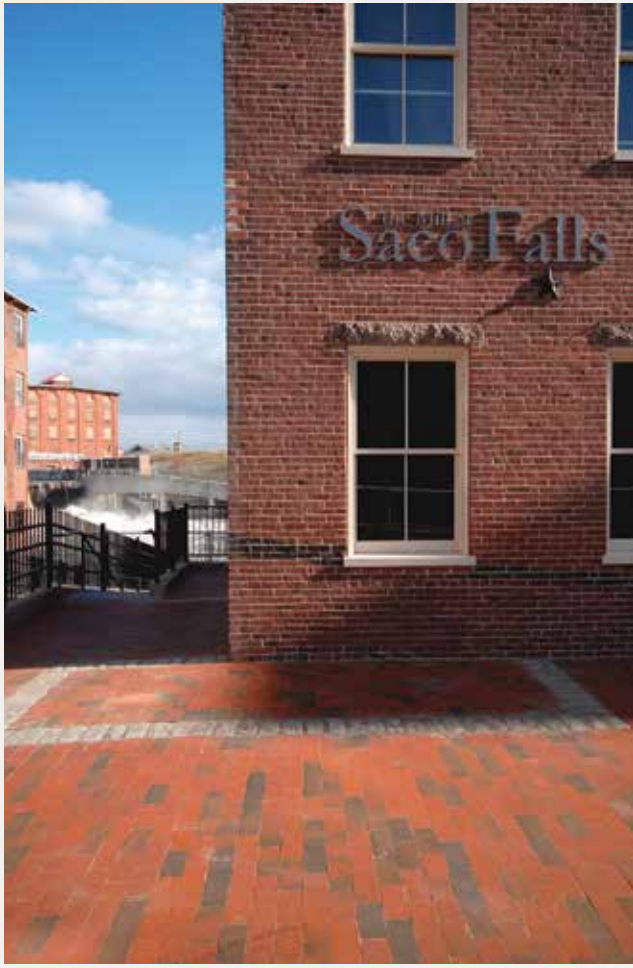
| **Amount** | **Source** | **Description / Notes** |
|---|---|---|
| $12,000,000 | Construction Loan from Bank (letter of interest to be obtained as part of tax credit application) | Construction loan for the duration of construction and lease-up, typically 13-15 months. |
| $1,300,000 | Low-Income Housing Tax Credit Equity | A portion of the tax credit equity is contributed during construction, per IRS rules. |
| $3,245,000 | MaineHousing Subsidy | 50% of their total award is available for construction financing. |
| $600,000 | HOME Funding | We will ask for the County to provide the project the HOME funding for construction financing. |

THE SZANTON COMPANY

an Affiliate of the Monks Companies


41 STATE STREET




Saco Falls

# ABOUT THE SZANTON COMPANY

The Szanton Company, an affiliate of the Monks Companies, specializes in developing mixed-income rental housing in or near downtowns. We have completed eight apartment projects in Maine and New Hampshire totaling 393 units.

The mission of The Szanton Company is to create attractive and affordable rental housing that our residents are proud to call home. We do this by:

- Creating beautiful apartments of high quality in locations in or near downtowns, adding vitality to our cities and towns;
- Developing properties which provide a consistent, long-term return to their owners, thus ensuring their stability for residents, lenders, and neighborhoods;
- Serving people with diverse incomes;
- Creating amenities for our residents which enhance the quality of their lives;
- Incorporating environmental and energy sustainability in our properties, thereby reducing their impact on the earth's environment.

The Szanton Company is committed to long-term ownership of our apartment assets. In 2013, we founded Saco Falls Management, our property management arm, to ensure the highest standards of visual appearance and livability for our residents, neighbors, and communities.

Rooftop solar panels at 53 Danforth


## PRINCIPALS & STAFF

### NATHAN SZANTON, PRESIDENT

Nathan founded the company in 1996. Since then he has been responsible for developing 617 apartment units in 24 projects. As manager or principal partner in these projects, Nathan has successfully navigated the process of market research, site acquisition, design, regulatory approvals, financing, construction, and marketing.

He has committed himself to creating comfortable and affordable rental homes for residents with diverse incomes. Some of these have been adaptive reuses for underused historic buildings; others have been thoughtfully designed new construction. Nathan holds a B.A. from Harvard University and a J.D. from the University of Maine School of Law.

### ROBERT C.S. MONKS, PRINCIPAL

Robert C.S. Monks is an active capital partner and also provides a deep understanding of real estate development and financing. Throughout his career he has founded, led, and grown 19 businesses in the financial services, real estate, technology and communications sectors.

In 2011, Bobby became an owner and Chairman of Spinnaker Trust, a Maine based trust company managing over $1 billion in assets. Bobby attended Duke University and graduated from the University of Southern Maine with a Bachelor's Degree in Political Science.

*Above:* Walker Terrace
*Left:* The Mill at Saco Falls

*Facing Page:* The Lofts at Bates Mill

## AMY CULLEN, VICE PRESIDENT AND PROJECT PARTNER

Amy joined The Szanton Company in 2006. Her responsibilities include: discovering new project locations, creating financing packages, and working with all development team members to help projects come to life.

Amy also serves as president of our sister company, Saco Falls Management, where she oversees all operations.

Prior to joining The Szanton Company, Amy was on active duty with the U.S. Army for six years, and served as a Training Program Manager for the Department of Defense in Minneapolis, MN. She holds a Bachelors of Science Degree in Accounting from Husson University.

## KRISTIN MARTIN, DEVELOPMENT OFFICER

Kristin joined our company in 2013. Her responsibilities include finding and researching sites for new projects, preparing financial analyses, and evaluating development options. She coordinates with lenders, attorneys, architects, engineers, contractors and others on all aspects of The Szanton Company's development projects from concept to completion.

Prior to joining The Szanton Company as a Development Officer, Kristin worked for Saco Falls Management as an Assistant Development Officer, Property Manager and Director of Property Management. She holds a Bachelor of Health Science and a Masters of Occupational Therapy from Quinnipiac University.

# ABOUT SACO FALLS MANAGEMENT

## HISTORY

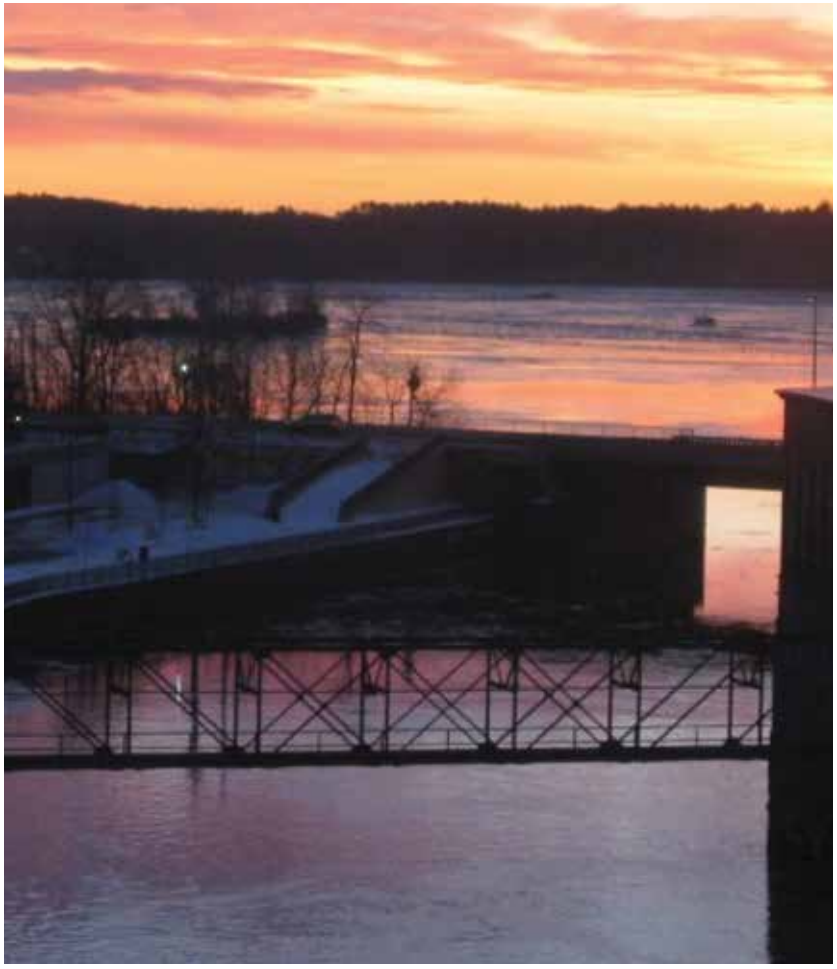
Saco Falls Management is a full-service management company formed by The Szanton Company in 2013 to manage its rental properties, both residential and retail. Since then, the physical condition of the buildings has improved, tenant satisfaction has increased, and the profitability of the properties has grown. We are committed to managing our properties for the long-term with the highest sense of responsibility to our residents, financial partners, and host communities.

## OUR MISSION

Our mission is creating rental properties that exceed expectations. We are guided by the following core values: honesty, integrity, candor, high standards of quality, respect for all with whom we deal, openness to new ideas, and a culture of continuous learning and enhancement of our knowledge and skills.

Walker Terrace

SACO FALLS MANAGEMENT



View from an apartment at The Mill at Saco Falls

## RESIDENT SELECTION

Saco Falls Management Company complies with all state, local, and federal laws regarding fair housing practices or occupancy and resident selection procedures. In addition to program-specific requirements, all adult applicants are screened by our management staff. To be considered for residency at one of our properties, all applicants must have:

- References from prior landlords that show a history of good tenancy. This includes paying rent on time, keeping their unit in good repair and being a good neighbor by following the community rules.
- A favorable credit report.
- An absence of criminal history. We run a criminal background check on all applicants. Any applicant with a history of public disturbances, arrests, criminal activity, listing on the sex offender registry or other law enforcement problems that may indicate behavior inconsistent with lease obligations will be denied.

# CASCO TERRACE

41 STATE STREET, PORTLAND, MAINE

*Above Left:* Casco Terrace, after. *Right:* Casco Terrace, before

*Facing page: Top:* Casco Terrace from State Street
*Bottom:* Casco Terrace interior

## "...CITY OFFICIALS SAY THE STATE-FINANCED PROJECT IS THE KIND OF DEVELOPMENT PORTLAND NEEDS..." —*Portland Press Herald*

CASCO TERRACE is a 27-unit vertical addition on an existing 27-car parking garage (see before and after photos opposite). The pre-construction newspaper story below describes the project's highlights and the need it addresses in a city desperate for affordable housing.

From the *Portland Press Herald*, May 28, 2003:

"It began as one of the first parking garages in Portland, at a time when few people owned cars …

…City officials say the state-financed project is the kind of development Portland needs to help stem suburban sprawl and provide affordable rental housing for its workforce. They also give it high marks for being attractive and practical, and making the most of an under-used lot with desirable views of the waterfront.

…'It's a project with a lot going for it', said Mark Adelson, Executive Director, Portland Housing Authority."


YEAR COMPLETED: 2004
UNITS: 27 (14 Market-Rate + 13 Income-Restricted)
ARCHITECT: Archetype, P.A.
CONSTRUCTION MANAGER: Wright-Ryan Construction
FINANCING: MaineHousing and TD Bank

# THE HARTLEY BLOCK

155 LISBON STREET, LEWISTON, MAINE




*Above:* The Hartley Block
*Left:* Historic images of same location

*Facing Page Top:* The Hartley Block façade
*Facing Page Bottom:* Before construction

## "WE ARE THRILLED THAT THE SZANTON COMPANY WILL BE REINFORCING OUR DOWNTOWN HISTORIC AND COMMERCIAL CORRIDOR BY BUILDING THIS IMPORTANT PROJECT."

—Lewiston Mayor Shane Bouchard

THE HARTLEY BLOCK brings new life to a prominent 175' x 100' empty lot on downtown Lewiston's Lisbon Street. In 2004 and 2006, four connected historic buildings on Lisbon Street suffered extensive fire damage and were condemned and demolished, leaving a gaping hole in the city's most iconic street. One of the buildings was the site of the 1906 art studio of Marsden Hartley, an important early modern American painter born and raised in Lewiston.

A mixed-use, mixed-income project, The Hartley Block features 63 apartments aimed at a diversity of income groups and 4,000 sq. ft. of retail space along Lisbon Street. The project includes a fitness center, community room, children's playroom, dedicated bike storage, wi-fi and covered parking directly behind the building. The site is within easy walking distance of the public library (across the street), shops, restaurants, cafes, and two major parks.

This project adds momentum to downtown Lewiston's resurgence, including street-level public art at the entrance. Two 9-foot mosaic tile works, after Marsden Hartley paintings, animate its façade.

YEAR COMPLETED: 2019
UNITS: 63 (22 Market-Rate + 41 Income-Restricted)
ARCHITECT: Platz Associates
CONSTRUCTION MANAGER: Hebert Construction
FINANCING: MaineHousing; TD Bank; Northern New England Housing Investment Fund; City of Lewiston.

# 48 HAMPSHIRE

48 HAMPSHIRE STREET, AUBURN, MAINE


Located at the corner of Hampshire and Troy Streets, 48 HAMPSHIRE will aid the revitalization of downtown Auburn's important Hampshire Street corridor by bringing 53 high-quality new apartments to the neighborhood.

These will be a mixture of one, two and three-bedroom units, varying in size from 590-950 square feet. Included in the rent are heat and hot water, off-street parking, wi-fi, fitness center, community room and indoor bike storage.

48 Hampshire is located within easy walking distance of the public library, YMCA, shops, restaurants, grocery store, drugstores, and all the amenities of downtown Auburn.

The Szanton Company broke ground in March 2019 and expects to open to residents in April 2020.

*Above:* Rendering of completed project
*Left:* Same location, prior to construction

**"We are looking forward to watching yet another major construction project in our downtown take shape — one that will provide quality workforce housing, inject capital into our local economy, and enhance the image of Auburn as we become the best small city in New England"**

—Auburn Mayor Jason Levesque

*Above:* Rendering of East elevation

PROJECTED COMPLETION: 2020
UNITS: 53 (11 Market-Rate + 42 Income-Restricted)
ARCHITECT: Platz Associates
CONSTRUCTION MANAGER: Benchmark Construction
FINANCING: MaineHousing; Boston Financial;
NBT Bank; City of Auburn.

# THE FURMAN BLOCK

100 PARRIS STREET, PORTLAND, MAINE

*Above:* Rendering of completed project, from corner of Kennebec and Brattle Streets

*Right:* Before construction, Nathan Szanton and Amy Cullen on project site

## "I THINK THIS IS THE NEXT BIG STEP IN CREATING A MULTI-USE NEIGHBORHOOD IN THIS PART OF BAYSIDE. IT'S PRETTY EXCITING TO GET THIS MOVING."

*—Portland City Councilor David Brenerman*

THE FURMAN BLOCK is The Szanton Company's first mixed-income project specifically for seniors, ages 55 and over. Located in the heart of Portland's West Bayside neighborhood, it's a short walk to Whole Foods and Trader Joe's, small restaurants and delis, the 3.5 mile trail that loops around Back Cove and a few blocks from downtown Congress Street's arts, business, and shopping district.

The property will feature 46 1-bedroom and five studio apartments. Some residents will have water views of Back Cove; others will enjoy views of Deering Oaks Park or Portland's downtown. All will have abundant natural light. Included in rent are heat and hot water, a fitness center, indoor bike storage and wi-fi. The property also features a community room and coin-op laundry. The street-level commercial space, to be owned and managed by Ross Furman, will be a combination of artists' studios and gallery space.

Repurposing an empty gravel lot at the corner of Parris and Kennebec Streets, The Furman Block contributes to the revitalization of this former industrial neighborhood.

PROJECTED COMPLETION: 2020
UNITS: 51 (11 Market-Rate + 40 Income-Restricted)
ARCHITECT: Archetype, P.A.
CONSTRUCTION MANAGER: Hebert Construction
FINANCING: MaineHousing; Northern New England Housing Investment Fund; City of Portland.

*Above:* Rendering of completed project, from corner of Kennebec and Parris Streets

# REFERENCES

**AUBURN**

PETER CRICHTON
City Manager
207-333-6601, pcrichton@auburnmaine.gov

MICHAEL CHAMMINGS
Director of Economic and Community Development
207-333-6601, mchammings@auburnmaine.gov

**BATH**

PETER OWEN
City Manager
207-443-8330, powen@cityofbath.com

**BIDDEFORD**

JOHN BUBIER
Former City Manager
207-846-1515, john.bubier@gmail.com

ALAN CASAVANT
Mayor
207-284-4690, acasavant@biddefordmaine.org

GREG TANSLEY
City Planner
207-284-9115, gtansley@biddefordmaine.org

**EXETER**

RUSSELL DEAN
Town Manager
603-773-6102, rdean@exeternh.gov

DOUG EASTMAN
Building Code Enforcement Officer
603-773-6113, deastman@exeternh.gov

**LEWISTON**

ED BARRETT
City Administrator
207-513-3200, ebarrett@lewistonmaine.gov

DAVID HEDIGER
Director of Planning and Code Enforcement
207-513-3222, dhediger@lewistonmaine.gov

LINCOLN JEFFERS
Director of Economic and Community Development
207-513-3014, ljeffers@lewistonmaine.gov

**PORTLAND**

MARY DAVIS
Director of Housing and Community
Development Division
207-874-8711, mpd@portlandmaine.gov

JILL DUSON
City Councilor
207-878-0769, jduson@portlandmaine.gov

NICK MAVODONES
City Councilor
207-774-0257, nmm@portlandmaine.gov

# ACORN ENGINEERING, INC.

## COMPANY PROFILE

Acorn Engineering, Inc. is a Portland-based civil and environmental engineering firm of nine full-time employees and four construction inspectors. Acorn's team has a diverse portfolio providing Maine with quality engineering and environmental services as well as state-wide construction administration on behalf of the Maine Department of Transportation.

A cornerstone of Acorn Engineering is the attention to quality and exceptional level of service on every project, regardless of size. Our engineers and scientists pride themselves on their extensive experience, which is backed by a broad knowledge of civil and environmental engineering practices from smaller residential projects to larger commercial projects that integrate environmental assessment and site redevelopment.

Acorn Engineering has demonstrated the ability to breakdown and synthesize widely disseminated regulations into accepted engineering practices and practical site assessment and development. As a result of Acorn's efforts, the Cumberland County Soil & Water Conservation District recently recognized Acorn as the Contractor of the Year. This was the first award associated with the nationally recognized Long Creek Restoration Project and the first time the Cumberland County Soil & Water Conservation District ever recognized an engineering firm as their Contractor of the Year.

Acorn's expertise covers the areas of: civil/site design, evaluation, development, and permitting; and construction phase services such as construction administration, construction documents, project bidding, and site inspection including erosion and sedimentation control. Acorn's experience also includes the field of environmental engineering and compliance such as: Phase I and Phase II environmental site assessments, soil and groundwater remediation planning and design; Maine's Voluntary Response Action Program (VRAP); and stormwater treatment system design and permitting.

Acorn's engineers have designed, permitted, and overseen construction on numerous single-family and multifamily residential projects including traditional subdivision designs featuring on-site sewage/septic disposal and drilled wells. Furthermore, Acorn has demonstrated extensive experience and capabilities with municipalities, the Maine Department of Transportation (MDOT), Maine Department of Environmental Protection (MDEP), soil & water conservation districts, conservation commissions, municipalities, and the private sector on environmental and site development projects as demonstrated by the following:

- Listed on Maine DEP's Pre-Qualified Vendor List for Environmental Consulting Services
- Listed on Maine DOT's Pre-Qualified Consultants for eight service areas (listed under Section I.D)
- Cumberland County Soil & Water Conservation District Contractor of the Year for work on the Long Creek Restoration Project

- **Public Works Redevelopment – Meeting House Hill**

Over the past two years, Acorn Engineering has worked in close association with the City of South Portland, neighbors, and private clients on the re-development of the former Public Works facility. The 6-acre site is nestled in the middle of the Meeting House Hill residential neighbor-hood and is currently a mix of storage buildings, fuel fill stations, miscellaneous stockpiles, and pavement. The site will be redeveloped into a mix of multifamily townhomes and single-family dwellings comprising 38 units along with a public park and community gardens.

In addition to the environmental remediation, Voluntary Response Action Program (VRAP), and other environmental considerations given the previous land use, the project is subject to a Maine DEP stormwater management law. The redevelopment design results in a reduction in impervious area of over 50% and reduces land use intensity across the site. Though not required, several stormwater BMP's have been implemented into the site as a best practice, further attenuating and treating stormwater runoff. In addition to the significant redevelopment plan, Acorn has designed an infrastructure plan to separate the storm and sewer mains. This will include installing 400 feet of new storm drain along the existing O'Neil Street right-of-way and 700 feet of new storm drain along the proposed O'Neil Street right-of-way extension. Overall, this effort will reduce the effects of combined sewer overflows (CSO) into Casco Bay which occur due to wet-weather events and the wastewater treatment plant's inability to provide capacity for both storm and sanitary sewer flows.

As part of this project, Acorn held a multitude of meetings with the City including the assistant City manager, the former Mayor, the entire planning division, and the chief engineer of Public Works. Furthermore, Acorn has collaborated with department heads of the Fire, Parks, Public Works, and Water Resource departments to ensure a feasible and ideal project for all parties. As a result, the process was truly a collaborative effort with a number of stakeholders weighing in on the design.

- **Munjoy Heights**

Acorn provided civil/site engineering and permitting for the design of Munjoy Heights – a six townhome, 29-unit development on the steep slopes of Munjoy Hill in the City of Portland. Acorn designed and developed construction drawings for the sanitary sewers, storm drains, water mains, driveways and pedestrian circulation, retaining wall locations, building locations, and drainage infrastructure to be built in compliance with City standards.

A key component to the project was coordinating with the City on the future combined sewer separation project and the site's overall stormwater management. Additionally, discussions with neighbors and stakeholders were paramount in the project's success.

The innovative urban infill project compliments the Munjoy Hill neighborhood with a communal design and plentiful native landscaping that replaced invasive species which previously dominated the eroding banks prior to the development. The $22 million project features a courtyard, terraced landscaping, a Portland Trails-maintained path that connects the redevelopment to the existing trail system, and low impact development (LID) techniques that meet MDEP Chapter 500 regulations. The stormwater management includes an underdrained sand filter and chambers that detain and treat stormwater on site in tandem with strategically placed rain gardens.

The project required extensive coordination and collaboration between the client, City of Portland, Portland Trails, the structural engineer, the architect, and the contractor to successfully complete the project with the first "woonerf" in the state and maintaining the existing public walking path through the property.

# ACORN ENGINEERING, INC.

## REPRESENTATIVE PROJECTS

- **200 Valley St**


Working with Avesta Housing, Acorn Engineering provided civil engineering and permitting for Avesta's 60-unit project in the St. John Valley neighborhood. This urban infill project replaces the existing single-family house and abutting vacant lots into new affordable housing opportunities with two levels of covered parking, amenities, and a rebuilt project frontage with new sidewalks, street trees, and bicycle hitches.

As part of the project, Acorn developed a transportation and parking analysis to ensure that the provided parking will adequately serve the redevelopment. Furthermore, the design team identified and implemented multiple strategies to encourage residents to efficiently utilize the many modes of transportation available on the Portland peninsula.

- **Little Dolphin Drive & Jocelyn Place**

In collaboration with the South Portland Housing Authority and Risbara Holdings, Acorn provided civil engineering design and permitting of a multi-use subdivision at the end of Little Dolphin Drive in Scarborough. Proposed uses include a two-story office building and a three-story 60-unit senior housing facility with associated parking and landscaped areas.

In addition to a voluntary neighborhood meeting, the project went through a 3-step master plan phase with the Town of Scarborough in which the project was collaborated on with Planning Staff, the Planning Board, and neighbors.

The project is subject to Maine DEP and US Army Corps permits. To adequately treat stormwater on the site, Acorn has designed multiple stormwater BMPs meeting Maine DEP Chapter 500 regulations resulting in a low impact design.

65 Hanover St., Portland, ME 04101 207-775-2655 info@acorn-engineering.com

- **89 Anderson Street**

In collaboration with Redfern properties and the East Bayside neighborhood, Acorn developed the civil/site engineering design of a mixed use 53-unit redevelopment of an existing under-utilized, urban infill lot in the East Bayside neighborhood. Acorn's scope of services included in the initial phase applying for and obtaining a zone change and conducting Phase I and Phase II Environmental Site Assessments to evaluate potential environmental contamination at the site.

After conducting the environmental remediation efforts, Acorn developed the site layout and design of sanitary sewers, storm drains, water mains, site driveway, retaining wall locations, building locations, parking lot design, building drainage structures, utility connections and landscaping plan (with a landscape architecture subconsultant) to meet the City of Portland Technical Standards. Acorn also integrated sidewalk and improvements associated with the project into the City's Anderson Street ByWay project. Furthermore, the project team worked with a non-profit organization, the Telling Room, to provide public art along the Fox Street streetcape in lieu of traditional fencing.

Overall, the project established an important mixed use building on a prominent corner lot adjacent to Kennedy Park which contains popular recreation space. The building houses a restaurant and the Gear Hub bicycle school on the first floor with residential apartments above which encourages an active street presence with housing, goods, and services that help tie the neighborhood together and keep eyes on the street.

- **667 Congress Street – The Hiawatha**

The $28 million project included the civil/site engineering design for the 8-story, first floor retail and 139-unit apartment building on Congress Street in Portland. Vehicle parking is served by two levels with separate access from Vernon and Avon St. The project featured building and site design in an historic district adjacent to Longfellow Square.

Services included, but is not limited to, permitting with the City of Portland, layout and design of sanitary sewers, storm drains, water mains, pedestrian and vehicle entrances, building locations, parking lot design, and parking garage grading and drainage. Acorn provided significant coordination between the Architect, Structural Engineer, Geotechnical Engineer, Construction Management Company, Owner, and the City.

# Section F

## Solid Waste

# F. Solid Waste Disposal

The property management company or Owner shall be responsible for locating the solid waste and recyclable material to the space allocated for solid waste storage as noted on the Site Plan (C-10).

The solid waste containers will be fully enclosed and screened from the public view.

# Section G

## Stormwater Management

A C O R N
ENGINEERING, INC.

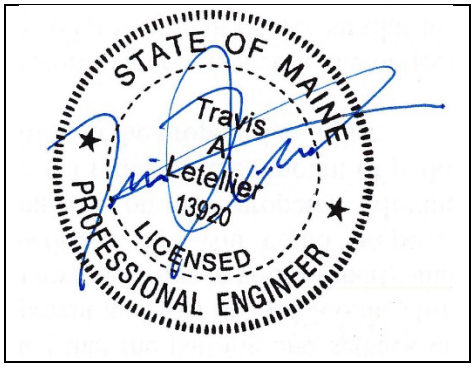
# WHITE ROCK TERRACE STORMWATER MANAGEMENT REPORT

**Prepared For:**

**The Szanton Company**
**Portland, Maine 04103**

**Prepared By:**

**Acorn Engineering, Inc.**
**PO Box 3372**
**Portland, Maine 04104**




**October 2022**

## INTRODUCTION

Acorn Engineering, Inc. has been retained by Szanton Company to provide civil engineering services for the proposed development at Sky View Drive. The property consists of approximately 4.47 acres of land and contains the following parcels (Map R1, Lot 107A).

A stormwater analysis was prepared to demonstrate that the project will meet the requirements set forth by Maine DEP Chapter 500 Basic and General Standards and the following requirements from the Town of Cumberland:

- Town of Cumberland Land Use Ordinance Article 14.6.2.D.
- Maine DEP Chapter 500 Stormwater Management.

## EXISTING CONDITIONS

The project site is currently a portion of an undeveloped parcel, lot 107, within the Cumberland Foreside Village subdivision and will be accessed off Sky View Drive. The site has been partially cleared as part of the original subdivision build out and is a relatively flat site. No streams, wetlands or other protected natural resources are located on the property.

The site primarily consists of brush and wooded undeveloped area with two subcatchments.

- SC 1A – This subcatchment consists of primarily wooded land that slopes towards interstate 295.
- SC 2A – This subcatchment consists of woods and brush. A swale along Sky View Drive directs stormwater towards to Route 1 via stormwater BMP's within the Sky View Drive ROW.

It should be noted that the USGS soil survey has soil type HSG D in for the entire site.

## PROPOSED DEVELOPMENT

The project features the development of a single four-story building with 55 one- and two-bedroom affordable rental units designated for senior housing. The building has a footprint of roughly 12,000 square feet and the development will provide 78 parking spaces and vehicular and pedestrian circulation. Overall the development will consist of 2.28 acres of disturbance, 1.86 acres of developed area including 42,700 sf (0.98 ac) of impervious cover.

The site has been graded to slope with the existing topography while providing for appropriate slopes in the parking areas. The slopes on the outside of the parking areas that are not part of a stormwater system will be appropriately stabilized per the specifications in the plans and are anticipated to be heavily landscaped for further slope protection and buffering. The majority of the site's runoff, including 97.6% of the new impervious area, will be piped or diverted to one of three stormwater BMP's on the property. The majority of strowmater treatment will be provided by a Grassed Underdrained Soil Filter (GUSF) located behind the dumpster enclosure. Additional treatment will be provided via two Roof Dripline

Filters and a Rain Garden.

The discharge from these systems will ultimately flow to a level lip spreader or riprap apron before entering the roadside ditch or surrounding woods. Two 15" storm drains are proposed to outlet into the existing ditch line with a proposed riprap apron to help reduce velocity, based on the peak 10-year flow rates the maximum water velocity discharging into the City's ditch system will be below 5 ft/sec. Maine DOT recommends grassed ditches be designed to ensure flow velocities are below 5 ft/sec for the 10-year storm, as such the stormwater outlet aligns with industry standard hydraulic design.

The development will be served by the Portland Water District, CMP, Spectrum, Consolidated Communications, and municipal sewer system. Utility mains and services have been coordinated with each respective utility company.

## GENERAL STANDARDS – WATER QUALITY

All treatment BMPs proposed as part of this development were designed in accordance with The Maine Stormwater Management Design Manual Chapter 7.3 and 7.7.

*Treatment Area*
In accordance with Chapter 500, General Standard rules, treatment must be provided for no less than 95% of the impervious area and 80% of the developed area. As such, it is proposed that treatment is required via the GUSF, Roof Dripline Filter and Rain Garden BMP's.
The treatment of the impervious and developed surfaces by the BMPs are as follows:

**Table 1 – New Impervious Area Treatment Area Table**

| Existing Imp. Area (SF) | Proposed Total Imp. Area (SF) | Net Change in Imp. Area (SF) | Proposed Imp. Area with Treatment (SF) | % Overall New Imp. Area Treated |
|---|---|---|---|---|
| 0 | 42,710 | 42,710 | 41,686 | 97.6% |

**Table 2 – New Developed Area Treatment**

| Existing Dev. Area (SF) | Proposed Total Dev. Area (SF) | Net Change in Dev. Area (SF) | Proposed Dev. Area with Treatment (SF) | % Overall New Dev. Area Treated |
|---|---|---|---|---|
| 0 | 81,225 | 81,225 | 65,000 | 80% |

### Grassed Underdrained Soil Filter

The grassed underdrained soil filter was sized to meet or exceed the requirements set forth within the MDEP Volume III BMPs Technical Design Manual, Chapter 7.3. Filter BMP

systems have shown to be effective at filtering out and removing a wide range of pollutants from stormwater runoff.
As shown above, the project anticipates meeting the required treatment for new impervious and developed surfaces with the filter BMPs.

*Filter Area Sizing*
A calculation for sand filter area is necessary to meet the requirements below the surface of the GUSF. As defined in the Volume III: BMPs Technical Design Manual, Chapter 7, the surface area of the filter shall be no less than the sum of 5% of the tributary impervious area and 2% of the tributary vegetated area. The filter area is calculated by the following formula:

[(Imp. SF x 0.05) + (Veg. SF x 0.02)] = Filter Area (SF)
Please refer to Table 2 below.

Table 2 – Total Filter Surface Area, displays the proposed USSF sizing requirements, actual size and the percentage of required area.

| **Table 3 – Total Filter Surface Area** | | | | |
|---|---|---|---|---|
| | Landscaped Area (SF) | Impervious Area (SF) | Required Filter Area (SF) | Actual Filter Area (SF) |
| GUSF | 8,500 | 33,250 | 1,763 | 1,850 |

As shown, the size of the soil filter area will meet and exceed the surface area requirements.

*Water Quality Volume*
In accordance with the Volume III: BMPs Technical Design Manual, a water quality volume of 1.0 inches times the tributary impervious area plus 0.4 inches times the tributary vegetated area is required to be treated by the USSF. The water quality volume is calculated by the following formula:

$$\left(\frac{\text{Imp. SF x 1.0”}}{\text{12”/1’}}\right) + \left(\frac{\text{Veg. SF x 0.4”}}{\text{12”/1’}}\right) = \text{Treatment Volume (CF)}$$

The proposed water quality volume is as follows:

| **Table 5 – Water Quality Volume Table** | | | | |
|---|---|---|---|---|
| | Landscaped Area (SF) | Impervious Area (SF) | Treatment Volume Required (CF) | Treatment Volume Provided (CF) |
| GUSF | 8,500 | 33,250 | 3,111 | 3,638 |

As shown, the size of the combined water quality volume will meet and exceed the treatment volume requirements. Values from the HydroCAD calculations are attached to this report.
The treatment volume was calculated by using the HydroCAD model and the rainfall that produces 18” of ponding within the pond.

A vertical orifice is modeled in HydroCAD at the end of the underdrain outlet to detain the stormwater for an approximate 24-hour time frame. The orifice is intended to be a PVC cap placed on the outfall pipe (no glue) with the orifice drilled into the cap eccentrically. The PVC cap can be easily inspected, removed, or replaced if necessary.

**Roof Drip edge Filter:**

At 2.5' deep with clean, free-draining crushed stone, the new buildings will take the direct entry from the roof runoff before filtering this runoff through media. These systems are oversized in comparison to the tributary roof areas and provide storage for a 10-year storm or greater before overflowing away from the buildings.

## FLOODING STANDARD – WATER QUANTITY

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25-year storm events were used. The corresponding rainfall amounts for these storms are 3.10", 4.60", and 5.80" respectively. Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. to round to the nearest whole number. However due to the small size of the project and the minimal existing flows, the stormwater runoff shall be rounded to the nearest tenth of a cubic feet per second (cfs).

*Time of Concentration (Tc)*

The times of concentration for subcatchments in both the pre and post conditions were calculated by entering the flow path with the associated ground cover and slopes. HydroCAD then calculated the Tc's and incorporated the total Tc for each subcatchment into the model. When the calculated Tc was less than six minutes (0.1 hours), a direct entry of six minutes was used as advised by the TR-55 model. Consistent with previous submissions and best practices, the sheet flow length for any Tc path was capped at 100 feet.

*Curve Number (CN)*

Within the pre-development model, the wooded and vegetated ditches were conservatively considered good condition with appropriate underlying soil hydrologic group. In particular, the woods were given a "good" condition throughout the entire development. Based upon the understory, the CN value contained either light underbrush or dense underbrush, depending on the location as verified by multiple site visits. The site generally features denser underbrush towards the back of the parcels and less dense underbrush closer to Washington Avenue. Lastly, the wetlands were modeled as Woods in the D condition in both the pre and post.

The post development landscaped areas were given a good rating within the appropriate underlying hydrologic soil group. This assumption is reinforced given the aggressive landscape plan which will feature more porous conditions that are appropriately mulched

along with future extensive root systems and canopy cover that will exist once the landscaping has matured.

*Pre-development Calculations*

The site consists of wooded area and wetlands in the predevelopment condition, for the purpose of this analysis the land has been divided into six separate sub catchments.

The existing cross culvert underneath Washington Ave, as well as the catch basin outlet for the northern Washington Ave ditch have been included in the model as reaches. The intent of this is to measure the capacity of the existing infrastructure down stream of any proposed peak flow alterations.

Peak flow rates for the pre-development storm events are as follows:

**Table 6 – Pre-Development Peak Stormwater Flows**

| Drainage Area | 2-Year Storm Event (cfs) | 10-Year Storm Event (cfs) | 25-Year Storm Event (cfs) |
|---|---|---|---|
| POI #1 | 4.3 | 8.8 | 12.6 |
| POI #2 | 0.9 | 1.6 | 2.3 |

*Post-development Calculations*

The post condition features the same four point of interests that exist in the pre-development condition, but with multiple BMPs throughout the north and south parcel dedicated for the treatment of runoff generated primarily by roof and pavement via porous pavement and the two (2) USSFs. The subcatchments are as follows:

- Subcatchment 1P – This subcatchment consists of primarily undeveloped woodland that flows to towards Interstate 295. (POA #1)
- Subcatchment 2P– This subcatchment consists of a portion of the entrance driveway, patio area and landscaping that is treated by a rain garden and discharges to the Sky View Drive ROW (POA #2).
- Subcatchment 3P – This subcatchment consists primarily of parking lot and half the roof area. This subcatchment is collected and piped to the GUSF for treatment and discharges towards Interstate stared 295. (POA #1)
- Subcatchment 4P – This subcatchment consists of the western side of the roof and is collected and treated in a roof dripline filter adjacent to the building. Overflow from this BMP heads towards Interstate 295. (POA #1)
- Subcatchment 5P – This subcatchment consists of a small portion of the roof and is collected and treated in a roof dripline filter adjacent to the building. Overflow from this BMP heads towards the Sky View Drive ROW (POA #2).
- Subcatchment 6P – This subcatchment consists of developed area that bypasses treatment on the development site and is collected and drained to the Sky Vie w Drive ROW (POA #2).

The post-development calculations include changes to the land use, and the compensation provided by the GUSF and associated engineered orifices.

The ideology HydroCad uses to model porous pavement assumes the pavement has no surface runoff under ideal conditions and accepts several inches of precipitation. An extended Tc is used to simulate the travel time through the base and the pavement is modelled as a pond which represents storage in the base material.

| **Table 7 – Post-Development Peak Stormwater Flows** | | | |
|---|---|---|---|
| Drainage Area | 2-Year Storm Event (cfs) | 10-Year Storm Event (cfs) | 25-Year Storm Event (cfs) |
| POI #1 | 3.7 | 7.4 | 14.2 |
| POI #2 | .03 | 0.7 | 1.1 |

The post-development calculations include changes to the land use and the compensation provided by the stormwater BMPs. The following table represents comparison of pre-development and post-development condition peak runoff rates for the proposed development and tributary area.

| **Table 8 – Comparison of Peak Flows** | | | | | | |
|---|---|---|---|---|---|---|
| POI | 2-Year Storm Event (cfs) | | 10-Year Storm Event (cfs) | | 25-Year Storm Event (cfs) | |
| | Pre | Post | Pre | Post | Pre | Post |
| POI #1 | 4.3 | 3.7 | 8.8 | 7.4 | 12.6 | 14.2 |
| POI #2 | 0.9 | 0.3 | 1.6 | 0.7 | 2.3 | 1.1 |

As shown in Table 7 and 8, the net impact of the post development peak flows will remain at or below the predevelopment levels in all but a small increase in the 25-year event. Overall the 25-year event will have a 1.0 CFS increase from the pre-development total of 14.9 CFS to the post-development total of 15.3 CFS. The majority of the increase is towards a large wooded buffer area between the development and Interstate 295, which includes an area that must be maintained as a wooded buffer. There are no anticipated detrimental downstream effects due to this minor increase in flows. The vast majority of storm events will see a decrease in stormwater flows at both points of analysis.

