Memorandum

To: Planning Board

Re: Planning Board Agenda Item # 2: Mineral Springs Subdivision

From: Carla Nixon, Town Planner

Date: March 14, 2024

This is the first substantive review for the proposed Mineral Spring major subdivision to be located in the former Pike Gravel Pit off Blackstrap Road.

Major subdivisions go through a two-step process for review: Preliminary plan review and approval and final plan review and approval. I do not believe this application is ready for preliminary approval at this meeting, so the findings of fact are incomplete. I recommend the Board hear the presentation, ask questions, hold the public hearing, and then table the application.

I anticipate there will be numerous residents at the meeting as there is concern about the impact of the 72 subsurface septic systems on the aquifer. A full hydrogeologic report was submitted but has not had a peer review yet as that would require a hydrogeologist review the plan. Gorrill Palmer has done the peer review for the rest of the application. I have asked Al Palmer to attend this meeting to assist the Board in its review of the technical elements of the project.

Date	March 14, 2024
To	Town of Cumberland Planning Board
From	Carla Nixon, Town Planner
Subject	**Major Subdivision Review: Mineral Springs – 77 Blackstrap Rd.**

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1. REQUEST/OVERVIEW:

The applicant and owner is David Chase, dba as BR Properties, LLC. Mr. Chase proposes to redevelop an existing 40.1 acre gravel pit/material yard located at 77 Blackstrap Road into a 72 unit single family home subdivision that will be developed under a condominium form of ownership. This means that the buyers will individually own the homes and will have the exclusive right to utilize the land around the homes, but the open space will be owned by the Homeowners' Association.

The subdivision is located in the West Cumberland Housing Overlay Zone and Industrial zone. Half of the 72 units will meet an affordability level required by the Town of Cumberland.

The property is shown on Tax Assessor Map R07, Lot 53.

The applicant is represented by Peter Beigle, LSA, of Land Design Solutions and Dan Diffin, P.E., of Sevee and Maher Engineers. Al Palmer, P.E., of Gorrill Palmer Engineers reviewed the plan for the Town.

2. PROJECT HISTORY:

- Sketch Plan Review: June 20, 2023

3. WAIVER REQUESTS: None requested.

4. OUTSIDE AGENCY APPROVALS STATUS:

Agency	Type of Permit	Status
MDEP	SLODA Amendment	Submitted. Awaiting Decision
Portland Water District (PWD)	Ability to Serve Letter	Outstanding
Maine Historic Preservation Commission		Letter on File
Maine Department of Agriculture, Conservation and Forestry	Rare & Exemplary Botanical Features. None documented.	Letter on File
Maine Dept. of Inland Fisheries & Wildlife		Letter on File
CMP	Release Easement Deed	Pending

5. DESCRIPTION:

Parcel size:	40.1 acres
Net Residential Density:	Allows for 73 lots; 72 lots proposed.
Proposed number of lots:	72
Zoning:	Industrial District and West Cumberland Housing Overlay District.
Min. Lot Size:	20,000 sf

LOT STANDARDS: Note: Lot Standards are in conformance with the West Cumberland Housing Overlay District, but the condominium form of ownership allows that the frontage and setbacks are for the entire parcel, not the individual homes.

Setbacks:	Front: 25', Rear: 50', Side: 10' (combined = 25')
Water:	Public Water
Sewer:	Individual subsurface waste disposal systems.
Open Space:	Open Space Required: 10% of parcel. Open Space Provided: 25 acres (65 % of parcel)
Open Space & Trails:	Active recreation use consisting of a swing set, basketball court, and multipurpose lawn area) and passive recreation use including 4,455 feet of walking paths and a 1.75 acre pond.
Wetlands:	None.
Utilities:	Underground natural gas, electric, telephone, and cable from Blackstrap Road.
Fire Protection:	Individual home sprinkler systems.
Street Lighting:	At five locations within the subdivision.
Road:	Built to the Town's Residential Access Road Standards and proposed for public acceptance. There will be two 11' paved travel ways. One side of the road will have a 4' shoulder with a separated sidewalk, and the other side will have a 2' wide paved shoulder.
Sidewalks:	Proposed on one side of the subdivision road.
Homeowners Association:	Draft Declaration of Protective Covenants and Common Easements are on file. Review and approval by Town Attorney is required.
Right, Title and Interest:	Warranty Deed
Basements:	All homes will have full basements.

Garages: The affordable homes will each have a shed with no garage. The remaining units will have a one or two car garage.

REQUESTED WAIVERS: None

6. **DEPARTMENT HEAD REVIEWS**:

- **William Longley, CEO:** No comments.
- **Police Chief Charles Rumsey:** I've reviewed the packet you provided, and have the following feedback:

1. On page 7 of 10 of the Traffic Impact Study, the traffic engineers make a recommendation regarding the removal of vegetation to improve sight lines. I request that this be required of the developer as part of the project's approval process.
2. I don't see any indication of where stop signs will be placed – however, I would recommend that stop signs be installed at the intersections of the main road and Blackstrap / Upper Methodist. Also, I would recommend that stop signs be installed at the interior intersections of the project.

- **Fire Chief Dan Small:** I had a conversation with the Portland Water District last week about the water flow capacity due to the pumps on Blanchard Road---it's just about a valve that may need to be added. I was told it was a "good" question and that they would be getting back to me, to which they have not. I'll call them back to see if they've come up with an answer. I'll have nothing to add since the subdivision has hydrants located throughout. I'll get you the letter.

7. CUMBERLAND LANDS & CONSERVATION COMMITTEE: No comments.

8. TOWN ENGINEER'S REVIEW:

As requested by the Town, Gorrill Palmer has conducted an Engineering Peer Review for the above referenced project. Information received for this assignment included:

- Major Subdivision Application, dated February 27, 2024, prepared by Land Design Solutions in association with Sevee and Maher Engineers on behalf of B.R. Property, LLC, consisting of 510 pages.
- Drawing Set, dated February 27, 2024, prepared by Land Design Solutions in association with Sevee and Maher Engineers consisting of 24 drawings.

Based on our review of this information, general engineering principles and the Town of Cumberland Zoning Ordinance, we offer the following comments related to the engineering and design aspects of this project:

<u>Supporting Documents:</u>

1. Section 5M – Storwmater Management Report
   a. Report states: *"Additional detail describing site features, topography, and surface drainage patterns is provided in the Stormwater Management Report included in Section 12 of this application."* Please provide Section 12 of the SLDA application.
   b. The report states only one gravel wetland is proposed, however the hydrogeologic evaluation states two are proposed. Please clarify.

c. Redevelopment Calculations
    i. Please provide a plan depicting how these areas were classified.
    ii. The proposed roadway is listed with a pollutant ranking of 3, however this should be listed with a pollutant ranking of 4.
    iii. The proposed sidewalk is listed with a pollutant ranking of 3, however this should be listed with a pollutant ranking of 2.
    iv. The proposed sheds are listed with a pollutant ranking of 2, however this should be listed with a pollutant ranking of 3.
    v. The calculations list 855,612 SF of grass/trees having a pollutant ranking of 0. Only forests and meadows mowed less than 3 times per year have a pollutant ranking of 0. Grassed areas mowed 2 times per year have a pollutant rating of 2, non-grassed landscape areas and stormwater treatment/storage systems have a pollutant ranking of 1. Please review areas and provide clarity.

Mapping:

    vi. Pre-Development modeling shows a 12" culvert modeled as a pond, this should be discussed in the report as to how this functions. Given the soils in the area and the surface area of the pond, it would be a large amount of water in this pond would infiltrate.
    vii. Nomenclature for Tc does not match some of the segments in HydroCAD.
    viii. E-F appears to be approximately 450 feet, but is listed as 372'. Please review.
    ix. A portion of subcatchment S9 appears to drain to pond P8, please revise or discuss how runoff is diverted around the pond.

d. Modeling
    i. Existing Conditions:
        1. Over 310,000 SF of "paved roads w/curbs & sewers" is listed, however, using Adobe, there appears to be approximately 52,000 SF of uncurbed pavement, please clarify how this area was calculated.
        2. Over 572,081 SF of gravel surface with a curve number of 96 is listed which appears to encompass all gravel areas onsite. A more appropriate curve number for the gravel pit may be 72 for Dirt or 77 for newly graded soil.
    ii. Proposed Development:
        1. Please provide BMP sizing calculations.
        2. Please provide details for the 1.87 acre pond (P8). How are flows from the west of the pond being diverted around it? How does the pond outlet to pond P7?
        3. If the existing gravel is compacted to the point where it is considered impervious, revegetating the areas does not make it pervious in the post condition. This would require a major undertaking of amending existing soils to allow water to infiltrate. If this is the intent, please clarify how this will be accomplished.
        4. Please provide stage storage tables for the gravel wetland and Pond P8.

e. Post Construction Stormwater Management
    i. A post construction stormwater management plan should be provided in accordance with Section 242-23-25 of the ordinances.

Site Plans

2. Survey
    a. The Boundary Survey is dated October 20, 2010. There are a number of parcels noted "to be conveyed". We would recommend that an updated Boundary Survey be submitted reflecting all property transfers/acquisitions that have occurred since 2010.
    b. The Boundary Survey indicates an anticipated total area of 41.04 acres. The Site Overview Plan indicates 40.9 acres. Please clarify.

3. Site Overview Plan
    a. Requested road names should be provided to the Town for review under the E911 system.
    b. The right of way for the proposed roads as they intersect Blanchard Road and Upper Methodist Road should be include a radii, versus intersecting with a tangent.
    c. The right of way for the proposed road at it's intersection with Upper Methodist Road is at 90 degrees while the proposed road deflects at an intersection greater than 90 degrees and is located outside of the proposed right of way. As all the traffic entering / exiting the proposed subdivision at Methodist Road would be from the north, we would not recommend deflecting the road so that it's angle of intersection exceeds 90 degrees. We recommend modifying the roadway alignment so that it is 90 degrees to Upper Methodist Road.
    d. The Applicant should engage with the Planning Board as to the desirability for construction of sidewalks along the project frontage on either or both Blackstrap Road and Upper Methodist Road.
    e. Who will be responsible for plowing of the proposed on-site sidewalks? As the sidewalk is separated from the road by curb & esplanade, it would appear to require use of either a sidewalk plow or snowblower, which may not be feasible for the Town to maintain.
    f. Who will be responsible for plowing the proposed parking spaces as they span both the right of way and the open space?
    g. Please provide a map depicting the areas deducted for steep slopes as part of the Net Residential Acreage for verification.

4. General Notes, Legend, and Abbreviations
    a. The reference to "lot" on General Notes #3 should be revised to "Limited Common Element".
    b. A note should be added under General Notes that all roadway right of way points of curvature or intersection with Limited Common Elements shall be marked with a granite monument.
    c. General Notes #8 should be revised to note the road is anticipated to be offered to the Town for acceptance. Provisions need to be incorporated into the Homeowners/Condominium Documents regarding roadway maintenance until such time that the Town accepts the roads. Due to the depths of the storm drain pipes in some portions of the project, we have concern over the Town accepting maintenance of any storm drain pipe in excess of 8' below the roadway grade.
    d. General Notes #8, the note should be revised to note "Stormwater gravel wetland **shall be maintained by Homeowner's Association** …"

5. Existing Conditions and Demolition Plan
    a. In the center portion of the plan, above the W. Cumberland Methodist Church parcel there is a note that indicates "Clearing Limit Line (Typ) See Note 3". We were unable to locate Note 3.

6. Subdivision Plan, C-102
    a. Note 3 shall be revised consistent with comments regarding same note on General Notes Sheet.
    b. Note 7 indicates that "Final location of leach field must be coordinated with adjacent lots." This note should be revised to note "condominium units" vs. lots. As the condominium units are as narrow as 37' wide, there is little room for error in the placement of the leach fields without. We would recommend that the Applicant be required to survey layout at least 2 points for each leach field to ensure construction at the locations shown.
    c. Note 8 shall be revised consistent with comments regarding the same note on General Notes Sheet.
    d. The westerly side of Condominium Unit #68 appears to show a 10' front setback along the frontage along the site roadway connection to Blackstrap Road. It appears that it should be a 25' front setback.
    e. We recommend that the proposed roadway intersection with Upper Methodist Road be modified to 90 degrees.

7. Site Layout and Utility Plan, C-103
    a. The project is dependent on extension of a 16" water main by the Town within Blackstrap Road. We would recommend that a condition of approval be considered by the Planning Board similar to "Prior to issuance of any building permits for Mineral Springs, the 16" water main shall be installed, tested and be fully operational within Blackstrap Road to at least the intersection of the proposed site roadway".
    b. Water service for Units 69-72 are via 4-1-1/2" water services proposed to be located in the frontage of the condominium units versus a 8" main extension within Upper Methodist Road. We would recommend that the Planning Board consider requiring the Applicant to construct a 8" main extension in Upper Methodist.
    c. The Applicant should provide information regarding the manner proposed for electrical service for Units 69-72.
    d. The 4' wide gravel walking path appears to conflict with the Limited Common Elements for Units 47-50.
    e. The size of the proposed leachfield for Unit #43 appears to be approximately twice the size of the other units. Why?
    f. We would recommend that the offset from the centerline of the road to the proposed waterline be noted for both roadways to ensure adequate separation to the 6" under drain.

8. Site Grading, Drainage, and Erosion Control Plan, C-104
    a. We would recommend that a note calling out the 6" under drain on each side of both roads be noted on the plans.
    b. The storm drain between CB #4 and CB #5 does not appear to have adequate separation to Condominium Unit #34.
    c. The storm drain between CB #4 and CB #5 does not appear to have adequate separation to the leach field for Unit #33.
    d. The storm drain between CB #16 and CB #4 does not appear to have adequate separation to Unit #28.
    e. The storm drain between CB #25 and DMH #6 does not appear to have adequate separation to Unit #11.
    f. The storm drain between DMH #2 and CB #3 does not appear to have adequate separation to the Unit #43.
    g. The storm drain between DMH #2 and CB #3 does not appear to have adequate separation to the leach field for Unit #20.
    h. The storm drain between CB #1 and DMH #1 does not appear to have adequate separation to Unit #48.
    i. Who will be responsible for the maintenance, and any future rehabilitation / replacement of the various cross country storm drain pipes? Due to the depths of the pipes, we have concern over the Town accepting maintenance of any cross country storm drain pipes.
    j. Drainage easements shall be shown on the Subdivision Plan for all cross country storm drain pipes.
    k. The proposed grading over the leach fields for Units #69 to #71 does not appear to conform to the Subsurface Wastewater Disposal Rules.
    l. How will foundation drainage be addressed for all units?
    m. Please review stormdrain structure numbers for consistency between C-104 and C-200/C-201. For example CB #4 on C-104 is shown as CB #3 on C-201.
    n. It appears that the existing culvert at the southerly end of the property will pond during certain storm events such that ponded water may inundate the leach field for Unit #72.

9. Road Plan and Profile Blackstrap Entrance, C-200
    a. Please review all storm drain pipes for adequate cover, in particular between Station 4+00 and Station 5+00.
    b. Due to the depths of the storm drain pipes in some portions of the project, we have concern over the Town accepting maintenance of any storm drain pipe in excess of 8' below the roadway grade. This includes the pipe from CB #20 to DMH #6.

10. Road Plan and Profile Upper Methodist Entrance, C-201
    a. Please review all storm drain pipes for adequate cover, in particular between Station 32+50 and Station 33+72.
    b. Due to the depths of the storm drain pipes in some portions of the project, we have concern over the Town accepting maintenance of any storm drain pipe in excess of 8' below the roadway grade. This includes the pipe from CB #1to CB #3.

11. Gravel Wetland Plan, C-202
    a. Test pit information including anticipated groundwater depth should be added to the Plan and Section view.
    b. If the Low Permeability (Type D) layer is below the anticipated groundwater depth, the Engineer should provide recommendations as to dewatering to allow installation of this layer.
    c. Gravel Wetland Section, Note 4 references "compacted to high density". We would recommend a quantitative standard, such as 95% or 98%.

12. Sections & Details
    a. The gravel depth beneath the sidewalk is inconsistent between the Schedule of Surface Finishes and the Typical Roadway Section.
    b. The bedding for the underdrain trench is inconsistent between Note 6 of the Typical Roadway Section and the Underdrain Trench detail.

13. Landscape Plans
    a. The Landscape Plans should be reviewed/revised such that no trees are planted within 15' of a cross-country storm drain pipe.
    b. It is unclear whether the current unreclaimed areas of the property (from former gravel extraction operations) will be reclaimed as part of this project. If the current unreclaimed areas are not addressed as part of this project, the future homeowner's association could be subject to significant costs in the future for reclamation in the event those areas are determined to be an eyesore, safety hazard, etc. We recommend that the Planning Board consider requiring the Developer to reclaim all portions of the property in accordance Section 490-D of the MDEP Statute so that the Homeowner's Association are not responsible for these costs in the future.

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 streams on the site. The parcel is located in a FEMA flood zone C (area of minimal flooding). A soils and hydrogeologic investigation has been submitted by the applicant and reviewed by the Town Engineer who has provided comments that need to be addressed.

Based on the information provided, the Board finds that the standards of this section have NOT 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 via an extension along Blackstrap Road across the turnpike. Final approval from the Portland Water District is required.

Based on the information provided, The Board finds that the standards of this section have NOT 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 project will be served by public water via an extension along Blackstrap Road across the turnpike. Final approval from the Portland Water District is required.

Based on the information provided, the Board finds the standards of this section have NOT 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 Report was submitted. The Town Engineer has provided review comments which need to be addressed.

Based on the information provided, the Board finds that the standards of this section have NOT been met.

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 study was submitted. The Police Chief has suggested that stop signs be installed throughout the subdivision and that the clearing of vegetation on Blackstrap Road be done.

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;

A hydrogeologic Evaluation was submitted. There are outstanding comments from the peer review that need to be addressed.

Based on the information provided, the Board finds that the standards of this section have NOT been.

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

Household waste and recycling will be collected curbside by the commercial waste company contracted by the Town.

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 various State agencies stating that there will be no adverse impact on aesthetic, cultural and natural values on the site.

   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 by the Town Planner, Town department heads and the Town Engineer. There are outstanding comments that need to be addressed.

   The Board finds that the standards of this section have NOT been met.

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

    Financial Capacity: A statement of Financial Capacity dated 11/4/23 from Gorham Savings Bank has been provided.

    Technical capacity is evidenced by the use of professional technical consultants as outlined in the application packet.

    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;

    None of the above features are present on the site.

    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;

    A hydrogeologic investigation was conducted. There are outstanding comments from the Town Engineer that need to be addressed.

    Based on the information provided, the Board finds that the standards of this section have NOT 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 report was provided and there are comments from the peer review engineer which need to be addressed.

Based on the information provided, the Board finds that the standards of this section have NOT been met.

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.

A natural resources survey dated 6/14/22 was included in the application packet. This survey states that two wetland areas were identified which do not meet the minimum criteria for designation as a Wetland of Special Significance under the Maine NRPA. All development will be outside of the wetland areas.

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 rivers, streams or brooks identified on the site.

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

Design and Performance Standards

(1) Route 1 Design Standards. N/A
(2) Route 1 Design Standards. N/A
(3) Town Center District Design and Performance Standards. N/A
(4) Village Mixed Use Performance Standards. N/A

EXPIRATION OF APPROVAL: Construction of the improvements covered by any site plan approval must be substantially commenced with 12 months of the date upon which the approval was granted. If construction has not been substantially commenced within 12 months of the date upon which approval was granted, the approval shall be null and void. If construction has not been substantially completed within 24 months of the date upon which approval was granted or within a time period as specified by the Planning Board, the approval shall be null and void. The applicant may request an extension of the period. Such request must be made in writing and must be made to the Planning Board. The Planning Board may grant up to two one-year extensions to the period if the approved plan conforms to the ordinances in effect at the time the extension is granted and any and all federal and state approvals and permits are current.

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 de minimis 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.

PROPOSED CONDITIONS OF APPROVAL:

1. A Capacity to Serve letter from the Portland Water District is required prior to final approval.
2. A preconstruction conference is required prior to the start of construction.
3. The required SLODA permit from MDEP shall be provided prior to final approval.
4. A performance guarantee in an amount and form acceptable to the Town Manager will be required prior to the preconstruction conference.
5. All clearing limits shall be flagged and approved by the Town Engineer prior to the preconstruction conference.
6. A blasting permit, if required, shall be obtained from the Code Enforcement Officer.
7. All legal and technical review fees shall be paid to the Town prior to the preconstruction conference.
8. An electronic copy of the as-built plans shall be submitted to the Town Planner prior to the release of any remaining inspection fees.
9. A copy of the recorded plan will be provided to the Town within 90 days of Planning Board approval.

From: David Payne <dpaynehd@gmail.com>
Sent: Tuesday, March 19, 2024 10:22 AM
To: Carla Nixon <cnixon@cumberlandmaine.com>
Subject: Mineral Springs Subdivision

WARNING:This is an external email that originated outside of our email system. DO NOT CLICK links or open attachments unless you recognize the sender and know that the content is safe!

Carla -

I am unable to attend the meeting tonight but could you please pass along my concerns to the planning board?

I personally do not think this is a great location to be putting homes in, adding that much waste water on top of the aquifer is not a great idea in my opinion. I know it has been approved by the DEP but as someone that utilizes that aquifer for my water I am not in favor. Especially since I don't see the Town or Water District ever bringing water to my neighborhood.

My other concern is with the water main extension, I am not sure how the water district can say they can provide water for the additional homes, the existing main ends with the Turnpike on Blackstrap. The water pressure at the Fire Station is very low and I know of businesses and residential homes on that line that regularly lose water. If the water district can't provide to the existing customers how do they think they can add that many homes. It might look good on paper but in reality it will not be feasible unless they have plans to make some changes prior to the homes being completed.

Thanks

David Payne
207-251-5849

Major Subdivision Review
Town of Cumberland Land Use Ordinance

Project:
Mineral Springs Subdivision
A Residential Affordable Housing Development

Tax Map R07 / Lot 53
77 Blackstrap Road
Cumberland, Maine

Applicant:
B.R. Property, LLC
39 Nubbin Reach
Yarmouth, Maine 04096

February 27, 2024

Prepared By:

Land Design Solutions
1 Faraday Drive, Suite 7
Cumberland, Maine 04021

In association with

Sevee & Maher Engineers
4 Blanchard Road
Cumberland, Maine 04021

Land Design Solutions

Land Planning, Site Planning and Landscape Architecture

February 27, 2023

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

RE: Major Subdivision Preliminary Review Application -
Mineral Springs Subdivision an Affordable Housing Residential Development

Dear Carla,

Land Design Solutions, in association with Sevee & Maher Engineers has been retained by B.R. Property, LLC, (David Chase) the Owner of a 40.1 acre parcel of land located at 77 Blackstrap Road to assist with the design and permitting of a single family residential subdivision. The project is the redevelopment of the existing gravel pit into an affordable housing development under the Town of Cumberland's West Cumberland Housing Overlay District ordinance. The proposed development consists of seventy two single family homes, thirty six of which are proposed to be classified as affordable under an agreement prepared by the Town of Cumberland. The following are the main points of the proposed subdivision:

Proposed Project (under West Cumberland Housing Overlay District):

- The project is proposed as a single family home condominium style subdivision development using the parcel as one large lot. Front, Rear and Side setbacks will be from the parcel boundary, and then a front setback from the proposed subdivision street r.o.w.
- The 72 proposed units will consist of 50% (36) affordable housing units as defined by the Town of Cumberland, and 50% (36) market rate housing units.
- Open Space: 10% (4 acres) open space is required by the Town Ordinance, this project proposes 65% (26.9 acres). The open space will contain both passive and active recreation elements. The open space will be owned by the Homeowners Association.
- Subdivision Road: designed to the Town's standards the roads are proposed to be accepted and owned by the Town of Cumberland once the development is complete. The proposed subdivision roads will connect Blackstrap Road to Upper Methodist Road.
- Sidewalk: proposed on one side of the proposed subdivision streets.
- Affordable Homes: a mix of one story ranch and two story modified colonial homes without garages. All homes will have a full basement.
- Market Rate Homes: a mix of two story modified colonials with one car garages and full basements.

1 Faraday Drive, Suite 7, Cumberland, ME 04021
Tel: (207) 939-1717 Email: pbiegel@landdesignsolutions.com

- Sheds: all homes will have the option for a 12x12 shed for storage.
- Public Water: The development will be served by public water. The Town of Cumberland will be installing a 16 inch water main from Route 100 up Blackstrap Road to the site. An 8 inch water main is proposed to serve the proposed development.
- Sanitary Sewer: Each home will have their own private subsurface wastewater disposal system.

One hard copy and a digital file of the preliminary major subdivision application are enclosed per the Town of Cumberland requirements.

Please review the application, supporting documents and plan set and contact me with any comments or questions. We request that the project be placed on the next available agenda for discussion with the Town of Cumberland Planning Board.

Sincerely,

Peter B. Biegel, ASLA
Maine Licensed Landscape Architect

Cc: David Chase, B.R. Property, LLC.
Dan Diffin, SME

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   - Letter of Agent Authorization
2. Mapping
   - Aerial Context Map
   - USGS Topo Map
   - Tax Map
3. Right, Title or Interest
4. Project Description
5. Section 250-4 Subdivision Approval Criteria
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   B. Sufficient Water
   C. Municipal Water Supply
   D. Erosion
   E. Traffic
   F. Sewage Disposal
   G. Municipal Solid Waste Disposal
   H. Aesthetic, Cultural and Natural Values
   I. Conformity with Local Ordinances and Plans
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   K. Surface Waters
   L. Groundwater
   M. Flood Areas
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   O. Freshwater Wetlands
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   250-30 Conformity with Other State and Local Regulations
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   250-32 Preservation of Natural Features
   250-33 Utilities
   250-34 Water Supply
   250-35 Sewage Disposal
   250-36 Trees, Esplanades and Planting Screens
7. Affordable Housing Agreement and Homeowners Association Documents
8. Street Lighting

Project Plans (under separate cover):

- Cover Sheet
- Survey
- Site Overview Plan

C-100 General Notes, Legend and Abbreviations
C-101 Existing Conditions and Demolition Plan
C-102 Subdivision Plan
C-103 Site Layout and Utility Plan
C-104 Site Grading, Drainage and Erosion Control Plan
C-200 Road Plan and Profile (Blackstrap Road Entrance)
C-201 Road Plan and Profile (Upper Methodist Entrance)
C-202 Gravel Wetland Plan

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C-301 Sections and Details
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D-100 Stormwater Management Plan Pre-Development Conditions
D-101 Stormwater Management Plan Post-Development Conditions
L-1 Landscape Overview Plan
L-2 Landscape Plan
L-3 Landscape Plan
L-4 Landscape Plan
L-5 Landscape Plan
L-6 Landscape Plan
L-7 Landscape Details

APPENDIX B

APPLICATION FOR MAJOR OR MINOR SUBDIVISIONS

Applicant's Contact Information

Name: B. R. Property, LLC (David Chase)
Mailing Address: 39 Nubbin Reach, Yarmouth, ME 04096
Email Address: Dave@allinconstructioninc.com
Phone#: Office: _____ Cell: (207) 776-3031 Fax: _____
Interest in property: Owner
Interest in abutting properties, if any: None

Property Owner's Contact Information

Name: Same as above
Mailing Address: _____
Email Address: _____
Phone#: Office: _____ Cell: _____ Fax: _____

Applicant's Architect, Landscape Architect, Engineer, Planner or Surveyor Contact Information (If more than one, please attach contact info for each one.)

Name: Land Design Solutions (Peter Biegel) - in association with Sevee & Maher Engineers (Dan Diffin P.E.)
Mailing Address: 1 Faraday Drive, Suite 7, Cumberland, ME 04021
Email Address: pbiegel@landdesignsolutions.com
Phone#: Office: _____ Cell: (207) 939-1717 Fax: _____

Project Information

Name of Project: Mineral Springs Subdivision
Address of site: 77 Blackstrap Road
CCRD Book/Page #: 27325 / 312 Tax Map/Lot #: R07/53 West Cumberland
Zoning District: Industrial Zone Overlay District (If any): Housing Overlay
Site size (acres): 40.1 +/- # of Lots: 1 # Buildings: 72 # Dwellings: 72
____ Minor Subdivision _X_ Major Subdivision _____ Conservation Subdivision
Affordable Housing Condominium Project

OTHER INFORMATION

1. Is Board of Adjustment and Appeals approval required? No
2. Are any ordinance waivers requested? ___ Yes _X_ No (If yes, attach a list of waivers requested and reason for the request.)
3. Application fee per Town ordinance: $ Application Fee =
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.

Peter B. Biegel (Agent) 2/27/24

Signature of Applicant/Owner/Representative Date

October 2, 2023

David Chase
BR Property, LLC
39 Nubbin Reach
Yarmouth, ME 04096

RE: Letter of Agent Authorization
77 Blackstrap Road (Gravel Pit) , Cumberland, Maine

To whom it may concern:

Please consider this letter as authorization for Land Design Solutions to act as the agent relative to CMP Easements, local, state and federal permitting required for the referenced project.

Sincerely,

David Chase, Owner
BR Property, LLC

Section 2
Project Maps

Various project site maps are included with this section. They include the following:

Aerial Image from the Town of Cumberland Mapping System

Tax Map – Tax Map R07 / Lot 53 with project parcel depicted included with this section.

Location Map using the USGS Topo Quad Maps – included with this section.

77 Blackstrap Road Parcel

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Cumberland, ME makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 6/10/2020
Data updated monthly (see property record card)

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Project Site Lot 53

Maps Prepared by:
Spatial Alternatives
207.846.2355
www.spatialalternatives.com

Tax Sheets are intended for assessing purposes only.
Boundary locations are approximate and should not be used for conveyance of property.

Legend

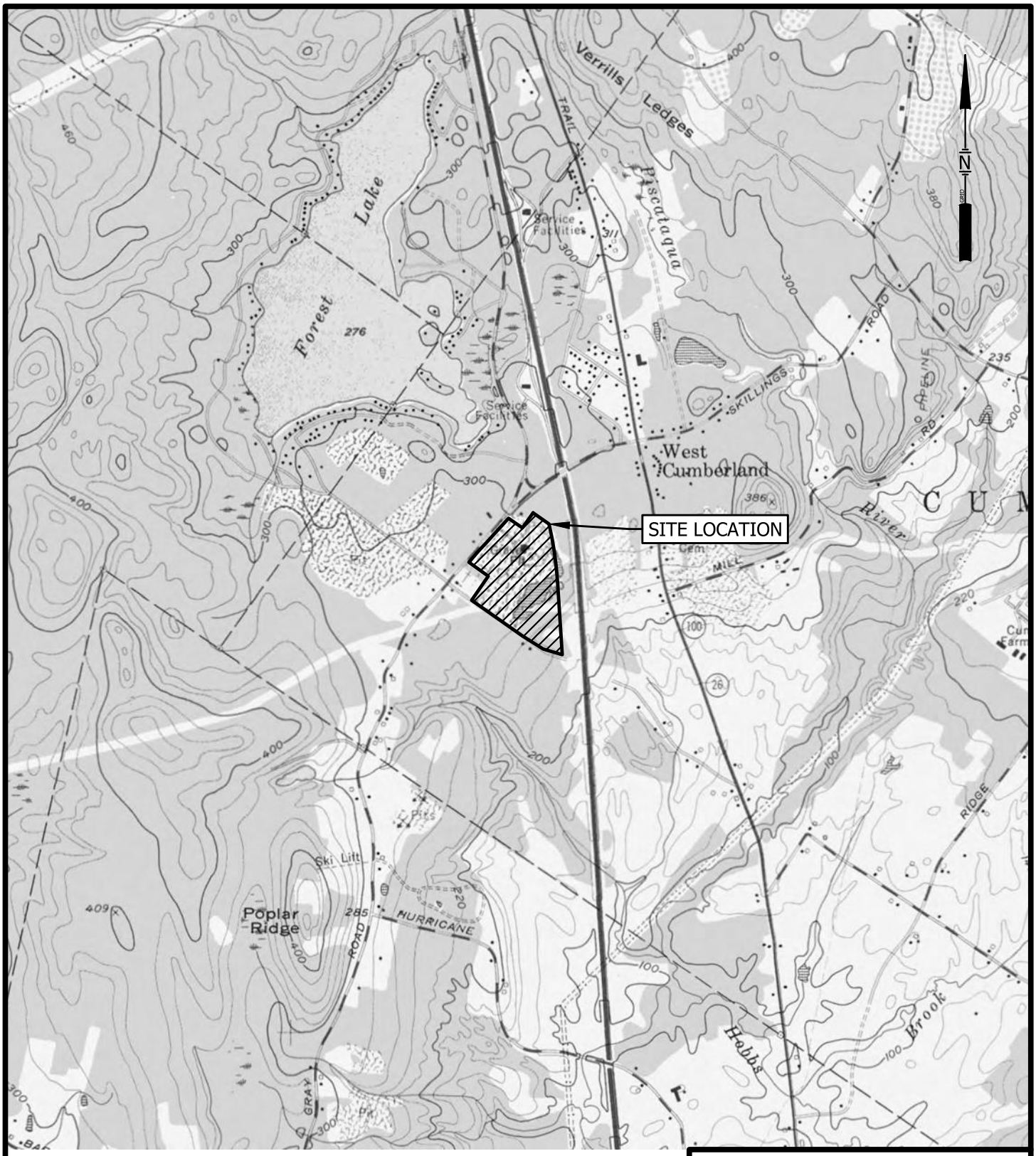
ROW/Easements
Tax Parcels
Parcels
Farmland and Tree Growth
Town Owned or Cemetery
Open Space
ROW
Utility
Railroad
Roads
Water

Town of Cumberland, Maine

1,200
Feet

Index Map

Cumberland Tax Map
R07
Map updated to: April 1, 2021



BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
CUMBERLAND CENTER, ME - 1975
YARMOUTH, ME - 1975

FIGURE 1
SITE LOCATION MAP
BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER
ENGINEERS

DWG: SITELOC LMN: LMN CTB: SME-STD REV: 5/17/2023

\\Nserver\cfs\David Chase\Blackstrap Road\Acad\Figures\SITELOC.dwg, FIG 1, 5/17/2023 8:00:42 AM, jrl

Section 3
Right, Title & Interest

The proposed project parcel is owned by B.R. Property, LLC, a Maine Limited Liability Company owned by David Chase the applicant.

The survey dated 10-14-2010 prepared by Royal River Survey which is included in the plan set shows the original parcel along with the CMP and NET & T (Consolidated Communications) easements, and a land swap with the adjacent Turnpike Authority. A sketch of the parcel with these components highlighted is included in this section.
+

Deeds:

1. Purchase of parcel by B.R. Property, LLC from Pike Industries, Inc. the previous owner Warranty Deed Book 27325 / Page 312. Deed included with this section.

2. Conveyance of land from Maine Turnpike Authority to B.R. Property, LLC Book 28447 / Page 214. Deed included with this section.

3. Conveyance of land from B.R. Property, LLC to Maine Turnpike Authority Book 28447 / Page 216. Deed included with this section.

Easements & Easement Releases:

The applicant has been working with CMP and Consolidated Communications on the release of the utility easements shown on the survey. Release fees have been paid and both companies have agreed to the easement release.

1. Consolidated Communications recorded the Release Deed Book 40518 / Page 105 December 11, 2023 at the Cumberland County Registry of Deeds. Easement Deed included with this section.

2. CMP is in the process of recording the easement release deed. They have provided documentation (attached as part of this section) acknowledging that the applicant has paid the fee for the easement release and that the release has been drafted and is in the process for final approval.

Doc#: 63811 Bk:27325 Pg: 312

Original Purchase Pike Industries to B.R. Property, LLC

MAINE REAL ESTATE TAX PAID

WARRANTY DEED
(Maine Statutory Short Form)

KNOW ALL PERSONS BY THESE PRESENTS, that **PIKE INDUSTRIES, INC.,** a Delaware corporation with a place of business at Belmont, County of Belknap and State of New Hampshire, for consideration paid, grants to **B. R. PROPERTY, LLC,** a Maine limited liability company with a place of business at Falmouth, County of Cumberland and State of Maine, whose mailing address is c/o Chase Excavating, 50 Gray Road, Falmouth, ME 04105, with **WARRANTY COVENANTS**, the land and improvements in the Town of Cumberland, County of Cumberland, State of Maine, described as follows:

Certain lots or parcels of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, being more particularly described as follows:

Parcel I: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, being more particularly described as follows:

Beginning on the southerly side of the old County Road leading by the Methodist Meeting House, at a point distant northeasterly thereon one hundred one (101) feet from the Cemetery fence;

Thence southeasterly, on a line parallel with and distant northeasterly one hundred (100) feet from said Cemetery fence, seven hundred sixty-two (762) feet, more or less, to land formerly owned by Daniel Marston;

Thence northeasterly, by said Marston land, three hundred seventy-one (371) feet, more or less to land formerly owned by Abbie P. Leavitt;

Thence northwesterly, by said Leavitt land, eight hundred fifty-eight (858) feet, more or less, to a stone monument on the southerly side line of said old County Road;

Thence southwesterly, by said road, three hundred thirty-six (336) feet, more or less, to the point of beginning; containing six and three-tenths (6.3) acres, more or less.

Said premises are a part of the same conveyed to Henry M. Wilson and Willis R. Wilson by Ines E. Hicks et al by deed dated March 4, 1935 and recorded in the Cumberland County Registry of Deeds in Book 1464, Page 266, and are conveyed subject to any rights of way which may now exist in an old woods road across the southerly end thereof.

Parcel II: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, lying in lot numbered forty, beginning at the south corner of said lot; being more particularly described as follows:

Thence North forty-four (44) degrees West by the range road, forty (40) rods to a stake;

Thence North sixty-nine (69) degrees East, fifty (50) rods to a stake;

Thence North seventy-three and one half (73 ½) degrees East, twenty-two (22) rods to a stake;
Thence South sixty-four and one half (64½) degrees East, eleven (11) rods to Dennis Doughty's land;

Thence South forty-six (46) degrees West by said Doughty's land, sixty-eight and three-fourths (68 ¾) rods more or less to the first bounds mentioned. Containing ten (10) acres and one hundred and thirteen (113) square rods, more or less.

Excepting that portion of the premises conveyed by deed of Cumberland Sand and Gravel Company, Inc. to Maine Turnpike Authority dated November 29, 1954 recorded in said Registry in Book 2209, Page 319.

Parcel III: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, lying on the easterly side of the Blackstrap Road, and being more particularly described as follows:

Beginning at the southwest corner of land of Durward W. Safford on the line of said road;

Thence running easterly on said Safford line to an iron stake and land of one Leavitt;

Thence running southerly on line of said Leavitt land to an iron stake and said Leavitt land;

Thence running westerly on the line of land of said Leavitt to the road aforesaid;

Thence running northerly on the line of the road to the place of beginning.

Excepting that portion of the premises conveyed by deed of Cumberland Sand and Gravel Company, Inc. to Antonio Mancini and Pauline Mancini dated June 3, 1966 and recorded in said Registry of Deeds in Book 2973, Page 140.

Further excepting that portion of the premises conveyed by deed of Alton R. Russell and Hilda W. Russell to Maine Turnpike Authority dated January 26, 1954 and recorded in Book 2166, Page 439.

Parcel IV: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, located on the southerly side of the Old Portland Road, so-called, which leads from Gray Road Inn, so-called, over Blackstrap to Portland, and more particularly described as follows:

Beginning at a point in the southerly sideline of said road, at the northwest corner of land now or formerly of Abbie P. Leavitt and also the northeast corner of land of one Willis Wilson;

Thence in a general southeasterly direction along the line of said Wilson land to a stake and land of said Leavitt;

Thence northeasterly and parallel with the said road one hundred forty (140) feet to a stake and land of said Leavitt;

Thence northwesterly and parallel to the first mentioned line, to a stake in the southerly side line of said road one hundred forty (140) feet to first bound and place of beginning, said lot containing one acre, more or less.

Parcel V: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine being in Lot Number 40 in said town, bounded and described as follows:

Beginning at an iron stake set in the ground on the dividing line of land now or formerly of Abbie Leavitt in West Cumberland, and the land of Willis Wilson, said stake being three hundred fifty (350) feet more or less southeast of the southeasterly side line of Blackstrap Road;

Thence continuing along the dividing line of said land of Abbie Leavitt and said Wilson property, in a southeasterly direction four hundred seventy-five (475) feet more or less to an iron stake and a woods road and right of way;

Thence northeasterly along said woods road, and approximately parallel with the Blackstrap Road, four hundred seventy-five (475) feet more or less to an iron stake;

Thence northwesterly, maintaining a distance of approximately four hundred seventy-five (475) feet from the said Wilson property, a distance of four hundred seventy-five (475) feet more or less to an iron set in the ground;

Thence southwesterly four hundred seventy-five (475) feet more or less to the point of beginning.

Parcel VI: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, and more particularly described as follows:

Beginning at a point which is two hundred seventy-five (275) feet, more or less, South forty-four degrees (44°) East from a point on the southeasterly side line of the old County Road leading by the Methodist Meeting House in said town, which point on said road is forty-six (46) rods more or less, northerly from the northerly side line of the Range Road, so called, and now is, or formerly was, marked by a pine tree and which point of beginning is marked by an iron stake near the corner of a boundary fence and is the southwesterly corner of land conveyed by Abbie Leavitt to Linwood C. Morrill hereinafter identified;

Thence from said point of beginning northeasterly in a line by said fence and through iron stakes set in the ground, said stakes marking the southeasterly line of land of the said Abbie Leavitt and lands conveyed by said Abbie Leavitt to Linwood C. Morrill, Ervin L. Morrill and John P. Breiel, forty-six (46) rods more or less to a stake set in the ground on the line of land now or formerly of Levi Clough, which stake is two hundred eleven and three-tenths (211.3) feet more or less southerly from said County Road;

Thence South forty-four degrees (44°) East to a point, which point is sixty-seven (67) rods ten (10) links more or less from said County Road;

Thence southwesterly along the Right of Way road, so called, (leading from the Range Road otherwise known as the Shawtown Road) to wit, by the northerly line of land conveyed by the said Abbie Leavitt to Ruth Wood and continuing by the northerly line of land now or formerly of Cumberland Sand & Gravel Co., Inc., formerly of one Charles L. Shaw, to a point and iron stake where the westerly line of said land of Abbie Leavitt intersects the line of said land of Cumberland Sand & Gravel Co., Inc., which point and stake is in a course South forty-four degrees (44°) East of the point of beginning and fifty-two (52) rods from said County Road;

Thence North forty-four degrees (44°) West along said Abbie Leavitt's westerly line to the point of beginning;

Meaning and intending to convey all the land acquired by the said Abbie Leavitt from Shirley H. Mann by deed dated July 10, 1934 and recorded in Cumberland County Registry of Deeds in Book 1443, Page 466 with the exception of the parcels conveyed by Abbie P. Leavitt as follows: to John P. Breiel by deed dated

May 29, 1940 and recorded in said Registry in Book 1603, Page 486; to Ervin L. Morrill by deed dated March 18, 1946 and recorded in said Registry in Book 1812, Page 160; to Linwood C. Morrill by deed dated May 26, 1951 and recorded in said Registry in Book 2054, Page 315; to Ruth Wood by deed dated October 5, 1950 and recorded in said Registry in Book 2021, Page 3, and with the further exception of the land southerly of said County Road lying between said land sold to Ervin L. Morrill and said land sold to said Linwood C. Morrill, retained by the said Abbie Leavitt;

And further conveying a right of way from the land hereby conveyed to the said County Road, said right of way being fifty (50) feet in width and running along the northerly side line of land now or formerly of Abbie Leavitt and southwesterly of said land conveyed to Ervin L. Morrill for use by the grantee, its successors and assigns, in common with others, for ingress and egress to the above granted premises to and from said County Road; the land hereby conveyed including the land heretofore conveyed by deed dated December 11, 1947 and recorded in said Registry in Book 1897, Page 246.

Excepting from the above described premises the property conveyed by Cumberland Sand & Gravel Co., Inc. to Maine Turnpike Authority by deed dated November 29, 1954 and recorded in said Registry of Deeds in Book 2209, Page 319.

Further excepting that portion of the premises described in the Maine Turnpike Authority Notice of Taking dated March 15, 1954 and recorded in Book 2172, Page 101.

Excepting that portion of the premises conveyed by deed of Cumberland Sand and Gravel Company, Inc. to Antonio Mancini and Pauline Mancini dated June 3, 1966 and recorded in said Registry of Deeds in Book 2973, Page 140.

Parcel VII: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, and more particularly described as follows:

Beginning at a point approximately nine hundred (900) feet northeasterly of the Range Road, which point is the northerly corner of land sold by Abbie P. Leavitt to Linwood Morrill by deed dated May 26, 1951, and recorded in Cumberland County Registry of Deeds in Book 2054, Page 315;

Thence southeasterly by said Linwood Morrill land two hundred seventy-five (275) feet more or less to a stake on the land conveyed by said Abbie P. Leavitt to the Cumberland Sand & Gravel Co., Inc., by deed dated November 24, 1952, and recorded in said Registry in Book 2115, Page 168;

Thence northeasterly by said Cumberland Sand & Gravel Co., Inc., land two hundred eighteen (218) feet more or less to the southerly corner of land conveyed by said Abbie P. Leavitt to Ervin L. Morrill by deed dated March 18, 1946, and recorded in said Registry in Book 1812, Page 160;

Thence northwesterly by said Ervin L. Morrill land to said Old County Road;

Thence southwesterly two hundred eighteen (218) feet more or less by said southerly side line of said Old County Road to the point of beginning.

Excepting therefrom a certain right of way conveyed to said Cumberland Sand & Gravel Co., Inc., by said deed of November 24, 1952.

Parcel VIII: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, and more particularly described as follows:

Beginning at a point in the northeasterly sideline of the Range Road, so-called (now marked "Dead End"), distant southeasterly fifteen (15) feet from the West Cumberland Methodist Cemetery fence;

Thence parallel with and fifteen (15) feet southeasterly from the southeasterly side of said Cemetery fence, extending northeasterly in a straight line, to land conveyed by Henry M. Wilson and Willis E. Wilson to W.H. Hinman Co.;

Thence southeasterly, by said Hinman Co. land, to land now or formerly of Cumberland Sand & Gravel Co., formerly of one Shaw;

Thence southwesterly, by said land of Cumberland Sand & Gravel Co., to the northeasterly side line of said Range Road;

Thence southeasterly, by said Hinman Co. land, to land now or formerly of Cumberland Sand & Gravel Co., formerly of one Shaw;

Thence northwesterly, by said road, to the point of beginning.

Parcel IX: A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, and more particularly described as follows:

Lying on the generally easterly side of the right-of-way road, in said Cumberland, which road leads northerly from the Shawtown Road, in said Cumberland, a road running from the Blackstrap Road, so called, to the Portland Gray Road, said lot being bounded westerly by the right-of-way Road, northerly by land now or formerly of one Wilson, easterly by Wilson's land, and southerly by land now or formerly of one Shaw.

Excepting from the above described land so much thereof as was taken over by and conveyed to the Maine Turnpike Authority by deed dated January 26, 1954 and recorded in said Registry of Deeds in Book 2161, Page 395.

Covenant Running with the Land: Grantee, its successors and assigns, covenant and agree, by acceptance of this deed, that the premises conveyed herein shall not be used for the production of concrete or hot-mix asphalt. Any excavation of earthen materials from this site shall remain on this site. Grantor agrees to allow the Grantee, its successors and assigns, the ability to utilize the Property for onsite storage and crushing of "off-site originated" rock and other materials, including off-site originated concrete or hot-mix waste products for recycling, and shall allow for the sale (retail or wholesale) and distribution of such recycled products or aggregate. These restrictions shall run with the land, shall inure to the benefit of Grantor, its successors and assigns, and shall be binding upon the Grantee, its successors and assigns.

Easements: The premises are conveyed subject to: (a) the Rights and easements granted to Central Maine Power Company and New England Telephone and Telegraph Company as set forth in an instrument from Cumberland Sand & Gravel Co., Inc. dated February 27, 1963 and recorded in said Registry of Deeds in Book 3016, Page 626; (b) Rights and easements granted to Cumberland County Power and Light Company as set forth in an instrument by Charles L. Shaw dated October 27, 1916 and recorded in Book 979, Page 241. (Parcel II); (c) Rights and easements granted to New England Telephone and Telegraph Company and Central Maine Power Company as set forth in an instrument dated February 23, 1951 and

recorded in Book 2037, Page 256. (Parcel V); (d) Rights and easements granted to Central Maine Power Company as set forth in an instrument from Cumberland Sand & Gravel Co., Inc. dated September 22, 1952 and recorded in Book 2106, Page 323; (e) Agreement by and among the Town of Cumberland, the State of Maine Department of Transportation, Shaw Brothers Construction, Inc., and Blue Rock Industries dated June 28, 1995 and recorded in Book 12013, Page 43; (f) Rights and easements granted to Central Maine Power Company and New England Telephone and Telegraph Company as set forth in an instrument by Alton R. and Hilda W. Russell dated February 3, 1955 and recorded in Book 2238, Page 8; (g) Rights and easements granted to New England Telephone and Telegraph Company and Central Maine Power Company as set forth in an instrument by Abbie P. Leavitt dated February 23, 1951 and recorded in Book 2037, Page 254. (Parcels IV, VI, VIII, and IX); (h) Rights and easements granted to Cumberland County Power and Light Company as set forth in an instrument by Lorinda Mountfort dated October 26, 1916 and recorded in Book 980, Page 151; and (i) rights and easements, as may exist, as set forth in an instrument from Henry M. Wilson to W.H. Hinman, Inc. dated September 8, 1958 and recorded in Book 2435, Page 149 (Parcel I).

WITNESS its hand and seal this 14th day of October, 2009.

WITNESS:

PIKE INDUSTRIES, INC.

By: _____
Typed name: Jonathan Olson
Its: Regional Manager

STATE OF MAINE
COUNTY OF CUMBERLAND, ss. October 14, 2009

Then personally appeared the above named Jonathan Olson, its Regional Manager of **PIKE INDUSTRIES, INC.** who acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said **PIKE INDUSTRIES, INC.**

Before me,

_____
Attorney at Law/~~Notary Public~~
Print Name: Ronald Olson
My Commission Expires: _____

Received
Recorded Register of Deeds
Oct 15,2009 01:49:44P
Cumberland County
Pamela E. Lovley

Land Conveyed from B.R. Property, LLC to the Maine Turnpike

WARRANTY DEED

Statutory Short Form

KNOW ALL BY THESE PRESENTS, THAT **B.R. PROPERTY, LLC**, a Maine limited liability company, whose mailing address is c/o Chase Excavating, 50 Gray Road, Falmouth, ME 04105, for consideration paid, grants to the **MAINE TURNPIKE AUTHORITY** a body corporate and politic, duly created by virtue of an Act of the Legislature of the State of Maine, Chapter 69 of the Private and Special Laws of 1941, as amended, and continued in existence under Title 23, M.R.S.A., Chapter 24, and having an office at 2360 Congress Street, Portland, in the County of Cumberland and State of Maine, 04102, with WARRANTY COVENANTS, a certain lot or parcel of land with any improvements for highway or transportation purposes situated in the Town of Cumberland, County of Cumberland, State of Maine, and more particularly described in **Exhibit A,** attached hereto and made a part hereof.

IN WITNESS WHEREOF, B.R. Property, LLC has caused this instrument to be executed on its behalf by its duly authorized undersigned representative, this 13th day of January, 2011.

Witness

B.R. Property, LLC

David A. Chase

STATE OF MAINE
COUNTY OF CUMBERLAND ss. January 13, 2011

Personally appeared before me the above named David A. Chase and acknowledged the foregoing instrument to be his free act and deed and that of B.R. Property, LLC.

Before me,

Notary Public / Attorney at Law

EXHIBIT A

A certain strip of land in the Town of Cumberland, County of Cumberland and State of Maine being primarily 150 feet in width situated on the west edge of the Maine Turnpike right of way and the southeast corner of that parcel of land conveyed to B. R. Property LLC by deed recorded in the Cumberland County Registry of Deeds in book 27325 page 312, and as depicted on a certain plan entitled, "Plan of Survey of Properties in the Town of Cumberland made for the Maine Turnpike Authority and B. R. Property, LLC, being more particularly bounded and described as follows, to wit:

Beginning at a point on the westerly sideline of the Maine Turnpike at the northeast corner of land of the aforesaid B. R. Properties and the southerly corner of land now of this grantee as described in the deed recorded in said registry in book 2181 page 437, formerly known as the Wilson lot, said point being 150 feet west of center line station 2909+25.39, and proceeding around the parcel hereby described and conveyed in a counter-clockwise fashion;

Thence N 55°-14'-58" W along the land of said grantee herein a distance of 217.58 feet to a certain survey marker;

Thence S 11°-47' E for a distance of 98.11 feet to a certain survey marker set in the ground 150 feet west of a granite monument designating a point of tangency at the west edge of the Maine Turnpike right of way said monument being 150 feet west of and opposite center line station 2909+85.19;

Thence along a curve to the right having a radius of 5429.58 feet for a distance of 754.95 feet as measured along the arc of said curve to a point of curvature 150 feet west of a granite monument designating a point of curvature of the Maine Turnpike right of way, said monument situated 150 feet west of and opposite center line station 2901+88.52, the hereby described curve subtended by a chord having a length of 754.35 feet bearing S 07°-48' E;

Thence S 03°-49' E for a distance of 39.46 feet to a certain survey marker set in the northerly side of a steep embankment and land conveyed to this grantee from Vernie B. Stratton by deed recorded in said registry in book 2166 page 237;

Thence N 34°-41'-23" E along the former Stratton parcel as aforesaid for a distance of 206.64 feet to the westerly edge of the Maine Turnpike right of way situated 170 feet westerly of the Maine Turnpike center line aforesaid;

Thence proceeding along the Maine Turnpike right of way and a curve to the left having a radius of 5559.58 feet for a distance along said arc of 69.50 feet to a point at southerly boundary of a certain parcel of land formerly of Ruth Wood, being the ninth parcel of land described in the deed given the grantor herein aforesaid, said curve subtended by a chord having a length of 69.50 feet bearing N 05°-26'-05" W;

EXHIBIT A
(continued)

Thence S 79°-51'-30" E along the former Ruth Wood parcel for a distance of 20.80 feet to the westerly edge of the Maine Turnpike right of way and a corner, said corner situated 150 feet westerly of the center line of the Maine Turnpike;

Thence proceeding along the Maine Turnpike right of way and a curve to the left having a radius of 5579.58 feet for a distance along said arc of 529.27 feet to the **Point of Beginning** herein, at the southerly boundary of the aforesaid former Wilson lot, said curve subtended by a chord having a length of 529.07 feet bearing N 08°-27'-06" W, said hereby described and conveyed parcel encompassing an area of 2.49 acres, more or less.

The above description was prepared by benefit of a survey plan and on the ground survey performed by Royal River Survey Company entitled, "Plan of Survey of Properties in the Town of Cumberland" dated October 14, 2010. All bearings cited herein are based upon the north orientation prescribed by the right of way surveys and plans of the Maine Turnpike Authority. All markers cited herein as "certain survey marker" are 5/8 inch diameter steel rebar with identification caps inscribed, "Royal River PLS 1154".

Received
Recorded Register of Deeds
Jan 14,2011 01:44:30P
Cumberland County
Pamela E. Lovley

Land Conveyed to B.R. Property, LLC from the Maine Turnpike

MAINE REAL ESTATE TAX PAID

QUITCLAIM DEED

With Covenant

KNOW ALL BY THESE PRESENTS, THAT the MAINE TURNPIKE AUTHORITY a body corporate and politic, duly created by virtue of an Act of the Legislature of the State of Maine, Chapter 69 of the Private and Special Laws of 1941, as amended, and continued in existence under Title 23, M.R.S.A., Chapter 24, and having an office at 2360 Congress Street, Portland, in the County of Cumberland and State of Maine, 04102, for consideration paid, grants to **B.R. PROPERTY, LLC,** a Maine limited liability company, whose mailing address is c/o Chase Excavating, 50 Gray Road, Falmouth, ME 04105, with Quitclaim Covenant, a parcel of land in Cumberland, Cumberland County, Maine and more particularly described in **Exhibit A**, attached hereto and made a part hereof,

IN WITNESS WHEREOF, the Maine Turnpike Authority has caused this instrument to be sealed with its corporate seal and signed in its corporate name hereunto duly authorized this 11th day of January, 2011.

Attest:

Jonathan Arey, Esq., Secretary

Maine Turnpike Authority

Paul E. Violette, Executive Director

STATE OF MAINE
COUNTY OF CUMBERLAND ss

~~November~~ January 11, 20~~10~~ 11

Personally appeared before me the above named Paul E. Violette, Executive Director of the Maine Turnpike Authority, and acknowledged the foregoing instrument to be his free act and deed, and the free act and deed of said corporation.

SEAL

Before me,

Notary Public / Attorney at Law

Jonathan Arey, Esq.

EXHIBIT A

A certain parcel of land situated on the north side of Upper Methodist Road, so called, in the Town of Cumberland, County of Cumberland and State of Maine, being the westerly portion of that parcel conveyed to this grantor from Vernie B. Stratton by deed recorded in the Cumberland County Registry of Deeds in book 2166 page 237, the parcel hereby described and conveyed being bounded southwesterly by the Upper Methodist Road aforesaid, northwesterly by the land of B. R. Property, LLC, and easterly by a 150 foot wide strip along the west side of the Maine Turnpike that is to be retained by the grantor herein, said parcel hereby described and conveyed being more particularly bounded and described as follows, to wit:

Beginning at the southerly terminus of the easterly sideline of the parcel hereby described and conveyed at a certain survey marker set in the northerly sideline of the Upper Methodist Road, said marker situated N 73°-18'-51" W of the westerly sideline of the Maine Turnpike a distanee of 160.14 feet as measured along the northerly sideline of said Upper Methodist Road, said marker and easterly sideline also being 300 feet westerly of the center line of the Maine Turnpike, and proceeding around the parcel hereby conveyed in a counter-clockwise fashion;

Thence N 03°-49' W maintaining a distance of 300 feet westerly and perpendicular to the aforesaid Maine Turnpike center line for a distance of 1033.22 feet to a certain survey marker and the southerly bounds of B. R. Property, LLC as described in parcel two of the deed recorded in said registry in book 27325 page 312 and was known formerly as the Shaw lot;

Thence S 34°-41'-23" W along the easterly bound of the said B. R. Property, LLC for a distance of 915.10 feet to a field stone monument set in the northerly sideline of Upper Methodist Road;

Thence S 57°-50'-58" E along the apparent northerly sideline of Upper Methodist Road for a distance of 365.6 feet;

Thence S 73°-18'-51" E along the apparent northerly sideline of Upper Methodist Road for a distance of 292.36 feet to a certain survey marker and remaining land of the Maine Turnpike Authority and **Point of Beginning** herein, encompassing an area of 7.09 acres, more or less.

The above described parcel of land was subjeet to a certain pole easement now of the Central Maine Power Company, as described in the deed recorded in book 980 page 149, the said location of which having been adjusted by license recorded in book 2931 page 317.

The above description was prepared by benefit of a survey plan and on the ground survey performed by Royal River Survey Company entitled, "Plan of Survey of Properties in the Town of Cumberland" dated October 14, 2010. All bearings cited herein are based upon the north orientation prescribed by the right of way surveys and plans of the Maine Turnpike Authority. All markers cited herein as "certain survey marker" are 5/8 inch diameter steel rebar with identification caps inscribed, "Royal River PLS 1154".

Received
Recorded Register of Deeds
Jan 14,2011 01:38:13P
Cumberland County
Pamela E. Lovley

Consolidated Communications (NET & T) Easement Release

RELEASE DEED

(Release of Easement)

This instrument made this 30th day of NOVEMBER 2023, between CONSOLIDATED COMMUNICATIONS OF NORTHERN NEW ENGLAND COMPANY LLC, (d/b/a Consolidated Communications – NNE), a Delaware Limited Liability Company, (hereinafter referred to as "Grantor") , with a place of business at 5 Davis Farm Road, Portland, Maine 04103 and B. R. PROPERTY, LLC, a Maine limited liability company, whose mailing address is c/o Chase Excavating, 50 Gray Road, Falmouth, Maine 04105 (hereinafter referred to as "Grantee").

WITNESSETH

WHEREAS, Consolidated Communication of Northern New England Telephone Company LLC the Grantor is the successor in interest to the following easement rights located in the town of Cumberland, Cumberland County, Maine:

(a) Easement rights located therewith, over and under a section of land that was acquired through an easement granted by Cumberland Sand & Gravel Co, Inc., dated February 27, 1963 and recorded in the Cumberland County Registry of Deeds in Book 3016, Page 626.

(b) Easement rights located therewith, over and under a section of land that was acquired through an easement granted by Alton R. Russell and Hilda W. Russell, dated February 3, 1955 and recorded in the Cumberland County Registry of Deeds in Book 2238, Page 98.

(c) Easement rights located therewith, over and under a section of land that was acquired through an easement granted by Cumberland Sand & Gravel Co, Inc., dated February 23, 1951 and recorded in the Cumberland County Registry of Deeds in Book 2037, Page 256.

(d) Easement rights located therewith, over and under a section of land that was acquired through an easement granted by Abbie P. Leavitt, dated February 23, 1951 and recorded in the Cumberland County Registry of Deeds in Book 2037, Page 254.

(collectively hereinafter referred to as "Easements")

WHEREAS, The Grantee is the current owner of property that desires to have the subject property released from the terms and burden of the Easements.

WHEREAS, The approximate location of these interests herein released is referenced as being located, on a survey plan entitled "West Cumberland Business Park", Cumberland, Maine, dated March 28,2011 and recorded in the Cumberland County Registry of Deeds in Plan Book 211, Page 270, and limited to the locations of the said section of land that burdens the portion of the Grantees' property being described in a deed from Pike Industries, Inc. to B. R. Property, LLC, dated October 14, 2009 and recorded in the Cumberland County Registry of Deeds in Book 27325, Page 312 and being described in a deed from Maine Turnpike Authority to B. R. Property, LLC, dated January 11, 2011 and recorded in the Cumberland County Registry of Deeds in Book 28447, Page 214 which is shown on the Town of Cumberland Tax Map R07, Lot 53.

NOW THEREFORE, CONSOLIDATED COMMUNICATIONS OF NORTHERN NEW ENGLAND COMPANY LLC, a Delaware limited liability company, in consideration of One Dollar ($1.00) and other valuable consideration paid by B. R PROPERTY, LLC, does hereby release, relinquish and forever quitclaim unto said B. R PROPERTY, LLC, their heirs, successors, and assigns, that portion of the said Easements described herein as burdens, crosses, and lies over, under, upon, and above the property of B. R PROPERTY, LLC described in the above-described deed from Pike Industries, Inc. and Maine Turnpike Authority and all easement rights of the Grantor under said easements as they pertain to the property of the Grantee.

As part of the consideration for the interests, rights, and portion of the easements herein released and by acceptance of this Release Deed, the Grantee B. R PROPERTY, LLC, for itself and its successors and assigns agrees to and with the Grantor CONSOLIDATED COMMUNICATIONS OF NORTHERN NEW ENGLAND COMPANY LLC, its successors and assigns, that this conveyance is made with the express provision that B. R PROPERTY, LLC hereby release CONSOLIDATED COMMUNICATIONS OF NORTHERN NEW ENGLAND COMPANY LLC from any and all claims, suits or demands which it may have against CONSOLIDATED COMMUNICATION OF NORTHERN NEW ENGLAND COMPANY LLC related to their acquisition of the subject property, located in the Town of Cumberland, Cumberland County, State of Maine, which property was encumbered by the easements hereto released as to such property, provided the foregoing release shall not apply to claims of other parties.

IN WITNESS WHEREOF, the said Consolidated Communications of Northern New England Company LLC has caused this instrument to be executed and thereunto duly authorized this 30th day of NOVEMBER, 2023.

WITNESS

Paul A. Doyon

CONSOLIDATED COMMUNICATIONS OF NORTHERN NEW ENGLAND COMPANY LLC

By: Sady Rancourt

Sady Rancourt – OSP Admin. Manager

State of MAINE

NOVEMBER, 2023

County of CUMBERLAND

Personally appeared before me the above named Sady Rancourt, and acknowledged the foregoing instrument to be his free act and deed and in his capacity the free act and deed of said Consolidated Communications of Northern New England Company LLC, before me,

JESSICA THERIAULT
NOTARY PUBLIC
State of Maine
My Commission Expires
March 17, 2024

SEAL

Notary Public / ~~Attorney~~

My Commission Expires/ Bar # _____

Printed Name: JESSICA THERIAULT

Received
Recorded Register of Deeds
Dec 11,2023 11:34:41A
Cumberland County
Jessica M. Spaulding

CMP Easement Release Documentation

pbiegel landdesignsolutions.com

From: LUND, MIKE <mike.lund@avangrid.com>
Sent: Wednesday, November 15, 2023 1:12 PM
To: pbiegel landdesignsolutions.com
Subject: RE: 77 Blackstrap Rd Falmouth-old CMP easement
Attachments: 77 Blackstrap Rd- Invoice.pdf; W9.pdf

Hi Peter

I have received some guidance on the Administrative Fee for this easement release. The fee will be $500. CMP will draft and record the release after signature.

Attached is an invoice and a fillable W-9 form so we can set you up with a Vendor ID. This will help if we have future projects with you.

Mike Lund

Central Maine Power
An Avangrid company

A. Michael Lund
Land Agent

Contractor to Central Maine Power Company
Canacre

83 Edison Drive Augusta ME 04330
C: 207-596-5082
Mike.Lund@Avangrid.com

Take care of the environment. Print only if necessary

Internal Use

From: pbiegel landdesignsolutions.com <pbiegel@landdesignsolutions.com>
Sent: Tuesday, November 14, 2023 2:37 PM
To: LUND, MIKE <mike.lund@avangrid.com>
Subject: RE: 77 Blackstrap Rd Falmouth-old CMP easement

EXTERNAL SENDER: Be cautious, especially with links and attachments. Report phishing if suspicious.

Thank you Mike sounds good. I will keep you posted as to the submission schedule.

Peter

Central Maine Power
An Avangrid company

Invoice

Date: 11/15/2023

Regarding Task #:	ELM #488 77 Blackstrap Rd Cumberland
To:	Peter Biegel, Land Design Solutions for BR Properties. LLC
For:	Administrative Fee for Easement Release
Amount:	$500

Please Remit To: Central Maine Power Company

Address:

Central Maine Power Co, Attn Energy Land Management

83 Edison Drive

Augusta ME 04336

A. Michael Lund

Land Agent

Contractor to Central Maine Power Company

Canacre

83 Edison Drive Augusta ME 04336

C: 207-596-5082

Mike.Lund@Avangrid.com

From: LUND, MIKE <mike.lund@avangrid.com>
Sent: Wednesday, December 6, 2023 12:25 PM
To: pbiegel landdesignsolutions.com <pbiegel@landdesignsolutions.com>; BEAUDOIN, KELTIE <keltie.beaudoin@avangrid.com>
Subject: RE: 77 Blackstrap Rd Falmouth-old CMP easement

Hi Peter

Thanks for the check to cover the Administrative Fee for releasing the old CMP easements at 77 Blackstrap Road Cumberland. The easement has been drafted and is making the rounds for final approval and release.

Once the release deed is signed CMP will have it recorded and will send you a copy.

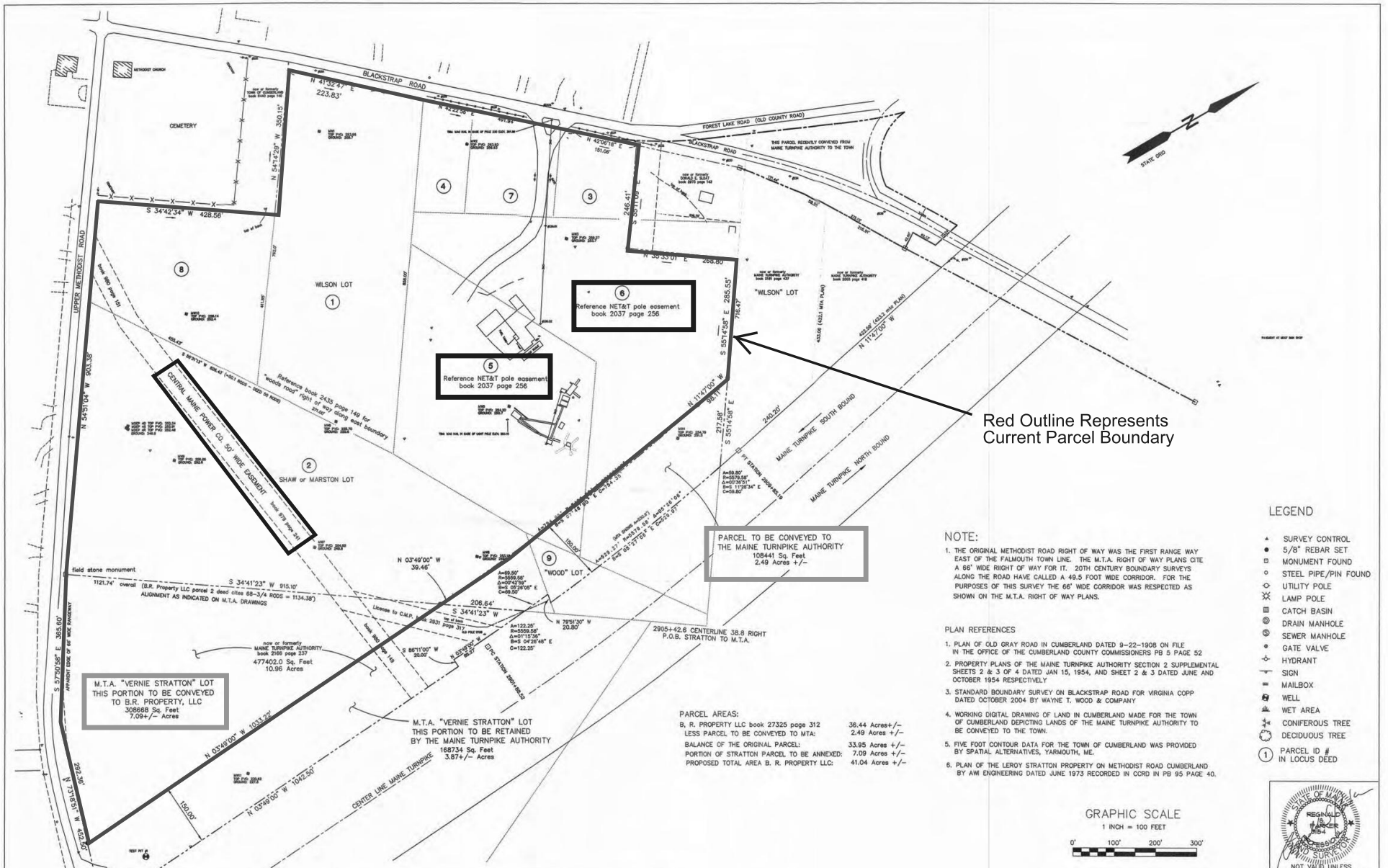
Mike Lund

Central Maine Power
An Avangrid company

A. Michael Lund
Land Agent

Contractor to Central Maine Power Company
Canacre

83 Edison Drive Augusta ME 04330
C: 207-596-5082
Mike.Lund@Avangrid.com


BLACKSTRAP ROAD
FOREST LAKE ROAD (OLD COUNTY ROAD)
UPPER METHODIST ROAD
METHODIST CHURCH
CEMETERY
WILSON LOT
SHAW or MARSTON LOT
"WILSON" LOT
"WOOD" LOT
MAINE TURNPIKE SOUTH BOUND
MAINE TURNPIKE NORTH BOUND
CENTRAL MAINE POWER CO. 50' WIDE EASEMENT
Reference book 3435 page 149 for "woods road" right of way along east boundary
Reference NET&T pole easement book 2037 page 256
Reference NET&T pole easement book 2037 page 256
Red Outline Represents Current Parcel Boundary
PARCEL TO BE CONVEYED TO THE MAINE TURNPIKE AUTHORITY
108441 Sq. Feet
2.49 Acres +/-
M.T.A. "VERNIE STRATTON" LOT
THIS PORTION TO BE CONVEYED TO B.R. PROPERTY, LLC
308668 Sq. Feet
7.09+/- Acres
M.T.A. "VERNIE STRATTON" LOT
THIS PORTION TO BE RETAINED BY THE MAINE TURNPIKE AUTHORITY
168734 Sq. Feet
3.87+/- Acres
now or formerly MAINE TURNPIKE AUTHORITY book 2168 page 237
477402.0 Sq. Feet
10.96 Acres
field stone monument
2905+42.6 CENTERLINE 38.8 RIGHT P.O.B. STRATTON TO M.T.A.
2890+57.5 CENTERLINE 150' LEFT
CENTER LINE MAINE TURNPIKE
N 41°52'47" E 223.83'
S 34°42'34" W 428.56'
N 54°14'29" W 350.15'
N 54°51'04" W 903.38'
S 57°50'58" E 365.60'
N 65°49'00" W 1033.22'
N 03°49'00" W 1042.50'
S 34°41'23" W 915.10'
1121.74' overall (B.R. Property LLC parcel 2 deed cites 68-3/4 RODS = 1134.38')
ALIGNMENT AS INDICATED ON M.T.A. DRAWINGS
S 34°41'23" W 206.64'
N 03°49'00" W 39.46'
S 55°14'58" E 265.55'
N 11°47'00" W 98.17'
S 55°14'58" E 217.55'
N 33°33'01" E 268.80'
S 39°11'10" E 245.41'
N 42°06'15" E 151.06'
N 11°47'00" W 423.58' (423.5 MEA PLAN)
S 86°11'00" W 20.00'
N 78°51'30" W 20.80'
150.00'
246.20'
716.47'
432.08' (432.1 MEA PLAN)
License to C.M.P. book 2931 page 312
book 3435 page 149
book 2168 page 148
book 2037 page 256
book 2037 page 257
book 2037 page 258
book 2037 page 259
book 2037 page 260
book 2037 page 261
book 2037 page 262
book 2037 page 263
book 2037 page 264
book 2037 page 265
book 2037 page

Section 4
Project Description

The Mineral Springs Subdivision project is the redevelopment of an existing approximately 40 acre gravel pit into an affordable housing development under the Town of Cumberland's West Cumberland Housing Overlay District ordinance.

Parcel History:
The parcel has been owned and operated as a gravel pit & material processing yard for many years by a number of different companies. The current owner B.R. Property, LLC. (David Chase) purchased the pit from Pike Industries, Inc. in 2009 and has operated it since that time. Mr. Chase would now like to discontinue the gravel pit/material yard use and redevelop the site for residential use.

Proposed Project:
The proposed project is a 72 unit single family detached home condominium development. Thirty six of the seventy two proposed homes will meet the "affordable" criteria set forth by the Town of Cumberland. An agreement prepared by the Town will be signed by the developer outlining the agreed upon terms for the affordable homes. A draft agreement is included with this application in Section 7 Homeowners Association Documents Exhibit L.

The constructed homes will be owned by the buyers, however the private designated land adjacent to the homes shown on the plans as "reserved common element", and the surrounding open space will be owned by the Homeowner's Association. Even though the "reserved common element" land adjacent to each of the homes is owned by the Homeowners Association the individual home owners will have exclusive rights to its use as a private lawn space. The Homeowners Association Documents are included with this submission in section 7.

Project Zoning:
The project is located in the Industrial Zone, and the West Cumberland Housing Overlay District. The proposed project is being proposed under the zoning requirements of Section 315-28.1 West Cumberland Housing Overlay District. The project must meet the following criteria:
Permitted Use: Single Family
Lot Standards:

Front Setback = 25 ft. shown along Blackstrap Road, Upper Methodist Road and the proposed subdivision streets.

Rear Setback = 50 ft. shown along the parcel's rear property line along the Maine Turnpike.

Side Setback = 10 ft. with a combined width of 25 ft. Side setbacks are shown along the parcels side property line.

Minimum Lot Size = 20,000 s.f. is required for each single family dwelling unit. Please see the Net Residential Density calculation on the subdivision plan showing that the parcel has enough area to support 73 units. 72 units are proposed.

Lot Frontage = No less than 100 ft. The parcel has approximately 1,563 ft. on Upper Methodist Road and approximately 866 ft. on Blackstrap Road, combined with the frontage from the proposed roads which is 5,444 ft. provides a combined total of 7,873 linear feet of frontage. 7,200 linear feet is required for the 72 homes.

Public Water = The project will be served with public water. The Town of Cumberland is working with Gorrill Palmer Consulting Engineers, Inc. and the Portland Water District to extend a 16 inch dia. water main along Blackstrap Road from Route 100 to the proposed development site. This extension is being done to serve the proposed development and the future development of this area. An eight inch water main will be installed in the proposed development.

Open Space = The West Cumberland Housing Overlay District requires that ten percent of the total project area be put in open space. Ten percent for this site is 4.1 acres. The proposed project, proposes to have approximately 25 acres (65%) of the development in open space. The open space will consist of both active play areas and passive recreation areas. Active areas consist of a basketball court, swing set area and multi-purpose lawn area. Passive recreation elements consist of a trail system with approximately 4,455 feet of walking paths, and a 1.75 acre pond. The open space will be vegetated in three different ways. Lawn areas which are meant for resident play and "hanging out", limited maintenance areas which are located adjacent to the private "reserved common element" boundaries and are to be treated as more of a meadow/field and will be mowed a couple times a year, and then areas outside that will be seeded and allowed to naturalize with trees and shrubs over time. The Homeowners Association will own the open space.

Buffering = A 50 ft. wide buffer is required to be established between the residential development and abutting tracts or parcels of land that include nonresidential uses. The proposed plans show a 50 ft. buffer between proposed development and the Maine Turnpike, and the Cemetery at the corner of Blackstrap and Upper Methodist Roads.

Net Residential Density = The overlay zone requires 20,000 s.f. for each home. The net residential density calculation showing the deductions and units allowed is on the Subdivision Plan. The calculation shows that 73 units are allowed. However, only 72 units are proposed.

Proposed Subdivision Roads:

The proposed subdivision roads which will connect to Blackstrap and Upper Methodist Road are proposed to be constructed per Table 2 of Article X Street Design and Construction Standards of the Subdivision Ordinance for Residential Access Roads with greater than 50 vehicle trips per day. And for acceptance by the Town of Cumberland upon completion of the project. A sidewalk is proposed on one side of the proposed subdivision roads. 19 visitor parking spaces are distributed in five different locations around the proposed development. Street lighting is proposed at the five parking locations and the four street intersections. We are working with RealTerm Energy Solutions the energy company that works with the Town of Cumberland on street lighting within the Town to supply the proposed lighting design and street lights. Lighting information is included in section 8. Two fire hydrants are proposed, one at each end of the development's internal road intersections.

Proposed Utilities:

- Water: The project will utilize public water. An 8 inch dia. water main will be installed throughout the development to serve the homes and fire hydrants.
- Sewer: The project will utilize private subsurface wastewater disposal systems. We have met with the State of Maine Department of Health and Human Services and the Maine DEP to discuss the septic systems and make sure that our system sizing and area calculations are correct.
- Power, Cable and Tel/data will be underground.

Stormwater Management:

The project has been designed to meet the water quality and quantity objectives identified in Chapter 500 of the Maine Department of Environmental Protection's (MDEP) Stormwater Management Law. This project requires a Site Location of Development Act Permit from MDEP. The proposed stormwater management will be reviewed as part of that application process.

Stormwater Management for the proposed project will be accomplished using multiple devices, including a gravel wetland, catch basins, manholes, culverts, and drainage channels for treatment of stormwater runoff to MDEP Chapter 500 Standards. Storage in the gravel wetland will be used to attenuate peak flow runoff from the proposed development to meet flooding standard requirements while providing quality treatment of the stormwater runoff.

Proposed Homes:

- Affordable Homes: The 36 affordable homes are anticipated to be a mix of one story ranch and two story modified colonial homes without garages. All homes will have a full basement. Each home is shown with a 12'x12' prefabricated movable shed to provide additional outside storage. The affordable homes will be constructed and

owned under an agreement with terms set by the Town and agreed to by the developer and buyer.

- Market Rate Homes: The 36 market rate homes are anticipated to be a mix of two story modified colonials with one or two car garages and full basements. Each home is shown with a 12'x12' prefabricated movable shed to provide additional storage.

Section 5
Section 250-4 Subdivision Approval Criteria

A. Pollution
B. Sufficient Water
C. Municipal Water Supply
D. Erosion
E. Traffic
F. Sewage Disposal
G. Municipal Solid Waste Disposal
H. Aesthetic, Cultural and Natural Values
I. Conformity with Local Ordinances and Plans
J. Financial and Technical Capacity
K. Surface Waters
L. Groundwater
M. Flood Areas
N. Stormwater
O. Freshwater Wetlands
P. River, Stream or Brook

Individual subjects A through P included in this section.

Section 5A
Pollution

The project is located in a FEMA flood zone C which is an area designated as minimal flooding. A copy of the FEMA Community Flood Panel Number 2301620015 B is included with section 5M Flooding. We do not anticipate that the project will increase flooding or cause an unreasonable flood hazard to any downstream structure. An analysis of stormwater runoff is provided in the stormwater report included with Section 5N.

A soils and hydrologic investigation has been done for the project to ensure that the soils are suitable for septic systems, and to ensure that the septic system designer has information about the sites groundwater table. For additional information on the septic system design see Section 5F Sewage Disposal and 5L Groundwater. The proposed septic systems and their impact on the groundwater and soils is currently under review by the Maine DEP.

Section 5B
Sufficient Water

The project will be served with public water. The Town of Cumberland is working with Gorrill Palmer Consulting Engineers, Inc. and the Portland Water District to extend a 16 inch dia. water main along Blackstrap Road from Route 100 to the proposed development site. This extension is being done by the Town of Cumberland in order to serve this project and others in the future. An 8" dia. water main is proposed to be installed by the applicant throughout the development to serve the proposed homes and fire hydrants.

An e-mail from the Senior Project Engineer at the Portland Water District stating that the Water District will have sufficient supply to serve the proposed project is included with this section. A Portland Water District infrastructure map is included as well.

pbiegel landdesignsolutions.com

From: Robert Bartels <rbartels@pwd.org>
Sent: Monday, February 26, 2024 10:59 AM
To: Daniel Diffin
Cc: Brandon Binette
Subject: 526084-77 Blackstrap Road, CU - DEP Site Law
Attachments: CU - 77 Blackstrap Rd - Infrastrucutre Map - 2023.pdf

Hello Mr. Diffin,

This email does not give final approval of the project from PWD; however, it can be used to satisfy Site Law Statute §484 - Standards for Development, Site Law Rule Chapter 375(18), and Site Law Rule Chapter 375(6) granted that the applicant meet all applicable standards set forth by DEP. Attached is a copy of PWD's infrastructure map noting the location, type, and size of the public water infrastructure near your site, demonstrating a sufficient and healthful water supply exists. For this project it should be noted that the existing water main in Blackstrap Road is proposed to be extended by the Town of Cumberland across the interstate and within Blackstrap Road to a point within the intersection of Blackstrap Road and Goose Pond Road/Upper Methodist Road, establishing frontage on a water main for which this project will benefit. Based on the demand provided by the applicant, the district will have sufficient supply to serve the proposed project, as long as the project is designed and installed in accordance with PWD standards and the water main is extended. This email shall serve as PWD's acknowledgement of the project and the start of design coordination with the development team; In no way shall this information be interpreted as a determination of PWD's ability to serve the project at this time as this is only a determination of the capacity of the existing system based on the proposed development. As your project progresses, we require that you submit design plans to MEANS for review of the proposed water improvements. An Ability to Serve Determination letter is required from the District in order to receive final approval from the District and the municipality having jurisdiction.

Please let me know if you have any questions.

Thanks,

ROBERT BARTELS, P.E.
Senior Project Engineer
207-699-5144
rbartels@pwd.org
https://www.pwd.org/

Portland Water District
From Sebago Lake to Casco Bay

Portland Water District NOTICE & DISCLAIMER Confidentiality Notice: THIS MESSAGE IS INTENDED ONLY FOR THE USE OF THE INDIVIDUAL OR ENTITY TO WHICH IT IS ADDRESSED AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED AND CONFIDENTIAL. Please notify the sender if you have received this message in error. Recipients should be aware that replies to this message may not be considered confidential under the Maine Freedom of Access law, 1 M.R.S.A. §402, and may therefore be subject to public disclosure upon request.

Please consider the environment before printing this email

77 Blackstrap Road

Cumberland

PORTLAND WATER DISTRICT
225 Douglass Street
Portland, ME 04104

Scale 0 205 410 820 1,230 Feet — 1 IN = 600 FT

Legend

- Air Valve
- Blow Off
- By Pass
- Distribution
- Transmission
- Connection
- Attribute Change
- Hydrant Control
- Reducer
- Hydrant
- Meter Pits
- Combined Service
- Domestic Service
- Fire Service
- Shallow Water Main
- Deep Water Main
- Proposed Water Main
- Private Hydrants
- Gravity
- Force
- Manhole
- CSO

N W E S

Disclaimer: This map is suitable for preliminary study and analysis and is based on PWD record information. PWD is not liable for any damages whatsoever resulting from inaccurate data or from errors made in the location and marking of its infrastructure.