A post-development watershed map developed for this project can be viewed in Attachment B, and a copy of the HydroCAD calculations is included within Attachment C of this report.

SOILS

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County

- United States Department of Agriculture Web Soil Survey

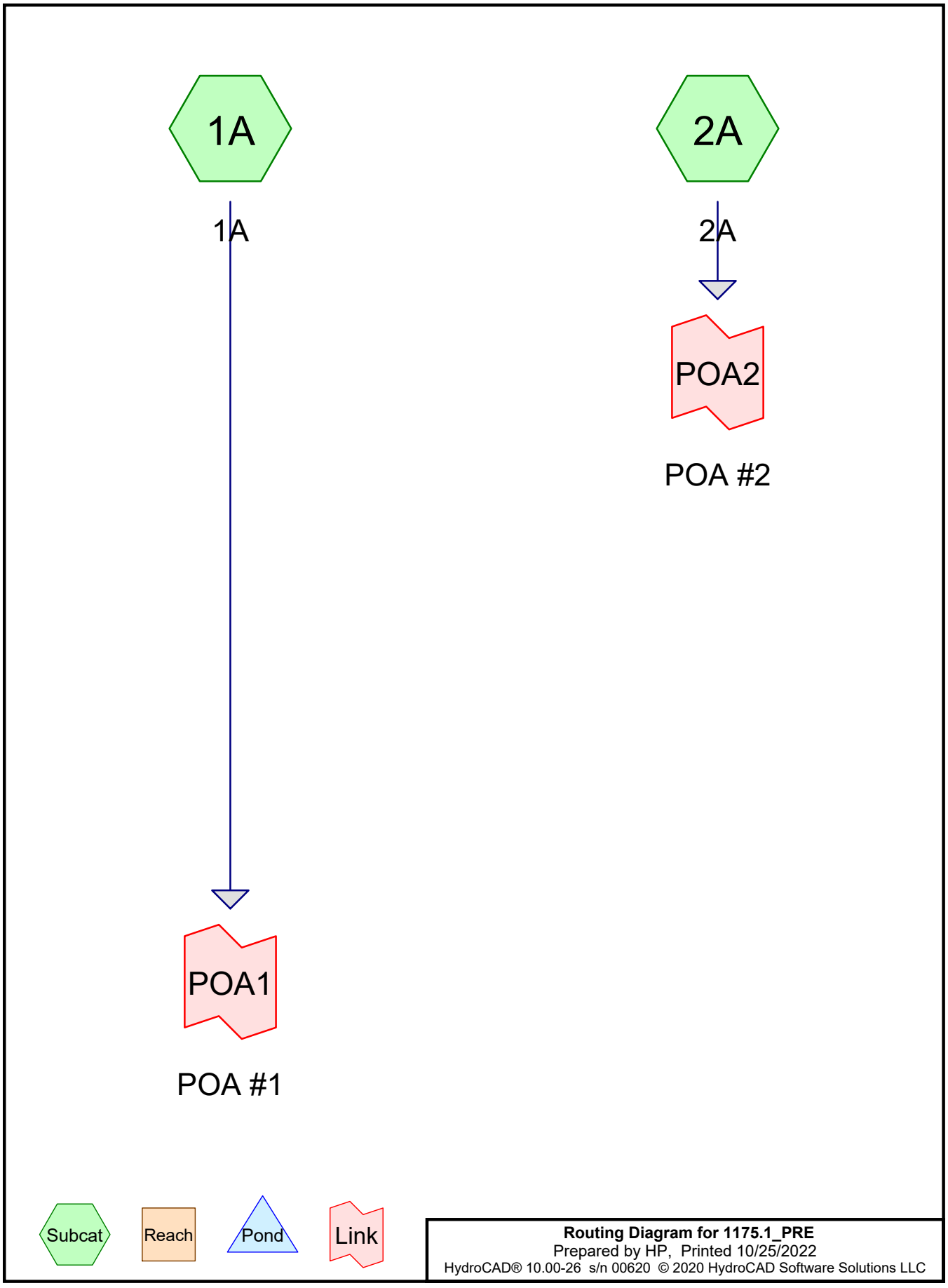
Given the soils information, listed above, no onsite wastewater is proposed; the applicant does not intend to perform a more intense hydric soil boundary delineation.

## CONCLUSION

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D). The proposed project as designed is not anticipated to cause flooding or erosion problems within the subject site, abutters' sites, nor within the right-of-way. Overall, the project will provide an improvement to stormwater runoff and overall management from several perspectives as outlined above.

## ATTACHMENTS

Attachment A: Pre-Development Watershed Map
Attachment B: Post-Development Watershed Map
Attachment C: HydroCAD Calculations
Attachment D: Soil Survey




**Routing Diagram for 1175.1_PRE**
Prepared by HP, Printed 10/25/2022

## Project Notes

Rainfall events imported from "1176_POST.hcp"

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.701 | 80 | >75% Grass cover, Good, HSG D (1A) |
| 0.589 | 83 | Brush, Poor, HSG D (2A) |
| 3.183 | 77 | Woods, Good, HSG D (1A, 2A) |
| **4.474** | **78** | **TOTAL AREA** |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.000 | HSG A | |
| 0.000 | HSG B | |
| 0.000 | HSG C | |
| 4.474 | HSG D | 1A, 2A |
| 0.000 | Other | |
| **4.474** | | **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 | 0.701 | 0.000 | 0.701 | >75% Grass cover, Good | 1A |
| 0.000 | 0.000 | 0.000 | 0.589 | 0.000 | 0.589 | Brush, Poor | 2A |
| 0.000 | 0.000 | 0.000 | 3.183 | 0.000 | 3.183 | Woods, Good | 1A, 2A |
| **0.000** | **0.000** | **0.000** | **4.474** | **0.000** | **4.474** | **TOTAL AREA** | |

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>1.10"
Flow Length=465' Tc=10.0 min CN=78 Runoff=4.33 cfs 0.335 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>1.28"
Flow Length=352' Tc=22.1 min CN=81 Runoff=0.85 cfs 0.087 af

**Link POA1: POA #1** Inflow=4.33 cfs 0.335 af
Primary=4.33 cfs 0.335 af

**Link POA2: POA #2** Inflow=0.85 cfs 0.087 af
Primary=0.85 cfs 0.087 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.423 af Average Runoff Depth = 1.13"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 4.33 cfs @ 12.15 hrs, Volume= 0.335 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 0.85 cfs @ 12.32 hrs, Volume= 0.087 af, Depth> 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 1.10" for 2-year event
Inflow = 4.33 cfs @ 12.15 hrs, Volume= 0.335 af
Primary = 4.33 cfs @ 12.15 hrs, Volume= 0.335 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 1.28" for 2-year event
Inflow = 0.85 cfs @ 12.32 hrs, Volume= 0.087 af
Primary = 0.85 cfs @ 12.32 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>2.21"
Flow Length=465' Tc=10.0 min CN=78 Runoff=8.78 cfs 0.672 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>2.45"
Flow Length=352' Tc=22.1 min CN=81 Runoff=1.63 cfs 0.167 af

**Link POA1: POA #1** Inflow=8.78 cfs 0.672 af
Primary=8.78 cfs 0.672 af

**Link POA2: POA #2** Inflow=1.63 cfs 0.167 af
Primary=1.63 cfs 0.167 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.839 af Average Runoff Depth = 2.25"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 8.78 cfs @ 12.15 hrs, Volume= 0.672 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 1.63 cfs @ 12.31 hrs, Volume= 0.167 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 2.21" for 10-year event
Inflow = 8.78 cfs @ 12.15 hrs, Volume= 0.672 af
Primary = 8.78 cfs @ 12.15 hrs, Volume= 0.672 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 2.45" for 10-year event
Inflow = 1.63 cfs @ 12.31 hrs, Volume= 0.167 af
Primary = 1.63 cfs @ 12.31 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>3.18"
Flow Length=465' Tc=10.0 min CN=78 Runoff=12.58 cfs 0.967 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>3.45"
Flow Length=352' Tc=22.1 min CN=81 Runoff=2.29 cfs 0.236 af

**Link POA1: POA #1** Inflow=12.58 cfs 0.967 af
Primary=12.58 cfs 0.967 af

**Link POA2: POA #2** Inflow=2.29 cfs 0.236 af
Primary=2.29 cfs 0.236 af

**Total Runoff Area = 4.474 ac Runoff Volume = 1.203 af Average Runoff Depth = 3.23"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 12.58 cfs @ 12.14 hrs, Volume= 0.967 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 2.29 cfs @ 12.30 hrs, Volume= 0.236 af, Depth> 3.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 3.18" for 25-year event
Inflow = 12.58 cfs @ 12.14 hrs, Volume= 0.967 af
Primary = 12.58 cfs @ 12.14 hrs, Volume= 0.967 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 3.45" for 25-year event
Inflow = 2.29 cfs @ 12.30 hrs, Volume= 0.236 af
Primary = 2.29 cfs @ 12.30 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>1.31"
Flow Length=465' Tc=10.0 min CN=78 Runoff=5.18 cfs 0.399 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>1.50"
Flow Length=352' Tc=22.1 min CN=81 Runoff=1.00 cfs 0.102 af

**Link POA1: POA #1** Inflow=5.18 cfs 0.399 af
Primary=5.18 cfs 0.399 af

**Link POA2: POA #2** Inflow=1.00 cfs 0.102 af
Primary=1.00 cfs 0.102 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.501 af Average Runoff Depth = 1.34"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 5.18 cfs @ 12.15 hrs, Volume= 0.399 af, Depth> 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 1.00 cfs @ 12.31 hrs, Volume= 0.102 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 1.31" for Custom event
Inflow = 5.18 cfs @ 12.15 hrs, Volume= 0.399 af
Primary = 5.18 cfs @ 12.15 hrs, Volume= 0.399 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 1.50" for Custom event
Inflow = 1.00 cfs @ 12.31 hrs, Volume= 0.102 af
Primary = 1.00 cfs @ 12.31 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>0.05"
Flow Length=465' Tc=10.0 min CN=78 Runoff=0.07 cfs 0.015 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>0.08"
Flow Length=352' Tc=22.1 min CN=81 Runoff=0.03 cfs 0.006 af

**Link POA1: POA #1** Inflow=0.07 cfs 0.015 af
Primary=0.07 cfs 0.015 af

**Link POA2: POA #2** Inflow=0.03 cfs 0.006 af
Primary=0.03 cfs 0.006 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.020 af Average Runoff Depth = 0.05"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 0.07 cfs @ 12.46 hrs, Volume= 0.015 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 0.03 cfs @ 12.53 hrs, Volume= 0.006 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 0.05" for WQ event
Inflow = 0.07 cfs @ 12.46 hrs, Volume= 0.015 af
Primary = 0.07 cfs @ 12.46 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 0.08" for WQ event
Inflow = 0.03 cfs @ 12.53 hrs, Volume= 0.006 af
Primary = 0.03 cfs @ 12.53 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>1.94"
Flow Length=465' Tc=10.0 min CN=78 Runoff=7.73 cfs 0.592 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>2.17"
Flow Length=352' Tc=22.1 min CN=81 Runoff=1.45 cfs 0.148 af

**Link POA1: POA #1** Inflow=7.73 cfs 0.592 af
Primary=7.73 cfs 0.592 af

**Link POA2: POA #2** Inflow=1.45 cfs 0.148 af
Primary=1.45 cfs 0.148 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.740 af Average Runoff Depth = 1.98"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 7.73 cfs @ 12.15 hrs, Volume= 0.592 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 1.45 cfs @ 12.31 hrs, Volume= 0.148 af, Depth> 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 1.94" for WQV USSF event
Inflow = 7.73 cfs @ 12.15 hrs, Volume= 0.592 af
Primary = 7.73 cfs @ 12.15 hrs, Volume= 0.592 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 2.17" for WQV USSF event
Inflow = 1.45 cfs @ 12.31 hrs, Volume= 0.148 af
Primary = 1.45 cfs @ 12.31 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>1.94"
Flow Length=465' Tc=10.0 min CN=78 Runoff=7.73 cfs 0.592 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>2.17"
Flow Length=352' Tc=22.1 min CN=81 Runoff=1.45 cfs 0.148 af

**Link POA1: POA #1** Inflow=7.73 cfs 0.592 af
Primary=7.73 cfs 0.592 af

**Link POA2: POA #2** Inflow=1.45 cfs 0.148 af
Primary=1.45 cfs 0.148 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.740 af Average Runoff Depth = 1.98"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 7.73 cfs @ 12.15 hrs, Volume= 0.592 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 1.45 cfs @ 12.31 hrs, Volume= 0.148 af, Depth> 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 1.94" for WQV USSF 1 event
Inflow = 7.73 cfs @ 12.15 hrs, Volume= 0.592 af
Primary = 7.73 cfs @ 12.15 hrs, Volume= 0.592 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 2.17" for WQV USSF 1 event
Inflow = 1.45 cfs @ 12.31 hrs, Volume= 0.148 af
Primary = 1.45 cfs @ 12.31 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1A: 1A** Runoff Area=159,215 sf 0.00% Impervious Runoff Depth>1.20"
Flow Length=465' Tc=10.0 min CN=78 Runoff=4.72 cfs 0.365 af

**Subcatchment 2A: 2A** Runoff Area=35,658 sf 0.00% Impervious Runoff Depth>1.38"
Flow Length=352' Tc=22.1 min CN=81 Runoff=0.92 cfs 0.094 af

**Link POA1: POA #1** Inflow=4.72 cfs 0.365 af
Primary=4.72 cfs 0.365 af

**Link POA2: POA #2** Inflow=0.92 cfs 0.094 af
Primary=0.92 cfs 0.094 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.459 af Average Runoff Depth = 1.23"**
**100.00% Pervious = 4.474 ac 0.00% Impervious = 0.000 ac**

## Summary for Subcatchment 1A: 1A

Runoff = 4.72 cfs @ 12.15 hrs, Volume= 0.365 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| Area (sf) | CN | Description |
|---|---|---|
| 128,675 | 77 | Woods, Good, HSG D |
| 30,540 | 80 | >75% Grass cover, Good, HSG D |
| 159,215 | 78 | Weighted Average |
| 159,215 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 3.1 | 365 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 10.0 | 465 | Total | | | |

## Summary for Subcatchment 2A: 2A

Runoff = 0.92 cfs @ 12.32 hrs, Volume= 0.094 af, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| Area (sf) | CN | Description |
|---|---|---|
| 9,998 | 77 | Woods, Good, HSG D |
| 25,660 | 83 | Brush, Poor, HSG D |
| 35,658 | 81 | Weighted Average |
| 35,658 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Link POA1: POA #1

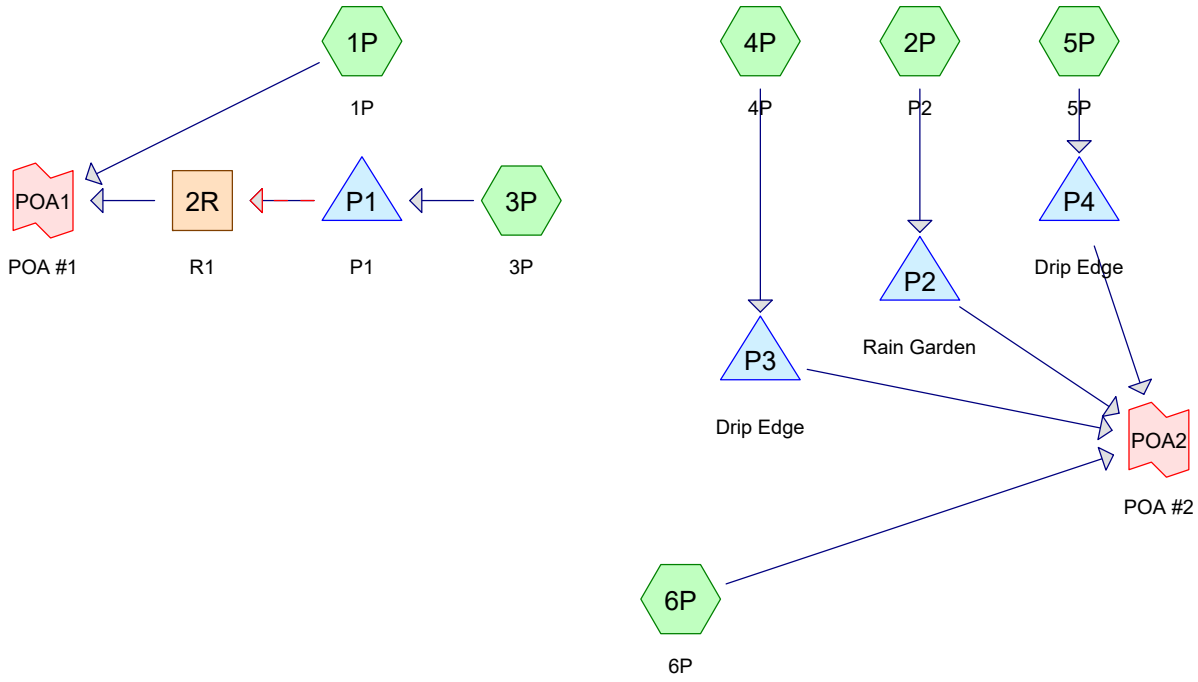
Inflow Area = 3.655 ac, 0.00% Impervious, Inflow Depth > 1.20" for WQV USSF 2 event
Inflow = 4.72 cfs @ 12.15 hrs, Volume= 0.365 af
Primary = 4.72 cfs @ 12.15 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.819 ac, 0.00% Impervious, Inflow Depth > 1.38" for WQV USSF 2 event
Inflow = 0.92 cfs @ 12.32 hrs, Volume= 0.094 af
Primary = 0.92 cfs @ 12.32 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs




Subcat Reach Pond Link

**Routing Diagram for 1175.1_POST**
Prepared by HP, Printed 10/25/2022

## Project Notes

Rainfall events imported from "1176_POST.hcp"

## Area Listing (selected nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 1.607 | 80 | >75% Grass cover, Good, HSG D (1P, 2P, 3P, 6P) |
| 0.057 | 98 | DRIVE/WALK (2P) |
| 0.335 | 98 | HALF BUILDING (3P, 4P, 5P) |
| 0.603 | 98 | PAVE (3P, 6P) |
| 0.029 | 98 | SIDEWALK (3P) |
| 1.844 | 77 | Woods, Good, HSG D (1P) |
| **4.474** | **83** | **TOTAL AREA** |

## Soil Listing (selected nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 0.000 | HSG A | |
| 0.000 | HSG B | |
| 0.000 | HSG C | |
| 3.451 | HSG D | 1P, 2P, 3P, 6P |
| 1.023 | Other | 2P, 3P, 4P, 5P, 6P |
| **4.474** | | **TOTAL AREA** |

## Ground Covers (selected 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 | 1.607 | 0.000 | 1.607 | >75% Grass cover, Good | 1P, 2P, 3P, 6P |
| 0.000 | 0.000 | 0.000 | 0.000 | 0.057 | 0.057 | DRIVE/WALK | 2P |
| 0.000 | 0.000 | 0.000 | 0.000 | 0.335 | 0.335 | HALF BUILDING | 3P, 4P, 5P |
| 0.000 | 0.000 | 0.000 | 0.000 | 0.603 | 0.603 | PAVE | 3P, 6P |
| 0.000 | 0.000 | 0.000 | 0.000 | 0.029 | 0.029 | SIDEWALK | 3P |
| 0.000 | 0.000 | 0.000 | 1.844 | 0.000 | 1.844 | Woods, Good | 1P |
| **0.000** | **0.000** | **0.000** | **3.451** | **1.023** | **4.474** | **TOTAL AREA** | |

## Pipe Listing (selected nodes)

| Line# | Node Number | In-Invert (feet) | Out-Invert (feet) | Length (feet) | Slope (ft/ft) | n | Diam/Width (inches) | Height (inches) | Inside-Fill (inches) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | P1 | 114.00 | 112.00 | 60.0 | 0.0333 | 0.010 | 12.0 | 0.0 | 0.0 |
| 2 | P2 | 115.90 | 115.65 | 24.0 | 0.0104 | 0.011 | 4.0 | 0.0 | 0.0 |

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>1.10"
Flow Length=400' Tc=9.5 min CN=78 Runoff=3.56 cfs 0.272 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>1.62"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.22 cfs 0.023 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>2.31"
Tc=6.0 min CN=94 Runoff=2.64 cfs 0.189 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>2.68"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.033 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>2.68"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>1.29"
Tc=6.0 min CN=81 Runoff=0.27 cfs 0.018 af

**Reach 2R: R1** Avg. Flow Depth=0.10' Max Vel=0.28 fps Inflow=0.24 cfs 0.144 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=0.24 cfs 0.142 af

**Pond P1: P1** Peak Elev=118.70' Storage=3,944 cf Inflow=2.64 cfs 0.189 af
Primary=0.24 cfs 0.144 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.144 af

**Pond P2: Rain Garden** Peak Elev=117.89' Storage=360 cf Inflow=0.22 cfs 0.023 af
Discarded=0.06 cfs 0.022 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.022 af

**Pond P3: Drip Edge** Peak Elev=121.92' Storage=776 cf Inflow=0.44 cfs 0.033 af
Outflow=0.02 cfs 0.019 af

**Pond P4: Drip Edge** Peak Elev=122.22' Storage=218 cf Inflow=0.12 cfs 0.009 af
Outflow=0.00 cfs 0.005 af

**Link POA1: POA #1** Inflow=3.69 cfs 0.414 af
Primary=3.69 cfs 0.414 af

**Link POA2: POA #2** Inflow=0.30 cfs 0.043 af
Primary=0.30 cfs 0.043 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.545 af Average Runoff Depth = 1.46"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 3.56 cfs @ 12.14 hrs, Volume= 0.272 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.22 cfs @ 12.31 hrs, Volume= 0.023 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,490 | 98 | DRIVE/WALK |
| | 4,805 | 80 | >75% Grass cover, Good, HSG D |
| | 7,295 | 86 | Weighted Average |
| | 4,805 | | 65.87% Pervious Area |
| | 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 2.64 cfs @ 12.09 hrs, Volume= 0.189 af, Depth> 2.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth> 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.27 cfs @ 12.10 hrs, Volume= 0.018 af, Depth> 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-year Rainfall=3.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

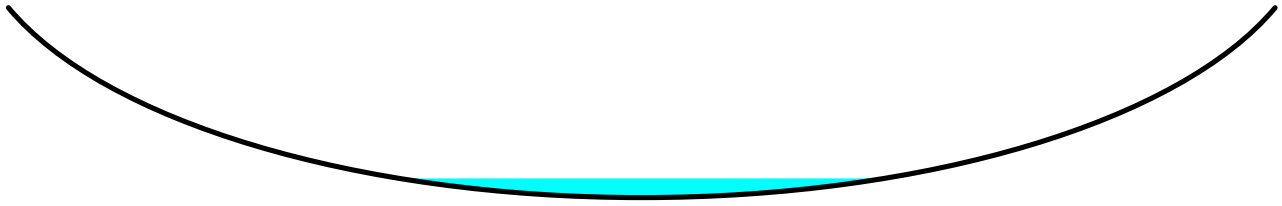
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 1.77" for 2-year event
Inflow = 0.24 cfs @ 13.00 hrs, Volume= 0.144 af
Outflow = 0.24 cfs @ 13.17 hrs, Volume= 0.142 af, Atten= 0%, Lag= 10.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.28 fps, Min. Travel Time= 5.9 min
Avg. Velocity = 0.21 fps, Avg. Travel Time= 7.8 min

Peak Storage= 83 cf @ 13.07 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 2.31" for 2-year event
Inflow = 2.64 cfs @ 12.09 hrs, Volume= 0.189 af
Outflow = 0.24 cfs @ 13.00 hrs, Volume= 0.144 af, Atten= 91%, Lag= 54.6 min
Primary = 0.24 cfs @ 13.00 hrs, Volume= 0.144 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.70' @ 13.00 hrs Surf.Area= 3,129 sf Storage= 3,944 cf

Plug-Flow detention time= 169.8 min calculated for 0.144 af (76% of inflow)
Center-of-Mass det. time= 111.9 min ( 870.6 - 758.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.24 cfs @ 13.00 hrs HW=118.70' (Free Discharge)
└**1=Culvert** (Passes 0.24 cfs of 4.08 cfs potential flow)
  └**2=Exfiltration** (Exfiltration Controls 0.17 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.07 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=117.10' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 1.62" for 2-year event
Inflow = 0.22 cfs @ 12.31 hrs, Volume= 0.023 af
Outflow = 0.06 cfs @ 12.92 hrs, Volume= 0.022 af, Atten= 74%, Lag= 36.5 min
Discarded = 0.06 cfs @ 12.40 hrs, Volume= 0.022 af
Primary = 0.00 cfs @ 12.92 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 117.89' @ 12.92 hrs Surf.Area= 1,038 sf Storage= 360 cf

Plug-Flow detention time= 90.4 min calculated for 0.022 af (97% of inflow)
Center-of-Mass det. time= 79.6 min ( 881.1 - 801.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.06 cfs @ 12.40 hrs HW=117.56' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.06 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.92 hrs HW=117.89' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.49 cfs potential flow)
└**2=CPV Drawdown Model** (Orifice Controls 0.00 cfs @ 6.61 fps)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 2.68" for 2-year event
Inflow = 0.44 cfs @ 12.09 hrs, Volume= 0.033 af
Outflow = 0.02 cfs @ 9.80 hrs, Volume= 0.019 af, Atten= 96%, Lag= 0.0 min
Primary = 0.02 cfs @ 9.80 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 121.92' @ 14.88 hrs Surf.Area= 800 sf Storage= 776 cf

Plug-Flow detention time= 162.9 min calculated for 0.019 af (58% of inflow)
Center-of-Mass det. time= 79.8 min ( 818.6 - 738.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.02 cfs @ 9.80 hrs HW=119.54' (Free Discharge)
**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)
**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 2.68" for 2-year event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af
Outflow = 0.00 cfs @ 9.55 hrs, Volume= 0.005 af, Atten= 96%, Lag= 0.0 min
Primary = 0.00 cfs @ 9.55 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.22' @ 15.15 hrs Surf.Area= 200 sf Storage= 218 cf

Plug-Flow detention time= 162.1 min calculated for 0.005 af (54% of inflow)
Center-of-Mass det. time= 74.9 min ( 813.7 - 738.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.00 cfs @ 9.55 hrs HW=119.54' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)
└─**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 1.26" for 2-year event
Inflow = 3.69 cfs @ 12.15 hrs, Volume= 0.414 af
Primary = 3.69 cfs @ 12.15 hrs, Volume= 0.414 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 0.97" for 2-year event
Inflow = 0.30 cfs @ 12.10 hrs, Volume= 0.043 af
Primary = 0.30 cfs @ 12.10 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>2.21"
Flow Length=400' Tc=9.5 min CN=78 Runoff=7.22 cfs 0.545 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>2.90"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.39 cfs 0.040 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>3.69"
Tc=6.0 min CN=94 Runoff=4.10 cfs 0.302 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>4.05"
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.050 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>4.05"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.014 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>2.46"
Tc=6.0 min CN=81 Runoff=0.52 cfs 0.035 af

**Reach 2R: R1** Avg. Flow Depth=0.29' Max Vel=0.58 fps Inflow=2.75 cfs 0.244 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=2.43 cfs 0.242 af

**Pond P1: P1** Peak Elev=118.87' Storage=4,494 cf Inflow=4.10 cfs 0.302 af
Primary=0.64 cfs 0.193 af Secondary=2.11 cfs 0.051 af Outflow=2.75 cfs 0.244 af

**Pond P2: Rain Garden** Peak Elev=118.62' Storage=670 cf Inflow=0.39 cfs 0.040 af
Discarded=0.09 cfs 0.036 af Primary=0.10 cfs 0.001 af Outflow=0.19 cfs 0.038 af

**Pond P3: Drip Edge** Peak Elev=122.51' Storage=963 cf Inflow=0.66 cfs 0.050 af
Outflow=0.41 cfs 0.031 af

**Pond P4: Drip Edge** Peak Elev=122.50' Storage=240 cf Inflow=0.18 cfs 0.014 af
Outflow=0.10 cfs 0.008 af

**Link POA1: POA #1** Inflow=7.41 cfs 0.787 af
Primary=7.41 cfs 0.787 af

**Link POA2: POA #2** Inflow=0.70 cfs 0.076 af
Primary=0.70 cfs 0.076 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.987 af Average Runoff Depth = 2.65"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 7.22 cfs @ 12.14 hrs, Volume= 0.545 af, Depth> 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.39 cfs @ 12.30 hrs, Volume= 0.040 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,490 | 98 | DRIVE/WALK |
| | 4,805 | 80 | >75% Grass cover, Good, HSG D |
| | 7,295 | 86 | Weighted Average |
| | 4,805 | | 65.87% Pervious Area |
| | 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 4.10 cfs @ 12.09 hrs, Volume= 0.302 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.66 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.60"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

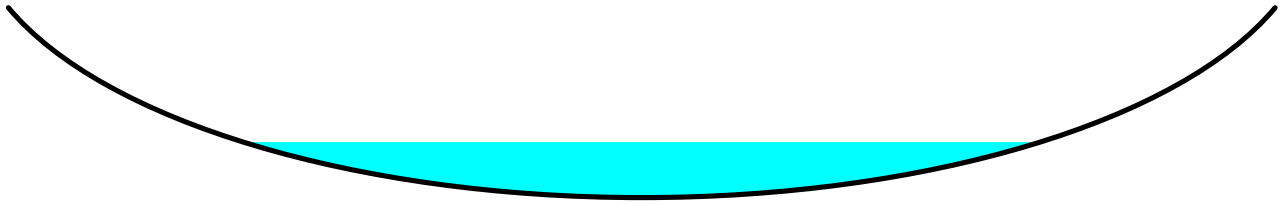
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 2.98" for 10-year event
Inflow = 2.75 cfs @ 12.20 hrs, Volume= 0.244 af
Outflow = 2.43 cfs @ 12.29 hrs, Volume= 0.242 af, Atten= 12%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.58 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 6.9 min

Peak Storage= 419 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 3.69" for 10-year event
Inflow = 4.10 cfs @ 12.09 hrs, Volume= 0.302 af
Outflow = 2.75 cfs @ 12.20 hrs, Volume= 0.244 af, Atten= 33%, Lag= 6.5 min
Primary = 0.64 cfs @ 12.20 hrs, Volume= 0.193 af
Secondary = 2.11 cfs @ 12.20 hrs, Volume= 0.051 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.87' @ 12.20 hrs Surf.Area= 3,272 sf Storage= 4,494 cf

Plug-Flow detention time= 117.9 min calculated for 0.244 af (81% of inflow)
Center-of-Mass det. time= 65.3 min ( 815.1 - 749.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.63 cfs @ 12.20 hrs HW=118.87' (Free Discharge)
└**1=Culvert** (Passes 0.63 cfs of 4.16 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.18 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.45 cfs @ 1.77 fps)

**Secondary OutFlow** Max=2.07 cfs @ 12.20 hrs HW=118.87' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 2.07 cfs @ 0.86 fps)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 2.90" for 10-year event
Inflow = 0.39 cfs @ 12.30 hrs, Volume= 0.040 af
Outflow = 0.19 cfs @ 12.71 hrs, Volume= 0.038 af, Atten= 52%, Lag= 24.7 min
Discarded = 0.09 cfs @ 12.71 hrs, Volume= 0.036 af
Primary = 0.10 cfs @ 12.71 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.62' @ 12.71 hrs Surf.Area= 1,576 sf Storage= 670 cf

Plug-Flow detention time= 90.3 min calculated for 0.038 af (93% of inflow)
Center-of-Mass det. time= 67.3 min ( 855.4 - 788.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.09 cfs @ 12.71 hrs HW=118.61' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.09 cfs)

**Primary OutFlow** Max=0.08 cfs @ 12.71 hrs HW=118.62' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.57 cfs potential flow)
└**2=CPV Drawdown Model** (Orifice Controls 0.00 cfs @ 7.78 fps)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 0.08 cfs @ 0.33 fps)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 4.05" for 10-year event
Inflow = 0.66 cfs @ 12.09 hrs, Volume= 0.050 af
Outflow = 0.41 cfs @ 12.31 hrs, Volume= 0.031 af, Atten= 37%, Lag= 13.7 min
Primary = 0.41 cfs @ 12.31 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.51' @ 12.30 hrs Surf.Area= 800 sf Storage= 963 cf

Plug-Flow detention time= 127.9 min calculated for 0.031 af (62% of inflow)
Center-of-Mass det. time= 49.7 min ( 785.3 - 735.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.34 cfs @ 12.31 hrs HW=122.51' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.33 cfs @ 0.27 fps)
└**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 4.05" for 10-year event
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.10 cfs @ 12.22 hrs, Volume= 0.008 af, Atten= 46%, Lag= 7.8 min
Primary = 0.10 cfs @ 12.22 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.50' @ 12.20 hrs Surf.Area= 200 sf Storage= 240 cf

Plug-Flow detention time= 123.1 min calculated for 0.008 af (62% of inflow)
Center-of-Mass det. time= 45.8 min ( 781.4 - 735.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.04 cfs @ 12.22 hrs HW=122.50' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.13 fps)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 2.39" for 10-year event
Inflow = 7.41 cfs @ 12.15 hrs, Volume= 0.787 af
Primary = 7.41 cfs @ 12.15 hrs, Volume= 0.787 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 1.73" for 10-year event
Inflow = 0.70 cfs @ 12.31 hrs, Volume= 0.076 af
Primary = 0.70 cfs @ 12.31 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>3.18"
Flow Length=400' Tc=9.5 min CN=78 Runoff=10.34 cfs 0.785 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>3.96"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.53 cfs 0.055 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>4.80"
Tc=6.0 min CN=94 Runoff=5.27 cfs 0.392 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>5.15"
Tc=6.0 min CN=98 Runoff=0.83 cfs 0.064 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>5.15"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.017 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>3.47"
Tc=6.0 min CN=81 Runoff=0.73 cfs 0.050 af

**Reach 2R: R1** Avg. Flow Depth=0.40' Max Vel=0.72 fps Inflow=5.11 cfs 0.326 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=4.61 cfs 0.324 af

**Pond P1: P1** Peak Elev=118.94' Storage=4,731 cf Inflow=5.27 cfs 0.392 af
Primary=0.90 cfs 0.220 af Secondary=4.21 cfs 0.106 af Outflow=5.11 cfs 0.326 af

**Pond P2: Rain Garden** Peak Elev=118.65' Storage=688 cf Inflow=0.53 cfs 0.055 af
Discarded=0.09 cfs 0.042 af Primary=0.49 cfs 0.010 af Outflow=0.58 cfs 0.052 af

**Pond P3: Drip Edge** Peak Elev=122.51' Storage=962 cf Inflow=0.83 cfs 0.064 af
Outflow=0.25 cfs 0.037 af

**Pond P4: Drip Edge** Peak Elev=122.51' Storage=241 cf Inflow=0.22 cfs 0.017 af
Outflow=0.26 cfs 0.012 af

**Link POA1: POA #1** Inflow=14.21 cfs 1.109 af
Primary=14.21 cfs 1.109 af

**Link POA2: POA #2** Inflow=1.12 cfs 0.109 af
Primary=1.12 cfs 0.109 af

**Total Runoff Area = 4.474 ac Runoff Volume = 1.364 af Average Runoff Depth = 3.66"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 10.34 cfs @ 12.14 hrs, Volume= 0.785 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.53 cfs @ 12.30 hrs, Volume= 0.055 af, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,490 | 98 | DRIVE/WALK |
| | 4,805 | 80 | >75% Grass cover, Good, HSG D |
| | 7,295 | 86 | Weighted Average |
| | 4,805 | | 65.87% Pervious Area |
| | 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 5.27 cfs @ 12.09 hrs, Volume= 0.392 af, Depth> 4.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.064 af, Depth> 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af, Depth> 5.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

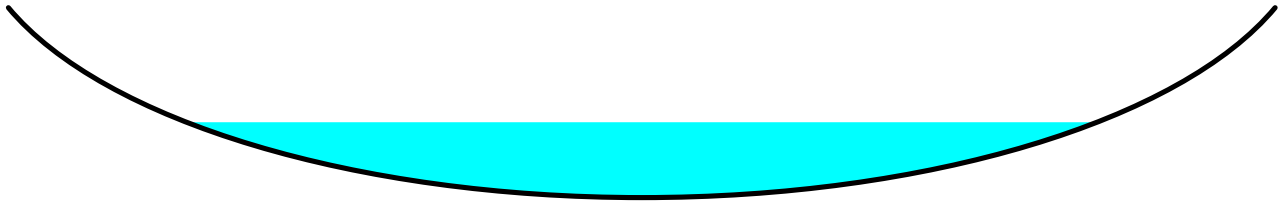
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 3.99" for 25-year event
Inflow = 5.11 cfs @ 12.12 hrs, Volume= 0.326 af
Outflow = 4.61 cfs @ 12.20 hrs, Volume= 0.324 af, Atten= 10%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.72 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.26 fps, Avg. Travel Time= 6.4 min

Peak Storage= 665 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 4.80" for 25-year event
Inflow = 5.27 cfs @ 12.09 hrs, Volume= 0.392 af
Outflow = 5.11 cfs @ 12.12 hrs, Volume= 0.326 af, Atten= 3%, Lag= 1.9 min
Primary = 0.90 cfs @ 12.12 hrs, Volume= 0.220 af
Secondary = 4.21 cfs @ 12.12 hrs, Volume= 0.106 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.94' @ 12.12 hrs Surf.Area= 3,331 sf Storage= 4,731 cf

Plug-Flow detention time= 96.4 min calculated for 0.325 af (83% of inflow)
Center-of-Mass det. time= 48.7 min ( 794.3 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.87 cfs @ 12.12 hrs HW=118.93' (Free Discharge)
└**1=Culvert** (Passes 0.87 cfs of 4.19 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.18 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.68 cfs @ 1.97 fps)

**Secondary OutFlow** Max=3.96 cfs @ 12.12 hrs HW=118.93' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 3.96 cfs @ 1.07 fps)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 3.96" for 25-year event
Inflow = 0.53 cfs @ 12.30 hrs, Volume= 0.055 af
Outflow = 0.58 cfs @ 12.41 hrs, Volume= 0.052 af, Atten= 0%, Lag= 6.9 min
Discarded = 0.09 cfs @ 12.42 hrs, Volume= 0.042 af
Primary = 0.49 cfs @ 12.41 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.65' @ 12.42 hrs Surf.Area= 1,590 sf Storage= 688 cf

Plug-Flow detention time= 76.0 min calculated for 0.052 af (93% of inflow)
Center-of-Mass det. time= 53.0 min ( 833.6 - 780.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.09 cfs @ 12.42 hrs HW=118.64' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.09 cfs)

**Primary OutFlow** Max=0.41 cfs @ 12.41 hrs HW=118.64' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.58 cfs potential flow)
└**2=CPV Drawdown Model** (Orifice Controls 0.00 cfs @ 7.82 fps)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 0.41 cfs @ 0.56 fps)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.064 af
Outflow = 0.25 cfs @ 12.34 hrs, Volume= 0.037 af, Atten= 70%, Lag= 15.3 min
Primary = 0.25 cfs @ 12.34 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.51' @ 12.34 hrs Surf.Area= 800 sf Storage= 962 cf

Plug-Flow detention time= 125.6 min calculated for 0.037 af (58% of inflow)
Center-of-Mass det. time= 43.5 min ( 777.8 - 734.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.21 cfs @ 12.34 hrs HW=122.51' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.19 cfs @ 0.22 fps)
└**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 5.15" for 25-year event
Inflow = 0.22 cfs @ 12.09 hrs, Volume= 0.017 af
Outflow = 0.26 cfs @ 12.12 hrs, Volume= 0.012 af, Atten= 0%, Lag= 1.8 min
Primary = 0.26 cfs @ 12.12 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.51' @ 12.10 hrs Surf.Area= 200 sf Storage= 241 cf

Plug-Flow detention time= 100.9 min calculated for 0.012 af (71% of inflow)
Center-of-Mass det. time= 34.3 min ( 768.6 - 734.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.18 cfs @ 12.12 hrs HW=122.51' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.18 cfs @ 0.22 fps)
└─**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 3.37" for 25-year event
Inflow = 14.21 cfs @ 12.17 hrs, Volume= 1.109 af
Primary = 14.21 cfs @ 12.17 hrs, Volume= 1.109 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 2.48" for 25-year event
Inflow = 1.12 cfs @ 12.11 hrs, Volume= 0.109 af
Primary = 1.12 cfs @ 12.11 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>1.31"
Flow Length=400' Tc=9.5 min CN=78 Runoff=4.26 cfs 0.323 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>1.87"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.25 cfs 0.026 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=94 Runoff=2.93 cfs 0.211 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>2.96"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.037 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>2.96"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.010 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>1.51"
Tc=6.0 min CN=81 Runoff=0.32 cfs 0.022 af

**Reach 2R: R1** Avg. Flow Depth=0.14' Max Vel=0.36 fps Inflow=0.57 cfs 0.164 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=0.52 cfs 0.161 af

**Pond P1: P1** Peak Elev=118.77' Storage=4,180 cf Inflow=2.93 cfs 0.211 af
Primary=0.37 cfs 0.160 af Secondary=0.20 cfs 0.004 af Outflow=0.57 cfs 0.164 af

**Pond P2: Rain Garden** Peak Elev=118.05' Storage=416 cf Inflow=0.25 cfs 0.026 af
Discarded=0.08 cfs 0.025 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.025 af

**Pond P3: Drip Edge** Peak Elev=122.28' Storage=890 cf Inflow=0.48 cfs 0.037 af
Outflow=0.02 cfs 0.020 af

**Pond P4: Drip Edge** Peak Elev=122.50' Storage=240 cf Inflow=0.13 cfs 0.010 af
Outflow=0.01 cfs 0.005 af

**Link POA1: POA #1** Inflow=4.39 cfs 0.485 af
Primary=4.39 cfs 0.485 af

**Link POA2: POA #2** Inflow=0.34 cfs 0.047 af
Primary=0.34 cfs 0.047 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.629 af Average Runoff Depth = 1.69"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 4.26 cfs @ 12.14 hrs, Volume= 0.323 af, Depth> 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.25 cfs @ 12.31 hrs, Volume= 0.026 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,490 | 98 | DRIVE/WALK |
| | 4,805 | 80 | >75% Grass cover, Good, HSG D |
| | 7,295 | 86 | Weighted Average |
| | 4,805 | | 65.87% Pervious Area |
| | 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 2.93 cfs @ 12.09 hrs, Volume= 0.211 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.037 af, Depth> 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.010 af, Depth> 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.32 cfs @ 12.09 hrs, Volume= 0.022 af, Depth> 1.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr Custom Rainfall=3.40"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

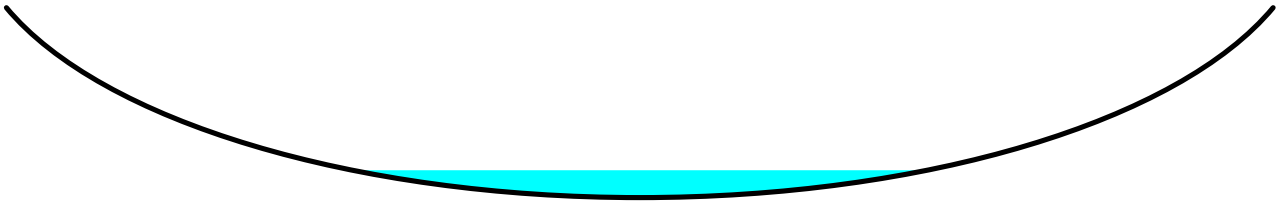
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 2.00" for Custom event
Inflow = 0.57 cfs @ 12.53 hrs, Volume= 0.164 af
Outflow = 0.52 cfs @ 12.67 hrs, Volume= 0.161 af, Atten= 8%, Lag= 8.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.36 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 7.5 min

Peak Storage= 145 cf @ 12.60 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 2.59" for Custom event
Inflow = 2.93 cfs @ 12.09 hrs, Volume= 0.211 af
Outflow = 0.57 cfs @ 12.53 hrs, Volume= 0.164 af, Atten= 81%, Lag= 26.6 min
Primary = 0.37 cfs @ 12.53 hrs, Volume= 0.160 af
Secondary = 0.20 cfs @ 12.53 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.77' @ 12.53 hrs Surf.Area= 3,191 sf Storage= 4,180 cf

Plug-Flow detention time= 156.4 min calculated for 0.163 af (77% of inflow)
Center-of-Mass det. time= 99.7 min ( 856.2 - 756.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.36 cfs @ 12.53 hrs HW=118.77' (Free Discharge)
└─**1=Culvert** (Passes 0.36 cfs of 4.11 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.18 cfs)
  └─**3=Orifice/Grate** (Orifice Controls 0.19 cfs @ 1.42 fps)

**Secondary OutFlow** Max=0.17 cfs @ 12.53 hrs HW=118.77' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 0.17 cfs @ 0.38 fps)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 1.87" for Custom event
Inflow = 0.25 cfs @ 12.31 hrs, Volume= 0.026 af
Outflow = 0.08 cfs @ 12.84 hrs, Volume= 0.025 af, Atten= 69%, Lag= 32.1 min
Discarded = 0.08 cfs @ 12.84 hrs, Volume= 0.025 af
Primary = 0.00 cfs @ 12.84 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.05' @ 12.84 hrs Surf.Area= 1,400 sf Storage= 416 cf

Plug-Flow detention time= 89.4 min calculated for 0.025 af (95% of inflow)
Center-of-Mass det. time= 73.4 min ( 871.7 - 798.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.08 cfs @ 12.84 hrs HW=118.05' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.08 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.84 hrs HW=118.05' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.51 cfs potential flow)
└**2=CPV Drawdown Model** (Orifice Controls 0.00 cfs @ 6.89 fps)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 2.96" for Custom event
Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.037 af
Outflow = 0.02 cfs @ 9.50 hrs, Volume= 0.020 af, Atten= 96%, Lag= 0.0 min
Primary = 0.02 cfs @ 9.50 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.28' @ 15.19 hrs Surf.Area= 800 sf Storage= 890 cf

Plug-Flow detention time= 162.8 min calculated for 0.020 af (53% of inflow)
Center-of-Mass det. time= 73.3 min ( 811.3 - 738.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.02 cfs @ 9.50 hrs HW=119.54' (Free Discharge)
**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)
**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 2.96" for Custom event
Inflow = 0.13 cfs @ 12.09 hrs, Volume= 0.010 af
Outflow = 0.01 cfs @ 13.72 hrs, Volume= 0.005 af, Atten= 92%, Lag= 98.0 min
Primary = 0.01 cfs @ 13.72 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.50' @ 13.70 hrs Surf.Area= 200 sf Storage= 240 cf

Plug-Flow detention time= 161.4 min calculated for 0.005 af (53% of inflow)
Center-of-Mass det. time= 70.8 min ( 808.8 - 738.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.01 cfs @ 13.72 hrs HW=122.50' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.03 fps)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 1.47" for Custom event
Inflow = 4.39 cfs @ 12.14 hrs, Volume= 0.485 af
Primary = 4.39 cfs @ 12.14 hrs, Volume= 0.485 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 1.06" for Custom event
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 0.047 af
Primary = 0.34 cfs @ 12.09 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>0.05"
Flow Length=400' Tc=9.5 min CN=78 Runoff=0.05 cfs 0.012 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>0.17"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.02 cfs 0.002 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>0.47"
Tc=6.0 min CN=94 Runoff=0.57 cfs 0.038 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>0.75"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.009 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>0.75"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>0.08"
Tc=6.0 min CN=81 Runoff=0.01 cfs 0.001 af

**Reach 2R: R1** Avg. Flow Depth=0.07' Max Vel=0.23 fps Inflow=0.11 cfs 0.038 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=0.11 cfs 0.038 af

**Pond P1: P1** Peak Elev=117.37' Storage=517 cf Inflow=0.57 cfs 0.038 af
Primary=0.11 cfs 0.038 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.038 af

**Pond P2: Rain Garden** Peak Elev=115.53' Storage=5 cf Inflow=0.02 cfs 0.002 af
Discarded=0.02 cfs 0.002 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.002 af

**Pond P3: Drip Edge** Peak Elev=119.93' Storage=138 cf Inflow=0.13 cfs 0.009 af
Outflow=0.02 cfs 0.009 af

**Pond P4: Drip Edge** Peak Elev=119.98' Storage=39 cf Inflow=0.04 cfs 0.003 af
Outflow=0.00 cfs 0.003 af

**Link POA1: POA #1** Inflow=0.16 cfs 0.049 af
Primary=0.16 cfs 0.049 af

**Link POA2: POA #2** Inflow=0.03 cfs 0.013 af
Primary=0.03 cfs 0.013 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.065 af Average Runoff Depth = 0.18"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 0.05 cfs @ 12.45 hrs, Volume= 0.012 af, Depth> 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.02 cfs @ 12.38 hrs, Volume= 0.002 af, Depth> 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,490 | 98 | DRIVE/WALK |
| | 4,805 | 80 | >75% Grass cover, Good, HSG D |
| | 7,295 | 86 | Weighted Average |
| | 4,805 | | 65.87% Pervious Area |
| | 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.038 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.009 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.01 cfs @ 12.27 hrs, Volume= 0.001 af, Depth> 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQ Rainfall=1.00"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

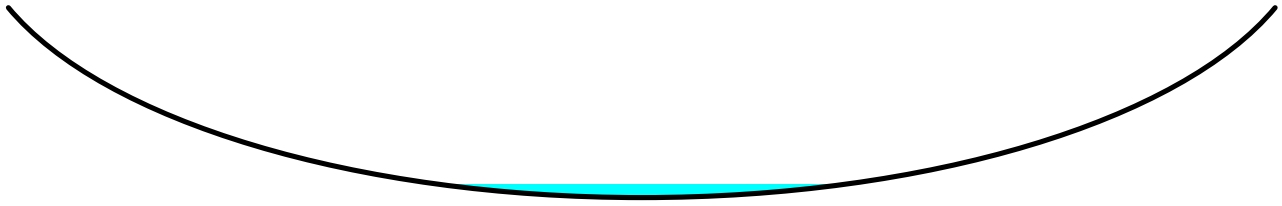
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 0.47" for WQ event
Inflow = 0.11 cfs @ 12.55 hrs, Volume= 0.038 af
Outflow = 0.11 cfs @ 12.78 hrs, Volume= 0.038 af, Atten= 0%, Lag= 13.8 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.23 fps, Min. Travel Time= 7.4 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 11.3 min

Peak Storage= 50 cf @ 12.66 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 0.47" for WQ event
Inflow = 0.57 cfs @ 12.09 hrs, Volume= 0.038 af
Outflow = 0.11 cfs @ 12.55 hrs, Volume= 0.038 af, Atten= 80%, Lag= 27.6 min
Primary = 0.11 cfs @ 12.55 hrs, Volume= 0.038 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 117.37' @ 12.55 hrs Surf.Area= 2,028 sf Storage= 517 cf

Plug-Flow detention time= 36.4 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 34.7 min ( 830.6 - 795.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.11 cfs @ 12.55 hrs HW=117.37' (Free Discharge)
└**1=Culvert** (Passes 0.11 cfs of 3.37 cfs potential flow)
  └**2=Exfiltration** (Exfiltration Controls 0.11 cfs)
  └**3=Orifice/Grate** ( Controls 0.00 cfs)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=117.10' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 0.17" for WQ event
Inflow = 0.02 cfs @ 12.38 hrs, Volume= 0.002 af
Outflow = 0.02 cfs @ 12.46 hrs, Volume= 0.002 af, Atten= 4%, Lag= 5.0 min
Discarded = 0.02 cfs @ 12.46 hrs, Volume= 0.002 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 115.53' @ 12.46 hrs Surf.Area= 346 sf Storage= 5 cf

Plug-Flow detention time= 4.2 min calculated for 0.002 af (99% of inflow)
Center-of-Mass det. time= 3.3 min ( 855.3 - 852.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.02 cfs @ 12.46 hrs HW=115.53' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.02 cfs)

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=115.50' (Free Discharge)
└**1=Culvert** ( Controls 0.00 cfs)
└**2=CPV Drawdown Model** ( Controls 0.00 cfs)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 0.75" for WQ event
Inflow = 0.13 cfs @ 12.09 hrs, Volume= 0.009 af
Outflow = 0.02 cfs @ 11.75 hrs, Volume= 0.009 af, Atten= 86%, Lag= 0.0 min
Primary = 0.02 cfs @ 11.75 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 119.93' @ 12.61 hrs Surf.Area= 800 sf Storage= 138 cf

Plug-Flow detention time= 55.1 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 53.8 min ( 812.3 - 758.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.02 cfs @ 11.75 hrs HW=119.54' (Free Discharge)
**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)
**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 0.75" for WQ event
Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 11.75 hrs, Volume= 0.003 af, Atten= 87%, Lag= 0.0 min
Primary = 0.00 cfs @ 11.75 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 119.98' @ 12.64 hrs Surf.Area= 200 sf Storage= 39 cf

Plug-Flow detention time= 63.2 min calculated for 0.003 af (99% of inflow)
Center-of-Mass det. time= 61.7 min ( 820.3 - 758.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.00 cfs @ 11.75 hrs HW=119.54' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 0.15" for WQ event
Inflow = 0.16 cfs @ 12.46 hrs, Volume= 0.049 af
Primary = 0.16 cfs @ 12.46 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 0.29" for WQ event
Inflow = 0.03 cfs @ 12.27 hrs, Volume= 0.013 af
Primary = 0.03 cfs @ 12.27 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>1.94"
Flow Length=400' Tc=9.5 min CN=78 Runoff=6.35 cfs 0.480 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>2.60"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.35 cfs 0.036 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>3.38"
Tc=6.0 min CN=94 Runoff=3.77 cfs 0.276 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>3.74"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.047 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>3.74"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>2.18"
Tc=6.0 min CN=81 Runoff=0.46 cfs 0.031 af

**Reach 2R: R1** Avg. Flow Depth=0.25' Max Vel=0.53 fps Inflow=1.99 cfs 0.221 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=1.81 cfs 0.219 af

**Pond P1: P1** Peak Elev=118.84' Storage=4,405 cf Inflow=3.77 cfs 0.276 af
Primary=0.55 cfs 0.184 af Secondary=1.44 cfs 0.036 af Outflow=1.99 cfs 0.221 af

**Pond P2: Rain Garden** Peak Elev=118.52' Storage=620 cf Inflow=0.35 cfs 0.036 af
Discarded=0.09 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.034 af

**Pond P3: Drip Edge** Peak Elev=122.50' Storage=961 cf Inflow=0.61 cfs 0.047 af
Outflow=0.12 cfs 0.026 af

**Pond P4: Drip Edge** Peak Elev=122.50' Storage=240 cf Inflow=0.16 cfs 0.013 af
Outflow=0.11 cfs 0.008 af

**Link POA1: POA #1** Inflow=6.50 cfs 0.699 af
Primary=6.50 cfs 0.699 af

**Link POA2: POA #2** Inflow=0.49 cfs 0.066 af
Primary=0.49 cfs 0.066 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.883 af Average Runoff Depth = 2.37"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 6.35 cfs @ 12.14 hrs, Volume= 0.480 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.35 cfs @ 12.30 hrs, Volume= 0.036 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,490 | 98 | DRIVE/WALK |
| | 4,805 | 80 | >75% Grass cover, Good, HSG D |
| | 7,295 | 86 | Weighted Average |
| | 4,805 | | 65.87% Pervious Area |
| | 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 3.77 cfs @ 12.09 hrs, Volume= 0.276 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.031 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

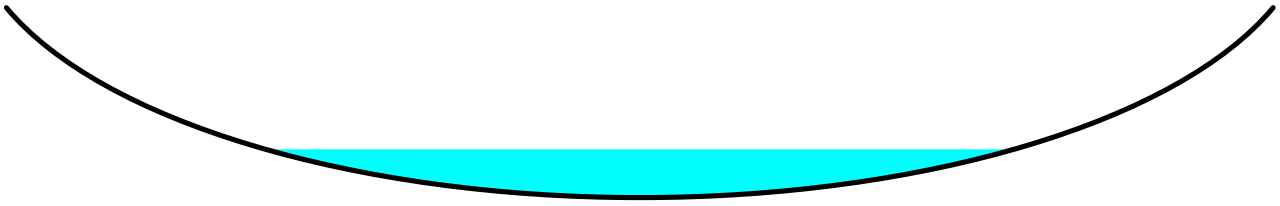
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 2.70" for WQV USSF event
Inflow = 1.99 cfs @ 12.24 hrs, Volume= 0.221 af
Outflow = 1.81 cfs @ 12.35 hrs, Volume= 0.219 af, Atten= 9%, Lag= 7.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.53 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 7.0 min

Peak Storage= 341 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 3.38" for WQV USSF event
Inflow = 3.77 cfs @ 12.09 hrs, Volume= 0.276 af
Outflow = 1.99 cfs @ 12.24 hrs, Volume= 0.221 af, Atten= 47%, Lag= 8.9 min
Primary = 0.55 cfs @ 12.24 hrs, Volume= 0.184 af
Secondary = 1.44 cfs @ 12.24 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.84' @ 12.24 hrs Surf.Area= 3,249 sf Storage= 4,405 cf

Plug-Flow detention time= 125.6 min calculated for 0.220 af (80% of inflow)
Center-of-Mass det. time= 72.5 min ( 823.9 - 751.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.54 cfs @ 12.24 hrs HW=118.84' (Free Discharge)
└**1=Culvert** (Passes 0.54 cfs of 4.15 cfs potential flow)
  ├**2=Exfiltration** (Exfiltration Controls 0.18 cfs)
  └**3=Orifice/Grate** (Orifice Controls 0.36 cfs @ 1.68 fps)

**Secondary OutFlow** Max=1.40 cfs @ 12.24 hrs HW=118.84' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 1.40 cfs @ 0.76 fps)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 2.60" for WQV USSF event
Inflow = 0.35 cfs @ 12.30 hrs, Volume= 0.036 af
Outflow = 0.09 cfs @ 12.92 hrs, Volume= 0.034 af, Atten= 75%, Lag= 37.4 min
Discarded = 0.09 cfs @ 12.92 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 12.92 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.52' @ 12.92 hrs Surf.Area= 1,545 sf Storage= 620 cf

Plug-Flow detention time= 91.2 min calculated for 0.034 af (93% of inflow)
Center-of-Mass det. time= 69.3 min ( 859.9 - 790.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.09 cfs @ 12.92 hrs HW=118.52' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.09 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.92 hrs HW=118.52' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.56 cfs potential flow)
└**2=CPV Drawdown Model** (Orifice Controls 0.00 cfs @ 7.64 fps)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 3.74" for WQV USSF event
Inflow = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af
Outflow = 0.12 cfs @ 12.47 hrs, Volume= 0.026 af, Atten= 81%, Lag= 23.0 min
Primary = 0.12 cfs @ 12.47 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.50' @ 12.45 hrs Surf.Area= 800 sf Storage= 961 cf

Plug-Flow detention time= 143.3 min calculated for 0.026 af (57% of inflow)
Center-of-Mass det. time= 58.2 min ( 794.4 - 736.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.07 cfs @ 12.47 hrs HW=122.50' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.14 fps)
└**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 3.74" for WQV USSF event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.11 cfs @ 12.32 hrs, Volume= 0.008 af, Atten= 34%, Lag= 13.9 min
Primary = 0.11 cfs @ 12.32 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.50' @ 12.30 hrs Surf.Area= 200 sf Storage= 240 cf

Plug-Flow detention time= 121.1 min calculated for 0.008 af (66% of inflow)
Center-of-Mass det. time= 47.9 min ( 784.1 - 736.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.05 cfs @ 12.32 hrs HW=122.50' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.14 fps)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 2.13" for WQV USSF event
Inflow = 6.50 cfs @ 12.14 hrs, Volume= 0.699 af
Primary = 6.50 cfs @ 12.14 hrs, Volume= 0.699 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 1.50" for WQV USSF event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.066 af
Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>1.94"
Flow Length=400' Tc=9.5 min CN=78 Runoff=6.35 cfs 0.480 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>2.60"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.35 cfs 0.036 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>3.38"
Tc=6.0 min CN=94 Runoff=3.77 cfs 0.276 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>3.74"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.047 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>3.74"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.013 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>2.18"
Tc=6.0 min CN=81 Runoff=0.46 cfs 0.031 af

**Reach 2R: R1** Avg. Flow Depth=0.25' Max Vel=0.53 fps Inflow=1.99 cfs 0.221 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=1.81 cfs 0.219 af

**Pond P1: P1** Peak Elev=118.84' Storage=4,405 cf Inflow=3.77 cfs 0.276 af
Primary=0.55 cfs 0.184 af Secondary=1.44 cfs 0.036 af Outflow=1.99 cfs 0.221 af

**Pond P2: Rain Garden** Peak Elev=118.52' Storage=620 cf Inflow=0.35 cfs 0.036 af
Discarded=0.09 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.034 af

**Pond P3: Drip Edge** Peak Elev=122.50' Storage=961 cf Inflow=0.61 cfs 0.047 af
Outflow=0.12 cfs 0.026 af

**Pond P4: Drip Edge** Peak Elev=122.50' Storage=240 cf Inflow=0.16 cfs 0.013 af
Outflow=0.11 cfs 0.008 af

**Link POA1: POA #1** Inflow=6.50 cfs 0.699 af
Primary=6.50 cfs 0.699 af

**Link POA2: POA #2** Inflow=0.49 cfs 0.066 af
Primary=0.49 cfs 0.066 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.883 af Average Runoff Depth = 2.37"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 6.35 cfs @ 12.14 hrs, Volume= 0.480 af, Depth> 1.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.35 cfs @ 12.30 hrs, Volume= 0.036 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,490 | 98 | DRIVE/WALK |
| | 4,805 | 80 | >75% Grass cover, Good, HSG D |
| | 7,295 | 86 | Weighted Average |
| | 4,805 | | 65.87% Pervious Area |
| | 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 3.77 cfs @ 12.09 hrs, Volume= 0.276 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.031 af, Depth> 2.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 1 Rainfall=4.26"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

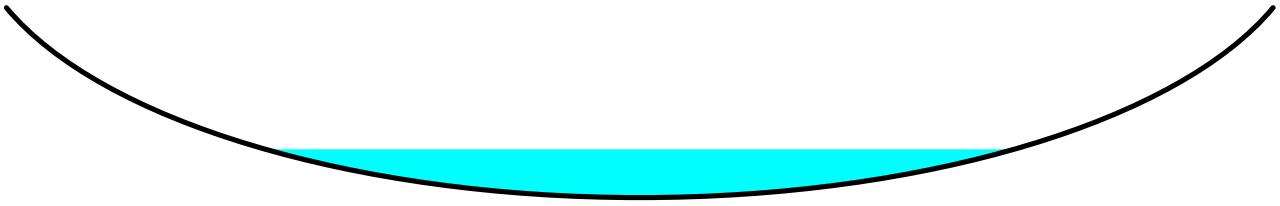
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 2.70" for WQV USSF 1 event
Inflow = 1.99 cfs @ 12.24 hrs, Volume= 0.221 af
Outflow = 1.81 cfs @ 12.35 hrs, Volume= 0.219 af, Atten= 9%, Lag= 7.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.53 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 7.0 min

Peak Storage= 341 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 3.38" for WQV USSF 1 event
Inflow = 3.77 cfs @ 12.09 hrs, Volume= 0.276 af
Outflow = 1.99 cfs @ 12.24 hrs, Volume= 0.221 af, Atten= 47%, Lag= 8.9 min
Primary = 0.55 cfs @ 12.24 hrs, Volume= 0.184 af
Secondary = 1.44 cfs @ 12.24 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.84' @ 12.24 hrs Surf.Area= 3,249 sf Storage= 4,405 cf

Plug-Flow detention time= 125.6 min calculated for 0.220 af (80% of inflow)
Center-of-Mass det. time= 72.5 min ( 823.9 - 751.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.54 cfs @ 12.24 hrs HW=118.84' (Free Discharge)
↑└─**1=Culvert** (Passes 0.54 cfs of 4.15 cfs potential flow)
↑ ├─**2=Exfiltration** (Exfiltration Controls 0.18 cfs)
└─**3=Orifice/Grate** (Orifice Controls 0.36 cfs @ 1.68 fps)

**Secondary OutFlow** Max=1.40 cfs @ 12.24 hrs HW=118.84' (Free Discharge)
↑└─**4=Broad-Crested Rectangular Weir** (Weir Controls 1.40 cfs @ 0.76 fps)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 2.60" for WQV USSF 1 event
Inflow = 0.35 cfs @ 12.30 hrs, Volume= 0.036 af
Outflow = 0.09 cfs @ 12.92 hrs, Volume= 0.034 af, Atten= 75%, Lag= 37.4 min
Discarded = 0.09 cfs @ 12.92 hrs, Volume= 0.034 af
Primary = 0.00 cfs @ 12.92 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.52' @ 12.92 hrs Surf.Area= 1,545 sf Storage= 620 cf

Plug-Flow detention time= 91.2 min calculated for 0.034 af (93% of inflow)
Center-of-Mass det. time= 69.3 min ( 859.9 - 790.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.09 cfs @ 12.92 hrs HW=118.52' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.09 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.92 hrs HW=118.52' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.56 cfs potential flow)
└**2=CPV Drawdown Model** (Orifice Controls 0.00 cfs @ 7.64 fps)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 3.74" for WQV USSF 1 event
Inflow = 0.61 cfs @ 12.09 hrs, Volume= 0.047 af
Outflow = 0.12 cfs @ 12.47 hrs, Volume= 0.026 af, Atten= 81%, Lag= 23.0 min
Primary = 0.12 cfs @ 12.47 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.50' @ 12.45 hrs Surf.Area= 800 sf Storage= 961 cf

Plug-Flow detention time= 143.3 min calculated for 0.026 af (57% of inflow)
Center-of-Mass det. time= 58.2 min ( 794.4 - 736.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.07 cfs @ 12.47 hrs HW=122.50' (Free Discharge)
**1=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.14 fps)
**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 3.74" for WQV USSF 1 event
Inflow = 0.16 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.11 cfs @ 12.32 hrs, Volume= 0.008 af, Atten= 34%, Lag= 13.9 min
Primary = 0.11 cfs @ 12.32 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.50' @ 12.30 hrs Surf.Area= 200 sf Storage= 240 cf

Plug-Flow detention time= 121.1 min calculated for 0.008 af (66% of inflow)
Center-of-Mass det. time= 47.9 min ( 784.1 - 736.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.05 cfs @ 12.32 hrs HW=122.50' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.05 cfs @ 0.14 fps)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 2.13" for WQV USSF 1 event
Inflow = 6.50 cfs @ 12.14 hrs, Volume= 0.699 af
Primary = 6.50 cfs @ 12.14 hrs, Volume= 0.699 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 1.50" for WQV USSF 1 event
Inflow = 0.49 cfs @ 12.09 hrs, Volume= 0.066 af
Primary = 0.49 cfs @ 12.09 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

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

**Subcatchment 1P: 1P** Runoff Area=129,181 sf 0.00% Impervious Runoff Depth>1.20"
Flow Length=400' Tc=9.5 min CN=78 Runoff=3.88 cfs 0.296 af

**Subcatchment 2P: P2** Runoff Area=7,295 sf 34.13% Impervious Runoff Depth>1.74"
Flow Length=352' Tc=22.1 min CN=86 Runoff=0.24 cfs 0.024 af

**Subcatchment 3P: 3P** Runoff Area=42,669 sf 77.97% Impervious Runoff Depth>2.44"
Tc=6.0 min CN=94 Runoff=2.77 cfs 0.199 af

**Subcatchment 4P: 4P** Runoff Area=6,503 sf 100.00% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=98 Runoff=0.46 cfs 0.035 af

**Subcatchment 5P: 5P** Runoff Area=1,762 sf 100.00% Impervious Runoff Depth>2.81"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.009 af

**Subcatchment 6P: 6P** Runoff Area=7,490 sf 7.42% Impervious Runoff Depth>1.39"
Tc=6.0 min CN=81 Runoff=0.30 cfs 0.020 af

**Reach 2R: R1** Avg. Flow Depth=0.11' Max Vel=0.31 fps Inflow=0.31 cfs 0.153 af
n=0.400 L=100.0' S=0.2200 '/' Capacity=35.42 cfs Outflow=0.30 cfs 0.151 af

**Pond P1: P1** Peak Elev=118.74' Storage=4,085 cf Inflow=2.77 cfs 0.199 af
Primary=0.31 cfs 0.153 af Secondary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.153 af

**Pond P2: Rain Garden** Peak Elev=117.99' Storage=394 cf Inflow=0.24 cfs 0.024 af
Discarded=0.06 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.023 af

**Pond P3: Drip Edge** Peak Elev=122.09' Storage=828 cf Inflow=0.46 cfs 0.035 af
Outflow=0.02 cfs 0.019 af

**Pond P4: Drip Edge** Peak Elev=122.40' Storage=232 cf Inflow=0.12 cfs 0.009 af
Outflow=0.00 cfs 0.005 af

**Link POA1: POA #1** Inflow=4.01 cfs 0.447 af
Primary=4.01 cfs 0.447 af

**Link POA2: POA #2** Inflow=0.32 cfs 0.044 af
Primary=0.32 cfs 0.044 af

**Total Runoff Area = 4.474 ac Runoff Volume = 0.584 af Average Runoff Depth = 1.57"**
**77.13% Pervious = 3.451 ac 22.87% Impervious = 1.023 ac**

## Summary for Subcatchment 1P: 1P

Runoff = 3.88 cfs @ 12.14 hrs, Volume= 0.296 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| Area (sf) | CN | Description |
|---|---|---|
| 80,321 | 77 | Woods, Good, HSG D |
| 48,860 | 80 | >75% Grass cover, Good, HSG D |
| 129,181 | 78 | Weighted Average |
| 129,181 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0500 | 0.24 | | **Sheet Flow, A TO B SHEET** Grass: Short n= 0.150 P2= 3.10" |
| 2.6 | 300 | 0.1500 | 1.94 | | **Shallow Concentrated Flow, B TO C** Woodland Kv= 5.0 fps |
| 9.5 | 400 | Total | | | |

## Summary for Subcatchment 2P: P2

Runoff = 0.24 cfs @ 12.31 hrs, Volume= 0.024 af, Depth> 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| Area (sf) | CN | Description |
|---|---|---|
| * 2,490 | 98 | DRIVE/WALK |
| 4,805 | 80 | >75% Grass cover, Good, HSG D |
| 7,295 | 86 | Weighted Average |
| 4,805 | | 65.87% Pervious Area |
| 2,490 | | 34.13% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 19.1 | 100 | 0.0100 | 0.09 | | **Sheet Flow, A TO B SHEET** Grass: Dense n= 0.240 P2= 3.10" |
| 3.0 | 252 | 0.0400 | 1.40 | | **Shallow Concentrated Flow, B TO C** Short Grass Pasture Kv= 7.0 fps |
| 22.1 | 352 | Total | | | |

## Summary for Subcatchment 3P: 3P

Runoff = 2.77 cfs @ 12.09 hrs, Volume= 0.199 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 25,690 | 98 | PAVE |
| * | 6,320 | 98 | HALF BUILDING |
| | 9,401 | 80 | >75% Grass cover, Good, HSG D |
| * | 1,258 | 98 | SIDEWALK |
| | 42,669 | 94 | Weighted Average |
| | 9,401 | | 22.03% Pervious Area |
| | 33,268 | | 77.97% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 4P: 4P

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 6,503 | 98 | HALF BUILDING |
| | 6,503 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 5P: 5P

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,762 | 98 | HALF BUILDING |
| | 1,762 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

## Summary for Subcatchment 6P: 6P

Runoff = 0.30 cfs @ 12.10 hrs, Volume= 0.020 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV USSF 2 Rainfall=3.24"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 556 | 98 | PAVE |
| | 6,934 | 80 | >75% Grass cover, Good, HSG D |
| | 7,490 | 81 | Weighted Average |
| | 6,934 | | 92.58% Pervious Area |
| | 556 | | 7.42% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.0 | | | | | **Direct Entry,** |

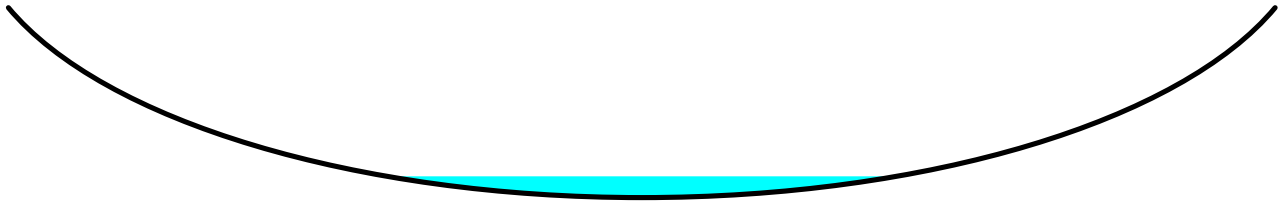
## Summary for Reach 2R: R1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 1.88" for WQV USSF 2 event
Inflow = 0.31 cfs @ 12.79 hrs, Volume= 0.153 af
Outflow = 0.30 cfs @ 12.96 hrs, Volume= 0.151 af, Atten= 0%, Lag= 10.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.31 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 7.7 min

Peak Storage= 99 cf @ 12.87 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 26.7 sf, Capacity= 35.42 cfs

40.00' x 1.00' deep Parabolic Channel, n= 0.400
Length= 100.0' Slope= 0.2200 '/'
Inlet Invert= 102.00', Outlet Invert= 80.00'



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## Summary for Pond P1: P1

Inflow Area = 0.980 ac, 77.97% Impervious, Inflow Depth > 2.44" for WQV USSF 2 event
Inflow = 2.77 cfs @ 12.09 hrs, Volume= 0.199 af
Outflow = 0.31 cfs @ 12.79 hrs, Volume= 0.153 af, Atten= 89%, Lag= 42.4 min
Primary = 0.31 cfs @ 12.79 hrs, Volume= 0.153 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.74' @ 12.79 hrs Surf.Area= 3,166 sf Storage= 4,085 cf

Plug-Flow detention time= 164.6 min calculated for 0.153 af (77% of inflow)
Center-of-Mass det. time= 106.4 min ( 864.1 - 757.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.10' | 7,690 cf | **Ponding (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.10 | 1,804 | 0 | 0 |
| 119.75 | 4,000 | 7,690 | 7,690 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 114.00' | **12.0" Round Culvert**<br>L= 60.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 114.00' / 112.00' S= 0.0333 '/' Cc= 0.600<br>n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 117.10' | **2.400 in/hr Exfiltration over Surface area** |
| #3 | Device 1 | 118.60' | **24.0" Vert. Orifice/Grate** C= 0.600 |
| #4 | Secondary | 118.75' | **20.0' long x 10.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64 |

**Primary OutFlow** Max=0.31 cfs @ 12.79 hrs HW=118.74' (Free Discharge)
└─**1=Culvert** (Passes 0.31 cfs of 4.10 cfs potential flow)
  ├─**2=Exfiltration** (Exfiltration Controls 0.18 cfs)
  └─**3=Orifice/Grate** (Orifice Controls 0.13 cfs @ 1.29 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=117.10' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P2: Rain Garden

Inflow Area = 0.167 ac, 34.13% Impervious, Inflow Depth > 1.74" for WQV USSF 2 event
Inflow = 0.24 cfs @ 12.31 hrs, Volume= 0.024 af
Outflow = 0.06 cfs @ 12.92 hrs, Volume= 0.023 af, Atten= 73%, Lag= 36.5 min
Discarded = 0.06 cfs @ 12.92 hrs, Volume= 0.023 af
Primary = 0.00 cfs @ 12.92 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 117.99' @ 12.92 hrs Surf.Area= 1,038 sf Storage= 394 cf