Drawn By: KAR	**Infrastructure Map**
Scale: As Noted	**Date: 10/11/2023**

Section 5C
Municipal Water Supply

The project will be served by public water. The Town of Cumberland is extending a 16 inch dia. water main along Blackstrap Road from Route 100 to the proposed development site to serve the project.

The Town, Owner and project team have been coordinating with the Portland Water District and will continue to do so throughout the design and permitting process. An email from a Senior Project Engineer at the Portland Water District is included in Section 5B.

Section 5D
Erosion

The proposed project has been designed with stormwater management and erosion controls to manage surface water runoff from the site during construction and post-closure such that clean stormwater is directed to downstream water bodies. The foregoing measures and controls will help to assure that no unreasonable erosion of soil or sediment will occur as a result from construction or operations.

All proposed structures to be used within this project have been designed using engineering procedures commonly used in stormwater analyses.

To minimize erosion during and after construction, temporary and permanent erosion control measures will be implemented. Temporary measures (i.e., silt barriers and silt socks) and permanent measures (i.e., permanent seeding, mulching, and culvert inlet and outlet protection) will be monitored on a regular basis. As part of the contractor's scope of work to ensure that devices are functioning properly, the contractor will perform necessary inspections and maintenance for the erosion control systems.

During construction, the contractor will be responsible for inspecting the silt fence, silt socks and other components of the erosion control system on a bi-weekly basis after each rainfall and at least daily during prolonged rainfall. Any necessary repairs shall be made immediately.

Please see Plan C-300 Erosion and Sedimentation Control Notes and Details for additional information.

Section 5E
Traffic

A traffic impact study has been prepared for the proposed project by Transportation Engineers at Barton & Loguidice. The Traffic Impact Report dated August 22, 2023 is included with this section. The report summary is shown below.

1. The proposed 77 Blackstrap Road single-family residential development with a total of 72 proposed house lots, can be expected to generate a total of 51 vehicle trips during the morning peak hour and an additional 68 trips in the evening peak hour.

2. MaineDOT's most recent three-year safety audit (2020 through 2022) for the reviewed sections of Blackstrap Road between Gray Road and Upper Methodist Road and the entire length of Upper Methodist Road shows the incidences of traffic crashes is below MaineDOT's threshold criteria for identification of a high crash location.

3. Traffic operations at both study intersections will operate at the *"best"* level of service (Level of Service A) under forecast 2027 pre- and post-development travel conditions. Similarly, traffic operations, under 2027 traffic loadings at both proposed site entrance intersections on Blackstrap Road and Upper Methodist Road, will also operate at Level of Service A conditions.

4. Vehicle sightlines measured directionally from the centerline of the proposed site entrance at 77 Blackstrap Road meets and exceeds the minimum standard (360-feet) for a posted speed limit of 40mph, the current posted speed limit on Blackstrap Road. A measured sight distance in excess of 400-feet was recorded for both directions of travel onto Blackstrap Road. Clearing improvements are recommended along the entire Blackstrap Road frontage of the property between the edge of pavement and the existing chain link fence to ensure adequate sight distance is provided. This designated clearing area should be maintained on a scheduled basis.

5. Sight distance measurements directionally (350-feet plus) observed at the proposed Upper Methodist Road site entrance exceed by a considerable distance the minimum sight distance standard for a posted speed limit of 30mph, the current posted speed limit on Upper Methodist Road.

TRAFFIC IMPACT STUDY

FOR PROPOSED

77 Blackstrap Road Residential Subdivision

Cumberland, Maine

Prepared For: B.R. Property, LLC

Prepared By: William Bray, P.E., Senior Managing Engineer
Jacob Sirois, Engineer 1

August 22, 2023

Introduction

B.R. Property, LLC, is proposing development of a 72-lot single-family residential subdivision, located at 77 Blackstrap Road in the Town of Cumberland. The proposed residential development will be accessed through two proposed full-access entrances. The primary point of access is located at the existing driveway serving the gravel pit at 77 Blackstrap Road. A secondary entrance is located on Upper Methodist Road approximately 1,800 feet east of Blackstrap Road.

The purpose of this traffic impact study is to examine existing traffic conditions in the general vicinity of the proposed project, estimate the total number of site trips generated by the project, and determine as to whether the existing transportation system can safely accommodate the site generated traffic.

Existing Traffic Conditions

Manual turning movement traffic counts were conducted at the Gray Road/Blackstrap Road/Skillin Road and Blackstrap Road/Upper Methodist Road/Goose Pond Road intersections to establish "*peak*" hour travel conditions within the study area. The morning and evening traffic data was collected on July 11, 2023. All vehicular traffic entering both intersections was recorded in 15-minute intervals between the hours of 7:00 and 9:00 a.m. and, again, between 3:00 and 6:00 p.m. From a summary of the data, peak hour times were established for both "*peak*" commuter travel periods at each study location. The morning peak hour occurs between 7:15 and 8:15 a.m. at the Gray Road/Blackstrap Road/Skillin Road intersection and 15-minutes earlier at the Upper Methodist Road/Blackstrap Road/Goose Pond Road intersection between 7:00 and 8:00 A.M. A similar timing pattern was recorded in the evening peak hour; the evening peak falls between 4:15 and 5:15 p.m. at the Gray Road intersection and between 4:00 and 5:00 p.m. at the Upper Methodist Road intersection. Copies of the peak hour summary reports for both study intersections are attached in the appendix.

Seasonal Adjustments: Traffic data collected during the peak summer months of July and August does not require adjustment to reflect design hour traffic conditions. Figure 1, attached, presents the estimated 2021 Saturday peak hour design volumes for the intersection.

Future Traffic Growth

The MaineDOT's Bureau of Planning developed in support of the Town of Cumberland's long-range planning study for the section of the Gray Road (State Routes 100/26) future 2043 traffic forecasts for the corridor. Their future traffic projections are based upon average annual daily traffic (AADT) volumes reported for the sections of Gray Road north of Blackstrap Road and the section of Skillin Road east of Gray Road for the years of 2018 and 2023. Both noted road sections experienced very modest increases in average annual traffic between 2018 and 2023. Average annual daily traffic volumes reported in 2018 for the identified section of Gray Road was estimated at 5,860 vehicles and 6,210 vehicles in 2023. A similar proportional increase in traffic volumes is highlighted for the section of Skillin Road with a 2018 AADT of 2,590 vehicles and 2,650 in 2023. MaineDOT's future 2043 AADT volumes for the study corridor are based upon an annual growth of approximately one-half percent per year.

A copy of their traffic work sheet dated March 6, 2023 is attached in the appendix for reference.

The 2023 design hour traffic volumes for both study intersections are increased by an annual growth rate of 1% per year to more conservatively forecast 2027 design hour traffic conditions at both study intersections. Figure 2, attached in the Appendix, illustratively presents the projected 2027 design hour traffic conditions for both study intersections.

Site Trip Generation

Trip generation estimates for the proposed 72-lot single-family residential subdivision are based upon the latest edition (11th) of the Institute of Transportation Engineer's (ITE) **TRIP GENERATION** manual (TGM). Daily and peak hour site trip projections were estimated using the relevant land use code from the TGM: LUC #210 – Single-Family Detached Housing, described in the TGM as: *A single-family detached housing site includes any single-family detached home on an individual lot.*

The following Table 1.1 presents the trip generation calculations for the proposed 72-lot single-family detached housing subdivision.

Table 1.1
ITE Trip Generation Calculations

Land Use	Single-Family Detached Housing - LUC 210					
Time Period	**Dwelling Units**	**Trip Generation Rate Trips/Dwelling Units**	**Trips Generated**	**Distribution Entering / Exiting**	**Enter**	**Exit**
Weekday	72	9.43	679	50% / 50%	340	339
AM Weekday Peak Hour (Street)	72	0.70	51	26% / 74%	13	38
PM Weekday Peak Hour (Street)	72	0.94	68	63% / 37%	43	25
AM Weekday Peak Hour (Generator)	72	0.75	54	26% / 74%	14	40
PM Weekday Peak Hour (Generator)	72	0.99	72	64% / 36%	46	26
Saturday Peak Hour	72	0.92	67	54% / 46%	36	31
Sunday Peak Hour	72	0.83	60	53% / 47%	32	28

The preceding trip generation summary table 1.1 shows the proposed 72-lot single-family housing development is estimated to generate 51 trips during the AM peak hour of the (street) and 68 trips in the PM peak hour of the (street). Peak hour trip generation values forecast for the peak hour of the site (generator) are similar at 54 trips in the AM peak hour and 72 trips in the PM peak hour.

Site Trip Assignment

A vehicle trip assignment model was prepared for the proposed project based upon existing peak hour travel patterns recorded entering and exiting Upper Methodist Road to/from Blackstrap Road. Upper Methodist Road is a dead-end street which serves a number of single-family homes and a Church. It is projected that residents residing in the proposed 77 Blackstrap Road residential subdivision will follow similar directional travel patterns as residents residing on Upper Methodist Road. The peak hour traffic volume summary reports for Upper Methodist Road at Blackstrap Road suggests that approximately 85% of traffic entering or leaving Upper Methodist Road during both the morning and evening peak hours travel to/from the Gray Road intersections, with the remaining 15% using either Blackstrap Road west or Goose Pond Road. The site trips traffic model further assumes approximately 70% of the site trips traveling to or returning from the Gray Road intersection from the proposed single-family development will use the primary site driveway located on Blackstrap Road, and the remaining 30% of the site trips will circulate to/from the proposed residential subdivision through the proposed Upper Methodist Road entrance.

Figure 3, attached in the Appendix, presents the Site Traffic assignments for both weekday peak hour time periods.

2027 Pre-Development Traffic

Other Development Traffic: Traffic generated by projects that have been approved by the local planning board and/or the MaineDOT; yet, are not opened, must be included in the estimate of pre-development traffic. The Town of Cumberland was consulted to identify any and all development projects whose peak hour trips potentially impact the study area. Based upon discussions with the Planning Department, there are two development sites whose site generated traffic partially impacts the Gray Road/Blackstrap Road/Skillin Road intersection. The two development sites include: 1) Snowy Owl residential condominium subdivision located on Old Gray Road; and, 2) Gray Road @ Farady Drive a 10,280sf professional office building. Peak hour trips were estimated for both developments based upon trip rates presented in the 11th edition of the Institute of Transportation Engineers **TRIP GENERATION** manual. The site trips for both development projects were assigned through the Gray Road/Blackstrap Road/Skillin Road intersection. The other development peak hour assignments are illustratively presented on Figure 4, attached in the Appendix.

2027 Pre-Development Traffic: 2027 Design Hour Traffic forecasts for both study intersections highlighted on Figure 2 are combined with the Other Development trips illustrated on Figure 4 to forecast future 2027 Pre-Development traffic conditions at both study intersections. Figure 5, attached in the Appendix, depicts the 2027 pre-development traffic projections for both study intersections.

2027 Post-Development Traffic

2027 post-development traffic estimates were prepared for both study intersections combining the 2027 pre-development traffic volume projections, shown on Figure 5, with peak hour site trips generated by the proposed 72-lot single-family residential development illustrated on Figure 3. Figure 6, attached in the Appendix, presents the 2027 post-development traffic forecasts for the study intersections.

Existing Safety Trends:

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2020 through 2022) crash data for the section of Blackstrap Road, between Gray Road and Upper Methodist Road, and the entire length of Upper Methodist Road; combined, a distance of 1.07 miles. Their report is summarized as follows:

2020 -2022 Traffic Accident Summary
(Blackstrap Road between Gray Road and Upper Methodist Road and the entire length of Upper Methodist Road)

Location	Total Crashes	Critical Rate Factor
1. Blackstrap Road/Upper Methodist Road/Goose Pond Road	2	1.51
2. Blackstrap Road @ Forest Lake Road	1	0.62
3. Gray Road/Blackstrap Road/Skillin Road	5	1.34
4. Blackstrap Road btw. Upper Methodist Road/Goose Pond Road and Forest Lake Road	1	0.32

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

As the data presented in the table shows, the incidence of traffic crashes occurring on the identified sections of roadways are below MaineDOT's threshold criteria for identification of a high crash location.

Capacity Analysis

Capacity analyses of both 2027 pre- and post-development traffic conditions were performed for the study intersections at Gray Road, Blackstrap Road/Skillin Road and Blackstrap Road/Goose Pond Road/Upper Methodist Road and the site driveway intersections at Blackstrap Road and Upper Methodist Road.

Levels of Service rankings are similar to the academic grading system, where an "A" is very good with little delay and "F" represents very poor conditions. The following tables present the relationship between delay and Level of Service for an unsignalized intersection:

Level of Service Criteria for Unsignalized Intersections

Level of Service	Total Control Delay (sec/veh)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Table 3.1 summarizes the results of the capacity analysis performed for both study intersections and the site driveway entrances on Blackstrap Road and Upper Methodist Road. The table compares the results determined for both peak hour time periods based upon 2027 pre- and post-development travel conditions.

Table 3.1
Level of Service Summary
2027 Pre- and Post-Development Conditions

	2027 Pre-Development				2027 Post-Development			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection/Approach	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS	Delay (sec.)	LOS
1. Blackstrap Road/Goose Pond Road/Upper Methodist Road								
Blackstrap Road SW								
- Left-Turn	n/a	n/a	2 sec.	A	1 sec.	A	2 secs.	A
- Through Movement	0.3 secs.	A	1 sec.	A	1 sec.	A	1 sec.	A
- Right-Turn	n/a.	n/a	0.4	A	n/a	n/a	1 sec.	A
Blackstrap Road NE								
- Left-Turn	1 sec.	A	1.4	n/a	1 sec.	A	2 secs.	A
- Through Movement	0.1 secs.	A	0.4.	A	0.2 secs.	A	0.4 secs.	A
- Right-Turn	n/a	n/a	0.1	n/a	0.1 secs.	A	0.3 secs.	A
Goose Pond Road								
- Left-Turn	5 secs.	A	5 secs.	A	4 secs.	A	5 secs.	A
- Through Movement	n/a	n/a	5 secs.	A	5 secs	A	9 secs.	A
- Right-Turn	2 secs.	A	3 secs.	A	2 secs.	A	3 secs.	A
Upper Methodist Road								
- Left-Turn	n/a	n/a	3 secs.	A	4 secs.	A	6 secs.	A
- Through Movement	n/a	n/a	1 sec.	A	5 secs.	A	5 secs.	A
- Right-Turn	3 secs	A	0.4 secs.	A	3 secs.	A	4 secs.	A
Overall Intersection	**1 sec.**	**A**	**1 sec.**	**A**	**1 sec.**	**A**	**2 secs.**	**A**
2. Gray Road/Blackstrap Road/ Skillin Road								
Gray Road NB Approach								
- Left-Turn	3 secs.	A	3 secs.	A	3 secs.	A	3 secs.	A
- Through Movement	1 sec.	A	2 secs	A	1 sec.	A	2 secs.	A
- Right-Turn	1 sec.	A	1 sec.	A	1 sec.	A	1 sec.	A
Gray Road SB Approach								
- Left-Turn	3 secs.	A	4 secs.	A	3 secs.	A	3 secs	A
- Through Movement	2 secs.	A	1 sec.	A	2 secs.	A	1 sec.	A
- Right-Turn	1 sec.	A	1 sec.	A	1 sec.	A	1 sec.	A
Blackstrap Road Approach								
- Left-Turn	9 secs.	A	9 secs.	A	10 secs.	A	9 secs.	A
- Through Movement	12 secs.	B	9 secs.	A	13 secs.	B	10 secs.	A
- Right-Turn	6 secs.	A	4 secs.	A	6 secs	A	5 secs.	A
Skillin Road Approach								
- Left-Turn	9 secs.	A	11 secs.	B	10 secs	A	10 secs.	A
- Through Movement	10 secs.	B	11 secs.	B	11 secs.	B	12 secs.	B
- Right-Turn	4 secs.	A	5 secs	A	4 secs.	A	5 secs.	A
Overall Intersection	**4 secs.**	**A**	**4 secs.**	**A**	**5 secs.**	**A**	**4 secs.**	**A**
3. Blackstrap Road @ Site Driveway								
Blackstrap Road SW								
- Left-Turn	n/a		n/a		1.2	A	1.9	A
- Through Movement	0.1	A	0.3		0.1	A	0.6	A
Blackstrap Road NE						n/a	n/a	n/a
- Through Movement	0.5	A	0.7		0.6	A	0.7	A
- Right-Turn	n/a		n/a		n/a	n/a	n/a	n/a

Site Driveway								
- Left-Turn	n/a		n/a		n/a	n/a	n/a	n/a
- Right-Turn	n/a		n/a		3.0	A	2.6	A
Overall Intersection	**0.4**	**A**	**0.5**	**A**	**0.8**	**A**	**0.8**	**A**
4. Upper Methodist Road @ Site Driveway								
- Upper Methodist Road Left-Turn to Site	n/a		n/a		1.8	A	1.7	A
- Upper Methodist Road SE Through	n/a		0.4		0.6	A	0.4	A
- Upper Methodist Road NW Through	n/a		n/a		0.0	A	0.0	A
- Site Driveway Right-Turn	n/a		n/a		2.4	A	2.4	A
Overall Intersection	**n/a**	**n/a**	**0.2**		**1.2**	**A**	**0.9**	**A**

Both study intersections highlighted in the preceding Table 3.1 are expected to operate, overall, at the "*best*" level of service (Level of Service A) experiencing very minimal overall intersection delay under both 2027 pre- and post-development travel conditions. The proposed site driveway intersection with Blackstrap Road; similarly, is expected to operate at Level of Service A conditions with average vehicle delay values of less than one second during both peak hour time periods. The Upper Methodist Road site entrance intersection is expected to effectively operate without any measurable delay to through traffic on Upper Methodist Road in either direction of travel.

Sight Distance

The Maine Department of Transportation's Highway Entrance and Driveway Rules, require the following sight distances:

Sight Distance Standards

Speed Limit (mph)	Sight Distance (feet)
25	200
30	250
35	305
40	360
45	425
50	495
55	570

Blackstrap Road in the vicinity of the proposed site entrance is currently posted at 40mph, which requires an unobstructed sightline of 360-feet. The following sight distance measurements were determined at the proposed site driveway entrance:

Sightline Left = 400 feet plus
Sightline Right = 400 feet plus

Note: Existing small trees and vegetation located between the edge of pavement and the existing chain link fence fronting the entire 77 Blackstrap Road project site, minimally impede sight distance for vehicles exiting the site entrance onto Blackstrap Road. It is recommended that all small trees located along the frontage of the proposed residential subdivision be removed to the existing fence line. This area of clearing should be maintained on a regular schedule to ensure acceptable sight distance is attainable.

Upper Methodist Road is presently posted at 30mph, which requires a minimum sight distance of 250-feet. The following sight distance measurements were determined at the proposed site driveway entrance:

Sightline Left = 350 feet plus
Sightline Right = 350 feet plus

Summary

1. The proposed 77 Blackstrap Road single-family residential development with a total of 72 proposed house lots, can be expected to generate a total of 51 vehicle trips during the morning peak hour and an additional 68 trips in the evening peak hour.

2. MaineDOT's most recent three-year safety audit (2020 through 2022) for the reviewed sections of Blackstrap Road between Gray Road and Upper Methodist Road and the entire length of Upper Methodist Road shows the incidences of traffic crashes is below MaineDOT's threshold criteria for identification of a high crash location.

3. Traffic operations at both study intersections will operate at the "*best*" level of service (Level of Service A) under forecast 2027 pre- and post-development travel conditions. Similarly, traffic operations, under 2027 traffic loadings at both proposed site entrance intersections on Blackstrap Road and Upper Methodist Road, will also operate at Level of Service A conditions.

4. Vehicle sightlines measured directionally from the centerline of the proposed site entrance at 77 Blackstrap Road meets and exceeds the minimum standard (360-feet) for a posted speed limit of 40mph, the current posted speed limit on Blackstrap Road. A measured sight distance in excess of 400-feet was recorded for both directions of travel onto Blackstrap Road. Clearing improvements are recommended along the entire Blackstrap Road frontage of the property between the edge of pavement and the existing chain link fence to ensure adequate sight distance is provided. This designated clearing area should be maintained on a scheduled basis.

5. Sight distance measurements directionally (350-feet plus) observed at the proposed Upper Methodist Road site entrance exceed by a considerable distance the minimum sight distance standard for a posted speed limit of 30mph, the current posted speed limit on Upper Methodist Road.

William J. Bray, P.E. Date: 08/12/2023

B&L

APPENDIX

Intersection(s) Traffic Count Data

Traffic Figures

MaineDOT Traffic Growth Projection Detail

Roadway Safety Data

Capacity Summary Sheets

Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

Cumberland Blkstrp, GP, UM
July 11, 2023 AM
70 Degrees Sun
Miovision/K Tillson

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 AM
Site Code : 07112310
Start Date : 7/11/2023
Page No : 1

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Goose Pond From North					Blackstrap From East					Upper Methodist From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	2	0	9	0	11	0	19	1	0	20	2	0	0	0	2	0	19	1	0	20	53
07:15 AM	1	0	7	0	8	2	9	1	0	12	1	0	1	0	2	0	26	2	1	29	51
07:30 AM	5	0	5	1	11	1	19	1	0	21	3	0	0	1	4	0	26	0	0	26	62
07:45 AM	1	0	8	1	10	2	19	1	0	22	0	0	0	1	1	0	19	2	0	21	54
Total	9	0	29	2	40	5	66	4	0	75	6	0	1	2	9	0	90	5	1	96	220
08:00 AM	0	1	11	0	12	3	11	1	0	15	0	2	0	0	2	0	19	0	0	19	48
08:15 AM	3	0	5	0	8	3	14	0	0	17	2	0	1	0	3	0	17	1	0	18	46
08:30 AM	1	0	10	1	12	0	11	1	0	12	1	0	0	1	2	0	18	0	0	18	44
08:45 AM	3	0	3	0	6	1	8	3	0	12	2	0	0	0	2	0	18	0	0	18	38
Total	7	1	29	1	38	7	44	5	0	56	5	2	1	1	9	0	72	1	0	73	176

*** BREAK ***

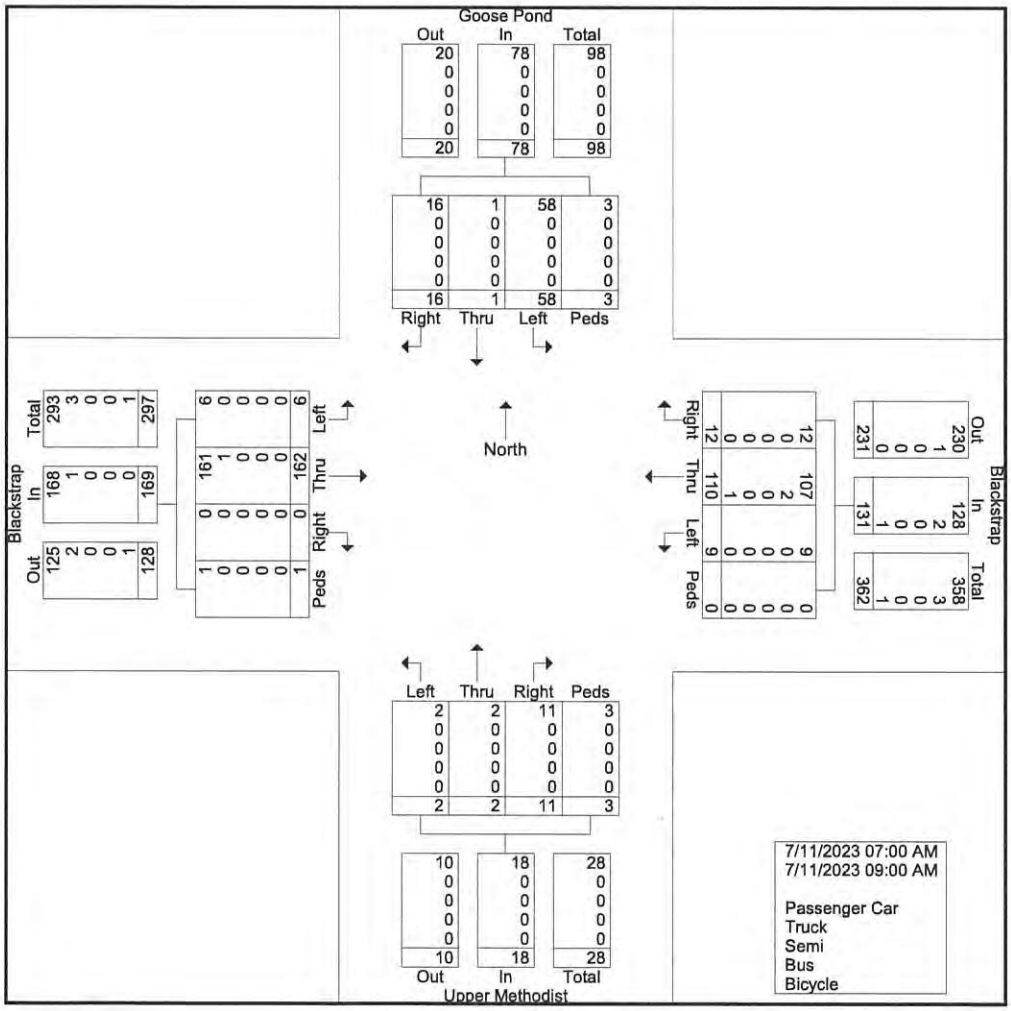
Traffic Solutions

17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 AM
Site Code : 07112310
Start Date : 7/11/2023
Page No : 2

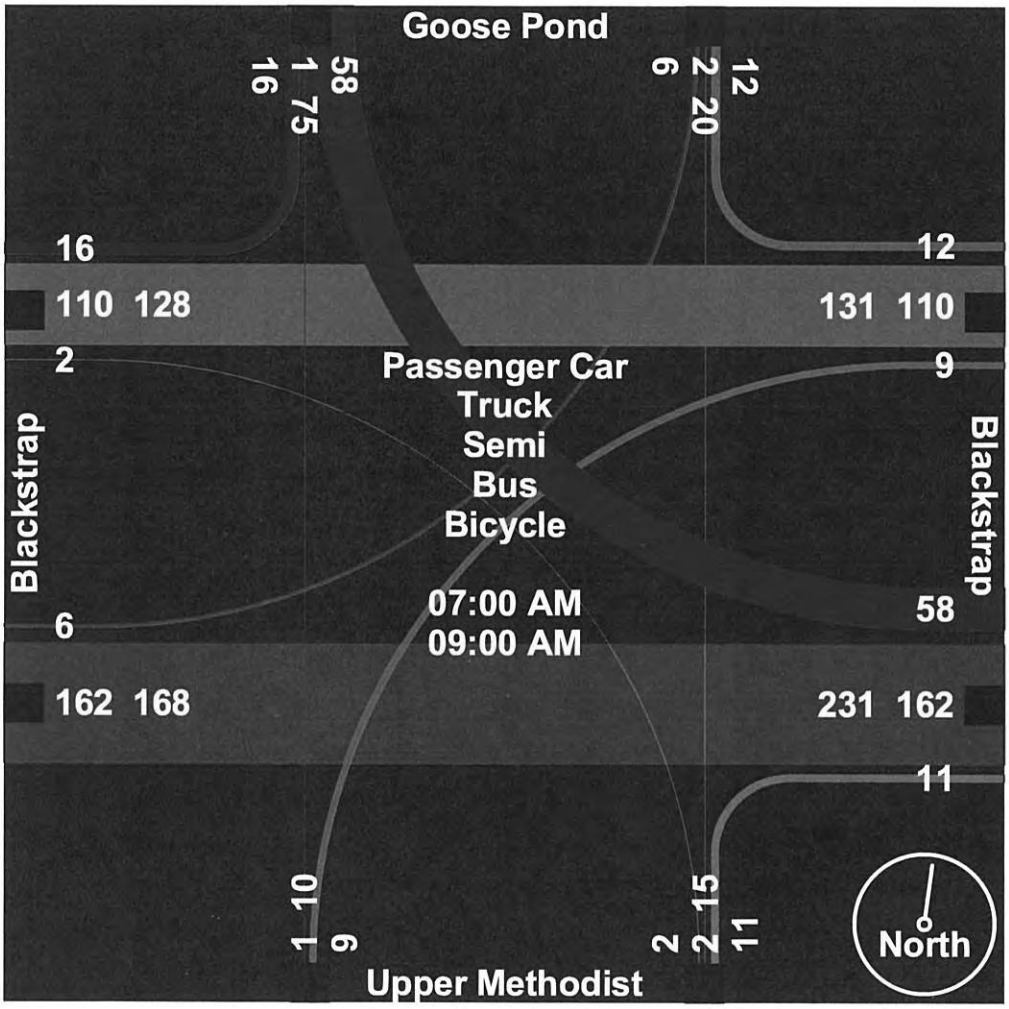
Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Goose Pond From North					Blackstrap From East					Upper Methodist From South					Blackstrap From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	16	1	58	3	78	12	110	9	0	131	11	2	2	3	18	0	162	6	1	169	396
Apprch %	20.5	1.3	74.4	3.8		9.2	84	6.9	0		61.1	11.1	11.1	16.7		0	95.9	3.6	0.6		
Total %	4	0.3	14.6	0.8	19.7	3	27.8	2.3	0	33.1	2.8	0.5	0.5	0.8	4.5	0	40.9	1.5	0.3	42.7	
Passenger Car	16	1	58	3	78	12	107	9	0	128	11	2	2	3	18	0	161	6	1	168	392
% Passenger Car	100	100	100	100	100	100	97.3	100	0	97.7	100	100	100	100	100	0	99.4	100	100	99.4	99
Truck	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
% Truck	0	0	0	0	0	0	1.8	0	0	1.5	0	0	0	0	0	0	0.6	0	0	0.6	0.8
Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Bicycle	0	0	0	0	0	0	0.9	0	0	0.8	0	0	0	0	0	0	0	0	0	0	0.3



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 AM
Site Code : 07112310
Start Date : 7/11/2023
Page No : 3



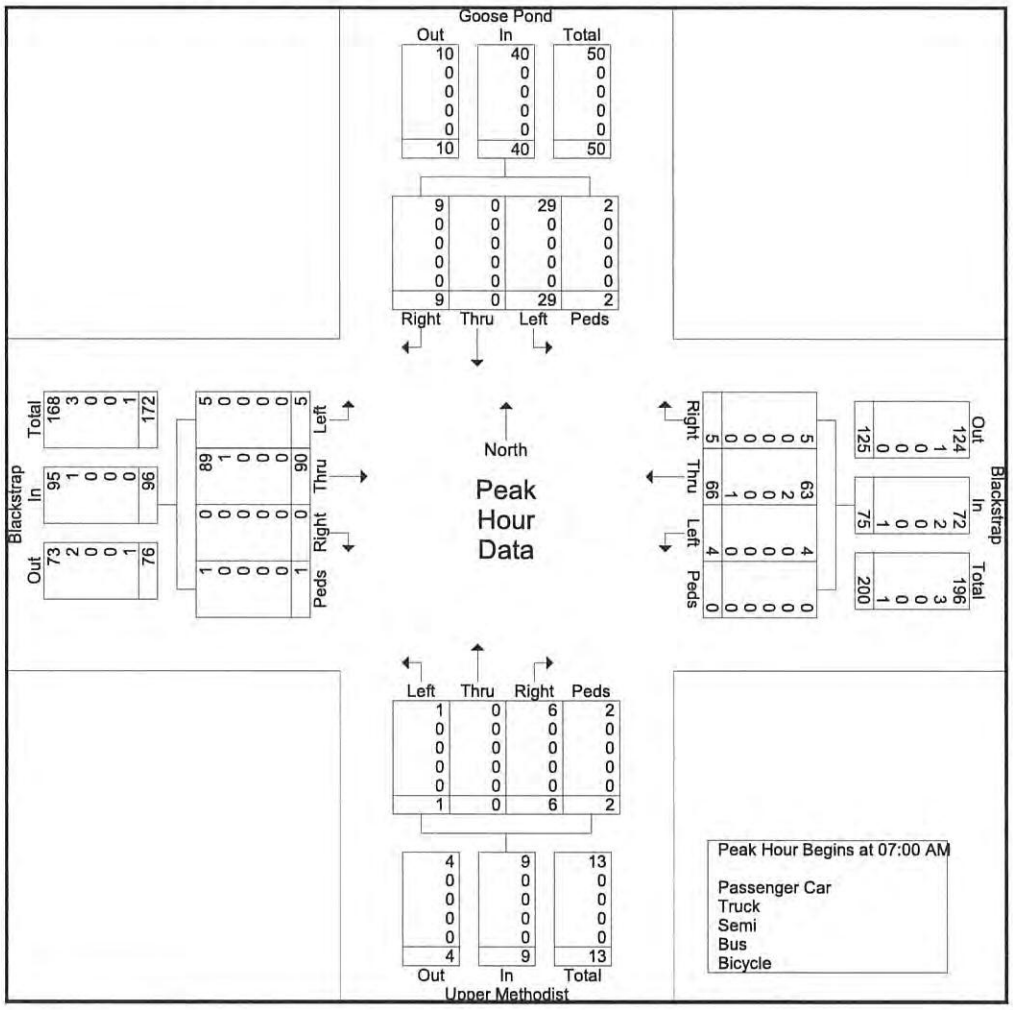
Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 AM
Site Code : 07112310
Start Date : 7/11/2023

	Goose Pond From North					Blackstrap From East					Upper Methodist From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	2	0	**9**	0	**11**	0	**19**	**1**	0	20	2	0	0	0	2	0	19	1	0	20	53
07:15 AM	1	0	7	0	8	**2**	9	1	0	12	1	0	**1**	0	2	0	**26**	**2**	**1**	**29**	51
07:30 AM	**5**	0	5	**1**	11	1	19	1	0	21	**3**	0	0	**1**	**4**	0	26	0	0	26	**62**
07:45 AM	1	0	8	1	10	2	19	1	0	**22**	0	0	0	1	1	0	19	2	0	21	54
Total Volume	9	0	29	2	40	5	66	4	0	75	6	0	1	2	9	0	90	5	1	96	220
% App. Total	22.5	0	72.5	5		6.7	88	5.3	0		66.7	0	11.1	22.2		0	93.8	5.2	1		
PHF	.450	.000	.806	.500	.909	.625	.868	1.00	.000	.852	.500	.000	.250	.500	.563	.000	.865	.625	.250	.828	.887
Passenger Car	9	0	29	2	40	5	63	4	0	72	6	0	1	2	9	0	89	5	1	95	216
% Passenger Car	100	0	100	100	100	100	95.5	100	0	96.0	100	0	100	100	100	0	98.9	100	100	99.0	98.2
Truck	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
% Truck	0	0	0	0	0	0	3.0	0	0	2.7	0	0	0	0	0	0	1.1	0	0	1.0	1.4
Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Bicycle	0	0	0	0	0	0	1.5	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0.5

Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 AM
Site Code : 07112310
Start Date : 7/11/2023
Page No : 5

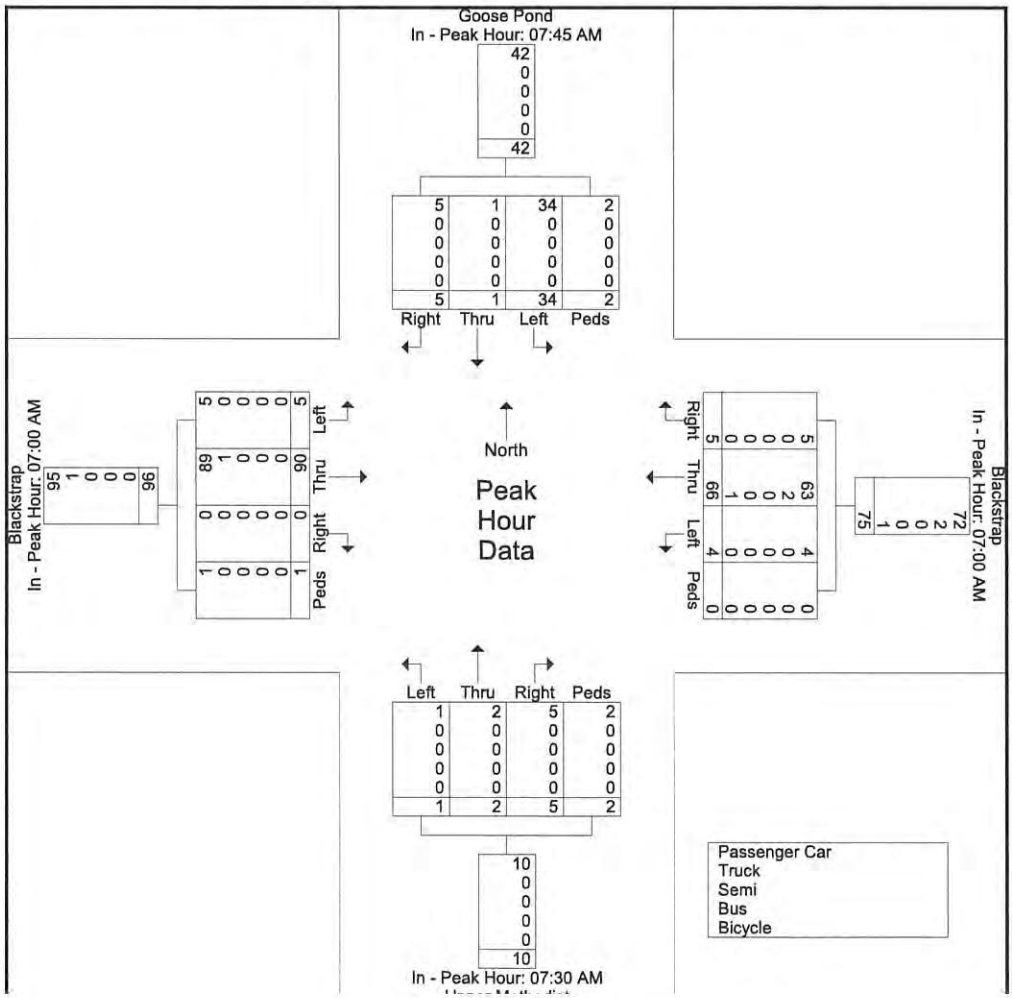


Traffic Solutions

17 Mount View Dr
Gorham, ME 04038

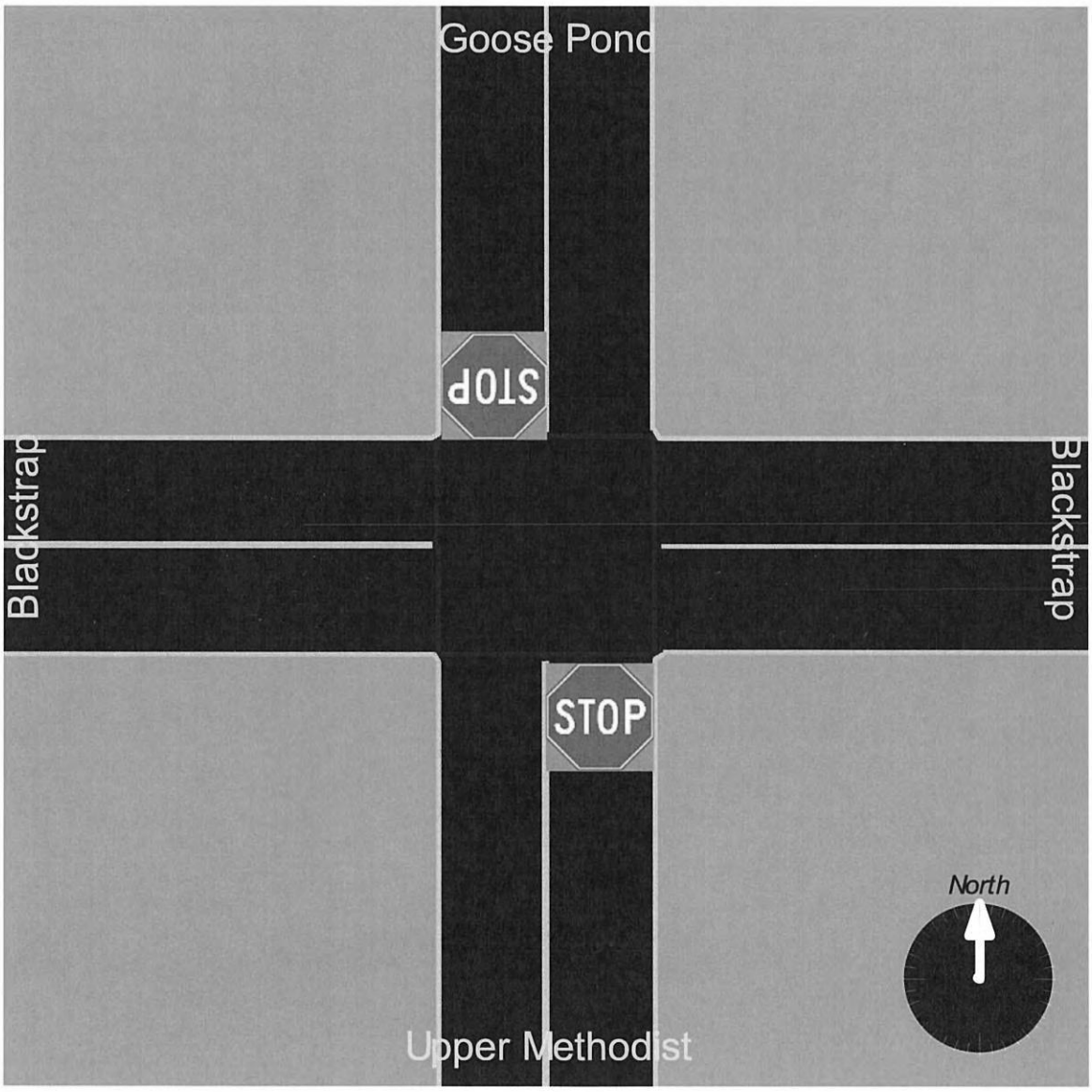
File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 AM
Site Code : 07112310
Start Date : 7/11/2023
Page No : 6

	Goose Pond From North					Blackstrap From East					Upper Methodist From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:45 AM					07:00 AM					07:30 AM					07:00 AM					
+0 mins.	1	0	8	**1**	10	0	**19**	**1**	0	20	**3**	0	0	**1**	**4**	0	19	1	0	20	
+15 mins.	0	**1**	**11**	0	**12**	**2**	9	1	0	12	0	0	0	1	1	0	**26**	**2**	**1**	**29**	
+30 mins.	**3**	0	5	0	8	1	19	1	0	21	0	**2**	0	0	2	0	26	0	0	26	
+45 mins.	1	0	10	1	12	2	19	1	0	**22**	2	0	**1**	0	3	0	19	2	0	21	
Total Volume	5	1	34	2	42	5	66	4	0	75	5	2	1	2	10	0	90	5	1	96	
% App. Total	11.9	2.4	81	4.8		6.7	88	5.3	0		50	20	10	20		0	93.8	5.2	1		
PHF	.417	.250	.773	.500	.875	.625	.868	1.000	.000	.852	.417	.250	.250	.500	.625	.000	.865	.625	.250	.828	
Passenger Car	5	1	34	2	42	5	63	4	0	72	5	2	1	2	10	0	89	5	1	95	
% Passenger Car	100	100	100	100	100	100	95.5	100	0	96	100	100	100	100	100	0	98.9	100	100	99	
Truck	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	
% Truck	0	0	0	0	0	0	3	0	0	2.7	0	0	0	0	0	0	1.1	0	0	1	
Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycle	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	
% Bicycle	0	0	0	0	0	0	1.5	0	0	1.3	0	0	0	0	0	0	0	0	0	0	



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 AM
Site Code : 07112310
Start Date : 7/11/2023
Page No : 7



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

Cumberland Blkstrp, GP, UM
July 11, 2023
80 Degrees Sun
Miovision/ D.St.Clair

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 1

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Goose Pond From North					Blackstrap Rd From East					Upper Methodist From South					Blackstrap Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	0	0	4	0	4	4	16	5	0	25	2	0	0	1	3	0	24	0	2	26	58
03:15 PM	2	0	2	0	4	3	16	1	1	21	2	0	1	0	3	1	13	0	0	14	42
03:30 PM	0	0	8	0	8	9	25	1	0	35	0	0	0	0	0	0	22	4	0	26	69
03:45 PM	4	0	4	0	8	1	14	1	0	16	0	0	0	0	0	0	29	3	0	32	56
Total	6	0	18	0	24	17	71	8	1	97	4	0	1	1	6	1	88	7	2	98	225
04:00 PM	1	0	4	0	5	8	24	2	0	34	0	0	0	0	0	1	19	1	0	21	60
04:15 PM	2	0	8	0	10	12	23	7	0	42	7	0	0	1	8	0	29	3	0	32	92
04:30 PM	2	1	6	0	9	10	28	2	0	40	4	0	0	0	4	1	35	7	0	43	96
04:45 PM	3	1	7	0	11	5	26	1	0	32	1	0	0	0	1	0	22	3	0	25	69
Total	8	2	25	0	35	35	101	12	0	148	12	0	0	1	13	2	105	14	0	121	317
05:00 PM	2	0	4	0	6	7	30	6	0	43	4	1	0	0	5	2	27	2	0	31	85
05:15 PM	3	0	5	0	8	11	28	0	0	39	4	0	0	0	4	0	21	2	0	23	74
05:30 PM	3	1	4	0	8	12	38	1	0	51	1	0	0	0	1	0	24	5	0	29	89
05:45 PM	4	0	6	0	10	9	31	4	0	44	2	0	0	0	2	0	29	3	0	32	88
Total	12	1	19	0	32	39	127	11	0	177	11	1	0	0	12	2	101	12	0	115	336

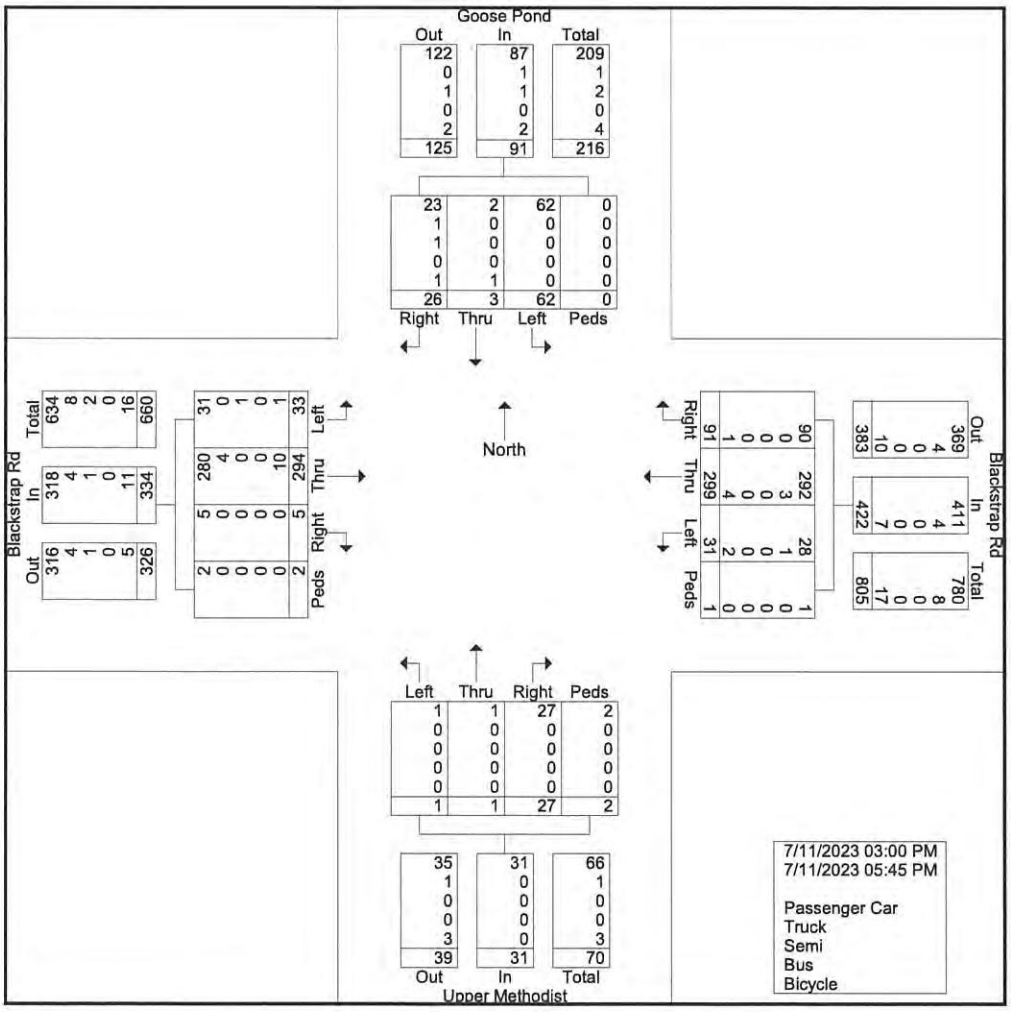
Traffic Solutions

17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 2

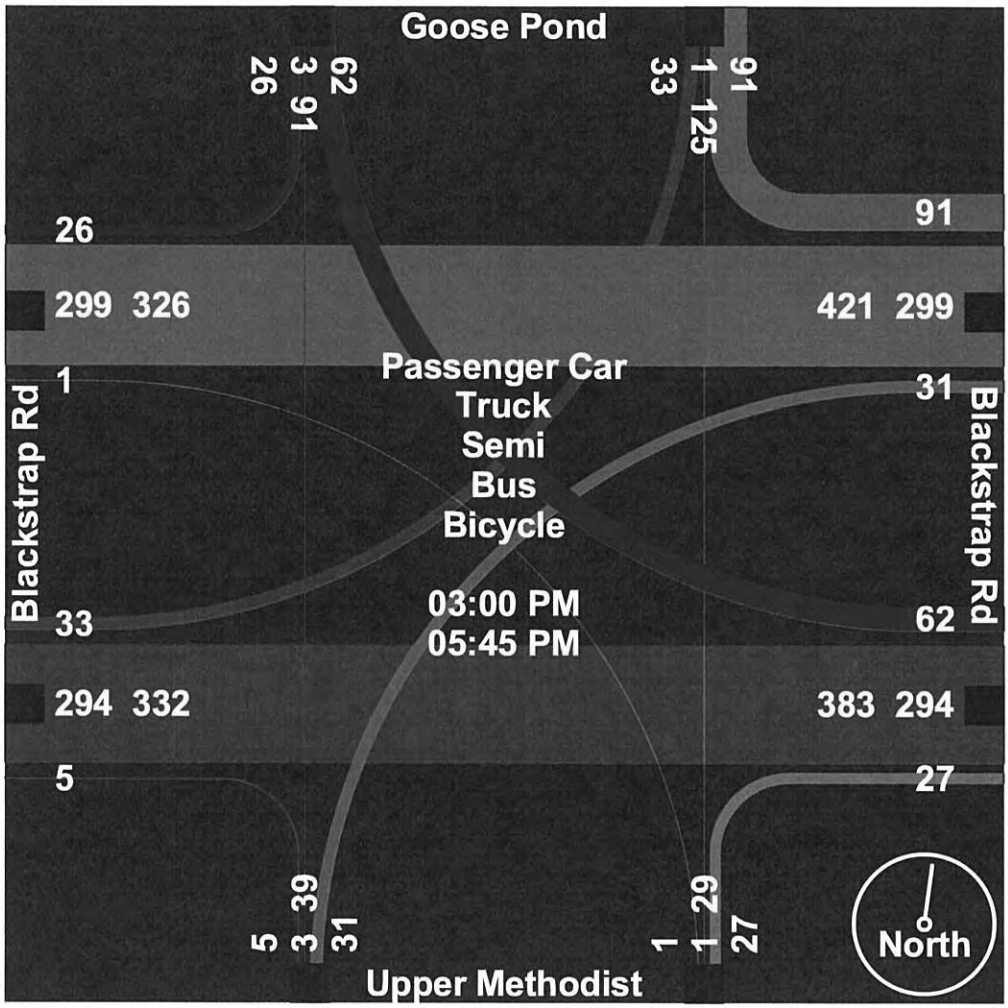
Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Goose Pond From North					Blackstrap Rd From East					Upper Methodist From South					Blackstrap Rd From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	26	3	62	0	91	91	299	31	1	422	27	1	1	2	31	5	294	33	2	334	878
Apprch %	28.6	3.3	68.1	0		21.6	70.9	7.3	0.2		87.1	3.2	3.2	6.5		1.5	88	9.9	0.6		
Total %	3	0.3	7.1	0	10.4	10.4	34.1	3.5	0.1	48.1	3.1	0.1	0.1	0.2	3.5	0.6	33.5	3.8	0.2	38	
Passenger Car	23	2	62	0	87	90	292	28	1	411	27	1	1	2	31	5	280	31	2	318	847
% Passenger Car	88.5	66.7	100	0	95.6	98.9	97.7	90.3	100	97.4	100	100	100	100	100	100	95.2	93.9	100	95.2	96.5
Truck	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	0	4	0	0	4	9
% Truck	3.8	0	0	0	1.1	0	1	3.2	0	0.9	0	0	0	0	0	0	1.4	0	0	1.2	1
Semi	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
% Semi	3.8	0	0	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0.3	0.2
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	1	1	0	0	2	1	4	2	0	7	0	0	0	0	0	0	10	1	0	11	20
% Bicycle	3.8	33.3	0	0	2.2	1.1	1.3	6.5	0	1.7	0	0	0	0	0	0	3.4	3	0	3.3	2.3



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

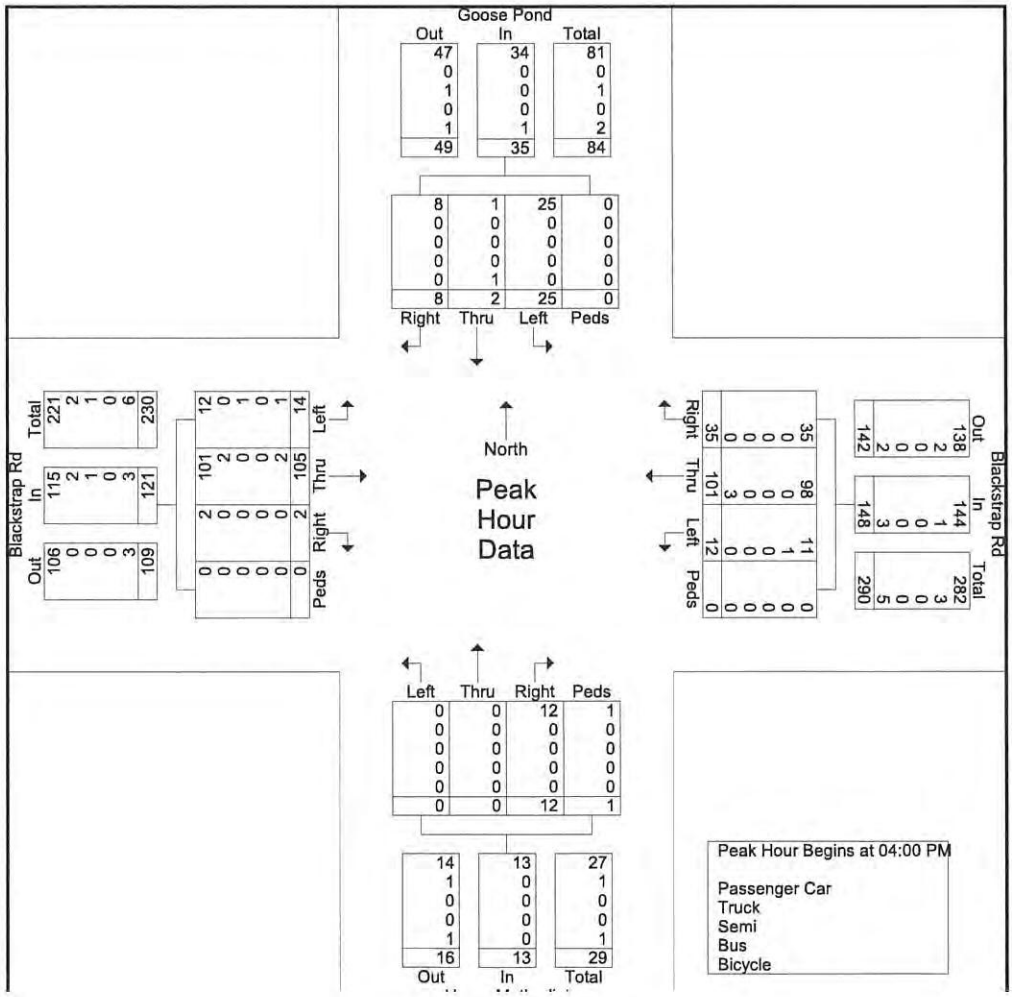
File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 3



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 4

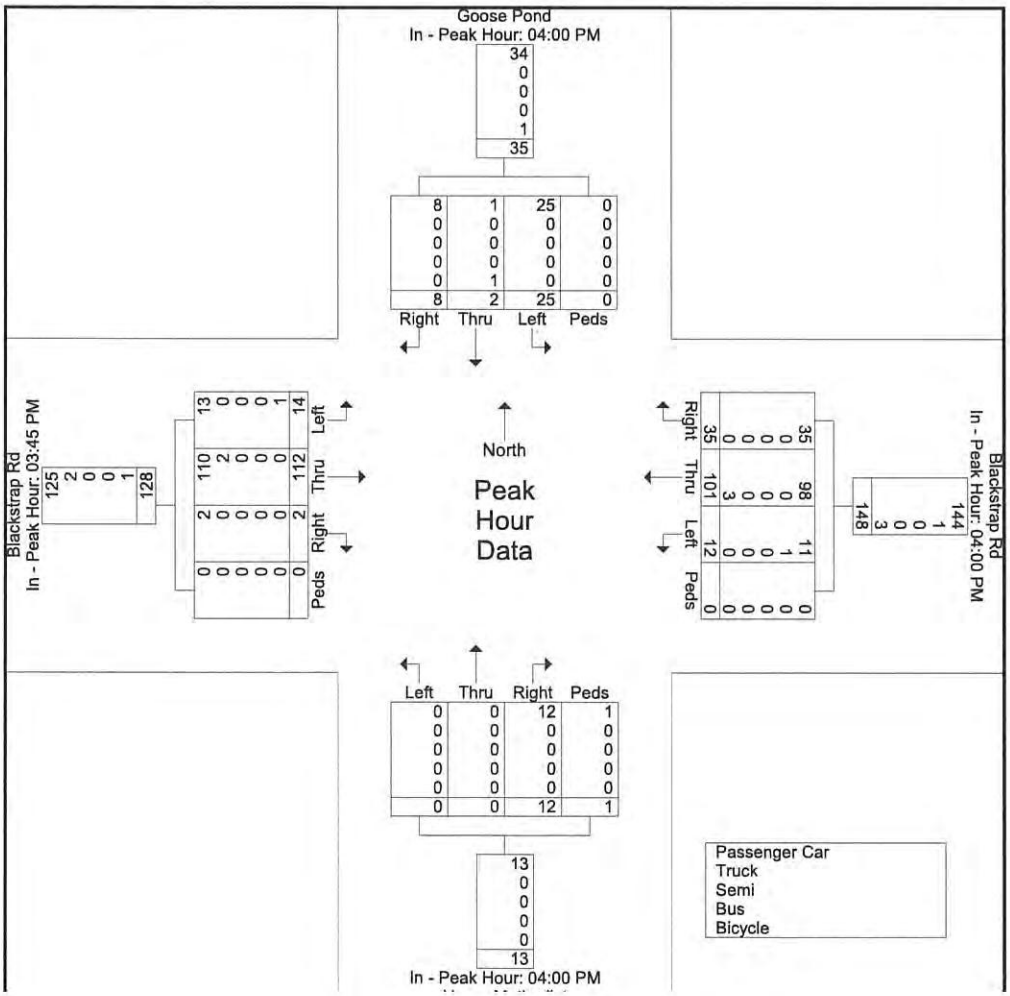
	Goose Pond From North					Blackstrap Rd From East					Upper Methodist From South					Blackstrap Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	0	4	0	5	8	24	2	0	34	0	0	0	0	0	**1**	19	1	0	21	60
04:15 PM	2	0	**8**	0	10	**12**	23	**7**	0	**42**	**7**	0	0	**1**	**8**	0	29	3	0	32	92
04:30 PM	2	**1**	6	0	9	10	**28**	2	0	40	4	0	0	0	4	1	**35**	**7**	0	**43**	**96**
04:45 PM	**3**	1	7	0	**11**	5	26	1	0	32	1	0	0	0	1	0	22	3	0	25	69
Total Volume	8	2	25	0	35	35	101	12	0	148	12	0	0	1	13	2	105	14	0	121	317
% App. Total	22.9	5.7	71.4	0		23.6	68.2	8.1	0		92.3	0	0	7.7		1.7	86.8	11.6	0		
PHF	.667	.500	.781	.000	.795	.729	.902	.429	.000	.881	.429	.000	.000	.250	.406	.500	.750	.500	.000	.703	.826
Passenger Car	8	1	25	0	34	35	98	11	0	144	12	0	0	1	13	2	101	12	0	115	306
% Passenger Car	100	50.0	100	0	97.1	100	97.0	91.7	0	97.3	100	0	0	100	100	100	96.2	85.7	0	95.0	96.5
Truck	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	3
% Truck	0	0	0	0	0	0	0	8.3	0	0.7	0	0	0	0	0	0	1.9	0	0	1.7	0.9
Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.1	0	0.8	0.3
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	2	1	0	3	7
% Bicycle	0	50.0	0	0	2.9	0	3.0	0	0	2.0	0	0	0	0	0	0	1.9	7.1	0	2.5	2.2



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

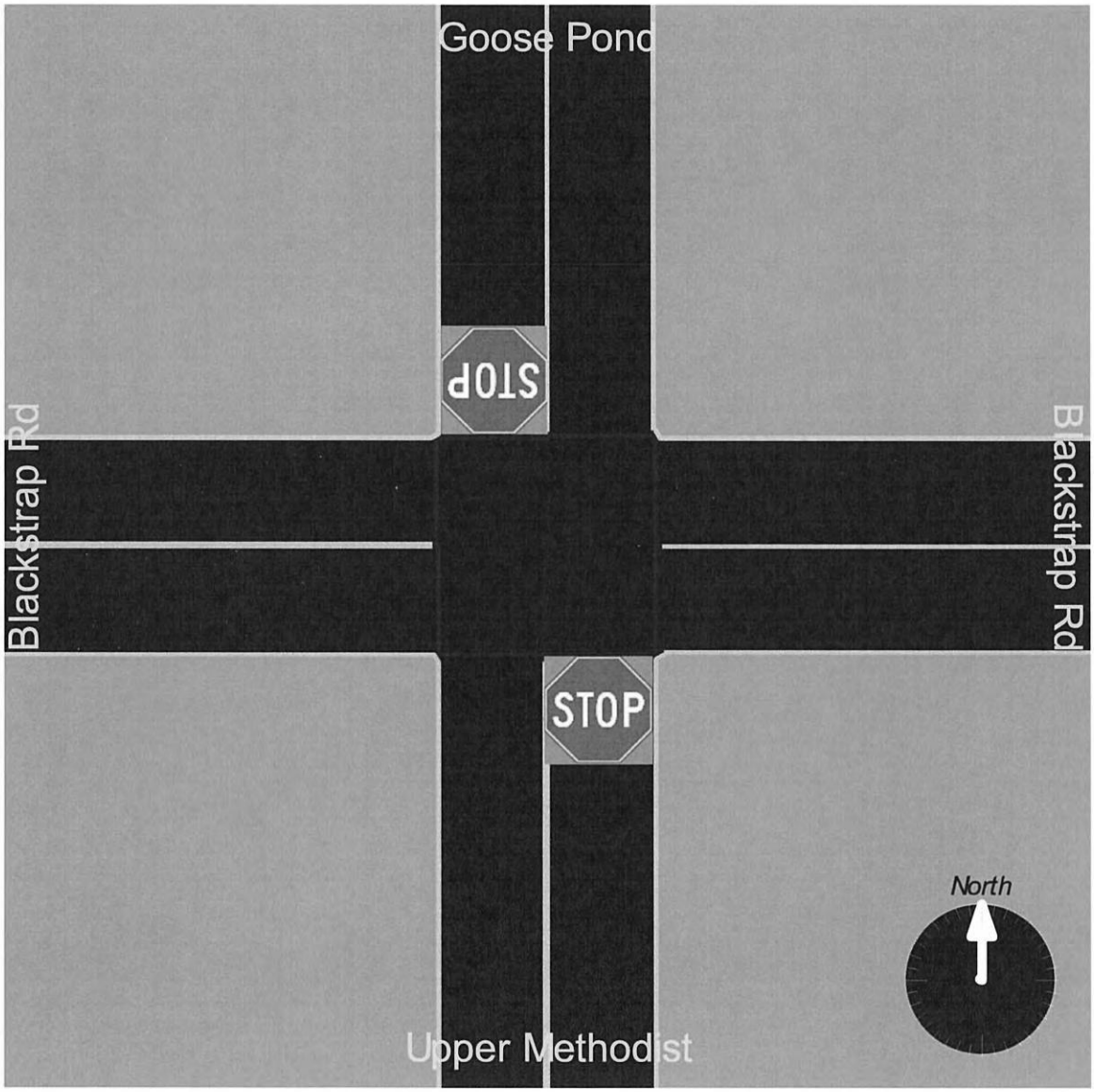
File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 5

	Goose Pond From North					Blackstrap Rd From East					Upper Methodist From South					Blackstrap Rd From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:00 PM					04:00 PM					04:00 PM					03:45 PM					
+0 mins.	1	0	4	0	5	8	24	2	0	34	0	0	0	0	0	0	29	3	0	32	
+15 mins.	2	0	**8**	0	10	**12**	23	**7**	0	**42**	**7**	0	0	**1**	**8**	**1**	19	1	0	21	
+30 mins.	2	**1**	6	0	9	10	**28**	2	0	40	4	0	0	0	4	0	29	3	0	32	
+45 mins.	**3**	1	7	0	**11**	5	26	1	0	32	1	0	0	0	1	1	**35**	**7**	0	**43**	
Total Volume	8	2	25	0	35	35	101	12	0	148	12	0	0	1	13	2	112	14	0	128	
% App. Total	22.9	5.7	71.4	0		23.6	68.2	8.1	0		92.3	0	0	7.7		1.6	87.5	10.9	0		
PHF	.667	.500	.781	.000	.795	.729	.902	.429	.000	.881	.429	.000	.000	.250	.406	.500	.800	.500	.000	.744	
Passenger Car	8	1	25	0	34	35	98	11	0	144	12	0	0	1	13	2	110	13	0	125	
% Passenger Car	100	50	100	0	97.1	100	97	91.7	0	97.3	100	0	0	100	100	100	98.2	92.9	0	97.7	
Truck	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	
% Truck	0	0	0	0	0	0	0	8.3	0	0.7	0	0	0	0	0	0	1.8	0	0	1.6	
Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Semi	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bicycle	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	1	0	1	
% Bicycle	0	50	0	0	2.9	0	3	0	0	2	0	0	0	0	0	0	0	7.1	0	0.8	



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Blackstrap Rd & Goose Pond Rd 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 6



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

Cumberland Rte 100, Blkstrp, Skillin
July 11, 2023 AM
70 Degrees Sun
Miovision/K. Tillson

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 AM
Site Code : 00711231
Start Date : 7/11/2023
Page No : 1

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	12	60	12	0	84	9	6	11	0	26	2	12	1	0	15	17	14	9	0	40	165
07:15 AM	7	69	13	0	89	6	5	12	0	23	8	21	2	0	31	17	14	10	0	41	184
07:30 AM	9	65	11	0	85	7	9	18	0	34	7	26	7	0	40	16	16	6	0	38	197
07:45 AM	8	58	20	1	87	5	9	18	1	33	6	21	7	1	35	11	22	3	0	36	191
Total	36	252	56	1	345	27	29	59	1	116	23	80	17	1	121	61	66	28	0	155	737
08:00 AM	5	46	15	1	67	3	12	10	0	25	9	18	4	0	31	18	20	5	0	43	166
08:15 AM	7	47	13	0	67	6	11	11	0	28	6	26	3	0	35	14	17	7	0	38	168
08:30 AM	3	49	14	0	66	9	14	12	0	35	2	28	3	0	33	18	23	4	0	45	179
08:45 AM	4	35	10	0	49	8	15	11	0	34	8	28	8	0	44	14	21	7	0	42	169
Total	19	177	52	1	249	26	52	44	0	122	25	100	18	0	143	64	81	23	0	168	682

*** BREAK ***

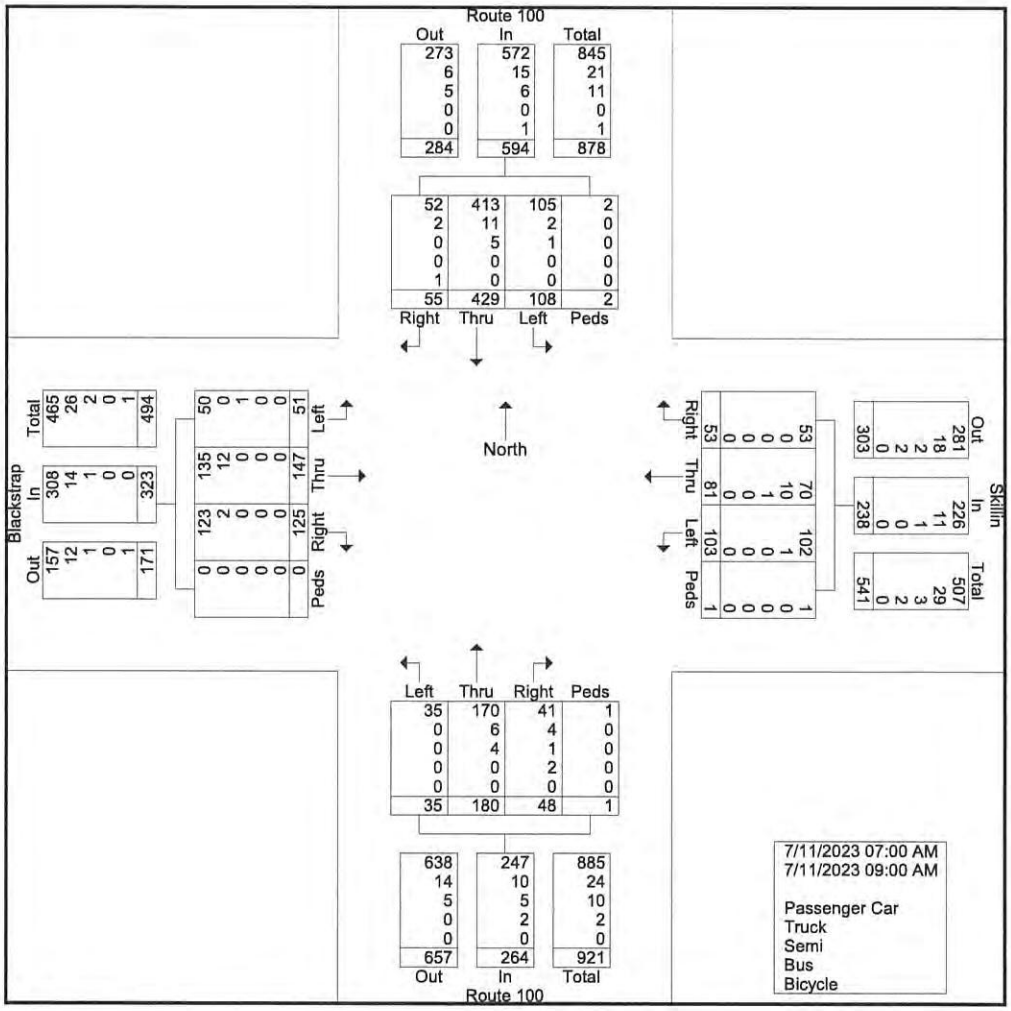
Traffic Solutions

17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 AM
Site Code : 00711231
Start Date : 7/11/2023
Page No : 2

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	55	429	108	2	594	53	81	103	1	238	48	180	35	1	264	125	147	51	0	323	1419
Apprch %	9.3	72.2	18.2	0.3		22.3	34	43.3	0.4		18.2	68.2	13.3	0.4		38.7	45.5	15.8	0		
Total %	3.9	30.2	7.6	0.1	41.9	3.7	5.7	7.3	0.1	16.8	3.4	12.7	2.5	0.1	18.6	8.8	10.4	3.6	0	22.8	
Passenger Car	52	413	105	2	572	53	70	102	1	226	41	170	35	1	247	123	135	50	0	308	1353
% Passenger Car	94.5	96.3	97.2	100	96.3	100	86.4	99	100	95	85.4	94.4	100	100	93.6	98.4	91.8	98	0	95.4	95.3
Truck	2	11	2	0	15	0	10	1	0	11	4	6	0	0	10	2	12	0	0	14	50
% Truck	3.6	2.6	1.9	0	2.5	0	12.3	1	0	4.6	8.3	3.3	0	0	3.8	1.6	8.2	0	0	4.3	3.5
Semi	0	5	1	0	6	0	1	0	0	1	1	4	0	0	5	0	0	1	0	1	13
% Semi	0	1.2	0.9	0	1	0	1.2	0	0	0.4	2.1	2.2	0	0	1.9	0	0	2	0	0.3	0.9
Bus	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
% Bus	0	0	0	0	0	0	0	0	0	0	4.2	0	0	0	0.8	0	0	0	0	0	0.1
Bicycle	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bicycle	1.8	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 AM
Site Code : 00711231
Start Date : 7/11/2023
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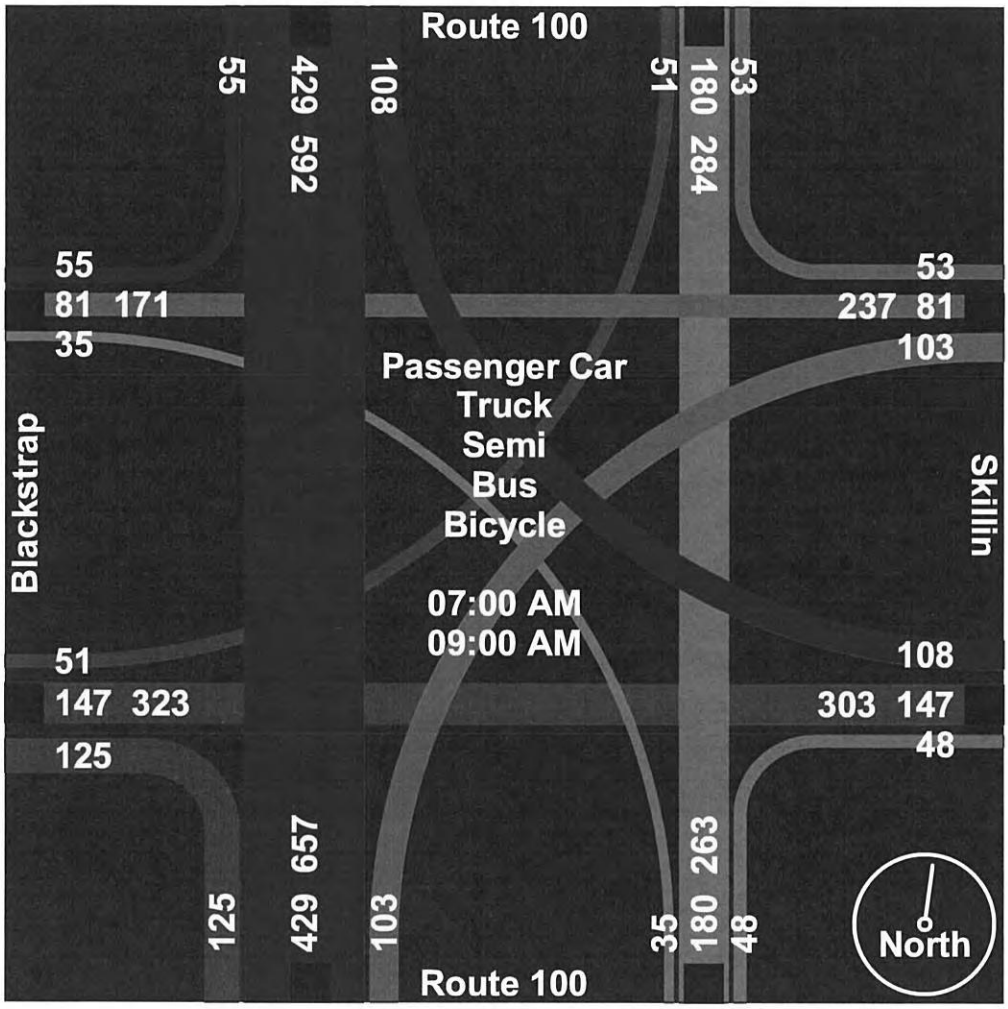

Traffic Solutions
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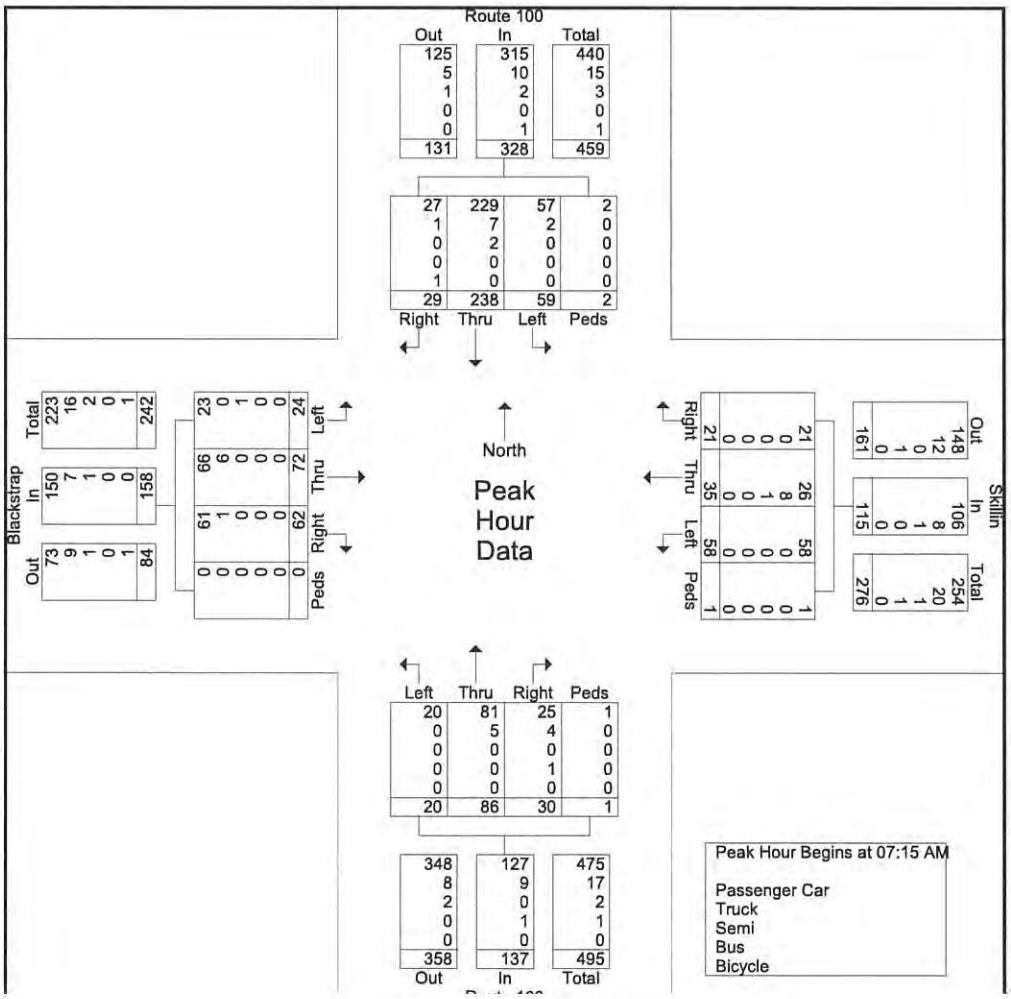
File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 AM
Site Code : 00711231
Start Date : 7/11/2023
Page No : 4

	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	7	**69**	13	0	**89**	6	5	12	0	23	8	21	2	0	31	17	14	**10**	0	41	184
07:30 AM	**9**	65	11	0	85	**7**	9	**18**	0	**34**	7	**26**	**7**	0	**40**	16	16	6	0	38	**197**
07:45 AM	8	58	**20**	**1**	87	5	9	18	**1**	33	6	21	7	**1**	35	11	**22**	3	0	36	191
08:00 AM	5	46	15	1	67	3	**12**	10	0	25	**9**	18	4	0	31	**18**	20	5	0	**43**	166
Total Volume	29	238	59	2	328	21	35	58	1	115	30	86	20	1	137	62	72	24	0	158	738
% App. Total	8.8	72.6	18	0.6		18.3	30.4	50.4	0.9		21.9	62.8	14.6	0.7		39.2	45.6	15.2	0		
PHF	.806	.862	.738	.500	.921	.750	.729	.806	.250	.846	.833	.827	.714	.250	.856	.861	.818	.600	.000	.919	.937
Passenger Car	27	229	57	2	315	21	26	58	1	106	25	81	20	1	127	61	66	23	0	150	698
% Passenger Car	93.1	96.2	96.6	100	96.0	100	74.3	100	100	92.2	83.3	94.2	100	100	92.7	98.4	91.7	95.8	0	94.9	94.6
Truck	1	7	2	0	10	0	8	0	0	8	4	5	0	0	9	1	6	0	0	7	34
% Truck	3.4	2.9	3.4	0	3.0	0	22.9	0	0	7.0	13.3	5.8	0	0	6.6	1.6	8.3	0	0	4.4	4.6
Semi	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	4
% Semi	0	0.8	0	0	0.6	0	2.9	0	0	0.9	0	0	0	0	0	0	0	4.2	0	0.6	0.5
Bus	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
% Bus	0	0	0	0	0	0	0	0	0	0	3.3	0	0	0	0.7	0	0	0	0	0	0.1
Bicycle	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bicycle	3.4	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1

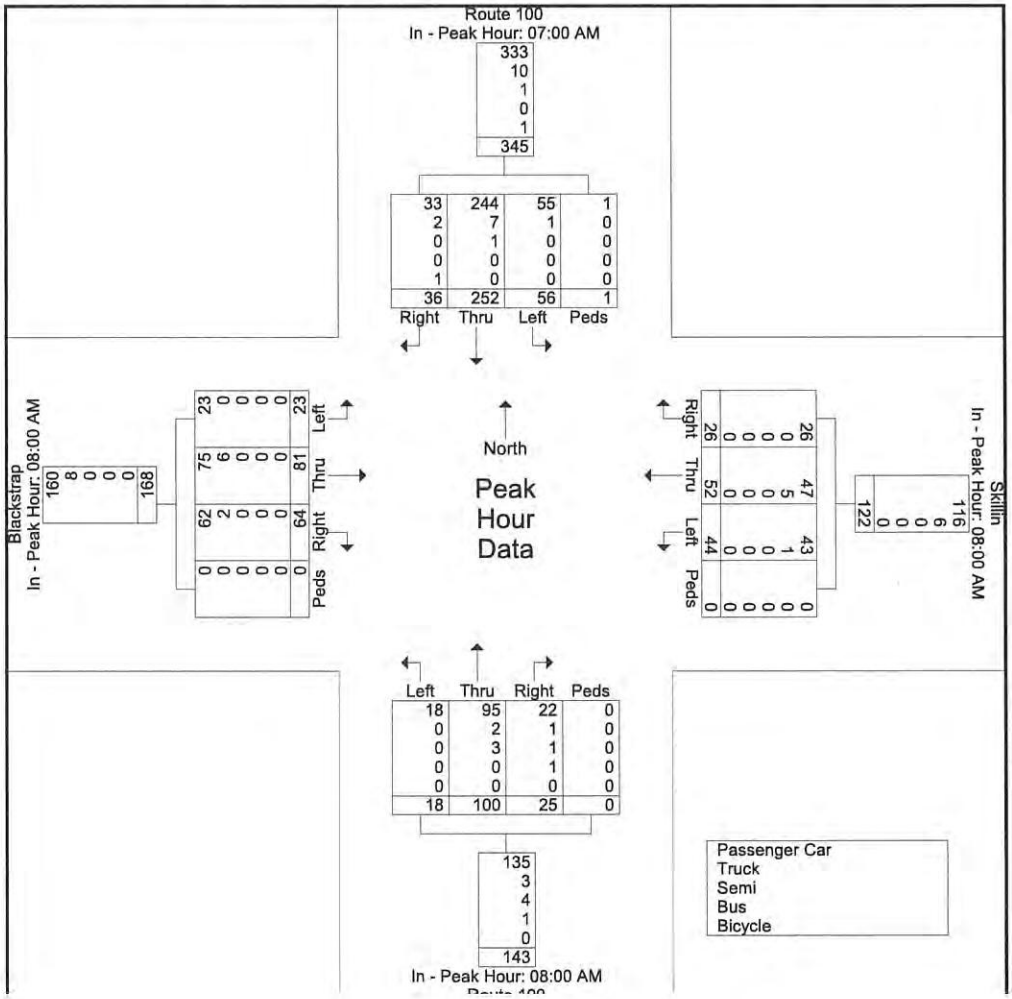


Traffic Solutions

17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 AM
Site Code : 00711231
Start Date : 7/11/2023