Plug-Flow detention time= 91.7 min calculated for 0.023 af (96% of inflow)
Center-of-Mass det. time= 78.0 min ( 877.9 - 799.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 118.00' | 509 cf | **Ponding above surface (Prismatic)** Listed below (Recalc) |
| #2 | 117.50' | 173 cf | **Topsoil direct entry ponding (Prismatic)** Listed below (Recalc) |
| #3 | 117.00' | 17 cf | **Filter/Gravel Layers (Prismatic)** Listed below (Recalc)<br>173 cf Overall x 10.0% Voids |
| #4 | 115.50' | 207 cf | **3/4" Crushed Stone (Prismatic)** Listed below (Recalc)<br>519 cf Overall - 1 cf Embedded = 518 cf x 40.0% Voids |
| #5 | 115.90' | 1 cf | **2.0" Round Pipe Storage** Inside #4<br>L= 28.0' S= 0.0100 '/'<br>1 cf Overall - 0.5" Wall Thickness = 1 cf |
| | | 907 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 118.00 | 346 | 0 | 0 |
| 118.60 | 531 | 263 | 263 |
| 119.00 | 700 | 246 | 509 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.50 | 346 | 0 | 0 |
| 118.00 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 117.00 | 346 | 0 | 0 |
| 117.50 | 346 | 173 | 173 |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 115.50 | 346 | 0 | 0 |
| 117.00 | 346 | 519 | 519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.90' | **4.0" Round Culvert** L= 24.0' Ke= 0.600<br>Inlet / Outlet Invert= 115.90' / 115.65' S= 0.0104 '/' Cc= 0.900<br>n= 0.011, Flow Area= 0.09 sf |
| #2 | Device 1 | 116.00' | **0.1" Vert. CPV Drawdown Model** C= 0.600 |
| #3 | Discarded | 115.50' | **2.410 in/hr Exfiltration over Surface area** |
| #4 | Primary | 118.60' | **17.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |

**Discarded OutFlow** Max=0.06 cfs @ 12.92 hrs HW=117.99' (Free Discharge)
└**3=Exfiltration** (Exfiltration Controls 0.06 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.92 hrs HW=117.99' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.50 cfs potential flow)
└**2=CPV Drawdown Model** (Orifice Controls 0.00 cfs @ 6.78 fps)
└**4=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P3: Drip Edge

Inflow Area = 0.149 ac,100.00% Impervious, Inflow Depth > 2.81" for WQV USSF 2 event
Inflow = 0.46 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.02 cfs @ 9.65 hrs, Volume= 0.019 af, Atten= 96%, Lag= 0.0 min
Primary = 0.02 cfs @ 9.65 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.09' @ 15.04 hrs Surf.Area= 800 sf Storage= 828 cf

Plug-Flow detention time= 162.8 min calculated for 0.019 af (55% of inflow)
Center-of-Mass det. time= 76.7 min ( 815.1 - 738.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 1,120 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>2,800 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 800 | 0 | 0 |
| 123.00 | 800 | 2,800 | 2,800 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00<br>Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.02 cfs @ 9.65 hrs HW=119.54' (Free Discharge)
**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)
**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

## Summary for Pond P4: Drip Edge

Inflow Area = 0.040 ac,100.00% Impervious, Inflow Depth > 2.81" for WQV USSF 2 event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 0.009 af
Outflow = 0.00 cfs @ 9.40 hrs, Volume= 0.005 af, Atten= 96%, Lag= 0.0 min
Primary = 0.00 cfs @ 9.40 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 122.40' @ 15.29 hrs Surf.Area= 200 sf Storage= 232 cf

Plug-Flow detention time= 162.2 min calculated for 0.005 af (52% of inflow)
Center-of-Mass det. time= 71.8 min ( 810.3 - 738.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 119.50' | 280 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc)<br>700 cf Overall x 40.0% Voids |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 119.50 | 200 | 0 | 0 |
| 123.00 | 200 | 700 | 700 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.50' | **125.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32 |
| #2 | Primary | 119.50' | **1.000 in/hr Exfiltration over Surface area** |

**Primary OutFlow** Max=0.00 cfs @ 9.40 hrs HW=119.54' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)
└**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Summary for Link POA1: POA #1

Inflow Area = 3.945 ac, 19.36% Impervious, Inflow Depth > 1.36" for WQV USSF 2 event
Inflow = 4.01 cfs @ 12.14 hrs, Volume= 0.447 af
Primary = 4.01 cfs @ 12.14 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## Summary for Link POA2: POA #2

Inflow Area = 0.529 ac, 49.07% Impervious, Inflow Depth > 1.01" for WQV USSF 2 event
Inflow = 0.32 cfs @ 12.10 hrs, Volume= 0.044 af
Primary = 0.32 cfs @ 12.10 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine


July 20, 2022

# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# Contents

# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

# Custom Soil Resource Report
## Soil Map


Map Scale: 1:2,290 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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

## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

**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 1:24,000.

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: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 18, Aug 31, 2021

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

Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

## MAP LEGEND

## MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| BuC2 | Buxton silt loam, 8 to 15 percent slopes | 8.9 | 75.5% |
| HsC | Lyman-Abram complex, 8 to 15 percent slopes, very rocky | 2.9 | 24.5% |
| **Totals for Area of Interest** | | **11.8** | **100.0%** |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Cumberland County and Part of Oxford County, Maine

## BuC2—Buxton silt loam, 8 to 15 percent slopes

### Map Unit Setting

*National map unit symbol:* 2x1by
*Elevation:* 10 to 490 feet
*Mean annual precipitation:* 33 to 60 inches
*Mean annual air temperature:* 36 to 52 degrees F
*Frost-free period:* 90 to 160 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Buxton and similar soils:* 85 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Buxton

#### Setting

*Landform:* Marine terraces, river valleys
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine glaciomarine deposits

#### Typical profile

*Ap - 0 to 7 inches:* silt loam
*Bw1 - 7 to 18 inches:* silt loam
*Bw2 - 18 to 23 inches:* silty clay loam
*BC - 23 to 35 inches:* silty clay loam
*C - 35 to 65 inches:* silty clay

#### Properties and qualities

*Slope:* 8 to 15 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.14 in/hr)
*Depth to water table:* About 17 to 24 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 9.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3e
*Hydrologic Soil Group:* C/D
*Hydric soil rating:* No

## HsC—Lyman-Abram complex, 8 to 15 percent slopes, very rocky

### Map Unit Setting

*National map unit symbol:* 2x1d1
*Elevation:* 0 to 520 feet
*Mean annual precipitation:* 36 to 65 inches
*Mean annual air temperature:* 36 to 52 degrees F
*Frost-free period:* 90 to 160 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Lyman and similar soils:* 45 percent
*Abram and similar soils:* 35 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Lyman

#### Setting

*Landform:* Hills, ridges
*Landform position (two-dimensional):* Summit, shoulder, backslope
*Landform position (three-dimensional):* Nose slope, crest
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

#### Typical profile

*Oe - 0 to 1 inches:* moderately decomposed plant material
*A - 1 to 3 inches:* loam
*E - 3 to 5 inches:* fine sandy loam
*Bhs - 5 to 7 inches:* loam
*Bs1 - 7 to 11 inches:* loam
*Bs2 - 11 to 18 inches:* channery loam
*R - 18 to 79 inches:* bedrock

#### Properties and qualities

*Slope:* 8 to 15 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 11 to 24 inches to lithic bedrock
*Drainage class:* Somewhat excessively drained
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to high (0.00 to 14.03 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water supply, 0 to 60 inches:* Low (about 3.2 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6s

*Hydrologic Soil Group:* D
*Hydric soil rating:* No

### Description of Abram

#### Setting

*Landform:* Ridges, hills
*Landform position (two-dimensional):* Summit, shoulder
*Landform position (three-dimensional):* Nose slope, crest
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Loamy subglacial till

#### Typical profile

*Oa - 0 to 2 inches:* highly decomposed plant material
*E - 2 to 3 inches:* loam
*Bs - 3 to 6 inches:* loam
*R - 6 to 79 inches:* bedrock

#### Properties and qualities

*Slope:* 8 to 15 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 3 to 13 inches to lithic bedrock
*Drainage class:* Excessively drained
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately low (0.00 to 0.14 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
*Available water supply, 0 to 60 inches:* Very low (about 1.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 7s
*Hydrologic Soil Group:* D
*Hydric soil rating:* No

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# Section H

## Erosion & Sedimentation Control Report

ACORN
ENGINEERING, INC.

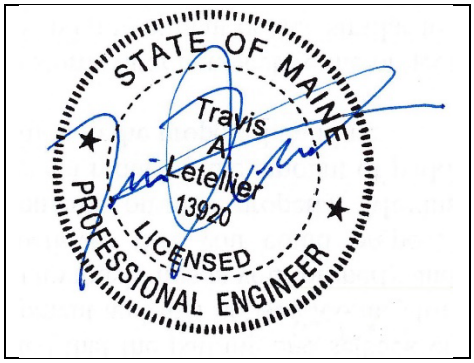
# H. WHITE ROCK TERRACE EROSION & SEDIMENTATION CONTROL REPORT

**Prepared For:**

**The Szanton Company**
**Portland, Maine 04103**

**Prepared By:**

**Acorn Engineering, Inc.**
**500 Washington Avenue**
**Portland, Maine 04103**




**October 2022**

## INTRODUCTION

Acorn Engineering, Inc. has been retained by Szanton Company to provide civil engineering services for the proposed development at Sky View Drive. The property consists of approximately 4.47 acres of land and contains the following parcels (Map R1, Lot 107A).

The following Erosion and Sedimentation Control Report was developed in accordance with the Maine DEP Chapter 500 Stormwater Management Appendix A and B (1), Amended August 12, 2015. This narrative also meets the standards required in the Maine DEP's Erosion & Sediment Control BMP's Manual, revised in 2016.

## 1.0 EXISTING CONDITIONS

The proposed project site is located off Read Street and abuts a railroad bed to the west. A Boundary & Topographic Survey has been prepared by Owen Haskell, Inc., dated October 7, 2022.

Abutting Uses include:

- North Residential Use
- South/East Commercial Use
- West I-295

The project features the development of a single four-story building with 55 one- and two-bedroom affordable rental units designated for senior housing. The building has a footprint of roughly 12,000 square feet and the development will provide 78 parking spaces and vehicular and pedestrian circulation. The site in its existing condition drains water in roughly two directions, to the east and west. Please see the Stormwater Report for more detailed information on the existing and proposed sub catchments.

### 1.1 Existing Soils

Onsite soil information includes the following:

- Soil Conservation Service Medium Intensity Soil Survey for Cumberland County
- United States Department of Agriculture Web Soil Survey

The area within and surrounding the project includes soil types listed in the table below. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. Higher "K" values indicate more erodible soils.

**Table 1 - "K" Value**

| Soils Type | Subsurface | Substratum |
|---|---|---|
| Buxton silt loam | 0.49 | 0.49 |
| Lyman-Abram complex | 0.32 | 0.32 |

The soil "K" value for the soil, listed above, shows a higher susceptibility to erosion, as derived from the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. Implementation of the proposed Erosion & Sedimentation Measures by the contractor will be important to limit erosion during large storm events.

1.2 Existing Erosion Problems

There are no signs of erosion.

1.3 Critical Areas

There are no critical areas that require special attention during construction.

1.4 Protected Natural Resource

The client is not aware of the presence of any existing significant natural features located on the site as listed in Section 14-526 (b) 1. of the Land Use Code. The project is not located within a watershed classified as an Urban Impaired Stream by the Maine DEP.

1.5 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities within the project limits within the past 5 years. Historical imagery shows the existence of a warehouse in the proposed footprint until around 2012.

1.6 Timber Harvesting

Acorn Engineering, Inc. is not aware of any timber harvesting within the past five years.

## 2.0 EROSION CONTROL MEASURES AND SITE STABILIZATION

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

### 2.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period:

2.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches, or reclaimed or recycled concrete equivalent.
- The thickness of the entrance stone layer shall be no less than 6 inches.
- The entrance shall not be less than 20 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
- Geotextile fabric (woven or non-woven) shall be placed over the entire entrance area.
- The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public road ways.

2.1.2 Siltation fence or erosion control berm shall be installed down gradient of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence or erosion control berm shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line or berm. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam.

2.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.

2.1.4 At any time of the year, all slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American

Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.

2.1.5 Sky View Drive shall be swept to control mud and dust from the construction site as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

2.1.6 During demolition, clearing and grubbing operations, stone check dams shall be installed at any areas of concentrated flow. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditch lines within 24 hours of their creation.

2.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14-gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.

2.1.8 Storm drain inlet protection shall be provided to storm drains using any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and repaired as necessary. Sediments shall be removed when accumulation has reached ½ the design height.

2.1.9 Dust control shall be accomplished using any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.

2.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.

2.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7-day window, in which case the stockpile shall be stabilized prior to the rain event. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location.

2.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

2.1.13 It is of the utmost importance that stormwater runoff and potential sediment from the construction site be diverted around the proposed underdrains until the trench is backfilled.

2.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

2.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall receive a minimum 4" of loam, limed, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.

2.2.2 All stormwater devices shall be installed, and tributary areas stabilized prior receiving stormwater.

2.2.3 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

## 3.0 DETAILS AND SPECIFICATIONS

3.1 Erosion & Sedimentation Control Details and Specifications are included in the plan set.

## 4.0 STABILIZATION PLAN FOR WINTER CONSTRUCTION

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15, then the site shall be protected with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap, or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in during the subsequent 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

4.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

4.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly

anchored. Erosion control mix must be applied with a minimum 4-inch thickness. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

4.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

4.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs./1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

4.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.

- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

4.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.

- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

## 5.0 INSPECTION AND MAINTENANCE

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once every two weeks, as well as after a "storm event". A "storm event" shall consist 0.5 inches of rain within a 24-hour period. The following Erosion and Sediment Control - Best Management Practices (BMP's) shall inspected in the manner as described.

### 5.1 Sediment Barriers

Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

### 5.2 Stabilized Stone Construction Entrances

The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

### 6.3 Mulched Areas

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

6.4 Dust Control

When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

6.5 Stormwater Appurtenances

All underdrains, storm drains, and catch basins need to be operating effectively and free of debris.

6.6 Erosion and Sedimentation Control Inspections:

Acorn Engineering has personnel qualified to conduct Erosion and Sedimentation Control Inspections. For further information, contact:

Contact: Will Savage, PE
Telephone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

**The Contractor has sole responsibility for complying with the Erosion and Sedimentation Report/Plan, including control of fugitive dust. The Contractor shall be responsible for any monetary penalties resulting from failure to comply with these standards.**

## 6.0 IMPLEMENTATION SCHEDULE

The following implementation sequence is intended to maximize the effectiveness of the above described erosion control measures. Contractors should avoid overexposing disturbed areas and limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site.
2. Install perimeter silt fence or erosion control berm.
3. Install all other erosion control devices as necessary throughout the remainder of this schedule.
4. Commence installation of drainage infrastructure.
5. Prioritize the downhill side to contain runoff within the site while providing an engineered outlet to the municipal storm drain system within Read Street.
6. Commence earthwork operations, associated with the parking lot construction.
7. Commence installation of utilities.
8. Continue earthwork and grading to subgrade as necessary for construction.
9. Complete installation of drainage infrastructure, as well as other utility work.
10. Complete remaining earthwork operations.
11. Install sub-base and base gravels in paved areas.
12. Install paving, curbing and brickwork.
13. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
14. Once the site is stabilized and mulching of landscape areas is complete, remove all temporary erosion control measures.
15. Touch up areas without a vigorous catch of grass with loam and seed.
16. Complete site signage and striping.
17. Execute proper maintenance of all temporary and permanent erosion control measures throughout the project.

The above implementation sequence should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. The contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed areas to those areas in which work is expected to be undertaken during the following 30 days.

The contractor shall re-vegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase.

## 7.0 CONCLUSION

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

## 8.0 ATTACHMENTS

- Temporary Seeding Plan

# TEMPORARY SEEDING PLAN

## Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

## Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P2O5-K2O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

## Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

| Seed | Pounds / 1,000 S.F. | Recommended Seeding Dates |
|---|---|---|
| Winter Rye | 2.57 | Aug-15 to Oct-1 |
| Oats | 1.84 | Apr-1 to Jul-1<br>Aug-15 to Sep-15 |
| Annual Ryegrass | 0.92 | Apr-1 to Jul-1 |
| Sudangrass | 0.92 | May-15 to Aug-15 |
| Perennial | 0.92 | Aug-15 to Sep-15 |

## Mulching

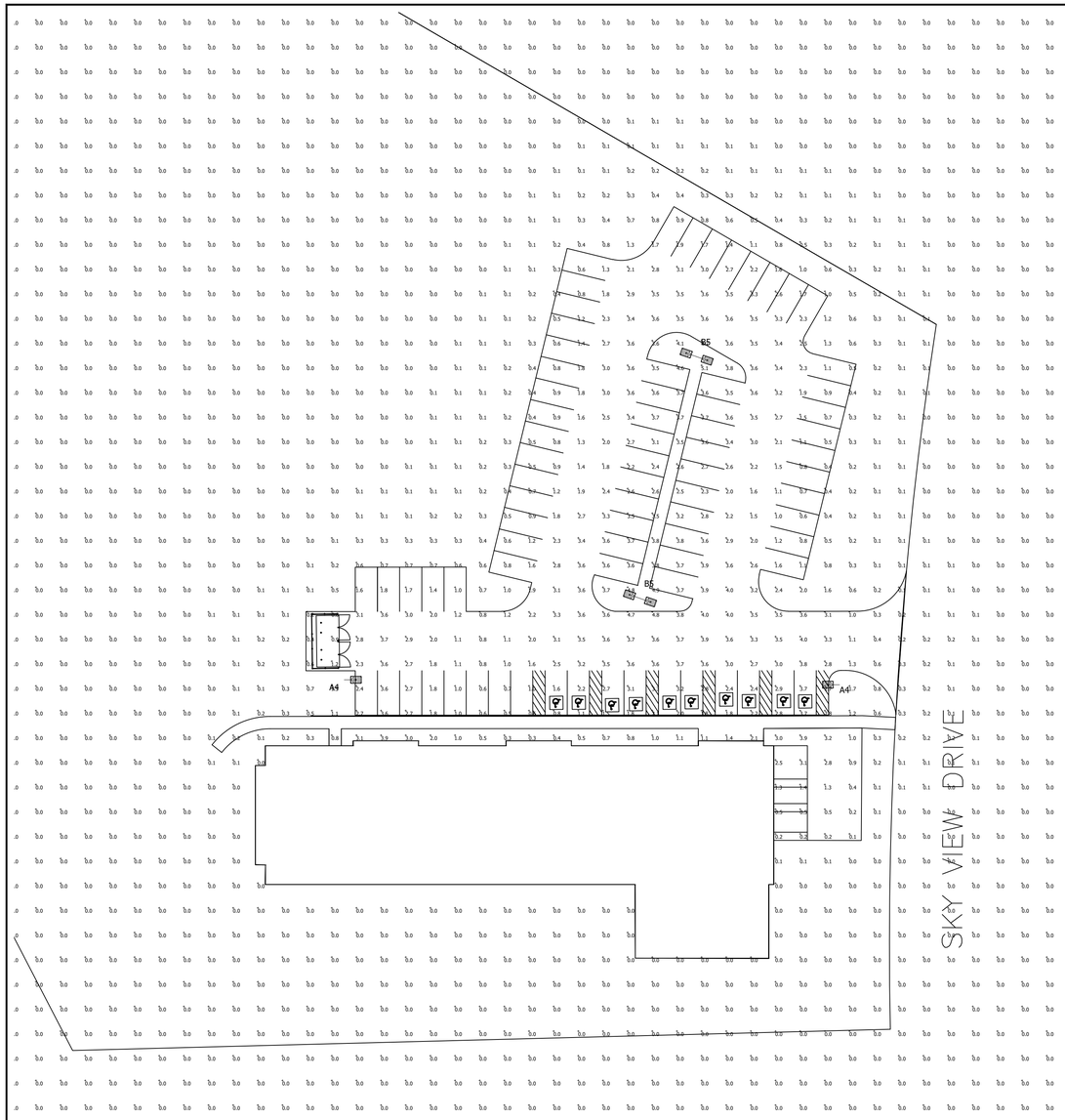
Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a minimum depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

## Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.

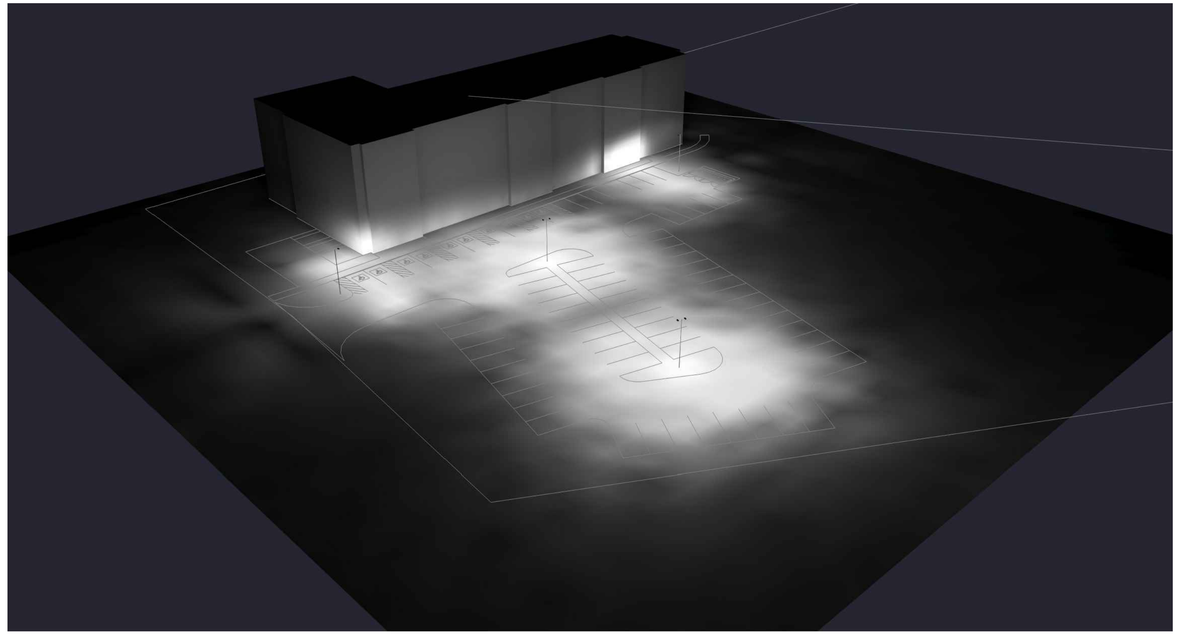
# Section I

## Lighting Specifications




| Luminaire Schedule | | | | | | | |
|---|---|---|---|---|---|---|---|
| Symbol | Qty | Label | Mounting Height | LLF | Lum. Lumens | Lum. Watts | Description |
| | 2 | B5 | 20' - 0" AFG | 0.900 | 17209 | 135 | VP-1-160L-135-3K7-5QW |
| | 2 | A4 | 20' - 0" AFG | 0.900 | 14224 | 111.9 | VP-1-160L-115-3K7-4W |

| Calculation Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| Label | CalcType | Units | Avg | Max | Min | Avg/Min | Max/Min |
| Overall Area | Illuminance | Fc | 0.28 | 5.1 | 0.0 | N.A. | N.A. |
| Parking Area | Illuminance | Fc | 2.49 | 5.1 | 0.4 | 6.23 | 12.75 |



GRAPHIC SCALE

30 0 15 30 60 120

( IN FEET )

1 inch = 30 - FT.

1. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO CURRENT. SITE DETAILS PROVIDED HEREON ARE REPRODUCED ONLY AS A VISUALIZATION AID. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, ETC.) SHOULD BE COORDINATED WITH THE CONTRACTOR AND/OR SPECIFIER RESPONSIBLE FOR THE PROJECT.
2. LUMINAIRE DATA IS TESTED TO INDUSTRY STANDARDS UNDER LABORATORY CONDITIONS. OPERATING VOLTAGE AND NORMAL MANUFACTURING TOLERANCES OF LAMP, BALLAST, AND LUMINAIRE MAY AFFECT FIELD RESULTS.
3. CONFORMANCE TO FACILITY CODE AND OTHER LOCAL REQUIREMENTS IS THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.

TITLE:

SKYVIEW DRIVE APARTMENTS
CUMBERLAND, ME
SITE PHOTOMETRIC PLAN

| REVISED FROM DRAWING NUMBER(S): | |
|---|---|
| | |
| | |
| | |
| | |

Current

| | | |
|---|---|---|
| DN BY: DHK | DATE: 10/19/22 | CHK BY: N/A |
| REV. BY: | DATE: | SCALE: AS NOTED |
| QUOTE: N/A | DRAWING / DESIGN NO.: A221196 | |

**Date: Oct 20, 2022**

Swaney Lighting
PO Box 1597
Scarborough ME 04070
Phone: (207) 883-7100
Fax: (207) 885-9606

Job Name
**SKYVIEW DRIVE APARTMENTS**
SLA22-53562
CUMBERLAND ME

Bid Date
Oct 20, 2022

Submittal Date
Oct 20, 2022

*Designer & Consultants:*
Swaney Application Design
applications

# Transmittal

Swaney Lighting
PO Box 1597
Scarborough ME 04070
Phone: (207) 883-7100
**From: Therese "TC" Freeman X-103**

**Project** **SKYVIEW DRIVE APARTMENTS**
**Quote#** SLA22-53562
**Location** CUMBERLAND ME
Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- ☐ Drawings
- ☐ Prints
- ☐ Plans
- ☐ Specifications
- ☐ Information
- ☒ Submittals

Other:

THESE ARE TRANSMITTED FOR:

- ☐ Prior Approval
- ☒ Approval
- ☐ Approval as Submitted
- ☐ Approval as Noted
- ☐ Resubmittal for Approval
- ☐ Corrections
- ☐ Your Use
- ☐ Review and Comment
- ☐ Record

Bids due on:
Other:

| Type | MFG | Part |
|---|---|---|
| B5 | BEACON PRODUCTS | VP-1-160L-135-3K7-5QW-UNV-A-*** |
| | **Item Note:** 2@180 DEG | |
| B5 | BEACON PRODUCTS | SSSB20-40A-2-B3-*** |
| A4 | BEACON PRODUCTS | VP-1-160L-135-3K7-4W-UNV-A-*** |
| A4 | BEACON PRODUCTS | SSSB20-40A-1-B3-*** |

BEACON
design . performance . technology

# VIPER Area/Site

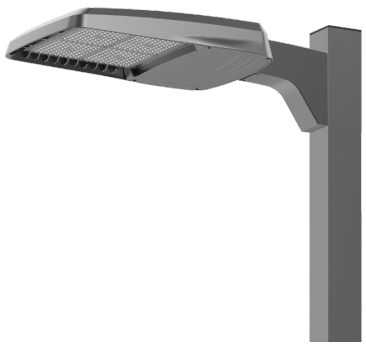
VIPER LUMINAIRE

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

MICRO STRIKE | OPTICS STRIKE



## FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped

c UL us IP65 | BUY AMERICAN SOLUTIONS (See Certification Specifications) | DLC LISTED | DLC LISTED PREMIUM

## CONTROL TECHNOLOGY

NX LIGHTING CONTROLS | wiSCAPE™

## SPECIFICATIONS

### CONSTRUCTION
- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

### OPTICS
- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

### INSTALLATION
- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles.

### INSTALLATION (CONTINUED)
- All mounting hardware included
- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

### ELECTRICAL
- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

### CONTROLS
- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0- 10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard

### CONTROLS (CONTINUED)
- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

### CERTIFICATIONS
- DLC® (DesignLights Consortium Qualified), with both Premium and Standard Qualified configurations. Please refer to the DLC website for specific product qualifications at http://www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020.

### WARRANTY
- 5 year warranty

| KEY DATA | |
|---|---|
| Lumen Range | 5,000–80,000 |
| Wattage Range | 36–600 |
| Efficacy Range (LPW) | 92–155 |
| Weight lbs. (kg) | 13.7-30.9 (6.2-13.9) |

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

# VIPER Area/Site

VIPER LUMINAIRE

## MICROSTRIKE OPTICS – ORDERING GUIDE

**Example:** VP–2–320L-145–3K7–2–R–UNV–A3–BLT

CATALOG #

VP –

| Series | Optic Platform | Size | Light Engine | | CCT/CRI | | Distribution | | Optic Rotation | | Voltage | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VP** Viper | Micro Strike | **1** Size 1 | **160L-35** [6] | 5500 lumens | **AP** | AP-Amber Phosphor Converted | **2** | Type 2 | **BLANK** | No Rotation | **UNV** | 120-277V |
| | | | **160L-50** [6] | 7500 lumens | **27K8** | 2700K, 80 CRI | **3** | Type 3 | **L** | Optic rotation left | **120** | 120V |
| | | | **160L-75** | 10000 lumens | **3K7** | 3000K, 70 CRI | **4F** | Type 4 Forward | **R** | Optic rotation right | **208** | 208V |
| | | | **160L-100** | 12500 lumens | **3K8** | 3000K, 80 CRI | **4W** | Type 4 Wide | | | **240** | 240V |
| | | | **160L-115** | 15000 lumens | **35K8** | 3500K, 80 CRI | **5QW** | Type 5 Square Wide | | | **277** | 277V |
| | | | **160L-135** | 18000 lumens | **3K9** | 3000K, 90 CRI | | | | | **347** | 347V |
| | | | **160L-160** | 21000 lumens | **4K7** | 4000K, 70 CRI | | | | | **480** | 480V |
| | | **2** Size 2 | **320L-145** | 21000 lumens | **4K8** | 4000K, 80 CRI | | | | | | |
| | | | **320L-170** | 24000 lumens | **4K9** | 4000K, 90 CRI | | | | | | |
| | | | **320L-185** | 27000 lumens | **5K7** | 5000K, 70 CRI | | | | | | |
| | | | **320L-210** | 30000 lumens | **5K8** | 5000K, 80 CRI | | | | | | |
| | | | **320L-235** | 33000 lumens | | | | | | | | |
| | | | **320L-255** | 36000 lumens | | | | | | | | |
| | | | **320L-315** [6] | 40000 lumens | | | | | | | | |
| | | **3** Size 3 | **480L-285** | 40000 lumens | | | | | | | | |
| | | | **480L-320** | 44000 lumens | | | | | | | | |
| | | | **480L-340** | 48000 lumens | | | | | | | | |
| | | | **480L-390** | 52000 lumens | | | | | | | | |
| | | | **480L-425** | 55000 lumens | | | | | | | | |
| | | | **480L-470** | 60000 lumens | | | | | | | | |
| | | **4** Size 4 | **720L-435** | 60000 lumens | | | | | | | | |
| | | | **720L-475** | 65000 lumens | | | | | | | | |
| | | | **720L-515** | 70000 lumens | | | | | | | | |
| | | | **720L-565** [6] | 75000 lumens | | | | | | | | |
| | | | **720L-600** [6] | 80000 lumens | | | | | | | | |
| | | | **CLO** | Custom Lumen Output [1] | | | | | | | | |

– Specify Stnd. finish –

| Mounting | | Color | | Options | |
|---|---|---|---|---|---|
| **A** | Arm mount for square pole/flat surface | **BLT** | Black Matte Textured | **F** | Fusing |
| **A_** | Arm mount for round pole [2] | **BLS** | Black Gloss Smooth | **2PF** | Dual Power Feed |
| **ASQU** | Universal arm mount for square pole | **DBT** | Dark Bronze Matte Textured | **2DR** | Dual Driver |
| **A_U** | Universal arm mount for round pole [2] | **DBS** | Dark Bronze Gloss Smooth | **TE** | Tooless Entry |
| **AAU** | Adjustable arm for pole mounting (universal drill pattern) | **GTT** | Graphite Matte Textured | **BC** | Backlight Control |
| **AA_U** | Adjustable arm mount for round pole [2] | **LGS** | Light Grey Gloss Smooth | **TB** | Terminal Block |
| **ADU** | Decorative upswept Arm (universal drill pattern) | **LGT** | Light Grey Gloss Textured | | |
| **AD_U** | Decorative upswept arm mount for round pole [2] | **PSS** | Platinum Silver Smooth | | |
| **MAF** | Mast arm fitter for 2-3/8" OD horizontal arm | **WHT** | White Matte Textured | | |
| **K** | Knuckle | **WHS** | White Gloss Smooth | | |
| **T** | Trunnion | **VGT** | Verde Green Textured | | |
| **WB** | Wall Bracket, horizontal tenon with MAF | **Color Option** | | | |
| **WM** | Wall mount bracket with decorative upswept arm | **CC** | Custom Color | | |
| **WA** | Wall mount bracket with adjustable arm | | | | |

| Network Control Options | |
|---|---|
| **NXWS16F** | NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4] |
| **NXWS40F** | NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4] |
| **NXW** | NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4] |
| **WIR** | wiSCAPE® In-Fixture Module [3,4] |
| **WIRSC** | wiSCAPE® Module and Occupancy Sensor [3,4] |
| **Stand Alone Sensors** | |
| **BTS-14F** | Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens |
| **BTS-40F** | Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens |
| **BTSO-12F** | Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens |
| **7PR** | 7-Pin Receptacle [4] |
| **7PR-SC** | 7-Pin Receptacle with shorting cap [4] |
| **3PR** | 3-Pin twist lock [4] |
| **3PR-SC** | 3-Pin receptacle with shorting cap [4] |
| **3PR-TL** | 3-Pin PCR with photocontrol [4] |
| **Programmed Controls** | |
| **ADD** | AutoDim Timer Based Dimming [4] |
| **ADT** | AutoDim Time of Day Dimming [4] |
| **Photocontrols** | |
| **PC** | Button Photocontrol [4,7] |

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Replace "_" with "2" for 2.5"-3.4" OD pole, "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
3 – Networked Controls cannot be combined with other control options
4 – Not available with 2PF option
5 – Not available with Dual Driver option
6 – Some voltage restrictions may apply when combined with controls
7 – Not available with 480V

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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

## DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.Currentlighting.com

## PROJECTED LUMEN MAINTENANCE

| Ambient Temp. | 0 | 25,000 | *TM-21-11 36,000 | 50,000 | 100,000 | Calculated $L_{70}$ (Hours) |
|---|---|---|---|---|---|---|
| 25°C / 77°F | 1.00 | 0.97 | 0.96 | 0.95 | 0.91 | 408,000 |
| 40°C / 104°F | 0.99 | 0.96 | 0.95 | 0.94 | 0.89 | 356,000 |

## LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

| Ambient Temperature | | Lumen Multiplier |
|---|---|---|
| 0°C | 32°F | 1.03 |
| 10°C | 50°F | 1.01 |
| 20°C | 68°F | 1.00 |
| 25°C | 77°F | 1.00 |
| 30°C | 86°F | 0.99 |
| 40°C | 104°F | 0.98 |

| Micro Strike Lumen Multiplier | | | |
|---|---|---|---|
| CCT | 70 CRI | 80 CRI | 90 CRI |
| 2700K | – | 0.841 | – |
| 3000K | 0.977 | 0.861 | 0.647 |
| 3500K | – | 0.900 | – |
| 4000K | 1 | 0.926 | 0.699 |
| 5000K | 1 | 0.937 | 0.791 |
| Monochromatic Amber Multiplier | | | |
| Amber | 0.250 | | |

| Strike Lumen Multiplier | | | |
|---|---|---|---|
| CCT | 70 CRI | 80 CRI | 90 CRI |
| 2700K | – | 0.859 | – |
| 3000K | 0.941 | 0.912 | 0.703 |
| 3500K | – | 0.906 | – |
| 4000K | 1 | 0.894 | 0.734 |
| 5000K | 1 | 0.879 | 0.711 |
| Monochromatic Amber Multiplier | | | |
| Amber | 0.255 | | |

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# VIPER Area/Site

VIPER LUMINAIRE

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

## ELECTRICAL DATA: MICRO STRIKE

| # OF LEDS | 160 | | | | | | |
|---|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 35 | 50 | 75 | 100 | 115 | 135 | 160 |
| SYSTEM POWER (W) | 34.9 | 50.5 | 72.1 | 97.2 | 111.9 | 132.2 | 157.8 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | | | |
| 120 | 0.29 | 0.42 | 0.63 | 0.83 | 0.96 | 1.13 | 1.33 |
| 208 | 0.17 | 0.24 | 0.36 | 0.48 | 0.55 | 0.65 | 0.77 |
| 240 | 0.15 | 0.21 | 0.31 | 0.42 | 0.48 | 0.56 | 0.67 |
| 277 | 0.13 | 0.18 | 0.27 | 0.36 | 0.42 | 0.49 | 0.58 |
| 347 | 0.10 | 0.14 | 0.22 | 0.29 | 0.33 | 0.39 | 0.46 |
| 480 | 0.07 | 0.10 | 0.16 | 0.21 | 0.24 | 0.28 | 0.33 |

| # OF LEDS | 320 | | | | | | |
|---|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 145 | 170 | 185 | 210 | 235 | 255 | 315 |
| SYSTEM POWER (W) | 150 | 166.8 | 185.7 | 216.2 | 240.9 | 261.5 | 312 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | | | |
| 120 | 1.21 | 1.42 | 1.54 | 1.75 | 1.96 | 2.13 | 2.63 |
| 208 | 0.70 | 0.82 | 0.89 | 1.01 | 1.13 | 1.23 | 1.51 |
| 240 | 0.60 | 0.71 | 0.77 | 0.88 | 0.98 | 1.06 | 1.31 |
| 277 | 0.52 | 0.61 | 0.67 | 0.76 | 0.85 | 0.92 | 1.14 |
| 347 | 0.42 | 0.49 | 0.53 | 0.61 | 0.68 | 0.73 | 0.91 |
| 480 | 0.30 | 0.35 | 0.39 | 0.44 | 0.49 | 0.53 | 0.66 |

| # OF LEDS | 480 | | | | | |
|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 285 | 320 | 340 | 390 | 425 | 470 |
| SYSTEM POWER (W) | 286.2 | 316.7 | 338.4 | 392.2 | 423.2 | 468 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | | |
| 120 | 2.38 | 2.67 | 2.83 | 3.25 | 3.54 | 3.92 |
| 208 | 1.37 | 1.54 | 1.63 | 1.88 | 2.04 | 2.26 |
| 240 | 1.19 | 1.33 | 1.42 | 1.63 | 1.77 | 1.96 |
| 277 | 1.03 | 1.16 | 1.23 | 1.41 | 1.53 | 1.70 |
| 347 | 0.82 | 0.92 | 0.98 | 1.12 | 1.22 | 1.35 |
| 480 | 0.59 | 0.67 | 0.71 | 0.81 | 0.89 | 0.98 |

| # OF LEDS | 720 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 435 | 475 | 515 | 565 | 600 |
| SYSTEM POWER (W) | 429.3 | 475 | 519.1 | 565.2 | 599.9 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 3.63 | 3.96 | 4.29 | 4.71 | 5.00 |
| 208 | 2.09 | 2.28 | 2.48 | 2.72 | 2.88 |
| 240 | 1.81 | 1.98 | 2.15 | 2.35 | 2.50 |
| 277 | 1.57 | 1.71 | 1.86 | 2.04 | 2.17 |
| 347 | 1.25 | 1.37 | 1.48 | 1.63 | 1.73 |
| 480 | 0.91 | 0.99 | 1.07 | 1.18 | 1.25 |

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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

## ELECTRICAL DATA: STRIKE

| # OF LEDS | 36 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 39 | 55 | 85 | 105 | 120 |
| SYSTEM POWER (W) | 39.6 | 56.8 | 83.6 | 108.2 | 120.9 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 0.33 | 0.46 | 0.71 | 0.88 | 0.96 |
| 208 | 0.19 | 0.26 | 0.41 | 0.50 | 0.55 |
| 240 | 0.16 | 0.23 | 0.35 | 0.44 | 0.48 |
| 277 | 0.14 | 0.20 | 0.31 | 0.38 | 0.42 |
| 347 | 0.11 | 0.16 | 0.24 | 0.30 | 0.33 |
| 480 | 0.08 | 0.11 | 0.18 | 0.22 | 0.24 |

| # OF LEDS | 72 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 115 | 145 | 180 | 210 | 240 |
| SYSTEM POWER (W) | 113.7 | 143.2 | 179.4 | 210.2 | 241.7 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 1.00 | 1.21 | 1.50 | 1.75 | 1.79 |
| 208 | 0.58 | 0.70 | 0.87 | 1.01 | 1.03 |
| 240 | 0.50 | 0.60 | 0.75 | 0.88 | 0.90 |
| 277 | 0.43 | 0.52 | 0.65 | 0.76 | 0.78 |
| 347 | 0.35 | 0.42 | 0.52 | 0.61 | 0.62 |
| 480 | 0.25 | 0.30 | 0.38 | 0.44 | 0.45 |

| # OF LEDS | 108 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 215 | 250 | 280 | 325 | 365 |
| SYSTEM POWER (W) | 214.8 | 250.8 | 278.3 | 324.7 | 362.6 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 2.00 | 2.08 | 2.33 | 3.04 | 2.67 |
| 208 | 1.15 | 1.20 | 1.35 | 1.75 | 1.54 |
| 240 | 1.00 | 1.04 | 1.17 | 1.52 | 1.33 |
| 277 | 0.87 | 0.90 | 1.01 | 1.32 | 1.16 |
| 347 | 0.69 | 0.72 | 0.81 | 1.05 | 0.92 |
| 480 | 0.50 | 0.52 | 0.58 | 0.76 | 0.67 |

| # OF LEDS | | 162 | | | | |
|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 320 | 365 | 405 | 445 | 485 | 545 |
| SYSTEM POWER (W) | 322.1 | 362.6 | 403.6 | 445.1 | 487.1 | 543.9 |
| INPUT VOLTAGE (V) | | CURRENT (Amps) | | | | |
| 120 | 2.71 | 2.67 | 3.38 | 3.71 | 4.04 | 4.54 |
| 208 | 1.56 | 1.54 | 1.95 | 2.14 | 2.33 | 2.62 |
| 240 | 1.35 | 1.33 | 1.69 | 1.85 | 2.02 | 2.27 |
| 277 | 1.17 | 1.16 | 1.46 | 1.61 | 1.75 | 1.97 |
| 347 | 0.94 | 0.92 | 1.17 | 1.28 | 1.40 | 1.57 |
| 480 | 0.68 | 0.67 | 0.84 | 0.93 | 1.01 | 1.14 |

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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

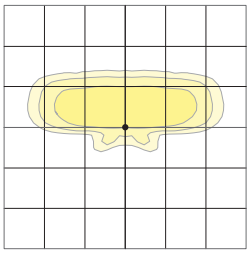
TYPE: PROJECT:

CATALOG #:

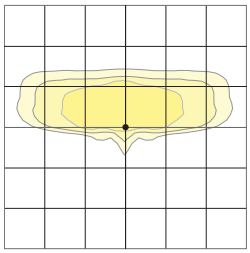
## MICRO STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

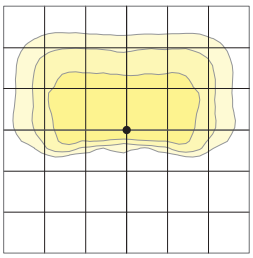
Type 2



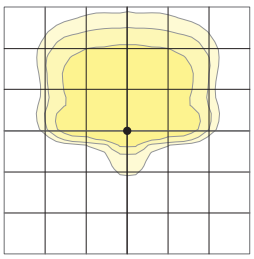
Type 3



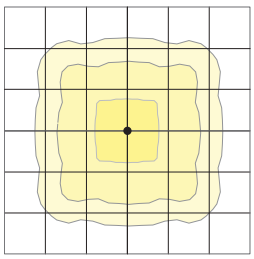
Type 4 Wide



Type 4F



Type 5QW



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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

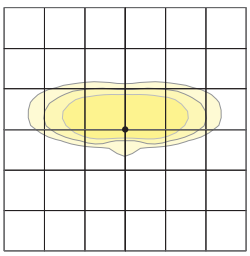
TYPE: PROJECT:

CATALOG #:

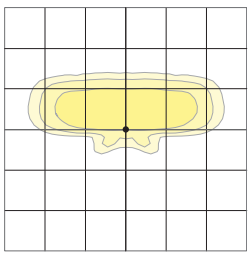
## OPTIC STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

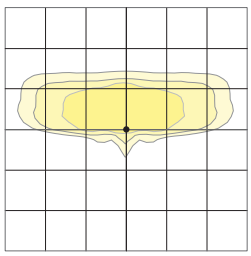
**Type FR – Front Row/Auto Optic**



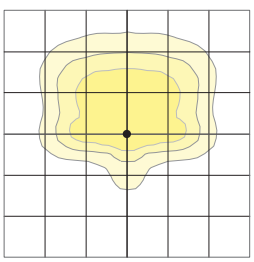
**Type 2**



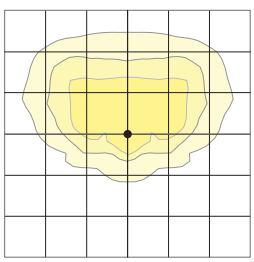
**Type 3**



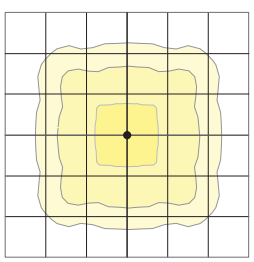
**Type 4 Forward**



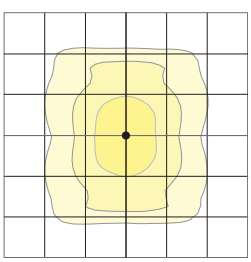
**Type 4 Wide**



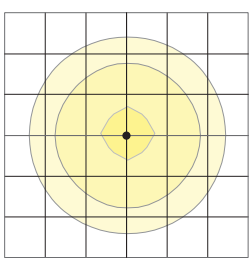
**Type 5QM**



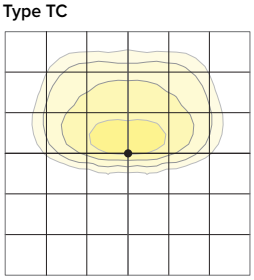
**Type 5R (rectangular)**



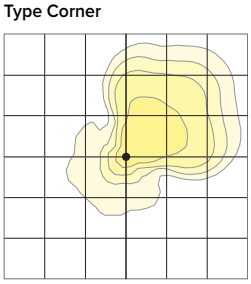
**Type 5W (round wide)**



**Type TC**



**Type Corner**



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# VIPER Area/Site

VIPER LUMINAIRE

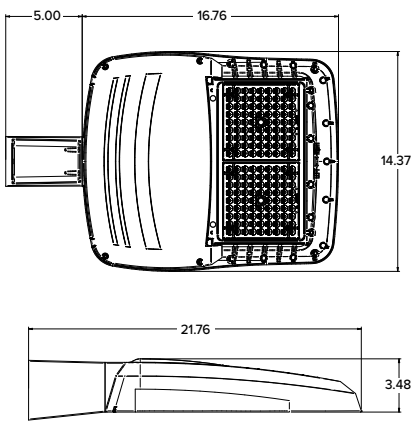
DATE: | LOCATION:

TYPE: | PROJECT:

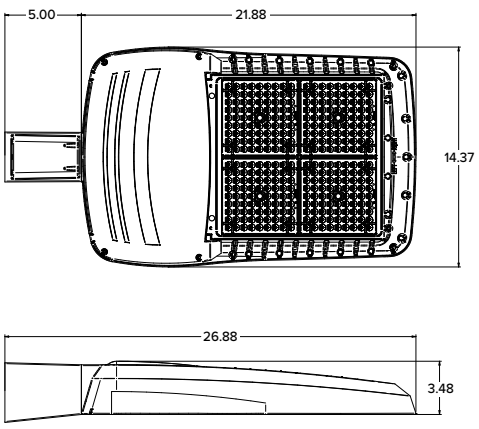
CATALOG #:

## DIMENSIONS

### SIZE 1




### SIZE 2

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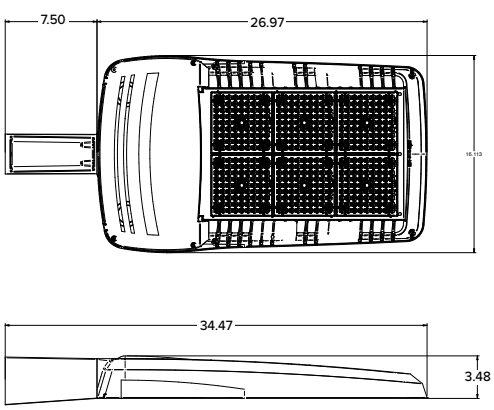
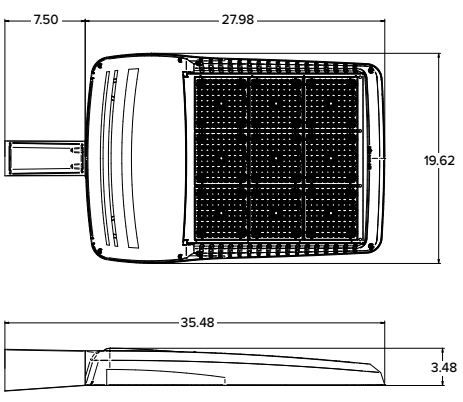



### SIZE 4




| | EPA | | | | |
|---|---|---|---|---|---|
| | VP1 (Size 1) | VP2 (Size 2) | VP3 (Size 3) | VP4 (Size 4) | Config. |
| Single Fixture | 0.454 | 0.555 | 0.655 | 0.698 | |
| Two at 180 | 0.908 | 1.110 | 1.310 | 1.396 | |
| Two at 90 | 0.583 | 0.711 | 0.857 | 0.948 | |
| Three at 90 | 1.037 | 1.266 | 1.512 | 1.646 | |
| Three at 120 | 0.943 | 1.155 | 1.392 | 1.680 | |
| Four at 90 | 1.166 | 1.422 | 1.714 | 1.896 | |

| | Weight | |
|---|---|---|
| | lbs | kgs |
| VP1 (Size 1) | 13.7 | 6.2 |
| VP2 (Size 2) | 16.0 | 7.26 |
| VP3 (Size 3) | 25.9 | 11.7 |
| VP4 (Size 4) | 30.8 | 13.9 |

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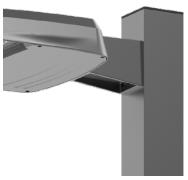
TYPE: PROJECT:

CATALOG #:

# VIPER Area/Site

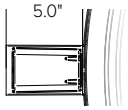
VIPER LUMINAIRE

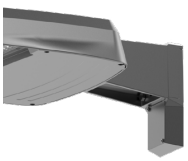
## MOUNTING



### A–STRAIGHT ARM MOUNT

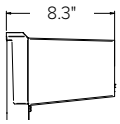
Fixture ships with integral arm for ease of installation. Compatible with Current Outdoor B3 drill pattern. For round poles add applicable suffix (2/3/4/5)

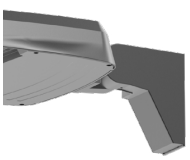


### ASQU–UNIVERSAL ARM MOUNT

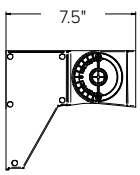
Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5)

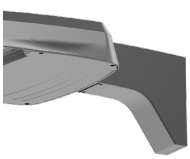


### AAU–ADJUSTABLE ARM FOR POLE MOUNTING

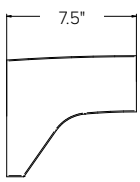
Rotatable arm mounts directly to pole. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5). Rotatable in 15˚ aiming angle increments. Micro Strike configurations have a 45° aiming limitation.
Strike configurations have a 30° aiming limitation.

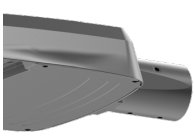


### ADU–DECORATIVE UPSWEPT ARM

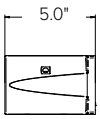
Upswept Arm compatible with drill patterns from 2.5" to 4.5". For round poles add applicable suffix (2/3/4/5).

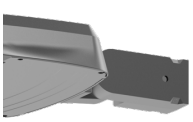


### MAF–MAST ARM FITTER

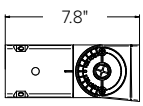
Fits 2-3/8" OD horizontal tenons.

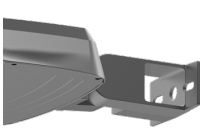


### K–KNUCKLE

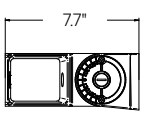
Knuckle mount 15˚ aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



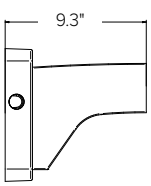
### T–TRUNNION

Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.




### WM–WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.



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# VIPER Area/Site
VIPER LUMINAIRE

DATE: LOCATION:

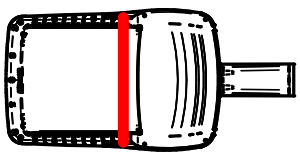
TYPE: PROJECT:

CATALOG #:

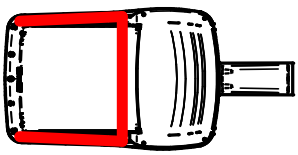
## ADDITIONAL INFORMATION (CONTINUED)

### HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

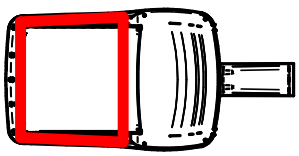
VPR2x HSS-90-B-xx



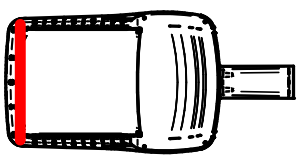
VPR2x HSS-270-BSS-xx



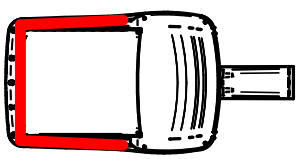
VPR2x HSS-360-xx



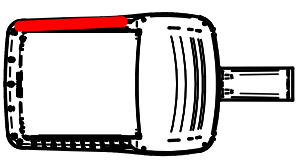
VPR2x HSS-90-F-xx



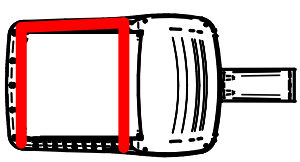
VPR2x HSS-270-FSS-xx



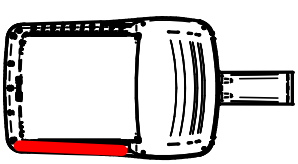
VPR2x HSS-90-S-xx



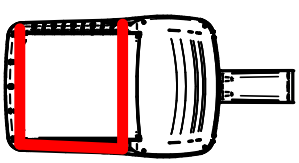
VPR2x HSS-270-FSB-xx



VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

# VIPER Area/Site

VIPER LUMINAIRE

## ADDITIONAL INFORMATION (CONTINUED)

### PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---|---|---|
| Auto-Dim Options | 1-9 Hours | 6 - Delay 6 hours |
| Auto-Dim Brightness | 10-100% Brightness | 5 - Dim to 50% brightness |
| Auto-Dim Return | Delay 0-9 Hours | R6 - Return to full output after 6 hours |

ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---|---|---|
| Auto-Dim Options | 12-3 AM and 6-11 PM | 6 - Dim at 6PM |
| Auto-Dim Brightness | 10-100% Brightness | 5 - Dim to 50% |
| Auto-Dim Return | 12-6 AM and 9-11P | R6 - Return to full output at 6AM |

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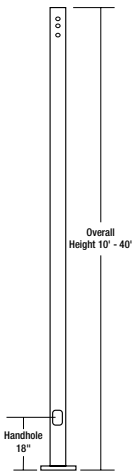
DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

# SSS-B Series Poles

SQUARE STRAIGHT STEEL




## APPLICATIONS

- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

## CONSTRUCTION

- SHAFT: One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER: Two-piece square aluminum base cover included standard
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

  Anchor bolt part numbers: 3/4 x 30 x 3 — TAB-30-M38

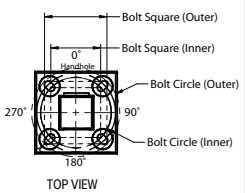
  1 x 36 x 4 — TAB-36-M38

## FINISH

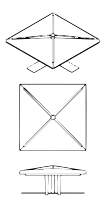
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over “white metal” steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

## WAREHOUSE ‘STOCKED’ POLES:

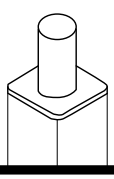
- SSSH20-40A-4-HV-DB-RDC, SSSH25-40A-4-HV-DB-RDC and SSSH30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination drill pattern of the Current S2 pattern and the Beacon B3/B4 Viper pattern (rectangular arm mounting)



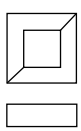

**POLE CAP**



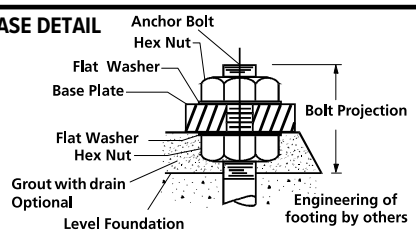
**TENON**



**BASE COVER**



**BASE DETAIL**




## ORDERING INFORMATION

ORDERING EXAMPLE:

Reference page 2 for available configurations

**SSS -B - 25 - 40 - A/B/C - 2L - B3 - Specify Stnd. finish - UL**

| SERIES | HEIGHT | SHAFT | THICKNESS |
|---|---|---|---|
| **SSS-B** Square Straight Steel Pole Beacon | Reference page 2 Ordering matrix **20** | Reference page 2 Ordering matrix **40** | Reference page 2 Ordering matrix **A** |

| MOUNTING | |
|---|---|
| **1** | Single arm mount |
| **2** | Two fixtures at 180˚ |
| **2L** | Two fixtures at 90˚ |
| **3T** | Three fixtures at 90˚ |
| **4** | Four fixtures at 90˚ |
| **TA** | Tenon (2.38” OD x 4” Tall) |
| **TB** | Tenon (2.88” OD x 4” Tall) |
| **TC** | Tenon (3.5” OD x 6” Tall) |
| **TR**[1] | Removable Tenon (2.375 x 4.25) |
| **OT** | Open Top (includes pole cap) |

| FINISH | |
|---|---|
| **BLT** | Black Matte Textured |
| **BLS** | Black Gloss Smooth |
| **DBT** | Dark Bronze Matte Textured |
| **DBS** | Dark Bronze Gloss Smooth |
| **GTT** | Graphite Matte Textured |
| **LGS** | Light Grey Gloss Smooth |
| **PSS** | Platinum Silver Smooth |
| **WHT** | White Matte Textured |
| **WHS** | White Gloss Smooth |
| **VGT** | Verde Green Textured |

**Color Option**

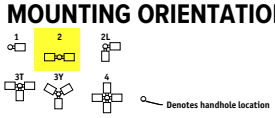
| | |
|---|---|
| **CC** | Custom Color |

| OPTIONS | |
|---|---|
| **GFI**[2] | 20 Amp GFCI Receptacle and Cover |
| **EHH**[2] | Extra Handhole |
| **C05**[2] | .5” Coupling |
| **C07**[2] | .75” Coupling |
| **C20**[2] | 2” Coupling |
| **MPB**[2] | Mid-pole Luminaire Bracket |
| **VM2** | 2nd mode vibration damper |
| **LAB** | Less Anchor Bolts |
| **UL** | UL Certified |

**DRILL PATTERN**

| | |
|---|---|
| **B1** | Cruzer, “AM” arm |
| **B3** | 2 bolt (2-½” spacing), Viper “A” arm |
| **S2** | 2 bolt (3-½” spacing), Viper “AD” arm |

## MOUNTING ORIENTATION




1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the **“TR”** notation. Example: **SSS-B-25-40-A-1-B1-TR-BBT**
2 Specify option location using logic found on page 2 **(Option Orientation)**
3 VM1 recommended on poles 20’ and taller with EPA of less than 1.

## ACCESSORIES - Order Separately

| Catalog Number | Description |
|---|---|
| **VM1**[3] | 1st mode vibration damper |
| **VM2SXX** | 2nd mode vibration damper |

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# SSS-B Series Poles
SQUARE STRAIGHT STEEL

DATE: LOCATION:

TYPE: PROJECT:

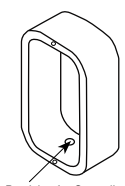
CATALOG #:

## ORDERING INFORMATION Cont.

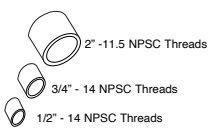
| Catalog Number | Height | | Nominal Shaft Dimensions | Wall Thickness | Bolt Circle (suggested) | Bolt Circle (range) | Bolt Square (range) | Base Plate Square | Anchor bolt size | Bolt Projection | Pole weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Feet | Meters | | | | | | | | | |
| SSS-B-10-40-A-XX-XX | 10 | 3.0 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 77 |
| SSS-B-12-40-A-XX-XX | 12 | 3.7 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 90 |
| SSS-B-14-40-A-XX-XX | 14 | 4.3 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 103 |
| SSS-B-16-40-A-XX-XX | 16 | 4.9 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 116 |
| SSS-B-18-40-A-XX-XX | 18 | 5.5 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 129 |
| SSS-B-20-40-A-XX-XX | 20 | 6.1 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 142 |
| SSS-B-25-40-A-XX-XX | 25 | 7.6 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 175 |
| | | | | | | | | | | | |
| SSS-B-14-40-B-XX-XX | 14 | 4.3 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 152 |
| SSS-B-16-40-B-XX-XX | 16 | 4.9 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 171 |
| SSS-B-18-40-B-XX-XX | 18 | 5.5 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 190 |
| SSS-B-20-40-B-XX-XX | 20 | 6.1 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 209 |
| SSS-B-25-40-B-XX-XX | 25 | 7.6 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 257 |
| SSS-B-30-40-B-XX-XX | 30 | 9.1 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 304 |
| | | | | | | | | | | | |
| SSS-B-16-50-B-XX-XX | 16 | 4.9 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 219 |
| SSS-B-18-50-B-XX-XX | 18 | 5.5 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 243 |
| SSS-B-20-50-B-XX-XX | 20 | 6.1 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 267 |
| SSS-B-25-50-B-XX-XX | 25 | 7.6 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 327 |
| SSS-B-30-50-B-XX-XX | 30 | 9.1 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 387 |
| | | | | | | | | | | | |
| SSS-B-25-50-C-XX-XX | 25 | 7.6 | 5" square | .25" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 427 |
| SSS-B-30-50-C-XX-XX | 30 | 9.1 | 5" square | .25" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 507 |
| | | | | | | | | | | | |
| SSS-B-20-60-B-XX-XX | 20 | 6.1 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 329 |
| SSS-B-25-60-B-XX-XX | 25 | 7.6 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 404 |
| SSS-B-30-60-B-XX-XX | 30 | 9.1 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 479 |
| SSS-B-35-60-B-XX-XX | 35 | 10.7 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 554 |
| SSS-B-40-60-B-XX-XX | 40 | 12.2 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 629 |

NOTE Factory supplied template must be used when setting anchor bolts. Beacon Products will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

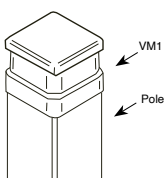
### EHH - EXTRA HANDHOLE




### C05 - C07 - C20 - COUPLING




### VM1 - VIBRATION DAMPER 1ST MODE




Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

### VM2 - VIBRATION DAMPER 2ND MODE

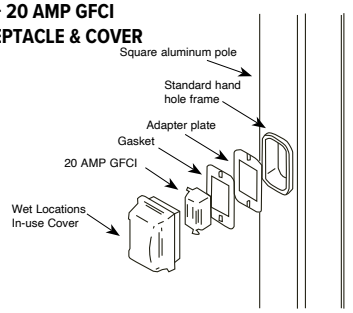
Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

### VM2SXX - VIBRATION DAMPER 2ND MODE

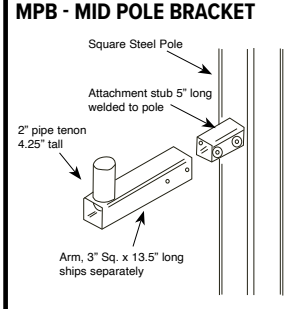
**VM2S08** – 8'
**VM2S12** – 12'
**VM2S16** – 16'
**VM2S20** – 20'
**VM2S24** – 24'

Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

### GFI – 20 AMP GFCI RECEPTACLE & COVER

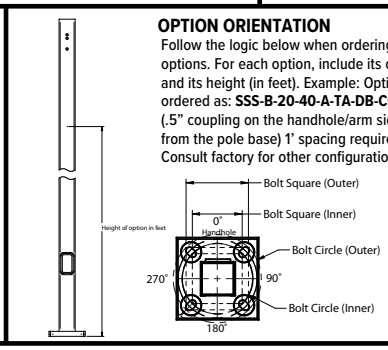



### MPB - MID POLE BRACKET




### OPTION ORIENTATION

Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: **SSS-B-20-40-A-TA-DB-C05-0-15** (.5" coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option. Consult factory for other configurations.




For more information about pole vibration and vibration dampers, please consult our website.
Due to our continued efforts to improve our products, product specifications are subject to change without notice.

BEACON
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# SSS-B Series Poles

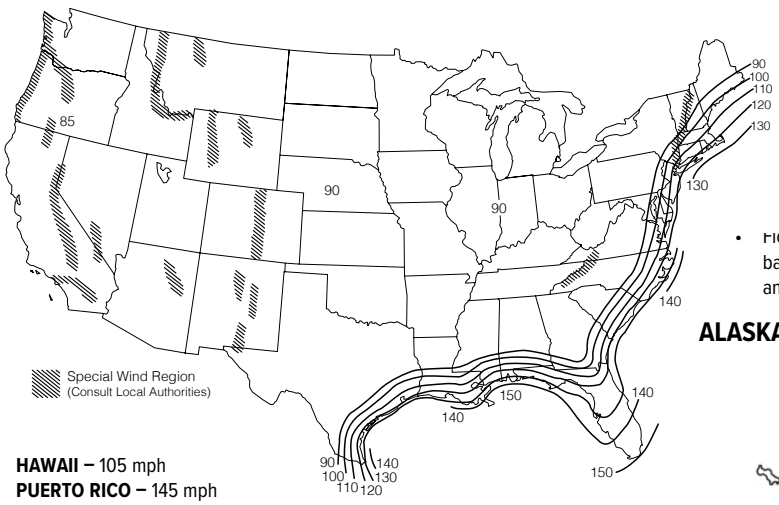
SQUARE STRAIGHT STEEL

DATE: | LOCATION:

TYPE: | PROJECT:

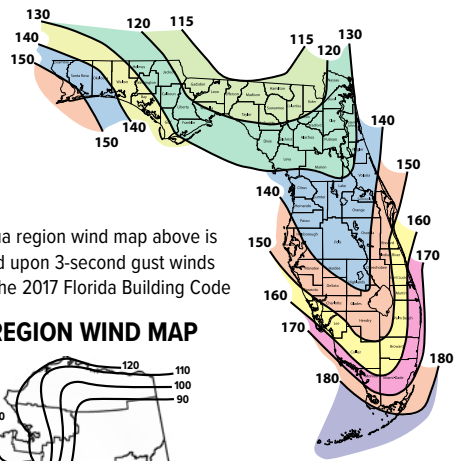
CATALOG #:

## ASCE7-05 WIND MAP



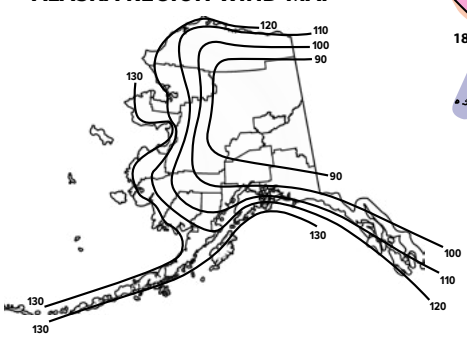

**HAWAII** – 105 mph
**PUERTO RICO** – 145 mph

## FLORIDA REGION WIND MAP




- Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code

## ALASKA REGION WIND MAP




| ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds (Use for all locations except Florida) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Catalog Number** | **85** | **90** | **100** | **105** | **110** | **120** | **130** | **140** | **145** | **150** |
| **SSS-B-10-40-A** | 25.0 | 25.0 | 25.0 | 22.8 | 20.6 | 17.0 | 14.2 | 11.9 | 11.0 | 10.1 |
| **SSS-B-12-40-A** | 25.0 | 25.0 | 20.0 | 18.0 | 16.1 | 13.2 | 10.8 | 8.9 | 8.1 | 7.4 |
| **SSS-B-14-40-A** | 23.1 | 20.4 | 16.1 | 14.3 | 12.8 | 10.2 | 8.2 | 6.6 | 5.9 | 5.3 |
| **SSS-B-16-40-A** | 19.0 | 16.7 | 13.0 | 11.5 | 10.1 | 7.9 | 6.2 | 4.7 | 4.1 | 3.6 |
| **SSS-B-18-40-A** | 15.6 | 13.6 | 10.0 | 9.0 | 7.8 | 5.9 | 4.4 | 3.1 | 2.6 | 2.1 |
| **SSS-B-20-40-A** | 12.7 | 10.9 | 7.9 | 6.9 | 5.9 | 4.2 | 2.8 | 1.7 | 1.3 | 0.9 |
| **SSS-B-25-40-A** | 7.3 | 5.9 | 3.8 | 2.9 | 2.1 | 0.8 | NR | NR | NR | NR |
| | | | | | | | | | | |
| **SSS-B-14-40-B** | 25.0 | 25.0 | 23.3 | 20.8 | 18.6 | 15.1 | 12.3 | 10.2 | 9.2 | 8.4 |
| **SSS-B-16-40-B** | 25.0 | 24.9 | 19.4 | 17.3 | 15.4 | 12.3 | 9.9 | 8.0 | 7.2 | 6.4 |
| **SSS-B-18-40-B** | 24.0 | 20.8 | 16.1 | 14.2 | 12.5 | 9.8 | 7.7 | 6.1 | 5.3 | 4.7 |
| **SSS-B-20-40-B** | 20.2 | 17.5 | 13.2 | 11.6 | 10.1 | 7.7 | 5.9 | 4.4 | 3.8 | 3.2 |
| **SSS-B-25-40-B** | 12.8 | 11.0 | 7.9 | 6.7 | 5.5 | 3.7 | 2.3 | 1.2 | 0.7 | NR |
| **SSS-B-30-40-B** | 8.0 | 6.6 | 4.1 | 3.1 | 2.2 | 0.8 | NR | NR | NR | NR |
| | | | | | | | | | | |
| **SSS-B-16-50-B** | 25.0 | 25.0 | 25.0 | 25.0 | 24.8 | 20.1 | 16.5 | 13.6 | 12.3 | 11.2 |
| **SSS-B-18-50-B** | 25.0 | 25.0 | 25.0 | 22.9 | 20.4 | 16.4 | 13.2 | 10.7 | 9.6 | 8.6 |
| **SSS-B-20-50-B** | 25.0 | 25.0 | 21.3 | 18.9 | 16.7 | 13.2 | 10.4 | 8.1 | 7.2 | 6.3 |
| **SSS-B-25-50-B** | 20.7 | 17.8 | 13.3 | 11.5 | 9.8 | 7.2 | 5.0 | 3.3 | 2.6 | 1.9 |
| **SSS-B-30-50-B** | 13.5 | 11.3 | 7.7 | 6.2 | 4.9 | 2.8 | 1.1 | NR | NR | NR |
| | | | | | | | | | | |
| **SSS-B-25-50-C** | 25.0 | 25.0 | 19.4 | 17.1 | 15.1 | 11.7 | 9.0 | 6.9 | 6.0 | 5.1 |
| **SSS-B-30-50-C** | 20.1 | 17.3 | 12.7 | 10.9 | 9.3 | 6.6 | 4.5 | 2.8 | 2.1 | 1.4 |
| | | | | | | | | | | |
| **SSS-B-20-60-B** | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 20.2 | 16.1 | 12.9 | 11.5 | 10.3 |
| **SSS-B-25-60-B** | 25.0 | 25.0 | 20.6 | 18.0 | 15.6 | 11.8 | 8.7 | 6.2 | 5.2 | 4.2 |
| **SSS-B-30-60-B** | 21.4 | 18.1 | 12.9 | 10.7 | 8.8 | 5.7 | 3.3 | 1.3 | NR | NR |
| **SSS-B-35-60-B** | 14.0 | 11.3 | 6.9 | 5.2 | 3.6 | 1.0 | NR | NR | NR | NR |
| **SSS-B-40-60-B** | 8.1 | 5.8 | 2.2 | nr | NR | NR | NR | NR | NR | NR |

| Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds (Use for Florida only) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Catalog Number** | **115** | **120** | **130** | **140** | **150** | **160** | **170** | **180** |
| **SSS-B-10-40-A** | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.4 | 15.9 | 13.9 |
| **SSS-B-12-40-A** | 25.0 | 25.0 | 23.6 | 19.8 | 16.7 | 14.2 | 12.1 | 10.4 |
| **SSS-B-14-40-A** | 25.0 | 23.1 | 19.0 | 15.7 | 13.1 | 10.9 | 9.1 | 7.6 |
| **SSS-B-16-40-A** | 20.8 | 18.7 | 15.2 | 12.3 | 10.1 | 8.2 | 6.7 | 5.4 |
| **SSS-B-18-40-A** | 16.8 | 15.0 | 11.9 | 9.4 | 7.5 | 5.9 | 4.5 | 3.4 |
| **SSS-B-20-40-A** | 13.6 | 11.9 | 9.2 | 7.1 | 5.3 | 3.9 | 2.7 | 1.7 |
| **SSS-B-25-40-A** | 7.4 | 6.2 | 4.1 | 2.5 | 1.1 | NR | NR | NR |
| | | | | | | | | |
| **SSS-B-14-40-B** | 25.0 | 23.6 | 19.4 | 16.1 | 13.4 | 11.2 | 9.4 | 7.8 |
| **SSS-B-16-40-B** | 21.4 | 19.2 | 15.6 | 12.7 | 10.4 | 8.5 | 6.9 | 5.6 |
| **SSS-B-18-40-B** | 17.2 | 15.4 | 12.2 | 9.7 | 7.7 | 6.1 | 4.7 | 3.6 |
| **SSS-B-20-40-B** | 13.9 | 12.3 | 9.5 | 7.3 | 5.5 | 4.1 | 2.9 | 1.9 |
| **SSS-B-25-40-B** | 7.7 | 6.4 | 4.3 | 2.6 | 1.3 | NR | NR | NR |
| **SSS-B-30-40-B** | 3.2 | 2.1 | NR | NR | NR | NR | NR | NR |
| | | | | | | | | |
| **SSS-B-16-50-B** | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.2 | 15.5 |
| **SSS-B-18-50-B** | 25.0 | 25.0 | 25.0 | 24.4 | 20.4 | 17.0 | 14.2 | 11.9 |
| **SSS-B-20-50-B** | 25.0 | 25.0 | 24.4 | 19.9 | 16.3 | 13.4 | 11.0 | 8.9 |
| **SSS-B-25-50-B** | 21.8 | 19.3 | 15.0 | 11.5 | 8.8 | 6.5 | 4.7 | 3.1 |
| **SSS-B-30-50-B** | 13.7 | 11.7 | 8.2 | 5.5 | 3.3 | 1.5 | NR | NR |
| **SSS-B-25-50-C** | 21.8 | 19.3 | 15.0 | 11.5 | 8.8 | 6.5 | 4.7 | 3.1 |
| **SSS-B-30-50-C** | 13.7 | 11.7 | 8.2 | 5.5 | 3.3 | 1.5 | NR | NR |
| | | | | | | | | |
| **SSS-B-20-60-B** | 25.0 | 25.0 | 25.0 | 21.9 | 17.8 | 14.5 | 11.7 | 9.4 |
| **SSS-B-25-60-B** | 23.8 | 20.9 | 16.1 | 12.3 | 9.2 | 6.6 | 4.5 | 2.8 |
| **SSS-B-30-60-B** | 14.6 | 12.3 | 8.4 | 5.3 | 2.8 | 0.8 | NR | NR |
| **SSS-B-35-60-B** | 7.5 | 5.6 | 2.4 | NR | NR | NR | NR | NR |
| **SSS-B-40-60-B** | 1.8 | NR | NR | NR | NR | NR | NR | NR |

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# SSS-B Series Poles
SQUARE STRAIGHT STEEL

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

## NOTES

**Wind-speed Website disclaimer:**
Current has no connection to the linked website and makes no representations as to its accuracy. While the information presented on this third-party website provides a useful starting point for analyzing wind conditions, Current has not verified any of the information on this third party website and assumes no responsibility or liability for its accuracy. The material presented in the windspeed website should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. Current does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this third party website assume all liability arising from such use. Use of the output of these referenced websites do not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed report. http://windspeed.atcouncil.org

**NOTES**

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings.
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

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# VIPER Area/Site

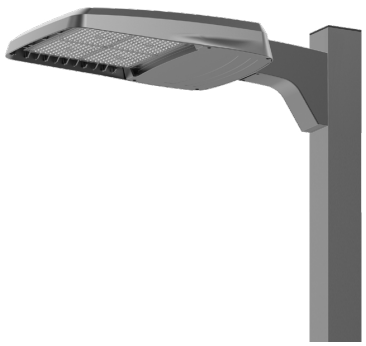
VIPER LUMINAIRE

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

MICRO STRIKE | OPTICS STRIKE



## FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as auto dealership, retail, commercial, and campus parking lots
- Featuring two different optical technologies, Strike and Micro Strike Optics, which provide the best distribution patterns for retrofit or new construction
- Rated for high vibration applications including bridges and overpasses. All sizes are rated for 1.5G
- Control options including photo control, occupancy sensing, NX Lighting Controls™, wiSCAPE and 7-Pin with networked controls
- New customizable lumen output feature allows for the wattage and lumen output to be customized in the factory to meet whatever specification requirements may entail
- Field interchangeable mounting provides additional flexibility after the fixture has shipped

c UL us IP65 | BUY AMERICAN SOLUTIONS (See Certification Specifications) | DLC LISTED | DLC LISTED PREMIUM

## CONTROL TECHNOLOGY

NX LIGHTING CONTROLS™ | wiSCAPE™

## SPECIFICATIONS

### CONSTRUCTION

- Die-cast housing with hidden vertical heat fins are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with 1000 hour powder coat paint finish
- External hardware is corrosion resistant

### OPTICS

- Micro Strike Optics (160, 320, 480, or 720 LED counts) maximize uniformity in applications and come standard with mid-power LEDs which evenly illuminate the entire luminous surface area to provide a low glare appearance. Catalog logic found on page 2
- Strike Optics (36, 72, 108, or 162 LED counts) provide best in class distributions and maximum pole spacing in new applications with high powered LEDs. Strike optics are held in place with a polycarbonate bezel to mimic the appearance of the Micro Strike Optics so both solutions can be combined on the same application. Catalog logic found on page 3
- Both optics maximize target zone illumination with minimal losses at the house-side, reducing light trespass issues. Additional backlight control shields and house side shields can be added for further reduction of illumination behind the pole
- One-piece silicone gasket ensures a weatherproof seal
- Zero up-light at 0 degrees of tilt
- Field rotatable optics

### INSTALLATION

- Mounting patterns for each arm can be found on page 11
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option (ASQU) or accessory for square and round poles.