	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	07:00 AM					08:00 AM					08:00 AM					08:00 AM					
+0 mins.	**12**	60	12	0	84	3	12	10	0	25	**9**	18	4	0	31	**18**	20	5	0	43	
+15 mins.	7	**69**	13	0	**89**	6	11	11	0	28	6	26	3	0	35	14	17	**7**	0	38	
+30 mins.	9	65	11	0	85	**9**	14	**12**	0	**35**	2	**28**	3	0	33	18	**23**	4	0	**45**	
+45 mins.	8	58	**20**	**1**	87	8	**15**	11	0	34	8	28	**8**	0	**44**	14	21	7	0	42	
Total Volume	36	252	56	1	345	26	52	44	0	122	25	100	18	0	143	64	81	23	0	168	
% App. Total	10.4	73	16.2	0.3		21.3	42.6	36.1	0		17.5	69.9	12.6	0		38.1	48.2	13.7	0		
PHF	.750	.913	.700	.250	.969	.722	.867	.917	.000	.871	.694	.893	.563	.000	.813	.889	.880	.821	.000	.933	
Passenger Car	33	244	55	1	333	26	47	43	0	116	22	95	18	0	135	62	75	23	0	160	
% Passenger Car	91.7	96.8	98.2	100	96.5	100	90.4	97.7	0	95.1	88	95	100	0	94.4	96.9	92.6	100	0	95.2	
Truck	2	7	1	0	10	0	5	1	0	6	1	2	0	0	3	2	6	0	0	8	
% Truck	5.6	2.8	1.8	0	2.9	0	9.6	2.3	0	4.9	4	2	0	0	2.1	3.1	7.4	0	0	4.8	
Semi	0	1	0	0	1	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	
% Semi	0	0.4	0	0	0.3	0	0	0	0	0	4	3	0	0	2.8	0	0	0	0	0	
Bus	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	
% Bus	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0.7	0	0	0	0	0	
Bicycle	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bicycle	2.8	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	



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17 Mount View Dr
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File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 AM
Site Code : 00711231
Start Date : 7/11/2023
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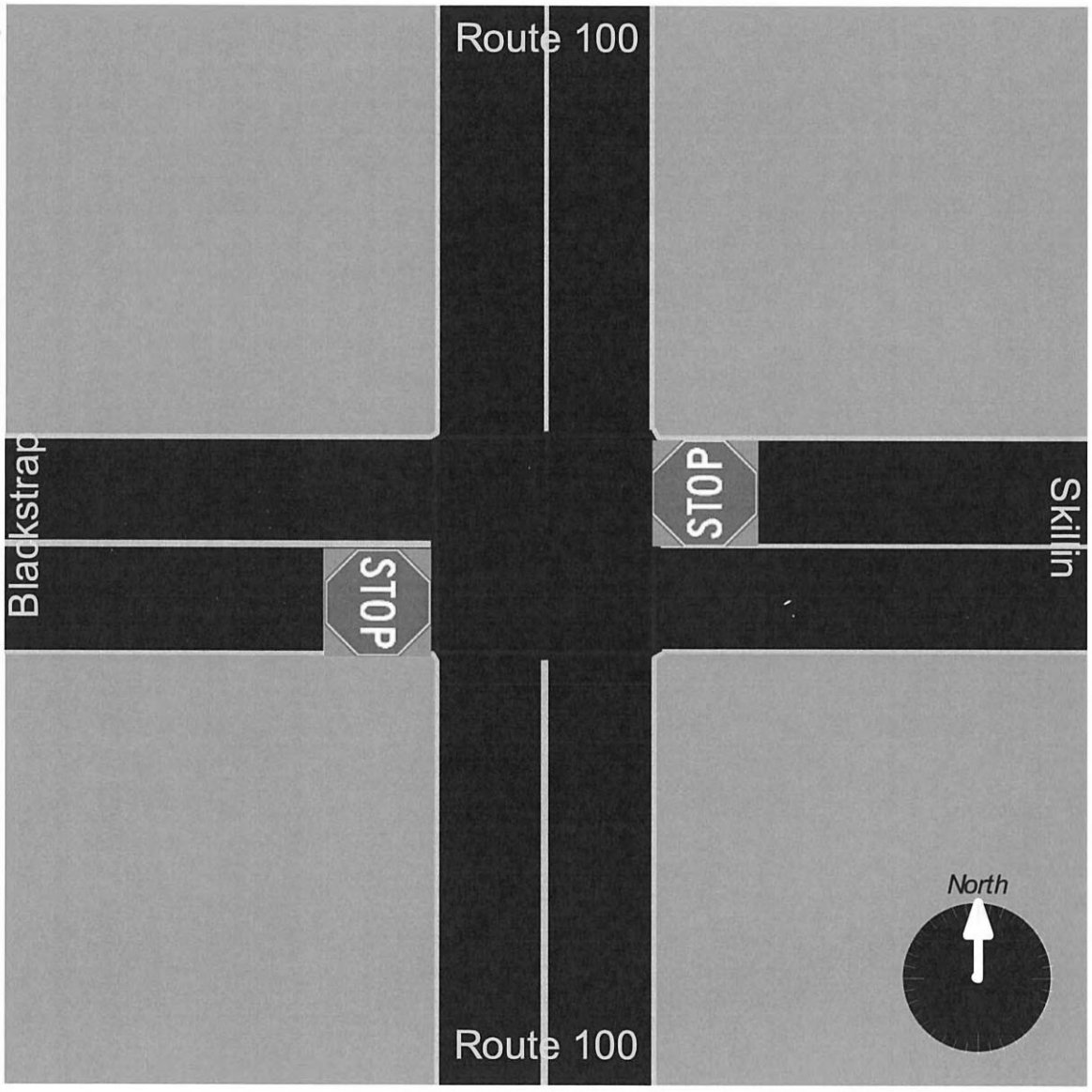

Traffic Solutions
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Gorham, ME 04038

Cumberland, Rte 100,Blkstrp,Skillin
July 11, 2023 PM
80 Degrees Sun
Miovision/K Tillson

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 1

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:00 PM	7	30	12	0	49	7	14	5	0	26	6	48	12	0	66	13	12	11	0	36	177
03:15 PM	3	34	9	0	46	11	12	10	0	33	8	77	13	0	98	5	13	3	0	21	198
03:30 PM	9	14	9	0	32	7	12	3	0	22	12	60	12	0	84	10	16	14	0	40	178
03:45 PM	7	19	7	0	33	10	7	5	0	22	9	52	8	0	69	4	15	11	0	30	154
Total	26	97	37	0	160	35	45	23	0	103	35	237	45	0	317	32	56	39	0	127	707
04:00 PM	7	31	13	0	51	4	25	10	0	39	15	64	11	0	90	9	16	3	0	28	208
04:15 PM	9	42	12	0	63	22	20	11	0	53	17	79	13	0	109	10	19	8	0	37	262
04:30 PM	7	39	13	0	59	14	25	10	0	49	17	63	19	0	99	9	19	12	0	40	247
04:45 PM	10	39	8	0	57	5	14	4	0	23	24	92	8	0	124	11	13	11	0	35	239
Total	33	151	46	0	230	45	84	35	0	164	73	298	51	0	422	39	67	34	0	140	956
05:00 PM	11	34	17	0	62	9	16	12	0	37	16	76	13	0	105	12	16	4	0	32	236
05:15 PM	12	43	7	0	62	6	17	8	0	31	22	71	15	0	108	10	11	5	0	26	227
05:30 PM	9	45	11	0	65	7	26	6	0	39	21	52	21	0	94	9	12	4	0	25	223
05:45 PM	7	32	9	0	48	3	23	6	0	32	19	51	16	0	86	9	14	11	4	38	204
Total	39	154	44	0	237	25	82	32	0	139	78	250	65	0	393	40	53	24	4	121	890

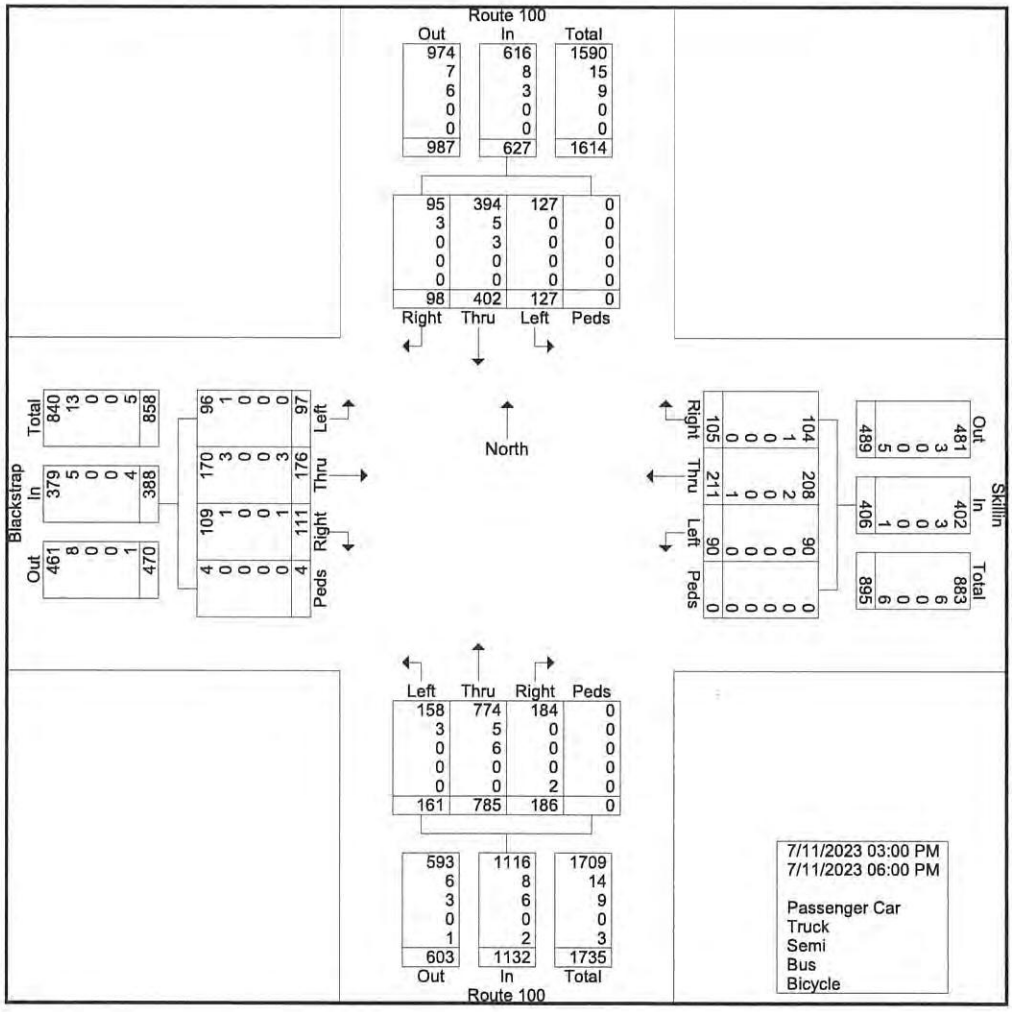
*** BREAK ***

Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023

Groups Printed- Passenger Car - Truck - Semi - Bus - Bicycle

	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Grand Total	98	402	127	0	627	105	211	90	0	406	186	785	161	0	1132	111	176	97	4	388	2553
Apprch %	15.6	64.1	20.3	0		25.9	52	22.2	0		16.4	69.3	14.2	0		28.6	45.4	25	1		
Total %	3.8	15.7	5	0	24.6	4.1	8.3	3.5	0	15.9	7.3	30.7	6.3	0	44.3	4.3	6.9	3.8	0.2	15.2	
Passenger Car	95	394	127	0	616	104	208	90	0	402	184	774	158	0	1116	109	170	96	4	379	2513
% Passenger Car	96.9	98	100	0	98.2	99	98.6	100	0	99	98.9	98.6	98.1	0	98.6	98.2	96.6	99	100	97.7	98.4
Truck	3	5	0	0	8	1	2	0	0	3	0	5	3	0	8	1	3	1	0	5	24
% Truck	3.1	1.2	0	0	1.3	1	0.9	0	0	0.7	0	0.6	1.9	0	0.7	0.9	1.7	1	0	1.3	0.9
Semi	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	9
% Semi	0	0.7	0	0	0.5	0	0	0	0	0	0	0.8	0	0	0.5	0	0	0	0	0	0.4
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	1	3	0	0	4	7
% Bicycle	0	0	0	0	0	0	0.5	0	0	0.2	1.1	0	0	0	0.2	0.9	1.7	0	0	1	0.3



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
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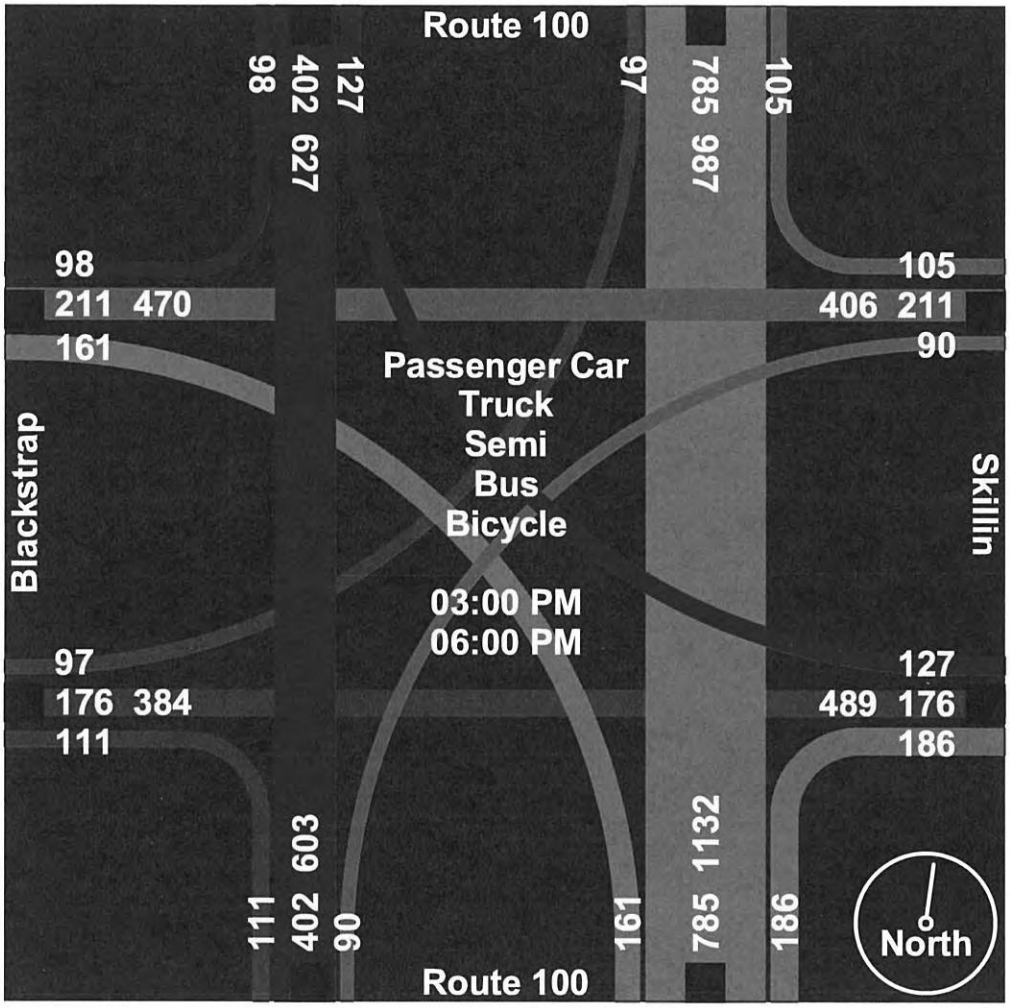

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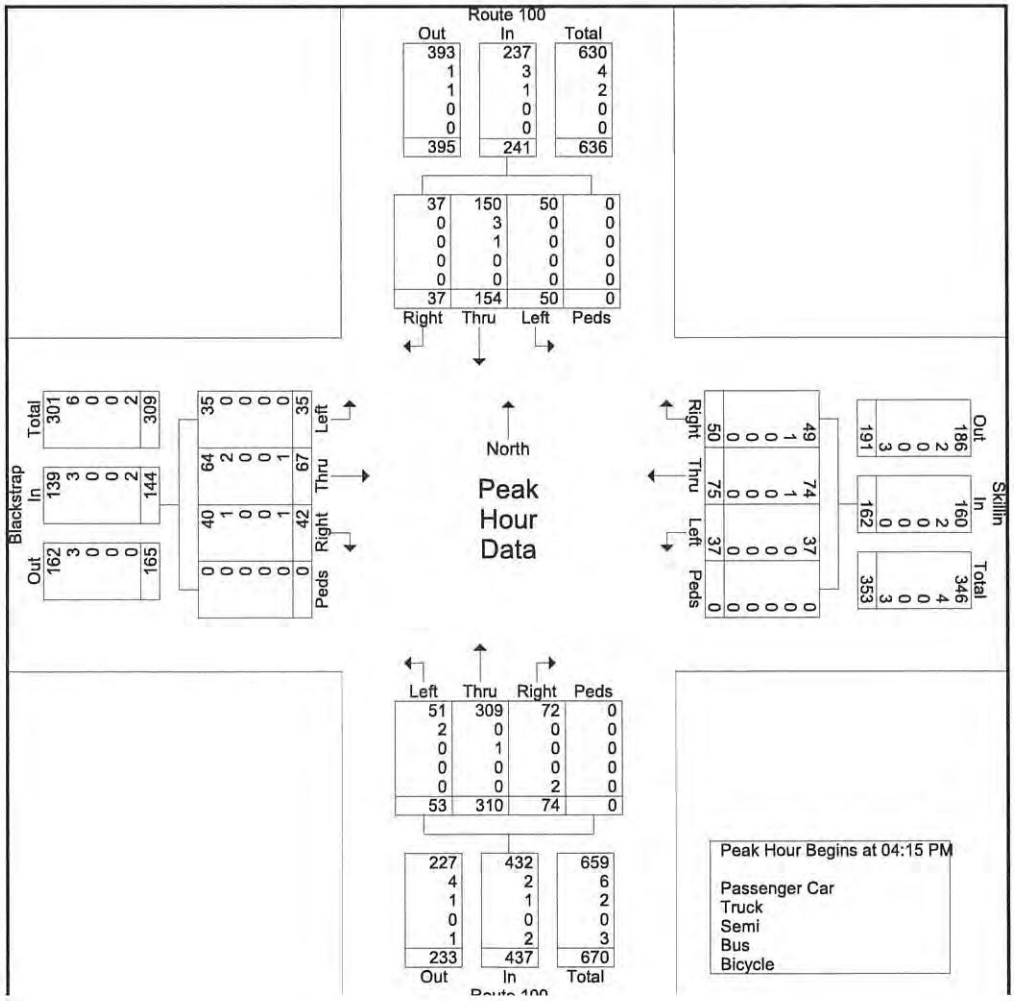
File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 4

	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	9	**42**	12	0	**63**	**22**	20	11	0	**53**	17	79	13	0	109	10	**19**	8	0	37	**262**
04:30 PM	7	39	13	0	59	14	**25**	10	0	49	17	63	**19**	0	99	9	19	**12**	0	**40**	247
04:45 PM	10	39	8	0	57	5	14	4	0	23	**24**	**92**	8	0	**124**	11	13	11	0	35	239
05:00 PM	**11**	34	**17**	0	62	9	16	**12**	0	37	16	76	13	0	105	**12**	16	4	0	32	236
Total Volume	37	154	50	0	241	50	75	37	0	162	74	310	53	0	437	42	67	35	0	144	984
% App. Total	15.4	63.9	20.7	0		30.9	46.3	22.8	0		16.9	70.9	12.1	0		29.2	46.5	24.3	0		
PHF	.841	.917	.735	.000	.956	.568	.750	.771	.000	.764	.771	.842	.697	.000	.881	.875	.882	.729	.000	.900	.939
Passenger Car	37	150	50	0	237	49	74	37	0	160	72	309	51	0	432	40	64	35	0	139	968
% Passenger Car	100	97.4	100	0	98.3	98.0	98.7	100	0	98.8	97.3	99.7	96.2	0	98.9	95.2	95.5	100	0	96.5	98.4
Truck	0	3	0	0	3	1	1	0	0	2	0	0	2	0	2	1	2	0	0	3	10
% Truck	0	1.9	0	0	1.2	2.0	1.3	0	0	1.2	0	0	3.8	0	0.5	2.4	3.0	0	0	2.1	1.0
Semi	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Semi	0	0.6	0	0	0.4	0	0	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	0.2
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bus	0	0	0	0	0	0	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	2	0	0	0	2	1	1	0	0	2	4
% Bicycle	0	0	0	0	0	0	0	0	0	0	2.7	0	0	0	0.5	2.4	1.5	0	0	1.4	0.4



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Gorham, ME 04038

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
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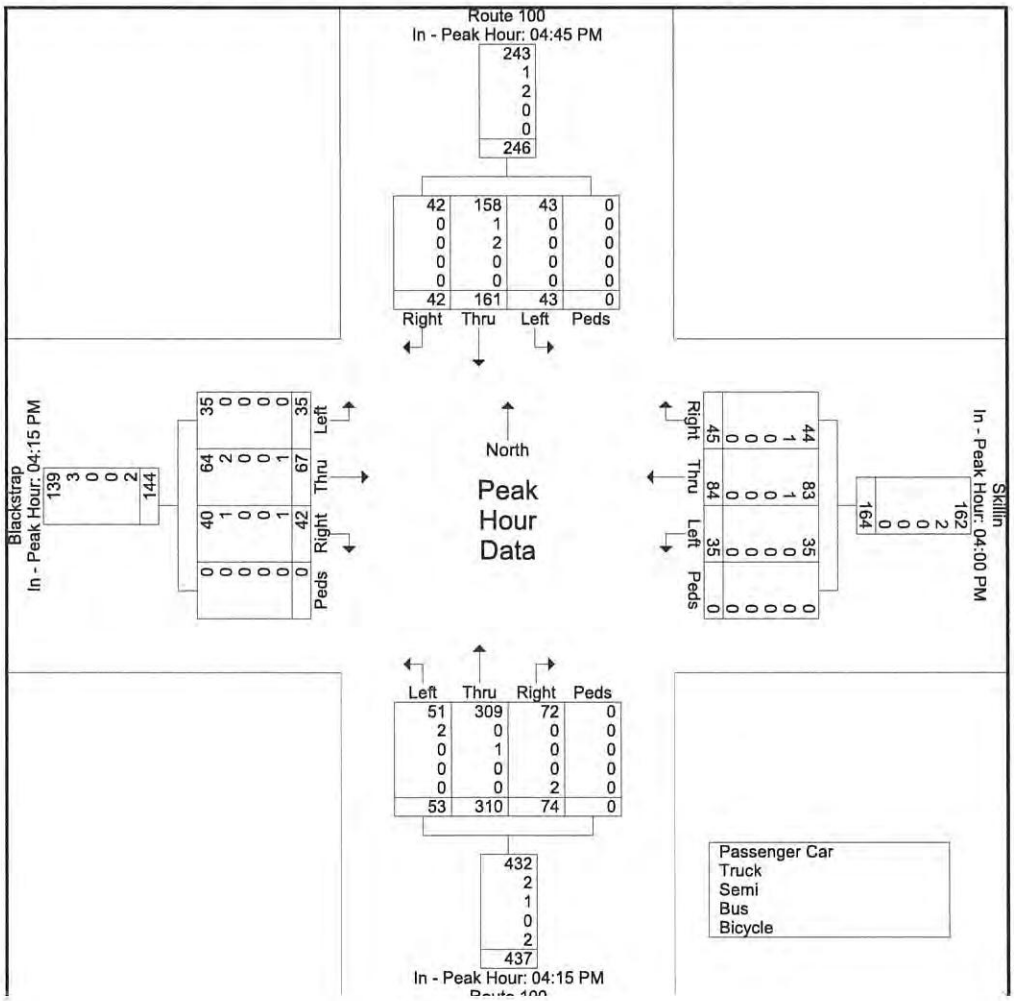
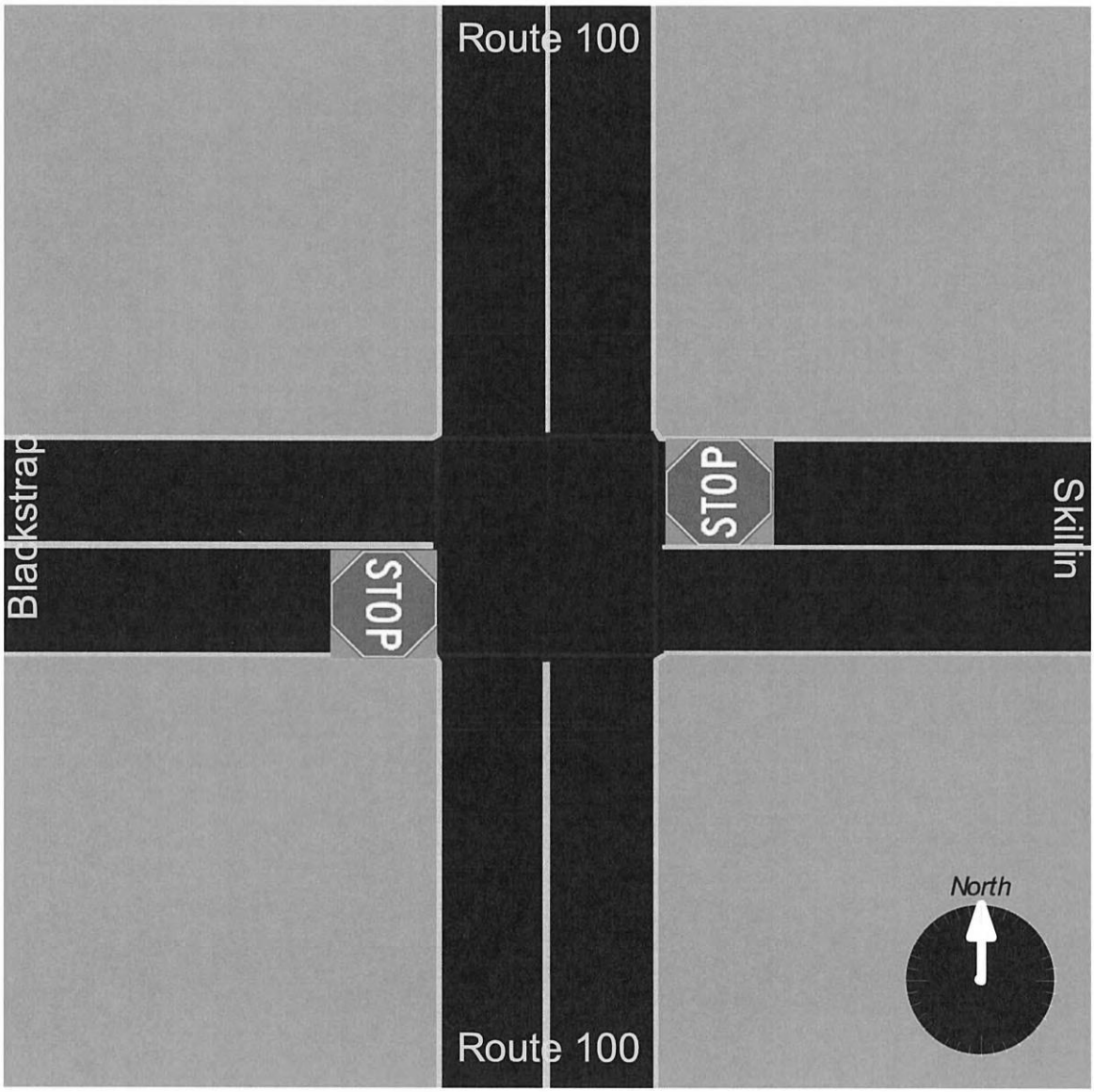
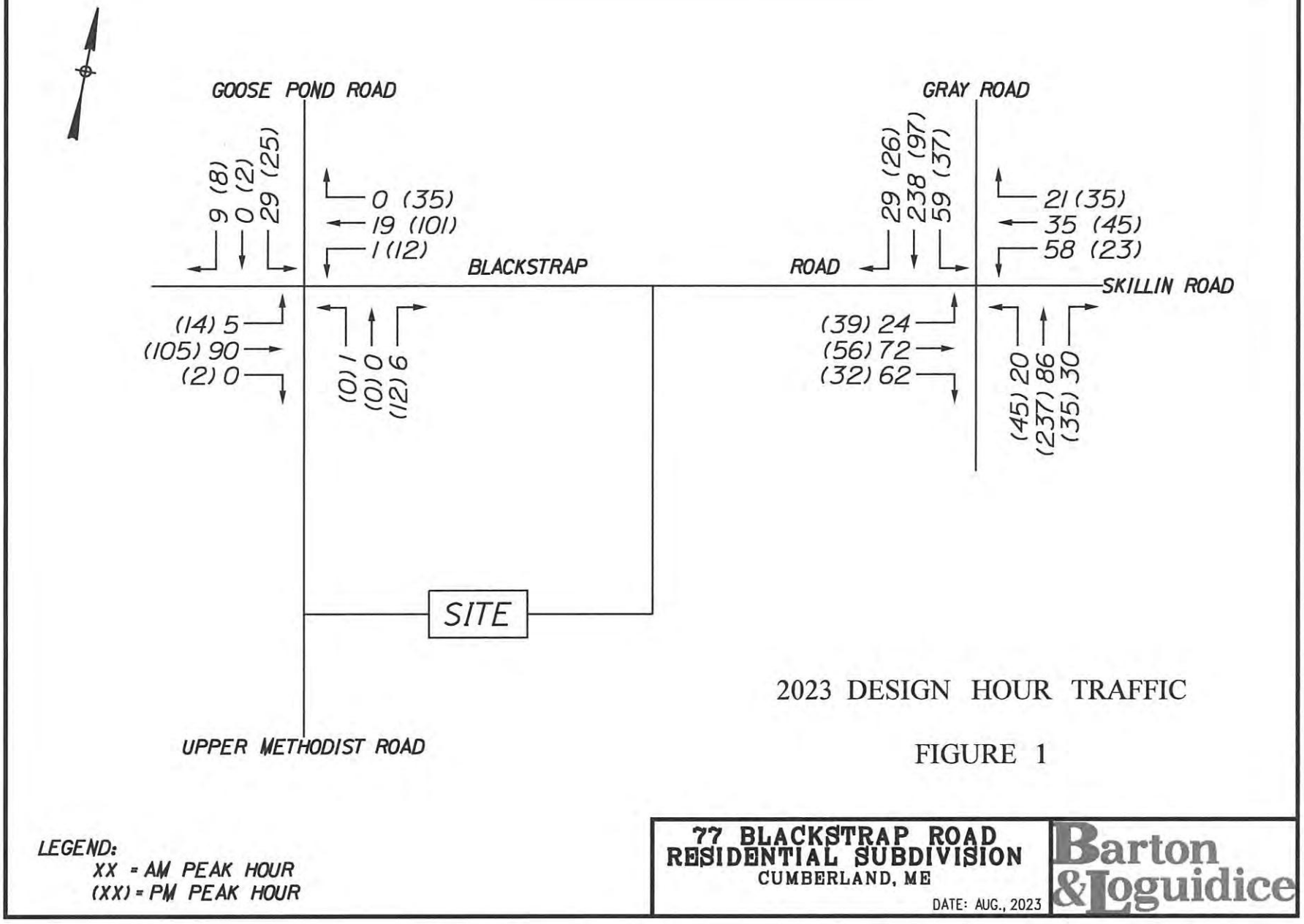
	Route 100 From North					Skillin From East					Route 100 From South					Blackstrap From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:00 PM - Peak 1 of 1																					
Peak Hour for Each Approach Begins at:																					
	04:45 PM					04:00 PM					04:15 PM					04:15 PM					
+0 mins.	10	39	8	0	57	4	**25**	10	0	39	17	79	13	0	109	10	**19**	8	0	37	
+15 mins.	11	34	**17**	0	62	**22**	20	**11**	0	**53**	17	63	**19**	0	99	9	19	**12**	0	**40**	
+30 mins.	**12**	43	7	0	62	14	25	10	0	49	**24**	**92**	8	0	**124**	11	13	11	0	35	
+45 mins.	9	**45**	11	0	**65**	5	14	4	0	23	16	76	13	0	105	**12**	16	4	0	32	
Total Volume	42	161	43	0	246	45	84	35	0	164	74	310	53	0	437	42	67	35	0	144	
% App. Total	17.1	65.4	17.5	0		27.4	51.2	21.3	0		16.9	70.9	12.1	0		29.2	46.5	24.3	0		
PHF	.875	.894	.632	.000	.946	.511	.840	.795	.000	.774	.771	.842	.697	.000	.881	.875	.882	.729	.000	.900	
Passenger Car	42	158	43	0	243	44	83	35	0	162	72	309	51	0	432	40	64	35	0	139	
% Passenger Car	100	98.1	100	0	98.8	97.8	98.8	100	0	98.8	97.3	99.7	96.2	0	98.9	95.2	95.5	100	0	96.5	
Truck	0	1	0	0	1	1	1	0	0	2	0	0	2	0	2	1	2	0	0	3	
% Truck	0	0.6	0	0	0.4	2.2	1.2	0	0	1.2	0	0	3.8	0	0.5	2.4	3	0	0	2.1	
Semi	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	
% Semi	0	1.2	0	0	0.8	0	0	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	
Bus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
% Bus	0	0	0	0	0	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	2	0	0	0	2	1	1	0	0	2	
% Bicycle	0	0	0	0	0	0	0	0	0	0	2.7	0	0	0	0.5	2.4	1.5	0	0	1.4	



Traffic Solutions
17 Mount View Dr
Gorham, ME 04038

File Name : Cumberland Route 100, Blackstrap, Skillin, 07-11-2023 PM
Site Code : 07112302
Start Date : 7/11/2023
Page No : 6





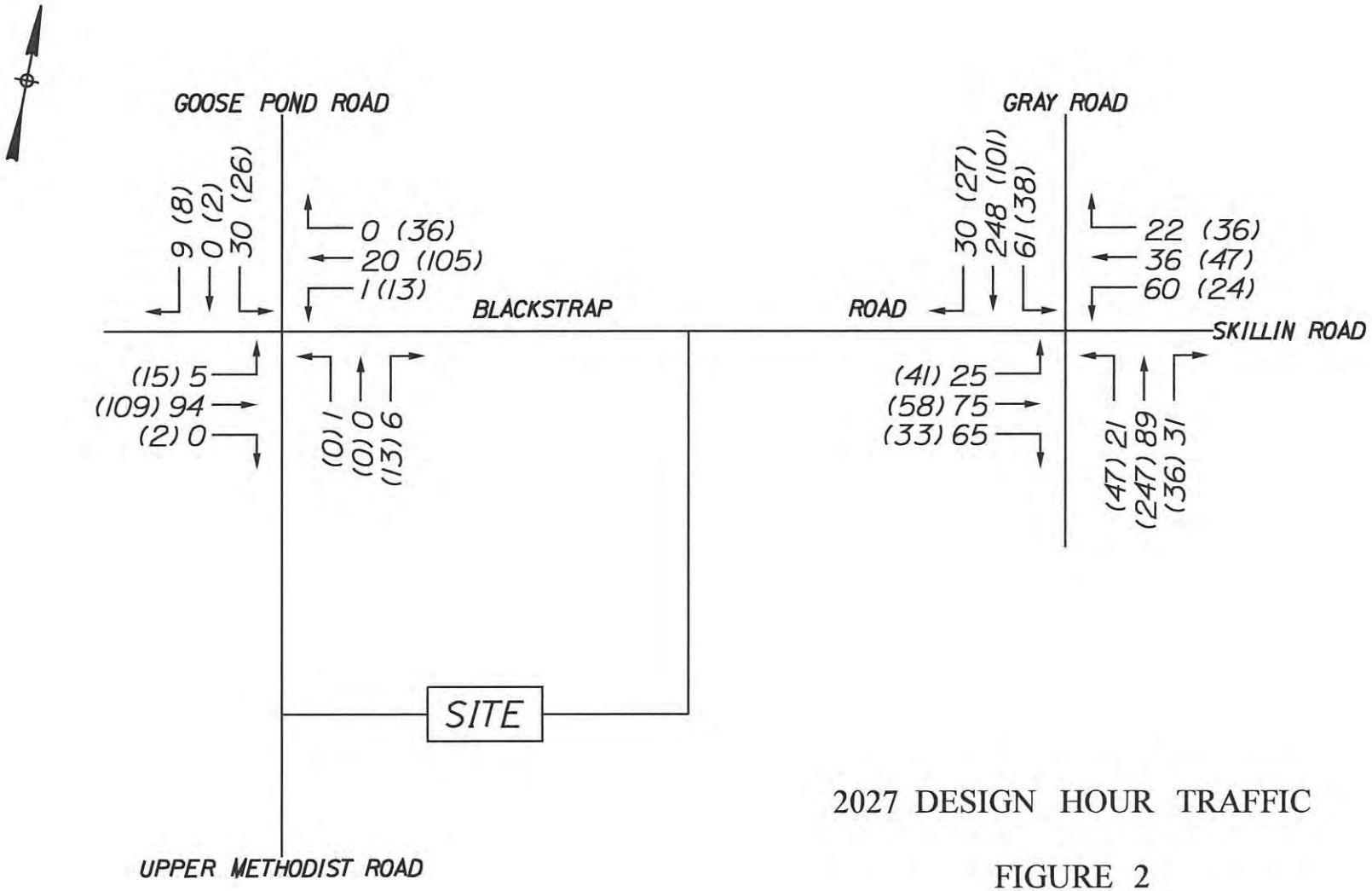
2023 DESIGN HOUR TRAFFIC

FIGURE 1

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

77 BLACKSTRAP ROAD
RESIDENTIAL SUBDIVISION
CUMBERLAND, ME
DATE: AUG., 2023

Barton & Loguidice



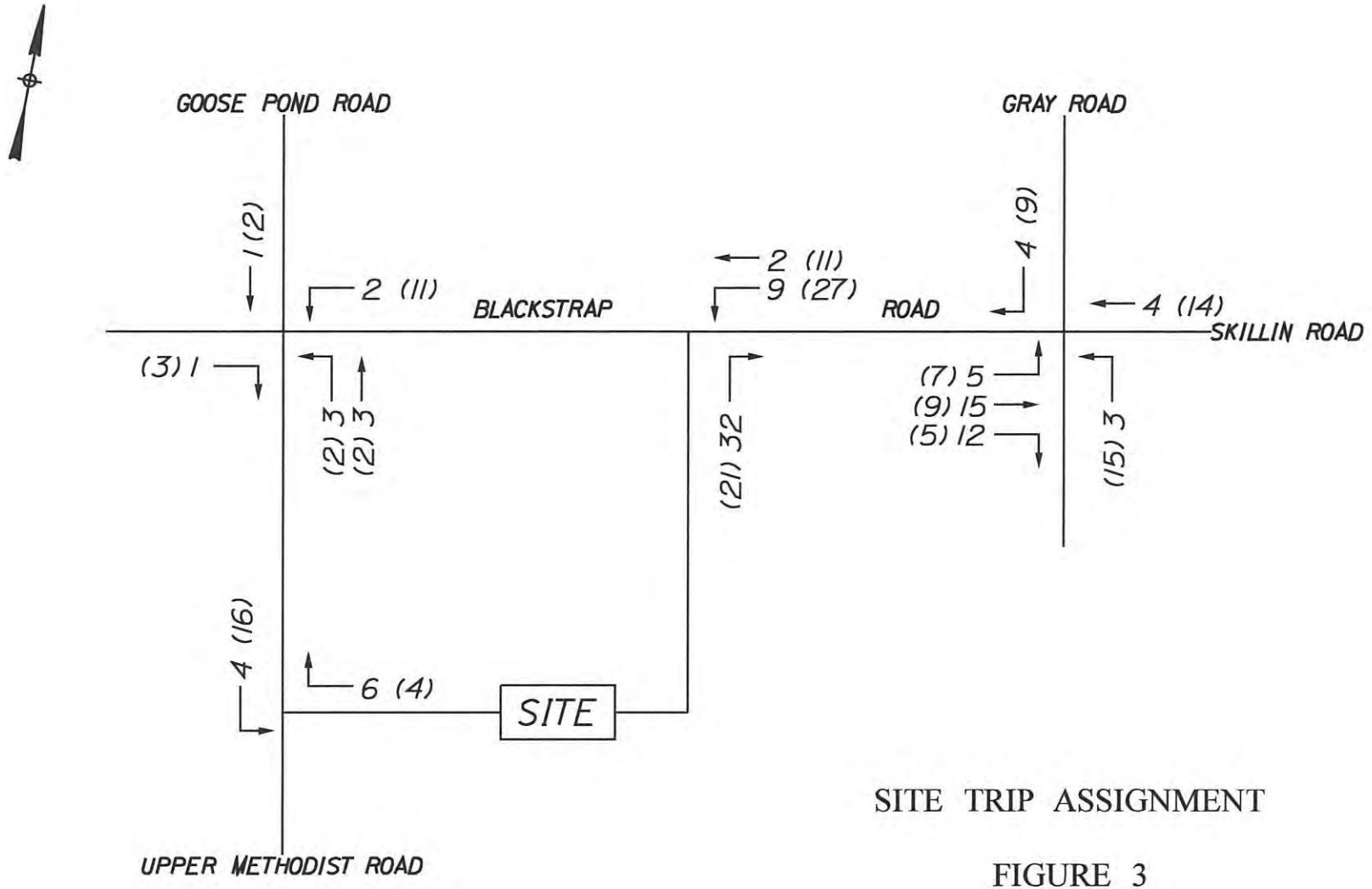
2027 DESIGN HOUR TRAFFIC

FIGURE 2

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

77 BLACKSTRAP ROAD RESIDENTIAL SUBDIVISION
CUMBERLAND, ME
DATE: AUG., 2023

Barton & Loguidice



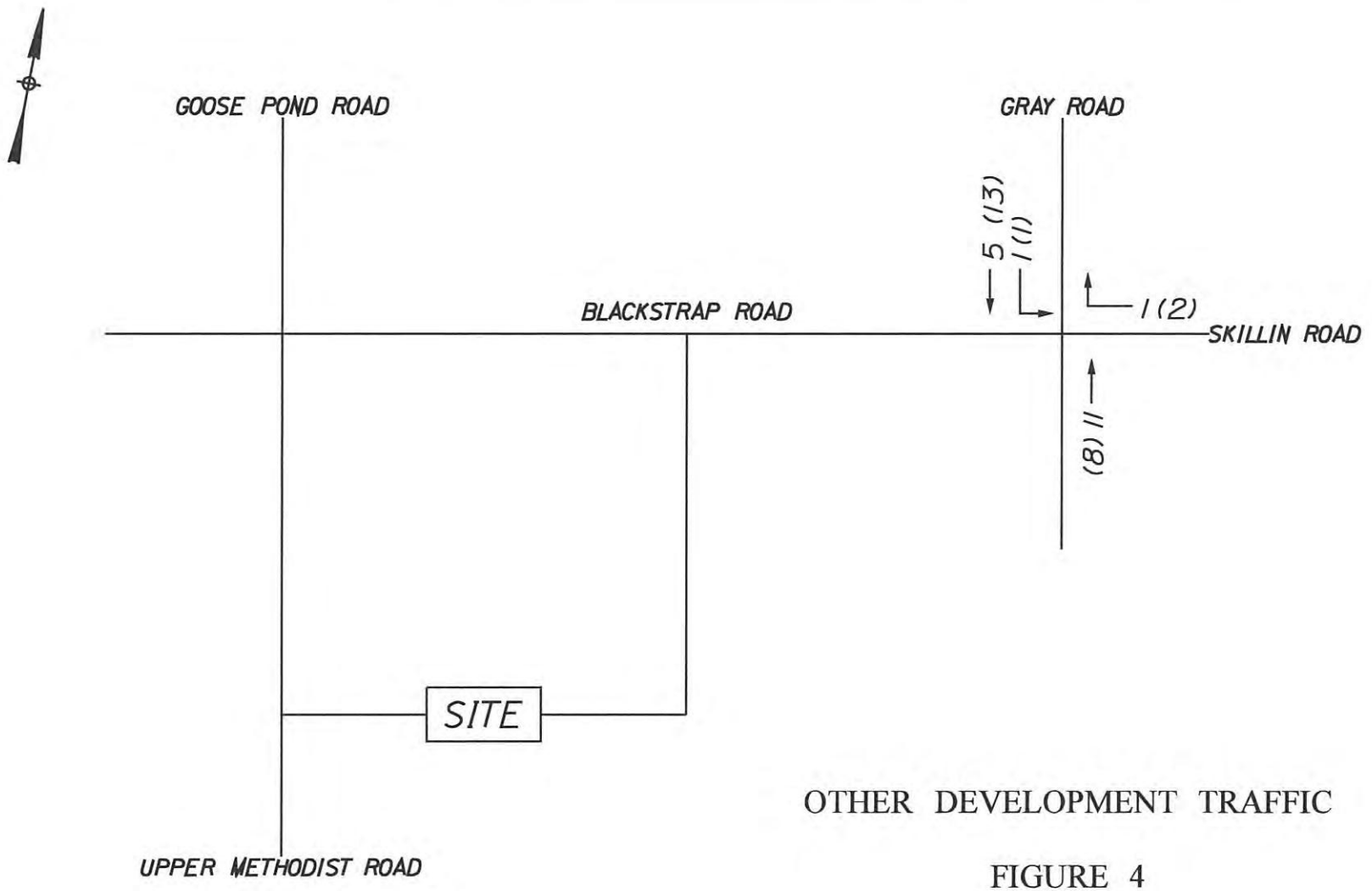
SITE TRIP ASSIGNMENT

FIGURE 3

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

77 BLACKSTRAP ROAD
RESIDENTIAL SUBDIVISION
CUMBERLAND, ME
DATE: AUG., 2023

Barton & Loguidice



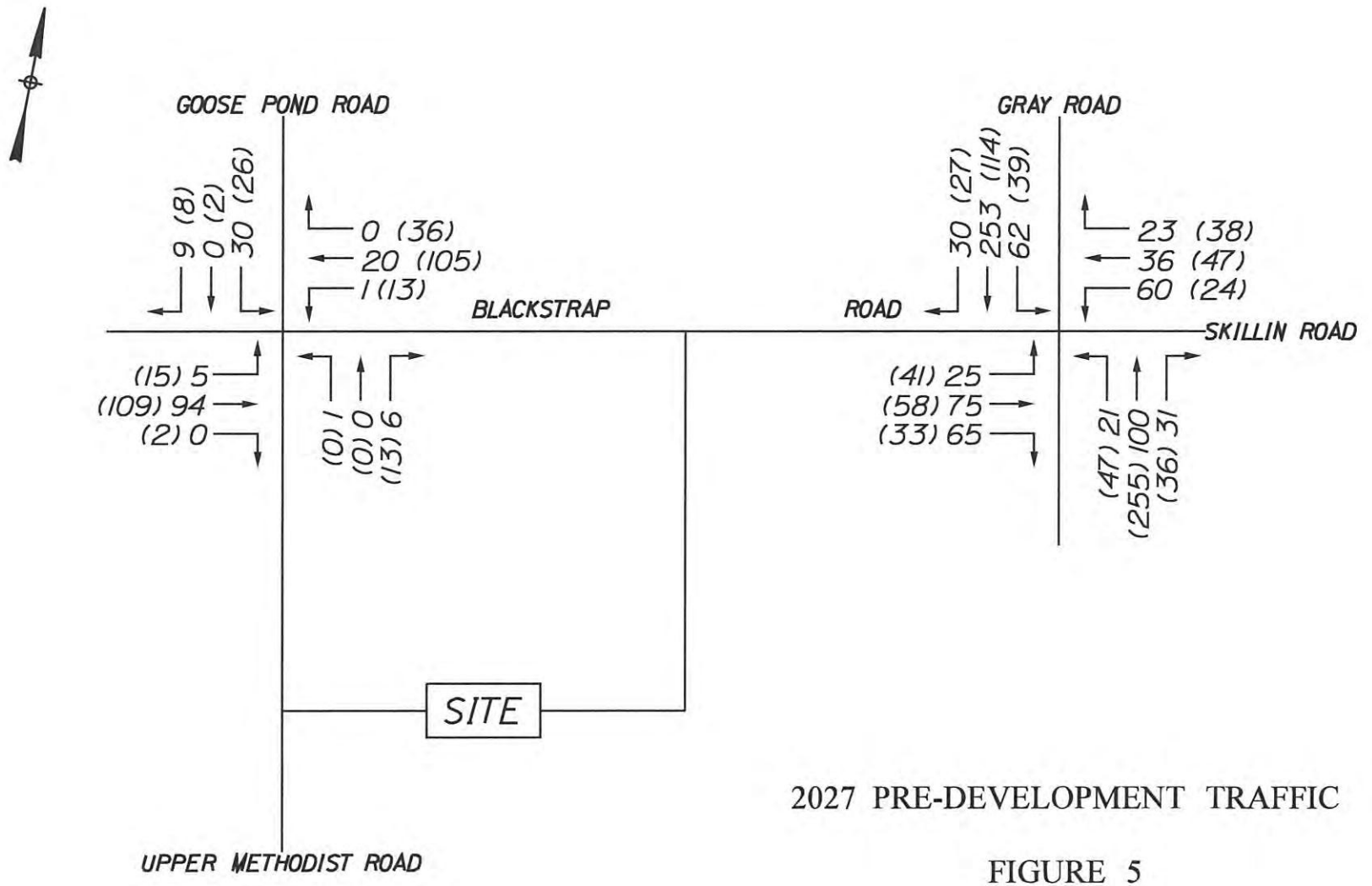
OTHER DEVELOPMENT TRAFFIC

FIGURE 4

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

77 BLACKSTRAP ROAD
RESIDENTIAL SUBDIVISION
CUMBERLAND, ME
DATE: AUG., 2023

Barton & Loguidice



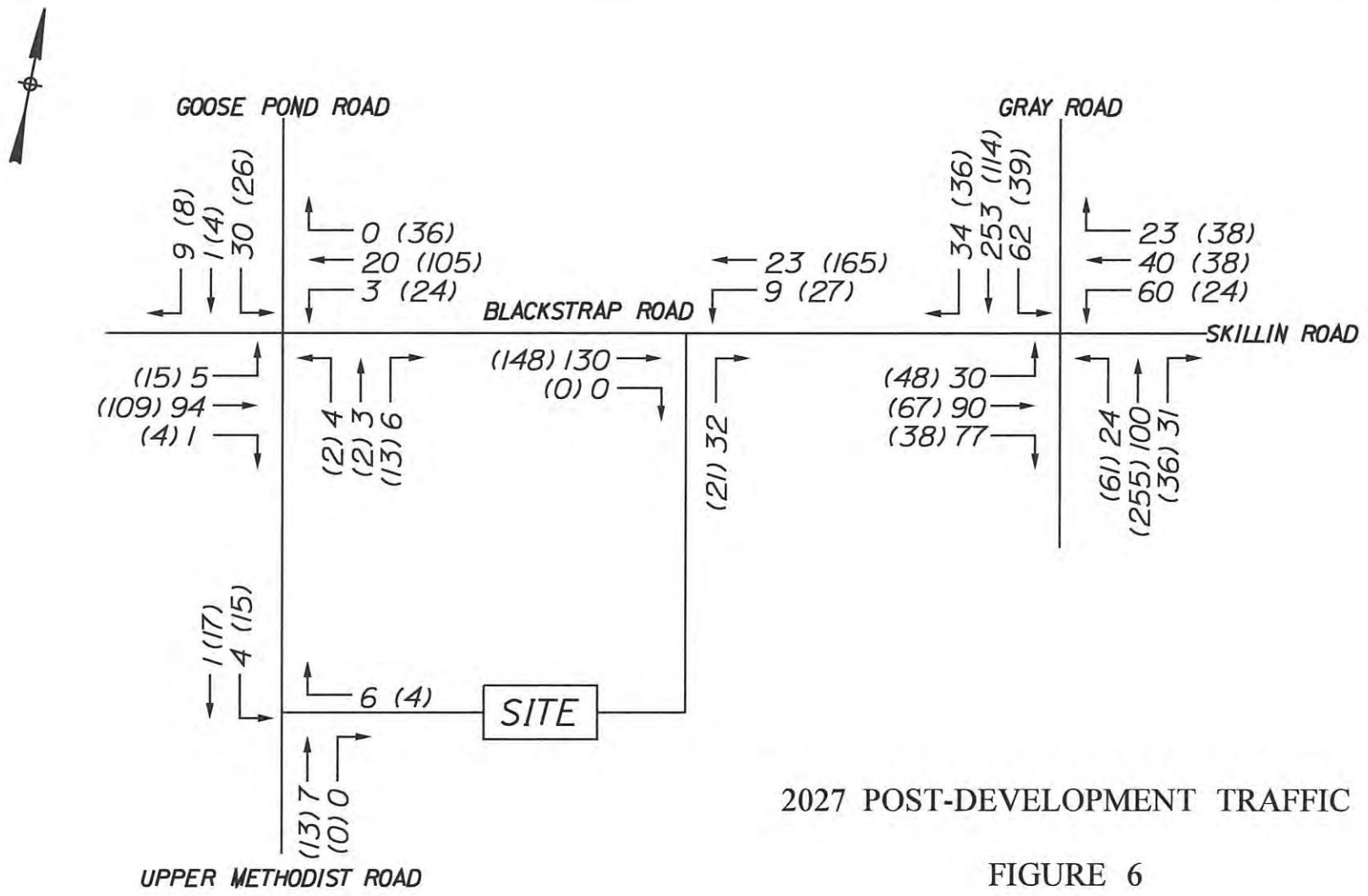
2027 PRE-DEVELOPMENT TRAFFIC

FIGURE 5

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

77 BLACKSTRAP ROAD
RESIDENTIAL SUBDIVISION
CUMBERLAND, ME
DATE: AUG., 2023

Barton & Loguidice



2027 POST-DEVELOPMENT TRAFFIC

FIGURE 6

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

77 BLACKSTRAP ROAD
RESIDENTIAL SUBDIVISION
CUMBERLAND, ME
DATE: AUG., 2023

Barton & Loguidice

STATE OF MAINE

File: 0026X
Copy: Skilling Rd

Date of Request: 2/24/2023
Latest Date Needed By: 3/3/2023
Return: 3/6/2023

To: **Office of Safety and Mobility** Dept.: MDOT, Mobility Engineering & Analysis
From: Jason Ready, VHB Dept.: MDOT, Bureau of Planning
Subject: Request for Traffic Information Project Manager: Stephen Cole
TOWN(S): Cumberland W.I.N. **26850.00** Consultant Proj [X]
COUNTY: Cumberland ROUTE: SR 26/100

LOCATION/ DESCRIPTION: Cumberland PPI Study, Route 26/100, Skilling Road, Blackstrap Road

	Roadway Changes or Relocation (Attach Sketch)	Turning Movement needed (Provide Locations under Comments)	Other Please Describe Under Comments
Please Check Box if Applicable:			

Prep By: JEL RLD

Description of Sections	Sec. 1 SR 26/100 N/O BLACKSTRAP RD	Sec. 1 SR 26/100 N/O BLACKSTRAP RD	Sec. 2 SKILLING RD E/O SR 26/100	Sec. 2 SKILLING RD E/O SR 26/100
1 Latest AADT (Year)	5720 (2018)	5720 (2018)	2590 (2018)	2590 (2018)
2 Current **2023** AADT	5860	5860	2650	2650
3 Future **2035** AADT	6210		2810	
4 Future **2043** AADT		6450		2920
5 DHV - % of AADT	11%	11%	13%	13%
6 Design Hourly Volume	683	710	365	380
7 % Heavy Trucks (AADT)	6%	6%	7%	7%
8 % Heavy Trucks (DHV)	3%	3%	3%	3%
9 Direct.Dist. (DHV)	67%	67%	52%	52%
10 18-KIP Equivalent P 2.0	179	192	76	81
11 18-KIP Equivalent P 2.5	171	183	72	78

Notes or Remarks: 18-Kip ESALS is based on 12 & 20 year life

PLEASE PROVIDE: (1) WIN NUMBER, (2) THE CURRENT & FUTURE YEARS FOR WHICH YOU WAN TAADT CALCULATED, AND SEND TO RATNA DON. (A LOCATION MAP IS NO LONGER NEEDED.) TRAFFIC REQUESTS WILL BE FILLED ON A FIRST COME / SERVE BASIS. PLEASE SEND WHEN PROJECT KICKS OFF!!!!

Need Only Data Items Numbered

Comments:

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
Blackstrap Rd. & Upper Methodist Rd.

REPORT PARAMETERS

Year 2020, Start Month 1 through Year 2022 End Month: 12

Route: **0500443**	Start Node: **11797**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **17087**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0500442**	Start Node: **11796**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **11797**	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
11797	0500443 - 6.07	Int of BLACKSTRAP RD GOOSE POND RD UPPER METHC	2	2	0	1	0	0	1	50.0	0.932	0.72	0.47	1.51
												Statewide Crash Rate: 0.12		
11798	0500443 - 6.33	Int of BLACKSTRAP RD FOREST LAKE RD	2	0	0	0	0	0	0	0.0	1.001	0.00	0.47	0.00
												Statewide Crash Rate: 0.12		
71546	0500443 - 6.43	Int of BLACKSTRAP RD FOREST LAKE RD	2	1	0	0	0	0	1	0.0	1.173	0.28	0.45	0.00
												Statewide Crash Rate: 0.12		
11809	0500443 - 6.69	Int of BLACKSTRAP RD GEORGE RD	2	0	0	0	0	0	0	0.0	1.098	0.00	0.46	0.00
												Statewide Crash Rate: 0.12		
17087	0500443 - 6.74	Int of BLACKSTRAP RD GRAY RD SKILLIN RD	2	5	0	0	0	1	4	20.0	3.097	0.54	0.40	1.34
												Statewide Crash Rate: 0.14		
11796	0500442 - 0	End of UPPER METHODIST	1	0	0	0	0	0	0	0.0	0.036	0.00	-1.92	0.00
												Statewide Crash Rate: 0.11		
Study Years: 3.00		**NODE TOTALS:**		8	0	1	0	1	6	25.0	7.337	0.36	0.30	1.20

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
11797	11798	3122169	0 - 0.26	0500443 - 6.07	0.26	2	1	0	0	0	0	1	0.0	0.00219	152.05	475.78	0.00
Int of BLACKSTRAP RD GOOSE POND RD UPPER METHODIST				RD INV 05 00443											Statewide Crash Rate: 155.59		
11798	71546	4047393	0 - 0.10	0500443 - 6.33	0.10	2	0	0	0	0	0	0	0.0	0.00104	0.00	570.29	0.00
Int of BLACKSTRAP RD FOREST LAKE RD				RD INV 05 00443											Statewide Crash Rate: 155.59		
71546	11809	4047509	0 - 0.26	0500443 - 6.43	0.26	2	0	0	0	0	0	0	0.0	0.00279	0.00	447.07	0.00
Int of BLACKSTRAP RD FOREST LAKE RD				RD INV 05 00443											Statewide Crash Rate: 155.59		
11809	17087	3117876	0 - 0.05	0500443 - 6.69	0.05	2	0	0	0	0	0	0	0.0	0.00054	0.00	645.48	0.00
Int of BLACKSTRAP RD GEORGE RD				RD INV 05 00443											Statewide Crash Rate: 155.59		
11796	11797	2038217	0 - 0.40	0500442 - 0	0.40	1	0	0	0	0	0	0	0.0	0.00029	0.00	991.13	0.00
End of UPPER METHODIST				RD INV 05 00442											Statewide Crash Rate: 232.74		
Study Years: 3.00				**Section Totals:**	1.07		1	0	0	0	0	1	0.0	0.00685	48.65	360.95	0.13
				Grand Totals:	1.07		9	0	1	0	1	7	22.2	0.00685	437.89	512.98	0.85

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
11797	11798	3122169	0 - 0.26	0500443 - 6.07	1	0	0	0	0	1	2020-15768	07/03/2020	6.13	PD
11798	71546	4047393	0 - 0.10	0500443 - 6.33	0	0	0	0	0	0				
71546	11809	4047509	0 - 0.26	0500443 - 6.43	0	0	0	0	0	0				
11809	17087	3117876	0 - 0.05	0500443 - 6.69	0	0	0	0	0	0				
11796	11797	2038217	0 - 0.40	0500442 - 0	0	0	0	0	0	0				
				Totals:	1	0	0	0	0	1				

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	1	0	0	0	0	0	0	0	0	1
MONDAY	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TUESDAY	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
SATURDAY	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
Totals	0	0	0	0	0	0	0	2	1	0	0	1	1	0	0	1	1	1	0	0	0	0	1	0	0	**9**

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	5
2-(Sport) Utility Vehicle	6
3-Passenger Van	0
4-Cargo Van (10K lbs or Less)	1
5-Pickup	3
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	2
25-Other	0
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	**17**

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	2	5	0	0	0	0	7
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	3	0	0	0	0	0	3
Ran Red Light	1	0	0	0	0	0	1
Ran Stop Sign	1	0	0	0	0	0	1
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	1	0	0	0	0	1
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	1	0	0	0	0	0	1
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	0	0	0	0	0	0	0
Total	**9**	**6**	**0**	**0**	**0**	**0**	**15**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	8	6	0	0	0	0	14
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	1	0	0	0	0	0	1
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	**9**	**6**	**0**	**0**	**0**	**0**	**15**

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	3	0	0	0	0	3
20-24	2	0	0	0	0	2
25-29	2	0	0	0	0	2
30-39	1	0	0	0	0	1
40-49	0	0	0	0	0	0
50-59	2	0	0	0	0	2
60-69	2	0	0	0	0	2
70-79	2	0	0	0	0	2
80-Over	1	0	0	0	0	1
Unknown	0	0	0	0	0	0
Total	**15**	**0**	**0**	**0**	**0**	**15**

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	**Total**	**15**
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	1		
13-Motor Vehicle in Transport	14		
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		

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	1
2-Traffic Signals (Flashing)	4
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	2
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	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	2
14-Other	0
Total	**9**

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	1	1
B	0	0
C	1	2
PD	7	0
Total	**9**	**3**

Road Character

Road Grade	Total
1-Level	9
2-On Grade	0
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	**9**

Light

Light Condition	Total
1-Daylight	7
2-Dawn	0
3-Dusk	1
4-Dark - Lighted	1
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	**9**

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2020	2021	2022	Total
JANUARY	0	0	1	1
FEBRUARY	0	0	0	0
MARCH	0	0	0	0
APRIL	0	2	0	2
MAY	0	0	1	1
JUNE	0	0	0	0
JULY	1	0	0	1
AUGUST	0	1	0	1
SEPTEMBER	0	0	0	0
OCTOBER	0	0	0	0
NOVEMBER	0	0	0	0
DECEMBER	1	1	1	3
Total	**2**	**4**	**3**	**9**

Report is limited to the last 10 years of data.

Maine Department Of Transportation - Office of Safety, Crash Records Section

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	0	0	0	1	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	5	0	0	0	0	0	0	0	0	0	0	5
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	1	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	**1**	**0**	**1**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**

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
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	5	0	0	0	0	0	0	0	0	0	0	5
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	1	0	0	0	0	0	0	0	0	0	0	1
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	1	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
TOTAL	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**9**

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:55	7:55	7:55	7:55	7:55	7:55
End Time	9:00	9:00	9:00	9:00	9:00	9:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	822	803	811	797	795	807
Vehs Exited	819	798	811	798	790	803
Starting Vehs	13	14	14	13	13	13
Ending Vehs	16	19	14	12	18	14
Travel Distance (mi)	472	449	464	456	451	458
Travel Time (hr)	16.2	15.5	16.0	15.9	15.6	15.9
Total Delay (hr)	1.3	1.3	1.3	1.4	1.2	1.3
Total Stops	356	341	359	358	339	350
Fuel Used (gal)	14.9	14.1	14.6	14.3	14.0	14.4

Interval #0 Information Seeding

Start Time	7:55
End Time	8:00
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	8:00
End Time	9:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	822	803	811	797	795	807
Vehs Exited	819	798	811	798	790	803
Starting Vehs	13	14	14	13	13	13
Ending Vehs	16	19	14	12	18	14
Travel Distance (mi)	472	449	464	456	451	458
Travel Time (hr)	16.2	15.5	16.0	15.9	15.6	15.9
Total Delay (hr)	1.3	1.3	1.3	1.4	1.2	1.3
Total Stops	356	341	359	358	339	350
Fuel Used (gal)	14.9	14.1	14.6	14.3	14.0	14.4

Intersection: 13: UPPER METHODIST RD & SITE ENTRANCE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD Performance by movement

Movement	SEL	SER	NWL	NWR	NEL	NET	SWL	SWT	All
Denied Del/Veh (s)	0.1	0.1		0.0	0.1	0.1		0.0	0.1
Total Del/Veh (s)	4.9	2.2		3.2	0.7	0.1		0.3	1.3

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.3
Total Del/Veh (s)	8.9	11.9	5.9	8.9	10.4	4.4	2.6	0.9	0.4	2.9	1.8	1.0

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	4.2

10: BLACKSTRAP RD & SITE ENTRANCE Performance by movement

Movement	NET	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.5	0.1	0.4

13: UPPER METHODIST RD & SITE ENTRANCE Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)		0.1	0.1
Total Del/Veh (s)		0.0	0.0

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	5.5

Intersection: 2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD

Movement	SE	NW	NE
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	49	30	5
Average Queue (ft)	21	6	0
95th Queue (ft)	44	25	4
Link Distance (ft)	1184	890	636
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 7: GRAY RD & BLACKSTRAP RD/SKILLIN RD

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	115	95	31	66
Average Queue (ft)	48	44	5	12
95th Queue (ft)	83	76	22	44
Link Distance (ft)	1801	977	1293	1085
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: BLACKSTRAP RD & SITE ENTRANCE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Summary of All Intervals

Run Number	3	4	5	6	7	Avg
Start Time	7:55	7:55	7:55	7:55	7:55	7:55
End Time	9:00	9:00	9:00	9:00	9:00	9:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	882	827	821	851	848	846
Vehs Exited	873	825	824	842	848	843
Starting Vehs	10	18	15	15	20	13
Ending Vehs	19	20	12	24	20	15
Travel Distance (mi)	500	476	478	492	492	487
Travel Time (hr)	17.7	16.6	16.7	17.1	17.2	17.1
Total Delay (hr)	1.7	1.4	1.4	1.5	1.6	1.5
Total Stops	449	417	412	445	423	430
Fuel Used (gal)	15.9	15.3	15.2	15.6	15.6	15.5

Interval #0 Information Seeding

Start Time	7:55
End Time	8:00
Total Time (min)	5

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	8:00
End Time	9:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	3	4	5	6	7	Avg
Vehs Entered	882	827	821	851	848	846
Vehs Exited	873	825	824	842	848	843
Starting Vehs	10	18	15	15	20	13
Ending Vehs	19	20	12	24	20	15
Travel Distance (mi)	500	476	478	492	492	487
Travel Time (hr)	17.7	16.6	16.7	17.1	17.2	17.1
Total Delay (hr)	1.7	1.4	1.4	1.5	1.6	1.5
Total Stops	449	417	412	445	423	430
Fuel Used (gal)	15.9	15.3	15.2	15.6	15.6	15.5

2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD Performance by movement

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.1
Total Del/Veh (s)	4.4	4.5	2.3	3.7	4.9	3.0	0.7	0.2	0.1	0.6	0.5	1.4

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2
Total Del/Veh (s)	10.1	13.2	6.0	9.6	10.9	4.4	3.2	1.1	0.5	2.9	1.8	0.8

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	4.8

10: BLACKSTRAP RD & SITE ENTRANCE Performance by movement

Movement	NWR	NET	SWL	SWT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0	0.0
Total Del/Veh (s)	3.0	0.6	1.2	0.1	0.8

13: UPPER METHODIST RD & SITE ENTRANCE Performance by movement

Movement	SEL	SET	NWT	SWR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	1.8	0.6	0.0	2.4	1.2

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	6.2

Intersection: 2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD

Movement	SE	NW
Directions Served	LTR	LTR
Maximum Queue (ft)	39	30
Average Queue (ft)	21	10
95th Queue (ft)	44	33
Link Distance (ft)	1184	890
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 7: GRAY RD & BLACKSTRAP RD/SKILLIN RD

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	119	80	47	60
Average Queue (ft)	56	42	6	10
95th Queue (ft)	94	68	29	38
Link Distance (ft)	1801	977	1293	1085
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: BLACKSTRAP RD & SITE ENTRANCE

Movement	NW	SW
Directions Served	LR	LT
Maximum Queue (ft)	43	23
Average Queue (ft)	21	1
95th Queue (ft)	47	10
Link Distance (ft)	669	500
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: UPPER METHODIST RD & SITE ENTRANCE

Movement	SW
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	6
95th Queue (ft)	25
Link Distance (ft)	327
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	3	4	6	7	Avg
Start Time	3:55	3:55	3:55	3:55	3:55	3:55
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	853	848	836	863	854	851
Vehs Exited	840	858	830	861	846	847
Starting Vehs	10	19	10	13	17	12
Ending Vehs	23	9	16	15	25	14
Travel Distance (mi)	536	540	524	546	514	532
Travel Time (hr)	17.9	18.3	17.7	18.5	17.5	18.0
Total Delay (hr)	1.2	1.4	1.3	1.3	1.3	1.3
Total Stops	320	331	319	358	283	322
Fuel Used (gal)	16.6	16.8	16.1	17.0	15.8	16.4

Interval #0 Information Seeding

Start Time	3:55
End Time	4:00
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	3	4	6	7	Avg
Vehs Entered	853	848	836	863	854	851
Vehs Exited	840	858	830	861	846	847
Starting Vehs	10	19	10	13	17	12
Ending Vehs	23	9	16	15	25	14
Travel Distance (mi)	536	540	524	546	514	532
Travel Time (hr)	17.9	18.3	17.7	18.5	17.5	18.0
Total Delay (hr)	1.2	1.4	1.3	1.3	1.3	1.3
Total Stops	320	331	319	358	283	322
Fuel Used (gal)	16.6	16.8	16.1	17.0	15.8	16.4

2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD Performance by movement

Movement	SEL	SET	SER	NWR	NEL	NET	NER	SWL	SWT	SWR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1
Total Del/Veh (s)	4.9	5.0	3.0	3.0	1.4	0.4	0.1	1.9	1.0	0.4	1.3

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.2	0.1	0.3	0.3	0.3	0.2	0.2	0.2
Total Del/Veh (s)	9.1	8.5	4.0	10.5	11.1	5.3	3.0	1.7	0.9	3.5	1.3	0.9

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	3.9

10: BLACKSTRAP RD & SITE ENTRANCE Performance by movement

Movement	NET	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0
Total Del/Veh (s)	0.7	0.3	0.5

13: UPPER METHODIST RD & SITE ENTRANCE Performance by movement

Movement	SET	NWT	All
Denied Del/Veh (s)	0.0	0.1	0.1
Total Del/Veh (s)	0.4	0.0	0.2

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	5.2

Intersection: 2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD

Movement	SE	NW	NE	SW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	50	30	25	40
Average Queue (ft)	22	12	2	2
95th Queue (ft)	46	36	13	19
Link Distance (ft)	1184	890	636	1069
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: GRAY RD & BLACKSTRAP RD/SKILLIN RD

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	85	84	62	52
Average Queue (ft)	42	39	9	13
95th Queue (ft)	69	65	36	41
Link Distance (ft)	1801	977	1293	1085
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: BLACKSTRAP RD & SITE ENTRANCE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 13: UPPER METHODIST RD & SITE ENTRANCE

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	1	3	4	6	7	Avg
Start Time	3:55	3:55	3:55	3:55	3:55	3:55
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	65	65	65	65	65	65
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	874	925	910	912	913	907
Vehs Exited	883	927	913	902	902	905
Starting Vehs	17	20	16	11	11	12
Ending Vehs	8	18	13	21	22	18
Travel Distance (mi)	549	573	564	572	560	564
Travel Time (hr)	18.7	19.7	19.5	19.6	19.3	19.4
Total Delay (hr)	1.4	1.6	1.4	1.5	1.4	1.5
Total Stops	349	400	341	385	347	363
Fuel Used (gal)	17.5	17.9	17.7	18.1	17.4	17.7

Interval #0 Information Seeding

Start Time	3:55
End Time	4:00
Total Time (min)	5

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:00
End Time	5:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	3	4	6	7	Avg
Vehs Entered	874	925	910	912	913	907
Vehs Exited	883	927	913	902	902	905
Starting Vehs	17	20	16	11	11	12
Ending Vehs	8	18	13	21	22	18
Travel Distance (mi)	549	573	564	572	560	564
Travel Time (hr)	18.7	19.7	19.5	19.6	19.3	19.4
Total Delay (hr)	1.4	1.6	1.4	1.5	1.4	1.5
Total Stops	349	400	341	385	347	363
Fuel Used (gal)	17.5	17.9	17.7	18.1	17.4	17.7

2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD Performance by movement

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Denied Del/Veh (s)	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.0	0.0
Total Del/Veh (s)	5.2	8.7	2.8	6.1	5.2	3.6	1.6	0.4	0.3	1.9	1.4	0.5

2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	1.5

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2
Total Del/Veh (s)	8.8	10.2	4.8	9.6	11.5	5.2	3.1	2.1	0.9	3.3	1.1	0.7

7: GRAY RD & BLACKSTRAP RD/SKILLIN RD Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	4.1

10: BLACKSTRAP RD & SITE ENTRANCE Performance by movement

Movement	NWR	NET	SWL	SWT	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1	0.0
Total Del/Veh (s)	2.6	0.7	1.9	0.6	0.8

13: UPPER METHODIST RD & SITE ENTRANCE Performance by movement

Movement	SEL	SET	NWT	SWR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	1.7	0.4	0.0	2.4	0.9

Total Network Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	5.5

Intersection: 2: BLACKSTRAP RD & UPPER METHODIST RD/GOOSE POND RD

Movement	SE	NW	NE	SW
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	39	25	32
Average Queue (ft)	23	12	2	3
95th Queue (ft)	48	38	14	18
Link Distance (ft)	1184	890	636	1069
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 7: GRAY RD & BLACKSTRAP RD/SKILLIN RD

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	86	78	71	56
Average Queue (ft)	44	38	13	10
95th Queue (ft)	72	64	44	38
Link Distance (ft)	1801	977	1293	1085
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: BLACKSTRAP RD & SITE ENTRANCE

Movement	NW	SW
Directions Served	LR	LT
Maximum Queue (ft)	31	62
Average Queue (ft)	16	5
95th Queue (ft)	40	29
Link Distance (ft)	669	500
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: UPPER METHODIST RD & SITE ENTRANCE

Movement	SW
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	4
95th Queue (ft)	20
Link Distance (ft)	327
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Section 5F
Sewage Disposal

The proposed homes are proposed to be served by individual subsurface wastewater disposal (SSWD) systems. The report titled *Hydrogeologic Evaluation and Preliminary Site Evaluation for Proposed Mineral Spring Subdivision, 77 Blackstrap Road, Cumberland, Maine,* dated December 2023 (Report) describes the proposed wastewater disposal for the site in detail and is included in Section 5L of this application. A brief summary of the proposed wastewater disposal plan for the site and preliminary site evaluation is provided below.

The site is proposed to be developed as 72 single-family, three-bedroom homes located on common land on one property parcel. Each home is proposed to be served by individual SSWD systems, and the site is proposed to be served by public water through an extension of the Portland Water District (PWD) water supply system. The development meets the requirements of the Maine Minimum Lot Size Rules.[1] The Individual septic systems will be designed by a Maine Licensed Site Evaluator.

Sevee and Maher Engineers (SME) completed a preliminary soil evaluation for proposed development in July through September 2023. The site has been developed as a gravel pit since at least the early 20th century. The remaining natural soils at the site generally consist of coarse-grained deposits that formed as a marine ice-contact delta. The current development of the site results in multiple areas that will require reclamation using soils comparable to the coarse-grained natural soils observed at the site.
These areas are discussed in detail in the report. The proposed reclamation includes:

- The addition of coarse-grained soils above natural soils in select areas to restore previously existing soil conditions that meet the criteria established in the Maine SSWD Rules; and/or
- The replacement of unsuitable fill soils (e.g., firm clay fill, organic material fill, etc.) with coarse- grained soils in select areas to restore previously existing soil conditions that meet the criteria established in the Maine SSWD Rules.[2]

The proposed site conditions following reclamation/restoration of the gravel pit are proposed to be recognized with respect to compliance with the Maine Subsurface Wastewater Rules.

A three-dimensional numerical groundwater model (MODFLOW) was developed to simulate groundwater flow conditions across the site and post-development nitrate concentrations. Based on the configuration of the proposed SSWD field locations, along

with the assumptions and calculations described in this report, there will be no adverse increase in nitrate concentrations (i.e., greater than or equal to 10 mg/L) in groundwater outside of the project boundaries.

[1] 10-144 CMR Chapter 243. Minimum Lot Size Rules. Department of Health & Human Services, Maine Center for Disease Control & Prevention, Division of Environmental Health. Effective Date: August 1, 2005.

[2] 10-144 Code of Maine Rules, Chapter 241, State of Maine Subsurface Wastewater Disposal Rules. Department of Health and Human Services, Maine Center for Disease Control & Prevention, Division of Environmental Health. Last Amended: September 23, 2023.

Section 5G
Municipal Solid Waste

Household waste and recycling generated by the homeowners of the development will be collected curbside by the commercial waste company contracted by the Town of Cumberland for municipal collection.

Section 5H
Aesthetic, Cultural and Natural Values

We do not believe the proposed subdivision will not have an undo 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. We have reached out to the following agencies to research their databases for evidence of any of the above:

1. Maine Historic Preservation Commission (MHPC) – The MHCP has determined that no historic properties (archaeological or architectural) will be affected by this project. A copy of the MHCP review letter is attached as part of this section.

2. Maine Inland Fisheries and Wildlife (MIF&W) – The MIF & W has not mapped any essential habitats or fisheries that will be directly impacted by this project.

3. Maine Natural Areas Program (MNAP) – The MNAP has determined that there are no rare and exemplary botanical features documented specifically within the project area. A copy of their review letter is included with this section.

SME
SEVEE & MAHER
ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 • Fax: 207.829.5692
info@sme-engineers.com
sme-engineers.com

June 26, 2023

RECEIVED
JUN 28 2023
By 0953-23

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

Subject: Blackstrap Road Subdivision
77 Blackstrap Road, Cumberland, Maine

Dear Mr. Mohney:

Presumpscot River LLC is seeking approval for construction of a subdivsion in Cumberland, Maine under a Maine Department of Environmental Protection (MEDEP) Site Location of Development (SLODA) permit. We are requesting a review by the Maine Historic Preservation Commission to support the SLODA application.

PROJECT DESCRIPTION

Presumpscot River LLC is proposing a 41-acre subdivision on an active gravel pit off Blackstrap Road in Cumberland, Maine. Sevee & Maher Engineers, Inc. (SME) understands the intention is to develop the existing gravel pit for development of approximately 70 residentail structures to provide housing for the local community.

The site is bound to the east by Maine Turnpike I-95, to the west by the Methodist Cemetary and West Cumberland United Methodist Church. Addtionally, the parcel is bound by Blackstrap Road to the north and Upper Methodist Road to the South.

HISTORICAL FINDINGS

A search of the National Register of Historic Places online maps identified two National Historic Sites in Cumberland and no National Historic Districts. Both sites are located more than three miles from the parcel in question. The address of the Sites are listed below.

National Historic Sites:

1. Winn Road School, 37 Winn Rd.
2. Merrill, Capt. Reuel and Lucy, House, 66 Cross Rd.

In addition to searching the National Register of Historic Places, records of neighboring properties were searched for any buildings over fifty (50) years old. Twenty-four findings from said search are listed below.

1. 53 Blackstrap Road (1880)
2. 60 blackstrap Road (1930)
3. 62 Blackstrap Road (1950)

SME
SEVEE & MAHER
ENGINEERS

4. 68 Blackstrap Road (1960)
5. 77 Blackstrap Road (1945)
6. 74 Blackstrap Road (1920)
7. 72 Blackstrap Road (1942)
8. 70 Blackstrap Road (1965)
9. 5 Upper Methodist Road (1971)
10. 17 Upper Methodist Road (1945)
11. 19 Upper Methodist Road (1920)
12. 21 Upper Methodist Road (1925)
13. 27 Upper Methodist Road (1950)
14. 31 Upper Methodist Road (1945)
15. 37 Upper Methodist Road (1945)
16. 41 Upper Methodist Road (1935)
17. 47 Upper Methodist Road (1930)
18. 51 Upper Methodist Road (1950)
19. 55 Upper Methodist Road (1950)
20. 59 Upper Methodist Road (1950)
21. 63 Upper Methodist Road (1972)
22. 67 Upper Methodist Road (1972)
23. 75 Upper Methodist Road (1972)
24. 79 Upper Methodist Road (1970)

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohney — 7/17/23

Kirk F. Mohney, **Date**
State Historic Preservation Officer
Maine Historic Preservation Commission

MHPC # 0953-23

Please feel free to contact me at 207.829.5016 or brandon.binette@smemaine.com if you have any questions or need additional information.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

Brandon Binette

Brandon Binette
Civil Engineer

Attachments: Figure 1-Site Location Map
Concept Road and Grading Plan
National Register of Historic Places Inventory – Nomination Forms

JANET T. MILLS
GOVERNOR

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

JUDITH CAMUSO
COMMISSIONER

July 28, 2023

Brandon Binette
Sevee & Maher Engineers
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021

RE: Information Request – 77 Blackstrap Road, Cumberland Project

Dear Brandon:

Per your request received on June 27, 2023, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *77 Blackstrap Road, Cumberland* project. For purposes of this review, we are assuming tree clearing will be part of your project.

Our Department has not mapped any Essential Habitats that would be directly affected by your project. Essential Habitats are areas formally designated as essential to the conservation of a State Endangered or Threatened species and are protected pursuant to the Maine Endangered Species Act (MESA, 12 M.R.S, §12804.2). Currently, Essential Habitats are only designated for three State Endangered coastal breeding bird species.

Endangered, Threatened, and Special Concern Species

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

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of Significant Vernal Pools (SVPs) in the project search area. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. SVPs are not included on MDIFW maps until project areas have been surveyed using approved methods and the survey results confirmed. Thus, their absence from resource maps is not necessarily indicative of an absence on the ground. Therefore, we recommend that surveys for vernal pools be conducted within the project

boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

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

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

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

Best regards,

Emily Robinson

Emily Robinson
Wildlife Biologist

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

June 27, 2023

Brandon Binette
Sevee & Maher Engineers
PO Box 85A
Cumberland, ME 04021

Via email: brandon.binette@smemaine.com

Re: Rare and exemplary botanical features in proximity to: Blackstrap Road Subdivision, 77 Blackstrap Road, Cumberland, Maine

Dear Brandon Binette:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received June 26, 2023 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Cumberland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
BLOSSOM LANE, DEERING BUILDING

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Section 5I
Conformity with Local Ordinances and Plans

The project is located in the Town's Industrial Zone which does not allow residential use. However, the Industrial Zone has an overlay district called the West Cumberland Housing Overlay District under which the proposed project has been designed. The purpose of the West Cumberland Housing Overlay District as stated in the ordinance is to allow residential uses with greater density in order to create additional housing opportunities within the existing Rural and Industrial Districts. The ordinance goes on to state "These regulations are intended to encourage the development of affordable housing units by assisting developers in making the provisions of these units economically viable, while providing assurances to the Town that these units will maintain a high degree of quality and will remain affordable to the target population over a reasonable duration of time". An agreement has been prepared between the developer/applicant and the Town of Cumberland laying out the terms and conditions under which the affordable housing units will be constructed, sold and purchased. This agreement is included in Section 7 of this submission.

The zoning Standards for the West Cumberland Overlay District are:
Single-family detached dwellings are a permitted use

Front Setback = 25 ft. Front Setbacks are shown on the proposed plans along Blackstrap Road, Upper Methodist Road and along the proposed subdivision street.

Rear Setback = 50 ft. The proposed plans show the rear setback along the parcel's rear property line along the Maine Turnpike.

Side Setback = 10 ft. with a combined width of 25 ft. The proposed plans show side setbacks along the parcel boundary lines that are neither designated as front or rear property lines.

Minimum Lot Size = 20,000 s.f. is required for each single family dwelling unit. Please see the Net Residential Density calculation on the subdivision plan showing that the parcel has enough area to support 73 units (72 units are proposed).

Lot Frontage = No less than 100 ft. The parcel has approximately 1,563 ft. on Upper Methodist Road, approximately 866 ft. on Blackstrap Road and when combined with the frontage from the proposed roads which is 5,444 ft. there is a total of 7,873 ft. of frontage. 7,200 ft. is required.