### INSTALLATION (CONTINUED)

- All mounting hardware included
- Knuckle arm fitter option available for 2-3/8" OD tenon
- For products with EPA less than 1 mounted to a pole greater that 20ft, a vibration damper is recommended

### ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40˚C to 40˚C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

### CONTROLS

- Photo control, occupancy sensor programmable controls, and Zigbee wireless controls available for complete on/off and dimming control
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0- 10V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard

### CONTROLS (CONTINUED)

- NX Lighting Controls™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor. Also available in 7-pin configuration

### CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with both Premium and Standard Qualified configurations. Please refer to the DLC website for specific product qualifications at http://www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40˚C ambient temperatures
- 1.5 G rated for ANSI C136.31 high vibration applications
- Fixture is IP65 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020.

### WARRANTY

- 5 year warranty

| KEY DATA | |
|---|---|
| Lumen Range | 5,000–80,000 |
| Wattage Range | 36–600 |
| Efficacy Range (LPW) | 92–155 |
| Weight lbs. (kg) | 13.7-30.9 (6.2-13.9) |

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# VIPER Area/Site

VIPER LUMINAIRE

## MICROSTRIKE OPTICS – ORDERING GUIDE

**Example:** VP–2–320L-145–3K7–2–R–UNV–A3–BLT

CATALOG #

VP –

| Series | Optic Platform | Size | Light Engine | | CCT/CRI | | Distribution | | Optic Rotation | | Voltage | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VP** Viper | Micro Strike | **1** Size 1 | **160L-35** [6] | 5500 lumens | **AP** | AP-Amber Phosphor Converted | **2** | Type 2 | **BLANK** | No Rotation | **UNV** | 120-277V |
| | | | **160L-50** [6] | 7500 lumens | **27K8** | 2700K, 80 CRI | **3** | Type 3 | **L** | Optic rotation left | **120** | 120V |
| | | | **160L-75** | 10000 lumens | **3K7** | 3000K, 70 CRI | **4F** | Type 4 Forward | **R** | Optic rotation right | **208** | 208V |
| | | | **160L-100** | 12500 lumens | **3K8** | 3000K, 80 CRI | **4W** | Type 4 Wide | | | **240** | 240V |
| | | | **160L-115** | 15000 lumens | **35K8** | 3500K, 80 CRI | **5QW** | Type 5 Square Wide | | | **277** | 277V |
| | | | **160L-135** | 18000 lumens | **3K9** | 3000K, 90 CRI | | | | | **347** | 347V |
| | | | **160L-160** | 21000 lumens | **4K7** | 4000K, 70 CRI | | | | | **480** | 480V |
| | | **2** Size 2 | **320L-145** | 21000 lumens | **4K8** | 4000K, 80 CRI | | | | | | |
| | | | **320L-170** | 24000 lumens | **4K9** | 4000K, 90 CRI | | | | | | |
| | | | **320L-185** | 27000 lumens | **5K7** | 5000K, 70 CRI | | | | | | |
| | | | **320L-210** | 30000 lumens | **5K8** | 5000K, 80 CRI | | | | | | |
| | | | **320L-235** | 33000 lumens | | | | | | | | |
| | | | **320L-255** | 36000 lumens | | | | | | | | |
| | | | **320L-315** [6] | 40000 lumens | | | | | | | | |
| | | **3** Size 3 | **480L-285** | 40000 lumens | | | | | | | | |
| | | | **480L-320** | 44000 lumens | | | | | | | | |
| | | | **480L-340** | 48000 lumens | | | | | | | | |
| | | | **480L-390** | 52000 lumens | | | | | | | | |
| | | | **480L-425** | 55000 lumens | | | | | | | | |
| | | | **480L-470** | 60000 lumens | | | | | | | | |
| | | **4** Size 4 | **720L-435** | 60000 lumens | | | | | | | | |
| | | | **720L-475** | 65000 lumens | | | | | | | | |
| | | | **720L-515** | 70000 lumens | | | | | | | | |
| | | | **720L-565** [6] | 75000 lumens | | | | | | | | |
| | | | **720L-600** [6] | 80000 lumens | | | | | | | | |
| | | | **CLO** | Custom Lumen Output [1] | | | | | | | | |

– Specify Stnd. finish –

| Mounting | |
|---|---|
| **A** | Arm mount for square pole/flat surface |
| **A_** | Arm mount for round pole [2] |
| **ASQU** | Universal arm mount for square pole |
| **A_U** | Universal arm mount for round pole [2] |
| **AAU** | Adjustable arm for pole mounting (universal drill pattern) |
| **AA_U** | Adjustable arm mount for round pole [2] |
| **ADU** | Decorative upswept Arm (universal drill pattern) |
| **AD_U** | Decorative upswept arm mount for round pole [2] |
| **MAF** | Mast arm fitter for 2-3/8" OD horizontal arm |
| **K** | Knuckle |
| **T** | Trunnion |
| **WB** | Wall Bracket, horizontal tenon with MAF |
| **WM** | Wall mount bracket with decorative upswept arm |
| **WA** | Wall mount bracket with adjustable arm |

| Color | |
|---|---|
| **BLT** | Black Matte Textured |
| **BLS** | Black Gloss Smooth |
| **DBT** | Dark Bronze Matte Textured |
| **DBS** | Dark Bronze Gloss Smooth |
| **GTT** | Graphite Matte Textured |
| **LGS** | Light Grey Gloss Smooth |
| **LGT** | Light Grey Gloss Textured |
| **PSS** | Platinum Silver Smooth |
| **WHT** | White Matte Textured |
| **WHS** | White Gloss Smooth |
| **VGT** | Verde Green Textured |
| **Color Option** | |
| **CC** | Custom Color |

| Options | |
|---|---|
| **F** | Fusing |
| **2PF** | Dual Power Feed |
| **2DR** | Dual Driver |
| **TE** | Tooless Entry |
| **BC** | Backlight Control |
| **TB** | Terminal Block |

| Network Control Options | |
|---|---|
| **NXWS16F** | NX Networked Wireless Enabled Integral NXSMP2-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4] |
| **NXWS40F** | NX Networked Wireless Enabled Integral NXSMP2-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and Bluetooth Programming [1,3,4] |
| **NXW** | NX Networked Wireless Radio Module NXRM2 and Bluetooth Programming, without Sensor [3,4] |
| **WIR** | wiSCAPE® In-Fixture Module [3,4] |
| **WIRSC** | wiSCAPE® Module and Occupancy Sensor [3,4] |
| **Stand Alone Sensors** | |
| **BTS-14F** | Bluetooth® Programmable, BTSMP-LMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens |
| **BTS-40F** | Bluetooth® Programmable, BTSMP-HMO PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens |
| **BTSO-12F** | Bluetooth® Programmable, BTSMP-OMNI-O PIR Occupancy Sensor with Automatic Dimming Photocell and 360° Lens |
| **7PR** | 7-Pin Receptacle [4] |
| **7PR-SC** | 7-Pin Receptacle with shorting cap [4] |
| **3PR** | 3-Pin twist lock [4] |
| **3PR-SC** | 3-Pin receptacle with shorting cap [4] |
| **3PR-TL** | 3-Pin PCR with photocontrol [4] |
| **Programmed Controls** | |
| **ADD** | AutoDim Timer Based Dimming [4] |
| **ADT** | AutoDim Time of Day Dimming [4] |
| **Photocontrols** | |
| **PC** | Button Photocontrol [4,7] |

1 – Items with a grey background can be done as a custom order. Contact brand representative for more information
2 – Replace "_" with "2" for 2.5"-3.4" OD pole, "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
3 – Networked Controls cannot be combined with other control options
4 – Not available with 2PF option
5 – Not available with Dual Driver option
6 – Some voltage restrictions may apply when combined with controls
7 – Not available with 480V

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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

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## DELIVERED LUMENS

For delivered lumens, please see Lumens Data PDF on www.Currentlighting.com

## PROJECTED LUMEN MAINTENANCE

| Ambient Temp. | 0 | 25,000 | *TM-21-11 36,000 | 50,000 | 100,000 | Calculated $L_{70}$ (Hours) |
|---|---|---|---|---|---|---|
| 25°C / 77°F | 1.00 | 0.97 | 0.96 | 0.95 | 0.91 | 408,000 |
| 40°C / 104°F | 0.99 | 0.96 | 0.95 | 0.94 | 0.89 | 356,000 |

## LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

| Ambient Temperature | | Lumen Multiplier |
|---|---|---|
| 0°C | 32°F | 1.03 |
| 10°C | 50°F | 1.01 |
| 20°C | 68°F | 1.00 |
| 25°C | 77°F | 1.00 |
| 30°C | 86°F | 0.99 |
| 40°C | 104°F | 0.98 |

| Micro Strike Lumen Multiplier | | | |
|---|---|---|---|
| CCT | 70 CRI | 80 CRI | 90 CRI |
| 2700K | – | 0.841 | – |
| 3000K | 0.977 | 0.861 | 0.647 |
| 3500K | – | 0.900 | – |
| 4000K | 1 | 0.926 | 0.699 |
| 5000K | 1 | 0.937 | 0.791 |
| Monochromatic Amber Multiplier | | | |
| Amber | 0.250 | | |

| Strike Lumen Multiplier | | | |
|---|---|---|---|
| CCT | 70 CRI | 80 CRI | 90 CRI |
| 2700K | – | 0.859 | – |
| 3000K | 0.941 | 0.912 | 0.703 |
| 3500K | – | 0.906 | – |
| 4000K | 1 | 0.894 | 0.734 |
| 5000K | 1 | 0.879 | 0.711 |
| Monochromatic Amber Multiplier | | | |
| Amber | 0.255 | | |

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# VIPER Area/Site

VIPER LUMINAIRE

## ELECTRICAL DATA: MICRO STRIKE

| # OF LEDS | 160 | | | | | | |
|---|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 35 | 50 | 75 | 100 | 115 | 135 | 160 |
| SYSTEM POWER (W) | 34.9 | 50.5 | 72.1 | 97.2 | 111.9 | 132.2 | 157.8 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | | | |
| 120 | 0.29 | 0.42 | 0.63 | 0.83 | 0.96 | 1.13 | 1.33 |
| 208 | 0.17 | 0.24 | 0.36 | 0.48 | 0.55 | 0.65 | 0.77 |
| 240 | 0.15 | 0.21 | 0.31 | 0.42 | 0.48 | 0.56 | 0.67 |
| 277 | 0.13 | 0.18 | 0.27 | 0.36 | 0.42 | 0.49 | 0.58 |
| 347 | 0.10 | 0.14 | 0.22 | 0.29 | 0.33 | 0.39 | 0.46 |
| 480 | 0.07 | 0.10 | 0.16 | 0.21 | 0.24 | 0.28 | 0.33 |

| # OF LEDS | 320 | | | | | | |
|---|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 145 | 170 | 185 | 210 | 235 | 255 | 315 |
| SYSTEM POWER (W) | 150 | 166.8 | 185.7 | 216.2 | 240.9 | 261.5 | 312 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | | | |
| 120 | 1.21 | 1.42 | 1.54 | 1.75 | 1.96 | 2.13 | 2.63 |
| 208 | 0.70 | 0.82 | 0.89 | 1.01 | 1.13 | 1.23 | 1.51 |
| 240 | 0.60 | 0.71 | 0.77 | 0.88 | 0.98 | 1.06 | 1.31 |
| 277 | 0.52 | 0.61 | 0.67 | 0.76 | 0.85 | 0.92 | 1.14 |
| 347 | 0.42 | 0.49 | 0.53 | 0.61 | 0.68 | 0.73 | 0.91 |
| 480 | 0.30 | 0.35 | 0.39 | 0.44 | 0.49 | 0.53 | 0.66 |

| # OF LEDS | 480 | | | | | |
|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 285 | 320 | 340 | 390 | 425 | 470 |
| SYSTEM POWER (W) | 286.2 | 316.7 | 338.4 | 392.2 | 423.2 | 468 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | | |
| 120 | 2.38 | 2.67 | 2.83 | 3.25 | 3.54 | 3.92 |
| 208 | 1.37 | 1.54 | 1.63 | 1.88 | 2.04 | 2.26 |
| 240 | 1.19 | 1.33 | 1.42 | 1.63 | 1.77 | 1.96 |
| 277 | 1.03 | 1.16 | 1.23 | 1.41 | 1.53 | 1.70 |
| 347 | 0.82 | 0.92 | 0.98 | 1.12 | 1.22 | 1.35 |
| 480 | 0.59 | 0.67 | 0.71 | 0.81 | 0.89 | 0.98 |

| # OF LEDS | 720 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 435 | 475 | 515 | 565 | 600 |
| SYSTEM POWER (W) | 429.3 | 475 | 519.1 | 565.2 | 599.9 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 3.63 | 3.96 | 4.29 | 4.71 | 5.00 |
| 208 | 2.09 | 2.28 | 2.48 | 2.72 | 2.88 |
| 240 | 1.81 | 1.98 | 2.15 | 2.35 | 2.50 |
| 277 | 1.57 | 1.71 | 1.86 | 2.04 | 2.17 |
| 347 | 1.25 | 1.37 | 1.48 | 1.63 | 1.73 |
| 480 | 0.91 | 0.99 | 1.07 | 1.18 | 1.25 |

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# VIPER Area/Site

VIPER LUMINAIRE

## ELECTRICAL DATA: STRIKE

| # OF LEDS | 36 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 39 | 55 | 85 | 105 | 120 |
| SYSTEM POWER (W) | 39.6 | 56.8 | 83.6 | 108.2 | 120.9 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 0.33 | 0.46 | 0.71 | 0.88 | 0.96 |
| 208 | 0.19 | 0.26 | 0.41 | 0.50 | 0.55 |
| 240 | 0.16 | 0.23 | 0.35 | 0.44 | 0.48 |
| 277 | 0.14 | 0.20 | 0.31 | 0.38 | 0.42 |
| 347 | 0.11 | 0.16 | 0.24 | 0.30 | 0.33 |
| 480 | 0.08 | 0.11 | 0.18 | 0.22 | 0.24 |

| # OF LEDS | 72 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 115 | 145 | 180 | 210 | 240 |
| SYSTEM POWER (W) | 113.7 | 143.2 | 179.4 | 210.2 | 241.7 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 1.00 | 1.21 | 1.50 | 1.75 | 1.79 |
| 208 | 0.58 | 0.70 | 0.87 | 1.01 | 1.03 |
| 240 | 0.50 | 0.60 | 0.75 | 0.88 | 0.90 |
| 277 | 0.43 | 0.52 | 0.65 | 0.76 | 0.78 |
| 347 | 0.35 | 0.42 | 0.52 | 0.61 | 0.62 |
| 480 | 0.25 | 0.30 | 0.38 | 0.44 | 0.45 |

| # OF LEDS | 108 | | | | |
|---|---|---|---|---|---|
| NOMINAL WATTAGE | 215 | 250 | 280 | 325 | 365 |
| SYSTEM POWER (W) | 214.8 | 250.8 | 278.3 | 324.7 | 362.6 |
| INPUT VOLTAGE (V) | CURRENT (Amps) | | | | |
| 120 | 2.00 | 2.08 | 2.33 | 3.04 | 2.67 |
| 208 | 1.15 | 1.20 | 1.35 | 1.75 | 1.54 |
| 240 | 1.00 | 1.04 | 1.17 | 1.52 | 1.33 |
| 277 | 0.87 | 0.90 | 1.01 | 1.32 | 1.16 |
| 347 | 0.69 | 0.72 | 0.81 | 1.05 | 0.92 |
| 480 | 0.50 | 0.52 | 0.58 | 0.76 | 0.67 |

| # OF LEDS | | 162 | | | | |
|---|---|---|---|---|---|---|
| NOMINAL WATTAGE | 320 | 365 | 405 | 445 | 485 | 545 |
| SYSTEM POWER (W) | 322.1 | 362.6 | 403.6 | 445.1 | 487.1 | 543.9 |
| INPUT VOLTAGE (V) | | CURRENT (Amps) | | | | |
| 120 | 2.71 | 2.67 | 3.38 | 3.71 | 4.04 | 4.54 |
| 208 | 1.56 | 1.54 | 1.95 | 2.14 | 2.33 | 2.62 |
| 240 | 1.35 | 1.33 | 1.69 | 1.85 | 2.02 | 2.27 |
| 277 | 1.17 | 1.16 | 1.46 | 1.61 | 1.75 | 1.97 |
| 347 | 0.94 | 0.92 | 1.17 | 1.28 | 1.40 | 1.57 |
| 480 | 0.68 | 0.67 | 0.84 | 0.93 | 1.01 | 1.14 |

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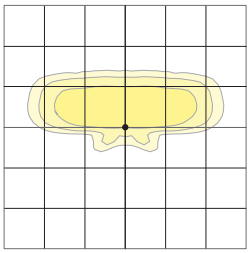
# VIPER Area/Site

VIPER LUMINAIRE

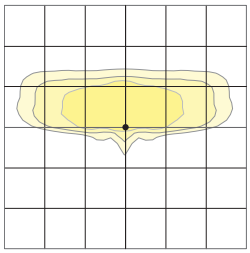
## MICRO STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

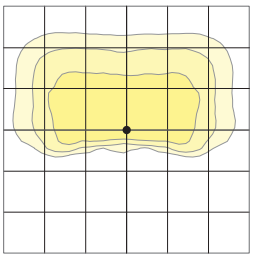
**Type 2**



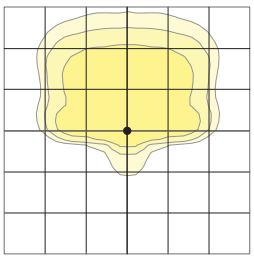
**Type 3**



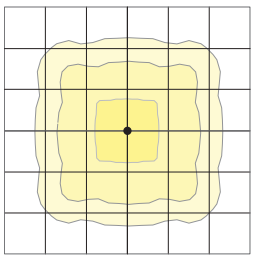
**Type 4 Wide**



**Type 4F**



**Type 5QW**



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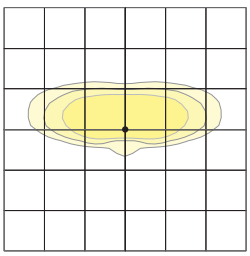
# VIPER Area/Site

VIPER LUMINAIRE

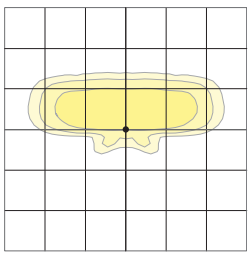
## OPTIC STRIKE PHOTOMETRY

The following diagrams represent the general distribution options offered for this product. For detailed information on specific product configurations, see website photometric test reports.

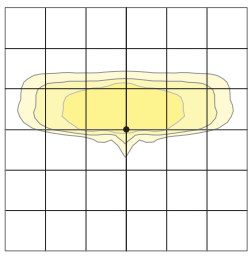
**Type FR – Front Row/Auto Optic**



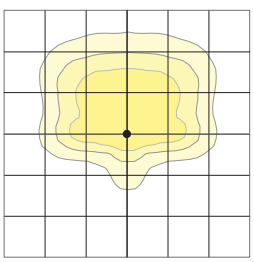
**Type 2**



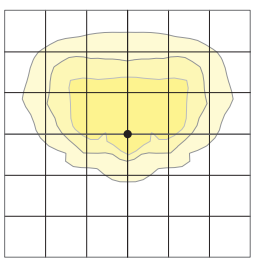
**Type 3**



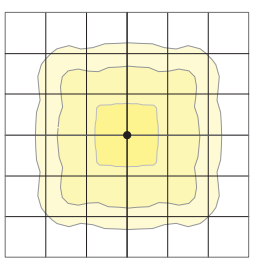
**Type 4 Forward**



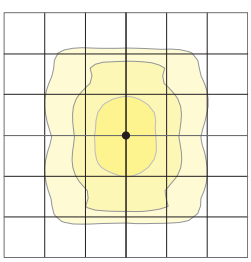
**Type 4 Wide**



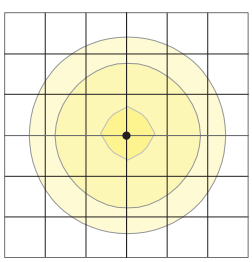
**Type 5QM**



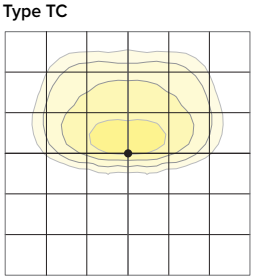
**Type 5R (rectangular)**



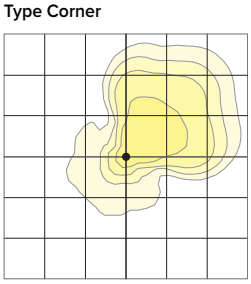
**Type 5W (round wide)**



**Type TC**



**Type Corner**



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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

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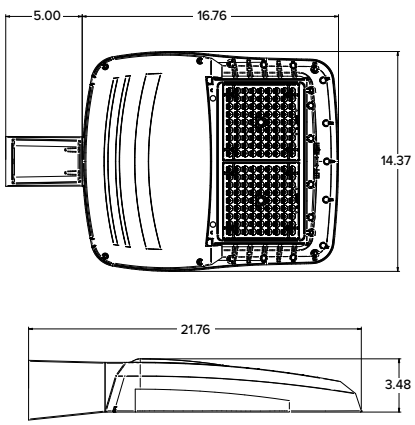
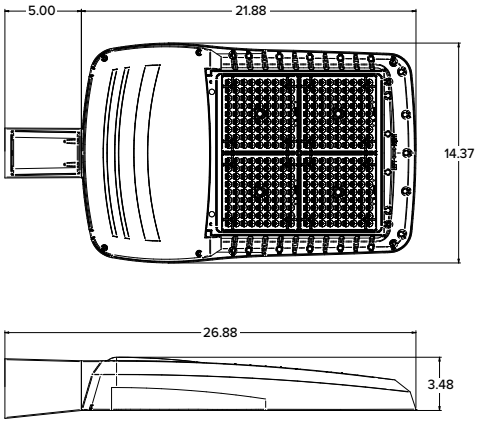
## DIMENSIONS

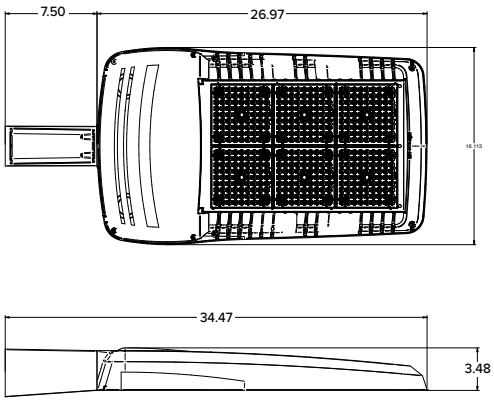
### SIZE 1




### SIZE 2




### SIZE 3

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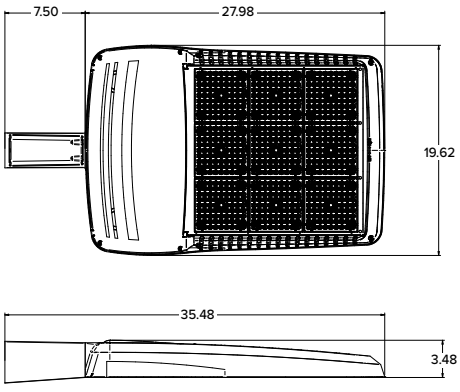


| | EPA | | | | |
|---|---|---|---|---|---|
| | VP1 (Size 1) | VP2 (Size 2) | VP3 (Size 3) | VP4 (Size 4) | Config. |
| Single Fixture | 0.454 | 0.555 | 0.655 | 0.698 | |
| Two at 180 | 0.908 | 1.110 | 1.310 | 1.396 | |
| Two at 90 | 0.583 | 0.711 | 0.857 | 0.948 | |
| Three at 90 | 1.037 | 1.266 | 1.512 | 1.646 | |
| Three at 120 | 0.943 | 1.155 | 1.392 | 1.680 | |
| Four at 90 | 1.166 | 1.422 | 1.714 | 1.896 | |

| | Weight | |
|---|---|---|
| | lbs | kgs |
| VP1 (Size 1) | 13.7 | 6.2 |
| VP2 (Size 2) | 16.0 | 7.26 |
| VP3 (Size 3) | 25.9 | 11.7 |
| VP4 (Size 4) | 30.8 | 13.9 |

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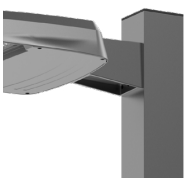
# VIPER Area/Site

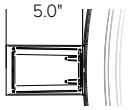
VIPER LUMINAIRE

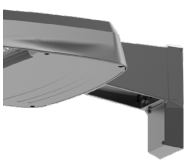
## MOUNTING



### A–STRAIGHT ARM MOUNT

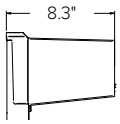
Fixture ships with integral arm for ease of installation. Compatible with Current Outdoor B3 drill pattern. For round poles add applicable suffix (2/3/4/5)

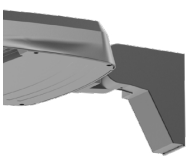


### ASQU–UNIVERSAL ARM MOUNT

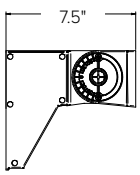
Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5)

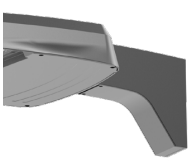


### AAU–ADJUSTABLE ARM FOR POLE MOUNTING

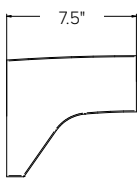
Rotatable arm mounts directly to pole. Compatible with drill patterns from 2.5" to 4.5" and Current drill pattern S2. For round poles add applicable suffix (2/3/4/5). Rotatable in 15˚ aiming angle increments. Micro Strike configurations have a 45° aiming limitation.
Strike configurations have a 30° aiming limitation.

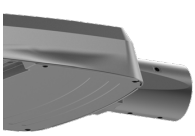


### ADU–DECORATIVE UPSWEPT ARM

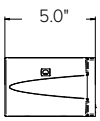
Upswept Arm compatible with drill patterns from 2.5" to 4.5". For round poles add applicable suffix (2/3/4/5).

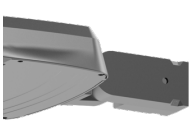


### MAF–MAST ARM FITTER

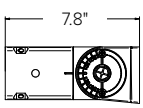
Fits 2-3/8" OD horizontal tenons.

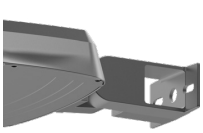


### K–KNUCKLE

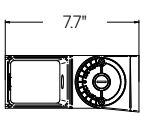
Knuckle mount 15˚ aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.



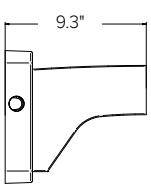
### T–TRUNNION

Trunnion for surface and crossarm mounting using (1) 3/4" or (2) 1/2" size through bolts. Micro Strike configurations have a 45° aiming limitation. Strike configurations have a 30° aiming limitation.




### WM–WALL MOUNT

Compatible with universal arm mount, adjustable arm mount, and decorative arm mount. The WA option uses the same wall bracket but replaces the decorative arm with an adjustable arm.



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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

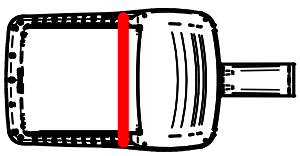
TYPE: PROJECT:

CATALOG #:

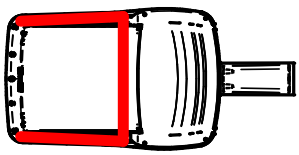
## ADDITIONAL INFORMATION (CONTINUED)

### HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES

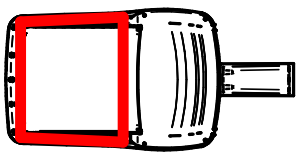
VPR2x HSS-90-B-xx



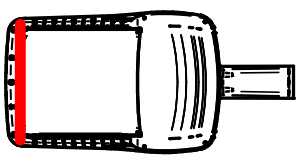
VPR2x HSS-270-BSS-xx



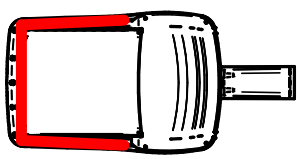
VPR2x HSS-360-xx



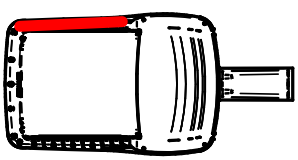
VPR2x HSS-90-F-xx



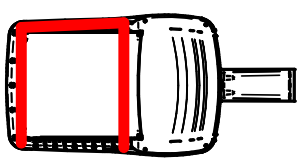
VPR2x HSS-270-FSS-xx



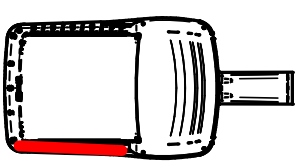
VPR2x HSS-90-S-xx



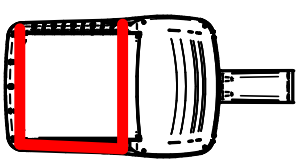
VPR2x HSS-270-FSB-xx



VPR2x HSS-90-S-xx



VPR2x HSS-270-FSB-xx



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# VIPER Area/Site

VIPER LUMINAIRE

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

## ADDITIONAL INFORMATION (CONTINUED)

### PROGRAMMED CONTROLS

ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---|---|---|
| Auto-Dim Options | 1-9 Hours | 6 - Delay 6 hours |
| Auto-Dim Brightness | 10-100% Brightness | 5 - Dim to 50% brightness |
| Auto-Dim Return | Delay 0-9 Hours | R6 - Return to full output after 6 hours |

ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---|---|---|
| Auto-Dim Options | 12-3 AM and 6-11 PM | 6 - Dim at 6PM |
| Auto-Dim Brightness | 10-100% Brightness | 5 - Dim to 50% |
| Auto-Dim Return | 12-6 AM and 9-11P | R6 - Return to full output at 6AM |

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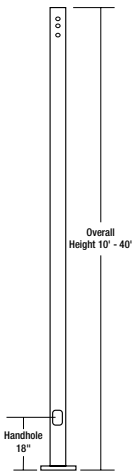
DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

# SSS-B Series Poles

SQUARE STRAIGHT STEEL




## APPLICATIONS

- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

## CONSTRUCTION

- SHAFT: One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER: Two-piece square aluminum base cover included standard
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

  Anchor bolt part numbers: 3/4 x 30 x 3 — TAB-30-M38

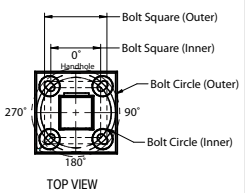
  1 x 36 x 4 — TAB-36-M38

## FINISH

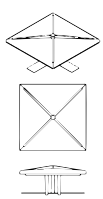
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

## WAREHOUSE 'STOCKED' POLES:

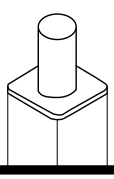
- SSSH20-40A-4-HV-DB-RDC, SSSH25-40A-4-HV-DB-RDC and SSSH30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination drill pattern of the Current S2 pattern and the Beacon B3/B4 Viper pattern (rectangular arm mounting)



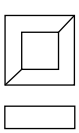

**POLE CAP**



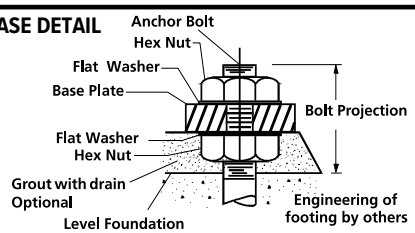
**TENON**



**BASE COVER**



**BASE DETAIL**




## ORDERING INFORMATION

ORDERING EXAMPLE:

Reference page 2 for available configurations

**SSS -B - 25 - 40 - A/B/C - 2L - B3 - Specify Stnd. finish - UL**

| SERIES | HEIGHT | SHAFT | THICKNESS |
|---|---|---|---|
| **SSS-B** Square Straight Steel Pole Beacon | Reference page 2 Ordering matrix **20** | Reference page 2 Ordering matrix **40** | Reference page 2 Ordering matrix **A** |

| MOUNTING | |
|---|---|
| **1** | Single arm mount |
| **2** | Two fixtures at 180° |
| **2L** | Two fixtures at 90° |
| **3T** | Three fixtures at 90° |
| **4** | Four fixtures at 90° |
| **TA** | Tenon (2.38" OD x 4" Tall) |
| **TB** | Tenon (2.88" OD x 4" Tall) |
| **TC** | Tenon (3.5" OD x 6" Tall) |
| **TR**[1] | Removable Tenon (2.375 x 4.25) |
| **OT** | Open Top (includes pole cap) |

| FINISH | |
|---|---|
| **BLT** | Black Matte Textured |
| **BLS** | Black Gloss Smooth |
| **DBT** | Dark Bronze Matte Textured |
| **DBS** | Dark Bronze Gloss Smooth |
| **GTT** | Graphite Matte Textured |
| **LGS** | Light Grey Gloss Smooth |
| **PSS** | Platinum Silver Smooth |
| **WHT** | White Matte Textured |
| **WHS** | White Gloss Smooth |
| **VGT** | Verde Green Textured |

**Color Option**

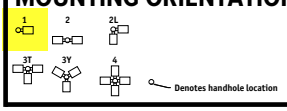
| | |
|---|---|
| **CC** | Custom Color |

| OPTIONS | |
|---|---|
| **GFI**[2] | 20 Amp GFCI Receptacle and Cover |
| **EHH**[2] | Extra Handhole |
| **C05**[2] | .5" Coupling |
| **C07**[2] | .75" Coupling |
| **C20**[2] | 2" Coupling |
| **MPB**[2] | Mid-pole Luminaire Bracket |
| **VM2** | 2nd mode vibration damper |
| **LAB** | Less Anchor Bolts |
| **UL** | UL Certified |

**DRILL PATTERN**

| | |
|---|---|
| **B1** | Cruzer, "AM" arm |
| **B3** | 2 bolt (2-½" spacing), Viper "A" arm |
| **S2** | 2 bolt (3-½" spacing), Viper "AD" arm |

## MOUNTING ORIENTATION




1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the **"TR"** notation. Example: **SSS-B-25-40-A-1-B1-TR-BBT**
2 Specify option location using logic found on page 2 **(Option Orientation)**
3 VM1 recommended on poles 20' and taller with EPA of less than 1.

## ACCESSORIES - Order Separately

| Catalog Number | Description |
|---|---|
| **VM1**[3] | 1st mode vibration damper |
| **VM2SXX** | 2nd mode vibration damper |

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# SSS-B Series Poles
SQUARE STRAIGHT STEEL

DATE: LOCATION:

TYPE: PROJECT:

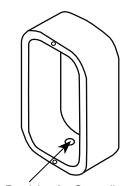
CATALOG #:

## ORDERING INFORMATION Cont.

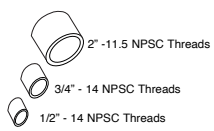
| Catalog Number | Height | | Nominal Shaft Dimensions | Wall Thick-ness | Bolt Circle (suggested) | Bolt Circle (range) | Bolt Square (range) | Base Plate Square | Anchor bolt size | Bolt Projection | Pole weight |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Feet | Meters | | | | | | | | | |
| **SSS-B-10-40-A-XX-XX** | 10 | 3.0 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 77 |
| **SSS-B-12-40-A-XX-XX** | 12 | 3.7 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 90 |
| **SSS-B-14-40-A-XX-XX** | 14 | 4.3 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 103 |
| **SSS-B-16-40-A-XX-XX** | 16 | 4.9 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 116 |
| **SSS-B-18-40-A-XX-XX** | 18 | 5.5 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 129 |
| **SSS-B-20-40-A-XX-XX** | 20 | 6.1 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 142 |
| **SSS-B-25-40-A-XX-XX** | 25 | 7.6 | 4" square | 0.125" | 9" | 8" - 10" | 5.66" - 7.07" | 9" | 3/4" x 30" x 3" | 3.5 | 175 |
| | | | | | | | | | | | |
| **SSS-B-14-40-B-XX-XX** | 14 | 4.3 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 152 |
| **SSS-B-16-40-B-XX-XX** | 16 | 4.9 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 171 |
| **SSS-B-18-40-B-XX-XX** | 18 | 5.5 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 190 |
| **SSS-B-20-40-B-XX-XX** | 20 | 6.1 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 209 |
| **SSS-B-25-40-B-XX-XX** | 25 | 7.6 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 257 |
| **SSS-B-30-40-B-XX-XX** | 30 | 9.1 | 4" square | .188" | 11" | 10" - 12" | 7.07" - 8.48" | 10.50" | 3/4" x 30" x 3" | 3.5 | 304 |
| | | | | | | | | | | | |
| **SSS-B-16-50-B-XX-XX** | 16 | 4.9 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 219 |
| **SSS-B-18-50-B-XX-XX** | 18 | 5.5 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 243 |
| **SSS-B-20-50-B-XX-XX** | 20 | 6.1 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 267 |
| **SSS-B-25-50-B-XX-XX** | 25 | 7.6 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 327 |
| **SSS-B-30-50-B-XX-XX** | 30 | 9.1 | 5" square | .188" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 387 |
| | | | | | | | | | | | |
| **SSS-B-25-50-C-XX-XX** | 25 | 7.6 | 5" square | .25" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 427 |
| **SSS-B-30-50-C-XX-XX** | 30 | 9.1 | 5" square | .25" | 11" | 10.25" - 13.25" | 7.25" - 9.37" | 11.50" | 1" x 36" x 4" | 4.5 | 507 |
| | | | | | | | | | | | |
| **SSS-B-20-60-B-XX-XX** | 20 | 6.1 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 329 |
| **SSS-B-25-60-B-XX-XX** | 25 | 7.6 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 404 |
| **SSS-B-30-60-B-XX-XX** | 30 | 9.1 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 479 |
| **SSS-B-35-60-B-XX-XX** | 35 | 10.7 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 554 |
| **SSS-B-40-60-B-XX-XX** | 40 | 12.2 | 6" square | .188" | 12" | 11.00" - 13.25" | 7.81" - 9.37" | 12.25" | 1" x 36" x 6" | 4.5 | 629 |

NOTE Factory supplied template must be used when setting anchor bolts. Beacon Products will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

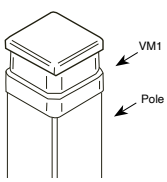
### EHH - EXTRA HANDHOLE




### C05 - C07 - C20 - COUPLING




### VM1 - VIBRATION DAMPER 1ST MODE




Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

### VM2 - VIBRATION DAMPER 2ND MODE

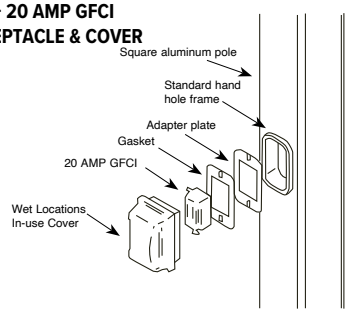
Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

### VM2SXX - VIBRATION DAMPER 2ND MODE

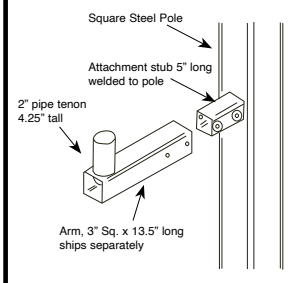
**VM2S08** – 8'
**VM2S12** – 12'
**VM2S16** – 16'
**VM2S20** – 20'
**VM2S24** – 24'

Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

### GFI – 20 AMP GFCI RECEPTACLE & COVER

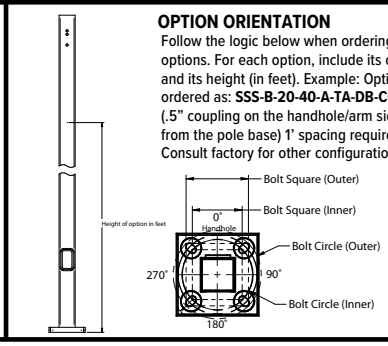



### MPB - MID POLE BRACKET




### OPTION ORIENTATION

Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: **SSS-B-20-40-A-TA-DB-C05-0-15** (.5" coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option. Consult factory for other configurations.




For more information about pole vibration and vibration dampers, please consult our website.
Due to our continued efforts to improve our products, product specifications are subject to change without notice.

BEACON
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# SSS-B Series Poles

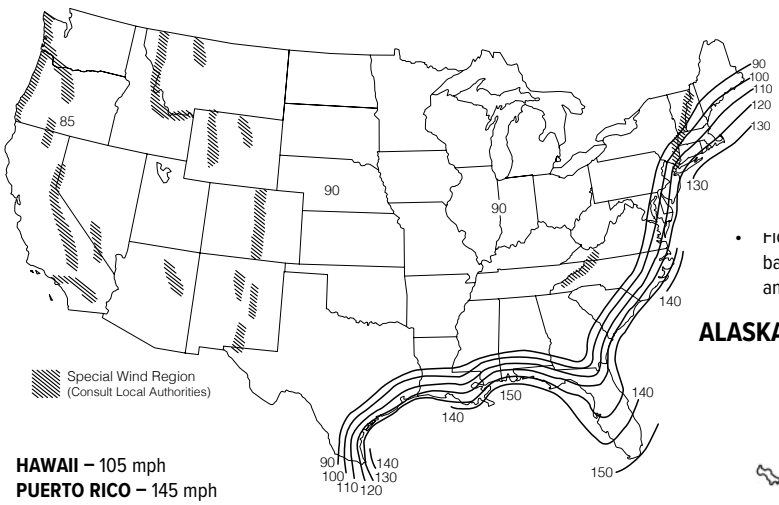
SQUARE STRAIGHT STEEL

DATE: | LOCATION:

TYPE: | PROJECT:

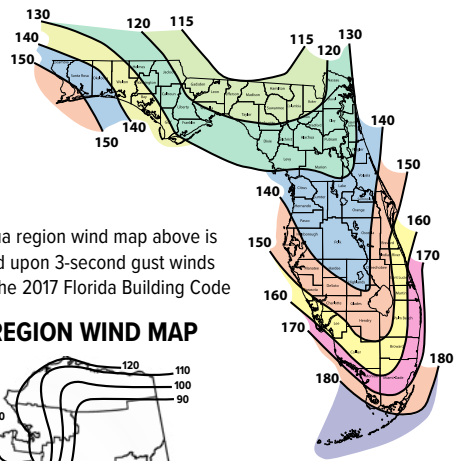
CATALOG #:

## ASCE7-05 WIND MAP



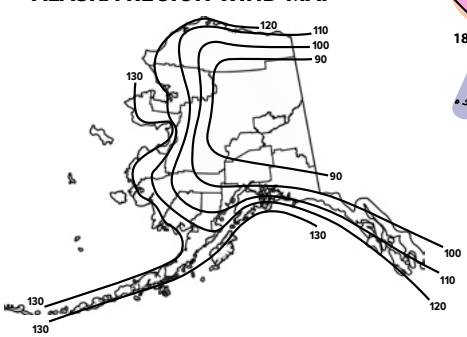

**HAWAII –** 105 mph
**PUERTO RICO –** 145 mph

## FLORIDA REGION WIND MAP




- Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code

## ALASKA REGION WIND MAP




| ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds (Use for all locations except Florida) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Catalog Number** | **85** | **90** | **100** | **105** | **110** | **120** | **130** | **140** | **145** | **150** |
| **SSS-B-10-40-A** | 25.0 | 25.0 | 25.0 | 22.8 | 20.6 | 17.0 | 14.2 | 11.9 | 11.0 | 10.1 |
| **SSS-B-12-40-A** | 25.0 | 25.0 | 20.0 | 18.0 | 16.1 | 13.2 | 10.8 | 8.9 | 8.1 | 7.4 |
| **SSS-B-14-40-A** | 23.1 | 20.4 | 16.1 | 14.3 | 12.8 | 10.2 | 8.2 | 6.6 | 5.9 | 5.3 |
| **SSS-B-16-40-A** | 19.0 | 16.7 | 13.0 | 11.5 | 10.1 | 7.9 | 6.2 | 4.7 | 4.1 | 3.6 |
| **SSS-B-18-40-A** | 15.6 | 13.6 | 10.0 | 9.0 | 7.8 | 5.9 | 4.4 | 3.1 | 2.6 | 2.1 |
| **SSS-B-20-40-A** | 12.7 | 10.9 | 7.9 | 6.9 | 5.9 | 4.2 | 2.8 | 1.7 | 1.3 | 0.9 |
| **SSS-B-25-40-A** | 7.3 | 5.9 | 3.8 | 2.9 | 2.1 | 0.8 | NR | NR | NR | NR |
| | | | | | | | | | | |
| **SSS-B-14-40-B** | 25.0 | 25.0 | 23.3 | 20.8 | 18.6 | 15.1 | 12.3 | 10.2 | 9.2 | 8.4 |
| **SSS-B-16-40-B** | 25.0 | 24.9 | 19.4 | 17.3 | 15.4 | 12.3 | 9.9 | 8.0 | 7.2 | 6.4 |
| **SSS-B-18-40-B** | 24.0 | 20.8 | 16.1 | 14.2 | 12.5 | 9.8 | 7.7 | 6.1 | 5.3 | 4.7 |
| **SSS-B-20-40-B** | 20.2 | 17.5 | 13.2 | 11.6 | 10.1 | 7.7 | 5.9 | 4.4 | 3.8 | 3.2 |
| **SSS-B-25-40-B** | 12.8 | 11.0 | 7.9 | 6.7 | 5.5 | 3.7 | 2.3 | 1.2 | 0.7 | NR |
| **SSS-B-30-40-B** | 8.0 | 6.6 | 4.1 | 3.1 | 2.2 | 0.8 | NR | NR | NR | NR |
| | | | | | | | | | | |
| **SSS-B-16-50-B** | 25.0 | 25.0 | 25.0 | 25.0 | 24.8 | 20.1 | 16.5 | 13.6 | 12.3 | 11.2 |
| **SSS-B-18-50-B** | 25.0 | 25.0 | 25.0 | 22.9 | 20.4 | 16.4 | 13.2 | 10.7 | 9.6 | 8.6 |
| **SSS-B-20-50-B** | 25.0 | 25.0 | 21.3 | 18.9 | 16.7 | 13.2 | 10.4 | 8.1 | 7.2 | 6.3 |
| **SSS-B-25-50-B** | 20.7 | 17.8 | 13.3 | 11.5 | 9.8 | 7.2 | 5.0 | 3.3 | 2.6 | 1.9 |
| **SSS-B-30-50-B** | 13.5 | 11.3 | 7.7 | 6.2 | 4.9 | 2.8 | 1.1 | NR | NR | NR |
| | | | | | | | | | | |
| **SSS-B-25-50-C** | 25.0 | 25.0 | 19.4 | 17.1 | 15.1 | 11.7 | 9.0 | 6.9 | 6.0 | 5.1 |
| **SSS-B-30-50-C** | 20.1 | 17.3 | 12.7 | 10.9 | 9.3 | 6.6 | 4.5 | 2.8 | 2.1 | 1.4 |
| | | | | | | | | | | |
| **SSS-B-20-60-B** | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 20.2 | 16.1 | 12.9 | 11.5 | 10.3 |
| **SSS-B-25-60-B** | 25.0 | 25.0 | 20.6 | 18.0 | 15.6 | 11.8 | 8.7 | 6.2 | 5.2 | 4.2 |
| **SSS-B-30-60-B** | 21.4 | 18.1 | 12.9 | 10.7 | 8.8 | 5.7 | 3.3 | 1.3 | NR | NR |
| **SSS-B-35-60-B** | 14.0 | 11.3 | 6.9 | 5.2 | 3.6 | 1.0 | NR | NR | NR | NR |
| **SSS-B-40-60-B** | 8.1 | 5.8 | 2.2 | nr | NR | NR | NR | NR | NR | NR |

| Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds (Use for Florida only) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Catalog Number** | **115** | **120** | **130** | **140** | **150** | **160** | **170** | **180** |
| **SSS-B-10-40-A** | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.4 | 15.9 | 13.9 |
| **SSS-B-12-40-A** | 25.0 | 25.0 | 23.6 | 19.8 | 16.7 | 14.2 | 12.1 | 10.4 |
| **SSS-B-14-40-A** | 25.0 | 23.1 | 19.0 | 15.7 | 13.1 | 10.9 | 9.1 | 7.6 |
| **SSS-B-16-40-A** | 20.8 | 18.7 | 15.2 | 12.3 | 10.1 | 8.2 | 6.7 | 5.4 |
| **SSS-B-18-40-A** | 16.8 | 15.0 | 11.9 | 9.4 | 7.5 | 5.9 | 4.5 | 3.4 |
| **SSS-B-20-40-A** | 13.6 | 11.9 | 9.2 | 7.1 | 5.3 | 3.9 | 2.7 | 1.7 |
| **SSS-B-25-40-A** | 7.4 | 6.2 | 4.1 | 2.5 | 1.1 | NR | NR | NR |
| | | | | | | | | |
| **SSS-B-14-40-B** | 25.0 | 23.6 | 19.4 | 16.1 | 13.4 | 11.2 | 9.4 | 7.8 |
| **SSS-B-16-40-B** | 21.4 | 19.2 | 15.6 | 12.7 | 10.4 | 8.5 | 6.9 | 5.6 |
| **SSS-B-18-40-B** | 17.2 | 15.4 | 12.2 | 9.7 | 7.7 | 6.1 | 4.7 | 3.6 |
| **SSS-B-20-40-B** | 13.9 | 12.3 | 9.5 | 7.3 | 5.5 | 4.1 | 2.9 | 1.9 |
| **SSS-B-25-40-B** | 7.7 | 6.4 | 4.3 | 2.6 | 1.3 | NR | NR | NR |
| **SSS-B-30-40-B** | 3.2 | 2.1 | NR | NR | NR | NR | NR | NR |
| | | | | | | | | |
| **SSS-B-16-50-B** | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.2 | 15.5 |
| **SSS-B-18-50-B** | 25.0 | 25.0 | 25.0 | 24.4 | 20.4 | 17.0 | 14.2 | 11.9 |
| **SSS-B-20-50-B** | 25.0 | 25.0 | 24.4 | 19.9 | 16.3 | 13.4 | 11.0 | 8.9 |
| **SSS-B-25-50-B** | 21.8 | 19.3 | 15.0 | 11.5 | 8.8 | 6.5 | 4.7 | 3.1 |
| **SSS-B-30-50-B** | 13.7 | 11.7 | 8.2 | 5.5 | 3.3 | 1.5 | NR | NR |
| **SSS-B-25-50-C** | 21.8 | 19.3 | 15.0 | 11.5 | 8.8 | 6.5 | 4.7 | 3.1 |
| **SSS-B-30-50-C** | 13.7 | 11.7 | 8.2 | 5.5 | 3.3 | 1.5 | NR | NR |
| | | | | | | | | |
| **SSS-B-20-60-B** | 25.0 | 25.0 | 25.0 | 21.9 | 17.8 | 14.5 | 11.7 | 9.4 |
| **SSS-B-25-60-B** | 23.8 | 20.9 | 16.1 | 12.3 | 9.2 | 6.6 | 4.5 | 2.8 |
| **SSS-B-30-60-B** | 14.6 | 12.3 | 8.4 | 5.3 | 2.8 | 0.8 | NR | NR |
| **SSS-B-35-60-B** | 7.5 | 5.6 | 2.4 | NR | NR | NR | NR | NR |
| **SSS-B-40-60-B** | 1.8 | NR | NR | NR | NR | NR | NR | NR |

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# SSS-B Series Poles
SQUARE STRAIGHT STEEL

DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

## NOTES

**Wind-speed Website disclaimer:**
Current has no connection to the linked website and makes no representations as to its accuracy. While the information presented on this third-party website provides a useful starting point for analyzing wind conditions, Current has not verified any of the information on this third party website and assumes no responsibility or liability for its accuracy. The material presented in the windspeed website should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. Current does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this third party website assume all liability arising from such use. Use of the output of these referenced websites do not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed report. http://windspeed.atcouncil.org

**NOTES**

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings.
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

# Section J

## Architectural Design/Narrative

October 24, 2022

**Carla Nixon**
Town Planner
Town of Cumberland Maine
290 Tuttle Road
Cumberland, ME 04021

**Re: White Rock Apartments**

**Design Narrative**

Dear Carla,

We are pleased to present the White Rock Apartments design to the Town of Cumberland. The following narrative describes how the proposed design responds to the Route One Design Standards in section 400 of the Zoning Ordinance.

## Section 400

### Building Design

All structures shall be designed in the traditional New England style of architecture whenever feasible.

*Response: The proposed structure has gable roof forms with projecting bays which are traditional New England Architectural forms.*

### Facades

Unbroken facades in excess of 80 feet are overwhelming whether they are visible from Route 1, other roadways or pedestrian areas, or when they abut residential areas. Breaking up the plane of the wall is required to reduce this sense of overwhelming scale. Where the plane of the wall is broken, the offset shall be proportionate to the building's height and length. A general rule of thumb for such projections or recesses is that their depth shall be at least 3% of the façade's length, and they shall extend for at least 20% of the façade's length.

*Response: The building design has projecting bays and gables roof forms to break up the facade lengths.*

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress Street, Suite 2
Portland, Maine 04101

**Entrances**

Large structures shall have clearly defined and highly visible entrances emphasized through such devices as significant variations in rooflines or cornice lines, changes in materials, porticos, landscape treatments, distinctive lighting or other architectural treatments.

*Response: The Main Entry is defined by an entry porch with columns and a change in siding material from the building above.*

**Materials**

Traditional siding materials common to New England are brick, painted clapboard and either painted or unpainted shingles. Contemporary materials that have the same visual characteristics as traditional materials (e.g., cementitious clapboards or vinyl siding) are acceptable if attention is paid to detailing (e.g., corners, trim at openings, changes in material).

*Response: The building design includes clapboard siding, shingle siding forms and asphalt roof shingles which are very common materials in New England.*

***Details***

Architectural details, such as colonnades, pilasters, gable ends, awnings, display windows and appropriately positioned light fixtures, shall be used to reduce the scale and uniformity of larger buildings.

*Response: The building design includes eave overhangs, columns and trim that is in scale with the facades of the building, and help break down the scale of those facades.*

**Windows**

Windows shall reflect a classic New England style by featuring divided lights (window panes) and detailing trim around them.

*Response: The building design includes double hung windows with divided lites and window trim*

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

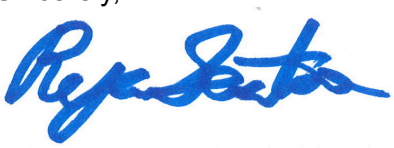
500 Congress Street, Suite 2
Portland, Maine 04101

**Awnings and Canopies**

Awnings and canopies can enhance the appearance and function of a building by providing shade, shelter, shadow patterns, and visual interest. Where awnings are used, they shall complement the overall design and color of the building.

*Response: The building design includes entry canopies that compliment the overall building design.*

Sincerely,



Ryan Senatore, AIA LEED AP

Principal

207-747-5159

senatorearchitecture.com

ryan@senatorearchitecture.com

500 Congress Street, Suite 2
Portland, Maine 04101

# Section K

## Traffic Report

Barton & Loguidice

# Traffic Assessment

**Date:** October 24, 2022

**To:** **Will Savage, P.E., President, Acorn Engineering, Inc.**
**Travis Letellier, P.E., Project Manager, Acorn Engineering, Inc.**

**From:** Jacob Sirois
Engineer 1
Barton & Loguidice, LLC.

William J. Bray, P.E.
Senior Managing Traffic Engineer
Barton & Loguidice, LLC.

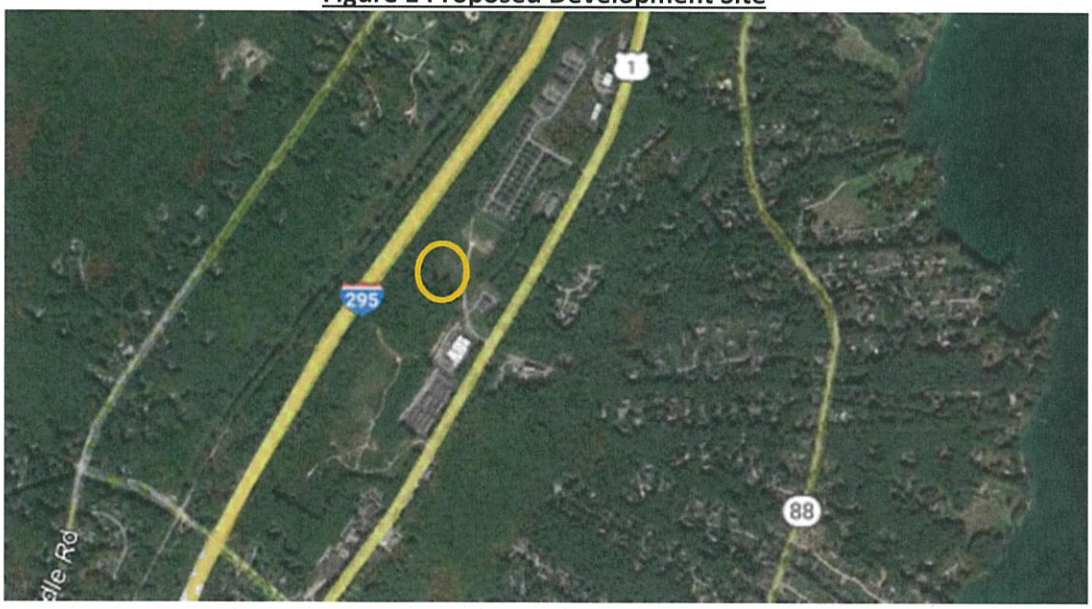
**Re:** **White Rock Terrace Housing Development**
Sky View Drive, Cumberland, Maine

## Introduction

The Szanton Company is proposing development of a 55-unit senior adult housing development on Sky View Drive in the Town of Cumberland (Refer to Image 1 below for the location of the proposed development site). The site will be accessed via a single full access driveway entrance located on the western side of Sky View Drive. The driveway entrance provides direct access to a parking lot which sits adjacent to the proposed residential building.

The purpose of this traffic assessment is to evaluate and measure the level of impact on traffic operations and safety resulting with the development of the proposed project. Site generated trip projections are provided for "*key*" peak hour time periods throughout a typical week; and, road safety conditions are assessed based upon a review of MaineDOT's latest three-year road safety data for the immediate section of US Route 1.

**Figure 1 Proposed Development Site**



## Site Trip Generation

Daily and peak hour trip generation was determined for the proposed development based upon trip tables presented in the 11th edition of the Institute of Transportation Engineers (ITE) "**TRIP GENERATION MANUAL**". The ITE publication provides numerous land use categories and the average volume of trips generated by each category.

Site trip estimates for the White Rock Terrace housing development are based upon LUC #251 – Senior Adult Housing – Single Family; which is described in the ITE publication as: *a development with a specific age restriction for its residents, typically a minimum of 55 years of age for at least one resident of the household. The dwelling units may either be detached or attached.* Calculation of the total number of trips generated per each corresponding time period are summarized below in Table 1.

**Table 1**
**ITE Trip Generation Calculations**

| Land Use | Senior Adult Housing-Single Family - LUC 251 | | | | | |
|---|---|---|---|---|---|---|
| **Time Period** | **Dwelling Units** | **Trip Generation Rate Trips/Dwelling Units** | **Trips Generated** | **Distribution Entering / Exiting** | **Enter** | **Exit** |
| Weekday | 55 | 4.31 | 237 | 50% / 50% | 119 | 118 |
| AM Weekday Peak Hour (Street) | 55 | 0.24 | 13 | 33% / 67% | 4 | 9 |
| PM Weekday Peak Hour (Street) | 55 | 0.30 | 17 | 61% / 39% | 10 | 7 |
| AM Weekday Peak Hour (Generator) | 55 | 0.34 | 19 | 43% / 57% | 8 | 11 |
| PM Weekday Peak Hour (Generator) | 55 | 0.39 | 21 | 56% / 44% | 12 | 9 |

As presented in the preceding table, the proposed White Rock Terrace senior adult development will be a low trip generator; generating 13 trips during the morning peak hour of the street and 17 trips during the evening peak hour of the street. The trips generated during the peak hours of the site will be slightly higher, with the development producing 19 trips in the morning and 21 trips in the evening. During a typical weekday, the site is expected to produce approximately 237 daily trips.

B&L

## Existing Road Safety Conditions

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2019 through 2021) crash data for the segment of Route 1 between the Falmouth Town Line and the intersection at Route 1, Casco Bay Drive and Granite Ridge Road for a distance of approximately 0.47 miles. Their report is presented as follows:

**2019 -2021 Traffic Accident Summary**
**Route 1 between Falmouth Town Line and Casco Bay Drive/Granite Ridge Road**

| Location | Total Crashes | Critical Rate Factor |
|---|---|---|
| 1. Falmouth Town Line | 0 | 0 |
| 2. Route 1 @ Casco Bay Drive and Granite Ridge Road | 1 | 0.32 |
| 3. Route 1 btw. Falmouth Town Line and Casco Bay Drive and Granite Ridge Road | 3 | 0.20 |

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents in a three-year period***
- ***A Critical Rate Factor greater than 1.00***

As the data presented in the chart shows, there are no identified high crash locations within the defined study area.

## Summary

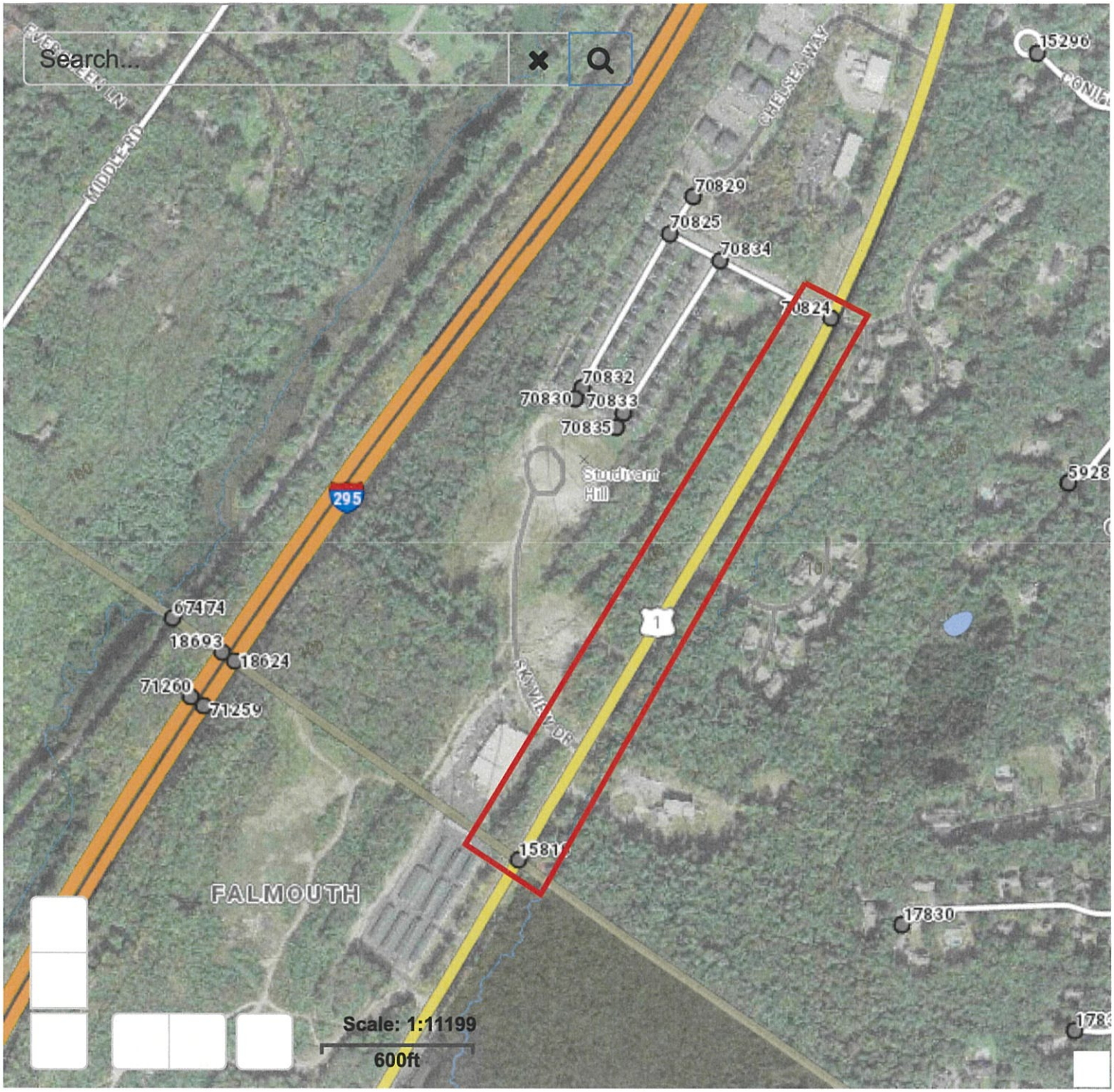
1. The proposed housing development is estimated to generate a total of 237 trips during a typical weekday. During the peak hours of the street, the development is projected to generate 13 trips in the morning and 17 trips in the evening peak hours. The peak hours of the site generate slightly higher volumes of site trips with a total of 19 trips in the morning and 21 trips in the evening peak hours. Overall, the project will be a low volume trip generator and well below the minimum MaineDOT threshold of 100 new peak hour trips ends that require a Traffic Movement Permit.
2. A review of MaineDOT crash data available for the latest 3-year period (2019-2021) for the section of Route 1 between the Falmouth Town Line and the intersection of Route 1 at Casco Bay Drive and Granite Ridge Road was performed. Our review indicated that there are no high crash locations within the defined study area. 3.

William J. Bray, PE, Date: 10/24/2022

B&L

# APPENDIX

## Appendix A - Maine DOT Crash Data


Search...
MIDDLE RD
CHELSEA WAY
15296
70829
70825
70834
70824
70832
70830
70833
70835
Sturdivant Hill
295
1
67474
18693
18624
71200
71259
SKYVIEW DR
15815
FALMOUTH
17830
Scale: 1:11199
600ft

Maine Department Of Transportation - Office of Safety, Crash Records Section

# Crash Summary Report

## Report Selections and Input Parameters

### REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

### REPORT DESCRIPTION

Cumberland
Rt 1 from Falmouth T/L to True Springs Drive

### REPORT PARAMETERS

Year 2019, Start Month 1 through Year 2021 End Month: 12

| | | | | |
|---|---|---|---|---|
| Route: **0001X** | Start Node: **15810** | Start Offset: **0** | ☐ **Exclude First Node** |
| | End Node: **70824** | End Offset: **0** | ☐ **Exclude Last Node** |

# Crash Summary I

**Nodes**

| Node | Route - MP | Node Description | U/R | Total Crashes | Injury Crashes K | A | B | C | PD | Percent Injury | Annual M Ent-Veh | Crash Rate | Critical Rate | CRF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15810 | 0001X - 56.89 | TL Cumberland Falmouth | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0 | 3.162 | 0.00 | 0.36 | 0.00 |
| | | | | | | | | | | | | Statewide Crash Rate: | 0.12 | |
| 70824 | 0001X - 57.36 | Int of CASCO BAY DR ROUTE 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0.0 | 2.845 | 0.12 | 0.37 | 0.00 |
| | | | | | | | | | | | | Statewide Crash Rate: | 0.12 | |
| **Study Years:** | 3.00 | **NODE TOTALS:** | | 1 | 0 | 0 | 0 | 0 | 1 | 0.0 | 6.007 | 0.06 | 0.30 | 0.18 |

# Crash Summary I

**Sections**

| Start Node | End Node | Element | Offset Begin - End | Route - MP | Section Length | U/R | Total Crashes | Injury Crashes K | A | B | C | PD | Percent Injury | Annual HMVM | Crash Rate | Critical Rate | CRF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15810 | 70824 | 3937606 | 0 - 0.47 | 0001X - 56.89 | 0.47 | 1 | 3 | 0 | 0 | 0 | 0 | 3 | 0.0 | 0.01486 | 67.29 | 339.52 | 0.00 |
| TL | Cumberland | Falmouth | | US 1 | | | | | | | | | | | Statewide Crash Rate: 184.86 | | |
| **Study Years:** | 3.00 | | | **Section Totals:** | 0.47 | | 3 | 0 | 0 | 0 | 0 | 3 | 0.0 | 0.01486 | 67.29 | 339.52 | 0.20 |
| | | | | **Grand Totals:** | 0.47 | | 4 | 0 | 0 | 0 | 0 | 4 | 0.0 | 0.01486 | 89.72 | 383.34 | 0.23 |

# Crash Summary

**Section Details**

| Start Node | End Node | Element | Offset Begin - End | Route - MP | Total Crashes | Injury Crashes K | A | B | C | PD | Crash Report | Crash Date | Crash Mile Point | Injury Degree |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15810 | 70824 | 3937606 | 0 - 0.47 | 0001X - 56.89 | 3 | 0 | 0 | 0 | 0 | 3 | 2019-65179 | 09/13/2019 | 56.97 | PD |
| | | | | | | | | | | | 2020-28925 | 11/20/2020 | 57.12 | PD |
| | | | | | | | | | | | 2019-53537 | 05/11/2019 | 57.34 | PD |
| | | | | **Totals:** | 3 | 0 | 0 | 0 | 0 | 3 | | | | |

# Crash Summary II - Characteristics

## Crashes by Day and Hour

| | AM | | | | | | | | | | | | Hour of Day | PM | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Day Of Week** | **12** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **Un** | **Tot** |
| SUNDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MONDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TUESDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| WEDNESDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| THURSDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FRIDAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| SATURDAY | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| **Totals** | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **4** |

## Vehicle Counts by Type

| Unit Type | Total |
|---|---|
| 1-Passenger Car | 2 |
| 2-(Sport) Utility Vehicle | 3 |
| 3-Passenger Van | 0 |
| 4-Cargo Van (10K lbs or Less) | 0 |
| 5-Pickup | 0 |
| 6-Motor Home | 0 |
| 7-School Bus | 0 |
| 8-Transit Bus | 0 |
| 9-Motor Coach | 0 |
| 10-Other Bus | 0 |
| 11-Motorcycle | 0 |
| 12-Moped | 0 |
| 13-Low Speed Vehicle | 0 |
| 14-Autocycle | 0 |
| 15-Experimental | 0 |
| 16-Other Light Trucks (10,000 lbs or Less) | 0 |
| 17-Medium/Heavy Trucks (More than 10,000 lbs) | 0 |
| 18-ATV - (4 wheel) | 0 |
| 20-ATV - (2 wheel) | 0 |
| 21-Snowmobile | 0 |
| 22-Pedestrian | 0 |

| Unit Type | Total |
|---|---|
| 23-Bicyclist | 0 |
| 24-Witness | 0 |
| 25-Other | 0 |
| 26-Construction | 0 |
| 27-Farm Vehicle | 0 |
| **Total** | **5** |

# Crash Summary II - Characteristics

## Crashes by Driver Action at Time of Crash

| Driver Action at Time of Crash | Dr 1 | Dr 2 | Dr 3 | Dr 4 | Dr 5 | Other | Total |
|---|---|---|---|---|---|---|---|
| No Contributing Action | 3 | 1 | 0 | 0 | 0 | 0 | 4 |
| Ran Off Roadway | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Failed to Yield Right-of-Way | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ran Red Light | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ran Stop Sign | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Disregarded Other Traffic Sign | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Disregarded Other Road Markings | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exceeded Posted Speed Limit | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Drove Too Fast For Conditions | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Improper Turn | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Improper Backing | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Improper Passing | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Wrong Way | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Followed Too Closely | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Failed to Keep in Proper Lane | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Over-Correcting/Over-Steering | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other Contributing Action | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| **Total** | **4** | **1** | **0** | **0** | **0** | **0** | **5** |

## Crashes by Apparent Physical Condition And Driver

| Apparent Physical Condition | Dr 1 | Dr 2 | Dr 3 | Dr 4 | Dr 5 | Other | Total |
|---|---|---|---|---|---|---|---|
| Apparently Normal | 4 | 1 | 0 | 0 | 0 | 0 | 5 |
| Physically Impaired | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Emotional(Depressed, Angry, Disturbed, etc.) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ill (Sick) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Asleep or Fatigued | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Under the Influence of Medications/Drugs/Alcohol | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **4** | **1** | **0** | **0** | **0** | **0** | **5** |

## Driver Age by Unit Type

| Age | Driver | Bicycle | SnowMobile | Pedestrian | ATV | Total |
|---|---|---|---|---|---|---|
| 09-Under | 0 | 0 | 0 | 0 | 0 | 0 |
| 10-14 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15-19 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 1 | 0 | 0 | 0 | 0 | 1 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-39 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40-49 | 1 | 0 | 0 | 0 | 0 | 1 |
| 50-59 | 2 | 0 | 0 | 0 | 0 | 2 |
| 60-69 | 1 | 0 | 0 | 0 | 0 | 1 |
| 70-79 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80-Over | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **5** | **0** | **0** | **0** | **0** | **5** |

# Crash Summary II - Characteristics

## Most Harmful Event

| Most Harmful Event | Total |
|---|---|
| 1-Overturn / Rollover | 0 |
| 2-Fire / Explosion | 0 |
| 3-Immersion | 0 |
| 4-Jackknife | 0 |
| 5-Cargo / Equipment Loss Or Shift | 0 |
| 6-Fell / Jumped from Motor Vehicle | 0 |
| 7-Thrown or Falling Object | 0 |
| 8-Other Non-Collision | 0 |
| 9-Pedestrian | 0 |
| 10-Pedalcycle | 0 |
| 11-Railway Vehicle - Train, Engine | 0 |
| 12-Animal | 2 |
| 13-Motor Vehicle in Transport | 3 |
| 14-Parked Motor Vehicle | 0 |
| 15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle | 0 |
| 16-Work Zone / Maintenance Equipment | 0 |
| 17-Other Non-Fixed Object | 0 |
| 18-Impact Attenuator / Crash Cushion | 0 |
| 19-Bridge Overhead Structure | 0 |
| 20-Bridge Pier or Support | 0 |
| 21-Bridge Rail | 0 |
| 22-Cable Barrier | 0 |
| 23-Culvert | 0 |
| 24-Curb | 0 |
| 25-Ditch | 0 |
| 26-Embankment | 0 |
| 27-Guardrail Face | 0 |
| 28-Guardrail End | 0 |
| 29-Concrete Traffic Barrier | 0 |
| 30-Other Traffic Barrier | 0 |
| 31-Tree (Standing) | 0 |
| 32-Utility Pole / Light Support | 0 |
| 33-Traffic Sign Support | 0 |
| 34-Traffic Signal Support | 0 |
| 35-Fence | 0 |
| 36-Mailbox | 0 |
| 37-Other Post, Pole, or Support | 0 |
| 38-Other Fixed Object (wall, building, tunnel, etc.) | 0 |
| 39-Unknown | 0 |
| 40-Gate or Cable | 0 |
| 41-Pressure Ridge | 0 |
| **Total** | **5** |

## Traffic Control Devices

| Traffic Control Device | Total |
|---|---|
| 1-Traffic Signals (Stop & Go) | 0 |
| 2-Traffic Signals (Flashing) | 0 |
| 3-Advisory/Warning Sign | 0 |
| 4-Stop Signs - All Approaches | 0 |
| 5-Stop Signs - Other | 0 |
| 6-Yield Sign | 0 |
| 7-Curve Warning Sign | 0 |
| 8-Officer, Flagman, School Patrol | 0 |
| 9-School Bus Stop Arm | 0 |
| 10-School Zone Sign | 1 |
| 11-R.R. Crossing Device | 0 |
| 12-No Passing Zone | 0 |
| 13-None | 3 |
| 14-Other | 0 |
| **Total** | **4** |