Public Water = The project will be served with public water. The Town of Cumberland is working with Gorrill Palmer Consulting Engineers, Inc. and the Portland Water District to extend a 16 inch dia. water main along Blackstrap Road from Route 100 to the proposed development site.

Open Space = 10% of the total area is required to be in open space. Ten percent for this site is 4.1 acres. The project proposes to have approximately 25 acres (65%) of the development in open space. The open space will consist of both active play areas and passive recreation areas. Active areas consist of a basketball court, swing set area and multi-purpose lawn area. Passive recreation elements consist of a trail system with approximately 4,455 feet of walking paths, and a 1.75 acre pond. The open space will be vegetated in three different ways. Lawn areas which are meant for resident play and "hanging out", limited maintenance areas which are located adjacent to the private "reserved common element" boundaries and are to be treated as more of a meadow/field and will be mowed a couple times a year, and then areas outside that which will be seeded and allowed to naturalize with trees and shrubs.

Buffering = A 50 ft. wide buffer is required to be established between the residential development and abutting tracts or parcels of land that include nonresidential uses. The proposed plans show a 50 ft. buffer between development and the Maine Turnpike and the Cemetery at the corner of Blackstrap and Upper Methodist Roads.

Net Residential Density = The overlay zone requires 20,000 s.f. for each home. The net residential density calculation showing the deductions and units allowed is on the Subdivision Plan. The calculation shows that 73 units are allowed with 72 units proposed. Fifty percent or 36 of those 72 units will be affordable.

Section 5J
Financial Capacity & Technical Capacity

Financial Capacity:
B.R. Property, LLC (David Chase) owns the land outright and estimates that the proposed infrastructure including; roadways, utilities, stormwater management, erosion control measures and landscaping for the proposed project will cost approximately $2,500,000.

The Applicant intends to self-finance the project. A letter from Gorham Savings Bank attesting to their relationship and the Applicants ability to finance the project is included as part of this section.

Technical Capacity:
The applicant has retained the services of the following professionals to assist with this project.

Owner & Applicant
B.R. Property, LLC.
39 Nubbin Reach
Yarmouth, Maine 04096
Contact: David Chase

David Chase the Applicant/Owner has developed many successful projects in the southern Maine area over the past 40 years with a number of larger projects happening in the past 10 years. Mr. Chase has developed projects both as a site work excavation contractor and as a developer/builder.

Site Planning, Landscape Architecture & Local Permitting
Land Design Solutions
1 Faraday Drive, Suite 7
Cumberland, Maine 04021
Contact: Peter Biegel, RLA, LEED AP

Peter Biegel is a Maine Licensed Landscape Architect who has been working with clients on site planning and land planning projects in the Southern Maine area for the past twenty four years. A number of these projects have been had similar components to the proposed project i.e. residential, condominium with open space.

Civil Engineering, Hydrogeology & State Permitting
Sevee & Maher Engineers, Inc.
4 Blanchard Road
Cumberland, Maine 04021
Contact: Daniel Diffin, P.E. LEED AP

Contact: Andrew Gobeil, L.G, L.S.E.

Daniel Diffin is a Maine Licensed Civil Engineer with over 16 years experience on a wide variety of civil engineering design and permitting projects of all different sizes. Mr. Diffin has worked on many similar projects in the Southern Maine Area.

Andrew Gobeil is a Senior Hydrogeologist and has been performing hydrogeologic investigations and designing septic systems for many years.

Surveying
BH2M
380B Main Street
Gorham, Maine 04038
Contact: Robert Libby, PLS

Bob Libby is the surveyor of record. Mr. Libby has been with BH2M since 1985 performing survey work, preparing parcel descriptions and laying out construction sites in Southern Maine for many years.

Wetland and Vernal Pool Investigation
Mark Hampton Associates
P.O. Box 1931
Portland, Maine 04104
Contact: Mark Hampton, C.S.S., L.S.E.

Mark Hampton has been delineating wetlands and investigating vernal pools in the Southern Maine area for many years. Mark is well versed in the local, state and federal wetland regulations.

Legal (Homeowners Association Documents)
Drummond & Drummond, LLP.
One Monument Way
Portland, Maine 04101
Contact: William Barns

Gorham Savings Bank

November 14, 2023

Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333

Re: Proposed Residential Subdivision – Mineral Springs
77 Blackstrap Road, Cumberland, Maine
David Chase dba Mineral Springs, LLC

To Whom It May Concern:

We have known and had a banking relationship with David Chase and his various businesses for over 20 years. Based upon our experience with Mr. Chase and the status of his accounts here at Gorham Savings Bank, I can confirm he has the financial capacity to successfully finance and manage the proposed residential subdivision known as Mineral Springs at 77 Blackstrap Road in Cumberland, Maine.

I understand the cost of infrastructure has been estimated at approximately $2,500,000.

I look forward to working with Mr. Chase and his team on this project.

Please let me know if I can be of further assistance. If you have any questions, please email me at lharris@gorhamsavings.bank or call me at (207) 222-1484.

Sincerely,

Lindsay Harris
Vice President – Commercial Banking

Section 5K
Surface Waters

The project site does not have frontage nor is it located on a river segment, brook or great pond. The on-site soils were identified using the Natural Resources Conservation Service (NRCS) soil information for Cumberland County, Maine. A copy of the custom Soil Resource Report is included in the Stormwater Section.

The ground surface is generally flat gravel with the entire site draining to a singular area along the southern boundary of the site. The site generally slopes from north to south. Existing drainage patterns will be maintained to the greatest extent possible. Receiving waters for this project include roadside ditching along the Maine Turnpike I-95, which eventually drains to tributaries to Hobbs Brook watershed.

A wetland delineation was done by Mark Hampton Associates in September 2023 and a wetland report prepared. The wetlands found on site are not jurisdictional wetlands to either the State or Federal agencies. The wetlands found were constructed as sediment control structures by the gravel pit owners and since they are man-made, they are not jurisdictional and can be filled in. The wetland report is included in Section 5O Freshwater Wetlands.

Section 5L
Groundwater

We do not anticipate that the proposed development will adversely impact the quality or quantity of groundwater. A Hydrogeologic Investigation was done for the project by Sevee & Maher Engineers. A report of the findings titled Hydrogeologic Evaluation and Preliminary Site Evaluation for Proposed Mineral Springs Subdivision is included with this section.

Groundwater Quality:

The proposed development will be served by private subsurface wastewater disposal fields. A hydrogeologic evaluation has been done for the site and determined that site can support the proposed subsurface wastewater disposal systems with respect to groundwater transmissivity. The report concludes that the proposed disposal fields will not have an adverse impact on groundwater quality beyond the project property boundaries or at existing off-site water supply wells.

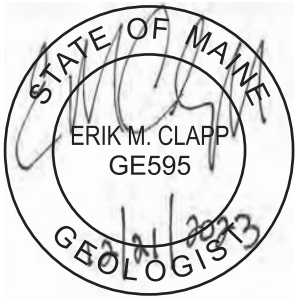
Groundwater Quantity:

The proposed development will be served by the municipal water supply from the Portland Water District, it will not be served by wells withdrawing groundwater from the project site.

HYDROGEOLOGIC EVALUATION AND PRELIMINARY SITE EVALUATION FOR PROPOSED MINERAL SPRING SUBDIVISION 77 BLACKSTRAP ROAD, CUMBERLAND, MAINE

Prepared for

BR PROPERTY, LLC
39 NUBBIN REACH
YARMOUTH, MAINE



December 2023

4 Blanchard Road
P.O. Box 85A
Cumberland, Maine 04021
Phone: 207.829.5016 smemaine.com

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

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HYDROGEOLOGIC EVALUATION
AND PRELIMINARY SITE EVALUATION FOR
PROPOSED MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD, CUMBERLAND, MAINE

1.0 INTRODUCTION

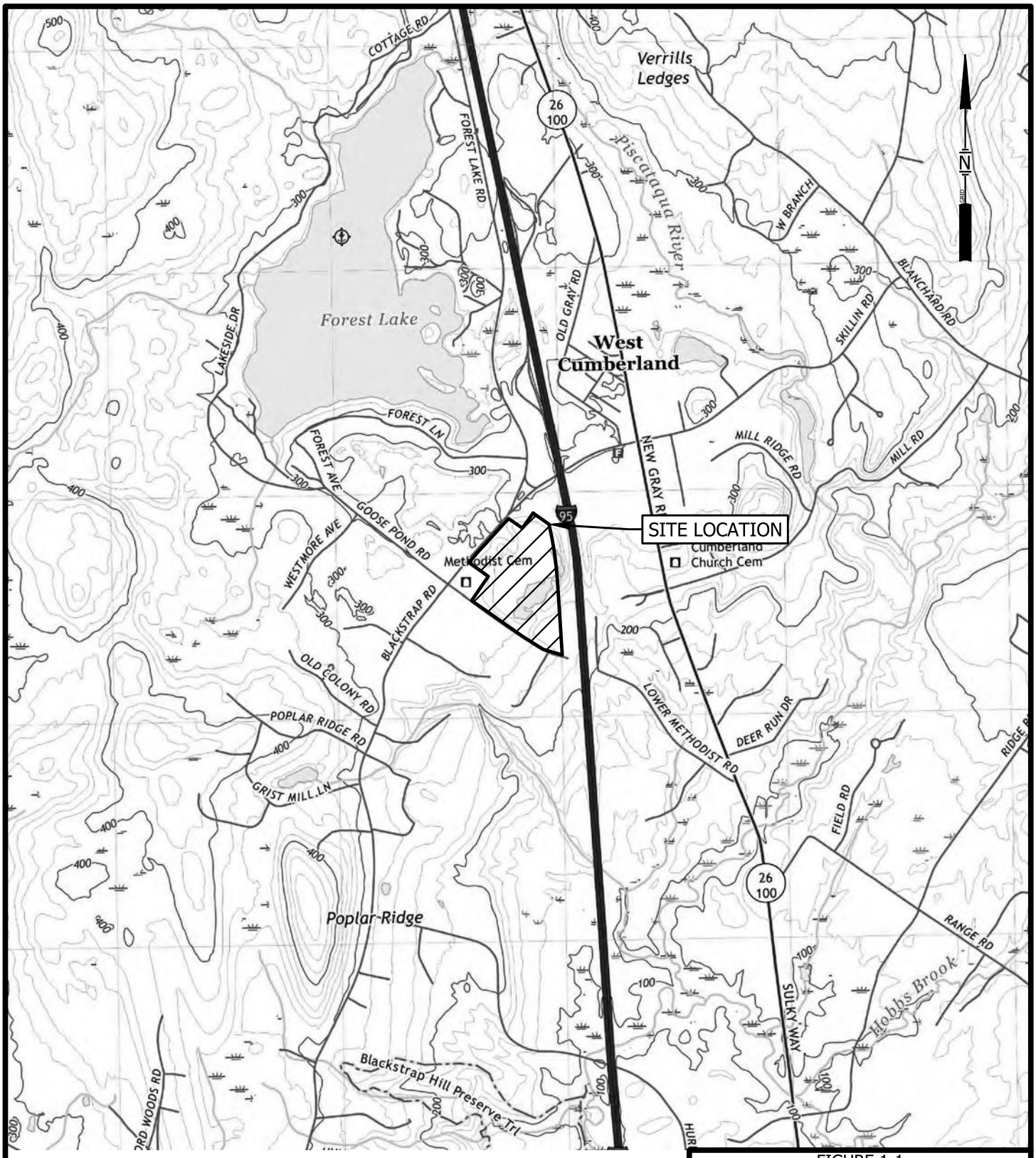
BR Property, LLC proposes to develop the property at 77 Blackstrap Road in Cumberland, Maine as the proposed Mineral Springs Subdivision (hereinafter called the Site). The Site Location Map is provided as Figure 1-1. Sevee & Maher Engineers, Inc (SME) of Cumberland, Maine is the civil engineer for the project and Land Design Solutions of Cumberland, Maine is providing architectural landscaping and project coordination services for the project. SME is also providing the services for preliminary site evaluation for subsurface wastewater disposal (SSWD) design and hydrogeologic evaluations. This report includes the preliminary site evaluation services for SSWD design and the hydrogeologic evaluation.

The Site is proposed to be developed as 72 three-bedroom, single-family homes located on common land on one property parcel. Each home is proposed to be served by individual SSWD systems and the Site is proposed to be served by an extension of the Portland Water District (PWD) water supply utility system. The Site and its proposed development project are further described in Section 2.0. The proposed SSWD system design flows and SSWD field areas are described in Section 3.0.

A preliminary site evaluation was completed by an SME Maine Licensed Site Evaluator between July and September 2023. The Site has been developed as a gravel pit since at least the early 20th century. The remaining natural soils at the Site generally consist of coarse-grained deposits that formed as a marine ice-contact delta. The current development of the Site results in multiple areas that will require reclamation using soils comparable to the coarse-grained natural soils observed at the Site. The proposed reclamation includes:

- The addition of coarse-grained soils above natural soils in select areas to restore previously existing soil conditions that meet the criteria established in the Maine SSWD Rules; and/or
- The replacement of unsuitable fill soils (e.g., firm clay fill, organic material fill, etc.) with coarse-grained soils in select areas to restore previously existing soil conditions that meet the criteria established in the Maine SSWD Rules.[1]

[1] 10-144 Code of Maine Rules, Chapter 241, State of Maine Subsurface Wastewater Disposal Rules. Department of Health and Human Services, Maine Center for Disease Control & Prevention, Division of Environmental Health. Last Amended: September 23, 2023.



BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
CUMBERLAND CENTER, ME - 2021

FIGURE 1-1
SITE LOCATION MAP
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

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DWG: FIGURES LMN: LMN CTB: SME-STD REV: 11/7/2023

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Figures\FIGURES.dwg, FIG 1-1 - SITELOC, 11/28/2023 1:30:17 PM, jrl

Section 4.0 provides descriptions of the results of the soil observations from the preliminary site evaluation and includes plans to provide logs for soil test pits observed by a Maine Licensed Site Evaluator following proposed reclamation of the subject areas identified in this report. Section 4.0 also describes the Site hydrogeology. Additional information regarding the preliminary site evaluation (e.g., required setbacks from proposed SSWD fields and septic tanks) are described in Section 5.0.

A three-dimensional MODFLOW numerical groundwater model (MODFLOW Model) was developed for the Site to evaluate the groundwater transmission and water quality impacts related to the proposed Site development. The development of the MODFLOW Model and the modeling results are described in Section 6.0. The Site can support the proposed SSWD systems with respect to groundwater transmissivity. The proposed SSWD fields will not have an adverse impact on groundwater quality beyond the project property boundaries or at existing off-site water supply wells.

The information presented in this report was prepared in accordance with the State of Maine SSWD Rules and the rules pertaining to the State of Maine Department of Environmental Protection (MEDEP) Site Location of Development Permit Application (SLODA).[2]

[2] 38 M.R.S.A. §§ 481-490. State of Maine Department of Environmental Protection Site Location of Development Permit Application. Bureau of Land and Water Quality. Revised: October 2015.

2.0 SITE AND PROJECT DESCRIPTIONS

2.1 Site Description

The Site is located on an approximately 40.9-acre parcel that has been developed as a gravel pit since at least the early 20th century. BR Property, LLC has owned and operated the gravel pit since 2009. The Site is currently zoned as Industrial on the Official Zoning Map of Cumberland, Maine, last amended November 8, 2021.

A recent aerial photograph of the Site is provided on the Existing Conditions Plan, which is provided as Figure 2-1. The Existing Conditions Plan illustrates the project boundaries and recent topographic conditions[3] and shows that the majority of the Site area has been utilized historically during sand and gravel extraction activities. There are a series of contiguous office/garage-style structures located at the north portion of the parcel that total approximately 6,332 square feet in area. Groundwater is currently supplied to the office by a dug well.

The Site is bordered to the east by the Maine Turnpike (i.e., Interstate 95). Northwest of the Site, along Blackstrap Road, are residences, a recreation hall, and access to another gravel pit (owned by others). The West Cumberland Community Cemetery abuts the west corner of the property on the corner of Blackstrap Road and Upper Methodist Road. The West Cumberland United Methodist Church is across Upper Methodist Road from the Cemetery. There are residences southwest of the property along Upper Methodist Road.

There are no Public Water System (PWS) wells mapped close to the Site by the Maine Department of Health and Human Services (MEDHHS) Drinking Water Program. The nearest PWS is located more than 2 miles north of the Site.

Based on review of historical aerial photographs and discussions with BR Property, LLC, the Site gravel pit is understood to be internally drained. Much of the floor of the gravel pit appears to have developed a limited infiltration capacity over time due to Site activity. A network of precipitation runoff diversion trenches currently exist at the Site (see Figure 2-1). The stormwater runoff network includes an area that was historically used as a tailings pond.

[3] Topography within the work area from SME topographic survey dated April 3, 2023. Topography outside the work area from Maine GIS data catalog, based of LiDAR information collected and updated in 2019 and BH2M topographic survey dated September 28, 2023.

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, FIG 2-1 EXCON, 12/7/2023 1:20:59 PM, jrl

As shown on the United States Geological Survey (USGS) topographic map used for the Site location map (see Figure 1-1), a portion of the interior of the parcel is shown as a water body; however, this mapped feature is not consistent with the current Site conditions. As will be discussed in greater detail in Section 5.2, the proposed Site conditions following reclamation of the gravel pit are proposed to be recognized in favor of the location of the current USGS-mapped water body at the Site with respect to setback rules required by the Maine SSWD Rules. Additionally, the Site reclamation will incorporate a stormwater management system design that will improve current Site stormwater conditions with respect to proposed SSWD systems conforming to the setback rules required by the Maine SSWD Rules.

There are instances of areas of the Site that will require reclamation based both on: (1) current depth to seasonal high groundwater; and (2) existing fill materials that have been placed in portions of the Site that do not conform with suitable conditions for SSWD systems. These instances are further discussed in Sections 4.1 and 5.2.

2.2 Project Description

The Site is proposed for a residential development project that will have 72 single-family, three-bedroom homes. The Proposed Development Layout Plan is included as Figure 2-2. The Site is proposed to be served by a proposed extension of the PWD water supply utility, which currently terminates east of Interstate 95 along Blackstrap Road. The Town of Cumberland and the Portland Water District will extend the water supply utility in 2024. BR Property, LLC has coordinated with the PWD to connect the Site to this extension. The 72 single-family, three-bedroom homes are proposed to be served by individual SSWD systems. The homes are identified numerically as Home 1 through 72 and the identifications correlate numerically with test pit and disposal field identifications.

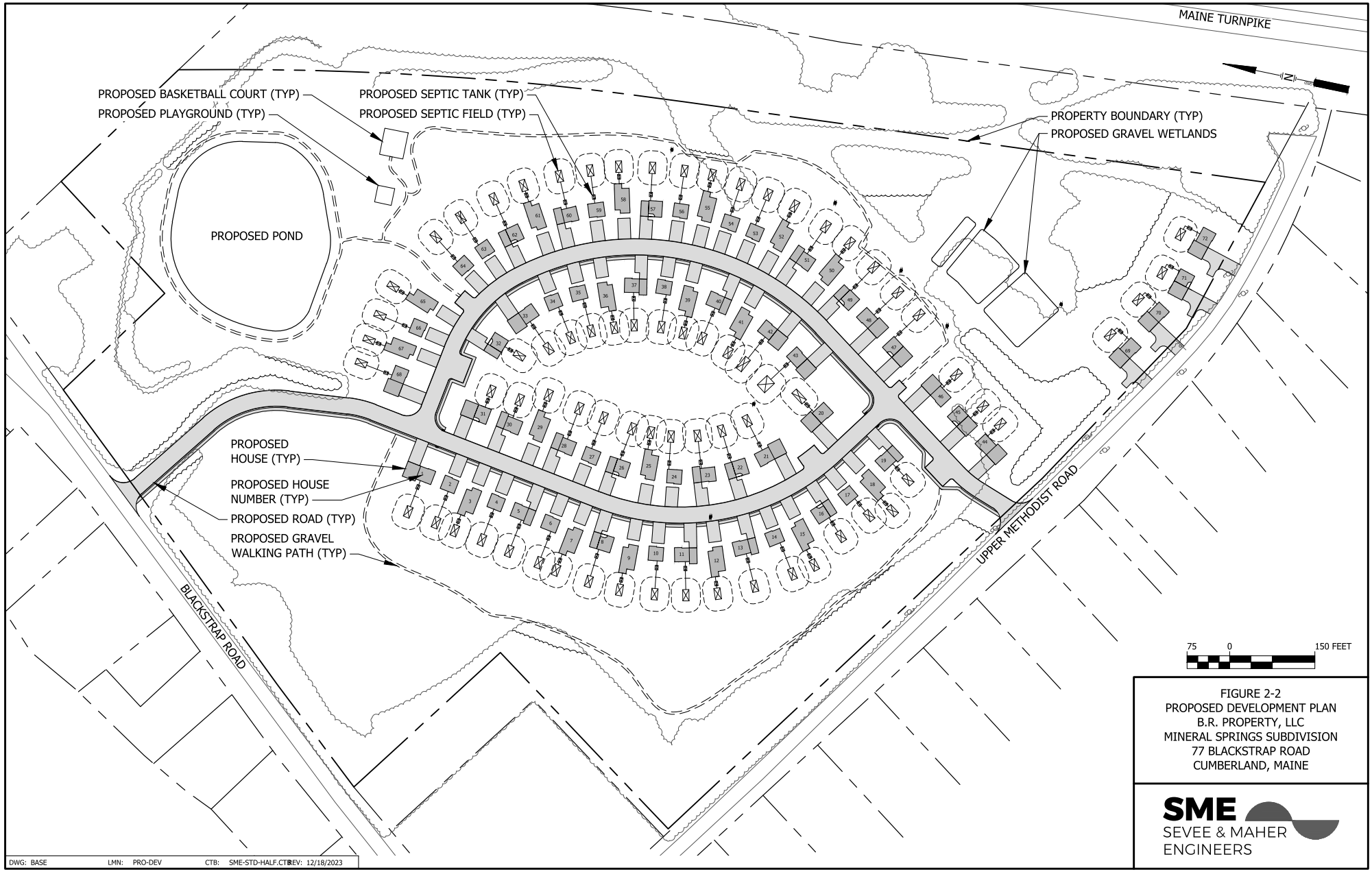

FIGURE 2-2
PROPOSED DEVELOPMENT PLAN
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

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DWG: BASE LMN: PRO-DEV CTB: SME-STD-HALF.CTB REV: 12/18/2023

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, FIG 2-2 PROPOSED DEV., 12/18/2023 8:33:29 AM, jrl

3.0 DESIGN FLOWS AND DISPOSAL FIELD AREAS

The 72 proposed single-family, three-bedroom homes are proposed to be served by individual 1,000-gallon septic tanks and SSWD fields. The design flow for each three-bedroom home is 270 gallons per day (gpd) based on Table 4A, Design Flows for Single Family Dwelling Units, in the Maine SSWD Rules. The sum of design flows for the Site is 19,440 gpd.

Although single-family homes are proposed for this project, the development is proposed to be constructed on a common parcel. For this reason, guidance was provided during a March 2, 2023 meeting with MEDEP and the MEDHHS Subsurface Wastewater Unit to use Section 1001.1.2.1 (Minimum Lot Size and Frontage Requirements, Other Land Use Activities) of the Maine Minimum Lot Size Rules to determine the suitability of the parcel size for its proposed development.[4] This section states that "land uses that generate wastewater shall require a lot containing at least 20,000 square feet and 100 feet of frontage[5] for every 300 gallons per day of wastewater generated by the use". Additionally, Section 1001.1.2.1 (Multiple Unit Housing) instructs that "For multiple unit housing, calculate the daily wastewater flows based on 120 gallons per bedroom per day." The total proposed daily wastewater flow for the development, based on the Minimum Lot Size Rules, is 25,920 gpd. Thus, this project requires 1,728,800 square feet (39.7 acres) of land, which is met by the 40.9 acres of land available for the project.

The proposed development layout (see Figure 2-2) shows the proposed locations of the individual 1,000-gallon septic tanks and SSWD fields. Disposal field types are anticipated to be Eljen In-Drain® disposal fields. Most disposal fields are anticipated to have an area of 20 feet long by 11 feet wide.

[4] 10-144 CMR Chapter 243. Minimum Lot Size Rules. Department of Health & Human Services, Maine Center for Disease Control & Prevention, Division of Environmental Health. Effective Date: August 1, 2005.

[5] "Frontage" is interpreted by MEDHHS to be frontage of a surface water body (as opposed to road frontage) for the purposes of the Minimum Lot Size Rules based on email correspondence between SME and MEDHHS on February 22, 2023.

4.0 SITE SOILS, GEOLOGY, AND HYDROGEOLOGY

4.1 Site Geology and Soil Profile Descriptions

The locations proposed for the SSWD fields for the Site are shown on Figure 2-2. Soils surrounding and including a portion of the Site are classified as Hinckley loamy sand by the United States Department of Agriculture (USDA), with portions of the Site also classified as a gravel pit and water. The USDA soil mapping at and in the vicinity of the Site is illustrated on Figure 4-1. Hinckley soils are excessively-drained, deep soils that form in outwash plains, eskers, moraines, kame terraces, kames, outwash terraces, and outwash deltas. The USDA reports that the capacity of the most limiting layer to transmit water for Hinckley soils is moderately high to very high (1.42 to 99.10 inches per hour).[6]

As discussed in Section 2.0, the water mapped on the Site is assumed to be, in part, based on historical Site conditions and not the conditions present at the time of submission of this report. This will be further discussed in Section 5.2 as it relates to Site Evaluation for SSWD systems.

The Maine Geological Survey (MGS) classifies the soils at the Site as marine ice-contact delta deposits, which consist primarily of sorted and stratified sand and gravel.[7] This classification is consistent with the USDA soil classification surrounding the Site. The MGS surficial geology mapping at and in the vicinity of the Site is illustrated on Figure 4-2.

The Site is located within an MGS-mapped significant sand and gravel aquifer with moderate to good potential for groundwater yield (i.e., greater than 10 gpm).[8] The MGS significant sand and gravel aquifer mapping at and in the vicinity of the Site is illustrated on Figure 4-3.

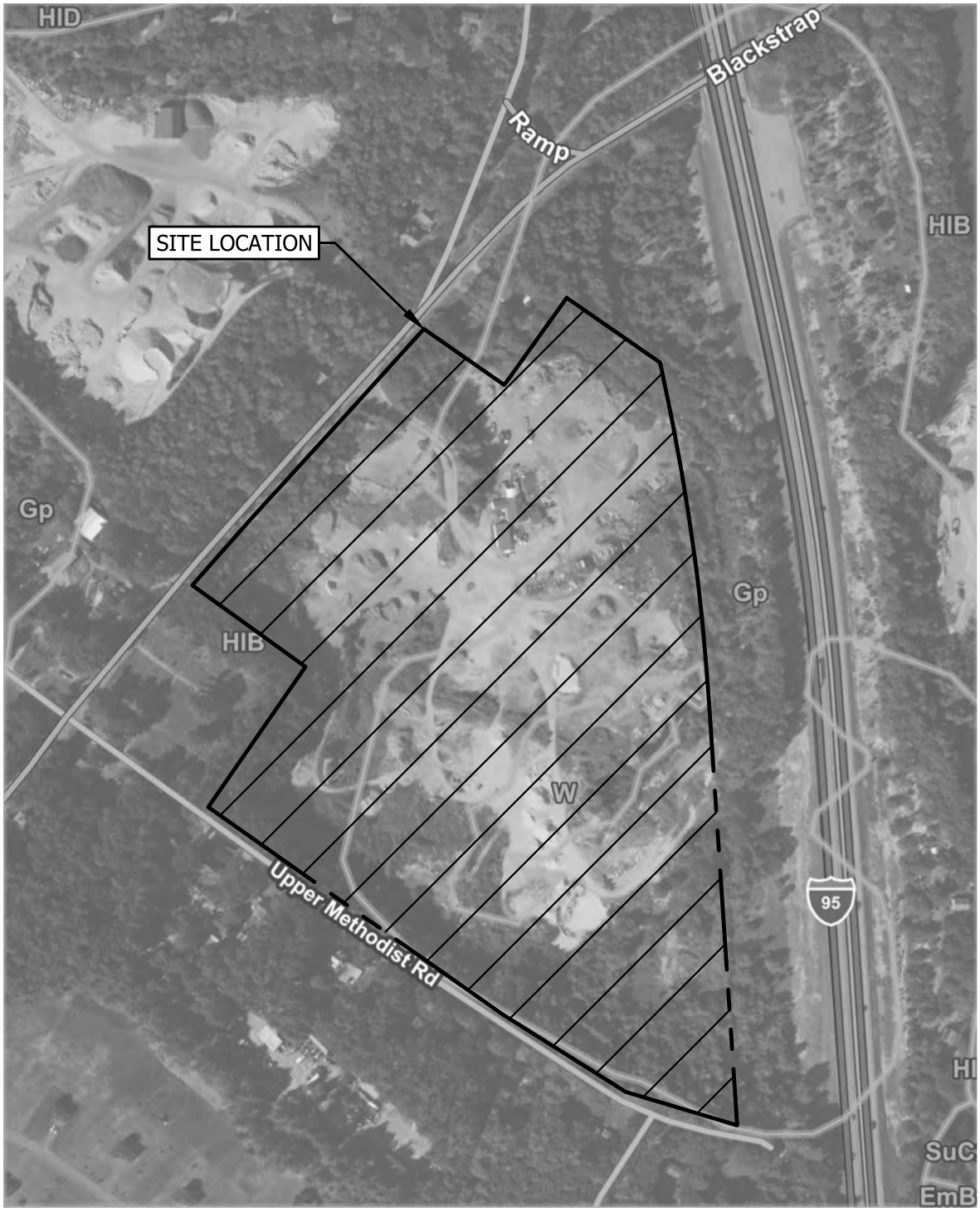
The bedrock underlying the Site and its vicinity are mapped by MGS as fine-grained to medium-grained biotite-quartz granofels. The MGS bedrock mapping at and in the vicinity of the Site is illustrated on Figure 4-4.[9] There were no bedrock outcrops identified at the site.

[6] USDA Natural Resources Conservation Service Web Soil Survey (https://websoilsurvey.nrcs.usda.gov).

[7] Retelle, Michael J. et. al., 1999. Surficial geology of the Cumberland Center quadrangle, Maine: Maine Geological Survey, Open-File Map 99-81, map, scale 1:24,000.

[8] Neil, Craig D., et. al., 1999. Significant sand and gravel aquifers in the Cumberland Center quadrangle, Maine: Maine Geological Survey, Open-File Map 99-27, map, scale 1:24,000.

[9] Engelman, Matthew R., Creasy, John W., and Berry, Henry N., IV, 2023. Bedrock geology of the Cumberland Center quadrangle, Maine: Maine Geological Survey, Open-File Map 23-14, map, scale 1:24,000.



BASE MAP ADAPTED FROM WEB SOIL SURVEY SOILS MAPS

Gp - GRAVEL PITS
HIB - HINKLEY LOAMY SAND ((8-15% SLOPES)
W - WATER

1000 0 2000 FEET

DWG: FIGURES LMN: SOILS CTB: SME-STD REV: 11/29/2023

FIGURE 4-1
USDA SOIL MAP
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

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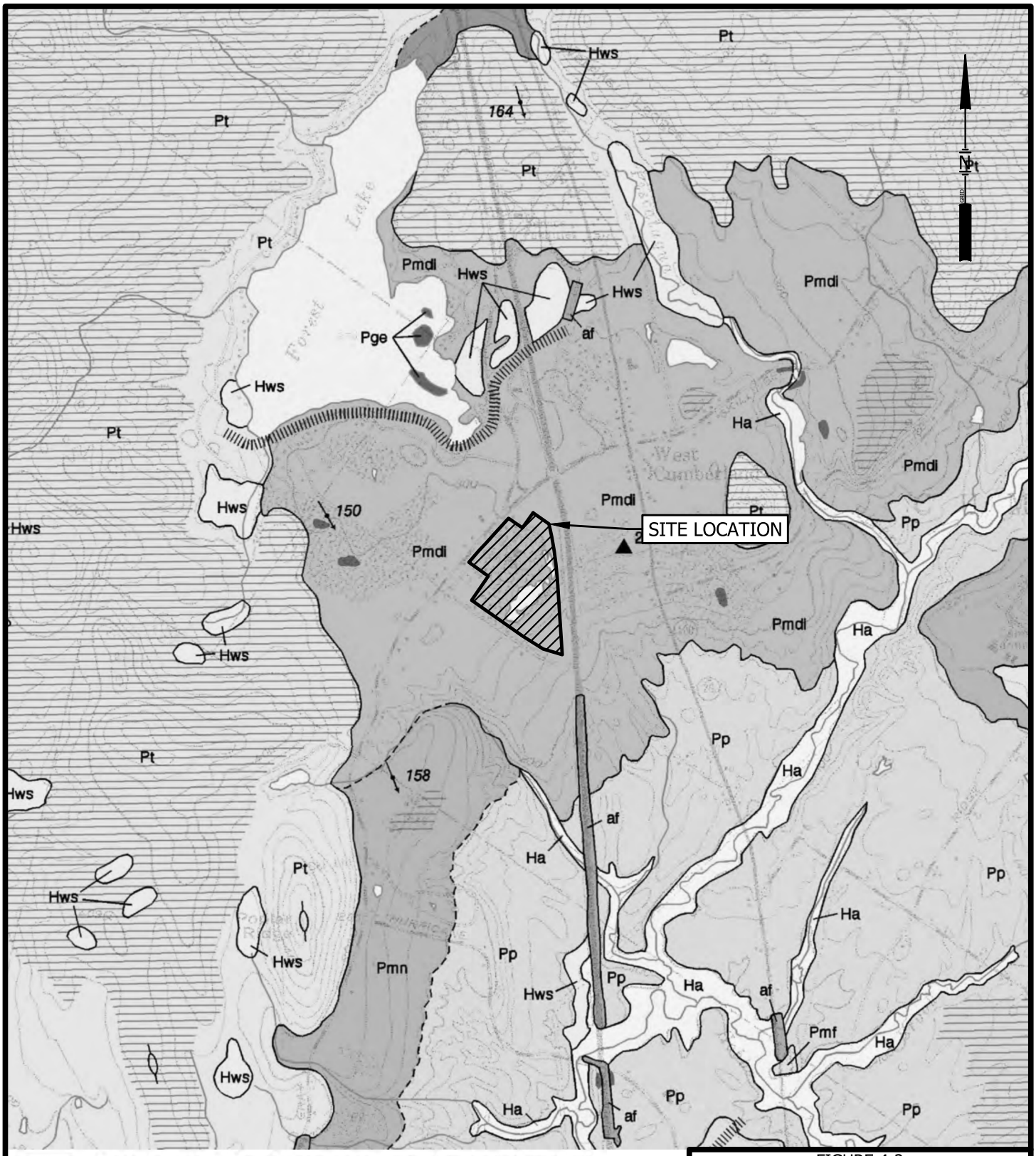
\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Figures\FIGURES.dwg, FIG 4-1 SOILS, 11/29/2023 9:52:16 AM, jrl



Pmdl — **Marine ice-contact delta** - Ice-contact delta composed primarily of sorted and stratified sand and gravel. Deposit was graded to surface of late-glacial sea and is distinguished by flat top and foreset and topset beds.

BASE MAP ADAPTED FROM 7.5 MIN MGS SURFICIAL GEOLOGY QUAD
CUMBERLAND CENTER, ME - 1999

1000 0 2000 FEET

DWG: FIGURES LMN: GEOLOGY CTB: SME-STD REV: 11/29/2023

FIGURE 4-2
MAINE GEOLOGICAL SURVEY SURFICIAL GEOLOGY
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

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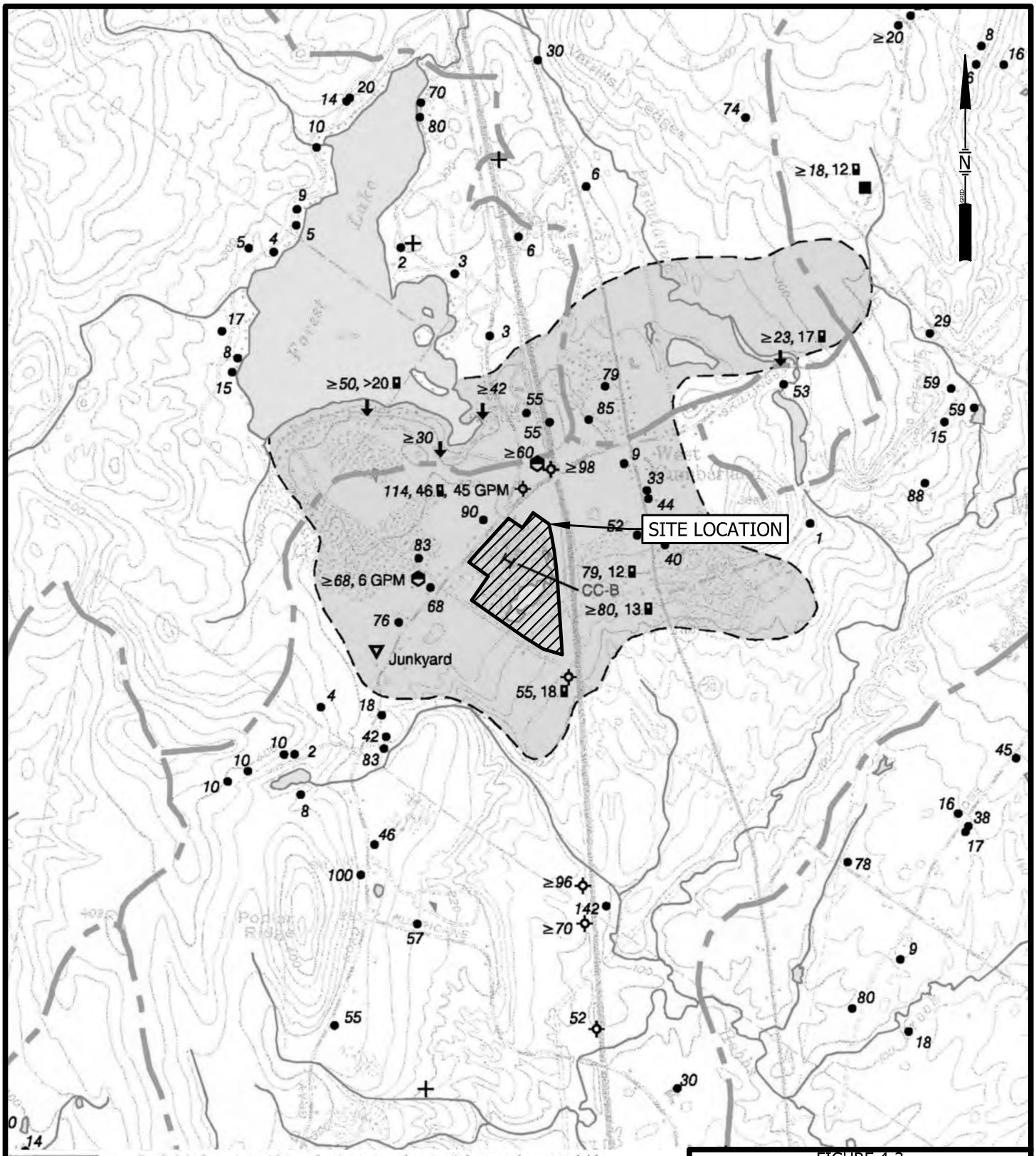
\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Figures\FIGURES.dwg, FIG 4-2 - GEOLOGY, 11/29/2023 9:53:45 AM, jrl



BASE MAP ADAPTED FROM 7.5 MIN MGS SIGNIFICANT SAND AND GRAVEL AQUIFERS QUAD CUMBERLAND CENTER, ME - 1999

FIGURE 4-3
MAINE GEOLOGICAL SURVEY
SIGNIFICANT SAND AND GRAVEL AQUIFERS
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

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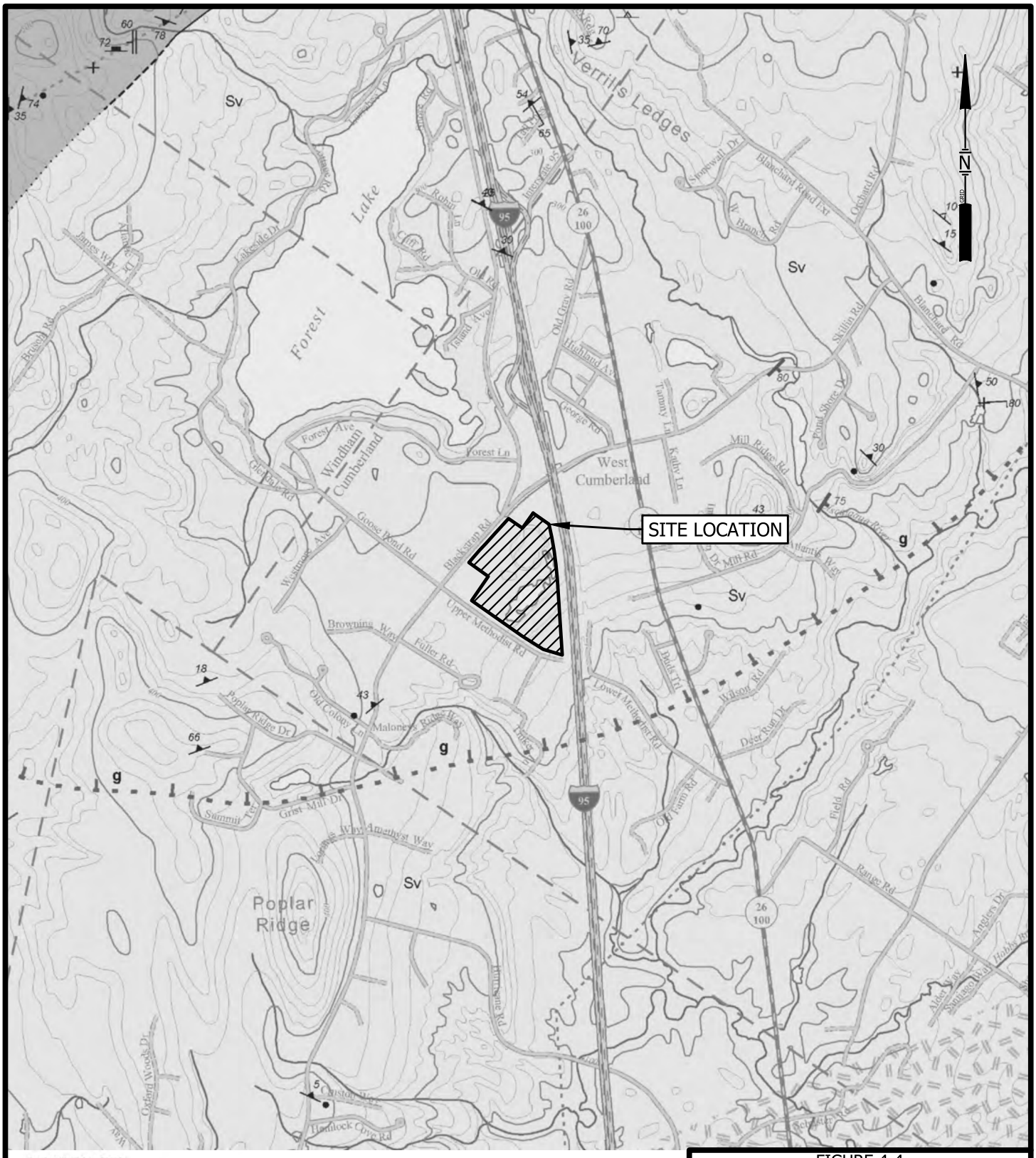
DWG: FIGURES LMN: AQUIFER CTB: SME-STD REV: 11/29/2023

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Figures\FIGURES.dwg, FIG 4-3 - AQUIFER, 11/29/2023 9:55:00 AM, jrl



STRATIFIED ROCKS

Silurian(?) [S]

Sv — **Granofels, undifferentiated.** Dark gray to medium gray, bluish gray or purplish gray, fine-grained to medium-grained biotite-quartz-feldspar granofels, interlayered with subordinate thin layers of light green to dark greenish-gray diopside calc-silicate granofels and dark gray, medium-grained biotitic schist. The proportion of biotitic schist is variable, from absent up to several meters in thickness. Layering in the granofels is generally well developed in thin to medium beds 3-20 centimeters (cm) thick. Where the rock is more highly migmatitic, and especially in the region of gneissic structure, the granofels is coarser grained.

BASE MAP ADAPTED FROM 7.5 MIN MGS BEDROCK QUAD
CUMBERLAND CENTER, ME - 2023

1000 0 2000 FEET

DWG: FIGURES LMN: BEDROCK CTB: SME-STD REV: 11/29/2023

FIGURE 4-4
MAINE GEOLOGICAL SURVEY BEDROCK GEOLOGY
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
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ENGINEERS

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Figures\FIGURES.dwg, FIG 4-4 - BEDROCK, 11/29/2023 9:58:48 AM, jrl

Soils were observed at the Site by an SME Maine Licensed Geologist and Licensed Site Evaluator at test pits in the areas of 67 of the 72 proposed SSWD fields on July 18 through 20, 2023 and September 28, 2023. The test pits are identified as TP-01 through TP-72 and the identifications for the test pits correlate with the numbers identifying individual homes on Figure 2-2. The test pits that have not yet been completed yet are explained as follows:

- Test pits TP-06 and TP-07 were not completed since they are in an area that had perched water (i.e., above the seasonal-high groundwater table) at the time in an area of the gravel pit that will require removal of some compact fill materials/soils and reclamation with soils consistent with Hinckley soils. This is generally supported by observations at nearby test pit TP-08. Test pit TP-08 was observed to have water running into it from the ground surface at an essentially constant rate on July 19 and 20, 2023, but with a stabilized standing groundwater surface at approximately 37 inches below the ground surface. There are additional test pits located in areas that will require reclamation with soils consistent with Hinckley soils, which are further described later in this Section.
- Test pits TP-55 and TP-56 were not accessible due to stormwater drainage conditions at the time of observation. The area surrounding these test pits will need to be reclaimed with soils consistent with Hinkley soils within 48 inches of the bottom of the proposed disposal fields associated with TP-55 and TP-56.
- Test pit TP-67 was not completed since it is in area currently occupied by a building.

The Soil Conditions Summary Table (Form E Rev. 07/11 in the MEDEP SLODA) is provided in Appendix A for the Site test pits for proposed SSWD fields. The test pit logs (Form F Rev. 07/11 in the MEDEP SLODA) are provided in Appendix B.

The soil observations by SME are generally consistent with soil descriptions by the USDA and the MGS. The native soils observed at the test pits are classified, in accordance with Table 4D of the Maine SSWD Rules, as Parent Material Profile 5 (i.e., stratified glacial drift). The observed soils generally consist of gravelly sand.

As discussed above, there are test pits located in areas that will require some modification to existing soil conditions (e.g., loosening compacted horizons) and/or reclamation with soils consistent with Hinckley soils in areas mined too close to the water table and in areas filled with soils/materials that are unsuitable for SSWD. These instances are noted on the Soil Conditions Summary Table in Appendix A and test pits logs in Appendix B and are summarized in Table 4-1.

TABLE 4-1

SUMMARY OF REQUIRED SITE AND/OR SOIL CONDITIONS MODIFICATIONS AND/OR SOIL RECLAMATION

Test Pit ID	Parent Material Profile [1]	Limiting Factor Depth (inches)	Soil Drainage Limiting Factor [2]	Required Action [3,4,5]
TP-01	12 over 5	0	E	Remove fill soil to native sand. Reclamation with soils consistent with Hinckley soils to minimum of 9 inches above seasonal high groundwater. [6]
TP-02	12 over 5	0	E	Remove fill soil to native sand. Reclamation with soils consistent with Hinckley soils to minimum of 9 inches above seasonal high groundwater. [6]
TP-03	12 over 5	0	E	Remove fill soil to native sand. Reclamation with soils consistent with Hinckley soils to minimum of 9 inches above seasonal high groundwater. [6]
TP-04	12	0	E	Remove fill soil to native sand. Reclamation with soils consistent with Hinckley soils to minimum of 9 inches above seasonal high groundwater. [6]
TP-05	12	0	E	Remove fill soil to native sand. Reclamation with soils consistent with Hinckley soils to minimum of 9 inches above seasonal high groundwater. [6]
TP-06	NA	0	E	Remove fill soil to native sand. Reclamation with soils consistent with Hinckley soils to minimum of 9 inches above seasonal high groundwater. [6]
TP-07	NA	0	E	Remove fill soil to native sand. Reclamation with soils consistent with Hinckley soils to minimum of 9 inches above seasonal high groundwater. [6]
TP-13	12	0	E	Remove firm fill w/in 48" of bottom of disposal field and replace with soils consistent with Hinckley soils. [6,7]
TP-14	12	0	E	Remove firm fill w/in 48" of bottom of disposal field and replace with soils consistent with Hinckley soils. [6,7]
TP-15	12	0	E	Remove firm fill w/in 48" of bottom of disposal field and replace with soils consistent with Hinckley soils. [6,7]
TP-16	12	0	E	Remove firm fill w/in 48" of bottom of disposal field and replace with soils consistent with Hinckley soils. [6,7]
TP-17	12	0	E	Remove firm fill w/in 48" of bottom of disposal field and replace with soils consistent with Hinckley soils. [6,7]
TP-18	12	0	E	Remove firm fill w/in 48" of bottom of disposal field and replace with soils consistent with Hinckley soils. [6,7]
TP-19	12	0	E	Remove firm fill w/in 48" of bottom of disposal field and replace with soils consistent with Hinckley soils. [6,7]
TP-55	NA	NA	NA	Area inaccessible due to stormwater drainage conditions at time of observation. Reclaim with soils consistent with Hinckley soils w/in 48" of bottom of disposal field. [6,7]
TP-56	NA	NA	NA	Area inaccessible due to stormwater drainage conditions at time of observation. Reclaim with soils consistent with Hinckley soils w/in 48" of bottom of disposal field. [6,7]
TP-67	NA	NA	NA	Provide soil test pit log following building demolition.

Notes:

1 From Table 4D of Maine SSWD Rules.

2 From Table 4E of Maine SSWD Rules.

3 In addition to the modifications/reclamations indicated above, proposed SSWD fields associated with TP-57 through TP-61 require removal of proximate bark piles.

4 In addition to the modifications/reclamations indicated above, proposed SSWD fields associated with TP-09 through TP-12, TP-23, TP-41, TP-52, and TP-65 require loosening of sand and gravel compacted by gravel pit development within 24 inches of the bottom of disposal field.

5 In addition to the modifications/reclamations indicated above, proposed SSWD fields associated with TP-44. TP-45, and TP-54 require regrading of all areas within 10 feet of disposal field to <20% slope.

6 Conditions of reclaimed soils will be evaluated by Maine Licensed Site Evaluator prior to preparing HHE-200 permit application.

7 Replace unsuitable fill with soils consistent with Hinckley soils w/in 48 inches of bottom of disposal field to maintain Profile B classification.

4.2 Groundwater Flow

SME installed five temporary groundwater piezometers (PZ-1 through PZ-5) at the Site in September 2022 for the purpose of monitoring groundwater levels to determine the groundwater flow direction and hydraulic gradient surrounding the proposed SSWD fields. The piezometers were installed in 4-inch-diameter borings that were advanced using a hand auger. SME also monitored the groundwater in a dug well that serves the existing building(s) located on-Site. The piezometer and dug well locations and monitoring point elevations were surveyed by SME. Groundwater level recording transducers were placed in the five temporary groundwater piezometers and the dug well in late December 2022. Groundwater levels were measured and recorded at those locations every six hours from late December 2022 through late September 2023.[10] The piezometer and monitoring well locations are shown on Figure 4-5.

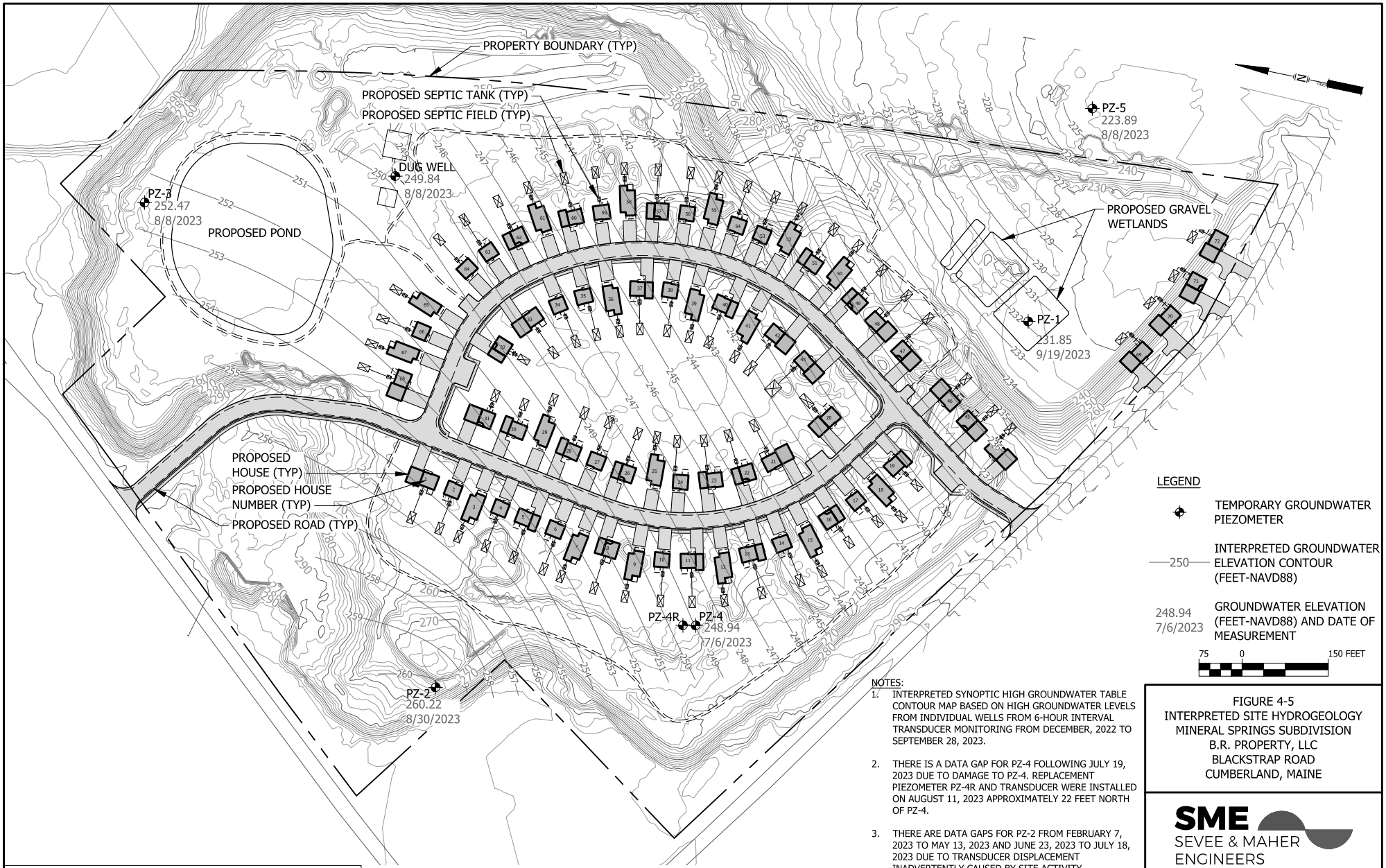
The monitoring period was useful for determining what should generally be considered as high-groundwater level conditions for the Site. The total precipitation at the nearby National Oceanic and Atmospheric Administration (NOAA) station in Gray, Maine has reported a total precipitation between the months of May and August 2023 that is 57 percent greater than normal precipitation. Using the available data between December 31, 2022 and September 28, 2023, the highest recorded elevations at PZ-1 through PZ-5 and the dug well were used to develop an interpreted groundwater level contour map for high-groundwater conditions at the Site.[11] The interpreted high-groundwater level contour map is included on Figure 4-5.

Interpreted groundwater level contour maps are also provided in Appendix C for groundwater levels measured simultaneously (i.e., on the same day) at the piezometers and dug well during generally low-groundwater level conditions (manual measurements on September 27, 2022) and generally high (transducer measurements on August 12, 2023)-groundwater level conditions observed during the monitoring period. A plot of the groundwater levels at the piezometers and dug well is provided in Appendix D.

All three interpreted groundwater level contour maps provided are generally consistent in groundwater flow direction with groundwater flowing generally to the southeast toward the Maine Turnpike. The hydraulic gradient across the Site was approximately 2.5 percent on September 27, 2022 and approximately 2.3 percent on August 12, 2023.

[10] Some periods of monitoring were disrupted inadvertently by Site activity at PZ-2 (transducer displacement) and PZ-4 (piezometer destroyed and replaced by PZ-4R).

[11] For the dug well location, brief periods of groundwater level spikes (in the order of two to three feet) were not used for determining the highest recorded groundwater level during the monitoring period. These brief spikes are likely associated with influence from stormwater runoff.



LEGEND

- TEMPORARY GROUNDWATER PIEZOMETER
- 250 — INTERPRETED GROUNDWATER ELEVATION CONTOUR (FEET-NAVD88)
- 248.94 7/6/2023 — GROUNDWATER ELEVATION (FEET-NAVD88) AND DATE OF MEASUREMENT

75 0 150 FEET

NOTES:

1. INTERPRETED SYNOPTIC HIGH GROUNDWATER TABLE CONTOUR MAP BASED ON HIGH GROUNDWATER LEVELS FROM INDIVIDUAL WELLS FROM 6-HOUR INTERVAL TRANSDUCER MONITORING FROM DECEMBER, 2022 TO SEPTEMBER 28, 2023.
2. THERE IS A DATA GAP FOR PZ-4 FOLLOWING JULY 19, 2023 DUE TO DAMAGE TO PZ-4. REPLACEMENT PIEZOMETER PZ-4R AND TRANSDUCER WERE INSTALLED ON AUGUST 11, 2023 APPROXIMATELY 22 FEET NORTH OF PZ-4.
3. THERE ARE DATA GAPS FOR PZ-2 FROM FEBRUARY 7, 2023 TO MAY 13, 2023 AND JUNE 23, 2023 TO JULY 18, 2023 DUE TO TRANSDUCER DISPLACEMENT INADVERTENTLY CAUSED BY SITE ACTIVITY.

FIGURE 4-5
INTERPRETED SITE HYDROGEOLOGY
MINERAL SPRINGS SUBDIVISION
B.R. PROPERTY, LLC
BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER ENGINEERS

DWG: BASE LMN: GW-CONT-SYNO CTB: SME-STD-HALF.CTB REV: 12/18/2023

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, FIG 4-5 GW-SYNO, 12/18/2023 8:35:47 AM, jrl

4.3 Grain Size Analysis and Estimated Hydraulic Conductivity

SME collected one soil sample each from the borings associated with piezometers PZ-1 through PZ-5. The samples were collected in saturated soils below the groundwater table. All of the soil samples collected were natural soils (i.e., below soil disturbances) consisting of sand to gravelly sand, which is consistent with the Hinckley soils mapped at and surrounding the Site.

Grain size analyses (ASTM D422) were performed on the soil samples. The soil grain size analysis results are provided in Appendix E. As a group, the soil grain size analyses indicate a predominant grain size of fine to medium sand. The soil sample from the PZ-2 boring also included some coarse sand and gravel. The uniformity coefficient of the soil, C_u, is a measure of how well or poorly sorted the soil is. Uniformity coefficients less than 4 are well sorted and uniformity coefficients greater than 6 are poorly sorted. The uniformity coefficient is the ratio of the grain size that is 60 percent finer by weight, d_{60}, and the grain size that is 10 percent finer by weight, d_{10}.[12]

$$C_u = d_{60}/d_{10}$$

The uniformity coefficient calculations for the soil samples collected at the borings for PZ-1 through PZ-5 are summarized on Table 4-2.

TABLE 4-2

SUMMARY OF SOIL SAMPLE UNIFORMITY COEFFICIENT CALCULATIONS

Soil Sample Location	d_{60} (mm)	d_{10} (mm)	C_u (mm)	Classification [1]
PZ-1	0.25	0.095	2.6	Well Sorted Fine to Medium Sand
PZ-2	1.1	0.38	2.9	Well Sorted Fine to Medium Sand
PZ-3	0.43	0.13	3.3	Well Sorted Fine to Medium Sand
PZ-4	0.70	0.24	2.9	Well Sorted Fine to Medium Sand
PZ-5	0.31	0.10	3.1	Well Sorted Fine to Medium Sand

Notes:
d_{60} – grain size 60 percent finer by weight
d_{10} – grain size 10 percent finer by weight
Cu – uniformity coefficient
1 Fetter, 1994. Applied Hydrogeology, 3rd Edition. *Prentice Hall*.

[12] Fetter, 1994. Applied Hydrogeology, 3rd Edition. *Prentice Hall*.

The soil grain size analyses results were used to estimate the hydraulic conductivities of the soil samples using the Hazen Method.[13] Estimates of the hydraulic conductivities of the soil samples are calculated as follows.

$K = C(d_{10})^2$; where

K is estimated hydraulic conductivity (centimeters per second (cm/s));

d_{10} is the effective grain size (the grain size that is 10 percent finer by weight)(cm); and

C is a coefficient based on grain size and sorting.

The estimated hydraulic conductivity calculations for the soil samples collected at the borings for PZ-1 through PZ-5 are summarized on Table 4-3.

TABLE 4-3

SUMMARY OF SOIL SAMPLE ESTIMATED HYDRAULIC CONDUCTIVITY CALCULATIONS

Soil Sample Location	C (Coefficient Based on Grain Size and Sorting) [1]	d_{10} (cm)	Estimated Hydraulic Conductivity (feet/day)
PZ-1	100	0.0095	26
PZ-2	100	0.038	409
PZ-3	100	0.013	48
PZ-4	100	0.024	163
PZ-5	100	0.010	28

Notes:
d_{10} – grain size 10 percent finer by weight
[1] Fetter, 1994. Applied Hydrogeology, 3rd Edition. *Prentice Hall*.

The estimated hydraulic conductivities for soil samples at locations PZ-1 through PZ-5 ranged from 26 feet per day (ft/day) at PZ-5 to 409 ft/day at PZ-3. The mean of the estimated hydraulic conductivities is 135 ft/day and the geomean, or central tendency of estimated hydraulic conductivities, is 75 ft/day.

[13] Hazen, A. 1911. Discussion: Dams on sand foundations. *Transactions, American Society of Civil Engineers*, 73:199.

5.0 PRELIMINARY SITE EVALUATION

An SME Maine Licensed Site Evaluator completed a preliminary site evaluation for the proposed SSWD for the Site. The preliminary site evaluation consisted of an evaluation of the following with respect to accordance with the Maine SSWD Rules:

- The suitability of the Site soils in and in the vicinity of the areas proposed for SSWD; and
- Setback distances required for first time systems.

5.1 Soils

A detailed description of the preliminary evaluation of Site soils is provided in Section 4.1, Appendix A, and Appendix B, and are not reiterated in detail in this Section. As discussed in Section 4.1, there are test pits located in areas that will require some modification to existing soil conditions (e.g., loosening compacted horizons) and/or reclamation with soils consistent with Hinckley soils in areas mined too close to the water table and in areas filled with soils/materials that are unsuitable for SSWD. These instances are noted on the Soil Conditions Summary Table in Appendix A and test pits logs in Appendix B and are summarized in Table 4-1.

5.2 Setback Distances

This discussion of setback distances for first-time SSWD systems, as follows, is based on requirements summarized in Table 8B of the Maine SSWD Rules and is generally limited to applicability to the Site.

Public Water Supply Wells: Based on the current Maine Drinking Water Program (DWP) Public Water Resources Information System data, the nearest registered public water system well is more than 2 miles from the Site, which meets the required setbacks of 300 feet from an on-Site SSWD field and 150 feet from a septic tank. The Site is proposed to be served by an extension of the PWD water supply utility system, so there are no public water system wells proposed for the Site.

Private Water Supply Wells: The only private water supply well at the Site is a dug well that is proposed to be abandoned in accordance with the MEDEP Guidance for Well and Boring Abandonment.[14] The Site is proposed to be served by an extension of the PWD water supply utility system, so there are no private water supply wells proposed for the Site.

[14] MEDEP Bureau of Remediation and Waste Management, Division of Technical Services, 2009. Guidance for Well and Boring Abandonment. Issued January 7, 2009.

Existing off-Site private groundwater supply wells within 300 feet of the project boundaries that are included in the MGS Water Well Database are illustrated on Figure 5-1.[15] It is important to note that the accuracy of MGS Water Well Database has limitations with respect to accuracy of locations shown and completeness (i.e., there may be existing private groundwater supply wells within 300 feet of the project boundaries that are not included in the MGS Water Well Database).

As described below, the preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to existing off-Site private groundwater supply wells indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules:

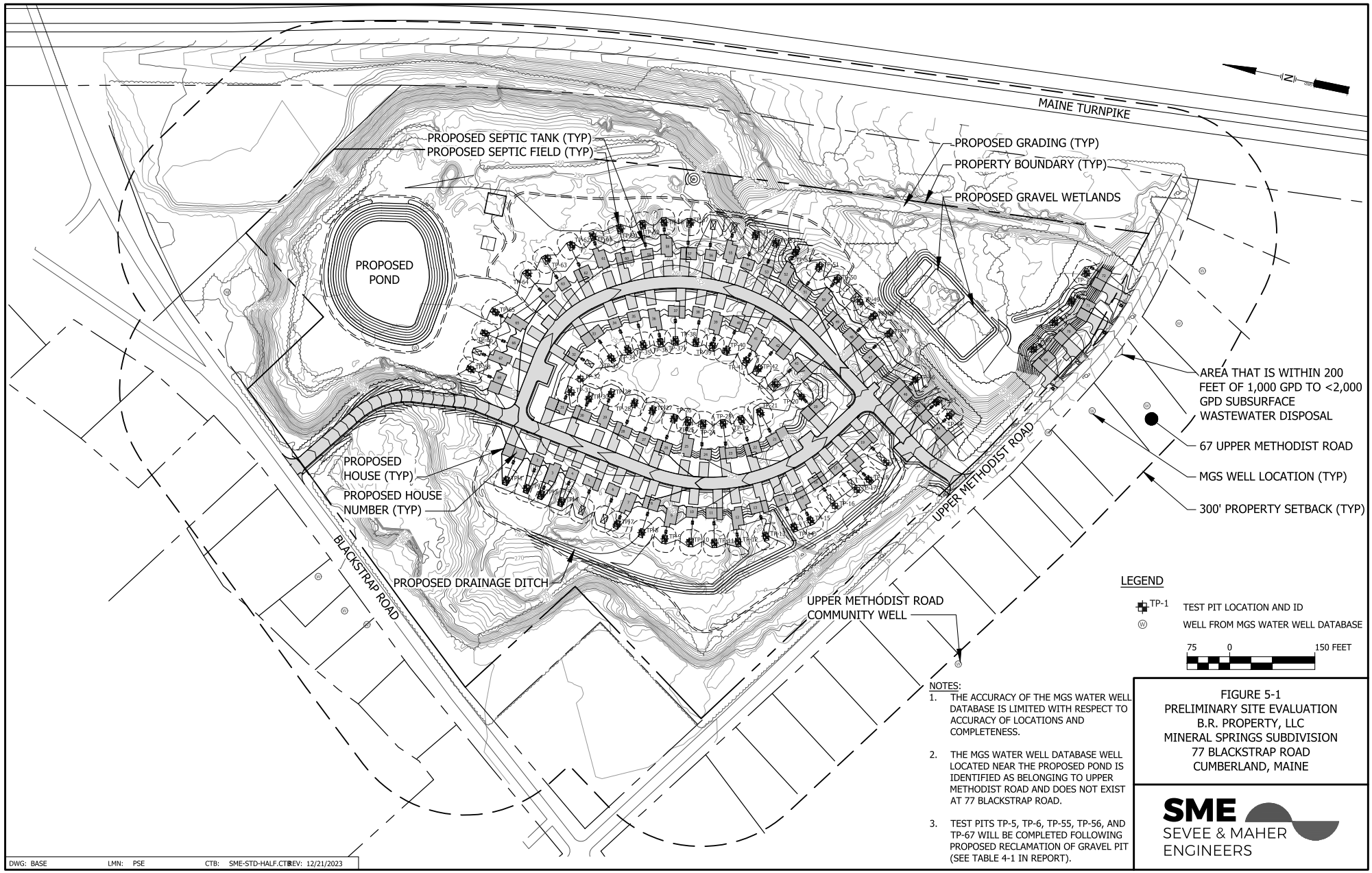
- There are no individual single-family, three-bedroom (i.e., 270 gpd design flow) SSWD fields located within 100 feet of a developed parcel abutting the Site and there are no individual single-family, three-bedroom septic tanks located with 50 feet of a developed parcel abutting the Site.
- Cumulatively, there is only one small area (approximately 162 square feet) of one developed parcel (67 Upper Methodist Road) where four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields are located within 200 feet. There are no groundwater supply wells visible within this area.

  There are not four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields located within 200 feet of any other developed parcel abutting the Site and there are not four or more individual single-family, three-bedroom septic tanks located within 100 feet of a developed parcel abutting the Site.
- Cumulatively, there are not eight or more individual single-family, three-bedroom (i.e., greater than 2,000 gpd, cumulatively) SSWD fields located within 300 feet of a developed parcel abutting the Site and there are not eight or more individual single-family, three-bedroom septic tanks located within 100 feet of a developed parcel abutting the Site.

For the purpose of the evaluation (described above), reference to *developed parcels* excludes the parcel(s) owned by the Maine Turnpike Authority, the cemetery located northwest of the Site, and the parcel owned by the Town of Cumberland that is located between the Site and the cemetery. These parcels are understood to not have groundwater supply wells within 300 feet of any proposed SSWD fields.

Water Supply Lines: As described below, the preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to proposed water supply lines, indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules:

[15] Maine Geological Survey Water Well Database: https://www.maine.gov/dacf/mgs/pubs/digital/well.htm#mapsearch



NOTES:

1. THE ACCURACY OF THE MGS WATER WELL DATABASE IS LIMITED WITH RESPECT TO ACCURACY OF LOCATIONS AND COMPLETENESS.
2. THE MGS WATER WELL DATABASE WELL LOCATED NEAR THE PROPOSED POND IS IDENTIFIED AS BELONGING TO UPPER METHODIST ROAD AND DOES NOT EXIST AT 77 BLACKSTRAP ROAD.
3. TEST PITS TP-5, TP-6, TP-55, TP-56, AND TP-67 WILL BE COMPLETED FOLLOWING PROPOSED RECLAMATION OF GRAVEL PIT (SEE TABLE 4-1 IN REPORT).

FIGURE 5-1
PRELIMINARY SITE EVALUATION
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER ENGINEERS

DWG: BASE LMN: PSE CTB: SME-STD-HALF.CTB REV: 12/21/2023

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, FIG 5-1 PSE, 12/21/2023 8:48:39 AM, jrl

- There are no individual single-family, three-bedroom (i.e., 270 gpd design flow) SSWD fields located within 10 feet of a proposed water supply line and there are no individual single-family, three-bedroom septic tanks located with 10 feet of a developed parcel abutting the Site.
- Cumulatively, there are not four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields located within 20 feet of a proposed water supply line.
- Cumulatively, there are not eight or more individual single-family, three-bedroom (i.e., greater than 2,000 gpd, cumulatively) SSWD fields located within 25 feet of a proposed water supply line.

Water Body/Course, Major: As discussed in Sections 2.1 and 4.1, the current USGS Topographic map used for the Site location map (see Figure 1-1) shows a large portion of the interior of the parcel is shown as a water body, which indicates the presence of a major water body within the boundaries of the subject property. This mapped feature, however, is not consistent with the current Site conditions. Currently, the only remaining portion of the mapped water feature, excluding existing stormwater diversion trenches, is the remnants of the tailing pond.

The Site was delineated for wetlands by Mark Hampton Associates, Inc. of Portland, Maine (Hampton) in September 2023. In summary, Hamptons findings indicated that the wetlands found on the parcel:

- Do not meet the definition of wetlands of special significance as defined by the MEDEP;
- Are man-made sediment control structures that have not been maintained and have filled up with sediment and become water bodies;
- Are not jurisdictional wetlands to either the State of Maine or Federal Agencies since the property is a completed gravel pit which has been operated for decades; and
- Can be filled in.

Based on Hampton's comment that the tailings pond has not been maintained and have filled up with sediment, the areas beneath the tailings pond is likely by and large perched water conditions. It is planned that the area of the tailings pond will be regraded and incorporated into the proposed stormwater management system for the Site. Hampton's wetland delineation letter report, dated October 26, 2023, is included in the SLODA application materials.

The proposed Site conditions following reclamation of the gravel pit are proposed to be recognized in favor of the location of the current USGS mapped water body at the Site with respect to setback rules required by the Maine SSWD Rules. Under the proposed development layout for SSWD systems, it is planned that after final Site development there will be no water bodies/courses on-Site other than some components of the proposed stormwater management system and a pond proposed for aesthetic

purposes (described below). Since the Site does currently have a USGS mapped water body, the current Site layout may require a determination from the MEDHHS Subsurface Wastewater Unit.

Water Body/Course, Minor: The current Site conditions include man-made drainage features associated with development of the internally drained gravel pit that do not conform with portions of the proposed layout of SSWD systems for the Site. Groundwater levels in test pits located proximate to sections of linear drainage features generally indicate that water flowing in these features are perched atop compacted materials. The proposed Site reclamation will incorporate a stormwater control design that will improve current Site conditions with respect to proposed SSWD systems conforming to the setback rules from any minor water body/courses required by the Maine SSWD Rules.

Other than some components of the proposed stormwater management system, the only waterbody/course planned to be on-Site is an approximately 1.84-acre pond that is proposed for aesthetic purposes (see Figure 5-1). For the purpose of this evaluation, it is assumed that the proposed pond will be recognized as a minor water body. The pond is located upgradient to side-gradient from any proposed SSWD field. As a minor water course, all setback requirements between the pond and the SSWD systems will be met. If there is a determination from the MEDHHS Subsurface Wastewater Unit that the proposed pond will be a major water course, then all setback requirements between the pond and the SSWD systems can still be met if one home (specifically one of the homes identified as either number 65, 66, 67, or 68) be changed from a three-bedroom home to a four-bedroom home.

Drainage Ditches: As described below, the preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to proposed drainage ditches indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules:

- There are no individual single-family, three-bedroom (i.e., 270 gpd design flow) SSWD fields located within 25 feet of a proposed drainage ditch and there are no individual single-family, three-bedroom septic tanks located with 25 feet of a proposed drainage ditch.
- Cumulatively, there are not four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields located within 50 feet of a proposed drainage ditch.
- Cumulatively, there are not eight or more individual single-family, three-bedroom (i.e., greater than 2,000 gpd, cumulatively) SSWD fields located within 75 feet of a proposed drainage ditch.

Slopes Greater than 3:1: As described below, the preliminary site evaluation with respect to the required setbacks from SSWD fields to slopes greater than 3:1 for the proposed final Site grading indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules:

- There are no individual single-family, three-bedroom (i.e., 270 gpd design flow) SSWD fields located within 10 feet of a slope greater than 3:1 for the proposed final Site grading;

- Cumulatively, there are not four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields located within 18 feet of a slope greater than 3:1 for the proposed final Site grading; and
- Cumulatively, there are not eight or more individual single-family, three-bedroom (i.e., greater than 2,000 gpd, cumulatively) SSWD fields located within 25 feet of a slope greater than 3:1 for the proposed final Site grading.

No Full Basements (e.g., slabs, columns, posts): As described below, the preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to proposed non-full basements indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules:

- There are no individual single-family, three-bedroom (i.e., 270 gpd design flow) SSWD fields located within 15 feet of a proposed non-full basement and there are no individual single-family, three-bedroom septic tanks located with 8 feet of a proposed non-full basement;
- Cumulatively, there are not four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields located within 28 feet of a proposed non-full basement and there are not four or more individual single-family, three-bedroom septic tanks located within 14 feet of a proposed full basement; and
- Cumulatively, there are not eight or more individual single-family, three-bedroom (i.e., greater than 2,000 gpd, cumulatively) SSWD fields located within 40 feet of a proposed non-full basement and there are not eight or more individual single-family, three-bedroom septic tanks located within 20 feet of a proposed non-full basement.

Full Basements (e.g., below grade foundations, frost walls): As described below, the preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to proposed full basements indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules:

- There are no individual single-family, three-bedroom (i.e., 270 gpd design flow) SSWD fields located within 20 feet of a proposed full basement and there are no individual single-family, three-bedroom septic tanks located with 8 feet of a proposed full basement.
- Cumulatively, there are not four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields located within 30 feet of a proposed full basement and there are not four or more individual single-family, three-bedroom septic tanks located within 14 feet of a proposed non-full basement.
- Cumulatively, there are not eight or more individual single-family, three-bedroom (i.e., greater than 2,000 gpd, cumulatively) SSWD fields located within 40 feet of a proposed full basement and

there are not eight or more individual single-family, three-bedroom septic tanks located within 20 feet of a proposed full basement.

Property Lines: As described below, the preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to property lines indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules:

- There are no individual single-family, three-bedroom (i.e., 270 gpd design flow) SSWD fields located within 10 feet of a property line and there are no individual single-family, three-bedroom septic tanks located with 10 feet of a property line.
- Cumulatively, there are not four or more individual single-family, three-bedroom (i.e., greater than 1,000 gpd, cumulatively) SSWD fields located within 18 feet of a property line and there are not four or more individual single-family, three-bedroom septic tanks located within 15 feet of a property line.
- Cumulatively, there are not eight or more individual single-family, three-bedroom (i.e., greater than 2,000 gpd, cumulatively) SSWD fields located within 20 feet of a property line and there are not eight or more individual single-family, three-bedroom septic tanks located within 20 feet of a property line.

Burial Sites or Graveyard Boundaries (measured from toe of fill extensions): The preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to burial sites or graveyard boundaries indicates that the proposed layout of SSWD systems meets the requirements of the Maine SSWD Rules. There is a graveyard abutting the northwest corner of the project boundary. There are no proposed SSWD fields (including required fill extensions) and/or septic tanks located within 25 feet of the boundaries of the graveyard.

Stormwater: There are two gravel wetland detention basins proposed for the Site's engineered stormwater control. The gravel wetland detention basins are proposed to be lined and fill extensions for proposed SSWD fields are not proposed to encroach onto the stormwater system. This allows for a 25-feet setback from the proposed gravel wetland detention basins to proposed SSWD fields and septic tanks both individually and cumulatively for SSWD systems.

The preliminary site evaluation with respect to the required setbacks from SSWD fields and septic tanks to the proposed gravel wetland detention basins indicates that there are no SSWD fields or septic tanks located within 25 feet of the proposed gravel wetland detention basins and there are no fill extensions for proposed SSWD fields that will encroach on the stormwater system.

6.0 GROUNDWATER QUALITY INFLUENCE ASSESSMENT

The hydrogeologic data and information provided in this report were used to develop a three-dimensional numerical groundwater model to approximately simulate groundwater flow conditions at the Site and to estimate the influence of the proposed SSWD systems for the Site on groundwater quality.

6.1 Groundwater Model Development

The hydraulic mounding and transmission analysis was completed using MODFLOW, which is a steady-state three-dimensional numerical groundwater model developed originally by the USGS.[16] The model is well documented and has been used significantly throughout the world for simulating groundwater flow. The development of the groundwater model is described below.

Model Domain: The model domain surrounding the Site was selected by using topographic drainage divides and water bodies and water courses. Topographic drainage boundaries were used as model no-flow boundaries by making model cells inactive in areas that drain away from the Site. Water bodies and water courses were simulated as constant-head boundary conditions. Forest Lake was simulated as a constant-head boundary to the north of the Site using the surface water elevation provided by USGS topographic mapping. Similarly, water courses were simulated as constant-head boundaries using USGS topography mapping along stream/river pathways. The water courses included in the groundwater model include an unnamed tributary to Forest Lake to the northwest of the Site, the Piscataqua River to the east of the Site, and unnamed tributaries to the Piscataqua River to the south of the Site.

Hydrogeologic Units: The groundwater model consists of a sand and gravel hydrogeologic unit, as observed in test pits and piezometer borings. While bedrock was not encountered in the test pits and piezometer borings, overburden thicknesses are reported on the MGS Water Well Database for wells in the areas surrounding the Site. These overburden thicknesses were used to estimate the bedrock surface elevation contours in the model domain. The bedrock surface was simulated as the model base, which is a no-flow boundary. The sand and gravel hydrogeologic unit was simulated from the base of the model to the ground surface topography.[17]

The hydraulic conductivity of the sand and gravel hydrogeologic unit was evaluated based on the grain size analyses from soil samples collected from the borings for PZ-1 through PZ-5 (see Section 4.3). The range of estimated hydraulic conductivities from the evaluation of grain size analyses was from 26 ft/day to 409 ft/day, with an average hydraulic conductivity of 135 ft/day. The geomean, or central tendency of estimated hydraulic conductivities, is 75 ft/day. Hydraulic conductivity was used as a model calibration

[16] Harbaugh, Arlen W. 2000. MODFLOW-2000, the U.S. Geological Survey Modular Ground-Water Model: User Guide to Modularization Concepts and the Ground-Water Flow Process. U. S. Geological Survey; Branch of Information Services, Open-File report 00-92.

[17] Maine LiDAR database.

parameter to achieve a best fit to observed groundwater elevations. A hydraulic conductivity of 100 ft/day was selected for the model, which reasonably simulates observed groundwater flow conditions and is within the range of the average and geomean of hydraulic conductivity values estimated by the evaluation of grain size analyses. The storativity, porosity, effective porosity, and specific yield of the sand and gravel hydrogeologic unit were estimated based on literature values. The hydrogeologic parameters used in the model are summarized on Table 6-1.

TABLE 6-1

SUMMARY OF PARAMETER VALUES FOR SAND AND GRAVEL HYDROGEOLOGIC UNIT

Model Parameter	Value
Hydraulic Conductivity	100 ft/day
Storativity [1]	0.0001 ft^{-1}
Porosity [1]	25 percent
Effective Porosity [1]	20 percent
Specific Yield [1]	25 percent

Notes:
1. Fetter, 1994. Applied Hydrogeology, 3rd Edition. *Prentice Hall*.

Groundwater Model Discretization: The groundwater model was discretized horizontally into cells with widths and lengths of 140 feet by 120 feet. In the area proposed for SSWD systems, the model was further horizontally discretized into cells with widths and lengths of 23.3 feet by 20 feet. Vertically, the sand and gravel hydrogeologic unit was discretized into five layers. Layer thicknesses varies based on the respective thickness of the sand and gravel throughout the model.

Groundwater Model Recharge: A groundwater model recharge value of 50.14 inches per year was selected based on normal precipitation at the nearby NOAA station in Gray, Maine. Groundwater model recharge was also used to simulate the recharge from the proposed 72 single-family, three-bedroom SSWD systems. For each cell containing the center of a proposed SSWD field, the recharge was increased to 388.98 inches per year, which includes the normal precipitation plus the 270 gpd of domestic wastewater spread over the 23.3 feet by 20 feet cell. As described in Section 6.3, nitrate concentrations were added to the simulated recharge to these cells to evaluate the influence on groundwater quality from the proposed SSWD systems.

6.2 Groundwater Model Simulation (Groundwater Flow)

The groundwater flow simulation resulting from the model development described above is illustrated on Figure 6-1. The results show a general agreement in comparison to the groundwater elevations, groundwater table slope, and groundwater flow direction in comparison to groundwater levels measured on-Site.