## Injury Data

| Severity Code | Injury Crashes | Number Of Injuries |
|---|---|---|
| K | 0 | 0 |
| A | 0 | 0 |
| B | 0 | 0 |
| C | 0 | 0 |
| PD | 4 | 0 |
| **Total** | **4** | **0** |

## Road Character

| Road Grade | Total |
|---|---|
| 1-Level | 4 |
| 2-On Grade | 0 |
| 3-Top of Hill | 0 |
| 4-Bottom of Hill | 0 |
| 5-Other | 0 |
| **Total** | **4** |

## Light

| Light Condition | Total |
|---|---|
| 1-Daylight | 3 |
| 2-Dawn | 0 |
| 3-Dusk | 0 |
| 4-Dark - Lighted | 1 |
| 5-Dark - Not Lighted | 0 |
| 6-Dark - Unknown Lighting | 0 |
| 7-Unknown | 0 |
| **Total** | **4** |

# Crash Summary II - Characteristics

## Crashes by Year and Month

| Month | 2019 | 2020 | 2021 | Total |
|---|---|---|---|---|
| JANUARY | 0 | 0 | 0 | 0 |
| FEBRUARY | 0 | 0 | 0 | 0 |
| MARCH | 0 | 0 | 0 | 0 |
| APRIL | 0 | 0 | 0 | 0 |
| MAY | 1 | 0 | 0 | 1 |
| JUNE | 0 | 0 | 1 | 1 |
| JULY | 0 | 0 | 0 | 0 |
| AUGUST | 0 | 0 | 0 | 0 |
| SEPTEMBER | 1 | 0 | 0 | 1 |
| OCTOBER | 0 | 0 | 0 | 0 |
| NOVEMBER | 0 | 1 | 0 | 1 |
| DECEMBER | 0 | 0 | 0 | 0 |
| **Total** | **2** | **1** | **1** | **4** |

**Report is limited to the last 10 years of data.**

# Crash Summary II - Characteristics

## Crashes by Crash Type and Type of Location

| Crash Type | Straight Road | Curved Road | Three Leg Intersection | Four Leg Intersection | Five or More Leg Intersection | Driveways | Bridges | Interchanges | Other | Parking Lot | Private Way | Cross Over | Railroad Crossing | Traffic Circle-Roundabout | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Object in Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rear End - Sideswipe | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Head-on - Sideswipe | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Intersection Movement | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pedestrians | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Train | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Went Off Road | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Animal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bicycle | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Jackknife | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rollover | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Fire | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Submersion | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Thrown or Falling Object | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Bear | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Deer | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Moose | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Turkey | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **3** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **4** |

# Crash Summary II - Characteristics

## Crashes by Weather, Light Condition and Road Surface

| Weather<br>Light | Dry | Ice/Frost | Mud, Dirt, Gravel | Oil | Other | Sand | Slush | Snow | Unknown | Water (Standing, Moving) | Wet | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Blowing Sand, Soil, Dirt** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Blowing Snow** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Clear** | | | | | | | | | | | | |
| Dark - Lighted | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Cloudy** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Crash Summary II - Characteristics

## Crashes by Weather, Light Condition and Road Surface

| Weather / Light | Dry | Ice/Frost | Mud, Dirt, Gravel | Oil | Other | Sand | Slush | Snow | Unknown | Water (Standing, Moving) | Wet | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Fog, Smog, Smoke** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Other** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Rain** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Severe Crosswinds** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Crash Summary II - Characteristics

## Crashes by Weather, Light Condition and Road Surface

| Weather / Light | Dry | Ice/Frost | Mud, Dirt, Gravel | Oil | Other | Sand | Slush | Snow | Unknown | Water (Standing, Moving) | Wet | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sleet, Hail (Freezing Rain or Drizzle)** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Snow** | | | | | | | | | | | | |
| Dark - Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Not Lighted | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dark - Unknown Lighting | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dawn | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Daylight | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dusk | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **TOTAL** | **4** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **4** |

| UNIT ACCESSIBILITY SUMMARY | | |
|---|---|---|
| **REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010** | PROVIDED IN PROJECT | EXCESS UNITS |
| SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired | | |
| 55 units within building X 5% = 2.75 or 3 units to meet ADAAG | 3 ADAAG units | 0 Excess |
| 55 units within building X 2% = 1.10 or 2 units to be hearing and vision impaired | 2 Hearing and Vision Impaired Units | 0 Excess |
| | | |
| **REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009** | | |
| SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A | | |
| 13 Ground Floor (First Floor total) Units X 10% = 1.30 or 2 units | 2 Type-A units | 0 Excess |
| SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A | | |
| 42 Upper Floor (2,3,4 Floors) Units X 10% = 4.20 or 5 units | 5 Type-A units | 0 Excess |
| | 7 Type-A units total (INCLUDES ADAAG) | |
| All the rest to be Type B | 48 Type-B units (includes 2 H/V) | |
| MHRA requires ALL units to either be Type A or B units | | |
| All units to meet Federal Fair Housing Act | | |

| UNIT TYPES - 55 TOTAL UNITS | |
|---|---|
| FIRST FLOOR | [redacted] |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |

| ACCESSIBLE UNIT TYPES | |
|---|---|
| FLOOR | [redacted] |
| FIRST FLOOR | |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |


1 FIRST FLOOR PLAN
1/8" = 1'-0"



# SENIOR APARTMENTS

SKYVIEW DRIVE
CUMBERLAND, MAINE

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

CONSULTANTS:

REVISIONS:

PROGRESS PRINT ONLY
Not for Construction
SEPTEMBER 21, 2022

DATE:

PROJECT No. 2219

DRAWN BY: RRT, ES

CHECKED BY: RJS

SCALE: AS NOTED

SHEET TITLE:
FIRST FLOOR PLAN

A1-1

| UNIT ACCESSIBILITY SUMMARY | | |
|---|---|---|
| **REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010** | PROVIDED IN PROJECT | EXCESS UNITS |
| SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired | | |
| 55 units within building X 5% = 2.75 or 3 units to meet ADAAG | 3 ADAAG units | 0 Excess |
| 55 units within building X 2% = 1.10 or 2 units to be hearing and vision impaired | 2 Hearing and Vision Impaired Units | 0 Excess |
| | | |
| **REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009** | | |
| SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A | | |
| 13 Ground Floor (First Floor total) Units X 10% = 1.30 or 2 units | 2 Type-A units | 0 Excess |
| SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A | | |
| 42 Upper Floor (2,3,4 Floors) Units X 10% = 4.20 or 5 units | 5 Type-A units | 0 Excess |
| | 7 Type-A units total (INCLUDES ADAAG) | |
| All the rest to be Type B | 48 Type-B units (includes 2 H/V) | |
| MHRA requires ALL units to either be Type A or B units | | |
| All units to meet Federal Fair Housing Act | | |

| UNIT TYPES - 55 TOTAL UNITS | |
|---|---|
| FIRST FLOOR | [redacted] |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |

| ACCESSIBLE UNIT TYPES | |
|---|---|
| FLOOR | [redacted] |
| FIRST FLOOR | |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |


1 SECOND FLOOR PLAN
1/8" = 1'-0"



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SKYVIEW DRIVE
CUMBERLAND, MAINE

RSA
RYAN SENATORE
**ARCHITECTURE**
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
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SCALE: AS NOTED

SHEET TITLE:
SECOND FLOOR PLAN

A1-2

| UNIT ACCESSIBILITY SUMMARY | | |
|---|---|---|
| **REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010** | PROVIDED IN PROJECT | EXCESS UNITS |
| SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired | | |
| 55 units within building X 5% = 2.75 or 3 units to meet ADAAG | 3 ADAAG units | 0 Excess |
| 55 units within building X 2% = 1.10 or 2 units to be hearing and vision impaired | 2 Hearing and Vision Impaired Units | 0 Excess |
| | | |
| **REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009** | | |
| SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A | | |
| 13 Ground Floor (First Floor total) Units X 10% = 1.30 or 2 units | 2 Type-A units | 0 Excess |
| SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A | | |
| 42 Upper Floor (2,3,4 Floors) Units X 10% = 4.20 or 5 units | 5 Type-A units | 0 Excess |
| | 7 Type-A units total (INCLUDES ADAAG) | |
| All the rest to be Type B | 48 Type-B units (includes 2 H/V) | |
| MHRA requires ALL units to either be Type A or B units | | |
| All units to meet Federal Fair Housing Act | | |

| UNIT TYPES - 55 TOTAL UNITS | |
|---|---|
| FIRST FLOOR | [redacted] |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |

| ACCESSIBLE UNIT TYPES | |
|---|---|
| FLOOR | [redacted] |
| FIRST FLOOR | |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |


1 THIRD FLOOR PLAN
1/8" = 1'-0"



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SKYVIEW DRIVE
CUMBERLAND, MAINE

RSA
RYAN SENATORE
**ARCHITECTURE**
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| | |
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| SCALE: | AS NOTED |

SHEET TITLE:
THIRD FLOOR PLAN

A1-3

| UNIT ACCESSIBILITY SUMMARY | | |
|---|---|---|
| **REGULATION: HUD 504 AND ADA, STANDARD: ADAAG 2010** | PROVIDED IN PROJECT | EXCESS UNITS |
| SCOPING REQUIREMENT: 5% units accessible and additional 2% of units to be hearing and vision impaired | | |
| 55 units within building X 5% = 2.75 or 3 units to meet ADAAG | 3 ADAAG units | 0 Excess |
| 55 units within building X 2% = 1.10 or 2 units to be hearing and vision impaired | 2 Hearing and Vision Impaired Units | 0 Excess |
| | | |
| **REGULATION: MAINE HUMAN RIGHTS ACT (MHRA), STANDARD: ANSI A117.1-2009** | | |
| SCOPING REQUIREMENT: 10% of Ground Floor units to be Type A | | |
| 13 Ground Floor (First Floor total) Units X 10% = 1.30 or 2 units | 2 Type-A units | 0 Excess |
| SCOPING REQUIREMENT: 10% of Upper Floor units to be Type A | | |
| 42 Upper Floor (2,3,4 Floors) Units X 10% = 4.20 or 5 units | 5 Type-A units | 0 Excess |
| | 7 Type-A units total (INCLUDES ADAAG) | |
| All the rest to be Type B | 48 Type-B units (includes 2 H/V) | |
| MHRA requires ALL units to either be Type A or B units | | |
| All units to meet Federal Fair Housing Act | | |

| UNIT TYPES - 55 TOTAL UNITS | |
|---|---|
| FIRST FLOOR | [redacted] |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |

| ACCESSIBLE UNIT TYPES | |
|---|---|
| FLOOR | [redacted] |
| FIRST FLOOR | |
| SECOND FLOOR | |
| THIRD FLOOR | |
| FOURTH FLOOR | |
| **TOTALS** | |


1 FOURTH FLOOR PLAN
1/8" = 1'-0"

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SKYVIEW DRIVE
CUMBERLAND, MAINE



RYAN SENATORE
**ARCHITECTURE**
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
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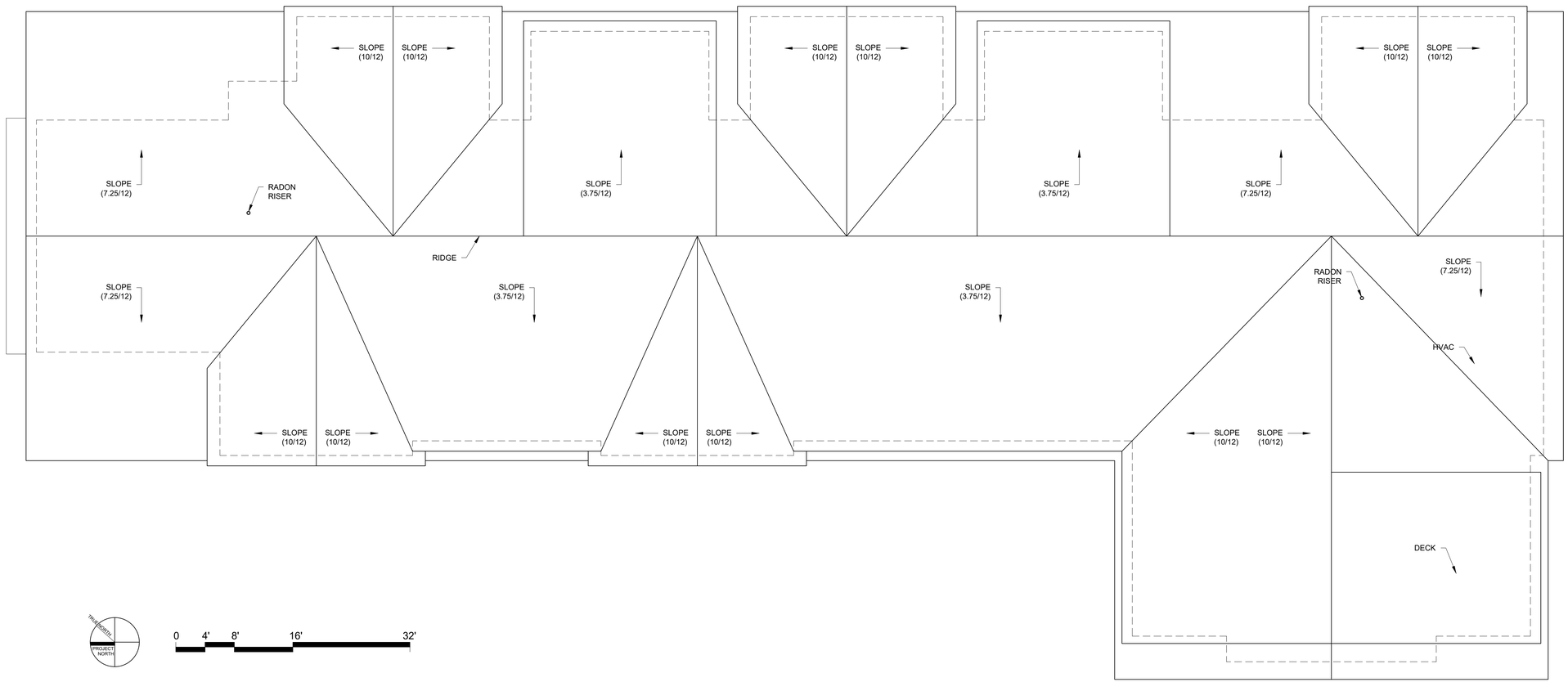
SHEET TITLE:
FOURTH FLOOR PLAN

A1-4




1 ROOF PLAN
1/8" = 1'-0"



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SKYVIEW DRIVE
CUMBERLAND, MAINE

RSA
RYAN SENATORE
**ARCHITECTURE**
500 CONGRESS STREET, SUITE 2
PORTLAND, MAINE 04101
O: 207-747-5159
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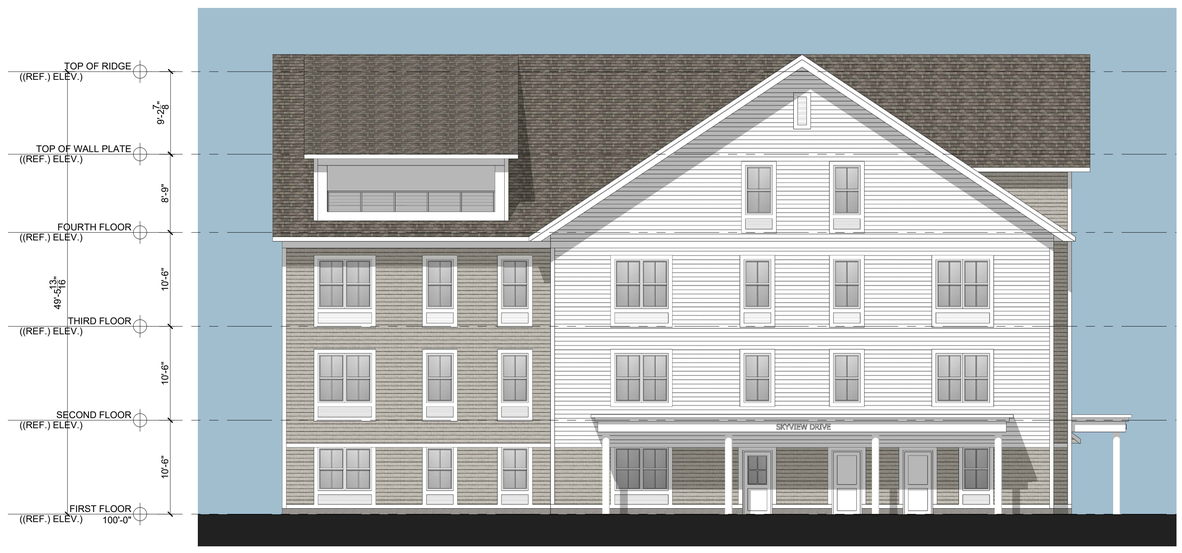
| SCALE: | AS NOTED |

SHEET TITLE:
ROOF PLAN

A1-5


1 ELEVATION 1
1/8" = 1'-0"




2 ELEVATION 2
1/8" = 1'-0"



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CUMBERLAND, MAINE

RSA
RYAN SENATORE
**ARCHITECTURE**
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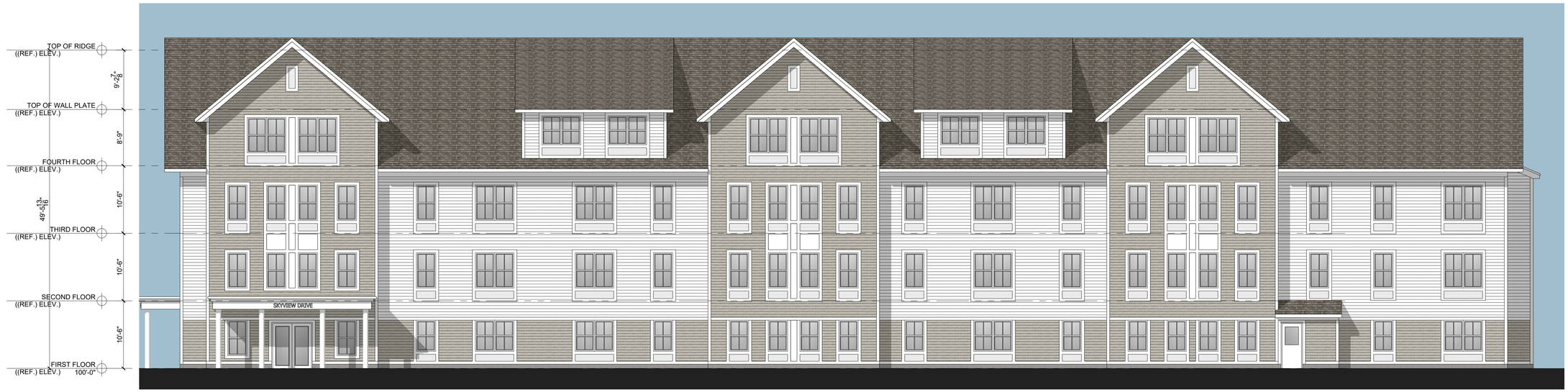
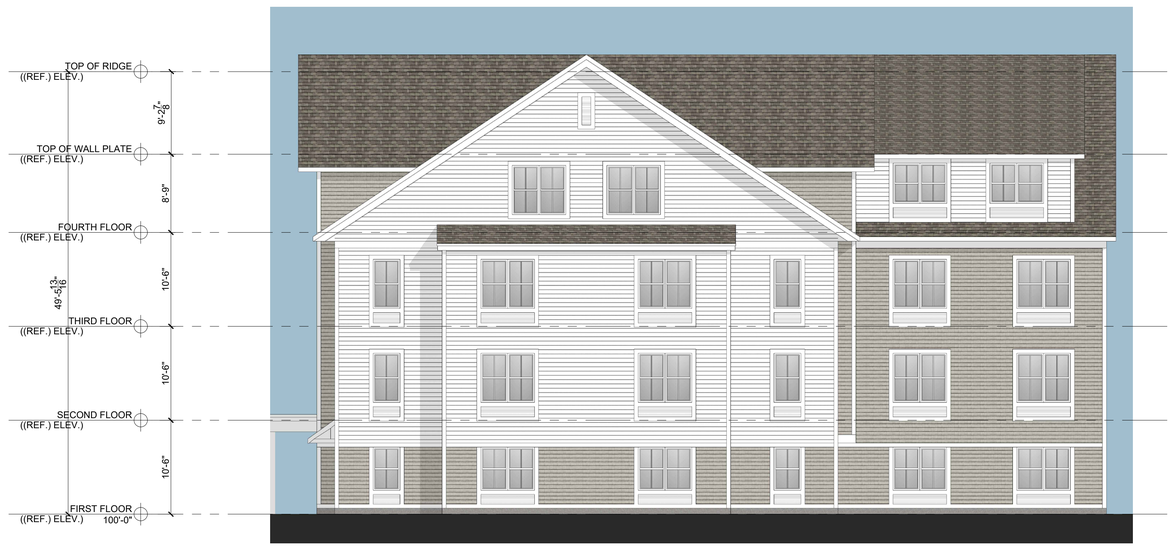
SHEET TITLE:
ELEVATIONS

A2-0




3 ELEVATION 3
1/8" = 1'-0"




4 ELEVATION 4
1/8" = 1'-0"



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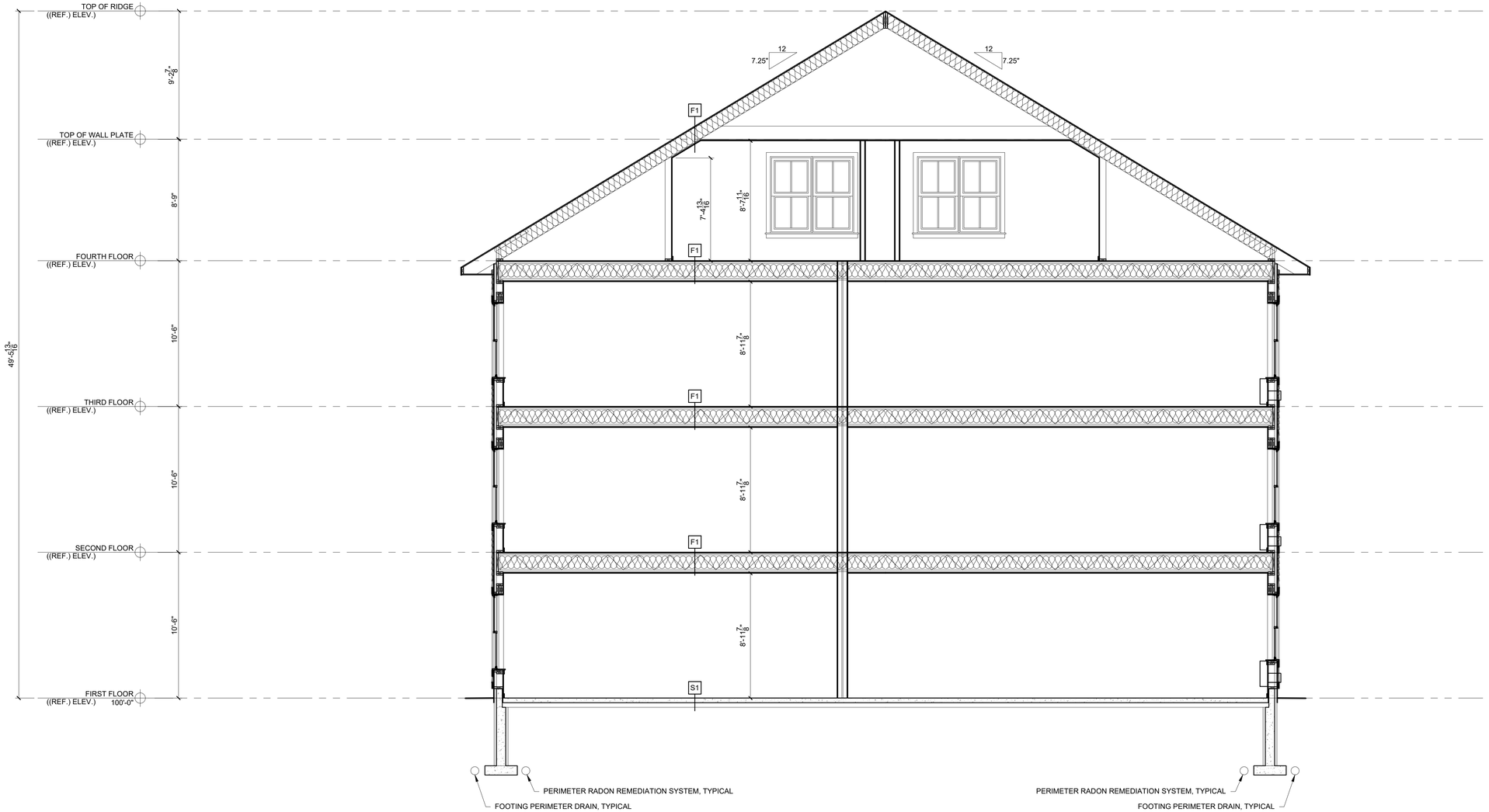
SHEET TITLE:
ELEVATIONS

A2-1




1 SECTION
1/4" = 1'-0"



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CUMBERLAND, MAINE

RYAN SENATORE
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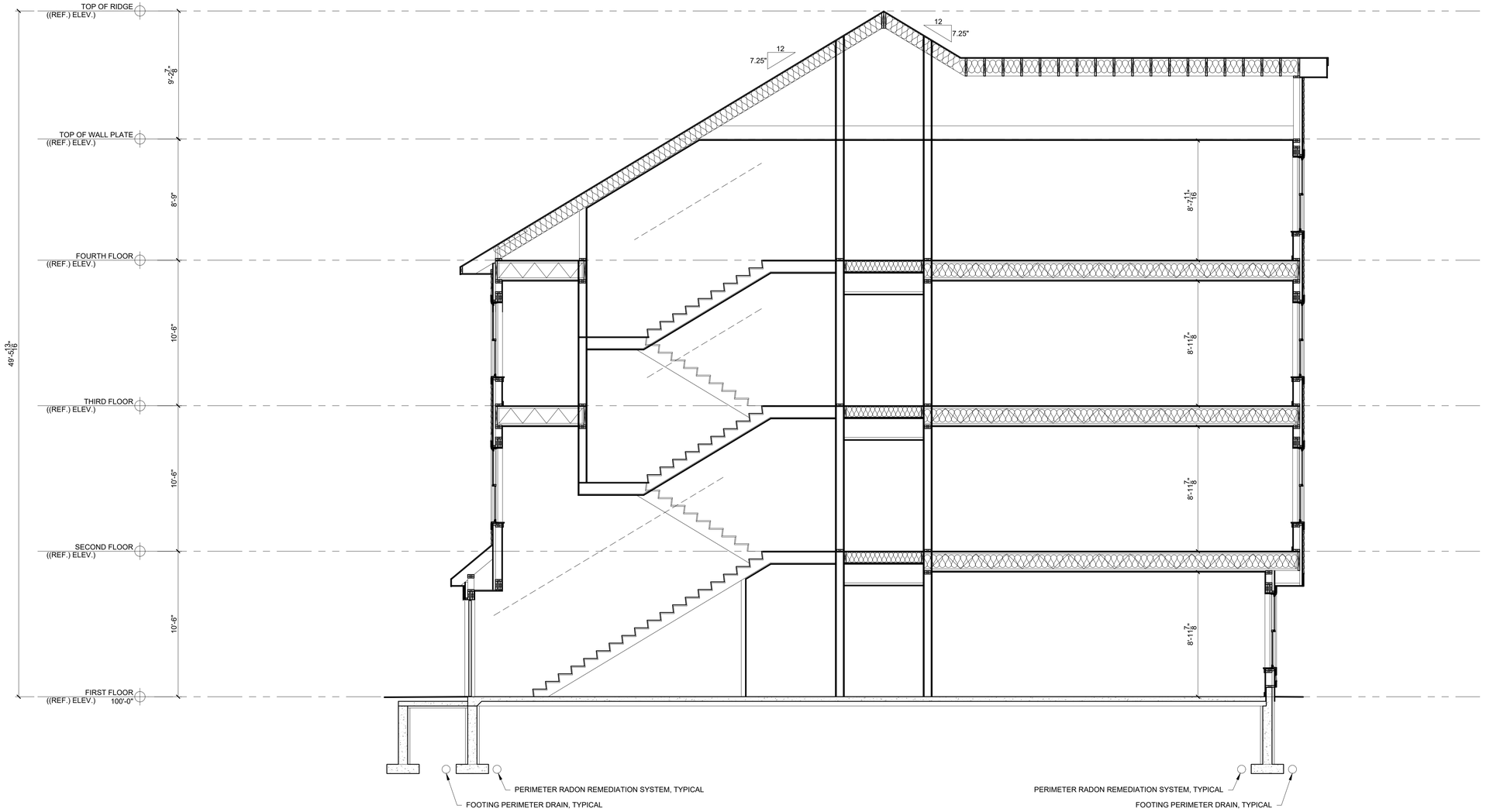
SHEET TITLE:
SECTION

A3-0




1 SECTION
1/4" = 1'-0"



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CUMBERLAND, MAINE

RSA
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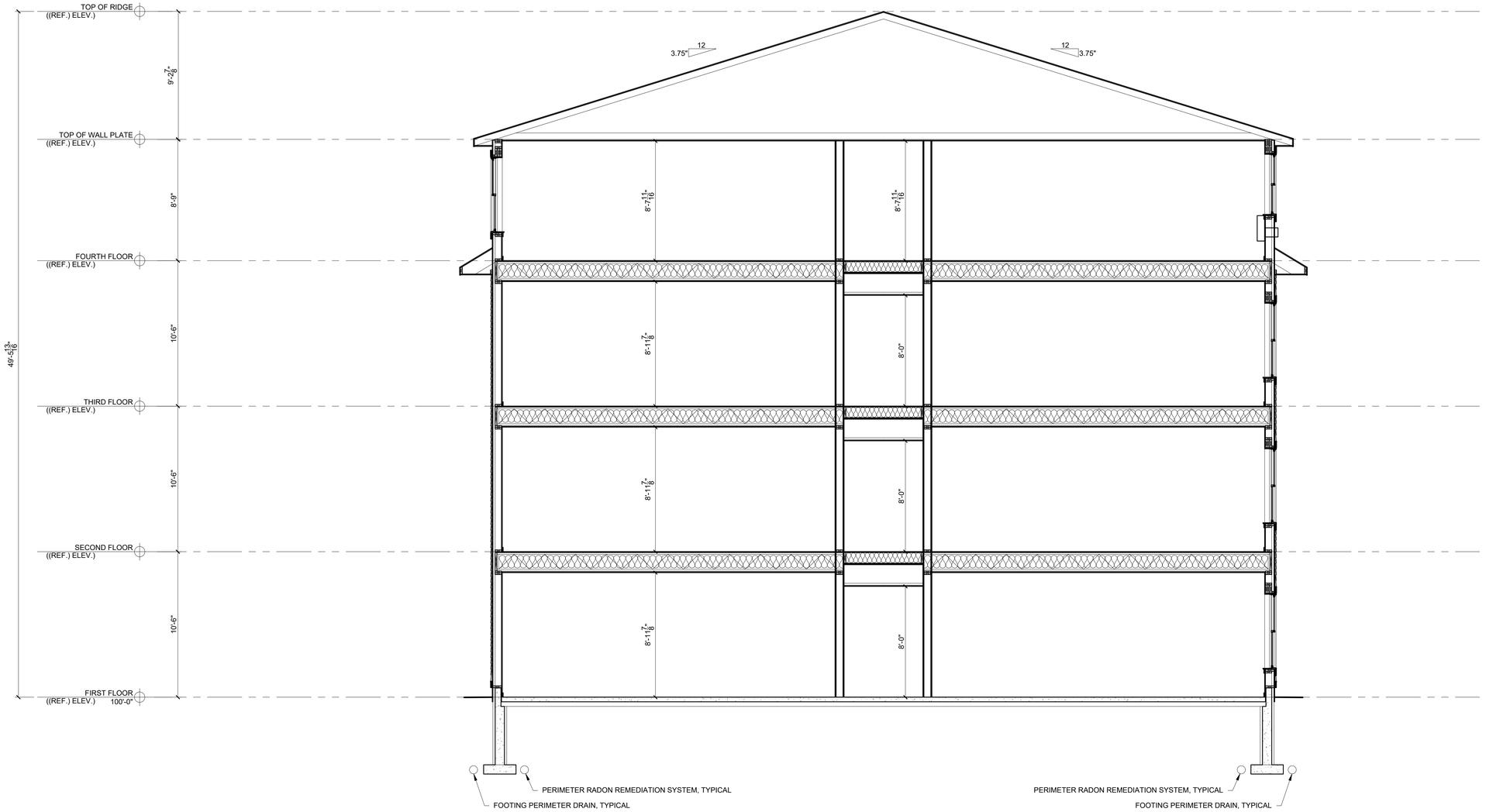
SHEET TITLE:
SECTION

A3-1




1 SECTION
1/4" = 1'-0"



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PORTLAND, MAINE 04101
O: 207-747-5159
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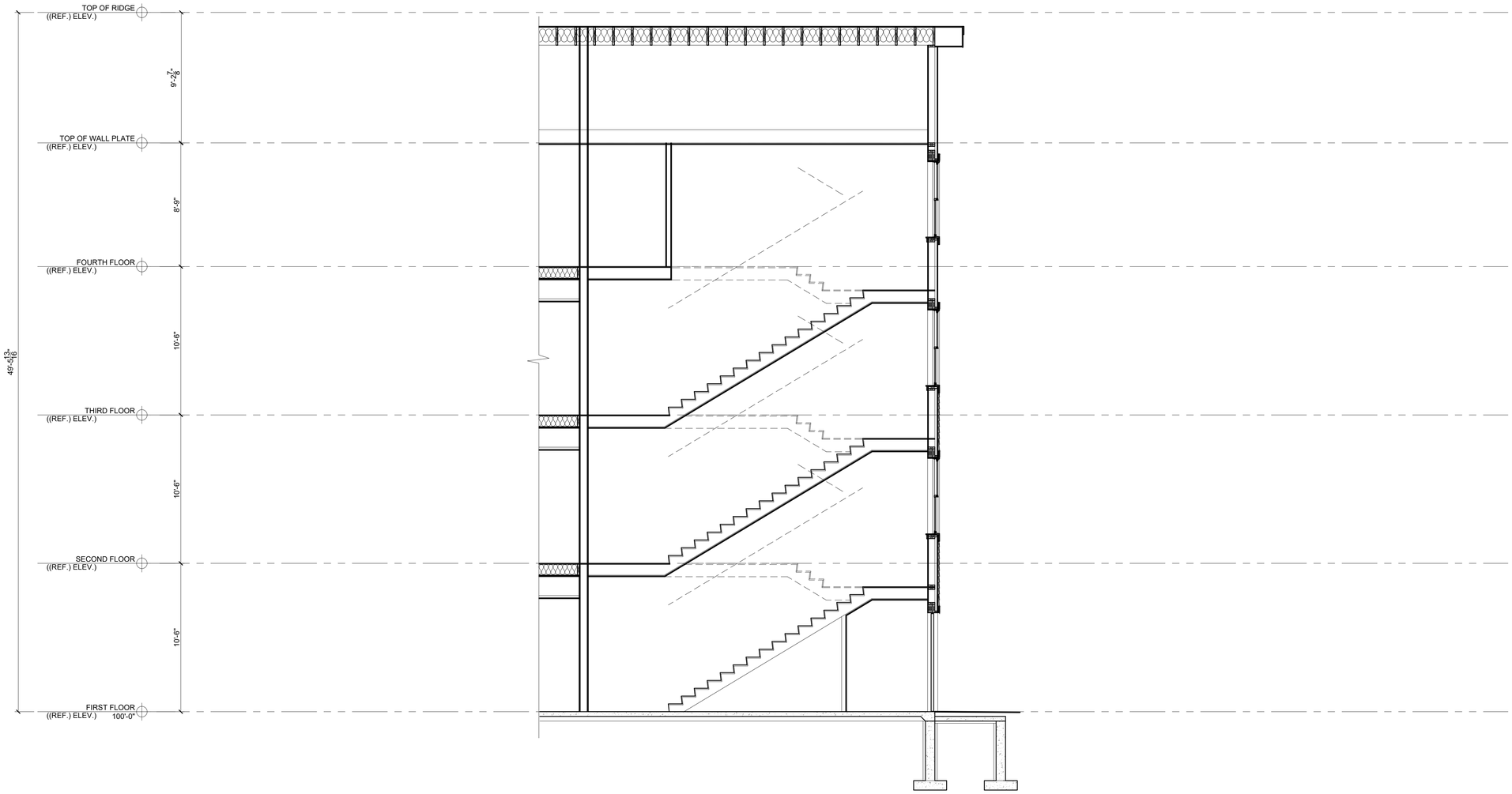
SHEET TITLE:
SECTION

A3-2




1 SECTION
1/4" = 1'-0"



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| CHECKED BY: | RJS |
| SCALE: | AS NOTED |

SHEET TITLE:
SECTION

A3-4


1 PERSPECTIVE 1
NTS



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RYAN SENATORE
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| | |
|---|---|
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| CHECKED BY: | RJS |
| SCALE: | AS NOTED |

SHEET TITLE:
PERSPECTIVE 1

P1

2 PERSPECTIVE 2
NTS



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| | |
|---|---|
| DATE: | |
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| SCALE: | AS NOTED |

SHEET TITLE:
PERSPECTIVE 2

P2


3 PERSPECTIVE 3
NTS



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SCALE: AS NOTED

SHEET TITLE:
PERSPECTIVE 3

P3

4 PERSPECTIVE 4
NTS



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| SCALE: | AS NOTED |

SHEET TITLE:
PERSPECTIVE 4

P4

1 VIEW FROM NAUTICAL DRIVE
NTS



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| | |
|---|---|
| DATE: | |
| PROJECT No. | 2219 |
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| CHECKED BY: | RJS |
| SCALE: | AS NOTED |

SHEET TITLE:
VIEW FROM NAUTICAL DRIVE

P5

1 OVERHEAD IMAGE 1
NTS



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| PROJECT No. | 2219 |
| DRAWN BY: | RRT, ES |
| CHECKED BY: | RJS |
| SCALE: | AS NOTED |

SHEET TITLE:
OVERHEAD IMAGE 1

O1

2 OVERHEAD IMAGE 2
NTS



# SENIOR APARTMENTS

SKYVIEW DRIVE
CUMBERLAND, MAINE

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

CONSULTANTS:

REVISIONS:

PROGRESS PRINT ONLY
Not for Construction
SEPTEMBER 21, 2022

DATE:

PROJECT No. 2219

DRAWN BY: RRT, ES

CHECKED BY: RJS

SCALE: AS NOTED

SHEET TITLE:
OVERHEAD IMAGE 2

O2