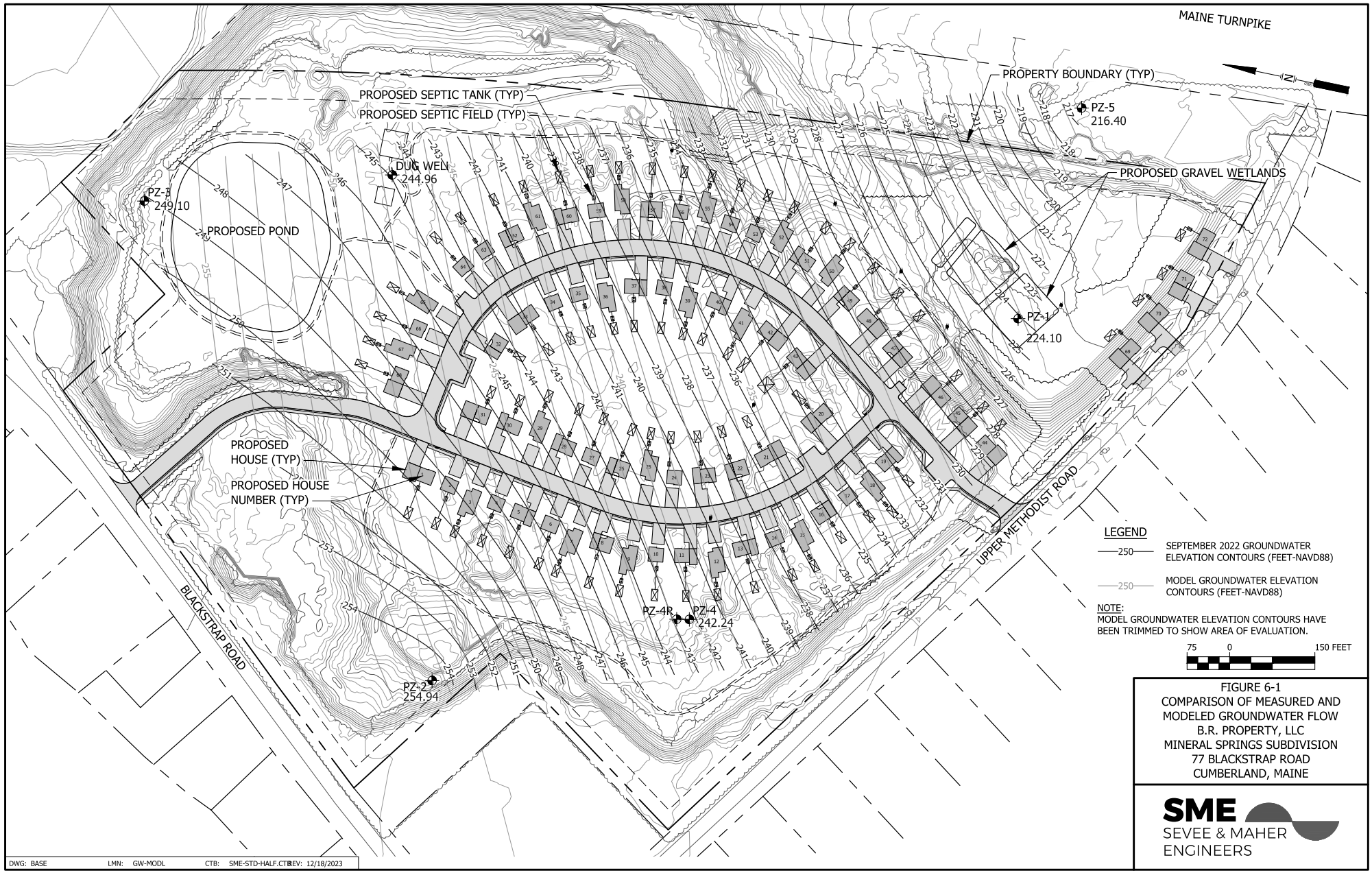


FIGURE 6-1
COMPARISON OF MEASURED AND MODELED GROUNDWATER FLOW
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER ENGINEERS

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, FIG 6-1, 12/18/2023 8:37:00 AM, jrl

A summary of the groundwater model simulation groundwater elevations compared to the on-Site groundwater level measurements on September 27, 2022 is provided on Table 6-2. The simulated groundwater table slope is approximately 2.2 percent, which compared well with the measured range of approximately 2.3 to 2.5 percent.

TABLE 6-2

COMPARISON OF MEASURED AND MODELED GROUNDWATER ELEVATIONS

Location ID	September 27, 2022 Groundwater Elevation (ft NAVD88)	Groundwater Model Elevation (ft NAVD88)	Percent Difference
PZ-1	224.10	224.15	+0.02
PZ-2	254.94	250.47	-1.75
PZ-3	249.10	256.85	+3.11
PZ-4	242.24	240.39	-0.76
PZ-5	216.40	218.33	+0.89
Dug Well	244.96	247.57	+1.07

6.3 Groundwater Model Simulation (Groundwater Quality)

The influence on groundwater quality from the proposed 72 single-family, three-bedroom SSWD systems was evaluated with respect to baseline and post-development nitrate concentrations. A baseline nitrate concentration of 1.8 milligrams per liter (mg/L) was added as an initial nitrate concentration in the model simulation based on the results of a groundwater sample collected from temporary groundwater piezometer PZ-1 on September 29, 2022. The laboratory analytical report from Maine Environmental Laboratory in Yarmouth, Maine is provided in Appendix F.

As described in Section 6.1, groundwater model recharge was used to simulate both annual precipitation and the recharge from the proposed 72 single-family, three-bedroom SSWD systems. For each cell containing the center of a proposed SSWD field, the recharge was increased to 388.98 inches per year, which includes the normal precipitation plus the 270 gpd of domestic wastewater spread over the 23.3 feet by 20 feet cell. Nitrate concentrations were added to the simulated recharge to these cells to evaluate the influence on groundwater quality from the proposed SSWD systems.

The nitrate in the domestic wastewater is assumed to be 40 mg/L, as is typical for domestic wastewater.[18] The recharge from precipitation is assumed to have a negligible nitrate concentration. Based on dilution of the daily domestic wastewater with annual precipitation, a nitrate concentration of 34.8 mg/L was used for each cell containing the center of a proposed SSWD system.

[18] *Nitrate-Nitrogen Impact Analysis for Engineered Systems*, (Maine) Department of Health and Human Services Bureau of Health, Division of Health Engineering Wastewater and Plumbing Control Program.

As a conservative measure, no allowance is made for nitrate removal by vegetation, microbes, soil sorption, or soil dispersion (i.e., the model is predicting post-development nitrate concentrations based on dilution only).

The simulated maximum post-development nitrate concentrations at the proposed SSWD fields ranged from 2.1 mg/L (for SSWD fields 62 through 68 and 72) to 3.5 mg/L (at SSWD field 14). The Maine drinking water standard for nitrate is 10 mg/L. The simulated model results do not indicate an adverse influence with respect to groundwater quality with respect to nitrate concentrations. The simulated post-development nitrate concentrations are illustrated on Figure 6-2. Figure 6-2 shows 0.1 mg/L nitrate interval contours starting at the baseline nitrate concentration of 1.8 mg/L.

This evaluation does not take into account impacts to groundwater quality that are not associated with the SSWD systems proposed for the Site.

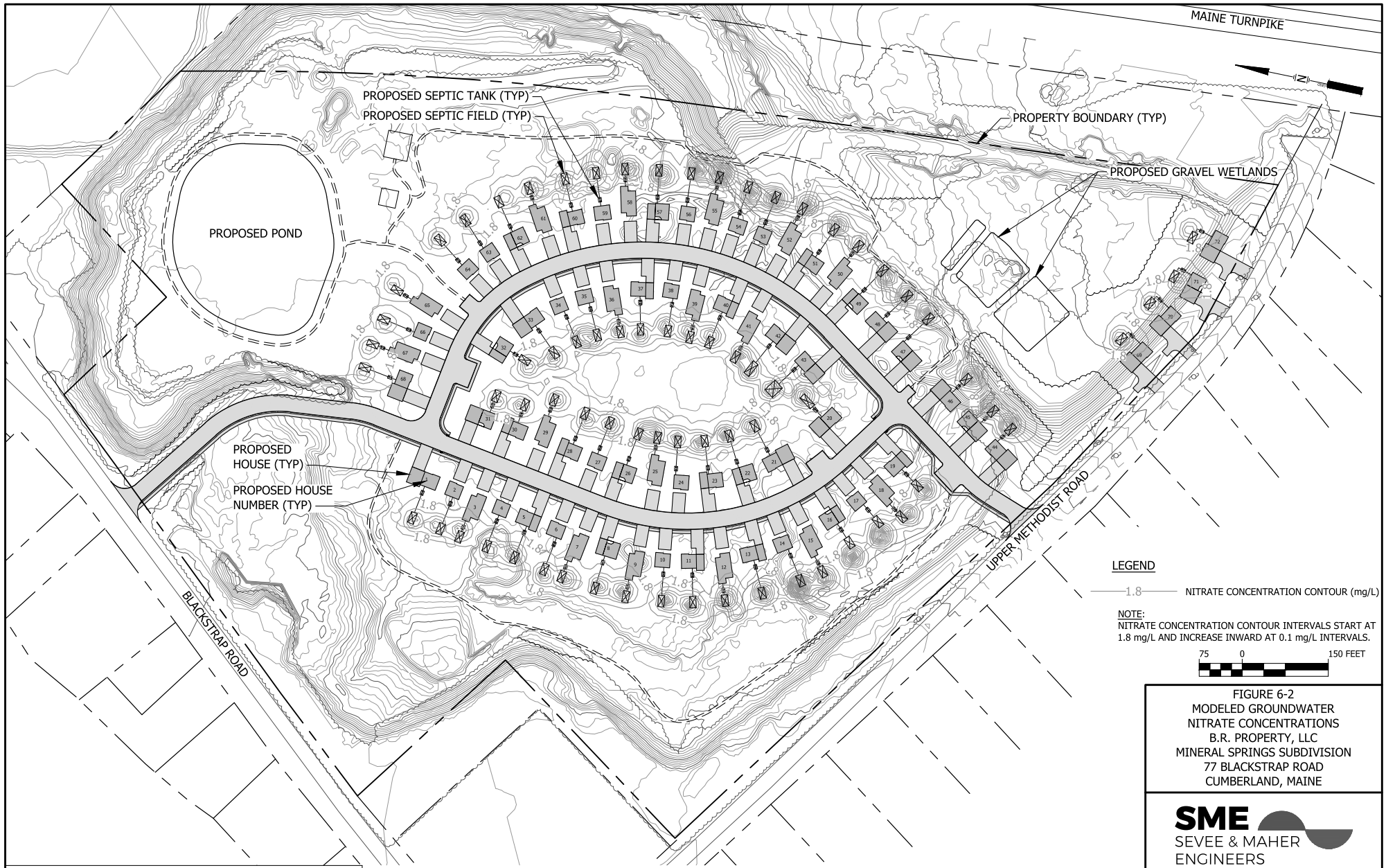


FIGURE 6-2
MODELED GROUNDWATER
NITRATE CONCENTRATIONS
B.R. PROPERTY, LLC
MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER
ENGINEERS

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, FIG 6-2, 12/18/2023 8:39:22 AM, jrl

7.0 SUMMARY AND RECOMMENDATIONS

7.1 Summary

The Site is proposed to be developed as 72 single-family, three-bedroom homes located on common land on one property parcel. Each home is proposed to be served by individual subsurface wastewater disposal (SSWD) systems and the Site is proposed to be served by an extension of the Portland Water District (PWD) water supply utility system.

A preliminary site evaluation was completed by an SME Maine Licensed Site Evaluator between July and September 2023. The Site has been developed as a gravel pit since at least the early 20th century. The remaining natural soils at the Site generally consist of coarse-grained deposits that formed as a marine ice-contact delta. The current development of the Site results in multiple areas that will require reclamation using soils comparable to the coarse-grained natural soils observed at the Site (see Table 4-1). The proposed reclamation includes:

- The addition of coarse-grained soils above natural soils to restore previously existing soil conditions that meet the criteria established in the Maine SSWD Rules; and/or
- The replacement of unsuitable fill soils (e.g., firm clay fill, organic material fill, etc.) with coarse-grained soils to restore previously existing soil conditions that meet the criteria established in the Maine SSWD Rules.

As described in Section 5.2, the proposed SSWD systems meet the required setbacks from existing off-Site groundwater supply wells. Additionally, the proposed post-development Site conditions are planned to meet the SSWD system setback requirements from water supply lines, drainage ditches, slopes greater than 3:1, building foundations, property lines, burial sites/graveyard boundaries, and stormwater control systems.

As described in Sections 5.2, the current USGS Topographic map used for the Site location map (see Figure 1-1) shows a large portion of the interior of the parcel is shown as a water body, which indicates the presence of a major water body within the boundaries of the subject property. This mapped feature, however, is not consistent with the current Site conditions. Currently, the only remaining portion of the mapped water feature, excluding existing stormwater diversion trenches, is the remnants of the tailing pond. The Site was delineated for wetlands by Mark Hampton Associates, Inc. of Portland, Maine (Hampton) in September 2023. In summary, Hamptons findings indicated that the wetlands found on the parcel:

- Do not meet the definition of wetlands of special significance as defined by the MEDEP;

- Are man-made sediment control structures that have not been maintained and have filled up with sediment and become water bodies;
- Are not jurisdictional wetlands to either the State of Maine or Federal Agencies since the property is a completed gravel pit which has been operated for decades; and
- Can be filled in.

It is planned that the area of the tailings pond will be regraded and incorporated into the proposed stormwater management system for the Site. Hampton's wetland delineation letter report, dated October 26, 2023, is included in the SLODA application materials.

The proposed Site conditions following reclamation of the gravel pit are proposed to be recognized in favor of the location of the current USGS mapped water body at the Site with respect to setback rules required by the Maine SSWD Rules. Under the proposed development layout for SSWD systems, it is planned that after final Site development there will be no water bodies/courses on-Site other than some components of the proposed stormwater management system and a pond proposed for aesthetic purposes (described below). Since the Site does currently have a USGS mapped water body, the current Site layout may require a determination from the MEDHHS Subsurface Wastewater Unit.

Other than some components of the proposed stormwater management system, the only waterbody/course planned to be on-Site is an approximately 1.84-acre pond that is proposed for aesthetic purposes (see Figure 5-1). For the purpose of this evaluation, it is assumed that the proposed pond will be recognized as a minor water body. The pond is located upgradient to side-gradient from any proposed SSWD field. As a minor water course, all setback requirements between the pond and the SSWD systems will be met. If there is a determination from the MEDHHS Subsurface Wastewater Unit that the proposed pond will be a major water course, then all setback requirements between the pond and the SSWD systems can still be met if one home (specifically one of the homes identified as either number 65, 66, 67, or 68) be changed from a three-bedroom home to a four-bedroom home.

A three-dimensional numerical groundwater model (MODFLOW) was developed to simulate groundwater flow conditions across the Site and post-development nitrate concentrations. Based on the configuration of the proposed SSWD field locations, along with the assumptions and calculations described in this report, there will be no adverse increase in nitrate concentrations (i.e., greater than or equal to 10 mg/L) in groundwater outside of the project boundaries.

7.2 Recommendations

SME recommends the following:

- That the proposed reclamation activities and the earth materials used for the reclamation be inspected and commented on by a Maine Licensed Site Evaluator and that all final test pits used for SSWD system designs be completed following substantial completion of reclamation activities in their respective areas;
- That, due to the dense development at the Site and limitations regarding SSWD setbacks, any Site Evaluator designing the planned SSWD systems coordinate closely with the project engineer and that SSWD field corners be located and marked by survey and the elevations at the corners be surveyed in feet-NAVD88;
- That a Maine Licensed Site Evaluator verifies that the post-development Site conditions meet all intended minimum setback requirements established in the Maine SSWD Rules upon final design of each proposed individual SSWD system; and
- That the private water supply well at the Site (a dug well) be abandoned in accordance with the MEDEP Guidance for Well and Boring Abandonment.

APPENDIX A

SOIL CONDITIONS SUMMARY TABLE

SME
SEVEE & MAHER
ENGINEERS

FORM E Rev. 07/11

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Lot No.	Exploration Symbol *(TP 1, B 2, etc.)*	☒ if at SSWD Field	Description of subsurface materials by: ● Soil profile/condition *(if by S.E.)*, ● Soil series name *(if by C.S.S.)*, or by ● Geologic unit *(if by C.G.)*	Depths to *(inches)*: Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
1	TP-01	☒	12 over 5 E (area requires reclamation)	0		0	20	<3	255.2'
2	TP-02	☒	12 over 5 E (area requires reclamation)	0		0	24	<3	255.5'
3	TP-03	☒	12 over 5 E (area requires reclamation)	0		0	32	<3	255.8'
4	TP-04	☒	12 E (area requires reclamation)	0			30	10	255.9'
5	TP-05	☒	12 E (area requires reclamation)	0			32	<20	254.6'
6	TP-06	☒	No test pit (area requires reclamation)	0			0	<3	253.5'
7	TP-07	☒	No test pit (area requires reclamation)	0			0	<3	252.8'
8	TP-08	☒	12(6) C	19			43	<3	252.8'
9	TP-09	☒	12 over 5 C (remove firm fill)	45			65	<3	252.7'
10	TP-10	☒	12 over 5 C (remove firm fill)	41			74	<3	253.6'
11	TP-11	☒	12 over 5 B (remove firm fill)	48			74	<3	252.5'
12	TP-12	☒	12 over 5 B (remove firm fill)	57			70	<20	252.2'
13	TP-13	☒	12 E (area requires reclamation)			0	59	9	259.2'
14	TP-14	☒	12 E (area requires reclamation)			0	72	<3	267.0'
15	TP-15	☒	12 E (area requires reclamation)			0	73	<3	266.0'
16	TP-16	☒	12 E (area requires reclamation)			0	71	<20	265.0'
17	TP-17	☒	12 E (area requires reclamation)			0	60	7	267.1'
18	TP-18	☒	12 E (area requires reclamation)			0	66	11	263.3'
19	TP-19	☒	12 E (area requires reclamation)			0	132	8	265.0'
20	TP-20	☒	12(7) C			24	76	3	251.8'
21	TP-21	☒	12(7) C			26	96	<3	251.8'
22	TP-22	☒	12 over 5 B	49			73	<3	251.6'
23	TP-23	☒	12 over 5 C (remove firm fill)	42			70	<3	251.6'
24	TP-24	☒	12 over 5 C	38			64	<3	251.1'
25	TP-25	☒	12 over 5 C	43			64	<3	251.6'
26	TP-26	☒	12 over 5 C	31			56	<3	250.8'
27	TP-27	☒	12 over 5 C	32			58	<3	251.2'
28	TP-28	☒	12 over 5 C	36			61	<3	251.8'
29	TP-29	☒	12 over 5 C	17			36	<3	250.6'
30	TP-30	☒	12 over 5 C	30			48	<3	251.8'
31	TP-31	☒	12 over 5 C	33			52	<3	252.0'
32	TP-32	☒	12 over 5 C	27			45	<3	251.5'

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18-20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	L.S.E. #370

Qualification: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Other:

STATE OF MAINE
ANDREW GOBEIL
No. 370
11/28/2023
LICENSED SITE EVALUATOR

FORM E Rev. 07/11

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Lot No.	Exploration Symbol *(TP 1, B 2, etc.)*	☒ if at SSWD Field	Description of subsurface materials by: ● Soil profile/condition *(if by S.E.)*, ● Soil series name *(if by C.S.S.)*, or by ● Geologic unit *(if by C.G.)*	Depths to *(inches)*: Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
33	TP-33	☒	12 over 5 C	33			53	<3	251.6'
34	TP-34	☒	12 over 5 C	35			50	<3	251.0'
35	TP-35	☒	12 over 5 C	32			55	<3	251.0'
36	TP-36	☒	12 over 5 C	34			63	<3	251.0'
37	TP-37	☒	12 over 5 C	37			55	<3	251.1'
38	TP-38	☒	12 over 5 C	40			58	<3	251.0'
39	TP-39	☒	12 over 5 C	47			66	<3	251.1'
40	TP-40	☒	12 over 5 C	45			65	<3	251.3'
41	TP-41	☒	12 over 5 B (remove firm fill)	52			77	<3	251.3'
42	TP-42	☒	12(7) C	50		16	84	<3	251.0'
43	TP-43	☒	12(7) C	43		15	96	<3	251.0'
44	TP-44	☒	5 B (requires regrading to <20% slope)	>58			58	33	271.0'
45	TP-45	☒	5 B (requires regrading to <20% slope)	>62			62	24	271.3'
46	TP-46	☒	5 C	>32			32	6	247.7'
47	TP-47	☒	5 B	>48			48	<3	245.3'
48	TP-48	☒	5 B	>60			60	9	245.7'
49	TP-49	☒	5 C	39			53	16	243.0'
50	TP-50	☒	5 B	>60			60	<3	249.0'
51	TP-51	☒	12 over 5 B (remove firm fill)	>60			60	9	248.8'
52	TP-52	☒	5 C	43			56	15	247.5'
53	TP-53	☒	5 C	39			53	10	260.0'
54	TP-54	☒	12 over 5 B (regrade to <20% slope)	>60			60	33	254.3'
55	TP-55	☒	Requires TP Following Reclamation	NA	NA	NA	NA	NA	NA
56	TP-56	☒	Requires TP Following Reclamation	NA	NA	NA	NA	NA	NA
57	TP-57	☒	5 C (remove bark piles)	41			60	<3	250.2'
58	TP-58	☒	5 C (remove bark piles)	40			61	<3	250.5'
59	TP-59	☒	12 over 5 C (remove bark piles)	39			65	<3	250.8'
60	TP-60	☒	12 over 5 C (remove bark piles)	28			52	<3	254.3'
61	TP-61	☒	12 over 5 C (remove bark piles)	24			46	<3	250.4'
62	TP-62	☒	12 over 5 C	18			40	<3	250.4'
63	TP-63	☒	12 over 5 C	24			49	<3	251.2'
64	TP-64	☒	12 over 5 C	27			52	<3	251.5'

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18-20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	L.S.E. #370

Qualification

☒ Licensed Site Evaluator ☐ Certified Soil Scientist
☐ Certified Geologist ☐ Other:

STATE OF MAINE
ANDREW GOBEIL
No. 370
LICENSED SITE EVALUATOR
11/28/2023

FORM E Rev. 07/11

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Lot No.	Exploration Symbol *(TP 1, B 2, etc.)*	☒ if at SSWD Field	Description of subsurface materials by: ● Soil profile/condition *(if by S.E.)*, ● Soil series name *(if by C.S.S.)*, or by ● Geologic unit *(if by C.G.)*	Depths to *(inches)*: Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
65	TP-65	☒	12 over 5 C (remove firm fill)	39			60	<3	252.5'
66	TP-66	☒	12 over 5 C	39			57	<3	253.1'
67	TP-67	☒	Requires TP After Building Demolition	NA	NA	NA	NA	NA	NA
68	TP-68	☒	12 over 5 C	56			73	<3	254.5'
69	TP-69	☒	5 C				24	<3	230.0'
70	TP-70	☒	5 C				24	<3	228.1'
71	TP-71	☒	5 C				24	<3	227.9'
72	TP-72	☒	5 C				24	<3	226.0'
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INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18-20/23 & 9/28/23
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	L.S.E. #370

Qualification

☒ Licensed Site Evaluator ☐ Certified Soil Scientist
☐ Certified Geologist ☐ Other:

STATE OF MAINE
ANDREW GOBEIL
No. 370
LICENSED SITE EVALUATOR
11/28/2023

APPENDIX B

TEST PIT LOGS

SME
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ENGINEERS

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-01

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 255.2'+/-

20 " Depth of exploration or to refusal

Texture	Consistency	Color	Redox Features
Loam, Gravel, Sand (Fill)	Cemented	7.5 YR 4/3	Estimated SHWT at 0"
Fine to Medium Sand	Loose	7.5 YR 7/6	

Limit of Observation at 20"

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Test pit TP-01 does not pass. Thin fill restrictive layer at surface needs to be removed and this area needs to be reclaimed with soil matching Profile 5 Soil Conditions to elevation ≥257.1 ft-NAVD88. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 (Profile) E (Condition)	<3 (Percent)	0 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-02

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 255.5'+/-

24 " Depth of exploration or to refusal

Texture	Consistency	Color	Redox Features
Gravel & Sand (Fill)	Cemented	7.5 YR 4/3	Estimated SHWT at 0"
Very Fine Sand (Fill)	Very Dense	7.5 YR 7/3	

Limit of Observation at 24"

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Test pit TP-02 does not pass. Fill needs to be removed and this area needs to be reclaimed with soil matching Profile 5 Soil Conditions to elevation ≥256.8 ft-NAVD88. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 (Profile) E (Condition)	<3 (Percent)	0 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-03

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 255.8'+/-

32 " Depth of exploration or to refusal

Texture	Consistency	Color	Redox Features
Loam, Sand, Gravel, Stone (Fill)	Cemented	7.5 YR 4/3	Estimated SHWT at 0"
Gravel & Sand (Fill)		7.5 YR 6/3	
	Very Dense	7.5 YR 7/3	

Limit of Observation at 32"

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Test pit TP-03 does not pass. Fill needs to be removed and this area needs to be reclaimed with soil matching Profile 5 Soil Conditions to elevation ≥256.6 ft-NAVD88. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 (Profile) E (Condition)	<3 (Percent)	0 " (Depth)	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-04

☒ Test Pit ☐ Boring ☐ Probe

NA " Organic horizon thickness — Ground surface elev. 255.9'+/-

30 " Depth of exploration or to refusal

Texture	Consistency	Color	Redox Features
Loam, Wood, Stones, Sand (Fill)	Varies (Not a Soil)	Very Dark Brown/ Black (Not a Soil)	Estimated SHWT at 0"

Limit of Observation at 30"

Depth below mineral soil surface (inches): 0, 10, 20, 30, 40, 50, 60

Test pit TP-04 does not pass. Located in area of mulch storage. Fill from this area needs to be removed and this area needs to be reclaimed with soil matching Profile 5 Soil Conditions to elevation ≥256.5 ft-NAVD88. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12 (Profile) E (Condition)	10 (Percent)	0 " (Depth)	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE — ANDREW GOBEIL No. 370 — LICENSED SITE EVALUATOR — 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-05

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 254.6'+/-

32 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine Sandy Loam, Silt, Gravel, Stones (Fill)	Friable	7.5 YR 4/3	Estimated SHWT at 0"
10	Boulders, Stones, Roots (Fill)	NA (Not a Soil)	NA (Not a Soil)	
20				
30	Limit of Observation at 32"			
40				
50				
60				

Test pit TP-05 does not pass. Fill needs to be removed and this area needs to be reclaimed with soil matching Profile 5 Soil Conditions to elevation ≥256.0 ft-NAVD88. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
12	E	<20	0 "	☒	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-06

☒ Test Pit ☐ Boring ☐ Probe

NA " Organic horizon thickness — Ground surface elev. 253.5'+/-

0 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Area has perched water due to low permeability fill. Standing water at ground surface.			Estimated SHWT at 0"
10				
20				
30				
40				
50				
60				

Test pit TP-06 does not pass. Fill needs to be removed and this area needs to be reclaimed with soil matching Profile 5 Soil Conditions to elevation ≥255.8 ft-NAVD88. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
NA	E	<3	0 "	☒	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-07

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 252.8'+/-

NA " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Area has perched water due to low permeability fill. Standing water at ground surface.			Estimated SHWT at 0"
10				
20				
30				
40				
50				
60				

Test pit TP-07 does not pass. Fill needs to be removed and this area needs to be reclaimed with soil matching Profile 5 Soil Conditions to elevation ≥255.1 ft-NAVD88. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
NA	E	<3	0 "	☒	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-08

☒ Test Pit ☐ Boring ☐ Probe

NA " Organic horizon thickness — Ground surface elev. 252.8'+/-

43 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loam (Fill)	Friable	7.5YR 3/2	
10	Gravelly Sand (Fill)	Loose	7.5YR 6/4	
20	1" to 2" Diameter Crushed Stone (Fill)		NA	Estimated SHWT at 19"
30				
40	Limit of Observation at 43"			
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater	Restrictive Layer	Bedrock
12(6)	C	<3	19 "	☒	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/19&20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-09

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 252.7'+/-

65 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Loamy Fine to Coarse Gravelly Sand (0–10)	Loose	7.5 YR 4/3	
Cobbles (Fill) (10–40)	NA (Not a Soil)	NA (Not a Soil)	
Fine Sand (Fill) (40–50)	Loose to Compact	7.5 YR 6/4	Estimated SHWT at 45"
Medium to Coarse Sand (50–60)	Loose	7.5 YR 7/3	

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by ☐ S.E. ☐ S.S.

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	45 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-10

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 253.6'+/-

74 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Gravelly Sandy Loam (Fill) (0–10)	Friable	7.5 YR 3/2	
Sand & Gravel (Fill) (10–20)	Loose to Compact	7.5 YR 6/4	
Crushed Stone (Fill) (20–30)	NA (Not a Soil)		
Very Fine Silty Sand (Fill) (30–40)	Firm	7.5 YR 6/4	Estimated SHWT at 41"
Medium to Coarse Gravelly Sand (50–60)	Loose	7.5 YR 7/3	

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by ☐ S.E. ☐ S.S.

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	41 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-11

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 252.5'+/-

74 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Loam (Fill) (0–10)	Firm	7.5 YR 3/2	
Medium to Coarse Gravelly Sand & Cobbles (Fill) (10–30)	Loose	7.5 YR 6/4	
Silt, Clay, & Sand Layers (Fill) (30–40)	Firm	Varies	
Fine to Medium Sand (40–60)	Loose	7.5 YR 7/3	Estimated SHWT at 48"

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by ☐ S.E. ☐ S.S.

Soil Classification	Slope	Limiting Factor	
12/5 Profile / B Condition	<3 Percent	48 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-12

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 252.2'+/-

70 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Very Fine Silty Sand (Fill) (0–40)	Loose to Compact	7.5 YR 4/3	
Fine to Coarse Gravelly Sand (40–60)	Loose	7.5 YR 6/4	Estimated SHWT at 57"
		7.5 YR 7/3	

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by ☐ S.E. ☐ S.S.

Soil Classification	Slope	Limiting Factor	
12/5 Profile / B Condition	<20 Percent	57 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/19/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-13

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 259.2'+/-

59 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Loam, Silt, Sand, Clay, Gravel, & Stones (Fill)	Varies (Friable to Firm)	Varies (Brown to Gray)	
10–20				
20–30				
30–40				Perched Water at 59"
40–50				
50–60				

Test pit TP-13 does not pass. Area consists of a deep fill slope, which needs to be cut and reclaimed with soil matching Profile 5 Soil Conditions to at least 9 inches above seasonal high water table and for a minimum of 48 inches below bottom of disposal field (to maintain Profile 5 classification. Test pit will be provided after reclamation.

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor		Hydrologic
12 Profile / E Condition	9 Percent	0 " Depth	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock	Soil Group
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	

Exploration Symbol # TP-14

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 267.0'+/-

72 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Clay w/ some Sand, Stones, & Gravel (Fill)	Firm	Varies (Dark Brown to Gray)	
10–20				
20–30				
30–40				
40–50				
50–60				

Test pit TP-14 does not pass. Area consists of a deep fill slope, which needs to be cut and reclaimed with soil matching Profile 5 Soil Conditions to at least 9 inches above seasonal high water table and for a minimum of 48 inches below bottom of disposal field (to maintain Profile 5 classification. Test pit will be provided after reclamation.

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor		Hydrologic
12 Profile / E Condition	<3 Percent	0 " Depth	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock	Soil Group
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	

Exploration Symbol # TP-15

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 266.0'+/-

73 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Clay w/ some Sand, Stones, & Gravel (Fill)	Firm	Varies (Dark Brown to Gray)	
10–20				
20–30				
30–40				
40–50				
50–60				

Test pit TP-15 does not pass. Area consists of a deep fill slope, which needs to be cut and reclaimed with soil matching Profile 5 Soil Conditions to at least 9 inches above seasonal high water table and for a minimum of 48 inches below bottom of disposal field (to maintain Profile 5 classification. Test pit will be provided after reclamation.

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor		Hydrologic
12 Profile / E Condition	<3 Percent	0 " Depth	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock	Soil Group
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	

Exploration Symbol # TP-16

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 265.0'+/-

71 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Clay (Fill)	Hard/Firm	7.5 YR 7/1	
10–20	Fine to Coarse Sand, Gravel, Stones, Silt, Wire, Plastic (Fill)	Varies (Friable to Firm)	Varies (Dark Brown to Gray)	
20–30				
30–40				
40–50				
50–60				

Test pit TP-16 does not pass. Area consists of a deep fill slope, which needs to be cut and reclaimed with soil matching Profile 5 Soil Conditions to at least 9 inches above seasonal high water table and for a minimum of 48 inches below bottom of disposal field (to maintain Profile 5 classification. Test pit will be provided after reclamation.

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor		Hydrologic
12 Profile / E Condition	<20 Percent	0 " Depth	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock	Soil Group
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/19/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-17

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 267.1'+/-

60 " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Redox Features
Clay & Clayey Silt (Fill)	Hard/Firm	Varies (Brown to Gray)	

Test pit TP-17 does not pass. Area consists of a deep fill slope, which needs to be cut and reclaimed with soil matching Profile 5 Soil Conditions to at least 9 inches above seasonal high water table and for a minimum of 48 inches below bottom of disposal field (to maintain Profile 5 classification. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12 (Profile) E (Condition)	7 (Percent)	0 (Depth) "	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-18

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 263.3'+/-

66 " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Redox Features
Clay (Fill)	Hard/Firm	7.5 YR 7/1	
Fine Sandy Loam w/ Clay, Roots, Stones, Sandy Loam (Fill)	Firm	Varies (Dark Brown to Gray)	

Test pit TP-18 does not pass. Area consists of a deep fill slope, which needs to be cut and reclaimed with soil matching Profile 5 Soil Conditions to at least 9 inches above seasonal high water table and for a minimum of 48 inches below bottom of disposal field (to maintain Profile 5 classification. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12 (Profile) E (Condition)	11 (Percent)	0 (Depth) "	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-19

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 265.0'+/-

132 " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Redox Features
0-108" Loam, Sand, Silt, Stones, Roots, Rope, & Brick (Fill)	Friable to Firm	7.5 YR 3/2	
~~108-132"~~ Silty Clay (Fill)	Firm	7.5 YR 7/1	

Test pit TP-19 does not pass. Area consists of a deep fill slope, which needs to be cut and reclaimed with soil matching Profile 5 Soil Conditions to at least 9 inches above seasonal high water table and for a minimum of 48 inches below bottom of disposal field (to maintain Profile 5 classification. Test pit will be provided after reclamation.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12 (Profile) E (Condition)	8 (Percent)	0 (Depth) "	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-20

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.8'+/-

76 " Depth of exploration or to refusal

Depth below mineral soil surface *(inches)*

Texture	Consistency	Color	Redox Features
Stony, Gravelly Sand (Fill)	Friable	7.5 YR 6/4	
Gravelly Fine to Coarse Sand (Fill)	Loose		
Silt & Clay (Fill)	Firm	2.5 YR 6/8	

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12(7) (Profile) C (Condition)	3 (Percent)	24 (Depth) "	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/19/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-21

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.8'+/-

96 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine to Coarse Gravelly Sand (Fill)	Loose	7.5 YR 6/4	
30	Clay (Fill)	Firm	2.5 YR 6/8	
45				Seeping Water at 45"
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12(7) Profile / C Condition	<3 Percent	26 " Depth	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-22

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.6'+/-

73 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand & Gravel (Fill)	Friable	7.5 YR 4/4	
20	Medium to Coarse Gravelly Sand	Loose	7.5 YR 7/3	
40	Fine Sand		7.5 YR 8/3	
49				Estimated SHWT at 49"
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / B Condition	<3 Percent	49 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-23

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.6'+/-

70 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine to Coarse Sand & Gravel (Fill)	Friable to Firm	7.5 YR 6/4	
30	Medium to Coarse Gravelly Sand	Loose	7.5 YR 7/3	
42				Estimated SHWT at 42"
60				

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	42 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-24

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.1'+/-

64 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine to Medium Gravelly Sand (Fill)	Friable	7.5 YR 4/3	
20	Medium to Coarse Gravelly Sand	Loose	7.5 YR 7/3	
38				Estimated SHWT at 38"
40	Fine Sand		7.5 YR 8/3	
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	38 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-25 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.6'+/-

64 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand, Stones, Gravel (Fill)	Friable	7.5 YR 6/4	
10	Fine to Medium Sand	Loose	7.5 YR 8/4	
20				
30	Medium to Coarse Gravelly Sand			
40				Estimated SHWT at 43"
50				
60				

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	43 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-26 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 250.8'+/-

56 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand & Gravel (Fill)	Friable	7.5 YR 4/4	
10	Fine to Coarse Sand		7.5 YR 6/4	
20	Coarse Sand	Loose	7.5 YR 7/3	
30				Estimated SHWT at 31"
40				
50				
60	Limit of Observation at 56"			

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	31 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-27 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.2'+/-

58 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loam, Gravel, Sand, Stone, Silt (Fill)	Friable	7.5 YR 5/2	
20	Gravelly Fine to Coarse Sand	Loose	7.5 YR 6/6	
30	Gravelly Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 32"
40				
50				
60	Limit of Observation at 58"			

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	32 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-28 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.8'+/-

61 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loam, Gravel, Sand, Stone, Silt (Fill)	Friable	7.5 YR 6/4	
30	Gravelly Fine to Coarse Sand	Loose	7.5 YR 7/6	Estimated SHWT at 36"
40	Gravelly Fine to Medium Sand		7.5 YR 8/3	
50				
60				

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	36 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-29 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 250.6'+/-

36 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Loamy Fine to Coarse Sand (Fill)	Friable	7.5 YR 6/4	
Gravelly Fine to Coarse Sand	Loose	7.5 YR 7/6	
Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 17"
Limit of Observation at 36"			

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	17 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-30 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.8'+/-

48 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Loamy Fine to Coarse Sand & Gravel (Fill)	Friable	7.5 YR 4/4	
	Loose		
Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 30"

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	30 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-31 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 252.0'+/-

52 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Loamy, Gravelly Sand (Fill)	Friable	7.5 YR 7/6	
Medium to Coarse Sand	Loose	7.5 YR 8/6	Estimated SHWT at 33"
Limit of Observation at 52"			

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	33 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-32 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.5'+/-

45 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Loamy, Gravelly Sand (Fill)	Friable	7.5 YR 7/6	
Medium to Coarse Sand	Loose	7.5 YR 8/6	Estimated SHWT at 27"
Limit of Observation at 45"			

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 Profile / C Condition	<3 Percent	27 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-33 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.6'+/-

53 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Sand, Gravel, Silt & Stones (Fill)	Friable	7.5 YR 6/4	
10–30	Gravelly Fine to Coarse Sand	Loose	7.5 YR 7/3	Estimated SHWT at 33"
30–53	Limit of Observation at 53"			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
12/5 (Profile) C (Condition)	<3 (Percent)	33 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-34 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.0'+/-

50 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Sand, Gravel, Silt & Stones (Fill)	Friable	7.5 YR 6/4	
10–20	Gravelly Fine to Coarse Sand	Loose	7.5 YR 8/3	
20–40	Gravelly Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 35"
40–50	Limit of Observation at 50"			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
12/5 (Profile) C (Condition)	<3 (Percent)	35 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-35 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.0'+/-

55 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Loamy, Gravelly Fine to Coarse Sand (Fill)	Friable	7.5 YR 6/4	
10–30	Medium to Coarse Sand	Loose	7.5 YR 7/3	Estimated SHWT at 32"
30–55	Limit of Observation at 55"			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
12/5 (Profile) C (Condition)	<3 (Percent)	32 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-36 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 251.0'+/-

63 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–20	Loamy, Gravelly Sand (Fill)	Friable	7.5 YR 6/4	
20–40	Gravelly Fine to Coarse Sand	Loose	7.5 YR 7/3	Estimated SHWT at 34"
40–63	Limit of Observation at 63"			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
12/5 (Profile) C (Condition)	<3 (Percent)	34 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-37

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.1'+/-

55 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand, Gravel, Silt & Stones (Fill)	Friable	7.5 YR 6/4	
30	Gravelly Medium to Coarse Sand	Loose	7.5 YR 7/3	Estimated SHWT at 37"
55	Limit of Observation at 55"			

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater / Restrictive Layer / Bedrock
12/5	C	<3	37 "	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-38

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.0'+/-

58 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand, Gravel, Silt & Stones (Fill)	Friable	7.5 YR 6/4	
40	Gravelly Medium to Coarse Sand	Loose	7.5 YR 7/3	Estimated SHWT at 40"
58	Limit of Observation at 58"			

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater / Restrictive Layer / Bedrock
12/5	C	<3	40 "	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-39

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.1'+/-

66 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand, Gravel, Silt & Stones (Fill)	Friable	7.5 YR 5/4	
30	Gravelly Fine to Coarse Sand	Loose	7.5 YR 6/4	
40	Gravelly Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 47"
66				

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater / Restrictive Layer / Bedrock
12/5	C	<3	47 "	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-40

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.3'+/-

65 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand, Gravel, Silt & Stones (Fill)	Friable	7.5 YR 4/3	
20	Gravelly Fine to Medium Sand		7.5 YR 6/4	
30	Gravelly Medium to Coarse Sand	Loose	7.5 YR 7/3	
50	Silt		7.5 YR 7/2	Estimated SHWT at 45"
60	Gravelly Medium to Coarse Sand		7.5 YR 7/3	

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	Groundwater / Restrictive Layer / Bedrock
12/5	C	<3	45 "	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-41

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.3'+/-

77 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand, Gravel, Silt & Stones (Fill)	Friable to Firm	7.5 YR 4/4	
30	Gravelly Medium to Coarse Sand	Loose	7.5 YR 8/3	
50				Estimated SHWT at 52"
60				

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
12/5 (Profile)	B (Condition)	<3 (Percent)	52 (Depth)	"	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-42

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.0'+/-

84 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine to Coarse Sand, Gravel, & Stones (Fill)	Friable	7.5 YR 6/4	
20	Very Fine Sand (Fill)	Firm	7.5 YR 6/3	
30	Gravelly Medium to Coarse Sand (Fill)	Loose	7.5 YR 8/3	
50	Silty Clay (Fill)	Firm	10 R 5/8	Estimated SHWT at 50"
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
12(7) (Profile)	C (Condition)	<3 (Percent)	16 (Depth)	"	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-43

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.0'+/-

96 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine to Coarse Sand, Gravel, & Silt (Fill)	Friable	7.5 YR 5/4	
10	Very Fine Sand (Fill)	Firm	7.5 YR 6/3	
20	Gravelly Medium to Coarse Sand (Fill)	Loose	7.5 YR 8/3	
40	Silty Clay (Fill)	Firm	10 R 5/8	Estimated SHWT at 43"
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
12(7) (Profile)	C (Condition)	<3 (Percent)	15 (Depth)	"	☐ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-44

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 271.0'+/-

58 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine Sandy Loam	Friable	7.5 YR 4/3	
10	Loamy Gravelly Medium Sand		7.5 YR 6/8	
20	Stony Coarse Gravelly Sand	Loose	7.5 YR 8/3	
50				None to 58"+
60				

Will require regrading area to <20% slope.

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
5 (Profile)	B (Condition)	33 (Percent)	>58 (Depth)	"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18&19/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-45 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 271.3'+/-

62 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Fine Sandy Loam	Friable	7.5 YR 4/4	
10	Loamy Gravelly Medium Sand	Loose	7.5 YR 6/8	
20				
30	Stony Coarse Gravelly Sand		7.5 YR 8/3	
40				
50				None to 62"+
60	Will require regrading area to <20% slope.			

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater	Restrictive Layer	Bedrock
5 (Profile) B (Condition)	24 (Percent)	>62 " (Depth)	☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-46 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 247.7'+/-

32 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10	Fine to Medium Sand	Loose	7.5 YR 8/3	
20				
30				None to 32"+
40	Limit of Observation at 32"			
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater	Restrictive Layer	Bedrock
5 (Profile) C (Condition)	6 (Percent)	>32 " (Depth)	☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-47 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 245.3'+/-

48 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10	Fine to Medium Sand	Loose	7.5 YR 8/3	
20				
30				
40				None to 48"+
50	Limit of Observation at 48"			
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater	Restrictive Layer	Bedrock
5 (Profile) B (Condition)	<3 (Percent)	>48 " (Depth)	☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-48 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 245.7'+/-

60 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10	Fine to Medium Sand	Loose	7.5 YR 8/3	
20				
30				
40				
50				
60				None to 60"+

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater	Restrictive Layer	Bedrock
5 (Profile) B (Condition)	9 (Percent)	>60 " (Depth)	☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/19/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-49 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 243.0'+/-

53 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Fine to Medium Sand	Loose	7.5 YR 8/3	
40			7.5 YR 7/3	Estimated SHWT at 39"
53	Limit of Observation at 53"			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
5 (Profile) C (Condition)	16 Percent	39 " Depth	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-50 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 249.0'+/-

60 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–60	Fine to Coarse Sand	Loose	7.5 YR 8/3	None to 60"+

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
5 (Profile) B (Condition)	<3 Percent	>60 " Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-51 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 248.8'+/-

60 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–20	Loam (Fill)	Friable to Firm	7.5 YR 3/2	
20–60	Fine to Medium Sand	Loose	7.5 YR 8/3	None to 60"+

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
5 (Profile) B (Condition)	9 Percent	>60 " Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-52 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 247.5'+/-

56 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–40	Fine to Medium Sand	Loose	7.5 YR 8/3	
40			7.5 YR 7/3	Estimated SHWT at 39"
56	Limit of Observation at 56"			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
5 (Profile) C (Condition)	15 Percent	43 " Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/18-20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

TP-53

Exploration Symbol # TP-53 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 260.0'+/-

53 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Fine to Medium Sand	Loose	7.5 YR 8/3	
40			7.5 YR 7/3	Estimated SHWT at 39"
53	Limit of Observation at 53"			

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Drainage
5 (Profile)	C (Condition)	10 (Percent)	39 " (Depth)		☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group:

TP-54

Exploration Symbol # TP-54 ☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness Ground surface elev. 254.3'+/-

60 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Fine Sandy Loam (Fill)	Friable	7.5 YR 4/3	
10–30	Gravelly Medium to Coarse Sand (Fill)	Loose	7.5 YR 8/4	
30–40	Sandy Loam (Fill)	Friable	7.5 YR 4/3	
40–50	Gravelly Loamy Sand (Fill)	Loose	7.5 YR 6/6	
50–60	Gravelly Fine to Coarse Sand		7.5 YR 8/3	None to 60"+

Will require regrading area to <20% slope.

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Drainage
12/5 (Profile)	B (Condition)	33 (Percent)	>60 " (Depth)		☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group:

TP-55

Exploration Symbol # TP-55 ☐ Test Pit ☐ Boring ☐ Probe

NA " Organic horizon thickness Ground surface elev. NA +/-

NA " Depth of exploration or to refusal

Area inaccessible due to stormwater drainage conditions at time of observation. Reclaim with soils consistnet with Hinkley soils w/in 48" of bottom of disposal field.

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Drainage
NA (Profile)	NA (Condition)	NA (Percent)	NA " (Depth)		☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group:

TP-56

Exploration Symbol # TP-56 ☐ Test Pit ☐ Boring ☐ Probe

NA " Organic horizon thickness Ground surface elev. NA +/-

NA " Depth of exploration or to refusal

Area inaccessible due to stormwater drainage conditions at time of observation. Reclaim with soils consistnet with Hinkley soils w/in 48" of bottom of disposal field.

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Drainage
NA (Profile)	NA (Condition)	NA (Percent)	NA " (Depth)		☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group:

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	**S.E.#370**

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-57

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 250.2'+/-

60 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Gravelly Fine to Coarse Sand	Loose	7.5 YR 6/4	
30	Gravelly Medium to Coarse Sand		7.5 YR 8/3	Estimated SHWT at 41"
40	Gravel & Coarse Sand		7.5 YR 7/3	
50				
60	Slope assumes removal of bark/stump piles.			

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
5 (Profile) C (Condition)	<3 (Percent)	41 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-58

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 250.5'+/-

61 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Gravelly Fine to Coarse Sand	Loose	7.5 YR 6/4	
30	Gravelly Medium to Coarse Sand		7.5 YR 8/3	Estimated SHWT at 40"
40	Gravel & Coarse Sand		7.5 YR 7/3	
50				
60	Slope assumes removal of bark/stump piles.			

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
5 (Profile) C (Condition)	<3 (Percent)	40 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-59

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 250.8'+/-

65 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Gravelly Fine to Coarse Sand (Fill)	Loose	7.5 YR 6/4	
30	Gravelly Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 39"
40				
50				
60	Slope assumes removal of bark/stump piles.			

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
12/5 (Profile) C (Condition)	<3 (Percent)	39 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

Exploration Symbol # TP-60

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 254.3'+/-

52 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Gravelly Fine to Coarse Sand (Fill)	Loose	7.5 YR 6/4	
30	Gravelly Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 28"
40				
50				
60	Slope assumes removal of bark/stump piles.			

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification	Slope	Limiting Factor	Groundwater / Restrictive Layer / Bedrock
12/5 (Profile) C (Condition)	<3 (Percent)	28 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11a

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-61

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 250.4'+/-

46 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Gravelly Loamy Sand (Fill)	Friable	7.5 YR 4/3	
10	Gravelly Fine to Coarse Sand (Fill)	Loose	7.5 YR 6/4	
20	Gravelly Fine to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 24"
30				
40				
50	Limit of Observation at 46"			
60				

Slope assumes removal of bark/stump piles.

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 (Profile) C (Condition)	<3 (Percent)	24 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-62

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 250.4'+/-

40 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Gravelly Loamy Sand (Fill)	Friable	7.5 YR 4/3	
10	Gravelly Fine to Coarse Sand (Fill)	Loose	7.5 YR 6/4	
20	Gravelly Fine to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 18"
30				
40	Limit of Observation at 40"			
50				
60				

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 (Profile) C (Condition)	<3 (Percent)	18 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-63

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.2'+/-

49 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Gravelly Loamy Sand (Fill)	Friable	7.5 YR 4/3	
10	Gravelly Medium to Coarse Sand	Loose	7.5 YR 6/6	
20				Estimated SHWT at 24"
30	Gravelly Coarse Sand		7.5 YR 7/3	
40				
50	Limit of Observation at 49"			
60				

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 (Profile) C (Condition)	<3 (Percent)	24 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

Exploration Symbol # TP-64

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 251.5'+/-

52 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0	Loamy Sand (Fill)	Firm	7.5 YR 3/2	
10	Gravelly Loamy Sand	Loose	7.5 YR 6/4	
20				
30	Gravelly Medium to Coarse Sand		7.5 YR 7/3	Estimated SHWT at 27"
40				
50	Limit of Observation at 52"			
60				

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by: S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
12/5 (Profile) C (Condition)	<3 (Percent)	27 " (Depth)	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric — Hydrologic Soil Group:

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-65

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 252.5'+/-

60 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Gravelly Fine to Coarse Sand (Fill)	Firm	7.5 YR 6/4	
10–30	Gravelly Coarse Sand and Cobbles	Loose	7.5 YR 8/3	
30–40			7.5 YR 7/3	Estimated SHWT at 39"
40–60				

Will require removal of firm fill w/in 24" of bottom of disposal field.

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
12/5 (Profile)	C (Condition)	<3 (Percent)	39 " (Depth)		☒ Groundwater ☐ Restrictive Layer ☐ Bedrock
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	Hydrologic Soil Group	

Exploration Symbol # TP-66

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 253.1'+/-

57 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Pavement	NA	NA	
10–20	Gravelly Fine to Coarse Sand (Fill)	Firm	7.5 YR 6/4	
20–30	Gravelly Fine to Coarse Sand	Loose	7.5 YR 8/3	
30–40			7.5 YR 7/3	Estimated SHWT at 39"
40–60				

Limit of Observation at 57"

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
12/5 (Profile)	C (Condition)	<3 (Percent)	39 " (Depth)		☒ Groundwater ☐ Restrictive Layer ☐ Bedrock
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	Hydrologic Soil Group	

Exploration Symbol # TP-67

☒ Test Pit ☐ Boring ☐ Probe

NA " Organic horizon thickness — Ground surface elev. NA +/-

NA " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–20	Test pit location under existing building. Test pit will be completed following demolition of building.			
20–60				

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
NA (Profile)	NA (Condition)	NA (Percent)	NA " (Depth)		☐ Groundwater ☐ Restrictive Layer ☐ Bedrock
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	Hydrologic Soil Group	

Exploration Symbol # TP-68

☒ Test Pit ☐ Boring ☐ Probe

0 " Organic horizon thickness — Ground surface elev. 254.5'+/-

73 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Gravelly Fine to Coarse Sand (Fill)	Firm	7.5 YR 6/4	
10–30	Gravel, Cobbles, & Coarse Sand	Loose	7.5 YR 8/3	
30–60	Gravelly Coarse Sand			Estimated SHWT at 56"

Soil Details by: S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater / Restrictive Layer / Bedrock
12/5 (Profile)	C (Condition)	<3 (Percent)	56 " (Depth)		☒ Groundwater ☐ Restrictive Layer ☐ Bedrock
Soil Series/Phase Name:			☐ Hydric ☐ Non-hydric	Hydrologic Soil Group	

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	7/20/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

FORM F Rev. 07/11*a*

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Proposed Blackstrap Road Subdivision	BR Property, LLC	Cumberland

Exploration Symbol # TP-69 ☒ Test Pit ☐ Boring ☐ Probe

2 " Organic horizon thickness Ground surface elev. 230.0'+/-

24 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0			7.5 YR 5/8	
10	Fine Sand	Loose		
20			7.5 YR 8/4	
	Limit of Observation at 24"			
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
5 (Profile)	C (Condition)	<3 (Percent)	>24 " (Depth)		☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-70 ☒ Test Pit ☐ Boring ☐ Probe

3 " Organic horizon thickness Ground surface elev. 228.1'+/-

24 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10	Loamy Fine Sand	Loose	7.5 YR 6/4	
20	Fine Sand		7.5 YR 7/3	
	Limit of Observation at 24"			
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
5 (Profile)	C (Condition)	<3 (Percent)	>24 " (Depth)		☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-71 ☒ Test Pit ☐ Boring ☐ Probe

1 " Organic horizon thickness Ground surface elev. 227.9 +/-

24 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0				
10	Fine Sand		7.5 YR 7/6	
	Stony Fine to Coarse Sand	Loose	7.5 YR 5/4	
20				
	Limit of Observation at 24"			
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
5 (Profile)	C (Condition)	<3 (Percent)	>24 " (Depth)		☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

Exploration Symbol # TP-72 ☒ Test Pit ☐ Boring ☐ Probe

1 " Organic horizon thickness Ground surface elev. 226.0'+/-

24 " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0			7.5 YR 6/4	
10	Fine Sand	Loose	7.5 YR 8/4	
20				
	Limit of Observation at 24"			
30				
40				
50				
60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
5 (Profile)	C (Condition)	<3 (Percent)	>24 " (Depth)		☐	☐	☐

Soil Series/Phase Name: ☐ Hydric ☐ Non-hydric Hydrologic Soil Group

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Andrew Gobeil	9/28/2023
Name Printed	**Cert/Lic/Reg. #**
Andrew Gobeil	S.E.#370

Title: ☒ Licensed Site Evaluator ☐ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE ★ ANDREW GOBEIL No. 370 ★ LICENSED SITE EVALUATOR 11/28/2023

APPENDIX C

INTERPRETED HIGH AND LOW GROUNDWATER LEVEL CONTOUR MAPS (FROM MONITORING ON 9/27/2022 AND BETWEEN 12/31/2022 AND 9/28/2023)

SME
SEVEE & MAHER
ENGINEERS

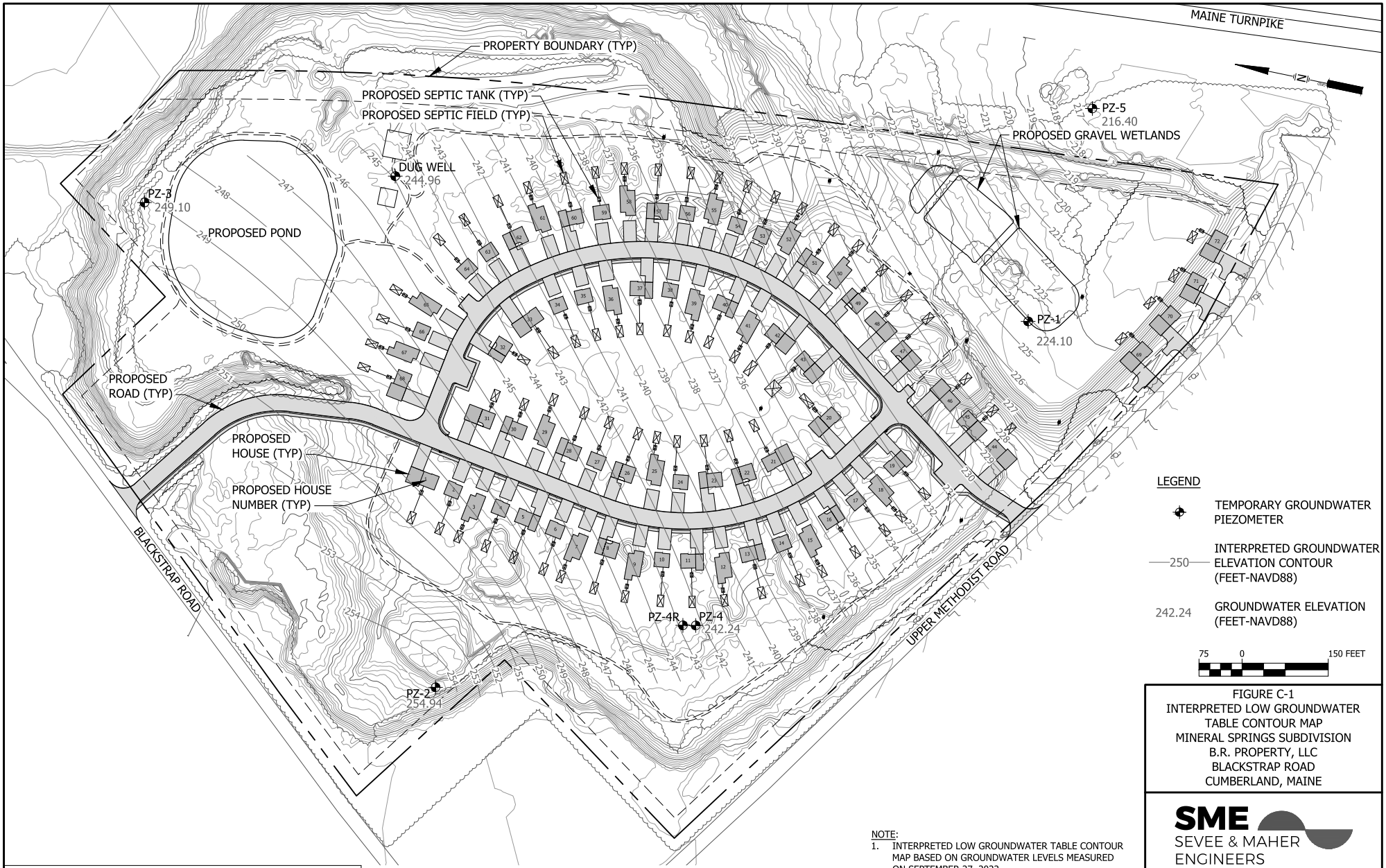
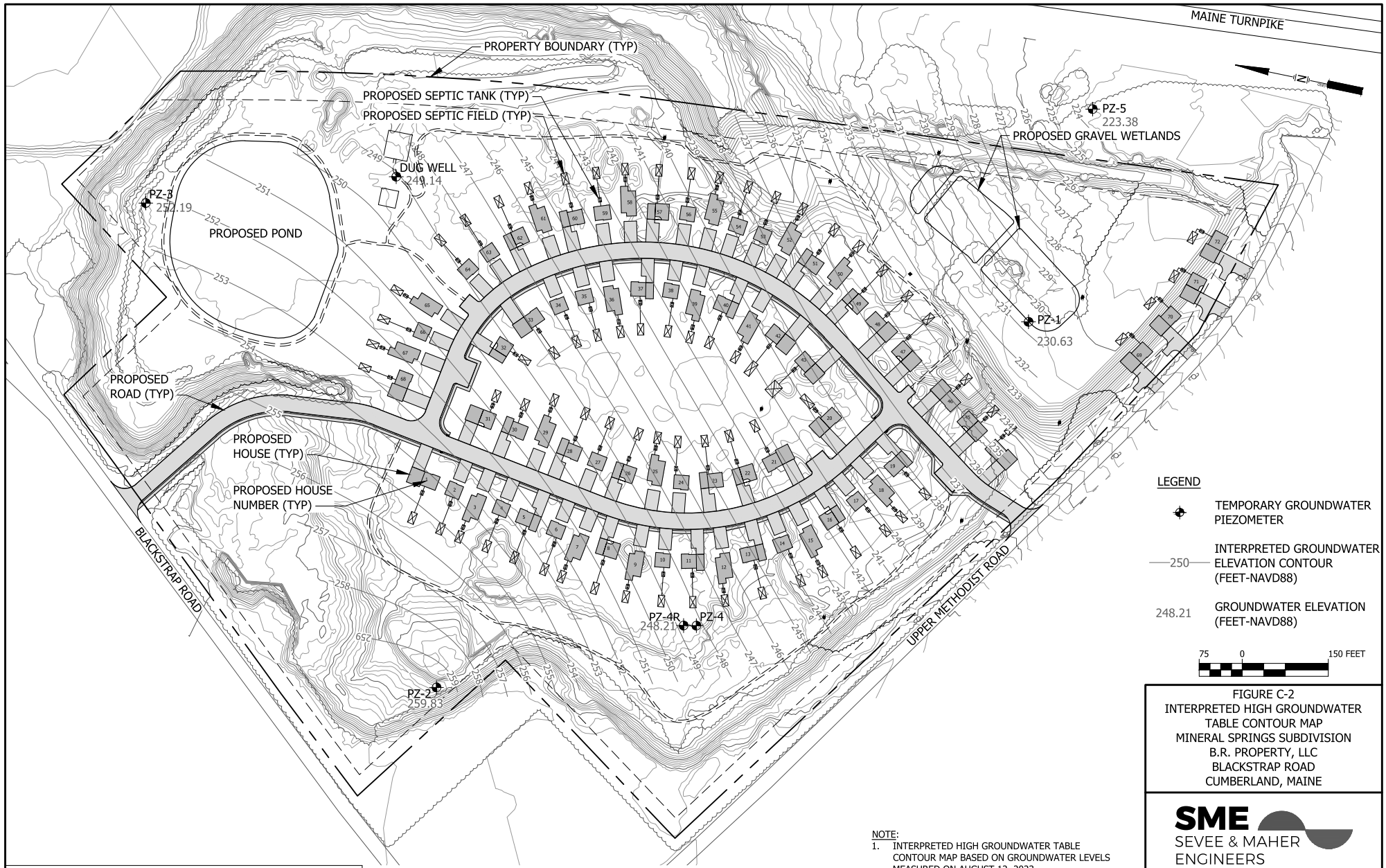


FIGURE C-1
INTERPRETED LOW GROUNDWATER TABLE CONTOUR MAP
MINERAL SPRINGS SUBDIVISION
B.R. PROPERTY, LLC
BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER ENGINEERS

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, C-1 GW-LOW, 12/7/2023 2:07:26 PM, jrl



NOTE:
1. INTERPRETED HIGH GROUNDWATER TABLE CONTOUR MAP BASED ON GROUNDWATER LEVELS MEASURED ON AUGUST 12, 2023.

FIGURE C-2
INTERPRETED HIGH GROUNDWATER TABLE CONTOUR MAP
MINERAL SPRINGS SUBDIVISION
B.R. PROPERTY, LLC
BLACKSTRAP ROAD
CUMBERLAND, MAINE

SME
SEVEE & MAHER ENGINEERS

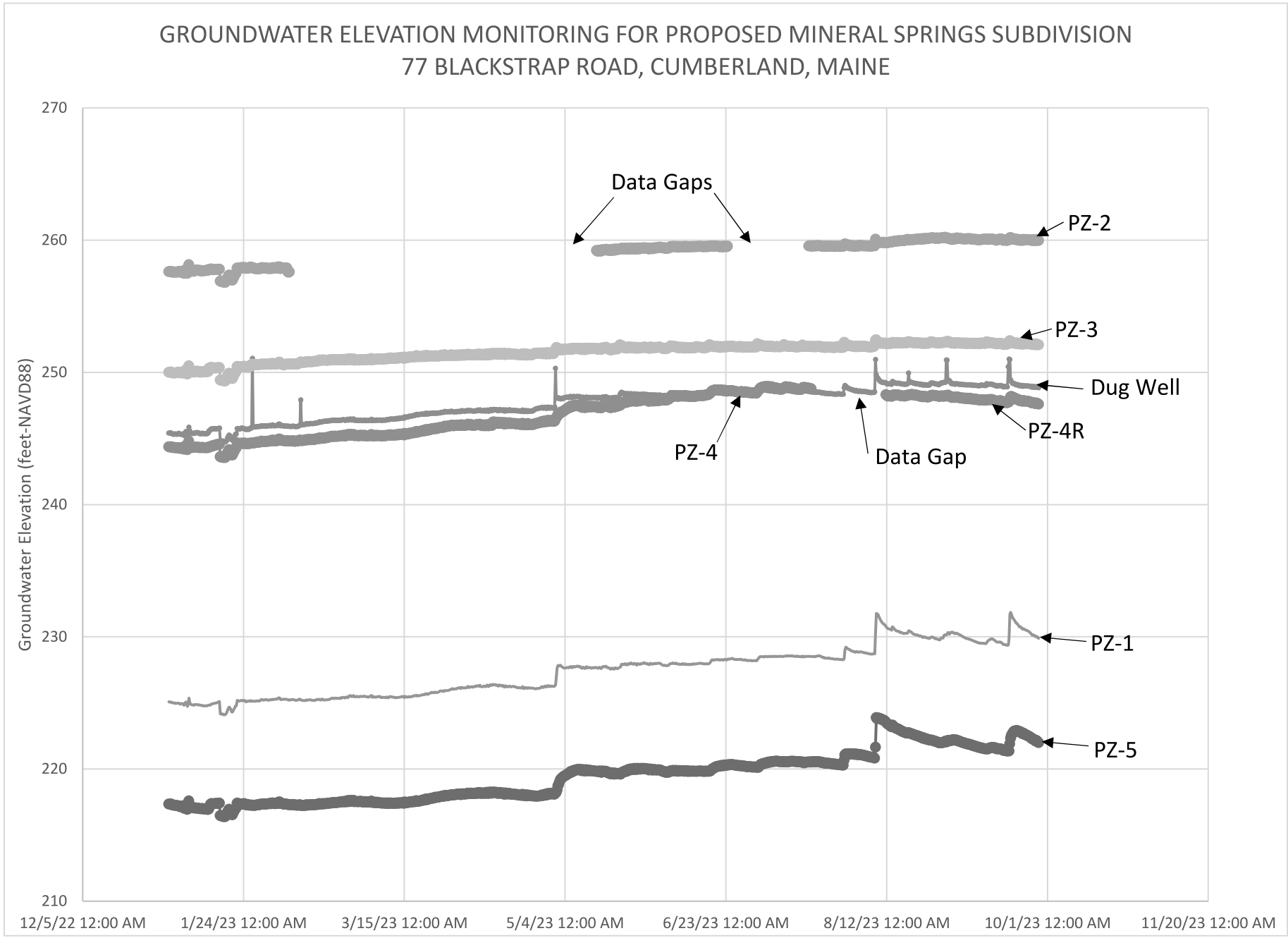
DWG: BASE LMN: GW-CONT-HIGH CTB: SME-STD-HALF.CTB REV: 12/7/2023

\\NSERVER\cfs\David Chase\Blackstrap Road\Acad\Plans\BASE.dwg, C-2 GW-HIGH, 12/7/2023 2:06:39 PM, jrl

APPENDIX D

GROUNDWATER LEVEL MONITORING PLOTS FOR PIEZOMETERS AND DUG WELL (FROM MONITORING BETWEEN 12/31/2022 AND 9/28/2023)

SME
SEVEE & MAHER
ENGINEERS


GROUNDWATER ELEVATION MONITORING FOR PROPOSED MINERAL SPRINGS SUBDIVISION
77 BLACKSTRAP ROAD, CUMBERLAND, MAINE
Groundwater Elevation (feet-NAVD88)
270
260
250
240
230
220
210
12/5/22 12:00 AM
1/24/23 12:00 AM
3/15/23 12:00 AM
5/4/23 12:00 AM
6/23/23 12:00 AM
8/12/23 12:00 AM
10/1/23 12:00 AM
11/20/23 12:00 AM
Data Gaps
PZ-2
PZ-3
Dug Well
PZ-4R
PZ-4
Data Gap
PZ-1
PZ-5

APPENDIX E

SOIL GRAIN SIZE ANALYSES AND HYDRAULIC CONDUCTIVITY CALCULATIONS

SME
SEVEE & MAHER
ENGINEERS

Grain Size Analysis
ASTM D422

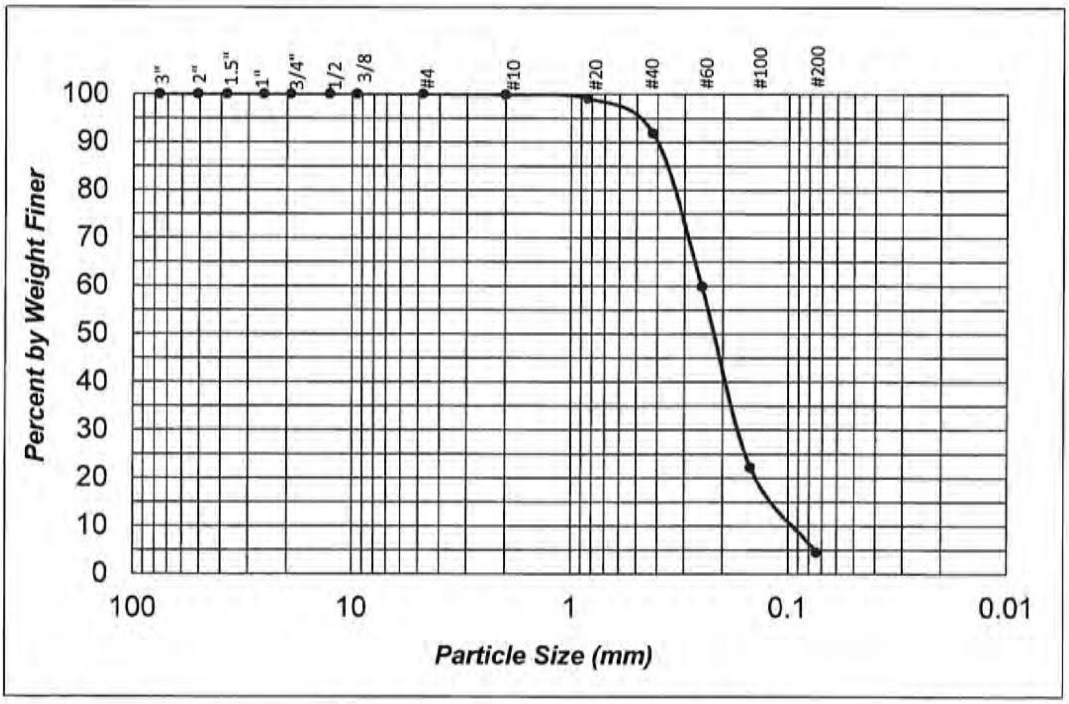
PROJECT: Presumpscot River LLC
Blackstrap Pit

PROJECT No: 220542.01
DATE: 4-Oct-22
TESTED BY: EJL

EXPLORATION No: PZ-1
SAMPLE No:
SAMPLE DEPTH (ft):

SAMPLE SOURCE: Piezometer Locations
SAMPLE DESCRIP.: Brown fine SAND, trace medium sand

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION (%) MIN	MAX	PASS/FAIL
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0			
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	100.0			
#4	4.76	100.0			
#10	2.0	99.9			
#20	0.84	99.1			
#40	0.42	91.8			
#60	0.25	59.9			
#100	0.149	22.2			
#200	0.074	4.5			



Water Content (%) = 15.5

Hazen

$d_{60} = 0.25\,mm$

$d_{10} = 0.095\,mm$

$d_{60} = 0.025\,mm$

$d_{10} = 0.0095\,cm$

$C_u = d_{60} / d_{10}$

$C_u = \frac{0.025\,cm}{0.0095\,cm} = 2.6$

well sorted

C for well sorted fine to medium sand = 80 to 120

$K = C(d_{10})^2$

cm/s, cm

$K = 100 \times (0.0095\,cm)^2$

$K = 0.0090\,cm/s$

$K = 26\,ft/day$

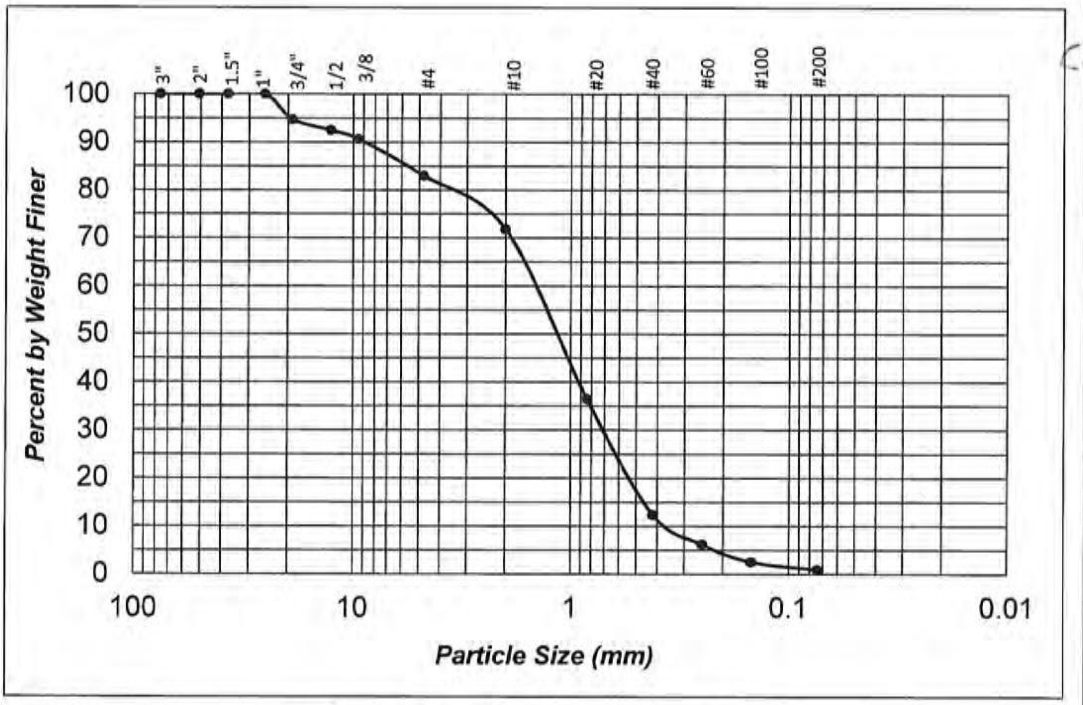
10/7/2022

SME
SEVEE & MAHER ENGINEERS

Grain Size Analysis
ASTM D422

PROJECT:	Presumpscot River LLC Blackstrap Pit	PROJECT No:	220542.01
		DATE:	4-Oct-22
		TESTED BY:	EJL
EXPLORATION No:	PZ-2	SAMPLE SOURCE:	Piezometer Locations
SAMPLE No:		SAMPLE DESCRIP.:	Brown medium SAND,
SAMPLE DEPTH (ft):			little grav, c-sa, and f-sa

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION (%) MIN	SPECIFICATION (%) MAX	PASS/FAIL
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0			
3/4	19.1	94.7			
1/2	12.7	92.5			
3/8	9.5	90.6			
#4	4.76	83.0			
#10	2.0	71.8			
#20	0.84	36.4			
#40	0.42	12.3			
#60	0.25	6.2			
#100	0.149	2.5			
#200	0.074	0.9			



Water Content (%) = 6.2

Hazen

$d_{60} = 1.1\,mm$

$d_{10} = 0.38\,mm$

$d_{60} = 0.11\,cm$

$d_{10} = 0.038\,cm$

$C_u = d_{60}/d_{10}$

$C_u = \frac{0.11\,cm}{0.038\,cm} = 2.9$ well sorted

C for well sorted medium sand = 80 to 120

$K = C(d_{10})^2$

T T

cm/s cm

$K = 100 \times (0.038\,cm)^2$

$K = 0.1444\,cm/s$

$K = 409\,ft/day$

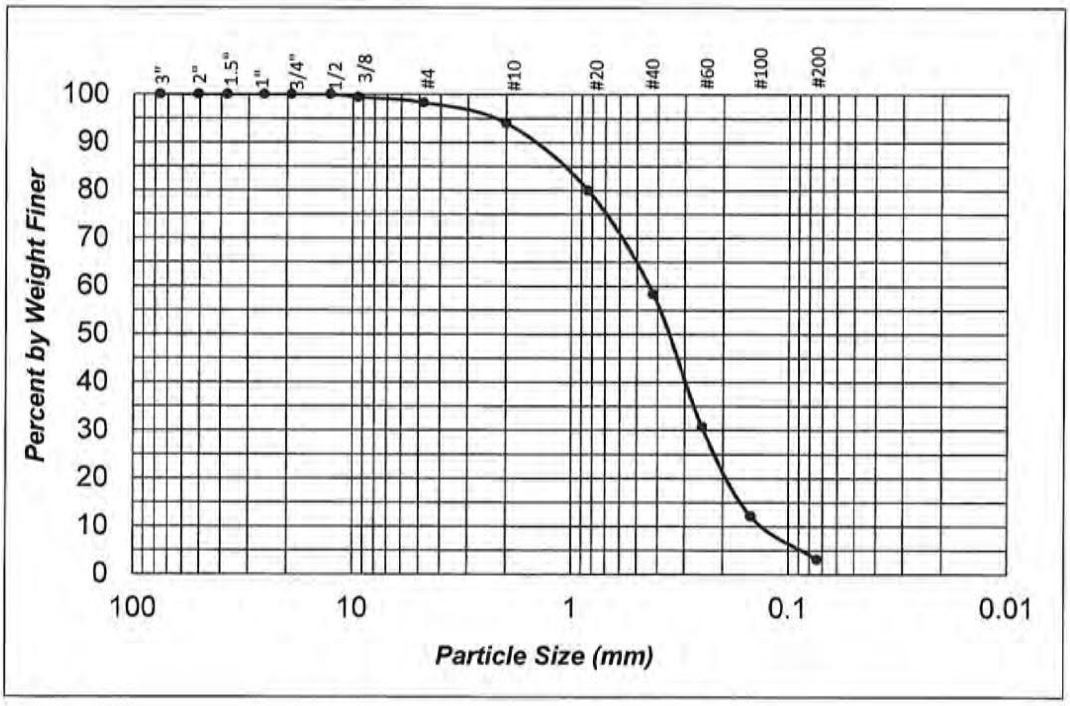
10/7/2022

SME
SEVEE & MAHER ENGINEERS

Grain Size Analysis
ASTM D422

PROJECT:	Presumpscot River LLC Blackstrap Pit	PROJECT No:	220542.01
		DATE:	4-Oct-22
		TESTED BY:	EJL
EXPLORATION No:	PZ-3	SAMPLE SOURCE:	Piezometer Locations
SAMPLE No:		SAMPLE DESCRIP.:	Brown m-f SAND
SAMPLE DEPTH (ft):			

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION (%) MIN	SPECIFICATION (%) MAX	PASS/FAIL
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0			
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	99.4			
#4	4.76	98.3			
#10	2.0	94.1			
#20	0.84	80.0			
#40	0.42	58.4			
#60	0.25	30.8			
#100	0.149	12.1			
#200	0.074	3.2			



Water Content (%) = 19.6

Hazen

$d_{60} = 0.43\text{mm}$

$d_{10} = 0.13\text{mm}$

$d_{60} = 0.043\text{cm}$

$d_{10} = 0.013\text{cm}$

$C_u = d_{60}/d_{10}$

$C_u = \frac{0.043\text{cm}}{0.013\text{cm}} = 3.3$

well sorted

C for well sorted fine to medium sand = 80 to 120

$K = C(d_{10})^2$

↑ cm/s ↑ cm

$K = 100 * (0.013\text{cm})^2$

$K = 0.0169\text{cm/s}$

$K = 48\text{ ft/day}$

10/7/2022

SME
SEVEE & MAHER ENGINEERS

Grain Size Analysis
ASTM D422

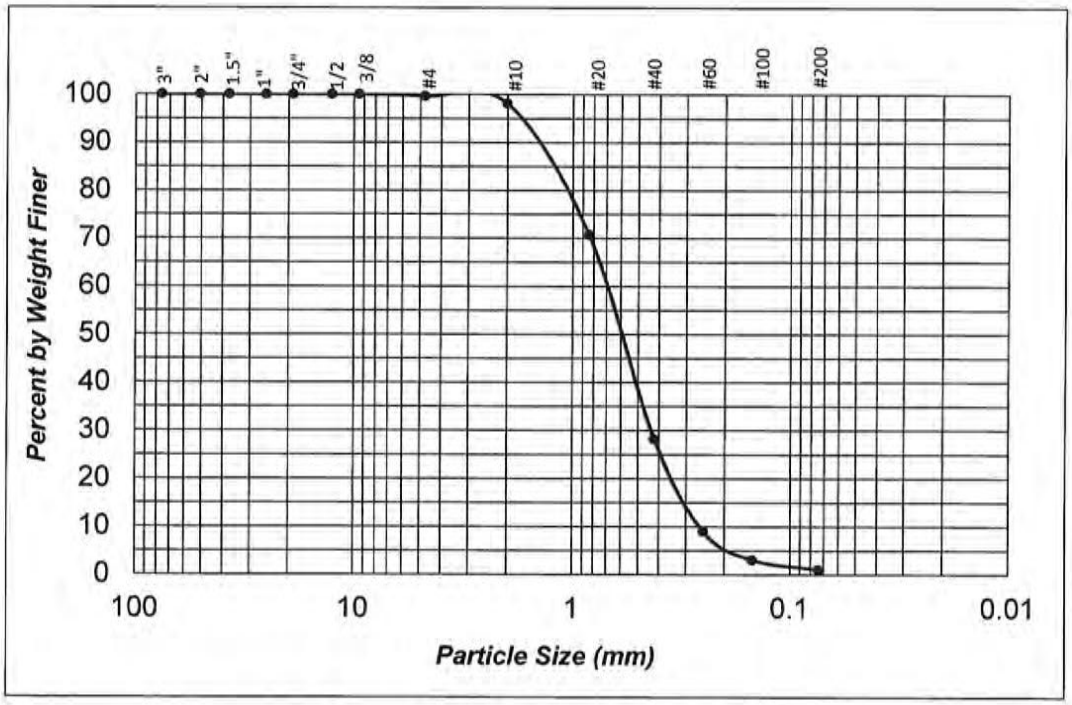
PROJECT: Presumpscot River LLC
Blackstrap Pit

PROJECT No: 220542.01
DATE: 4-Oct-22
TESTED BY: EJL

EXPLORATION No: PZ-4
SAMPLE No:
SAMPLE DEPTH (ft):

SAMPLE SOURCE: Piezometer Locations
SAMPLE DESCRIP.: Brown m-f SAND

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION (%) MIN	SPECIFICATION (%) MAX	PASS/FAIL
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0			
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	100.0			
#4	4.76	99.6			
#10	2.0	98.1			
#20	0.84	70.7			
#40	0.42	28.1			
#60	0.25	9.0			
#100	0.149	3.0			
#200	0.074	1.1			



Water Content (%) = 8.1

Hazen

$d_{60} = 0.70\,mm$

$d_{10} = 0.24\,mm$

$d_{60} = 0.070\,cm$

$d_{10} = 0.024\,cm$

$C_u = \frac{d_{60}}{d_{10}}$

$C_u = \frac{0.070\,cm}{0.024\,cm} = 2.9$

well sorted

C for well sorted fine to medium sand = 80 to 120

$K = C(d_{10})^2$

cm/s, cm

$K = 100 * (0.024\,cm)^2$

$K = 0.057\,cm/s$

$K = 163\,ft/day$

10/7/2022

SME
SEVEE & MAHER ENGINEERS

Grain Size Analysis
ASTM D422

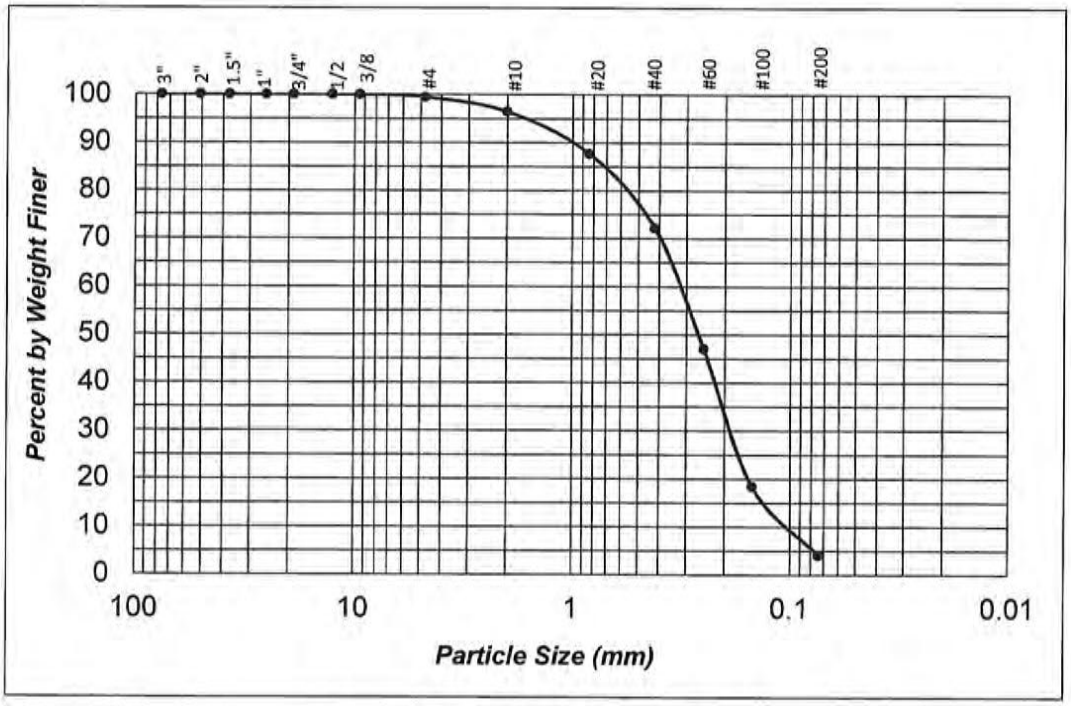
PROJECT: Presumpscot River LLC
Blackstrap Pit

PROJECT No: 220542.01
DATE: 4-Oct-22
TESTED BY: EJL

EXPLORATION No: PZ-5
SAMPLE No:
SAMPLE DEPTH (ft):

SAMPLE SOURCE: Piezometer Locations
SAMPLE DESCRIP.: Brown m-f SAND

U.S Std SIEVE (in.)	PARTICLE SIZE (mm)	% by WT. FINER	SPECIFICATION (%) MIN	MAX	PASS/FAIL
3	76.2	100.0			
2	50.8	100.0			
1.5	37.5	100.0			
1	25.4	100.0			
3/4	19.1	100.0			
1/2	12.7	100.0			
3/8	9.5	100.0			
#4	4.76	99.5			
#10	2.0	96.4			
#20	0.84	87.7			
#40	0.42	72.2			
#60	0.25	47.1			
#100	0.149	18.4			
#200	0.074	4.0			



Water Content (%) = 19.4

Hazen

$d_{60} = 0.31\ mm$

$d_{10} = 0.10\ mm$

$d_{60} = 0.031\ cm$

$d_{10} = 0.010\ cm$

$C_u = d_{60}/d_{10}$

$C_u = \frac{0.031\ cm}{0.010\ cm} = 3.1$

well sorted

C for well sorted fine to medium sand = 80 to 120

$K = C(d_{10})^2$ (K: cm/s, d_{10}: cm)

$K = 100 \times (0.010\ cm)^2$

$K = 0.01\ cm/s$

$K = 28\ ft/day$

10/7/2022

SME
SEVEE & MAHER ENGINEERS

APPENDIX F

BASELINE NITRATE CONCENTRATION

SME
SEVEE & MAHER
ENGINEERS

Maine Environmental Laboratory

One Main Street, Yarmouth, ME 04096 Tel.: 207-846-6569 FAX: 207-846-9066 Email: melab@mel-lab.com

Report of Analyses

Report Prepared for:

Andrew Gobeil
Sevee & Maher Engineers
P. O. Box 85A
Cumberland, ME 04021

Report Information:

Batch ID: SAM 13419
Report ID: 13419-221004-1004
Date of Issue: October 4, 2022

The complete report consists of the following parts:
Maine Environmental Laboratory report
Chain of Custody form

REPORT NARRATIVE:

Enclosed are results of the analyses for your samples as received by the laboratory. Results are for the exclusive use of th e client named on the report and will not be released to a third party without written consent. This report shall not be reproduced except in full without the written con sent of the laboratory.

Maine Environmental Laboratory is accredited by the States of Maine (Cert. #ME 00028) and New Hampshire (NH ELAP) (Cert. #2031) and is TNI/NELAP accredited. Please refer to our website www.maineenvironmentallaboratory.com for a copy of our Maine and NH ELAP certificates and accredi tied parameters. When a subcontracted laboratory is listed above, the data produced is by a Maine accredited laboratory accredited for the fields of testing performed.

Unless otherwise noted:
- Samples were received in acceptable condition and analyzed within method hold times.
- Soils, sediments, solids and tissues are reported on dry weight basis. Wipes are reported on an "as received" basis.
- All quality control data demonstrated acceptable limits
- The results reported herein conform to the most current NELAP standards where applicable.
- Analysis of solids for pH, flash point, ignitability, paint filter, corrosivity, conductivity and specific gravity are reported on an “as received” basis.
- Results for “immediate” field parameters tested at the lab such as pH were run outside of the EPA-recommended hold time.
- %RPD is not calculated when the native sample concentration is below 5 x LOQ.

DEFINITIONS:
LOQ / RL - The Limit of Quantitation / Reporting Limit is the minimum level for reporting quantitative data.
LOD / MDL - The Limit of Detection / Method Detection Limit is the minimum level for reporting estimated data.
J - Data reported between the Limit of Quantitation and Limit of Detection is J-flagged as “estimated.”
ND or U - Not detected below the LOD / MDL
B – Detected in QC blank
S – Detection Limits increased due to sample matrix
4X – Native sample concentration was greater than 4 times the spike concentration so the spike added could not be distinguished from the native concentration.
% Rec – Percent Recovery; RPD - Relative Percent Difference
D – Duplicate sample
R – Reanalysis
DO – BOD: insufficient dissolved oxygen depletion to calculate Matrix Spike and MSD recoveries.

METHOD REFERENCES:
E300.0: EPA/600/R-93/100 Methods for the Determination of Inorganic Substances in Environmental Samples, Aug. 1993.

This report has been reviewed and authorized by Jacquelyn R. Villinski, Laboratory Director: Jacquelyn R. Villinski

Maine Environmental Laboratory

Report of Analyses

One Main Street, Yarmouth, ME 04096 Tel.: 207-846-6569 FAX: 207-846-9066 Email: melab@mel-lab.com

Andrew Gobeil
Sevee & Maher Engineers
P. O. Box 85A
Cumberland, ME 04021

October 4, 2022

Report ID:	13419-221004-1004	Sample ID:	PZ-1
Batch ID:	SAM 13419	Sample date:	09/29/22 10:05
Date received:	09/29/22	Sample matrix:	GW - grab
Project ID:	Blackstrap Road Pit	Laboratory ID:	220929L001

Parameter	Results	Units	Date Analyzed	Time Analyzed	LOD	LOQ	Method	Tech
Nitrate - N	1.8	mg/L	09/29/22	13:00	0.1	0.3	E300.0	AD

Notes:

Maine Environmental Laboratory

Report of Analyses

One Main Street, Yarmouth, ME 04096 Tel: 207-846-6569 FAX: 207-846-9066 Email: melab@mel-lab.com

Andrew Gobeil
Sevee & Maher Engineers
P. O. Box 85A
Cumberland, ME 04021

Date of Issue: 10/4/2022

Report ID: 13419-221004-1004

QC Data
Method Blanks, Laboratory Control Samples, Sample QC

Analyte	QCType	Result	Value	Units	Max	Min	Reference	Ref. Value	Units	Lab SampleID
Nitrate - N	Duplicate - AQ	RPD	2.0	%	16		Concentration	1.8	mg/L	220929L001
Nitrate - N	LCS - AQ	Recovery	91	%	111	89	Concentration	0.911	mg/L	
Nitrate - N	Matrix Spike - AQ	Recovery	92	%	121	79				220929L001
Nitrate - N	Method Blank - AQ	Concentration	0.018 U	mg/L	0.14					

MAINE ENVIRONMENTAL LABORATORY- Chain of Custody

One Main Street Yarmouth, ME 04096-6716 Tel: (207) 846-6569 Fax: (207) 846-9066
Email: melab@mel-lab.com Web: MaineEnvironmentalLaboratory.com

FOR LAB USE ONLY
LABORATORY REPORT # SME 13419

REPORT TO: Andrew Gobeil
EMAIL: apg@smemaine.com
TELEPHONE: 2073219096
COMPANY: SME
BILL TO / PURCHASE ORDER #: 220542.01
ADDRESS: 4 Blanchard Road Cumberland Maine 04021
PROJECT NAME: Blackstrap Road Pit
SAMPLER NAME: Andrew Gobeil
QUOTE #:

ANALYSES
Specify Required Method: SAM

SAMPLE RECEIVING
Within Hold Time? ☒ Yes ☐ No ☐ N/A
Good Condition? ☒ Yes ☐ No ☐ N/A
Preserved? ☒ Yes ☐ No ☐ N/A
Custody Seal? ☐ Yes ☐ No ☒ N/A
Del. by: client
Temp. °C 1.9

SAMPLE IDENTIFICATION	# CONTAINERS	TYPE OF CONTAINERS	FIELD FILTRATION YES	FIELD FILTRATION NO	SAMPLE TYPE	GRAB	COMP.	METHOD PRESERVED	SAMPLING DATE	SAMPLING TIME	nitrate	10/3/22 JV	LAB ID/SUBCONTRACTOR
PZ-1	1	plastic	✓		water	✓		temp	9/29/22	10:05am	✓		220929L001

TURNAROUND REQUEST
☒ Standard
☐ Priority (SURCHARGE)

REPORTING REQUIREMENTS?
☒ Standard Report
☐ ME DEP EDD ☐ STUTOX
☐ DW Compliance (sent to State)
☐ CC Results to _____

COMMENTS

MEL reserves the right to subcontract analyses at MEL's discretion.

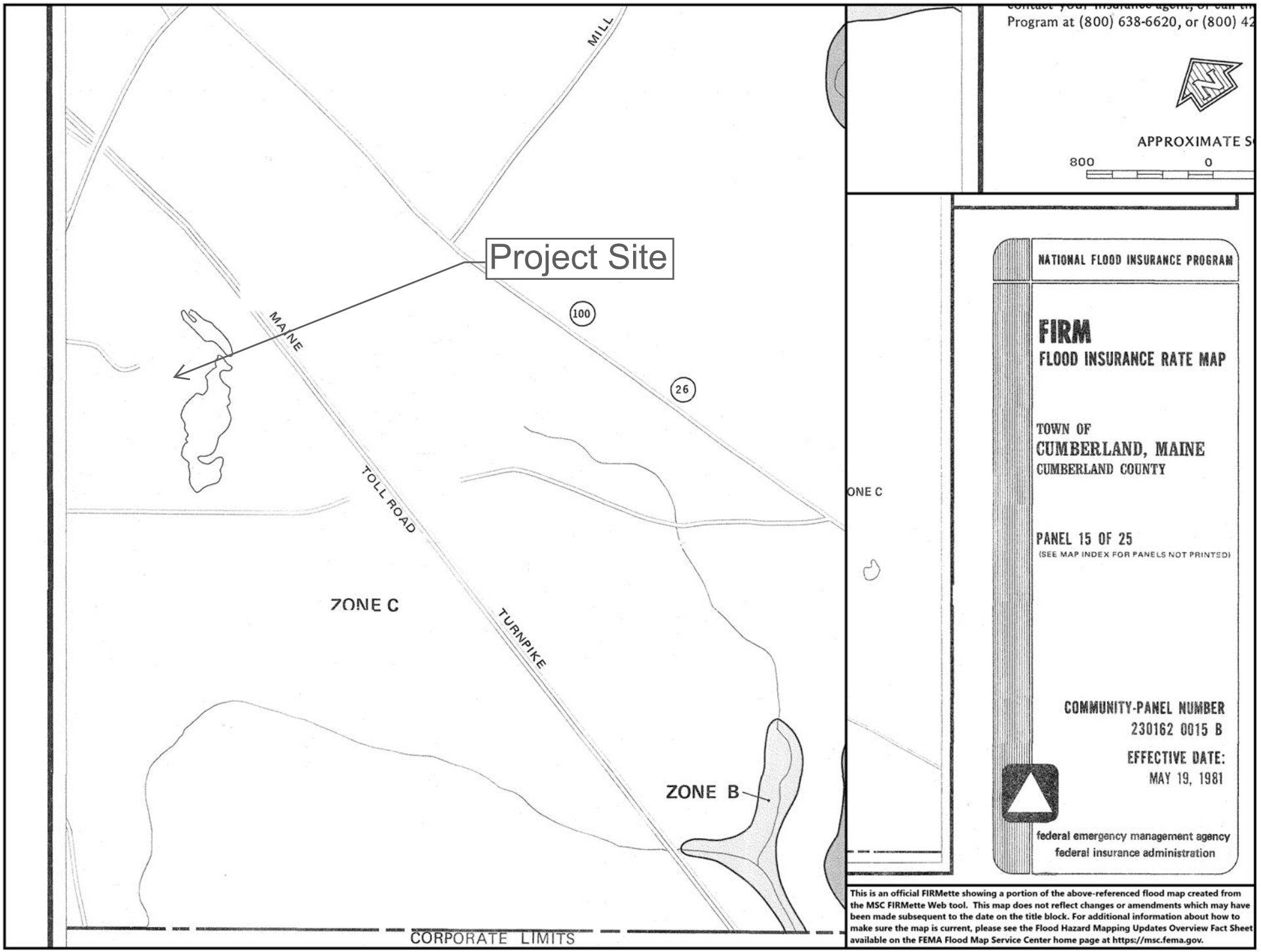
RELINQUISHED BY SAMPLER: Andrew Gobeil	DATE 9/29/22	TIME 11:04	RECEIVED BY:
RELINQUISHED BY:	DATE	TIME	RECEIVED BY:
RELINQUISHED BY:	DATE 9/29/22	TIME 11:04	RECEIVED BY LABORATORY: Ethan M. Eyrich

COC 42718 It is the client's responsibility to check for accuracy prior to relinquishing samples. By executing this COC, the client has read and agrees to be bound by MEL's Terms & Conditions. page ____ of ____

Section 5M
Flood Areas

A review of the Federal Emergency Management Agency (FEMA) map for this area shows that the project is not in a flood prone area. The FEMA mapping outlines that the project is in Zone C, which is designated as an area of minimal flooding. A copy of FEMA Community Panel Number 230162 0015 B is attached for reference.

This project will not increase flooding or cause an unreasonable flood hazard to any downstream structure.


Project Site
MILL
MAINE
100
26
TOLL ROAD
TURNPIKE
ZONE C
ZONE B
CORPORATE LIMITS
ONE C
Program at (800) 638-6620, or (800) 42
APPROXIMATE S
800
0
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWN OF
CUMBERLAND, MAINE
CUMBERLAND COUNTY
PANEL 15 OF 25
(SEE MAP INDEX FOR PANELS NOT PRINTED)
COMMUNITY-PANEL NUMBER
230162 0015 B
EFFECTIVE DATE:
MAY 19, 1981
federal emergency management agency
federal insurance administration
This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.

Section 5N
Stormwater

The proposed subdivision will provide for adequate stormwater management. The stormwater design and Stormwater Management Report was prepared by Sevee & Maher Engineers, Inc. (SME) to assess stormwater management design for the construction of the proposed project. The stormwater management for the Mineral Springs Subdivision project was designed in accordance with MEDEP Chapter 500 requirements for redevelopment. Water quality treatment will be provided by the proposed gravel wetland on the southern extents of the proposed project. By re-vegetating the existing gravel pit extents, and cleared and grubbed areas, and providing detention within the gravel wetland, the peak flows from the site will be less than or equal to pre-developed conditions.

The project area is bordered to the north by Blackstrap Road, the east by the Maine Turnpike (I95), the west by the West Cumberland Community Cemetery, and the South by Upper Methodist Road. The property within the project area was previously used to extract gravel from the earth to supply for infrastructure and construction projects throughout Maine. The ground surface is relatively flat and with the entire site draining to a singular area. The site generally slopes from north to south, causing a drainage point along the southern boundary of the site. Additional detail describing site features, topography, and surface drainage patterns is provided in the Stormwater Management Report.

The overall construction of the project will create approximately 25.89 acres of existing developed area; 4.95 acres of this areas will be classified as impervious. The structures will be developed by B.R. Property, LLC and sold to individual owners. The proposed condominium complex will include redevelopment of approximately 25.89 acres, including 24.52 acres of existing impervious area. The project will replace the existing developed areas with a total of 4.95 acres of impervious area for roadway, sidewalks, houses, driveways, decks, and storage sheds. All other areas within the parcel will be returned to original condition, prior to pit operations.

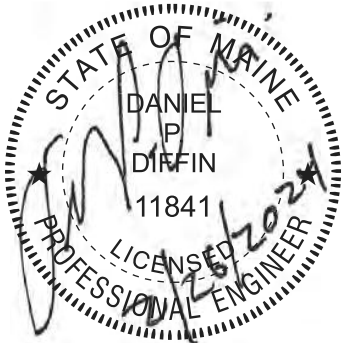
Stormwater management for this project will be accomplished using multiple devices, including one gravel wetland, catch basins, manholes, culverts, and drainage channels for treatment of stormwater runoff to MEDEP Chapter 500 standards. Storage in the gravel wetland will be used to attenuate peak flow runoff from the proposed development to meet flooding standard requirements while providing quality treatment of stormwater runoff. The Stormwater Management Report is included as part of this section.

STORMWATER MANAGEMENT REPORT
MINERAL SPRINGS SUBDIVISION
BLACKSTRAP ROAD
CUMBERLAND, MAINE

Prepared for

B.R. PROPERTY, LLC
39 Nubbin Reach
Yarmouth, Maine

February 2024



4 Blanchard Road
P.O. Box 85A
Cumberland, Maine 04021
Phone: 207.829.5016 smemaine.com

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

SME
SEVEE & MAHER
ENGINEERS

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5.0	**GENERAL STANDARDS**	**3**
6.0	**FLOODING STANDARDS**	**3**
7.0	**MAINTENANCE PLAN, INSPECTIONS, AND REQUIREMENTS**	**4**
8.0	**CONCLUSION**	**4**

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APPENDIX B	PRE-DEVELOPMENT HYDROCAD CALCULATIONS
APPENDIX C	POST-DEVELOPMENT HYDROCAD CALCULATIONS
APPENDIX D	STORMWATER QUALITY BMP TREATMENT SIZING
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STORMWATER MANAGEMENT REPORT
MINERAL SPRINGS SUBDIVISION
BLACKSTRAP ROAD
CUMBERLAND, MAINE

1.0 INTRODUCTION

This Stormwater Management Report was prepared by Sevee & Maher Engineers, Inc. (SME) to assess stormwater management design for the construction for the proposed B.R. Property, LLC, Mineral Springs Subdivision project on a 40.1-acre owned parcel of land off Blackstrap Road in Cumberland, Maine. Stormwater design is based on the water quality and quantity objectives identified in Chapter 500 of the Maine Department of Environmental Protection's (MEDEP) Stormwater Management Law. This project will require a Site Location of Development Act (SLODA) Permit from MEDEP.

2.0 PROJECT DESCRIPTION

B.R. Property, LLC, a condominium developer, is proposing a 72-unit condominium development on a 40.1-acre parcel of land off Blackstrap Road in Cumberland, Maine. The condominium development will be constructed to reclaim the historical active gravel pit to provide housing for residents within the surrounding Southern Maine area. The site has been an active gravel pit for many years, first owned and operated by BlueRock Paving prior to ownership by B.R. Property, LLC. The site location is shown on Figure 1, Site Location Map on a 7.5-Min USGS Topo Quad Map. More details on the project site are shown in the engineering drawing set provided with this application.

The project area is bordered to the north by Blackstrap Road, the east by the Maine Turnpike (I95), the west by the West Cumberland Community Cemetery, and the South by Upper Methodist Road. The property within the project area was previously used to extract gravel from the earth to supply for infrastructure and construction projects throughout Maine. The ground surface is relatively flat and with the entire site draining to a singular area. The site generally slopes from north to south, causing a drainage point along the southern boundary of the site. Additional detail describing site features, topography, and surface drainage patterns is provided in the Stormwater Management Report included in Section 12 of this application.

The condominium complex, Mineral Springs Subdivision, will include 36 affordable homes with no garage, 19 market-rate units with a 1-bay garage, 17 market-rate units with a 2-bay garage. The project will be accessed through a 2,900-linear-foot road with two access points, utilizing the existing pit entrance off Blackstrap Road and an additional access off Upper Methodist Road. The condominium complex will include walking paths around the site for condominium owners and the public to enjoy the reclaimed and revegetated gravel pit area.

The current use of the property is a completed gravel pit which has been operated out of for years. The wetlands were investigated and it was determined that there were no wetlands within the project site. No wetland impacts are anticipated for the duration of this project. Additionally, no streams or vernal pools have been identified within the project area. A copy of the Wetland Reconnaissance Memorandum from Mark Hampton Associates is included in Section 11 of this application submission.

The project is not located in a mapped flood zone based on available FEMA mapping. The project is located in Zone X, which is defined as an area of 0.2 percent annual chance of flooding. A copy of the FEMA Firmette Map for the project area is included in Section 19 of this application for reference.

The overall construction of the project will create approximately 25.89 acres of existing developed area; 4.95 acres of this areas will be classified as impervious. The structures will be developed by B.R. Property, LLC and sold to individual property owners. The proposed condominium complex will include redevelopment of approximately 25.89 acres, including 24.52 acres of existing impervious area. The project will replace the existing developed areas with a total of 4.95 acres of impervious area for roadway, sidewalks, houses, driveways, decks, and storage sheds. Areas All other areas within the parcel will be returned to original condition, prior to pit operations.

Stormwater management for this project will be accomplished using multiple devices, including one gravel wetland, catch basins, manholes, culverts, and drainage channels for treatment of stormwater runoff to MEDEP Chapter 500 standards. Storage in the gravel wetland will be used to attenuate peak flow runoff from the proposed development to meet flooding standard requirements while providing quality treatment of stormwater runoff.

3.0 SITE WATERSHED

On-site soils were identified using the Natural Resources Conservation Service (NRCS) soil information for Cumberand County, Maine. A copy of the custom Soil Resource Report is included in Appendix A of this report. The report includes a soil map for the project area. Soil mapping information is also included in the project plan set.

The ground surface is generally flat gravel with the entire site draining to a singular area along the southern boundary of the site. The site generally slopes from north to south. Existing drainage patterns will be maintained to the greatest extent possible. Receiving waters for this project include roadside ditching along the Maine Turnpike I-95, which eventually drains to tributaries to Hobbs Brook watersheds.

For the purposes of this analysis, drainage Subcatchment 1 encapsulates the entire project site and drains via flow from the northern to southern side of the site off the property at Analysis Point 1 (AP-1).

Project work will include installation of a new public road, 72 single-family structures, utilities including gas, water, septic and electric, and site grading around, behind and over septic systems while minimizing steep slopes and excess fill. Remaining portions of the project site will be left as existing trees, replanted with seed and plantings to create buffering and natural landscaping and fully reclaim the existing gravel pit areas.

Stormwater management plans outline the existing and proposed drainage patterns on the project site (see Drawings D-100 and D-101). These drawings are included in the project plan set for reference. Appendix B and Appendix C provide pre-development and post-development stormwater calculations. These calculations were prepared using TR-20 methodologies with the HydroCAD Version 10.0 computer stormwater modeling system by Applied Microcomputer Systems of Chocorua, New Hampshire.

4.0 BASIC STANDARDS

Erosion and Sediment Control details are included on the drawings and in Section 14 of the SLODA Permit application.

5.0 GENERAL STANDARDS

The proposed condominium complex will include redevelopment of approximately 25.89 acres, including 24.52 acres of existing impervious gravel pit area, developed into 4.95 acres of impervious area. Stormwater treatment for the entirety of the site triggers the redevelopment standard, requiring treatment of 50 percent of the developed area per Chapter 500 standards.

Stormwater quality treatment for the project will be accomplished using one gravel wetland area to treat approximately 182,386 square feet of impervious area, and 572,204 square feet of total developed area, treating approximately 50.7 percent of the project, exceeding the treatment requirements for the project of 50 percent. Summaries of the treatment sizing calculations for the gravel wetland and redevelopment calculations are included in Appendices D and E of this report.

Details, designs, and specifications for the stormwater treatment measures are included in the attached project plan set. All test pits will be completed before construction commences. Details, designs, and specifications for the stormwater treatment measures are included in the attached project plan set.

6.0 FLOODING STANDARDS

Stormwater quantity is managed to the maximum extent practicable through minimizing the amount of impervious area on the site and revegetating the existing gravel pit bottoms and the proposed cleared and grubbed area with meadow seed.

The stormwater model for this project was developed to size the water quality treatment BMPs and to determine peak flow rates to the analysis points identified. Stormwater peak flow rates were modeled for the 2, 10, 25-year/24-hour storm events with Type III Soil Conservation Service rainfall distribution, using the HydroCAD computer modeling system by Applied Microcomputer Systems of Chocorua, New Hampshire. The peak flow rates are summarized in Table 1. Rainfall intensities were taken from Appendix H of MEDEP's Chapter 500 for each of the storms. Copies of the calculations for the pre-development are in Appendix B and post-development models are provided in Appendix C.

TABLE 1

STORMWATER QUANTITY SUMMARY

	2-Year Storm		10-Year Storm		25-Year Storm	
	Existing	**Proposed**	**Existing**	**Proposed**	**Existing**	**Proposed**
Analysis Point 1 (cfs)	2.19	0.41	5.03	0.97	8.29	2.49

Site drainage from the proposed redevelopment will generally follow pre-development conditions. As outlined in Table 1, our model indicates similar peak flow rates at all analysis points for the post-development conditions. The discharge of the site established drainage patterns along the Maine Turnpike I-95.

7.0 MAINTENANCE PLAN, INSPECTIONS, AND REQUIREMENTS

Maintenance of the proposed facility and stormwater treatment BMPs will be performed by local contractors under the supervision of B.R. Property, LLC personnel until the development is turned over to the Homeowner's Association. Contact information for the facility and Owner's representative is included in the Post-Construction Stormwater Management Plan, attached as Appendix F. During construction, the site work contractor (not yet selected) will be responsible for all site maintenance. The Post-Construction Stormwater Management Plan describes the facilities to be maintained and includes sample maintenance logs. There are no new drainage easements, deed restrictions, or 'third-party' maintenance contracts proposed for this project.

8.0 CONCLUSION

The stormwater management for the Mineral Springs Subdivision project was designed in accordance with MEDEP Chapter 500 requirements for redevelopment. Water quality treatment will be provided by the proposed gravel wetland on the southern extents of the proposed project.

By re-vegetating the existing gravel pit extents, and cleared and grubbed areas, and providing detention within the gravel wetland, the peak flows from the site will be less than or equal to pre-developed

conditions. As a result, there are no anticipated adverse impacts on downstream drainage or abutting properties.

APPENDIX A

NRCS SOIL SURVEY

SME
SEVEE & MAHER
ENGINEERS

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

June 14, 2023

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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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: 1:4,710 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

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 19, Aug 30, 2022

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

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

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

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
Gp	Gravel pits	44.1	66.2%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	18.8	28.2%
W	Water	3.8	5.6%
Totals for Area of Interest		**66.6**	**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

Gp—Gravel pits

Map Unit Composition

Gravel pits: 92 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gravel Pits

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand
H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

HlB—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2svm8
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 53 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, eskers, moraines, kame terraces, kames, outwash terraces, outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand

BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 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: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

W—Water

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Lakes

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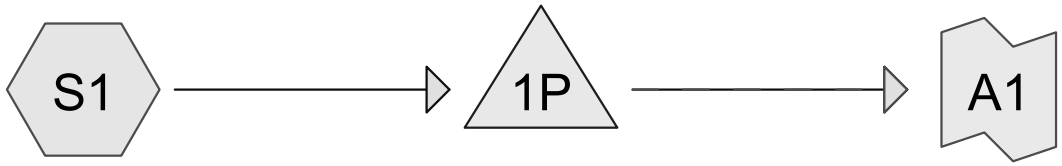
APPENDIX B

PRE-DEVELOPMENT HYDROCAD CALCULATIONS

SME
SEVEE & MAHER
ENGINEERS



Project Site

12" culvert off property

Subcat Reach Pond Link

Routing Diagram for BLACKSTRAP_PRE

Prepared by Sevee & Maher Engineers, Printed 2/26/2024

HydroCAD® 10.20-3g s/n 01260 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.320	39	>75% Grass cover, Good, HSG A (S1)
13.133	96	Gravel surface, HSG A (S1)
7.119	98	Paved roads w/curbs & sewers, HSG A (S1)
0.266	98	Roofs, HSG A (S1)
27.075	30	Woods, Good, HSG A (S1)
50.913	**57**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 S1: Project Site Runoff Area=2,217,768 sf 14.50% Impervious Runoff Depth=0.28"
Flow Length=2,574' Tc=90.7 min CN=57 Runoff=2.75 cfs 1.176 af

Pond 1P: 12" culvert off property Peak Elev=226.23' Storage=5,654 cf Inflow=2.75 cfs 1.176 af
Primary=2.19 cfs 1.170 af Secondary=0.00 cfs 0.000 af Outflow=2.19 cfs 1.170 af

Link A1: Inflow=2.19 cfs 1.170 af
Primary=2.19 cfs 1.170 af

Total Runoff Area = 50.913 ac Runoff Volume = 1.176 af Average Runoff Depth = 0.28"
85.50% Pervious = 43.528 ac 14.50% Impervious = 7.385 ac

Summary for Subcatchment S1: Project Site

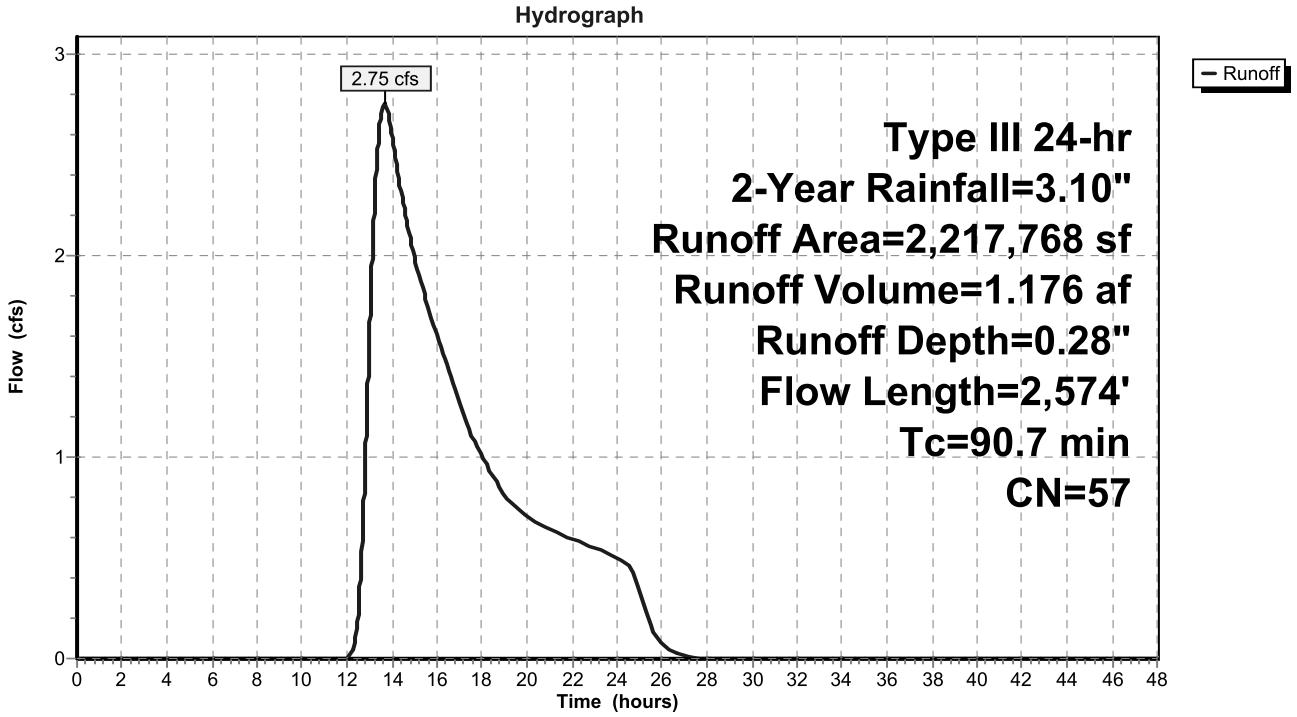
Runoff = 2.75 cfs @ 13.70 hrs, Volume= 1.176 af, Depth= 0.28"
Routed to Pond 1P : 12" culvert off property

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
1,179,403	30	Woods, Good, HSG A
11,587	98	Roofs, HSG A
310,097	98	Paved roads w/curbs & sewers, HSG A
572,081	96	Gravel surface, HSG A
144,600	39	>75% Grass cover, Good, HSG A
2,217,768	57	Weighted Average
1,896,084		85.50% Pervious Area
321,684		14.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	100	0.0200	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
2.9	131	0.0229	0.76		**Shallow Concentrated Flow, 3** Woodland Kv= 5.0 fps
0.5	100	0.4300	3.28		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
53.1	1,389	0.0019	0.44		**Shallow Concentrated Flow, E-F** Nearly Bare & Untilled Kv= 10.0 fps
4.5	372	0.0188	1.37		**Shallow Concentrated Flow, E-F** Nearly Bare & Untilled Kv= 10.0 fps
1.8	86	0.0261	0.81		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
0.7	146	0.0479	3.52		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
5.4	250	0.0236	0.77		**Shallow Concentrated Flow, H-I** Woodland Kv= 5.0 fps
90.7	2,574	Total			

Subcatchment S1: Project Site



Summary for Pond 1P: 12" culvert off property

Inflow Area = 50.913 ac, 14.50% Impervious, Inflow Depth = 0.28" for 2-Year event
Inflow = 2.75 cfs @ 13.70 hrs, Volume= 1.176 af
Outflow = 2.19 cfs @ 14.63 hrs, Volume= 1.170 af, Atten= 21%, Lag= 55.9 min
Primary = 2.19 cfs @ 14.63 hrs, Volume= 1.170 af
Routed to Link A1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link A1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 226.23' @ 14.63 hrs Surf.Area= 8,856 sf Storage= 5,654 cf

Plug-Flow detention time= 43.4 min calculated for 1.169 af (99% of inflow)
Center-of-Mass det. time= 40.6 min (1,064.6 - 1,024.0)

Volume	Invert	Avail.Storage	Storage Description
#1	224.84'	228,449 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

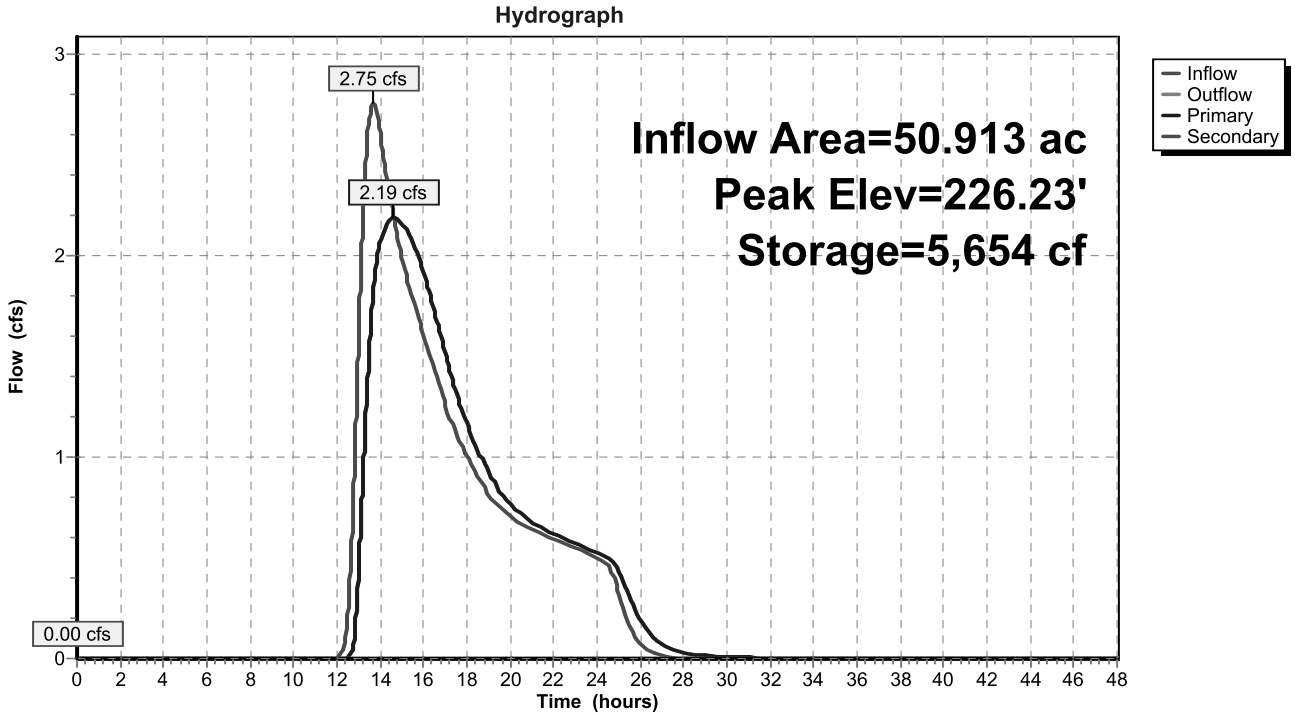
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.84	0	0	0
225.00	554	44	44
226.00	7,062	3,808	3,852
227.00	14,988	11,025	14,877
228.00	24,414	19,701	34,578
230.00	48,618	73,032	107,610
232.00	72,221	120,839	228,449

Device	Routing	Invert	Outlet Devices
#1	Primary	225.19'	**12.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.19' / 224.84' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	230.00'	**20.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.19 cfs @ 14.63 hrs HW=226.23' (Free Discharge)
1=Culvert (Inlet Controls 2.19 cfs @ 2.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=224.84' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: 12" culvert off property

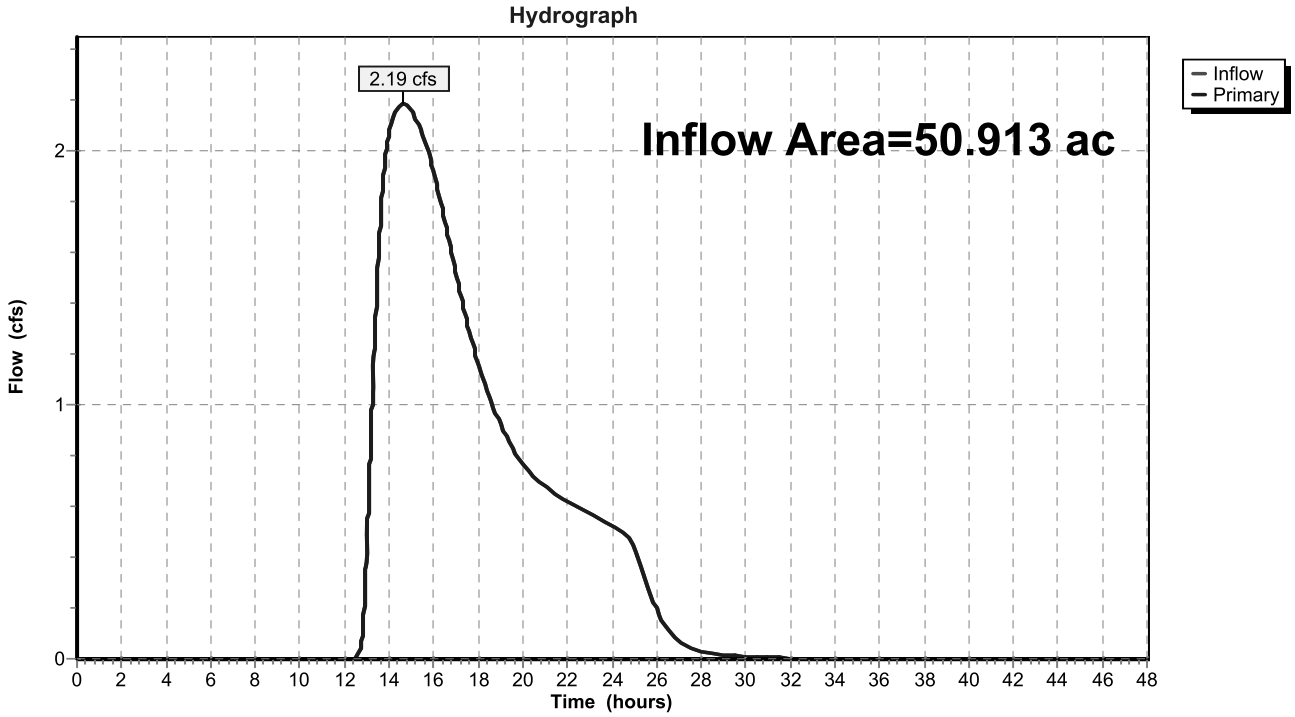


Summary for Link A1:

Inflow Area = 50.913 ac, 14.50% Impervious, Inflow Depth = 0.28" for 2-Year event
Inflow = 2.19 cfs @ 14.63 hrs, Volume= 1.170 af
Primary = 2.19 cfs @ 14.63 hrs, Volume= 1.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link A1:



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 S1: Project Site Runoff Area=2,217,768 sf 14.50% Impervious Runoff Depth=0.90"
Flow Length=2,574' Tc=90.7 min CN=57 Runoff=12.99 cfs 3.812 af

Pond 1P: 12" culvert off property Peak Elev=228.53' Storage=49,093 cf Inflow=12.99 cfs 3.812 af
Primary=5.03 cfs 3.806 af Secondary=0.00 cfs 0.000 af Outflow=5.03 cfs 3.806 af

Link A1: Inflow=5.03 cfs 3.806 af
Primary=5.03 cfs 3.806 af

Total Runoff Area = 50.913 ac Runoff Volume = 3.812 af Average Runoff Depth = 0.90"
85.50% Pervious = 43.528 ac 14.50% Impervious = 7.385 ac

Summary for Subcatchment S1: Project Site

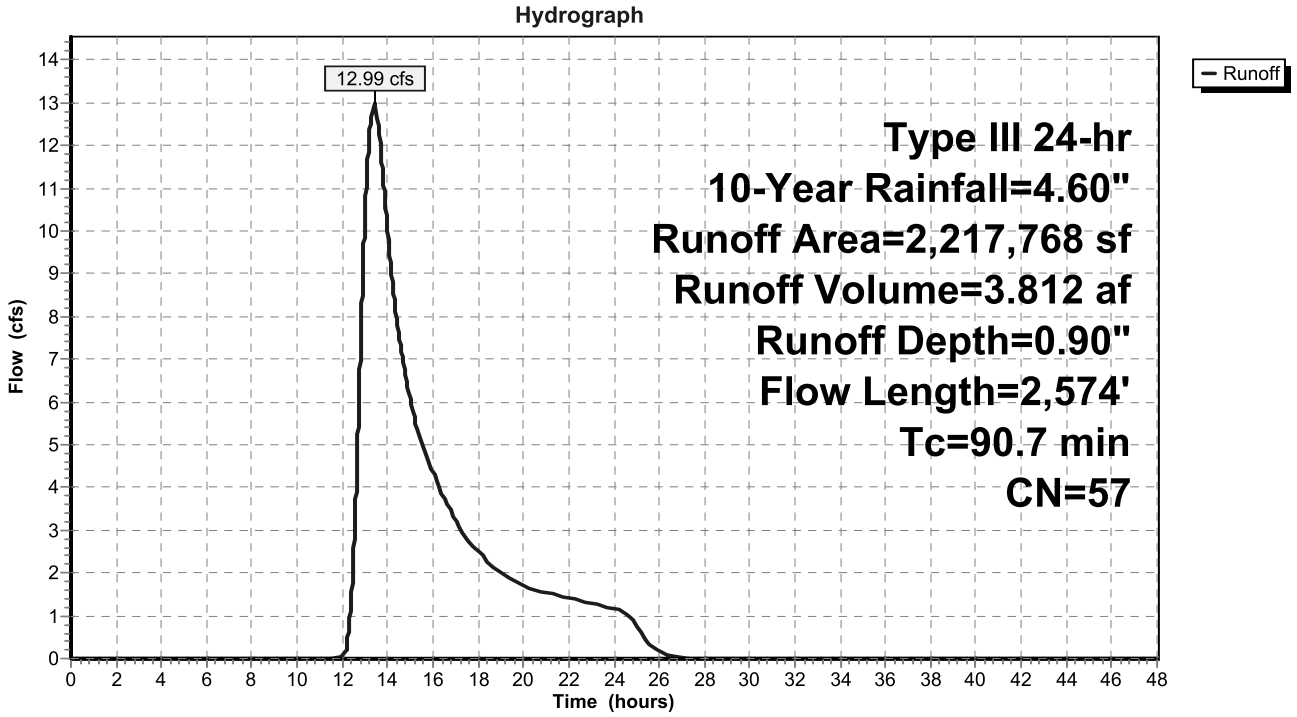
Runoff = 12.99 cfs @ 13.40 hrs, Volume= 3.812 af, Depth= 0.90"
Routed to Pond 1P : 12" culvert off property

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
1,179,403	30	Woods, Good, HSG A
11,587	98	Roofs, HSG A
310,097	98	Paved roads w/curbs & sewers, HSG A
572,081	96	Gravel surface, HSG A
144,600	39	>75% Grass cover, Good, HSG A
2,217,768	57	Weighted Average
1,896,084		85.50% Pervious Area
321,684		14.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	100	0.0200	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
2.9	131	0.0229	0.76		**Shallow Concentrated Flow, 3** Woodland Kv= 5.0 fps
0.5	100	0.4300	3.28		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
53.1	1,389	0.0019	0.44		**Shallow Concentrated Flow, E-F** Nearly Bare & Untilled Kv= 10.0 fps
4.5	372	0.0188	1.37		**Shallow Concentrated Flow, E-F** Nearly Bare & Untilled Kv= 10.0 fps
1.8	86	0.0261	0.81		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
0.7	146	0.0479	3.52		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
5.4	250	0.0236	0.77		**Shallow Concentrated Flow, H-I** Woodland Kv= 5.0 fps
90.7	2,574	Total			

Subcatchment S1: Project Site



Summary for Pond 1P: 12" culvert off property

Inflow Area = 50.913 ac, 14.50% Impervious, Inflow Depth = 0.90" for 10-Year event
Inflow = 12.99 cfs @ 13.40 hrs, Volume= 3.812 af
Outflow = 5.03 cfs @ 15.51 hrs, Volume= 3.806 af, Atten= 61%, Lag= 126.3 min
Primary = 5.03 cfs @ 15.51 hrs, Volume= 3.806 af
Routed to Link A1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link A1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 228.53' @ 15.51 hrs Surf.Area= 30,779 sf Storage= 49,093 cf

Plug-Flow detention time= 112.7 min calculated for 3.805 af (100% of inflow)
Center-of-Mass det. time= 111.7 min (1,083.1 - 971.3)

Volume	Invert	Avail.Storage	Storage Description
#1	224.84'	228,449 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

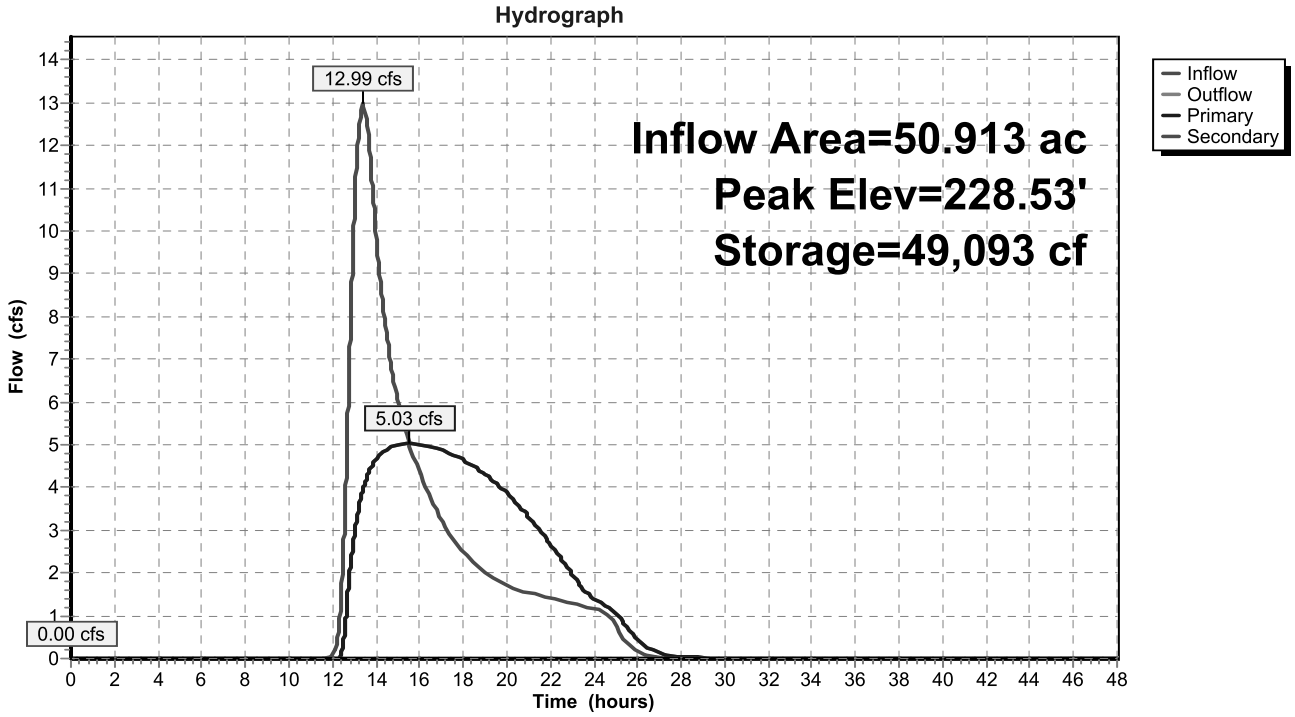
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.84	0	0	0
225.00	554	44	44
226.00	7,062	3,808	3,852
227.00	14,988	11,025	14,877
228.00	24,414	19,701	34,578
230.00	48,618	73,032	107,610
232.00	72,221	120,839	228,449

Device	Routing	Invert	Outlet Devices
#1	Primary	225.19'	**12.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.19' / 224.84' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	230.00'	**20.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.03 cfs @ 15.51 hrs HW=228.53' (Free Discharge)
1=Culvert (Inlet Controls 5.03 cfs @ 6.40 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=224.84' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: 12" culvert off property

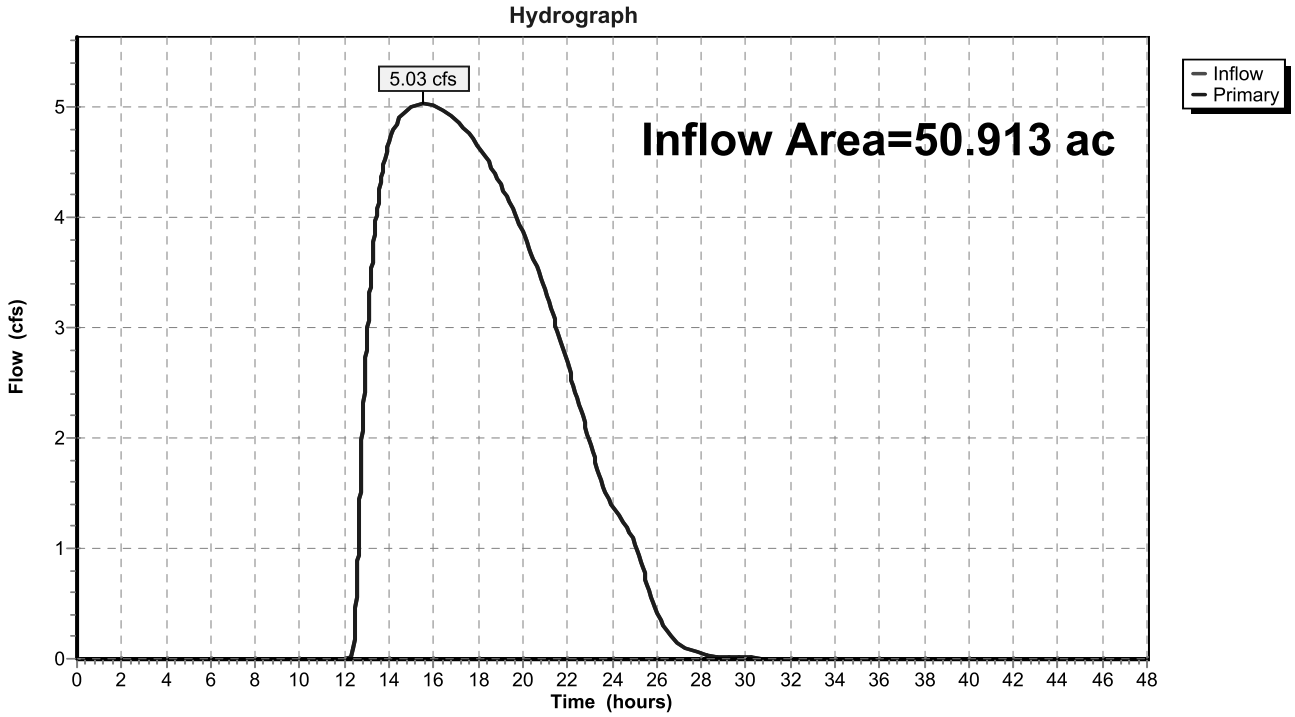


Summary for Link A1:

Inflow Area = 50.913 ac, 14.50% Impervious, Inflow Depth = 0.90" for 10-Year event
Inflow = 5.03 cfs @ 15.51 hrs, Volume= 3.806 af
Primary = 5.03 cfs @ 15.51 hrs, Volume= 3.806 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link A1:



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 S1: Project Site Runoff Area=2,217,768 sf 14.50% Impervious Runoff Depth=1.56"
Flow Length=2,574' Tc=90.7 min CN=57 Runoff=24.91 cfs 6.601 af

Pond 1P: 12" culvert off property Peak Elev=230.11' Storage=113,223 cf Inflow=24.91 cfs 6.601 af
Primary=6.28 cfs 6.367 af Secondary=2.01 cfs 0.228 af Outflow=8.29 cfs 6.595 af

Link A1: Inflow=8.29 cfs 6.595 af
Primary=8.29 cfs 6.595 af

Total Runoff Area = 50.913 ac Runoff Volume = 6.601 af Average Runoff Depth = 1.56"
85.50% Pervious = 43.528 ac 14.50% Impervious = 7.385 ac

Summary for Subcatchment S1: Project Site

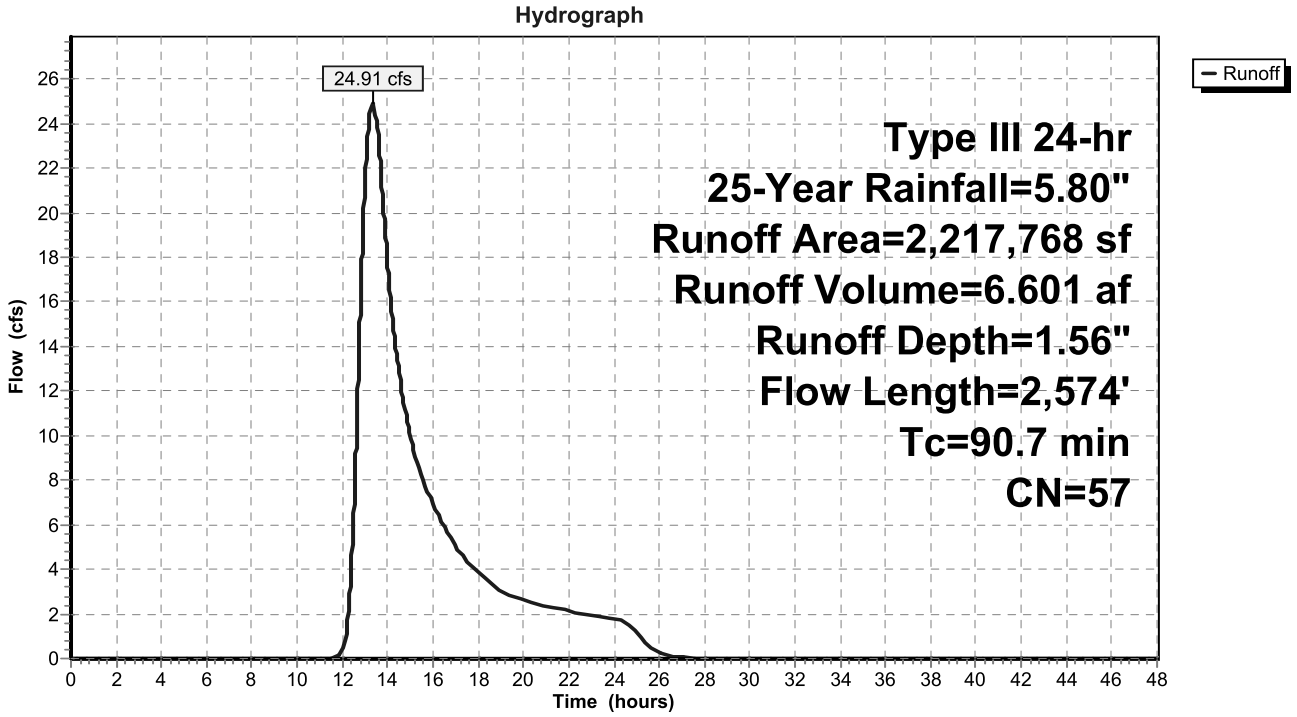
Runoff = 24.91 cfs @ 13.31 hrs, Volume= 6.601 af, Depth= 1.56"
Routed to Pond 1P : 12" culvert off property

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
1,179,403	30	Woods, Good, HSG A
11,587	98	Roofs, HSG A
310,097	98	Paved roads w/curbs & sewers, HSG A
572,081	96	Gravel surface, HSG A
144,600	39	>75% Grass cover, Good, HSG A
2,217,768	57	Weighted Average
1,896,084		85.50% Pervious Area
321,684		14.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.8	100	0.0200	0.08		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
2.9	131	0.0229	0.76		**Shallow Concentrated Flow, 3** Woodland Kv= 5.0 fps
0.5	100	0.4300	3.28		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
53.1	1,389	0.0019	0.44		**Shallow Concentrated Flow, E-F** Nearly Bare & Untilled Kv= 10.0 fps
4.5	372	0.0188	1.37		**Shallow Concentrated Flow, E-F** Nearly Bare & Untilled Kv= 10.0 fps
1.8	86	0.0261	0.81		**Shallow Concentrated Flow, F-G** Woodland Kv= 5.0 fps
0.7	146	0.0479	3.52		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
5.4	250	0.0236	0.77		**Shallow Concentrated Flow, H-I** Woodland Kv= 5.0 fps
90.7	2,574	Total			

Subcatchment S1: Project Site



Summary for Pond 1P: 12" culvert off property

Inflow Area = 50.913 ac, 14.50% Impervious, Inflow Depth = 1.56" for 25-Year event
Inflow = 24.91 cfs @ 13.31 hrs, Volume= 6.601 af
Outflow = 8.29 cfs @ 15.45 hrs, Volume= 6.595 af, Atten= 67%, Lag= 128.6 min
Primary = 6.28 cfs @ 15.45 hrs, Volume= 6.367 af
Routed to Link A1 :
Secondary = 2.01 cfs @ 15.45 hrs, Volume= 0.228 af
Routed to Link A1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 230.11' @ 15.45 hrs Surf.Area= 49,962 sf Storage= 113,223 cf

Plug-Flow detention time= 204.6 min calculated for 6.595 af (100% of inflow)
Center-of-Mass det. time= 203.9 min (1,156.0 - 952.0)

Volume	Invert	Avail.Storage	Storage Description
#1	224.84'	228,449 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

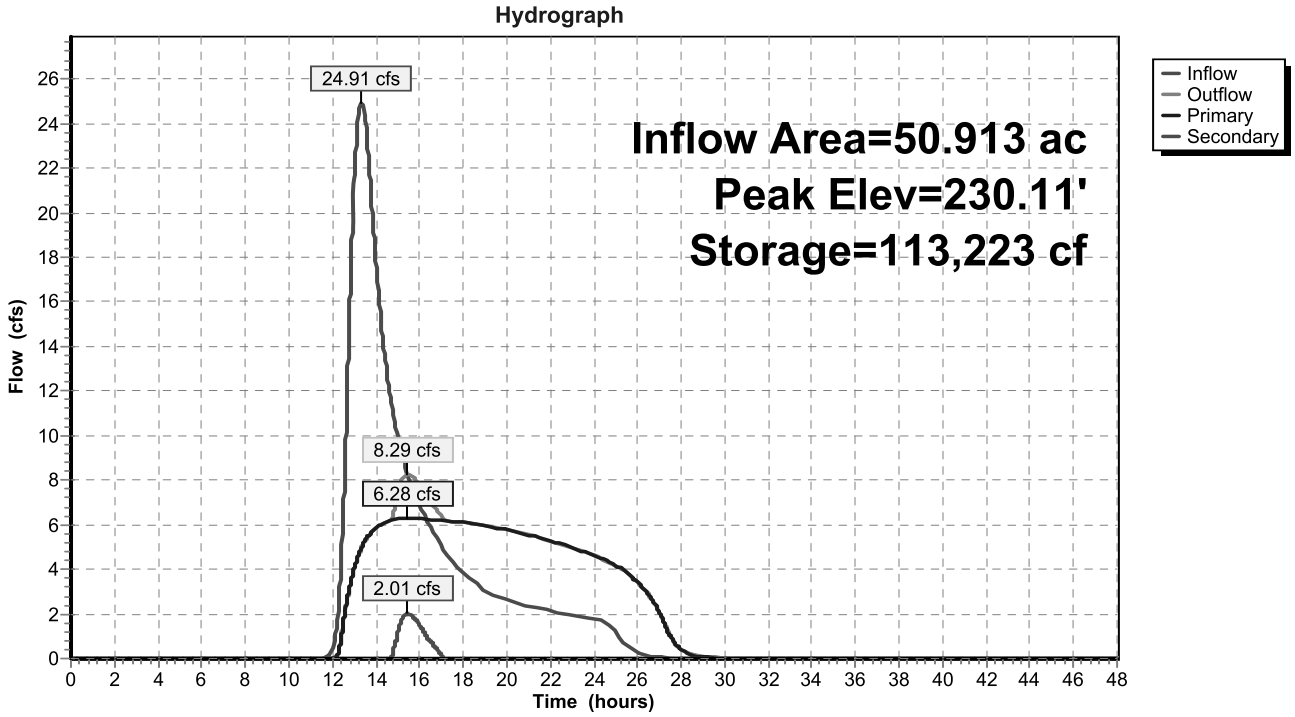
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.84	0	0	0
225.00	554	44	44
226.00	7,062	3,808	3,852
227.00	14,988	11,025	14,877
228.00	24,414	19,701	34,578
230.00	48,618	73,032	107,610
232.00	72,221	120,839	228,449

Device	Routing	Invert	Outlet Devices
#1	Primary	225.19'	**12.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.19' / 224.84' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	230.00'	**20.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=6.28 cfs @ 15.45 hrs HW=230.11' (Free Discharge)
1=Culvert (Inlet Controls 6.28 cfs @ 8.00 fps)

Secondary OutFlow Max=1.94 cfs @ 15.45 hrs HW=230.11' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 1.94 cfs @ 0.84 fps)

Pond 1P: 12" culvert off property

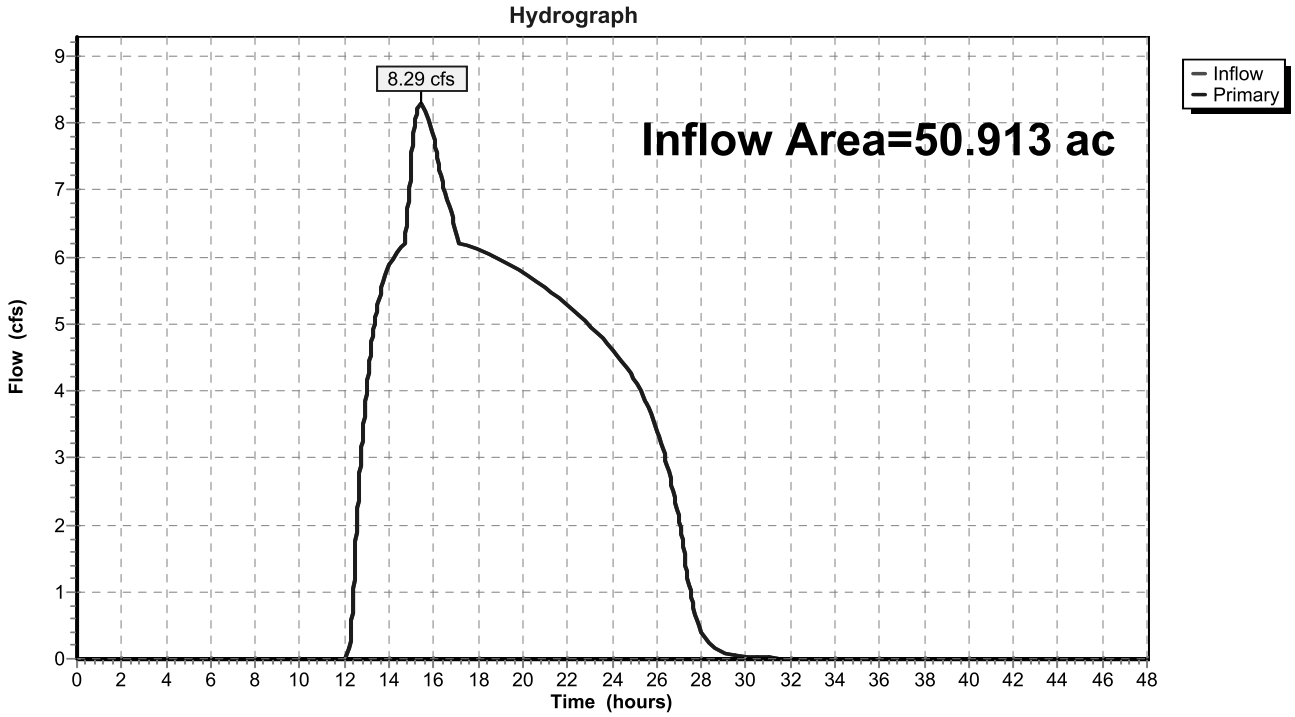


Summary for Link A1:

Inflow Area = 50.913 ac, 14.50% Impervious, Inflow Depth = 1.55" for 25-Year event
Inflow = 8.29 cfs @ 15.45 hrs, Volume= 6.595 af
Primary = 8.29 cfs @ 15.45 hrs, Volume= 6.595 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

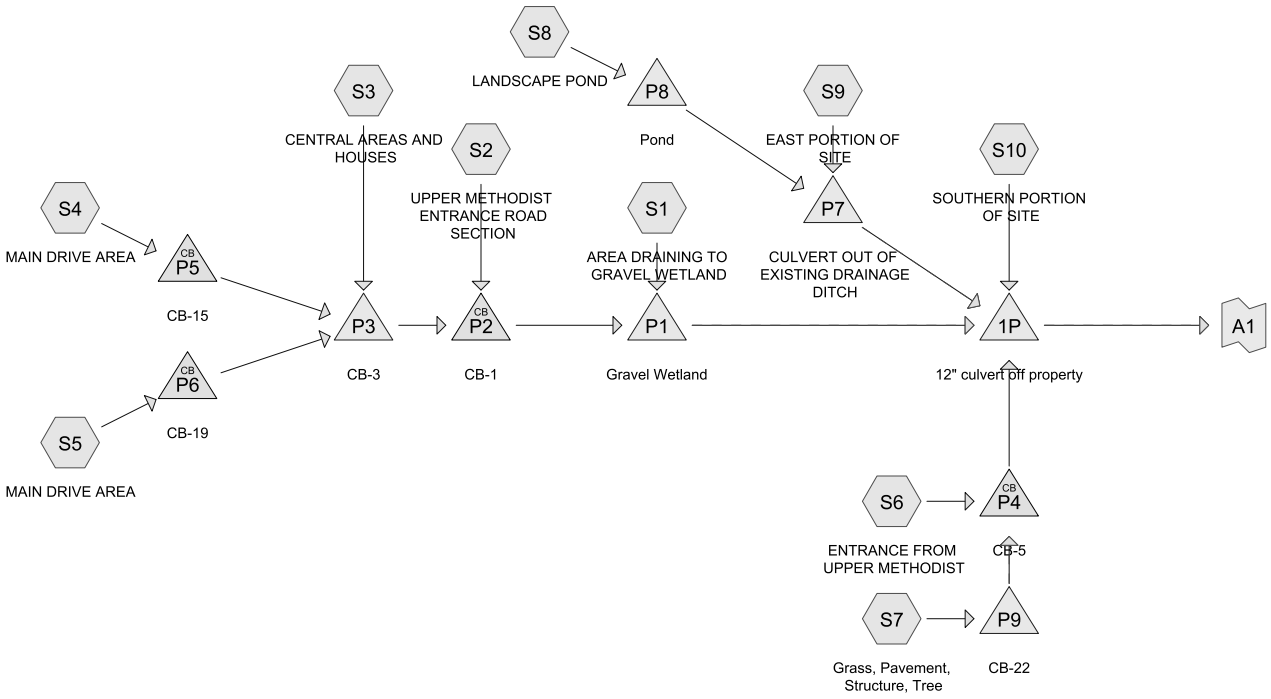
Link A1:



APPENDIX C

POST-DEVELOPMENT HYDROCAD CALCULATIONS

SME
SEVEE & MAHER
ENGINEERS



Subcat Reach Pond Link

Routing Diagram for BLACKSTRAP_POST
Prepared by Sevee & Maher Engineers, Printed 12/15/2023
HydroCAD® 10.20-3c s/n 01260 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment S1: AREA DRAINING TO GRAVEL WETLAND

Runoff = 0.01 cfs @ 22.51 hrs, Volume= 0.003 af, Depth= 0.01"
Routed to Pond P1 : Gravel Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
	3,000	30		Woods, Good, HSG A
	120,333	39		>75% Grass cover, Good, HSG A
*	29,990	39		Gravel Wetlands;HSG D
	2,375	76		Gravel roads, HSG A
	12,353	98		Unconnected roofs, HSG A
*	1,584	98		Shed Roofs
	169,635	44	42	Weighted Average, UI Adjusted
	155,698			91.78% Pervious Area
	13,937			8.22% Impervious Area
	12,353			88.63% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0850	0.21		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.5	63	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	202	0.0300	1.21		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
11.4	365	Total			

Summary for Subcatchment S10: SOUTHERN PORTION OF SITE

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond 1P : 12" culvert off property

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Adj	Description
5,000	39		>75% Grass cover, Good, HSG A
86,953	30		Meadow, non-grazed, HSG A
45,285	30		Woods, Good, HSG A
12,372	98		Unconnected roofs, HSG A
149,610	36	33	Weighted Average, UI Adjusted
137,238			91.73% Pervious Area
12,372			8.27% Impervious Area
12,372			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	100	0.0780	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	10	0.1500	1.94		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.4	96	0.2920	3.78		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
6.1	416	0.0260	1.13		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
19.3	622	Total			

Summary for Subcatchment S2: UPPER METHODIST ENTRANCE ROAD SECTION

Runoff = 1.69 cfs @ 12.09 hrs, Volume= 0.128 af, Depth= 0.82"
Routed to Pond P2 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	37,237	39	>75% Grass cover, Good, HSG A
	44,044	98	Paved roads w/curbs & sewers, HSG A
*	648	98	Concrete Pads, HSG A
	81,929	71	Weighted Average
	37,237		45.45% Pervious Area
	44,692		54.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Summary for Subcatchment S3: CENTRAL AREAS AND HOUSES

Runoff = 0.01 cfs @ 17.21 hrs, Volume= 0.008 af, Depth= 0.02"
Routed to Pond P3 : CB-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
	146,891	39		>75% Grass cover, Good, HSG A
	25,368	98		Unconnected roofs, HSG A
*	3,456	98		Unconnected roofs, HSG A, SHEDS
	175,715	49	44	Weighted Average, UI Adjusted
	146,891			83.60% Pervious Area
	28,824			16.40% Impervious Area
	28,824			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
7.0	262	0.0080	0.63		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
17.0	362	Total			

Summary for Subcatchment S4: MAIN DRIVE AREA

Runoff = 1.78 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 0.82"
Routed to Pond P5 : CB-15

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	38,966	39	>75% Grass cover, Good, HSG A
	25,859	98	Paved parking, HSG A
	21,220	98	Paved roads w/curbs & sewers, HSG A
*	567	98	Concrete Pads, HSG A
	86,612	71	Weighted Average
	38,966		44.99% Pervious Area
	47,646		55.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Summary for Subcatchment S5: MAIN DRIVE AREA

Runoff = 2.60 cfs @ 12.08 hrs, Volume= 0.178 af, Depth= 1.60"
Routed to Pond P6 : CB-19

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	13,412	39	>75% Grass cover, Good, HSG A
	44,711	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	58,285	84	Weighted Average
	13,412		23.01% Pervious Area
	44,873		76.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Summary for Subcatchment S6: ENTRANCE FROM UPPER METHODIST

Runoff = 0.94 cfs @ 12.08 hrs, Volume= 0.070 af, Depth= 0.87"
Routed to Pond P4 : CB-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	18,369	39	>75% Grass cover, Good, HSG A
	23,895	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	42,426	72	Weighted Average
	18,369		43.30% Pervious Area
	24,057		56.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Summary for Subcatchment S7: Grass, Pavement, Structure, Tree

Runoff = 0.01 cfs @ 24.15 hrs, Volume= 0.001 af, Depth= 0.00"
Routed to Pond P9 : CB-22

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	525,655	39	>75% Grass cover, Good, HSG A
	13,036	98	Roofs, HSG A
*	24,137	98	Offsite Existing Roads, HSG A
	5,837	96	Gravel surface, HSG A
	187,669	30	Woods, Good, HSG A
	756,334	40	Weighted Average
	719,161		95.09% Pervious Area
	37,173		4.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
7.6	329	0.0210	0.72		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	55	0.4670	3.42		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	33	0.2500	3.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
4.9	237	0.0130	0.80		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
41.8	754	Total			

Summary for Subcatchment S8: LANDSCAPE POND

Runoff = 5.59 cfs @ 12.07 hrs, Volume= 0.429 af, Depth= 2.87"
Routed to Pond P8 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
78,218	98	Water Surface, HSG A
78,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, A-B**

Summary for Subcatchment S9: EAST PORTION OF SITE

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	351,284	39	>75% Grass cover, Good, HSG A
*	15,499	98	Houses and Court
	6,424	98	Paved roads w/curbs & sewers, HSG A
	237,150	30	Woods, Good, HSG A
	8,667	96	Gravel surface, HSG A
	619,024	38	Weighted Average
	597,101		96.46% Pervious Area
	21,923		3.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.1	100	0.0025	0.03		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
2.9	131	0.0230	0.76		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	91	0.4350	3.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
3.1	1,045	0.0100	5.55	29.58	**Parabolic Channel,** W=4.00' D=2.00' Area=5.3 sf Perim=5.9' n= 0.025 Earth, clean & winding
56.6	1,367	Total			

Summary for Pond 1P: 12" culvert off property

Inflow Area = 50.913 ac, 15.95% Impervious, Inflow Depth > 0.12" for 2-Year event
Inflow = 1.09 cfs @ 12.09 hrs, Volume= 0.524 af
Outflow = 0.42 cfs @ 12.52 hrs, Volume= 0.516 af, Atten= 62%, Lag= 26.4 min
Primary = 0.42 cfs @ 12.52 hrs, Volume= 0.516 af
Routed to Link A1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link A1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 225.55' @ 12.52 hrs Surf.Area= 4,151 sf Storage= 1,344 cf

Plug-Flow detention time= 75.9 min calculated for 0.516 af (99% of inflow)
Center-of-Mass det. time= 59.1 min (1,495.1 - 1,436.0)

Volume	Invert	Avail.Storage	Storage Description
#1	224.84'	228,449 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.84	0	0	0
225.00	554	44	44
226.00	7,062	3,808	3,852
227.00	14,988	11,025	14,877
228.00	24,414	19,701	34,578
230.00	48,618	73,032	107,610
232.00	72,221	120,839	228,449

Device	Routing	Invert	Outlet Devices
#1	Primary	225.19'	**12.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.19' / 224.84' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	230.00'	**20.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.42 cfs @ 12.52 hrs HW=225.55' (Free Discharge)
1=Culvert (Inlet Controls 0.42 cfs @ 1.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=224.84' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond P1: Gravel Wetland

Inflow Area = 13.135 ac, 31.45% Impervious, Inflow Depth = 0.41" for 2-Year event
Inflow = 6.06 cfs @ 12.08 hrs, Volume= 0.453 af
Outflow = 0.21 cfs @ 17.27 hrs, Volume= 0.452 af, Atten= 96%, Lag= 311.2 min
Primary = 0.21 cfs @ 17.27 hrs, Volume= 0.452 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 228.62' @ 17.27 hrs Surf.Area= 20,540 sf Storage= 11,893 cf

Plug-Flow detention time= 660.7 min calculated for 0.452 af (100% of inflow)
Center-of-Mass det. time= 660.4 min (1,524.2 - 863.8)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	101,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	17,742	0	0
230.00	26,749	44,491	44,491
231.00	28,547	27,648	72,139
232.00	30,671	29,609	101,748

Device	Routing	Invert	Outlet Devices
#1	Secondary	231.50'	**20.0' long x 5.0' 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 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Device 4	227.67'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 4	231.00'	**2.5" x 2.5" Horiz. Orifice/Grate X 36.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	226.75'	**12.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.75' / 226.05' S= 0.0127 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.21 cfs @ 17.27 hrs HW=228.62' (Free Discharge)
└**4=Culvert** (Passes 0.21 cfs of 3.50 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 4.38 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2: CB-1

Inflow Area = 9.241 ac, 41.25% Impervious, Inflow Depth = 0.58" for 2-Year event
Inflow = 6.06 cfs @ 12.08 hrs, Volume= 0.450 af
Outflow = 6.06 cfs @ 12.08 hrs, Volume= 0.450 af, Atten= 0%, Lag= 0.0 min
Primary = 6.06 cfs @ 12.08 hrs, Volume= 0.450 af
Routed to Pond P1 : Gravel Wetland

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 242.82' @ 12.08 hrs
Flood Elev= 259.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	241.90'	**36.0" Round Culvert** L= 152.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 241.90' / 240.00' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=6.01 cfs @ 12.08 hrs HW=242.82' (Free Discharge)
1=Culvert (Inlet Controls 6.01 cfs @ 3.27 fps)

Summary for Pond P3: CB-3

Inflow Area = 7.360 ac, 37.85% Impervious, Inflow Depth = 0.52" for 2-Year event
Inflow = 4.37 cfs @ 12.08 hrs, Volume= 0.322 af
Outflow = 4.37 cfs @ 12.08 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.0 min
Primary = 4.37 cfs @ 12.08 hrs, Volume= 0.322 af
Routed to Pond P2 : CB-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 250.01' @ 12.08 hrs Surf.Area= 178 sf Storage= 1 cf

Plug-Flow detention time= 0.0 min calculated for 0.322 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (856.7 - 856.7)

Volume	Invert	Avail.Storage	Storage Description
#1	250.00'	209,091 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
250.00	0	0	0
252.00	50,768	50,768	50,768
254.00	107,555	158,323	209,091

Device	Routing	Invert	Outlet Devices
#1	Primary	245.00'	**24.0" Round Culvert** L= 294.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 245.00' / 243.50' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=24.90 cfs @ 12.08 hrs HW=250.01' (Free Discharge)
└**1=Culvert** (Barrel Controls 24.90 cfs @ 7.92 fps)

Summary for Pond P4: CB-5

Inflow Area = 18.337 ac, 7.67% Impervious, Inflow Depth = 0.05" for 2-Year event
Inflow = 0.94 cfs @ 12.08 hrs, Volume= 0.071 af
Outflow = 0.94 cfs @ 12.08 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 12.08 hrs, Volume= 0.071 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 244.81' @ 12.08 hrs
Flood Elev= 262.34'

Device	Routing	Invert	Outlet Devices
#1	Primary	244.39'	**18.0" Round Culvert** L= 149.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 244.39' / 239.00' S= 0.0362 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.91 cfs @ 12.08 hrs HW=244.81' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.91 cfs @ 2.22 fps)

Summary for Pond P5: CB-15

Inflow Area = 1.988 ac, 55.01% Impervious, Inflow Depth = 0.82" for 2-Year event
Inflow = 1.78 cfs @ 12.09 hrs, Volume= 0.136 af
Outflow = 1.78 cfs @ 12.09 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Primary = 1.78 cfs @ 12.09 hrs, Volume= 0.136 af
Routed to Pond P3 : CB-3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 251.47' @ 12.09 hrs
Flood Elev= 255.87'

Device	Routing	Invert	Outlet Devices
#1	Primary	250.86'	**18.0" Round Culvert** L= 182.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 250.86' / 245.10' S= 0.0316 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.78 cfs @ 12.09 hrs HW=251.47' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.78 cfs @ 2.65 fps)

Summary for Pond P6: CB-19

Inflow Area = 1.338 ac, 76.99% Impervious, Inflow Depth = 1.60" for 2-Year event
Inflow = 2.60 cfs @ 12.08 hrs, Volume= 0.178 af
Outflow = 2.60 cfs @ 12.08 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min
Primary = 2.60 cfs @ 12.08 hrs, Volume= 0.178 af
Routed to Pond P3 : CB-3

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.08' @ 12.08 hrs
Flood Elev= 257.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.33'	**18.0" Round Culvert** L= 215.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 251.33' / 245.10' S= 0.0290 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.59 cfs @ 12.08 hrs HW=252.08' (Free Discharge)
1=Culvert (Inlet Controls 2.59 cfs @ 2.94 fps)

Summary for Pond P7: CULVERT OUT OF EXISTING DRAINAGE DITCH

Inflow Area = 16.006 ac, 14.36% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 246.00' @ 0.00 hrs Surf.Area= 200 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	72,372 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	200	0	0
248.00	616	816	816
250.00	18,970	19,586	20,402
252.00	33,000	51,970	72,372

Device	Routing	Invert	Outlet Devices
#1	Primary	246.00'	**15.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 246.00' / 245.00' S= 0.0139 '/' Cc= 0.900

			n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Secondary	250.50'	**30.0' long x 10.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=246.00' (Free Discharge)
↑—**1=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=246.00' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P8: Pond

Inflow Area = 1.796 ac,100.00% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 5.59 cfs @ 12.07 hrs, Volume= 0.429 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 248.44' @ 24.29 hrs Surf.Area= 42,493 sf Storage= 18,688 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	247.99'	619,118 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.99	0	0	0
248.00	40,787	204	204
250.00	48,475	89,262	89,466
252.00	56,791	105,266	194,732
254.00	65,735	122,526	317,258
256.00	75,308	141,043	458,301
258.00	85,509	160,817	619,118

Device	Routing	Invert	Outlet Devices
#1	Primary	251.50'	**85.0' long x 30.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=247.99' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P9: CB-22

Inflow Area = 17.363 ac, 4.91% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.01 cfs @ 24.15 hrs, Volume= 0.001 af
Outflow = 0.01 cfs @ 24.15 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 24.15 hrs, Volume= 0.001 af
Routed to Pond P4 : CB-5

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.50' @ 24.15 hrs Surf.Area= 1 sf Storage= 0 cf
Flood Elev= 252.50' Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.001 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (1,410.3 - 1,410.2)

Volume	Invert	Avail.Storage	Storage Description
#1	252.50'	78,844 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.50	0	0	0
254.00	20,347	15,260	15,260
256.00	43,237	63,584	78,844

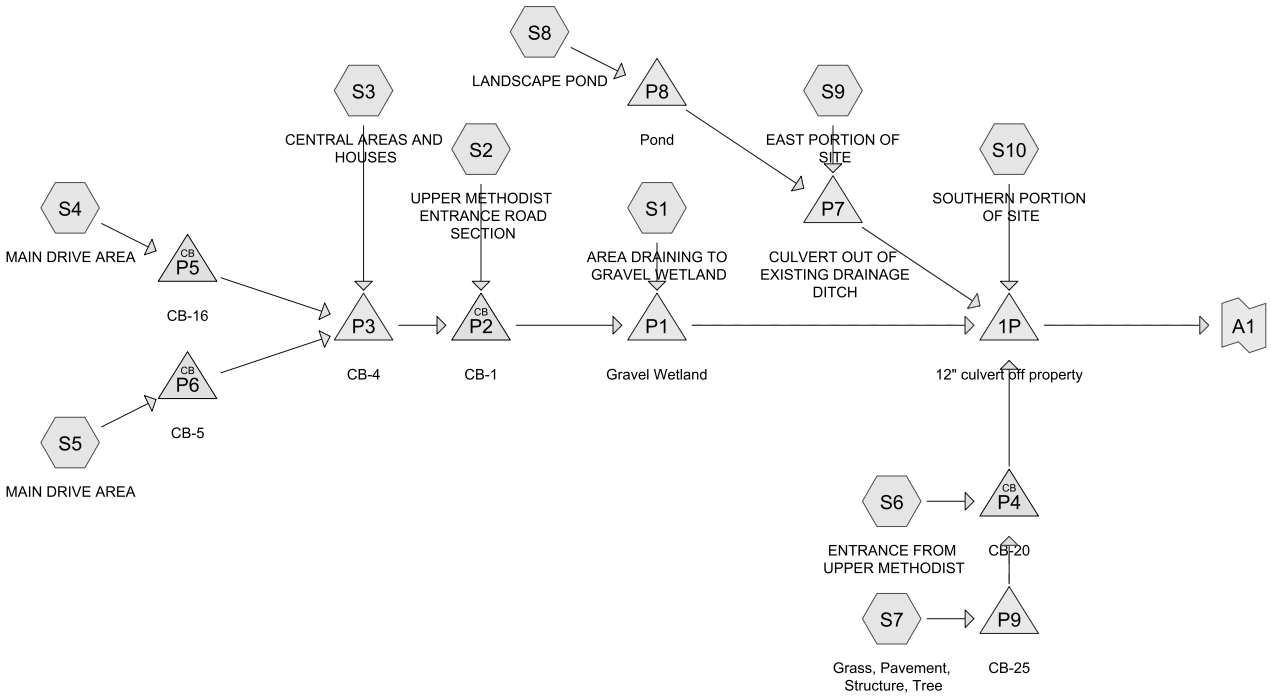
Device	Routing	Invert	Outlet Devices
#1	Primary	249.50'	**12.0" Round Culvert** L= 224.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 249.50' / 247.71' S= 0.0080 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.48 cfs @ 24.15 hrs HW=252.50' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.48 cfs @ 5.71 fps)

Summary for Link A1:

Inflow Area = 50.913 ac, 15.95% Impervious, Inflow Depth > 0.12" for 2-Year event
Inflow = 0.42 cfs @ 12.52 hrs, Volume= 0.516 af
Primary = 0.42 cfs @ 12.52 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs



Subcat Reach Pond Link

Routing Diagram for BLACKSTRAP_POST - revised 2-23-2024
Prepared by Sevee & Maher Engineers, Printed 2/26/2024
HydroCAD® 10.20-3g s/n 01260 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
28.869	39	>75% Grass cover, Good, HSG A (S1, S10, S2, S3, S4, S5, S6, S7, S9)
0.035	98	Concrete Pads, HSG A (S2, S4, S5, S6)
0.688	39	Gravel Wetlands;HSG D (S1)
0.055	76	Gravel roads, HSG A (S1)
0.333	96	Gravel surface, HSG A (S7, S9)
0.356	98	Houses and Court (S9)
1.996	30	Meadow, non-grazed, HSG A (S10)
0.554	98	Offsite Existing Roads, HSG A (S7)
0.594	98	Paved parking, HSG A (S4)
3.212	98	Paved roads w/curbs & sewers, HSG A (S2, S4, S5, S6, S9)
0.299	98	Roofs, HSG A (S7)
0.036	98	Shed Roofs (S1)
1.150	98	Unconnected roofs, HSG A (S1, S10, S3)
0.079	98	Unconnected roofs, HSG A, SHEDS (S3)
1.796	98	Water Surface, HSG A (S8)
10.861	30	Woods, Good, HSG A (S1, S10, S7, S9)
50.913	**47**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 S1: AREA DRAINING TO Runoff Area=169,635 sf 8.22% Impervious Runoff Depth=0.01"
Flow Length=365' Tc=11.4 min UI Adjusted CN=42 Runoff=0.01 cfs 0.003 af

Subcatchment S10: SOUTHERN PORTION Runoff Area=149,610 sf 8.27% Impervious Runoff Depth=0.00"
Flow Length=751' Tc=19.1 min UI Adjusted CN=33 Runoff=0.00 cfs 0.000 af

Subcatchment S2: UPPER METHODIST Runoff Area=83,367 sf 54.63% Impervious Runoff Depth=0.82"
Tc=5.0 min CN=71 Runoff=1.72 cfs 0.131 af

Subcatchment S3: CENTRAL AREAS Runoff Area=175,715 sf 16.40% Impervious Runoff Depth=0.02"
Flow Length=362' Tc=17.0 min UI Adjusted CN=44 Runoff=0.01 cfs 0.008 af

Subcatchment S4: MAIN DRIVE AREA Runoff Area=86,747 sf 54.80% Impervious Runoff Depth=0.82"
Tc=5.0 min CN=71 Runoff=1.79 cfs 0.136 af

Subcatchment S5: MAIN DRIVE AREA Runoff Area=57,927 sf 76.66% Impervious Runoff Depth=1.60"
Tc=5.0 min CN=84 Runoff=2.58 cfs 0.177 af

Subcatchment S6: ENTRANCE FROM Runoff Area=41,209 sf 56.76% Impervious Runoff Depth=0.87"
Tc=5.0 min CN=72 Runoff=0.91 cfs 0.068 af

Subcatchment S7: Grass, Pavement, Runoff Area=756,334 sf 4.91% Impervious Runoff Depth=0.00"
Flow Length=848' Tc=44.4 min CN=40 Runoff=0.01 cfs 0.001 af

Subcatchment S8: LANDSCAPE POND Runoff Area=78,218 sf 100.00% Impervious Runoff Depth=2.87"
Tc=5.0 min CN=98 Runoff=5.59 cfs 0.429 af

Subcatchment S9: EAST PORTION OF SITE Runoff Area=619,024 sf 3.54% Impervious Runoff Depth=0.00"
Flow Length=1,367' Tc=56.6 min CN=38 Runoff=0.00 cfs 0.000 af

Pond 1P: 12" culvert off property Peak Elev=225.55' Storage=1,323 cf Inflow=1.06 cfs 0.523 af
Primary=0.41 cfs 0.516 af Secondary=0.00 cfs 0.000 af Outflow=0.41 cfs 0.516 af

Pond P1: Gravel Wetland Peak Elev=228.62' Storage=11,936 cf Inflow=6.07 cfs 0.454 af
Primary=0.22 cfs 0.454 af Secondary=0.00 cfs 0.000 af Outflow=0.22 cfs 0.454 af

Pond P2: CB-1 Peak Elev=242.82' Inflow=6.07 cfs 0.451 af
36.0" Round Culvert n=0.012 L=152.0' S=0.0125 '/' Outflow=6.07 cfs 0.451 af

Pond P3: CB-4 Peak Elev=250.01' Storage=1 cf Inflow=4.36 cfs 0.321 af
24.0" Round Culvert n=0.012 L=294.0' S=0.0051 '/' Outflow=4.36 cfs 0.321 af

Pond P4: CB-20 Peak Elev=244.88' Inflow=0.91 cfs 0.069 af
12.0" Round Culvert n=0.012 L=149.0' S=0.0362 '/' Outflow=0.91 cfs 0.069 af

Pond P5: CB-16 Peak Elev=251.59' Inflow=1.79 cfs 0.136 af
12.0" Round Culvert n=0.012 L=182.0' S=0.0316 '/' Outflow=1.79 cfs 0.136 af

Pond P6: CB-5 Peak Elev=252.14' Inflow=2.58 cfs 0.177 af
15.0" Round Culvert n=0.012 L=215.0' S=0.0290 '/' Outflow=2.58 cfs 0.177 af

Pond P7: CULVERT OUT OF EXISTING Peak Elev=246.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond P8: Pond Peak Elev=248.44' Storage=18,688 cf Inflow=5.59 cfs 0.429 af
Outflow=0.00 cfs 0.000 af

Pond P9: CB-25 Peak Elev=252.50' Storage=0 cf Inflow=0.01 cfs 0.001 af
12.0" Round Culvert n=0.012 L=224.0' S=0.0080 '/' Outflow=0.01 cfs 0.001 af

Link A1: Inflow=0.41 cfs 0.516 af
Primary=0.41 cfs 0.516 af

Total Runoff Area = 50.913 ac Runoff Volume = 0.953 af Average Runoff Depth = 0.22"
84.07% Pervious = 42.802 ac 15.93% Impervious = 8.111 ac

Summary for Subcatchment S1: AREA DRAINING TO GRAVEL WETLAND

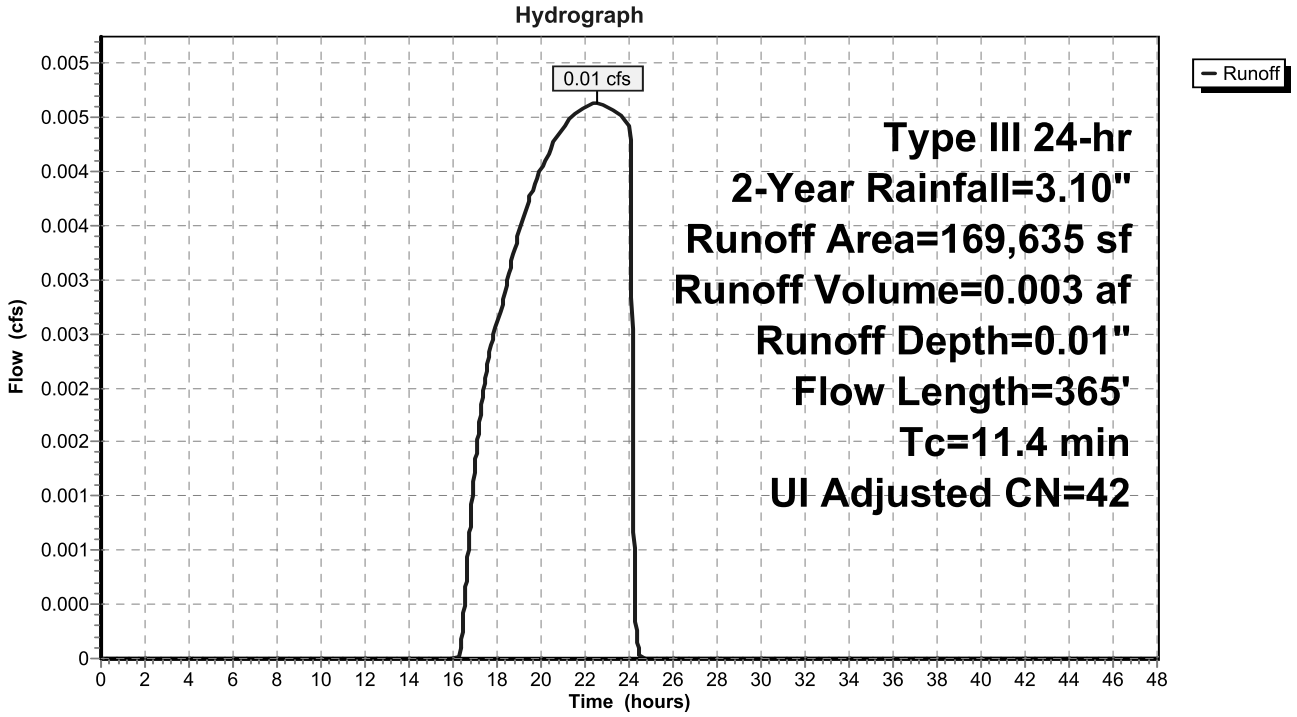
Runoff = 0.01 cfs @ 22.51 hrs, Volume= 0.003 af, Depth= 0.01"
Routed to Pond P1 : Gravel Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
	3,000	30		Woods, Good, HSG A
	120,333	39		>75% Grass cover, Good, HSG A
*	29,990	39		Gravel Wetlands;HSG D
	2,375	76		Gravel roads, HSG A
	12,353	98		Unconnected roofs, HSG A
*	1,584	98		Shed Roofs
	169,635	44	42	Weighted Average, UI Adjusted
	155,698			91.78% Pervious Area
	13,937			8.22% Impervious Area
	12,353			88.63% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0850	0.21		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.5	63	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	202	0.0300	1.21		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
11.4	365	Total			

Subcatchment S1: AREA DRAINING TO GRAVEL WETLAND



Summary for Subcatchment S10: SOUTHERN PORTION OF SITE

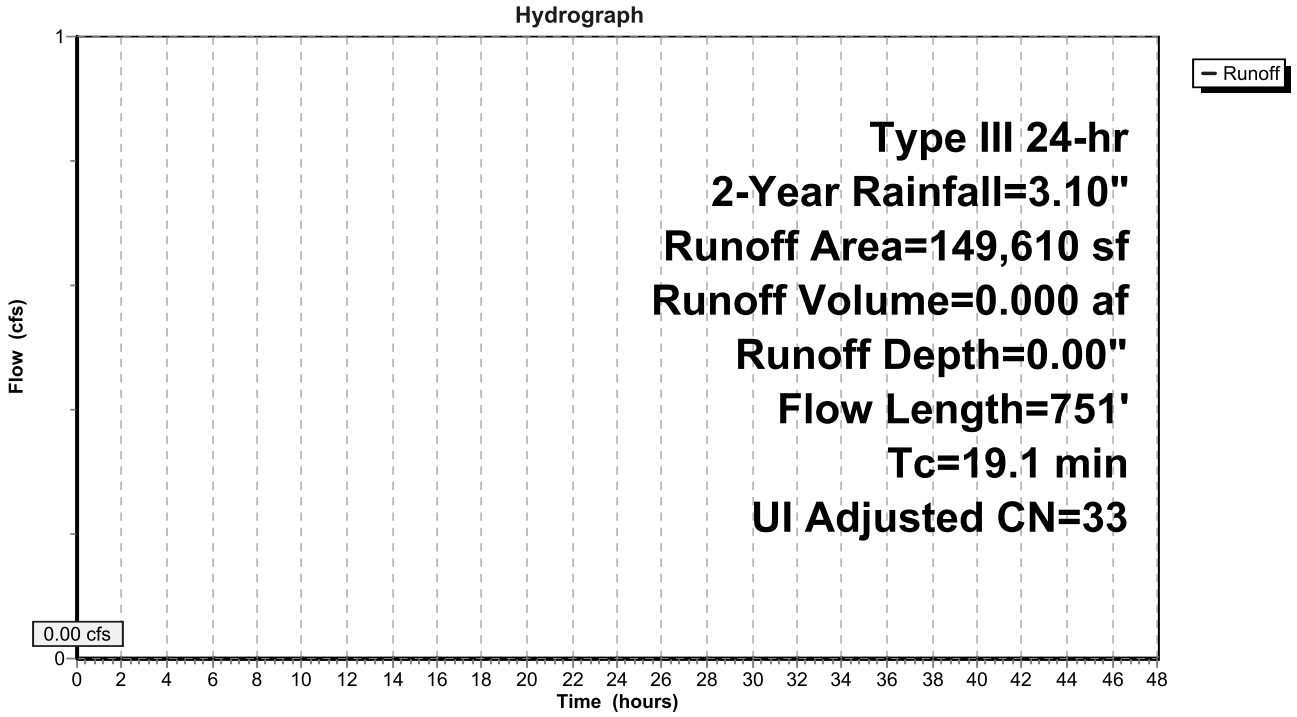
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond 1P : 12" culvert off property

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Adj	Description
5,000	39		>75% Grass cover, Good, HSG A
86,953	30		Meadow, non-grazed, HSG A
45,285	30		Woods, Good, HSG A
12,372	98		Unconnected roofs, HSG A
149,610	36	33	Weighted Average, UI Adjusted
137,238			91.73% Pervious Area
12,372			8.27% Impervious Area
12,372			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0780	0.29		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
10.1	598	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.2	53	0.0030	0.27		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
19.1	751	Total			

Subcatchment S10: SOUTHERN PORTION OF SITE



Summary for Subcatchment S2: UPPER METHODIST ENTRANCE ROAD SECTION

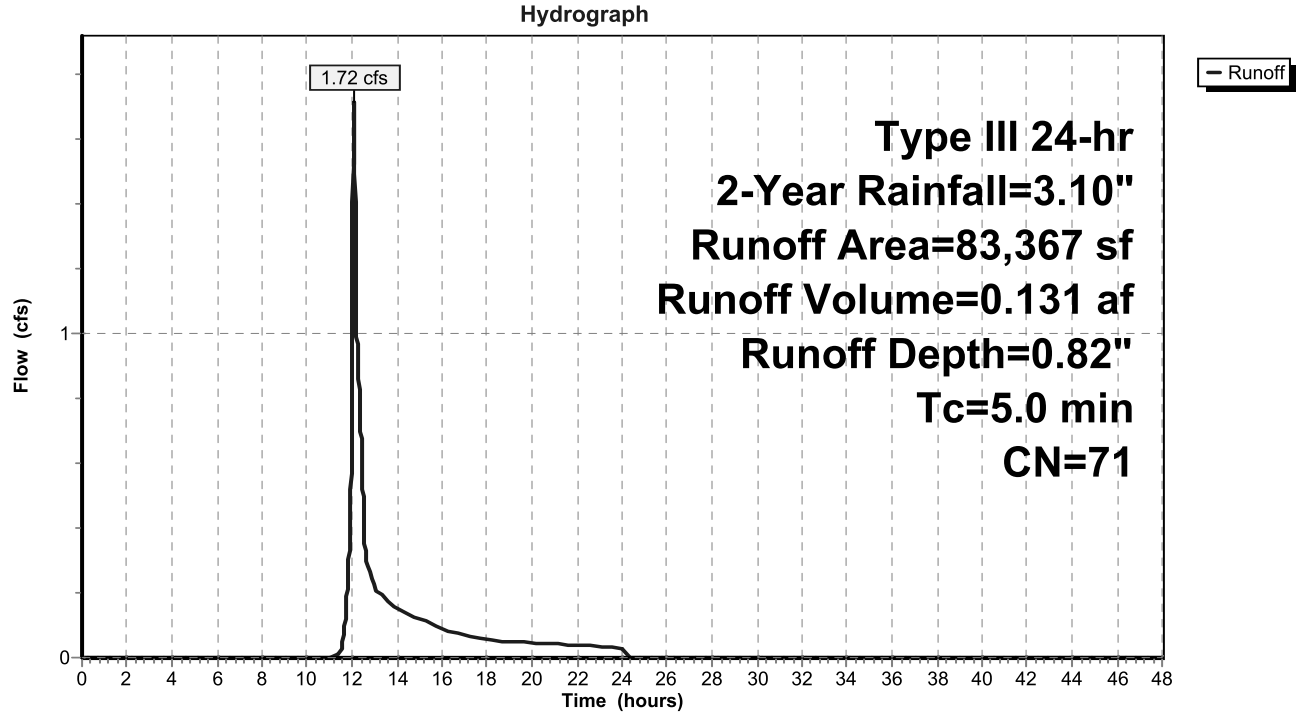
Runoff = 1.72 cfs @ 12.09 hrs, Volume= 0.131 af, Depth= 0.82"
Routed to Pond P2 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	37,824	39	>75% Grass cover, Good, HSG A
	44,895	98	Paved roads w/curbs & sewers, HSG A
*	648	98	Concrete Pads, HSG A
	83,367	71	Weighted Average
	37,824		45.37% Pervious Area
	45,543		54.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S2: UPPER METHODIST ENTRANCE ROAD SECTION



Summary for Subcatchment S3: CENTRAL AREAS AND HOUSES

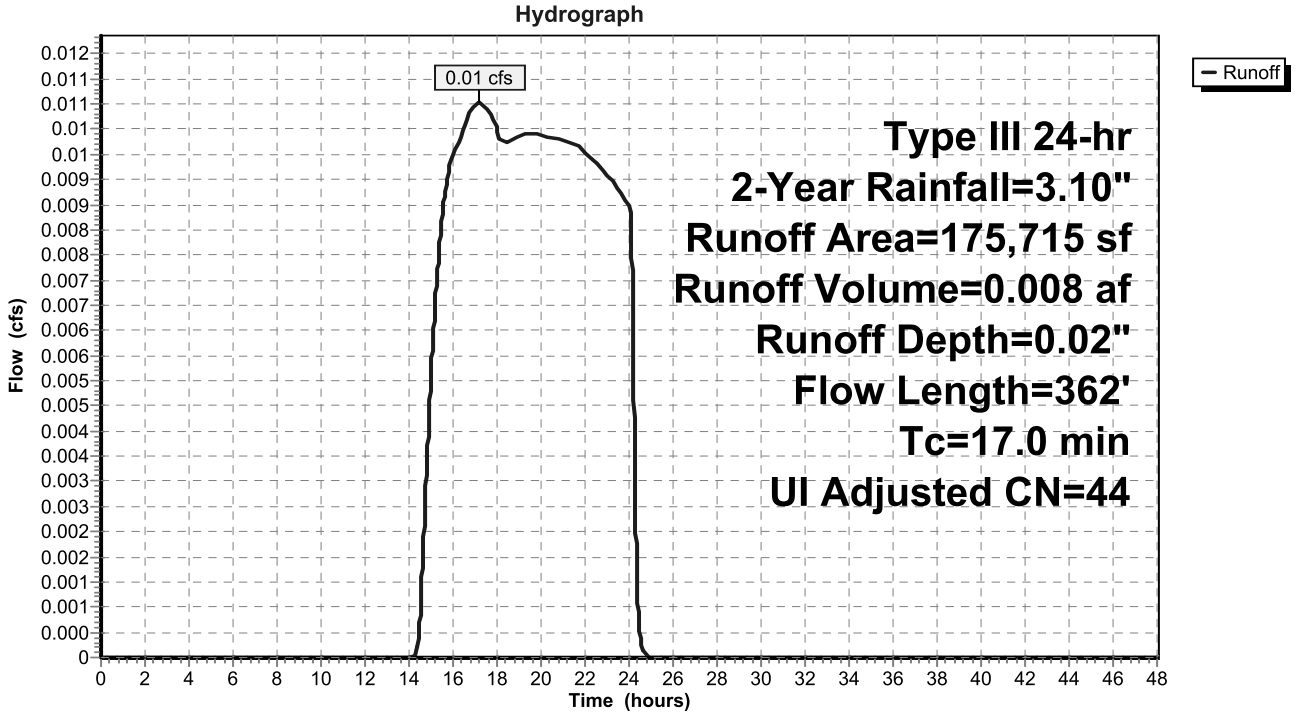
Runoff = 0.01 cfs @ 17.21 hrs, Volume= 0.008 af, Depth= 0.02"
Routed to Pond P3 : CB-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Adj	Description
	146,891	39		>75% Grass cover, Good, HSG A
	25,368	98		Unconnected roofs, HSG A
*	3,456	98		Unconnected roofs, HSG A, SHEDS
	175,715	49	44	Weighted Average, UI Adjusted
	146,891			83.60% Pervious Area
	28,824			16.40% Impervious Area
	28,824			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
7.0	262	0.0080	0.63		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
17.0	362	Total			

Subcatchment S3: CENTRAL AREAS AND HOUSES



Summary for Subcatchment S4: MAIN DRIVE AREA

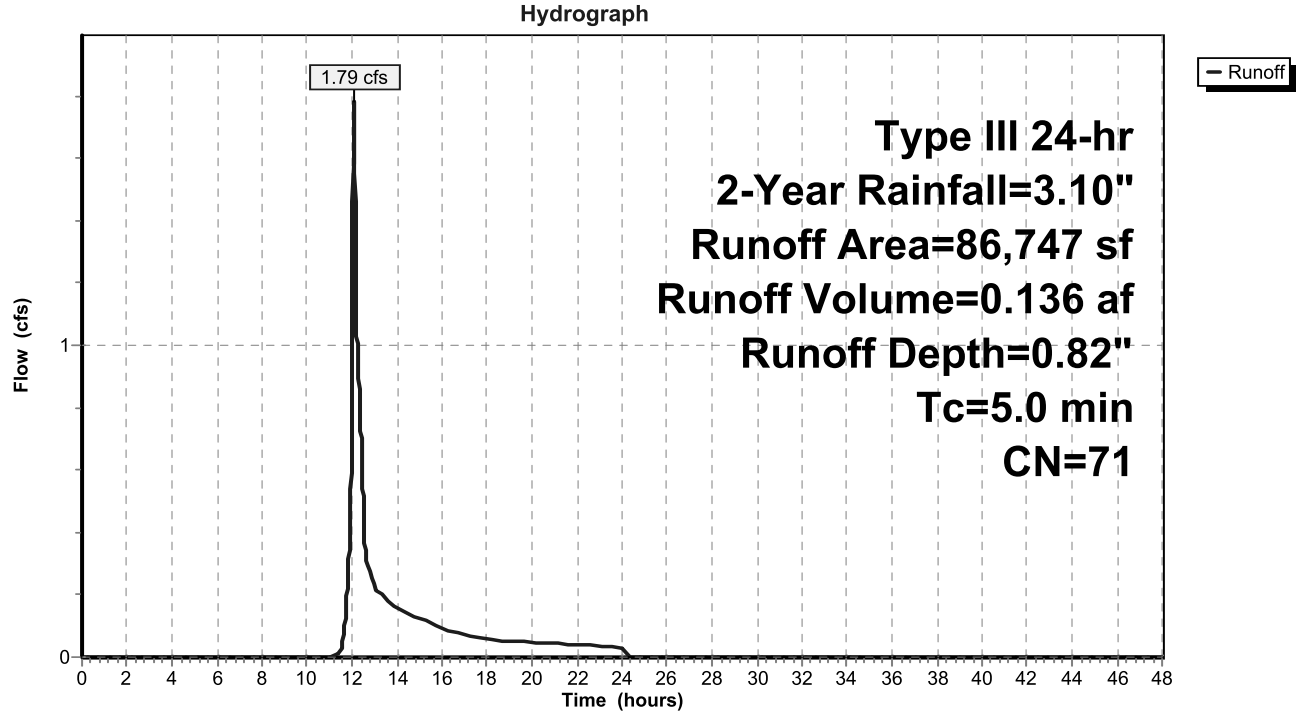
Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.136 af, Depth= 0.82"
Routed to Pond P5 : CB-16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	39,211	39	>75% Grass cover, Good, HSG A
	25,855	98	Paved parking, HSG A
	21,114	98	Paved roads w/curbs & sewers, HSG A
*	567	98	Concrete Pads, HSG A
	86,747	71	Weighted Average
	39,211		45.20% Pervious Area
	47,536		54.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S4: MAIN DRIVE AREA



Summary for Subcatchment S5: MAIN DRIVE AREA

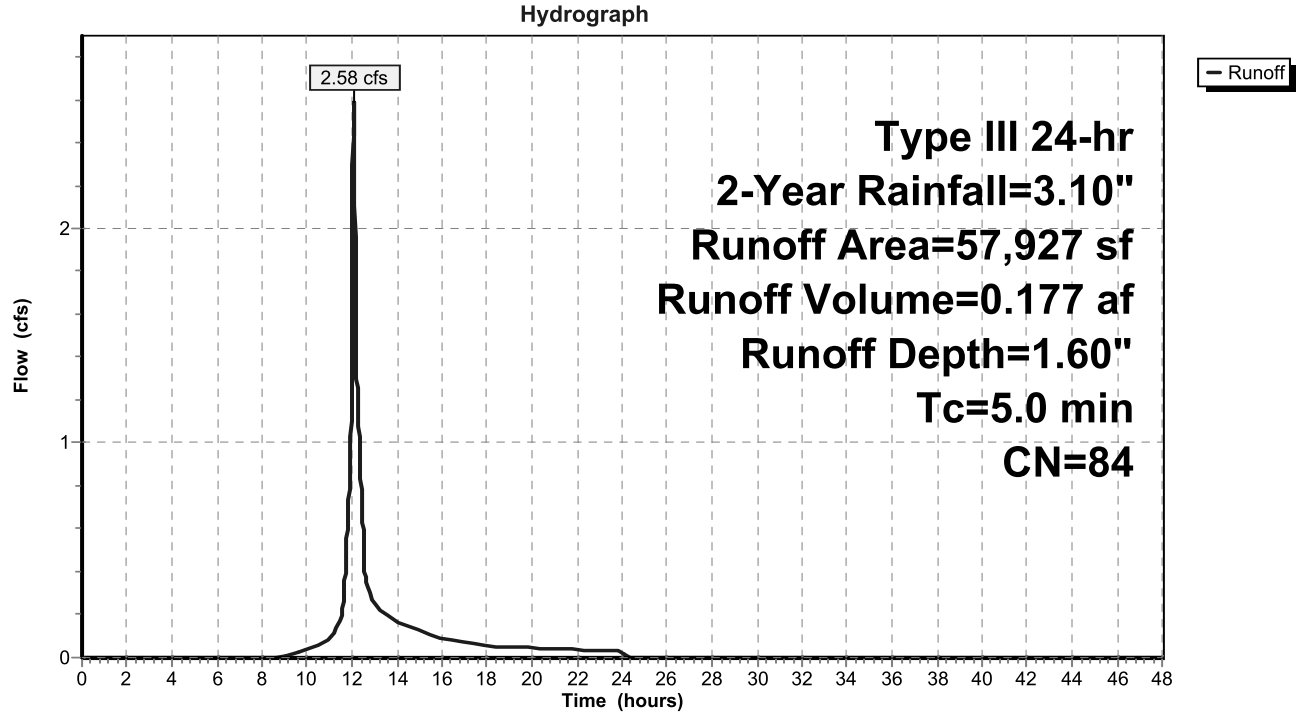
Runoff = 2.58 cfs @ 12.08 hrs, Volume= 0.177 af, Depth= 1.60"
Routed to Pond P6 : CB-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	13,520	39	>75% Grass cover, Good, HSG A
	44,245	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	57,927	84	Weighted Average
	13,520		23.34% Pervious Area
	44,407		76.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S5: MAIN DRIVE AREA



Summary for Subcatchment S6: ENTRANCE FROM UPPER METHODIST

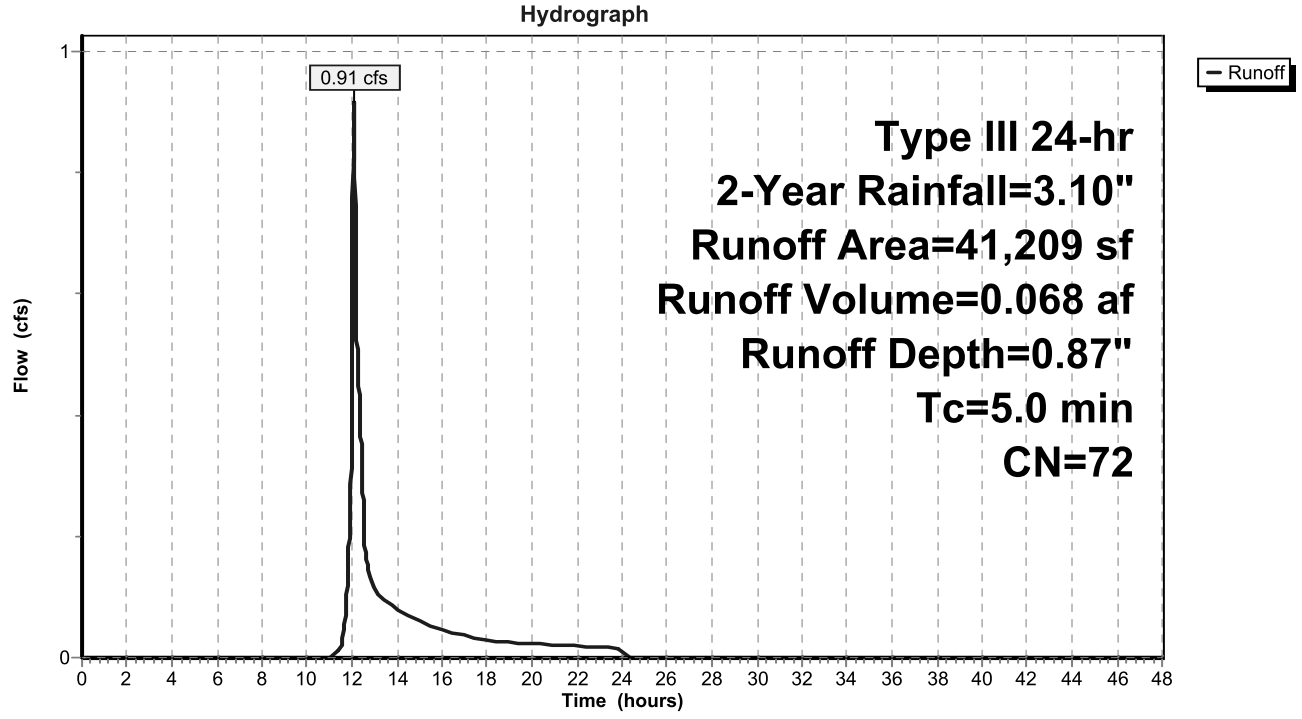
Runoff = 0.91 cfs @ 12.08 hrs, Volume= 0.068 af, Depth= 0.87"
Routed to Pond P4 : CB-20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	17,819	39	>75% Grass cover, Good, HSG A
	23,228	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	41,209	72	Weighted Average
	17,819		43.24% Pervious Area
	23,390		56.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S6: ENTRANCE FROM UPPER METHODIST



Summary for Subcatchment S7: Grass, Pavement, Structure, Tree

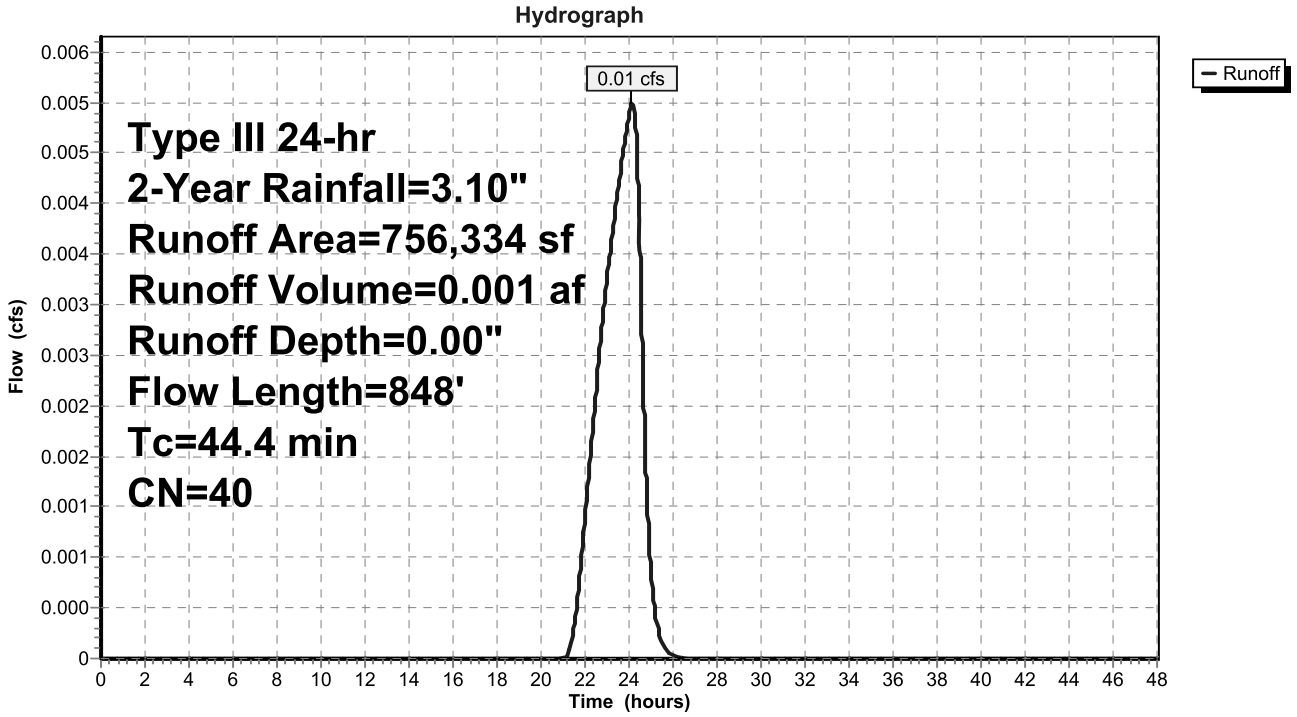
Runoff = 0.01 cfs @ 24.13 hrs, Volume= 0.001 af, Depth= 0.00"
Routed to Pond P9 : CB-25

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	525,655	39	>75% Grass cover, Good, HSG A
	13,036	98	Roofs, HSG A
*	24,137	98	Offsite Existing Roads, HSG A
	5,837	96	Gravel surface, HSG A
	187,669	30	Woods, Good, HSG A
	756,334	40	Weighted Average
	719,161		95.09% Pervious Area
	37,173		4.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
7.6	329	0.0210	0.72		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	55	0.4670	3.42		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	33	0.2500	3.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
7.5	331	0.0110	0.73		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
44.4	848	Total			

Subcatchment S7: Grass, Pavement, Structure, Tree



Summary for Subcatchment S8: LANDSCAPE POND

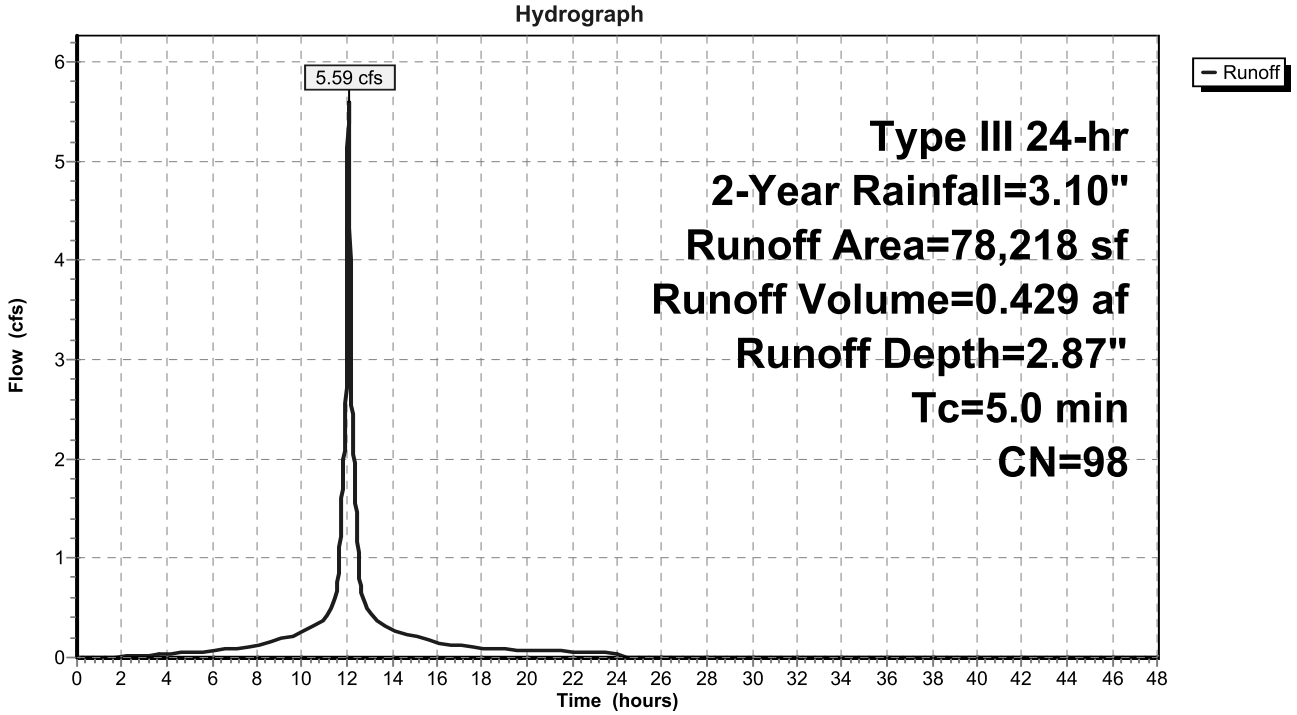
Runoff = 5.59 cfs @ 12.07 hrs, Volume= 0.429 af, Depth= 2.87"
Routed to Pond P8 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
78,218	98	Water Surface, HSG A
78,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, A-B**

Subcatchment S8: LANDSCAPE POND



Summary for Subcatchment S9: EAST PORTION OF SITE

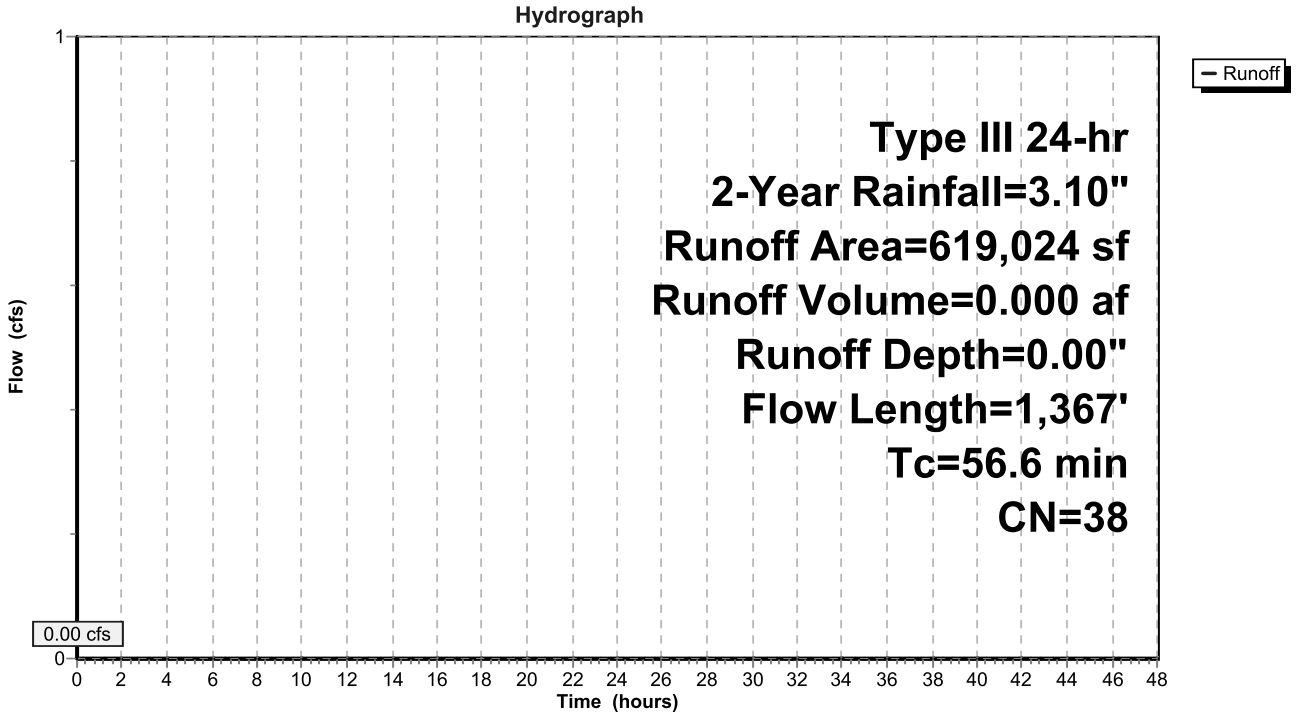
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	351,284	39	>75% Grass cover, Good, HSG A
*	15,499	98	Houses and Court
	6,424	98	Paved roads w/curbs & sewers, HSG A
	237,150	30	Woods, Good, HSG A
	8,667	96	Gravel surface, HSG A
	619,024	38	Weighted Average
	597,101		96.46% Pervious Area
	21,923		3.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.1	100	0.0025	0.03		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
2.9	131	0.0230	0.76		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	91	0.4350	3.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
3.1	1,045	0.0100	5.55	29.58	**Parabolic Channel,** W=4.00' D=2.00' Area=5.3 sf Perim=5.9' n= 0.025 Earth, clean & winding
56.6	1,367	Total			

Subcatchment S9: EAST PORTION OF SITE



Summary for Pond 1P: 12" culvert off property

Inflow Area = 50.913 ac, 15.93% Impervious, Inflow Depth > 0.12" for 2-Year event
Inflow = 1.06 cfs @ 12.09 hrs, Volume= 0.523 af
Outflow = 0.41 cfs @ 12.53 hrs, Volume= 0.516 af, Atten= 62%, Lag= 26.6 min
Primary = 0.41 cfs @ 12.53 hrs, Volume= 0.516 af
Routed to Link A1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link A1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 225.55' @ 12.53 hrs Surf.Area= 4,117 sf Storage= 1,323 cf

Plug-Flow detention time= 76.0 min calculated for 0.516 af (99% of inflow)
Center-of-Mass det. time= 59.1 min (1,499.0 - 1,439.9)

Volume	Invert	Avail.Storage	Storage Description
#1	224.84'	228,449 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

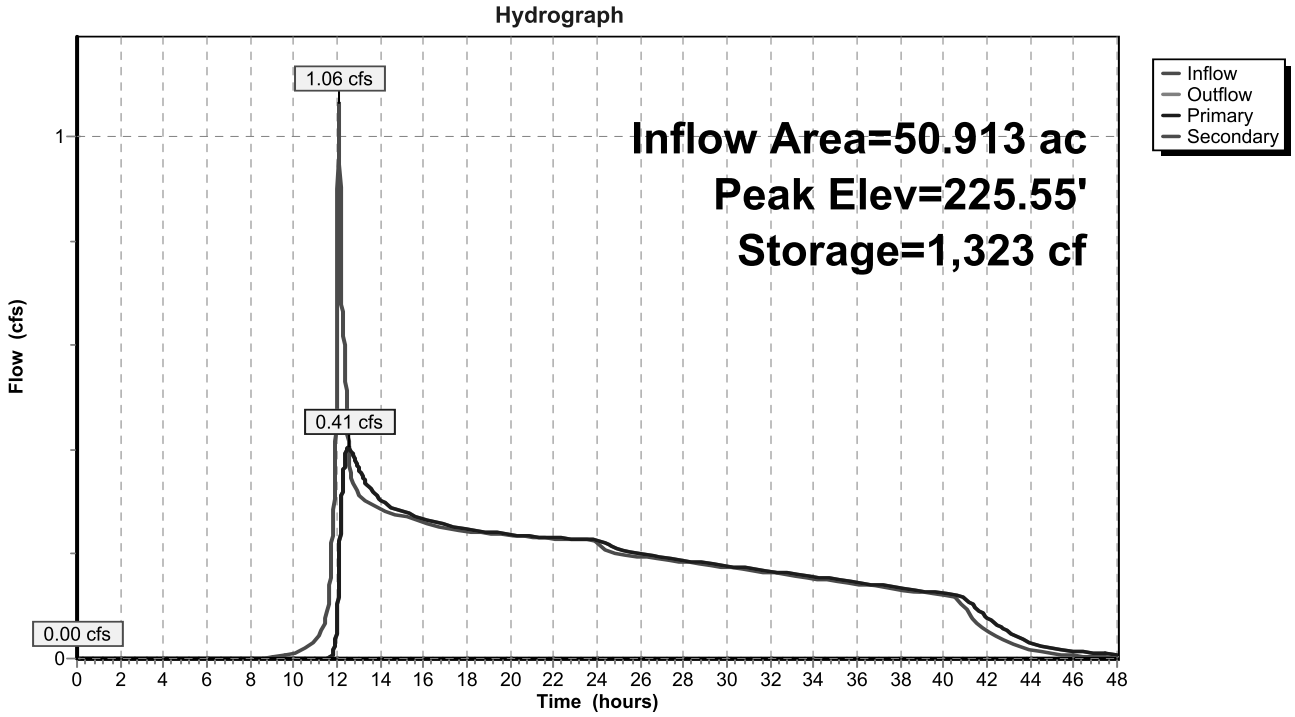
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.84	0	0	0
225.00	554	44	44
226.00	7,062	3,808	3,852
227.00	14,988	11,025	14,877
228.00	24,414	19,701	34,578
230.00	48,618	73,032	107,610
232.00	72,221	120,839	228,449

Device	Routing	Invert	Outlet Devices
#1	Primary	225.19'	**12.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.19' / 224.84' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	230.00'	**20.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.41 cfs @ 12.53 hrs HW=225.55' (Free Discharge)
1=Culvert (Inlet Controls 0.41 cfs @ 1.61 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=224.84' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: 12" culvert off property



Summary for Pond P1: Gravel Wetland

Inflow Area = 13.163 ac, 31.44% Impervious, Inflow Depth = 0.41" for 2-Year event
Inflow = 6.07 cfs @ 12.08 hrs, Volume= 0.454 af
Outflow = 0.22 cfs @ 17.28 hrs, Volume= 0.454 af, Atten= 96%, Lag= 311.9 min
Primary = 0.22 cfs @ 17.28 hrs, Volume= 0.454 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 228.62' @ 17.28 hrs Surf.Area= 20,550 sf Storage= 11,936 cf

Plug-Flow detention time= 662.2 min calculated for 0.454 af (100% of inflow)
Center-of-Mass det. time= 662.0 min (1,525.9 - 863.9)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	101,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

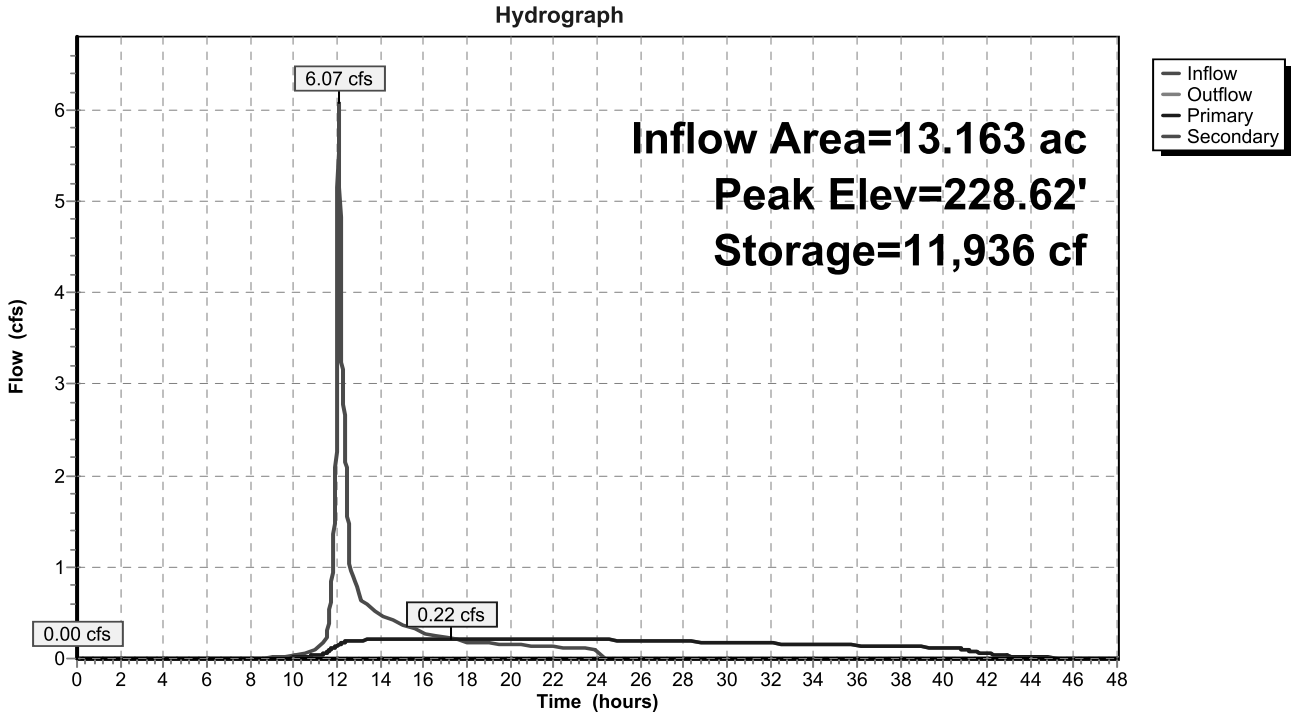
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	17,742	0	0
230.00	26,749	44,491	44,491
231.00	28,547	27,648	72,139
232.00	30,671	29,609	101,748

Device	Routing	Invert	Outlet Devices
#1	Secondary	231.50'	**20.0' long x 5.0' 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 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Device 4	227.67'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 4	231.00'	**2.5" x 2.5" Horiz. Orifice/Grate X 36.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	226.75'	**12.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.75' / 226.05' S= 0.0127 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 17.28 hrs HW=228.62' (Free Discharge)
└**4=Culvert** (Passes 0.22 cfs of 3.50 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.38 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Gravel Wetland



Summary for Pond P2: CB-1

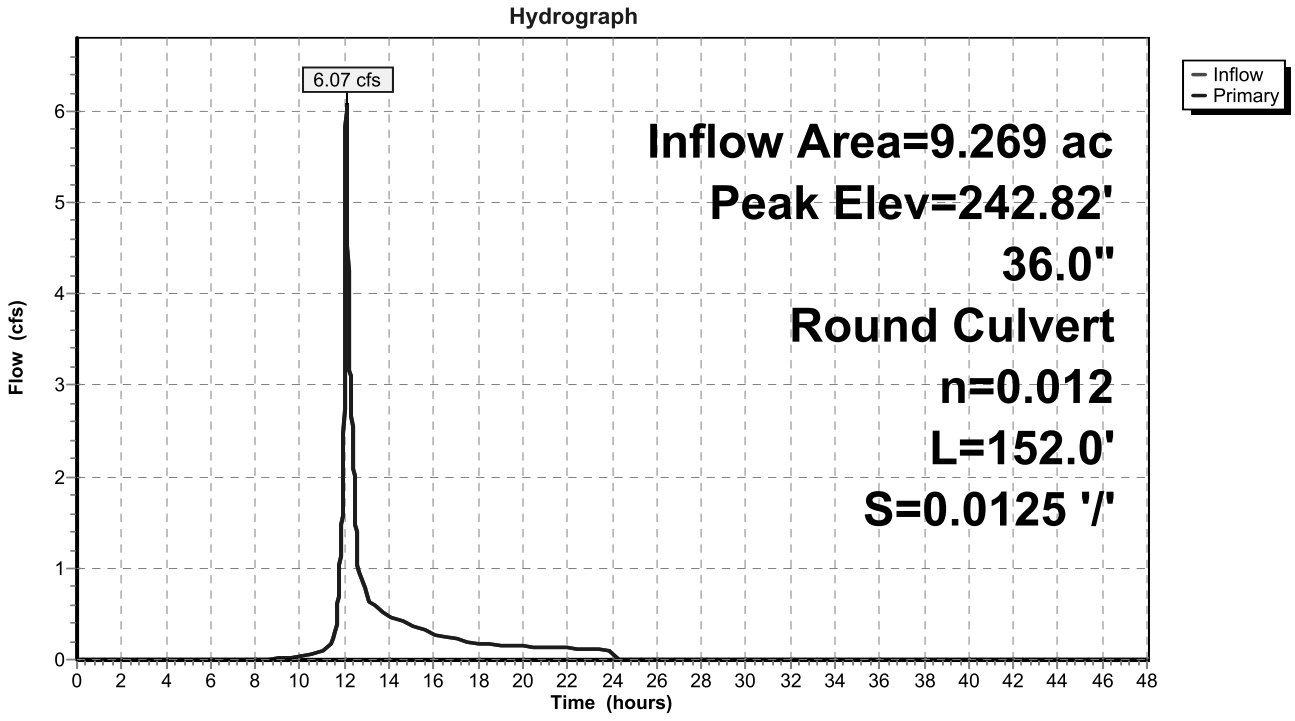
Inflow Area = 9.269 ac, 41.19% Impervious, Inflow Depth = 0.58" for 2-Year event
Inflow = 6.07 cfs @ 12.08 hrs, Volume= 0.451 af
Outflow = 6.07 cfs @ 12.08 hrs, Volume= 0.451 af, Atten= 0%, Lag= 0.0 min
Primary = 6.07 cfs @ 12.08 hrs, Volume= 0.451 af
Routed to Pond P1 : Gravel Wetland

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 242.82' @ 12.08 hrs
Flood Elev= 259.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	241.90'	**36.0" Round Culvert** L= 152.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 241.90' / 240.00' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=6.03 cfs @ 12.08 hrs HW=242.82' (Free Discharge)
1=Culvert (Inlet Controls 6.03 cfs @ 3.27 fps)

Pond P2: CB-1



Summary for Pond P3: CB-4

Inflow Area = 7.355 ac, 37.69% Impervious, Inflow Depth = 0.52" for 2-Year event
Inflow = 4.36 cfs @ 12.08 hrs, Volume= 0.321 af
Outflow = 4.36 cfs @ 12.08 hrs, Volume= 0.321 af, Atten= 0%, Lag= 0.0 min
Primary = 4.36 cfs @ 12.08 hrs, Volume= 0.321 af
Routed to Pond P2 : CB-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 250.01' @ 12.08 hrs Surf.Area= 177 sf Storage= 1 cf
Flood Elev= 251.00' Surf.Area= 25,384 sf Storage= 12,692 cf

Plug-Flow detention time= 0.0 min calculated for 0.321 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (856.8 - 856.8)

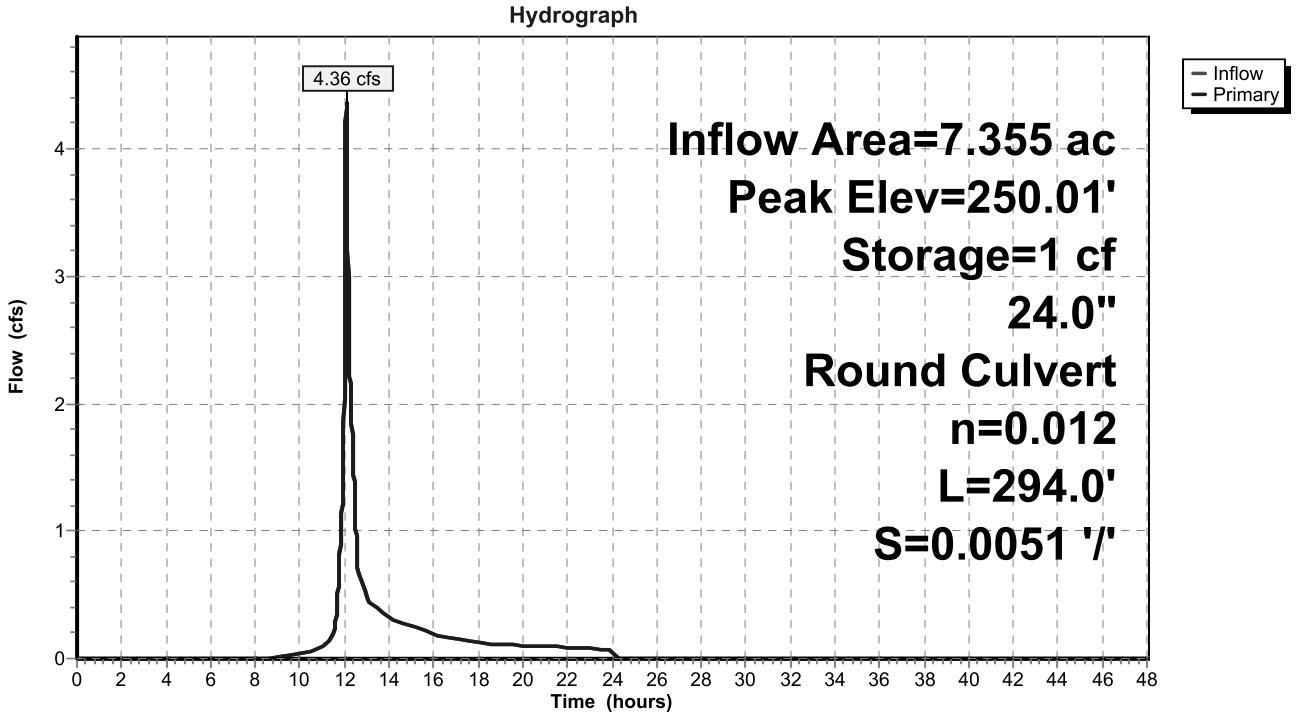
Volume	Invert	Avail.Storage	Storage Description
#1	250.00'	209,091 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
250.00	0	0	0
252.00	50,768	50,768	50,768
254.00	107,555	158,323	209,091

Device	Routing	Invert	Outlet Devices
#1	Primary	245.00'	**24.0" Round Culvert** L= 294.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 245.00' / 243.50' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=24.90 cfs @ 12.08 hrs HW=250.01' (Free Discharge)
1=Culvert (Barrel Controls 24.90 cfs @ 7.92 fps)

Pond P3: CB-4


Hydrograph
4.36 cfs
Inflow
Primary
Inflow Area=7.355 ac
Peak Elev=250.01'
Storage=1 cf
24.0"
Round Culvert
n=0.012
L=294.0'
S=0.0051 '/'
Flow (cfs)
Time (hours)
0
1
2
3
4
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond P4: CB-20

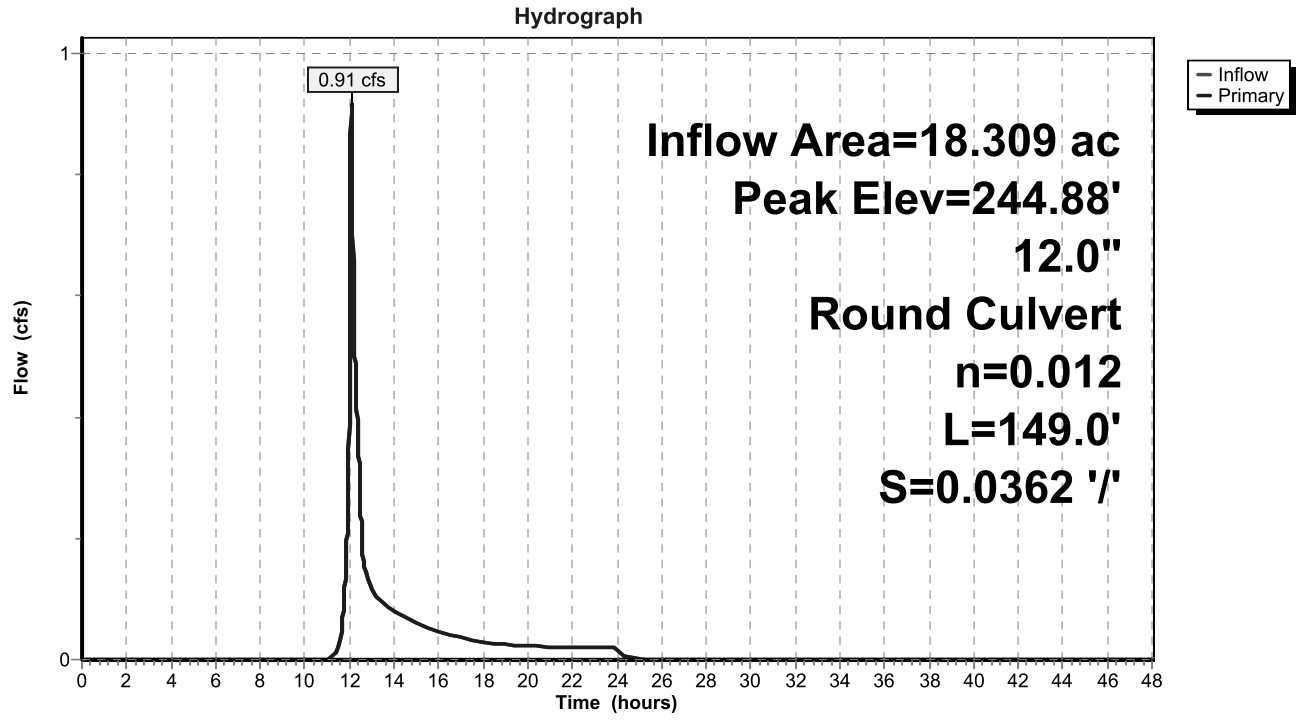
Inflow Area = 18.309 ac, 7.59% Impervious, Inflow Depth = 0.05" for 2-Year event
Inflow = 0.91 cfs @ 12.08 hrs, Volume= 0.069 af
Outflow = 0.91 cfs @ 12.08 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min
Primary = 0.91 cfs @ 12.08 hrs, Volume= 0.069 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 244.88' @ 12.08 hrs
Flood Elev= 262.34'

Device	Routing	Invert	Outlet Devices
#1	Primary	244.39'	**12.0" Round Culvert** L= 149.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 244.39' / 239.00' S= 0.0362 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.90 cfs @ 12.08 hrs HW=244.88' (Free Discharge)
1=Culvert (Inlet Controls 0.90 cfs @ 2.37 fps)

Pond P4: CB-20



Summary for Pond P5: CB-16

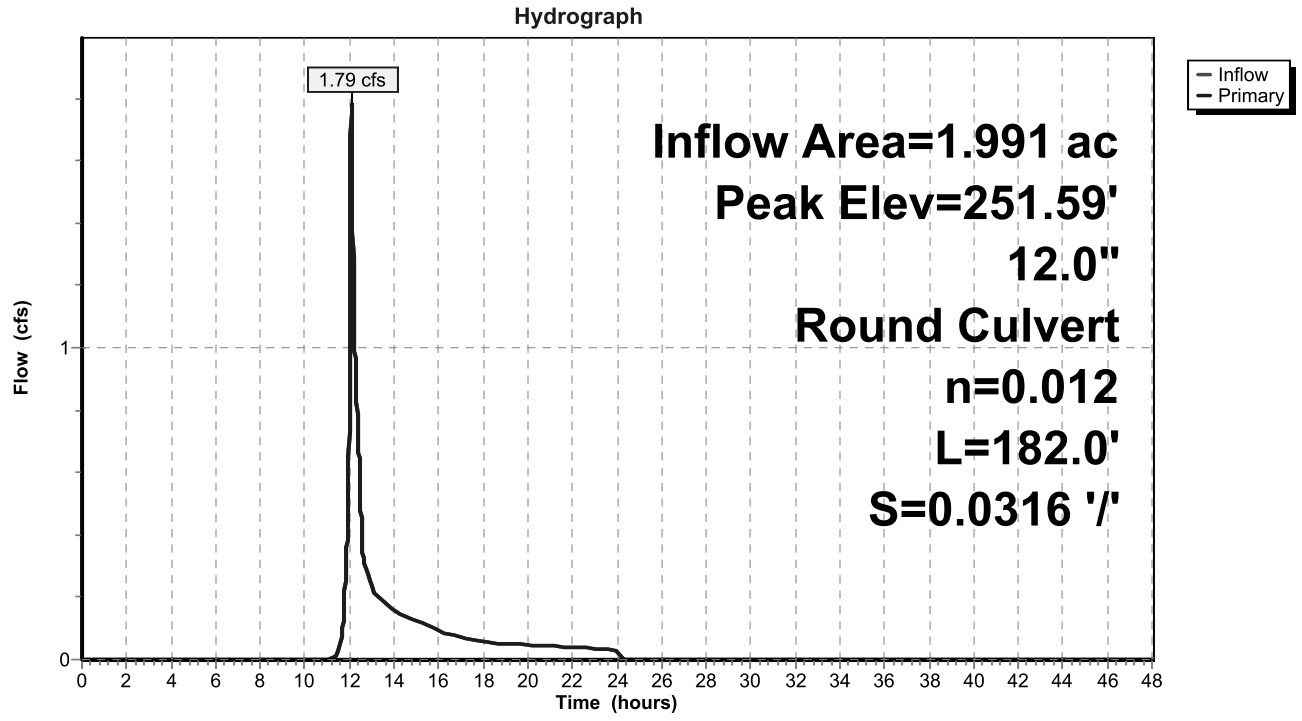
Inflow Area = 1.991 ac, 54.80% Impervious, Inflow Depth = 0.82" for 2-Year event
Inflow = 1.79 cfs @ 12.09 hrs, Volume= 0.136 af
Outflow = 1.79 cfs @ 12.09 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Primary = 1.79 cfs @ 12.09 hrs, Volume= 0.136 af
Routed to Pond P3 : CB-4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 251.59' @ 12.09 hrs
Flood Elev= 255.87'

Device	Routing	Invert	Outlet Devices
#1	Primary	250.86'	**12.0" Round Culvert** L= 182.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 250.86' / 245.10' S= 0.0316 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.78 cfs @ 12.09 hrs HW=251.59' (Free Discharge)
1=Culvert (Inlet Controls 1.78 cfs @ 2.91 fps)

Pond P5: CB-16



Summary for Pond P6: CB-5

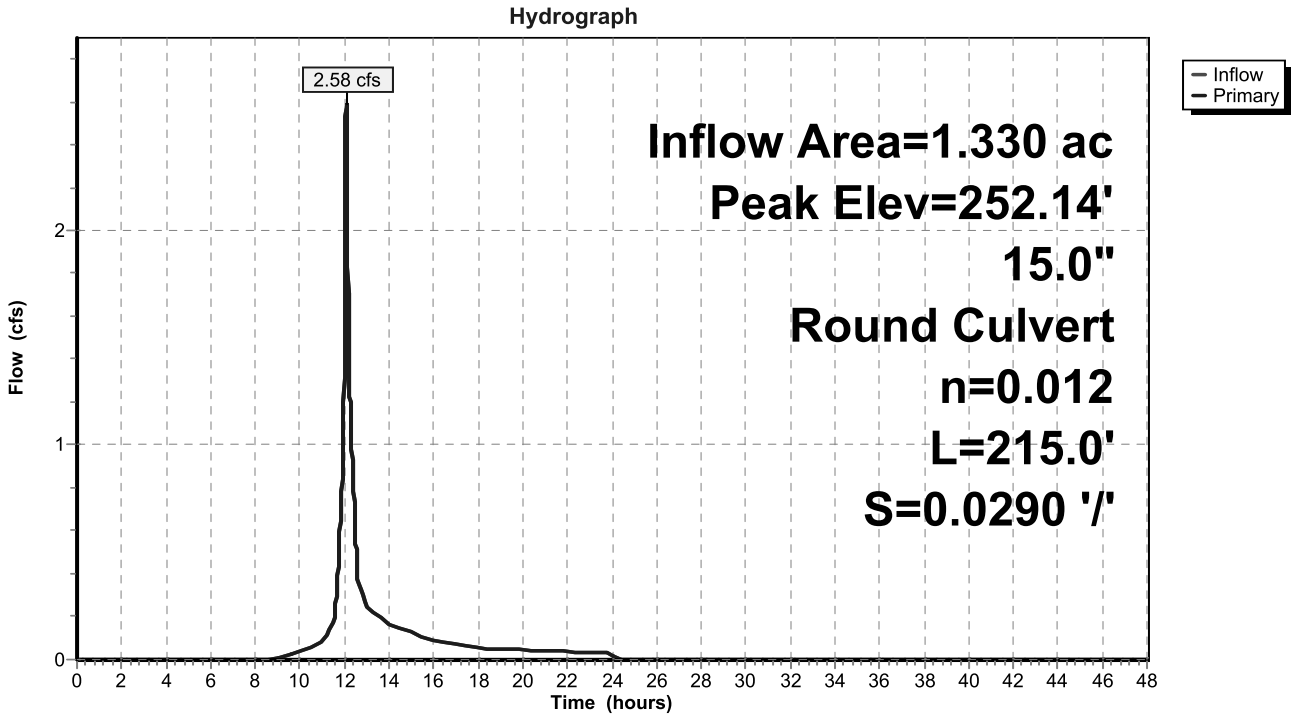
Inflow Area = 1.330 ac, 76.66% Impervious, Inflow Depth = 1.60" for 2-Year event
Inflow = 2.58 cfs @ 12.08 hrs, Volume= 0.177 af
Outflow = 2.58 cfs @ 12.08 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.08 hrs, Volume= 0.177 af
Routed to Pond P3 : CB-4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.14' @ 12.08 hrs
Flood Elev= 257.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.33'	**15.0" Round Culvert** L= 215.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 251.33' / 245.10' S= 0.0290 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.58 cfs @ 12.08 hrs HW=252.14' (Free Discharge)
1=Culvert (Inlet Controls 2.58 cfs @ 3.06 fps)

Pond P6: CB-5



Summary for Pond P7: CULVERT OUT OF EXISTING DRAINAGE DITCH

Inflow Area = 16.006 ac, 14.36% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 246.00' @ 0.00 hrs Surf.Area= 200 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	72,372 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

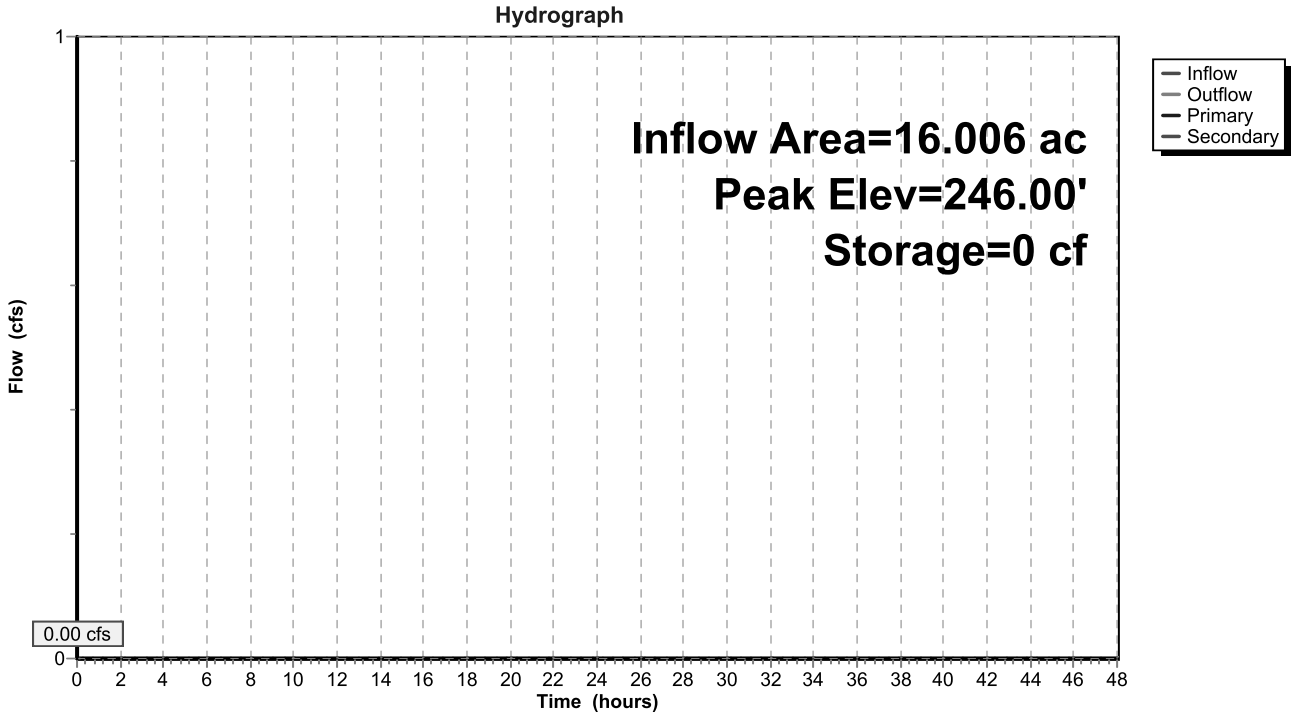
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	200	0	0
248.00	616	816	816
250.00	18,970	19,586	20,402
252.00	33,000	51,970	72,372

Device	Routing	Invert	Outlet Devices
#1	Primary	246.00'	**15.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 246.00' / 245.00' S= 0.0139 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Secondary	250.50'	**30.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=246.00' (Free Discharge)
1=Culvert (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=246.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P7: CULVERT OUT OF EXISTING DRAINAGE DITCH



Summary for Pond P8: Pond

Inflow Area = 1.796 ac,100.00% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 5.59 cfs @ 12.07 hrs, Volume= 0.429 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 248.44' @ 24.29 hrs Surf.Area= 42,493 sf Storage= 18,688 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

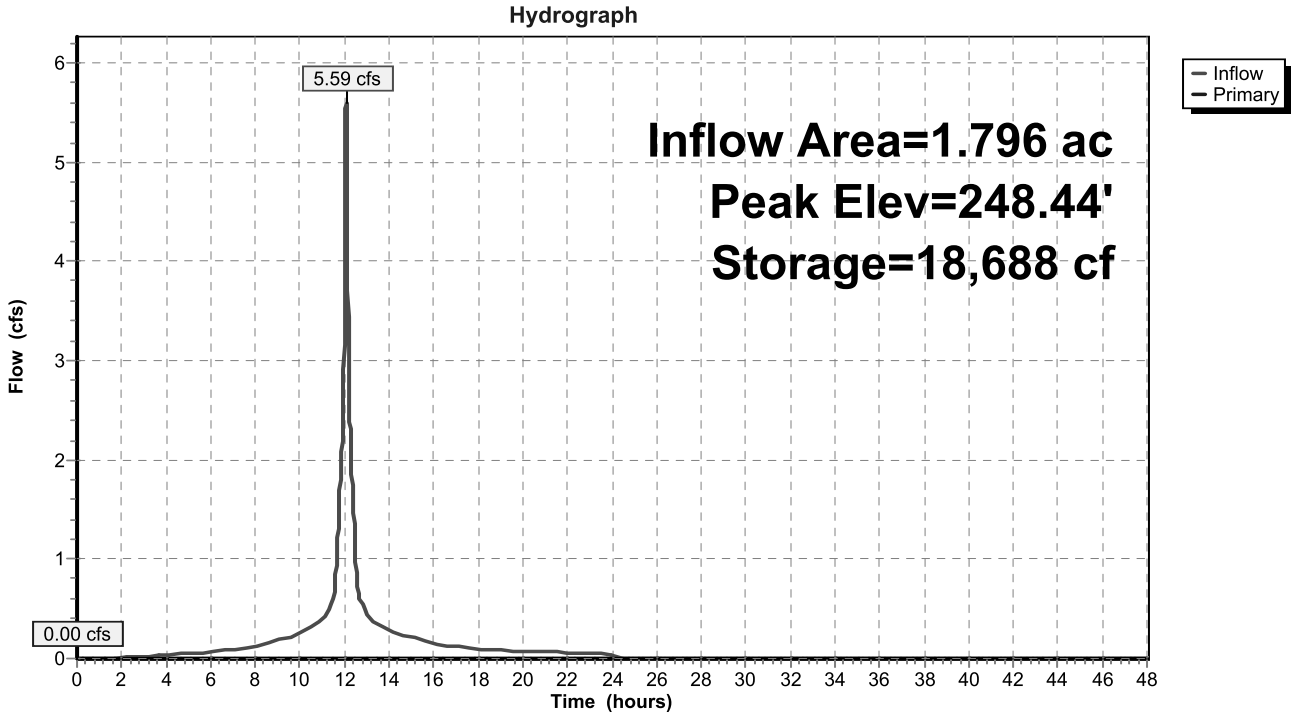
Volume	Invert	Avail.Storage	Storage Description
#1	247.99'	619,118 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.99	0	0	0
248.00	40,787	204	204
250.00	48,475	89,262	89,466
252.00	56,791	105,266	194,732
254.00	65,735	122,526	317,258
256.00	75,308	141,043	458,301
258.00	85,509	160,817	619,118

Device	Routing	Invert	Outlet Devices
#1	Primary	251.50'	**85.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=247.99' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P8: Pond


Hydrograph
Inflow Area=1.796 ac
Peak Elev=248.44'
Storage=18,688 cf
5.59 cfs
0.00 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond P9: CB-25

Inflow Area = 17.363 ac, 4.91% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.01 cfs @ 24.13 hrs, Volume= 0.001 af
Outflow = 0.01 cfs @ 24.13 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 24.13 hrs, Volume= 0.001 af
Routed to Pond P4 : CB-20

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.50' @ 24.13 hrs Surf.Area= 1 sf Storage= 0 cf
Flood Elev= 252.50' Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.001 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (1,412.7 - 1,412.6)

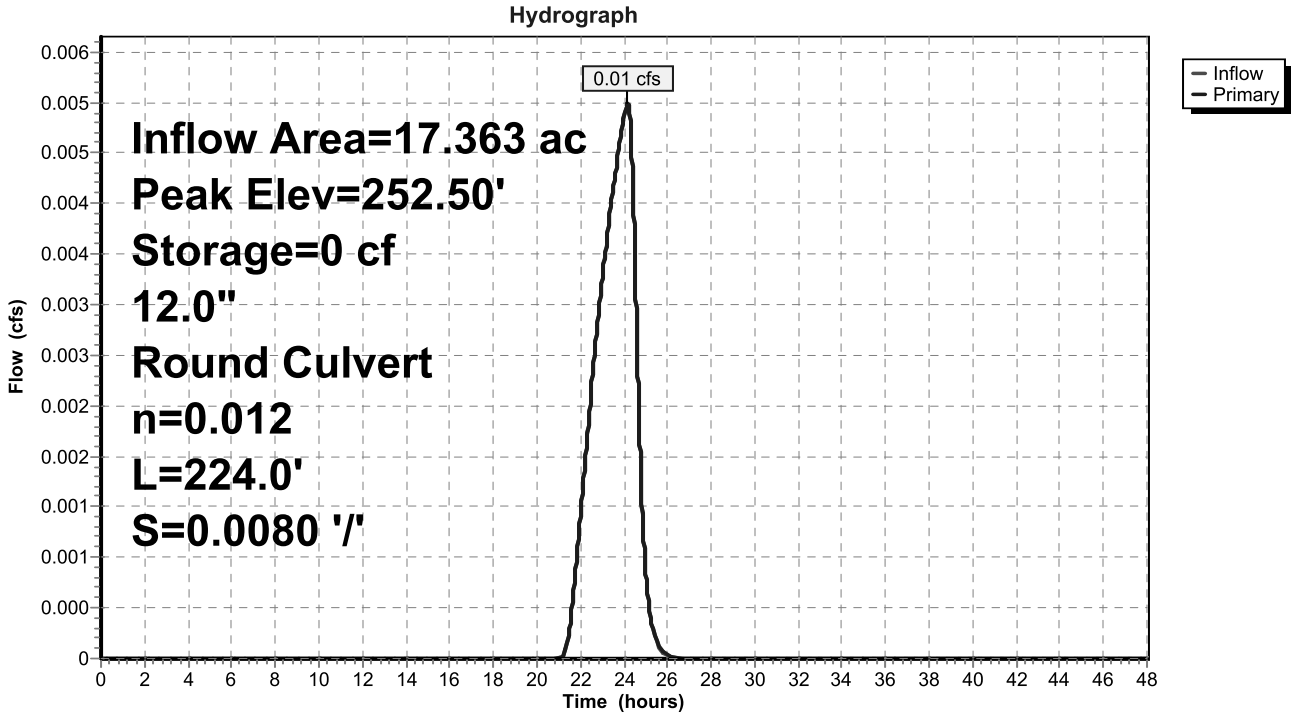
Volume	Invert	Avail.Storage	Storage Description
#1	252.50'	78,844 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.50	0	0	0
254.00	20,347	15,260	15,260
256.00	43,237	63,584	78,844

Device	Routing	Invert	Outlet Devices
#1	Primary	249.50'	**12.0" Round Culvert** L= 224.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 249.50' / 247.71' S= 0.0080 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.48 cfs @ 24.13 hrs HW=252.50' (Free Discharge)
1=Culvert (Barrel Controls 4.48 cfs @ 5.71 fps)

Pond P9: CB-25

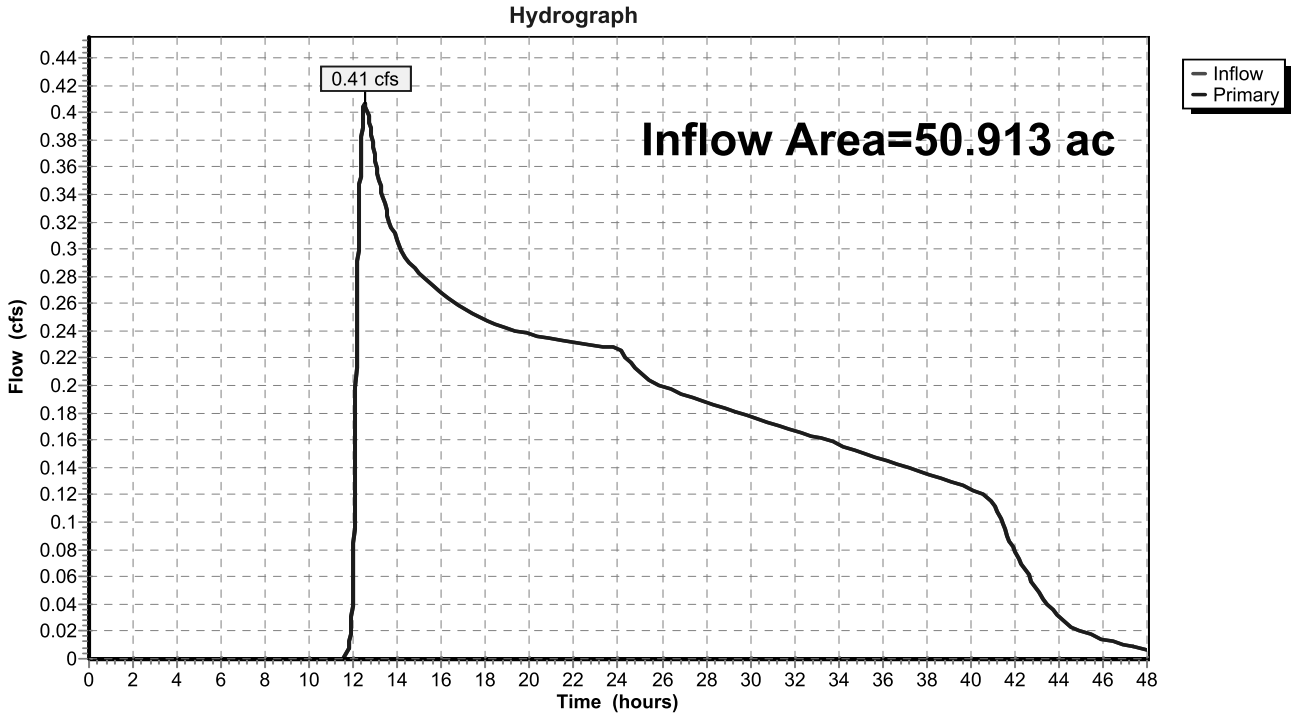

Hydrograph
Inflow Area=17.363 ac
Peak Elev=252.50'
Storage=0 cf
12.0"
Round Culvert
n=0.012
L=224.0'
S=0.0080 '/'
0.01 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0.006
0.005
0.005
0.004
0.004
0.003
0.003
0.002
0.002
0.001
0.001
0.000
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Link A1:

Inflow Area = 50.913 ac, 15.93% Impervious, Inflow Depth > 0.12" for 2-Year event
Inflow = 0.41 cfs @ 12.53 hrs, Volume= 0.516 af
Primary = 0.41 cfs @ 12.53 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link A1:



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 S1: AREA DRAINING TO Runoff Area=169,635 sf 8.22% Impervious Runoff Depth=0.22"
Flow Length=365' Tc=11.4 min UI Adjusted CN=42 Runoff=0.19 cfs 0.070 af

Subcatchment S10: SOUTHERN PORTION Runoff Area=149,610 sf 8.27% Impervious Runoff Depth=0.01"
Flow Length=751' Tc=19.1 min UI Adjusted CN=33 Runoff=0.01 cfs 0.004 af

Subcatchment S2: UPPER METHODIST Runoff Area=83,367 sf 54.63% Impervious Runoff Depth=1.82"
Tc=5.0 min CN=71 Runoff=4.14 cfs 0.290 af

Subcatchment S3: CENTRAL AREAS Runoff Area=175,715 sf 16.40% Impervious Runoff Depth=0.29"
Flow Length=362' Tc=17.0 min UI Adjusted CN=44 Runoff=0.34 cfs 0.096 af

Subcatchment S4: MAIN DRIVE AREA Runoff Area=86,747 sf 54.80% Impervious Runoff Depth=1.82"
Tc=5.0 min CN=71 Runoff=4.31 cfs 0.302 af

Subcatchment S5: MAIN DRIVE AREA Runoff Area=57,927 sf 76.66% Impervious Runoff Depth=2.91"
Tc=5.0 min CN=84 Runoff=4.68 cfs 0.322 af

Subcatchment S6: ENTRANCE FROM Runoff Area=41,209 sf 56.76% Impervious Runoff Depth=1.89"
Tc=5.0 min CN=72 Runoff=2.14 cfs 0.149 af

Subcatchment S7: Grass, Pavement, Runoff Area=756,334 sf 4.91% Impervious Runoff Depth=0.15"
Flow Length=848' Tc=44.4 min CN=40 Runoff=0.36 cfs 0.223 af

Subcatchment S8: LANDSCAPE POND Runoff Area=78,218 sf 100.00% Impervious Runoff Depth=4.36"
Tc=5.0 min CN=98 Runoff=8.36 cfs 0.653 af

Subcatchment S9: EAST PORTION OF SITE Runoff Area=619,024 sf 3.54% Impervious Runoff Depth=0.10"
Flow Length=1,367' Tc=56.6 min CN=38 Runoff=0.19 cfs 0.120 af

Pond 1P: 12" culvert off property Peak Elev=225.77' Storage=2,414 cf Inflow=2.34 cfs 1.336 af
Primary=0.97 cfs 1.315 af Secondary=0.00 cfs 0.000 af Outflow=0.97 cfs 1.315 af

Pond P1: Gravel Wetland Peak Elev=229.57' Storage=33,302 cf Inflow=13.12 cfs 1.080 af
Primary=0.31 cfs 0.840 af Secondary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.840 af

Pond P2: CB-1 Peak Elev=243.30' Inflow=13.12 cfs 1.010 af
36.0" Round Culvert n=0.012 L=152.0' S=0.0125 '/' Outflow=13.12 cfs 1.010 af

Pond P3: CB-4 Peak Elev=250.01' Storage=3 cf Inflow=8.98 cfs 0.720 af
24.0" Round Culvert n=0.012 L=294.0' S=0.0051 '/' Outflow=8.98 cfs 0.720 af

Pond P4: CB-20 Peak Elev=245.22' Inflow=2.14 cfs 0.373 af
12.0" Round Culvert n=0.012 L=149.0' S=0.0362 '/' Outflow=2.14 cfs 0.373 af

Pond P5: CB-16 Peak Elev=252.66' Inflow=4.31 cfs 0.302 af
12.0" Round Culvert n=0.012 L=182.0' S=0.0316 '/' Outflow=4.31 cfs 0.302 af

Pond P6: CB-5 Peak Elev=252.58' Inflow=4.68 cfs 0.322 af
15.0" Round Culvert n=0.012 L=215.0' S=0.0290 '/' Outflow=4.68 cfs 0.322 af

Pond P7: CULVERT OUT OF EXISTING Peak Elev=246.20' Storage=43 cf Inflow=0.19 cfs 0.120 af
Primary=0.19 cfs 0.120 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.120 af

Pond P8: Pond Peak Elev=248.67' Storage=28,441 cf Inflow=8.36 cfs 0.653 af
Outflow=0.00 cfs 0.000 af

Pond P9: CB-25 Peak Elev=252.50' Storage=0 cf Inflow=0.36 cfs 0.223 af
12.0" Round Culvert n=0.012 L=224.0' S=0.0080 '/' Outflow=0.36 cfs 0.223 af

Link A1: Inflow=0.97 cfs 1.315 af
Primary=0.97 cfs 1.315 af

Total Runoff Area = 50.913 ac Runoff Volume = 2.230 af Average Runoff Depth = 0.53"
84.07% Pervious = 42.802 ac 15.93% Impervious = 8.111 ac

Summary for Subcatchment S1: AREA DRAINING TO GRAVEL WETLAND

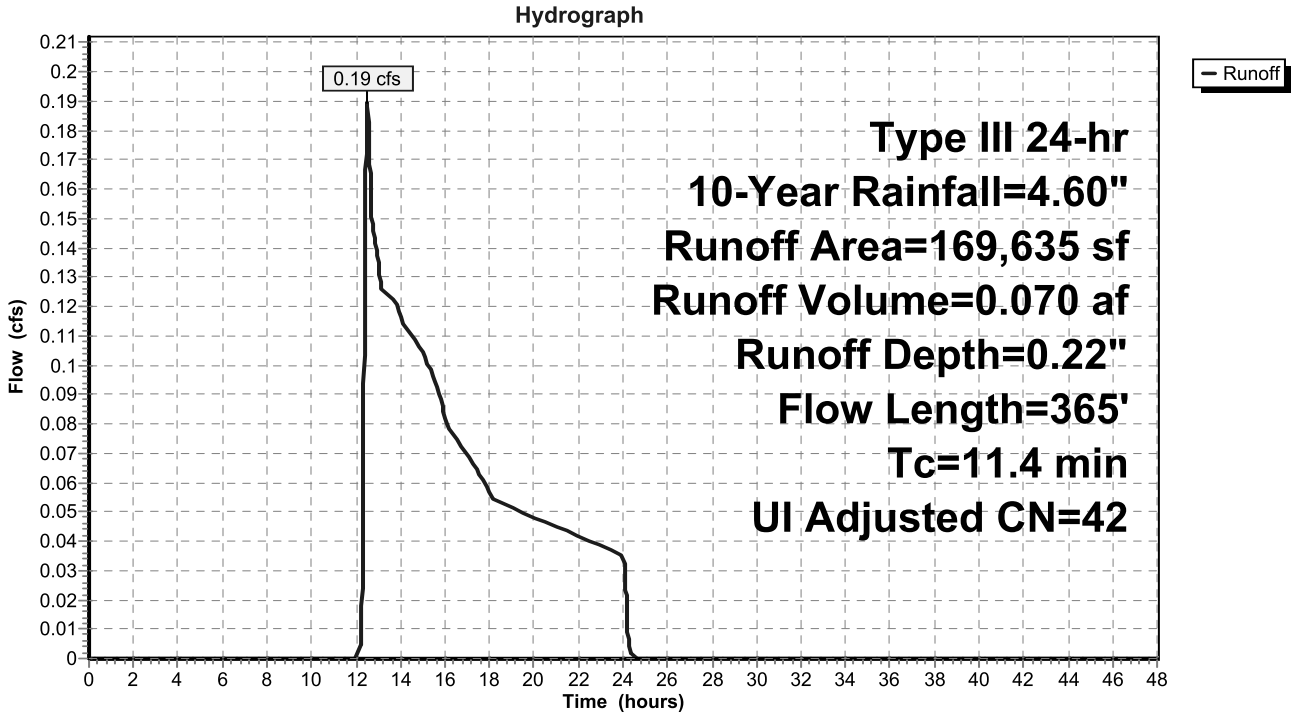
Runoff = 0.19 cfs @ 12.52 hrs, Volume= 0.070 af, Depth= 0.22"
Routed to Pond P1 : Gravel Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Adj	Description
	3,000	30		Woods, Good, HSG A
	120,333	39		>75% Grass cover, Good, HSG A
*	29,990	39		Gravel Wetlands;HSG D
	2,375	76		Gravel roads, HSG A
	12,353	98		Unconnected roofs, HSG A
*	1,584	98		Shed Roofs
	169,635	44	42	Weighted Average, UI Adjusted
	155,698			91.78% Pervious Area
	13,937			8.22% Impervious Area
	12,353			88.63% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0850	0.21		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.5	63	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	202	0.0300	1.21		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
11.4	365	Total			

Subcatchment S1: AREA DRAINING TO GRAVEL WETLAND



Summary for Subcatchment S10: SOUTHERN PORTION OF SITE

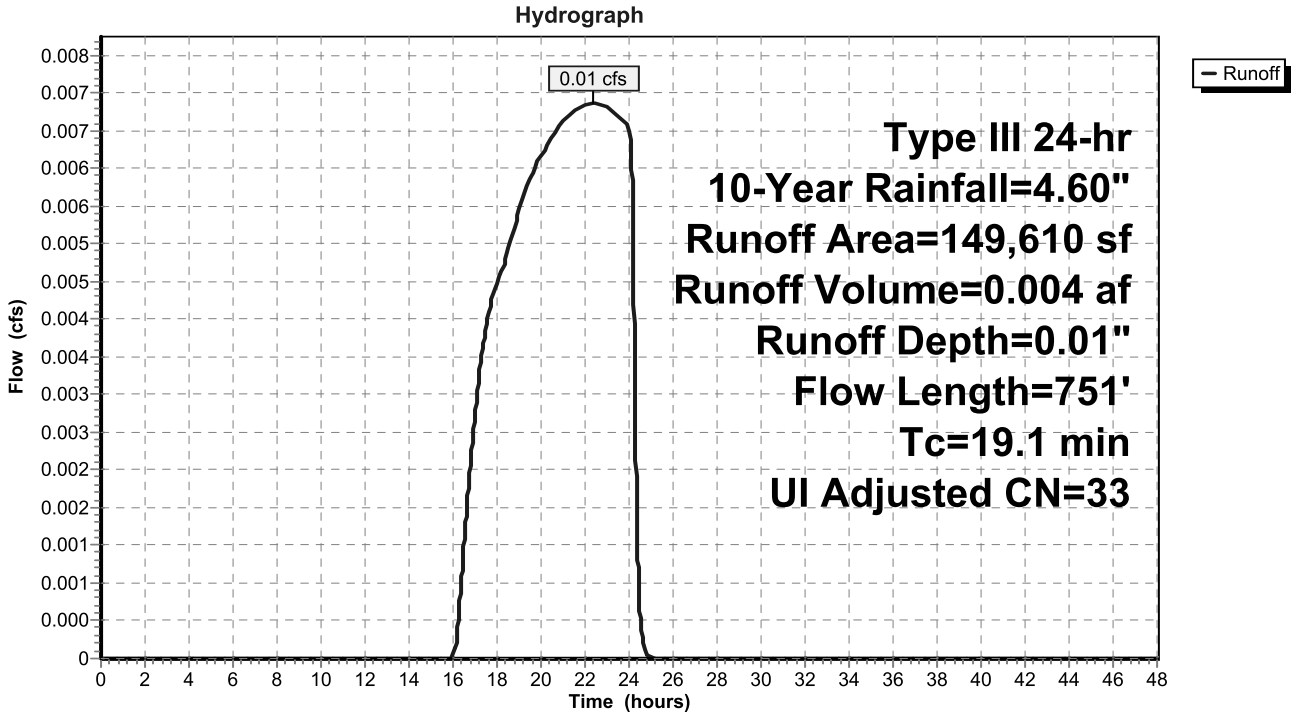
Runoff = 0.01 cfs @ 22.39 hrs, Volume= 0.004 af, Depth= 0.01"
Routed to Pond 1P : 12" culvert off property

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Adj	Description
5,000	39		>75% Grass cover, Good, HSG A
86,953	30		Meadow, non-grazed, HSG A
45,285	30		Woods, Good, HSG A
12,372	98		Unconnected roofs, HSG A
149,610	36	33	Weighted Average, UI Adjusted
137,238			91.73% Pervious Area
12,372			8.27% Impervious Area
12,372			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0780	0.29		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
10.1	598	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.2	53	0.0030	0.27		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
19.1	751	Total			

Subcatchment S10: SOUTHERN PORTION OF SITE



Summary for Subcatchment S2: UPPER METHODIST ENTRANCE ROAD SECTION

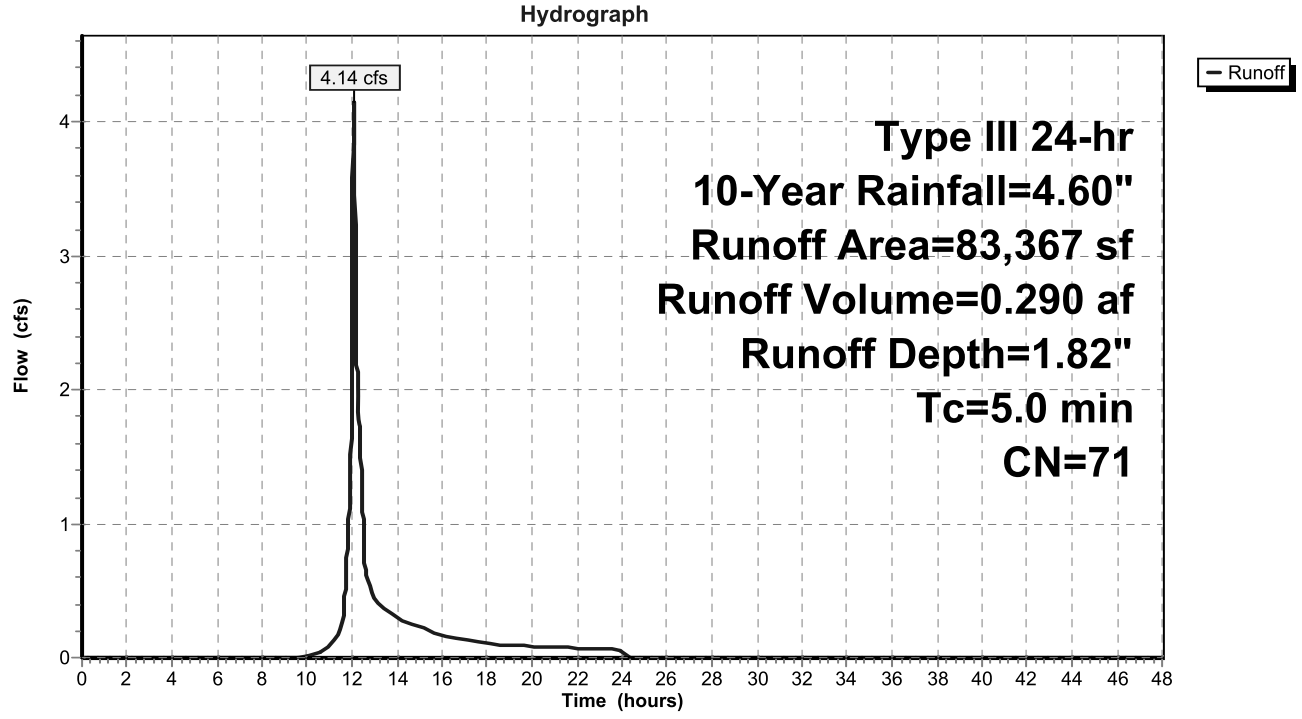
Runoff = 4.14 cfs @ 12.08 hrs, Volume= 0.290 af, Depth= 1.82"
Routed to Pond P2 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	37,824	39	>75% Grass cover, Good, HSG A
	44,895	98	Paved roads w/curbs & sewers, HSG A
*	648	98	Concrete Pads, HSG A
	83,367	71	Weighted Average
	37,824		45.37% Pervious Area
	45,543		54.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S2: UPPER METHODIST ENTRANCE ROAD SECTION



Summary for Subcatchment S3: CENTRAL AREAS AND HOUSES

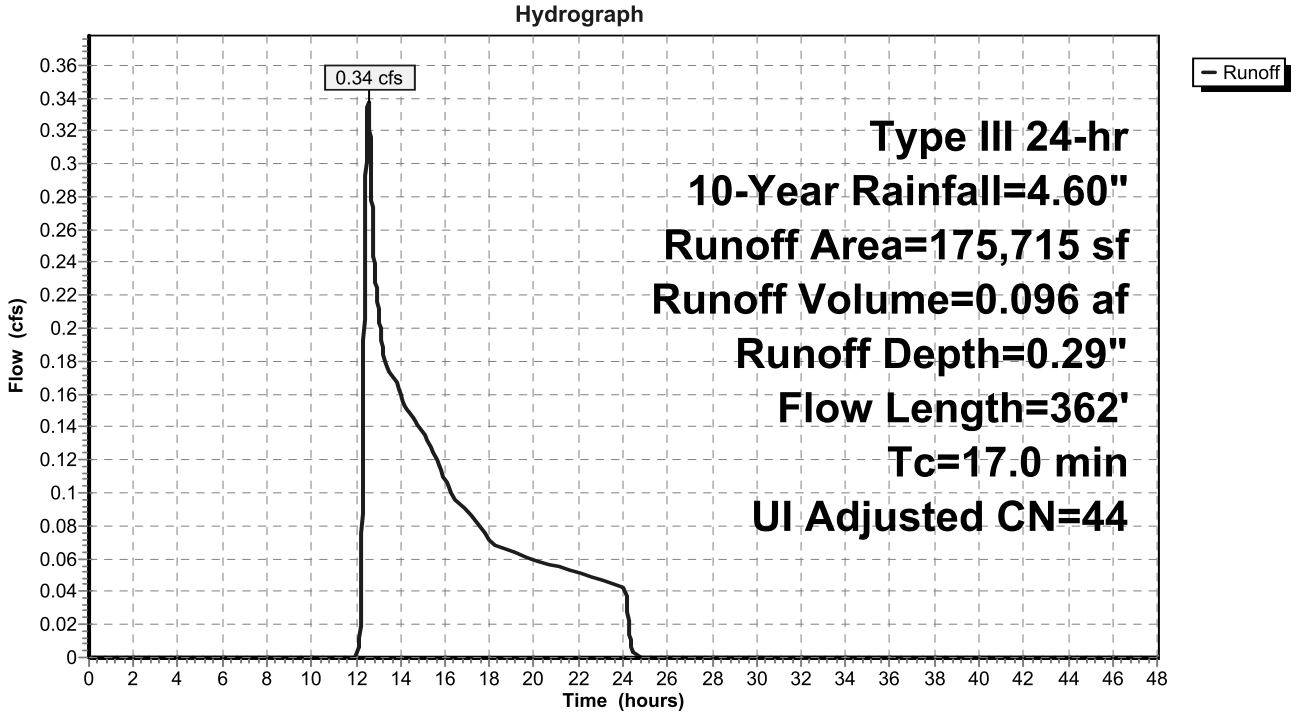
Runoff = 0.34 cfs @ 12.55 hrs, Volume= 0.096 af, Depth= 0.29"
Routed to Pond P3 : CB-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Adj	Description
	146,891	39		>75% Grass cover, Good, HSG A
	25,368	98		Unconnected roofs, HSG A
*	3,456	98		Unconnected roofs, HSG A, SHEDS
	175,715	49	44	Weighted Average, UI Adjusted
	146,891			83.60% Pervious Area
	28,824			16.40% Impervious Area
	28,824			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
7.0	262	0.0080	0.63		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
17.0	362	Total			

Subcatchment S3: CENTRAL AREAS AND HOUSES



Summary for Subcatchment S4: MAIN DRIVE AREA

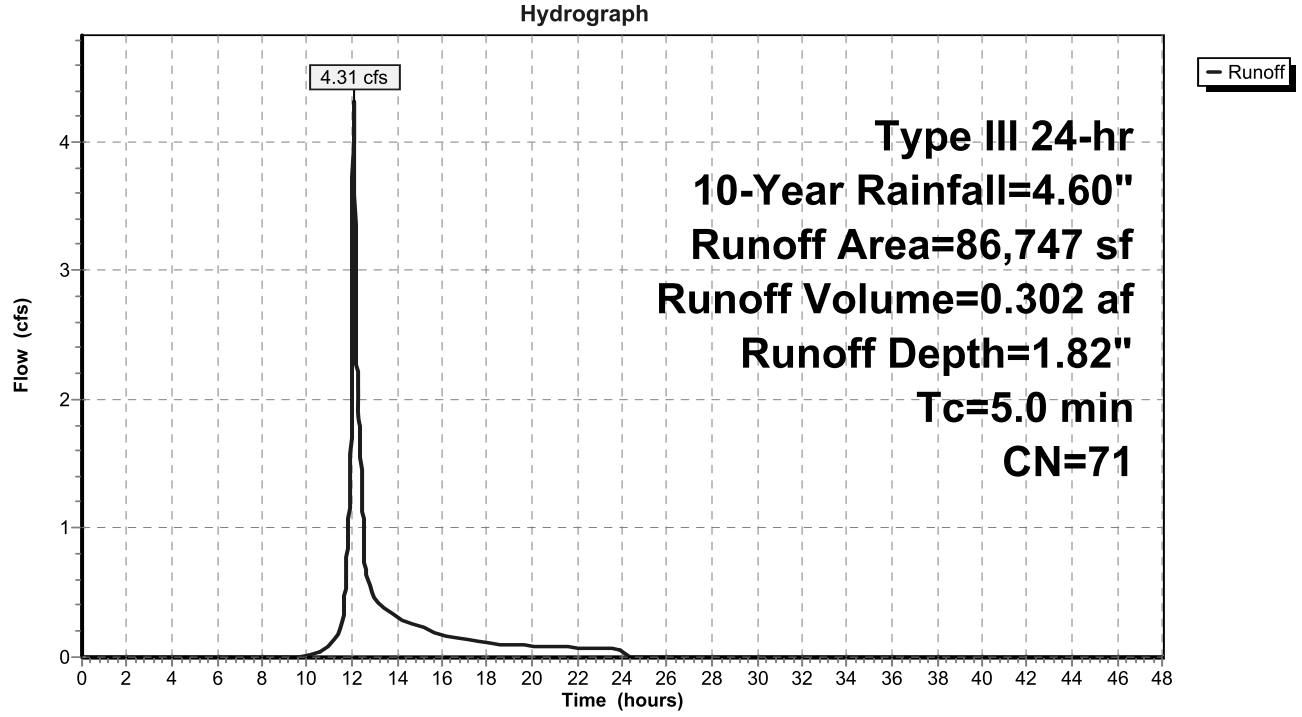
Runoff = 4.31 cfs @ 12.08 hrs, Volume= 0.302 af, Depth= 1.82"
Routed to Pond P5 : CB-16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	39,211	39	>75% Grass cover, Good, HSG A
	25,855	98	Paved parking, HSG A
	21,114	98	Paved roads w/curbs & sewers, HSG A
*	567	98	Concrete Pads, HSG A
	86,747	71	Weighted Average
	39,211		45.20% Pervious Area
	47,536		54.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S4: MAIN DRIVE AREA



Summary for Subcatchment S5: MAIN DRIVE AREA

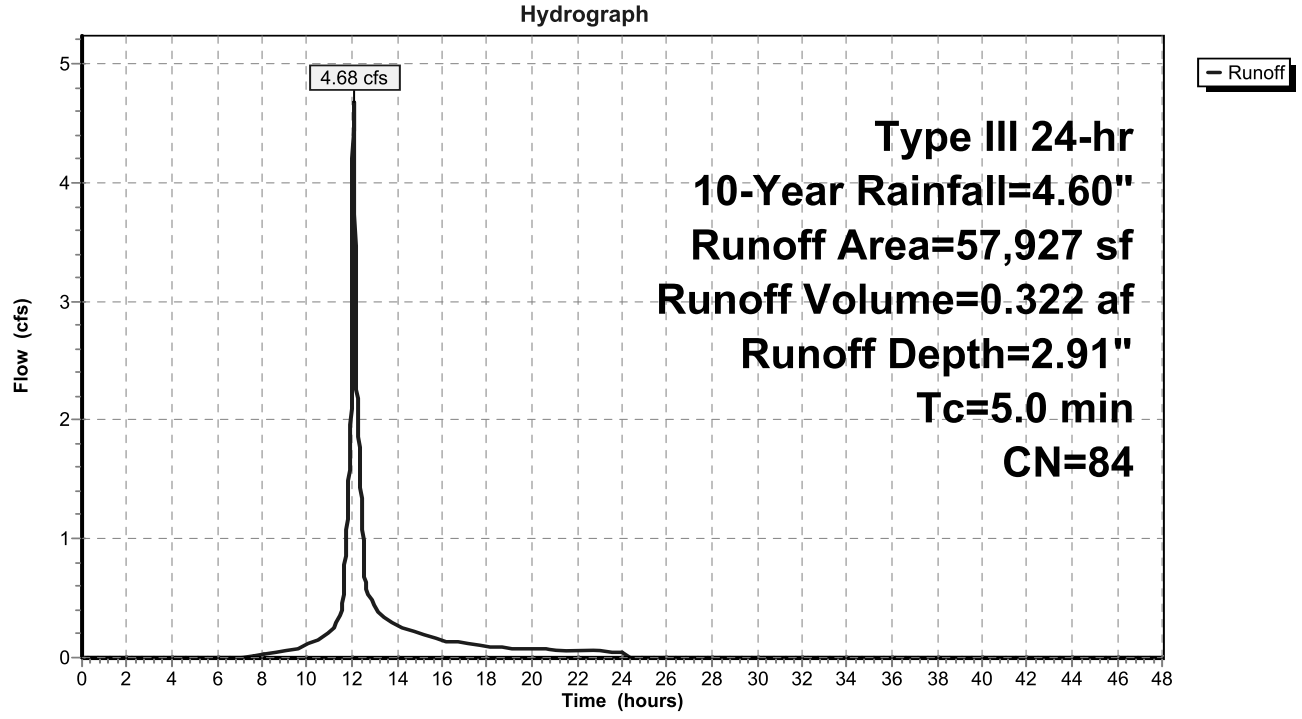
Runoff = 4.68 cfs @ 12.07 hrs, Volume= 0.322 af, Depth= 2.91"
Routed to Pond P6 : CB-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	13,520	39	>75% Grass cover, Good, HSG A
	44,245	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	57,927	84	Weighted Average
	13,520		23.34% Pervious Area
	44,407		76.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S5: MAIN DRIVE AREA



Summary for Subcatchment S6: ENTRANCE FROM UPPER METHODIST

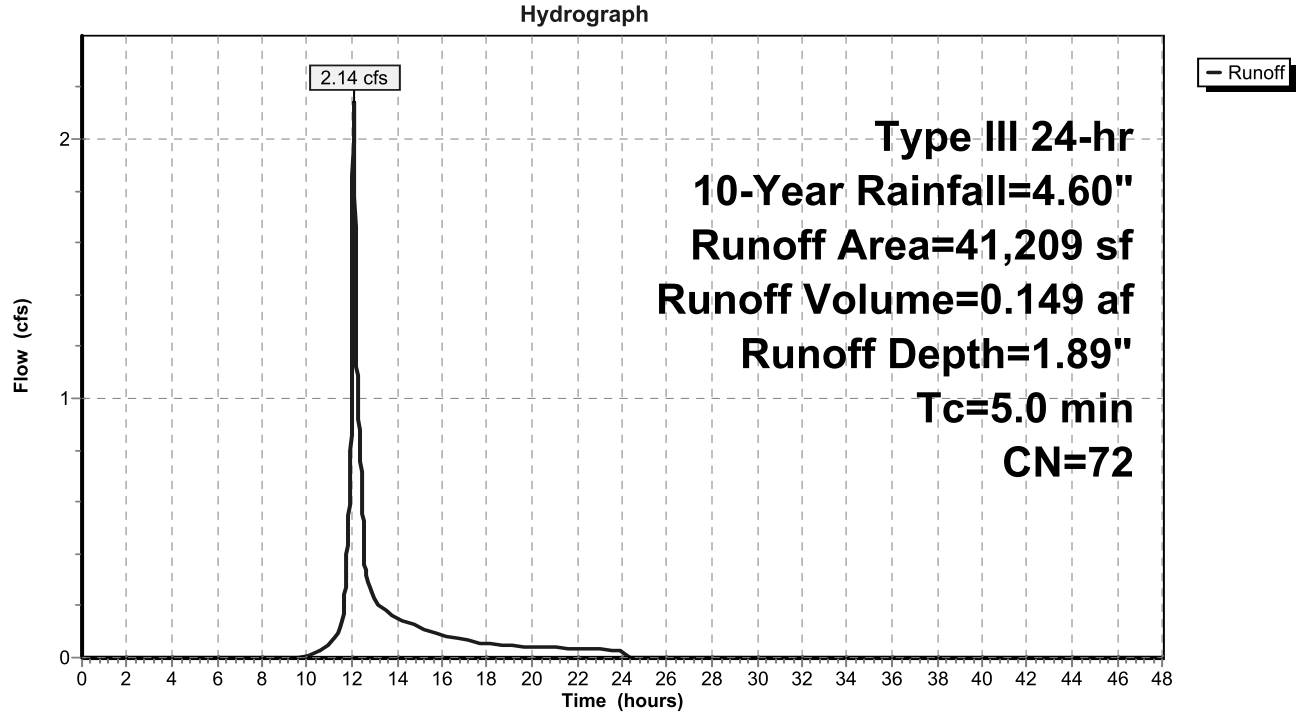
Runoff = 2.14 cfs @ 12.08 hrs, Volume= 0.149 af, Depth= 1.89"
Routed to Pond P4 : CB-20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	17,819	39	>75% Grass cover, Good, HSG A
	23,228	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	41,209	72	Weighted Average
	17,819		43.24% Pervious Area
	23,390		56.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S6: ENTRANCE FROM UPPER METHODIST



Summary for Subcatchment S7: Grass, Pavement, Structure, Tree

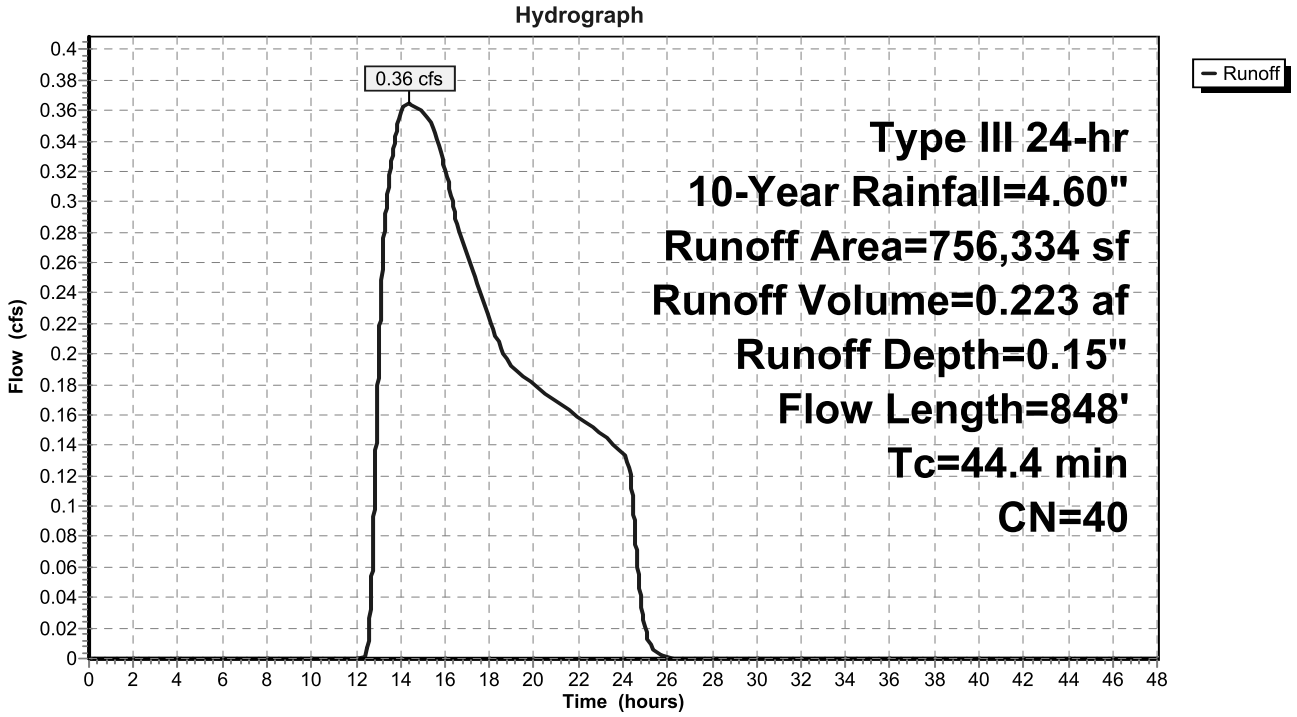
Runoff = 0.36 cfs @ 14.35 hrs, Volume= 0.223 af, Depth= 0.15"
Routed to Pond P9 : CB-25

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	525,655	39	>75% Grass cover, Good, HSG A
	13,036	98	Roofs, HSG A
*	24,137	98	Offsite Existing Roads, HSG A
	5,837	96	Gravel surface, HSG A
	187,669	30	Woods, Good, HSG A
	756,334	40	Weighted Average
	719,161		95.09% Pervious Area
	37,173		4.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
7.6	329	0.0210	0.72		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	55	0.4670	3.42		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	33	0.2500	3.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
7.5	331	0.0110	0.73		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
44.4	848	Total			

Subcatchment S7: Grass, Pavement, Structure, Tree



Summary for Subcatchment S8: LANDSCAPE POND

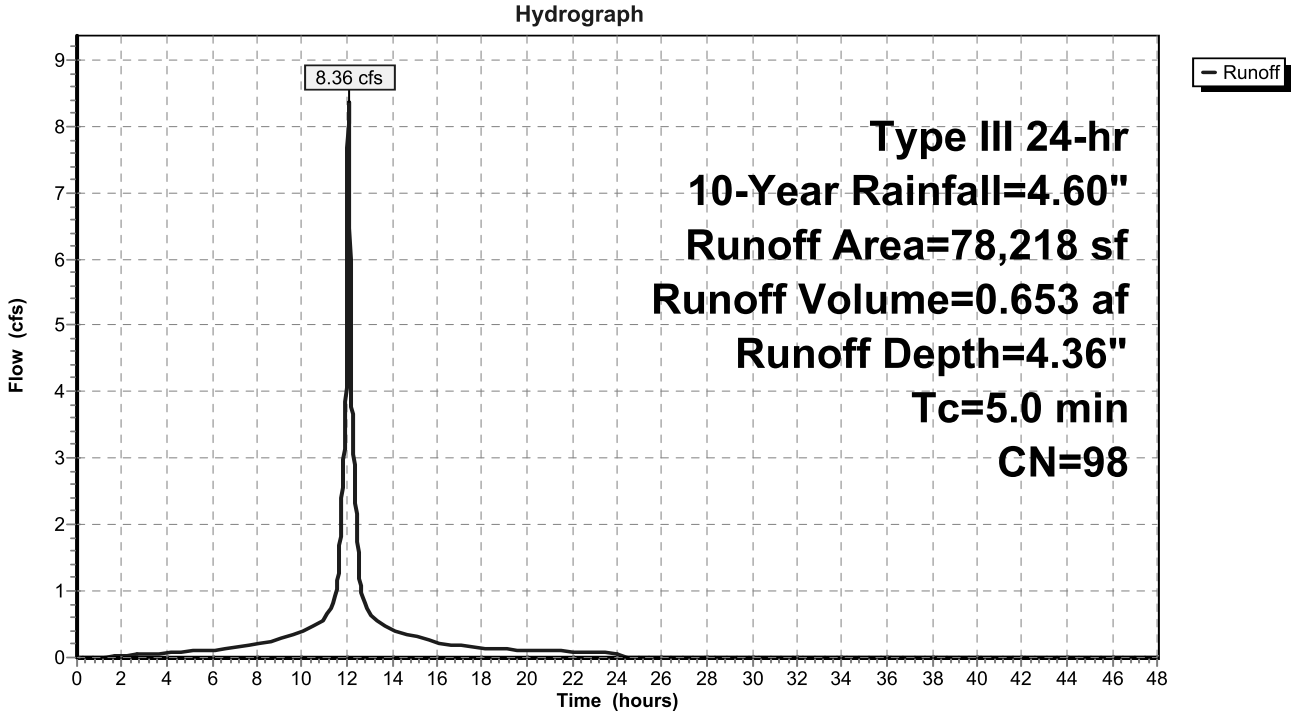
Runoff = 8.36 cfs @ 12.07 hrs, Volume= 0.653 af, Depth= 4.36"
Routed to Pond P8 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
78,218	98	Water Surface, HSG A
78,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, A-B**

Subcatchment S8: LANDSCAPE POND



Summary for Subcatchment S9: EAST PORTION OF SITE

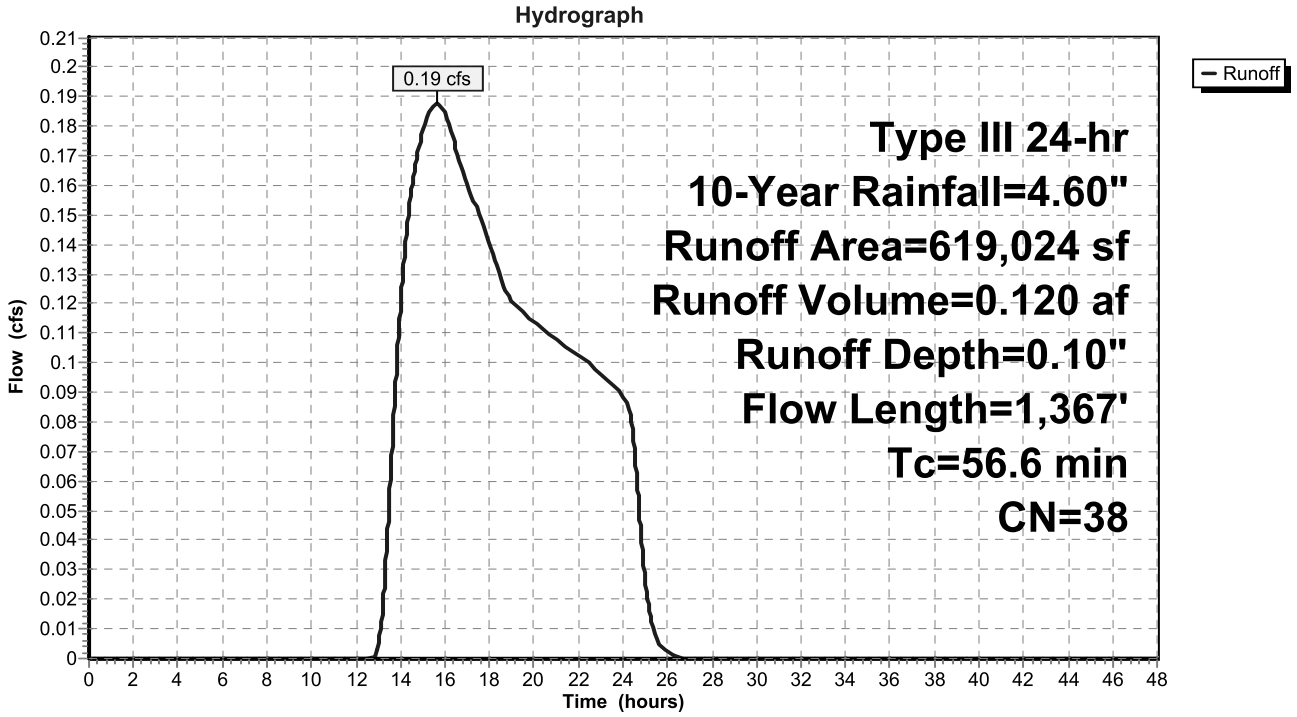
Runoff = 0.19 cfs @ 15.66 hrs, Volume= 0.120 af, Depth= 0.10"
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	351,284	39	>75% Grass cover, Good, HSG A
*	15,499	98	Houses and Court
	6,424	98	Paved roads w/curbs & sewers, HSG A
	237,150	30	Woods, Good, HSG A
	8,667	96	Gravel surface, HSG A
	619,024	38	Weighted Average
	597,101		96.46% Pervious Area
	21,923		3.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.1	100	0.0025	0.03		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
2.9	131	0.0230	0.76		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	91	0.4350	3.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
3.1	1,045	0.0100	5.55	29.58	**Parabolic Channel,** W=4.00' D=2.00' Area=5.3 sf Perim=5.9' n= 0.025 Earth, clean & winding
56.6	1,367	Total			

Subcatchment S9: EAST PORTION OF SITE



Summary for Pond 1P: 12" culvert off property

Inflow Area = 50.913 ac, 15.93% Impervious, Inflow Depth > 0.31" for 10-Year event
Inflow = 2.34 cfs @ 12.08 hrs, Volume= 1.336 af
Outflow = 0.97 cfs @ 12.40 hrs, Volume= 1.315 af, Atten= 58%, Lag= 19.3 min
Primary = 0.97 cfs @ 12.40 hrs, Volume= 1.315 af
Routed to Link A1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link A1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 225.77' @ 12.40 hrs Surf.Area= 5,581 sf Storage= 2,414 cf

Plug-Flow detention time= 52.5 min calculated for 1.315 af (98% of inflow)
Center-of-Mass det. time= 30.2 min (1,479.9 - 1,449.7)

Volume	Invert	Avail.Storage	Storage Description
#1	224.84'	228,449 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

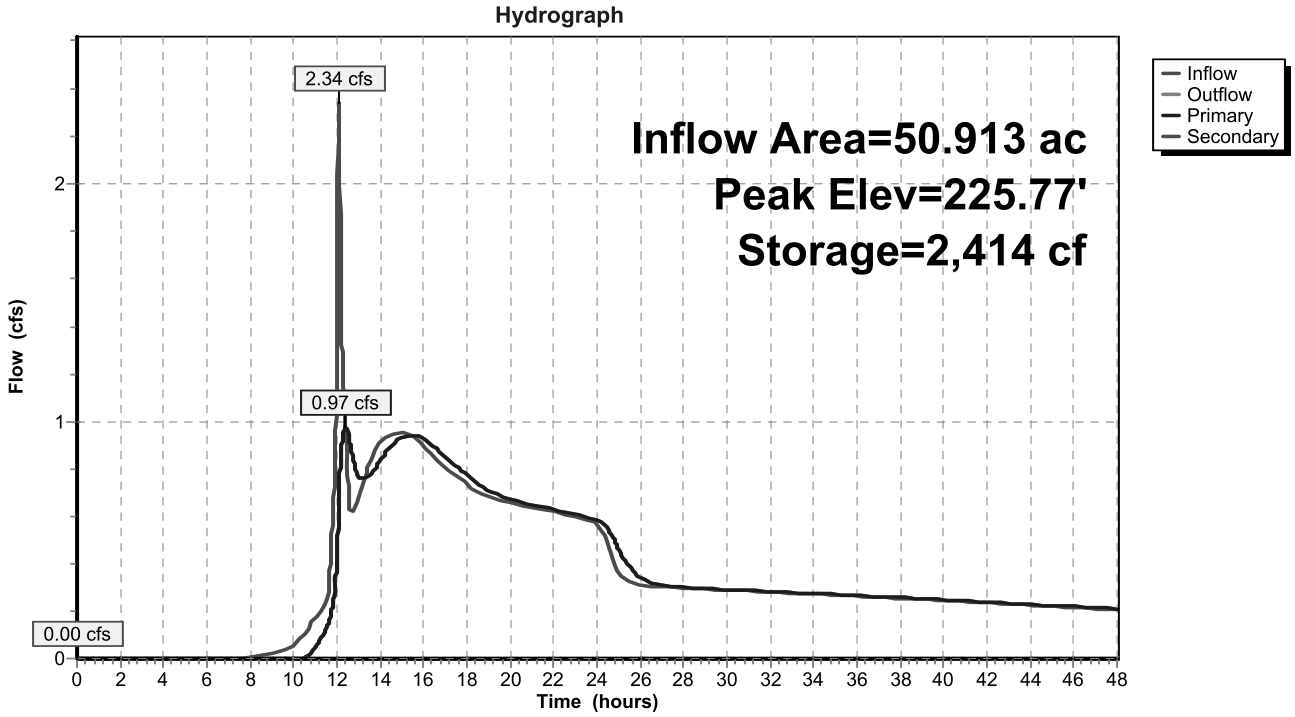
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.84	0	0	0
225.00	554	44	44
226.00	7,062	3,808	3,852
227.00	14,988	11,025	14,877
228.00	24,414	19,701	34,578
230.00	48,618	73,032	107,610
232.00	72,221	120,839	228,449

Device	Routing	Invert	Outlet Devices
#1	Primary	225.19'	**12.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.19' / 224.84' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	230.00'	**20.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.97 cfs @ 12.40 hrs HW=225.77' (Free Discharge)
1=Culvert (Inlet Controls 0.97 cfs @ 2.05 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=224.84' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: 12" culvert off property



Summary for Pond P1: Gravel Wetland

Inflow Area = 13.163 ac, 31.44% Impervious, Inflow Depth = 0.98" for 10-Year event
Inflow = 13.12 cfs @ 12.08 hrs, Volume= 1.080 af
Outflow = 0.31 cfs @ 21.30 hrs, Volume= 0.840 af, Atten= 98%, Lag= 553.4 min
Primary = 0.31 cfs @ 21.30 hrs, Volume= 0.840 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 229.57' @ 21.30 hrs Surf.Area= 24,794 sf Storage= 33,302 cf

Plug-Flow detention time= 938.9 min calculated for 0.840 af (78% of inflow)
Center-of-Mass det. time= 848.8 min (1,708.8 - 860.0)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	101,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

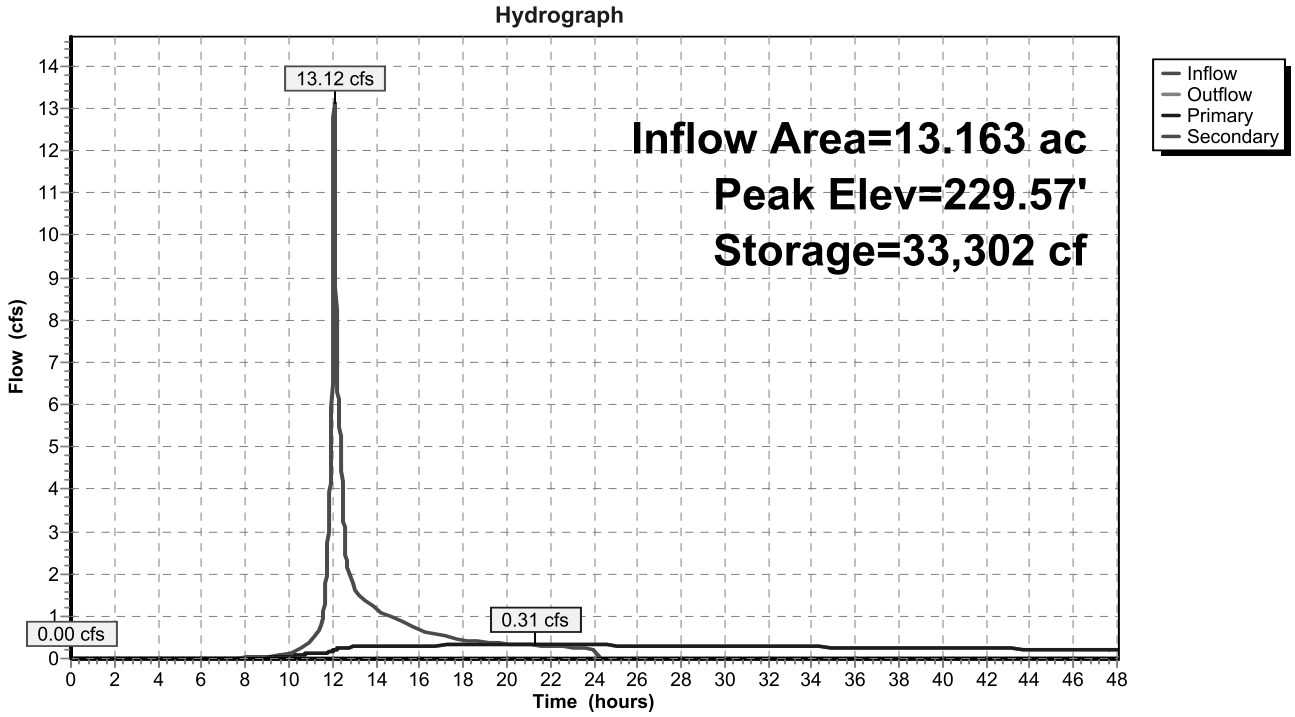
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	17,742	0	0
230.00	26,749	44,491	44,491
231.00	28,547	27,648	72,139
232.00	30,671	29,609	101,748

Device	Routing	Invert	Outlet Devices
#1	Secondary	231.50'	**20.0' long x 5.0' 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 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Device 4	227.67'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 4	231.00'	**2.5" x 2.5" Horiz. Orifice/Grate X 36.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	226.75'	**12.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.75' / 226.05' S= 0.0127 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.31 cfs @ 21.30 hrs HW=229.57' (Free Discharge)
└**4=Culvert** (Passes 0.31 cfs of 4.54 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.31 cfs @ 6.41 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Gravel Wetland



Summary for Pond P2: CB-1

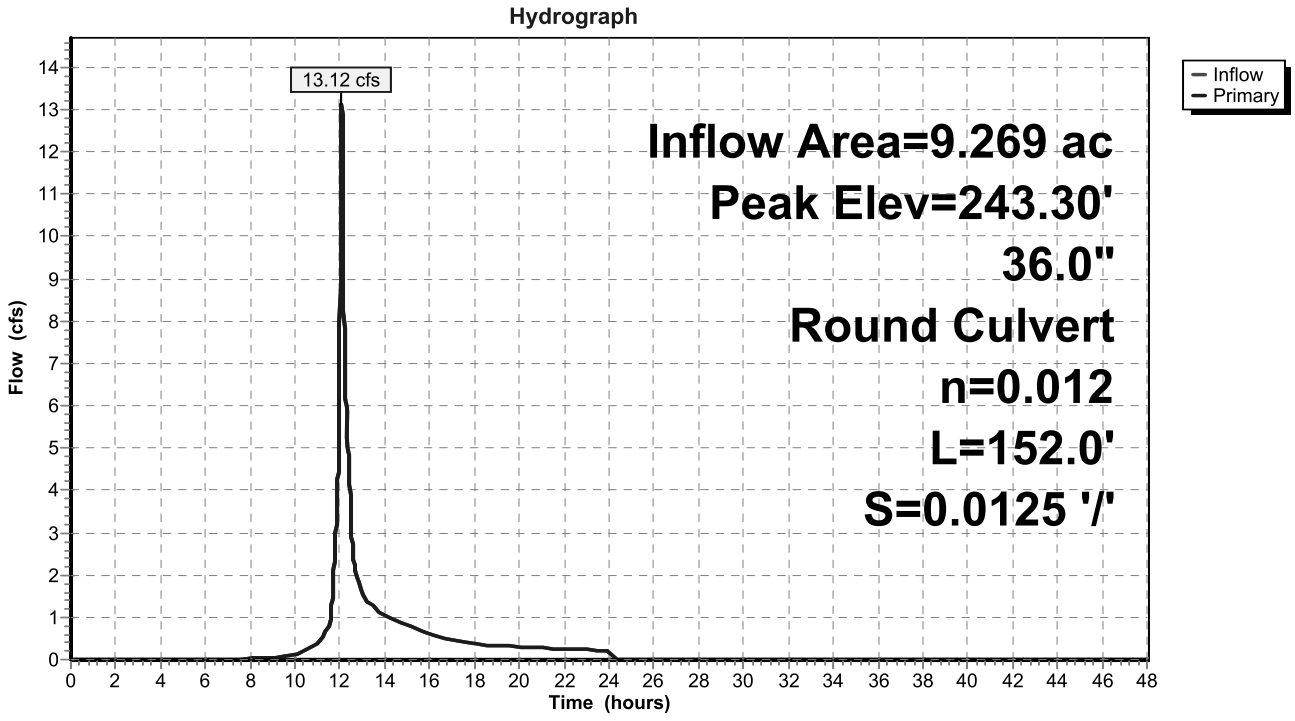
Inflow Area = 9.269 ac, 41.19% Impervious, Inflow Depth = 1.31" for 10-Year event
Inflow = 13.12 cfs @ 12.08 hrs, Volume= 1.010 af
Outflow = 13.12 cfs @ 12.08 hrs, Volume= 1.010 af, Atten= 0%, Lag= 0.0 min
Primary = 13.12 cfs @ 12.08 hrs, Volume= 1.010 af
Routed to Pond P1 : Gravel Wetland

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 243.30' @ 12.08 hrs
Flood Elev= 259.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	241.90'	**36.0" Round Culvert** L= 152.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 241.90' / 240.00' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=13.09 cfs @ 12.08 hrs HW=243.30' (Free Discharge)
1=Culvert (Inlet Controls 13.09 cfs @ 4.03 fps)

Pond P2: CB-1



Summary for Pond P3: CB-4

Inflow Area = 7.355 ac, 37.69% Impervious, Inflow Depth = 1.17" for 10-Year event
Inflow = 8.98 cfs @ 12.08 hrs, Volume= 0.720 af
Outflow = 8.98 cfs @ 12.08 hrs, Volume= 0.720 af, Atten= 0%, Lag= 0.0 min
Primary = 8.98 cfs @ 12.08 hrs, Volume= 0.720 af
Routed to Pond P2 : CB-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 250.01' @ 12.08 hrs Surf.Area= 365 sf Storage= 3 cf
Flood Elev= 251.00' Surf.Area= 25,384 sf Storage= 12,692 cf

Plug-Flow detention time= 0.0 min calculated for 0.720 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (850.7 - 850.7)

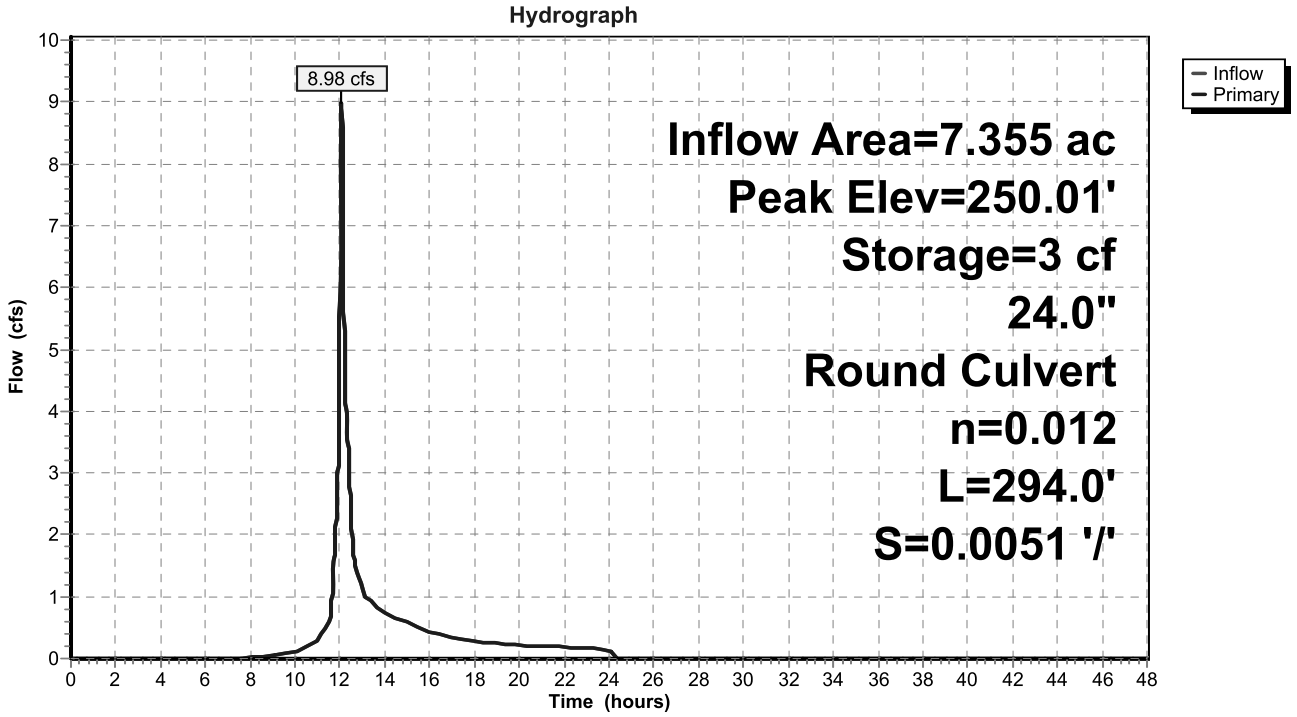
Volume	Invert	Avail.Storage	Storage Description
#1	250.00'	209,091 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
250.00	0	0	0
252.00	50,768	50,768	50,768
254.00	107,555	158,323	209,091

Device	Routing	Invert	Outlet Devices
#1	Primary	245.00'	**24.0" Round Culvert** L= 294.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 245.00' / 243.50' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=24.92 cfs @ 12.08 hrs HW=250.01' (Free Discharge)
1=Culvert (Barrel Controls 24.92 cfs @ 7.93 fps)

Pond P3: CB-4


Hydrograph
8.98 cfs
Inflow Area=7.355 ac
Peak Elev=250.01'
Storage=3 cf
24.0"
Round Culvert
n=0.012
L=294.0'
S=0.0051 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
4
5
6
7
8
9
10
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond P4: CB-20

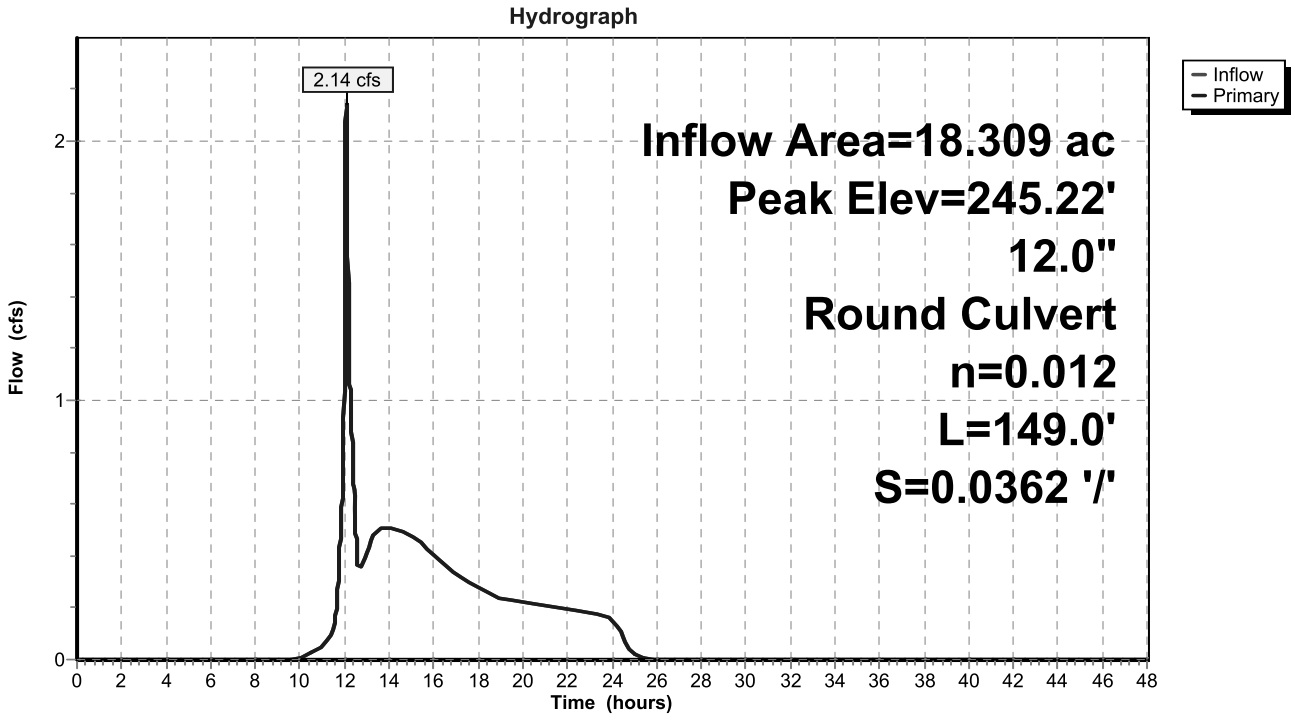
Inflow Area = 18.309 ac, 7.59% Impervious, Inflow Depth = 0.24" for 10-Year event
Inflow = 2.14 cfs @ 12.08 hrs, Volume= 0.373 af
Outflow = 2.14 cfs @ 12.08 hrs, Volume= 0.373 af, Atten= 0%, Lag= 0.0 min
Primary = 2.14 cfs @ 12.08 hrs, Volume= 0.373 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 245.22' @ 12.08 hrs
Flood Elev= 262.34'

Device	Routing	Invert	Outlet Devices
#1	Primary	244.39'	**12.0" Round Culvert** L= 149.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 244.39' / 239.00' S= 0.0362 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.15 cfs @ 12.08 hrs HW=245.22' (Free Discharge)
1=Culvert (Inlet Controls 2.15 cfs @ 3.10 fps)

Pond P4: CB-20



Summary for Pond P5: CB-16

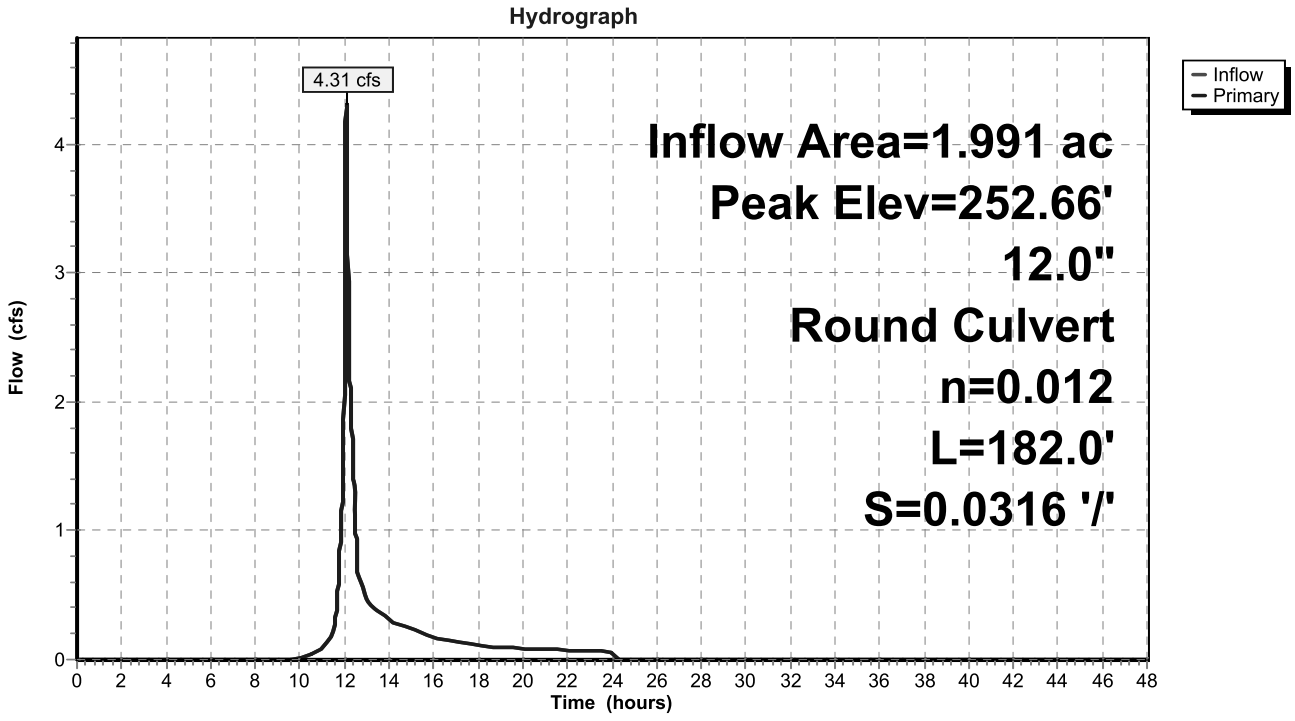
Inflow Area = 1.991 ac, 54.80% Impervious, Inflow Depth = 1.82" for 10-Year event
Inflow = 4.31 cfs @ 12.08 hrs, Volume= 0.302 af
Outflow = 4.31 cfs @ 12.08 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
Primary = 4.31 cfs @ 12.08 hrs, Volume= 0.302 af
Routed to Pond P3 : CB-4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.66' @ 12.08 hrs
Flood Elev= 255.87'

Device	Routing	Invert	Outlet Devices
#1	Primary	250.86'	**12.0" Round Culvert** L= 182.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 250.86' / 245.10' S= 0.0316 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.31 cfs @ 12.08 hrs HW=252.66' (Free Discharge)
1=Culvert (Inlet Controls 4.31 cfs @ 5.49 fps)

Pond P5: CB-16



Summary for Pond P6: CB-5

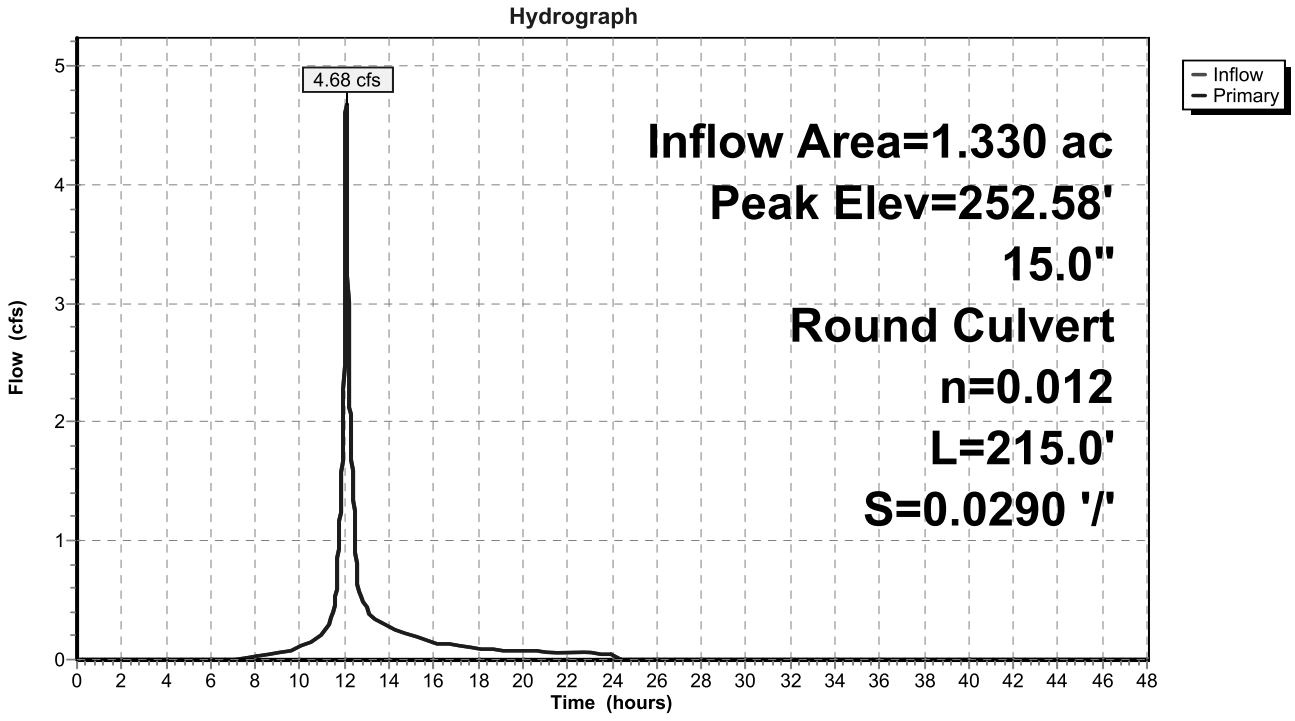
Inflow Area = 1.330 ac, 76.66% Impervious, Inflow Depth = 2.91" for 10-Year event
Inflow = 4.68 cfs @ 12.07 hrs, Volume= 0.322 af
Outflow = 4.68 cfs @ 12.07 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.0 min
Primary = 4.68 cfs @ 12.07 hrs, Volume= 0.322 af
Routed to Pond P3 : CB-4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.58' @ 12.07 hrs
Flood Elev= 257.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.33'	**15.0" Round Culvert** L= 215.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 251.33' / 245.10' S= 0.0290 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.66 cfs @ 12.07 hrs HW=252.58' (Free Discharge)
1=Culvert (Inlet Controls 4.66 cfs @ 3.80 fps)

Pond P6: CB-5



Summary for Pond P7: CULVERT OUT OF EXISTING DRAINAGE DITCH

Inflow Area = 16.006 ac, 14.36% Impervious, Inflow Depth = 0.09" for 10-Year event
Inflow = 0.19 cfs @ 15.66 hrs, Volume= 0.120 af
Outflow = 0.19 cfs @ 15.67 hrs, Volume= 0.120 af, Atten= 0%, Lag= 1.0 min
Primary = 0.19 cfs @ 15.67 hrs, Volume= 0.120 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 246.20' @ 15.67 hrs Surf.Area= 241 sf Storage= 43 cf

Plug-Flow detention time= 4.6 min calculated for 0.120 af (100% of inflow)
Center-of-Mass det. time= 4.6 min (1,115.4 - 1,110.8)

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	72,372 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

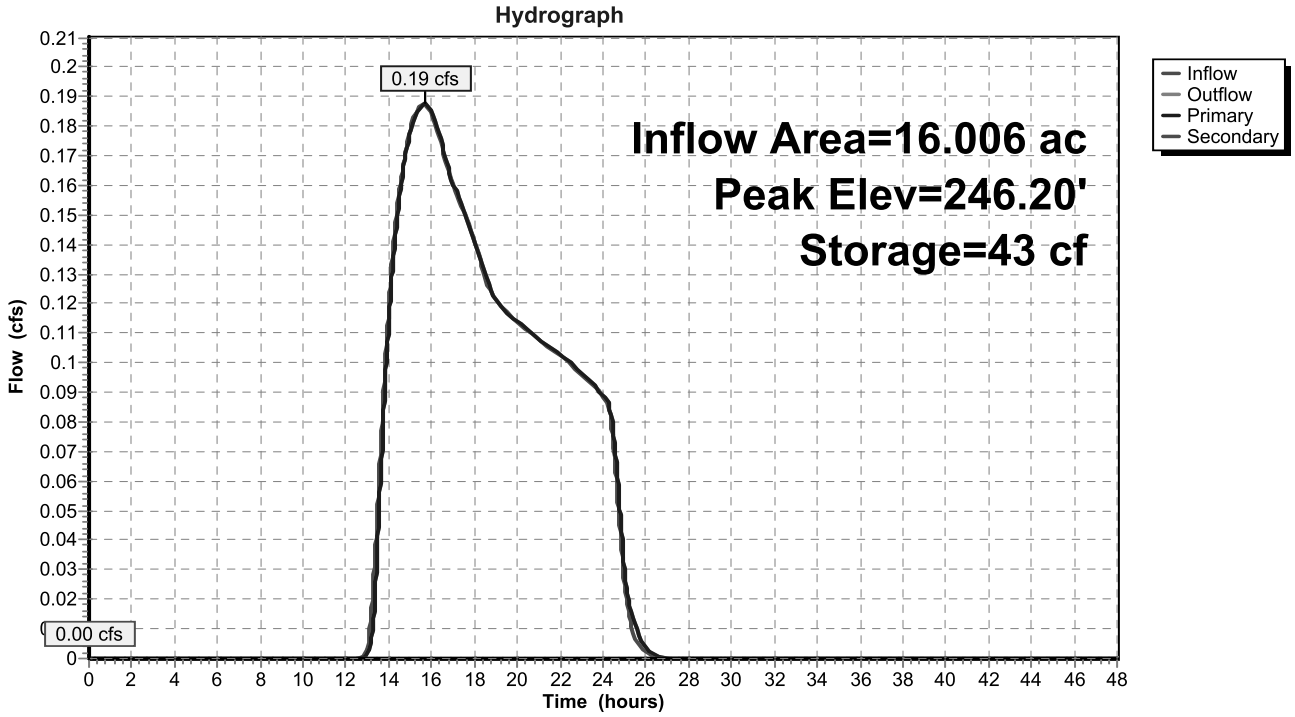
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	200	0	0
248.00	616	816	816
250.00	18,970	19,586	20,402
252.00	33,000	51,970	72,372

Device	Routing	Invert	Outlet Devices
#1	Primary	246.00'	**15.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 246.00' / 245.00' S= 0.0139 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Secondary	250.50'	**30.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.18 cfs @ 15.67 hrs HW=246.20' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.18 cfs @ 1.51 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=246.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P7: CULVERT OUT OF EXISTING DRAINAGE DITCH



Summary for Pond P8: Pond

Inflow Area = 1.796 ac,100.00% Impervious, Inflow Depth = 4.36" for 10-Year event
Inflow = 8.36 cfs @ 12.07 hrs, Volume= 0.653 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 248.67' @ 24.29 hrs Surf.Area= 43,367 sf Storage= 28,441 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

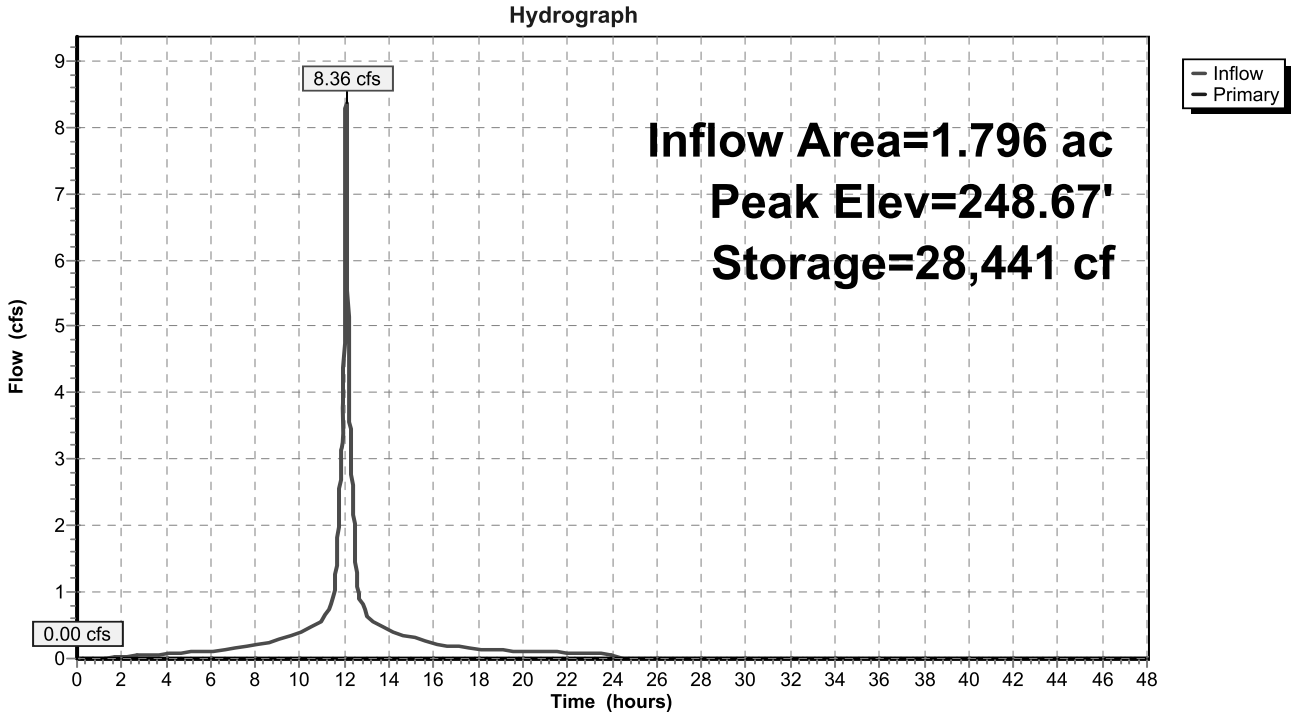
Volume	Invert	Avail.Storage	Storage Description
#1	247.99'	619,118 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.99	0	0	0
248.00	40,787	204	204
250.00	48,475	89,262	89,466
252.00	56,791	105,266	194,732
254.00	65,735	122,526	317,258
256.00	75,308	141,043	458,301
258.00	85,509	160,817	619,118

Device	Routing	Invert	Outlet Devices
#1	Primary	251.50'	**85.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=247.99' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P8: Pond


Hydrograph
Inflow
Primary
8.36 cfs
0.00 cfs
Inflow Area=1.796 ac
Peak Elev=248.67'
Storage=28,441 cf
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond P9: CB-25

Inflow Area = 17.363 ac, 4.91% Impervious, Inflow Depth = 0.15" for 10-Year event
Inflow = 0.36 cfs @ 14.35 hrs, Volume= 0.223 af
Outflow = 0.36 cfs @ 14.35 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 14.35 hrs, Volume= 0.223 af
Routed to Pond P4 : CB-20

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.50' @ 14.35 hrs Surf.Area= 38 sf Storage= 0 cf
Flood Elev= 252.50' Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.223 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (1,061.5 - 1,061.5)

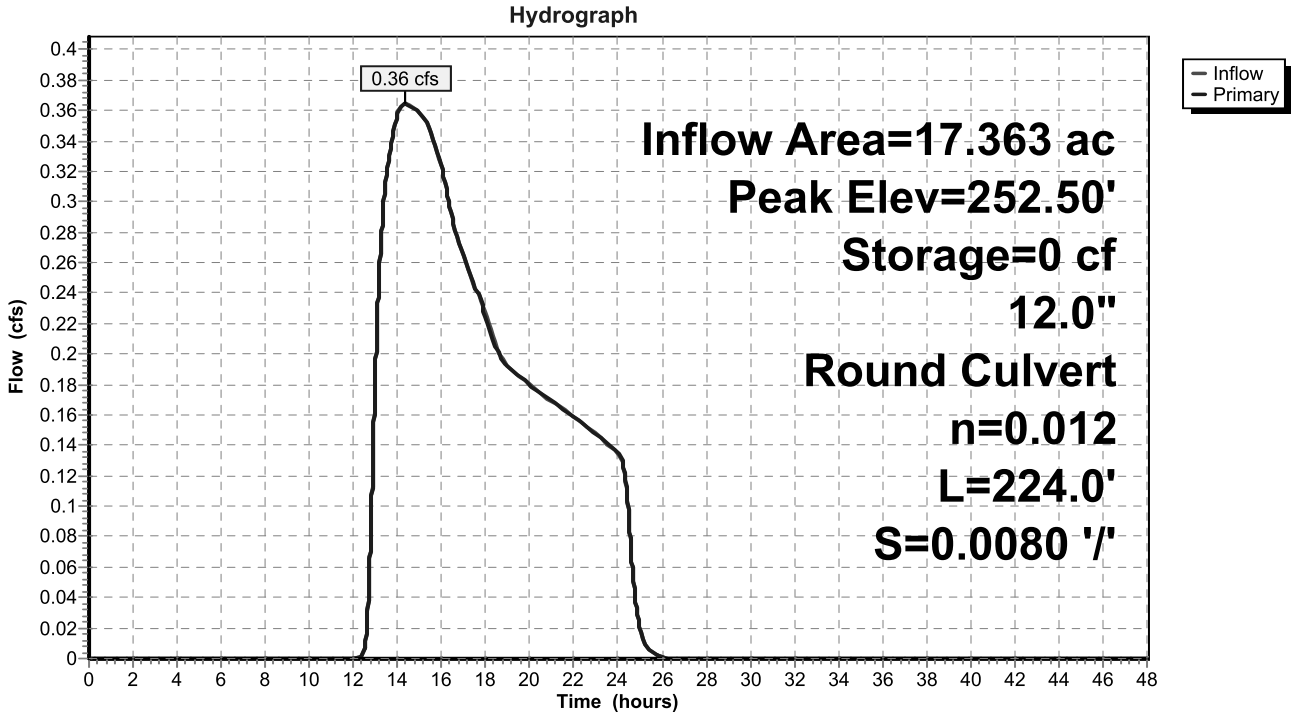
Volume	Invert	Avail.Storage	Storage Description
#1	252.50'	78,844 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.50	0	0	0
254.00	20,347	15,260	15,260
256.00	43,237	63,584	78,844

Device	Routing	Invert	Outlet Devices
#1	Primary	249.50'	**12.0" Round Culvert** L= 224.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 249.50' / 247.71' S= 0.0080 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.48 cfs @ 14.35 hrs HW=252.50' (Free Discharge)
1=Culvert (Barrel Controls 4.48 cfs @ 5.71 fps)

Pond P9: CB-25

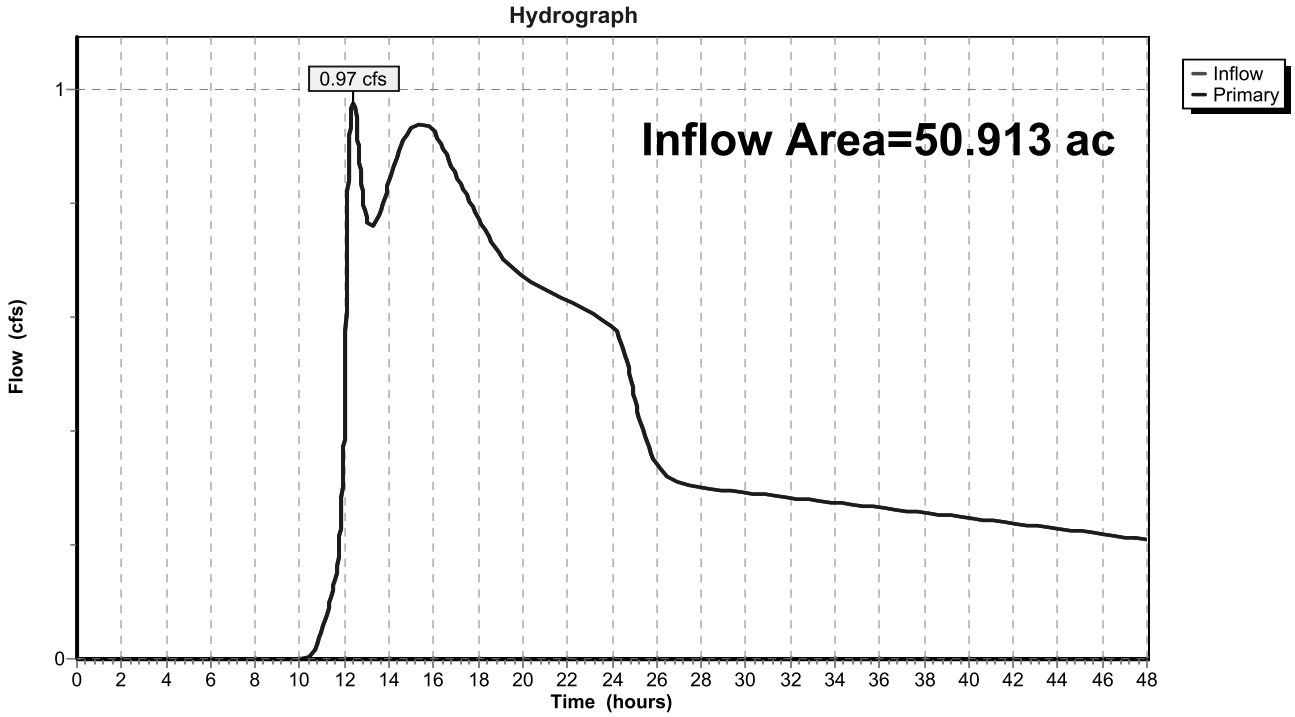

Hydrograph
0.36 cfs
Inflow Area=17.363 ac
Peak Elev=252.50'
Storage=0 cf
12.0"
Round Culvert
n=0.012
L=224.0'
S=0.0080 '/'
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Link A1:

Inflow Area = 50.913 ac, 15.93% Impervious, Inflow Depth > 0.31" for 10-Year event
Inflow = 0.97 cfs @ 12.40 hrs, Volume= 1.315 af
Primary = 0.97 cfs @ 12.40 hrs, Volume= 1.315 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link A1:



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 S1: AREA DRAINING TO Runoff Area=169,635 sf 8.22% Impervious Runoff Depth=0.55"
Flow Length=365' Tc=11.4 min UI Adjusted CN=42 Runoff=0.96 cfs 0.178 af

Subcatchment S10: SOUTHERN PORTION Runoff Area=149,610 sf 8.27% Impervious Runoff Depth=0.14"
Flow Length=751' Tc=19.1 min UI Adjusted CN=33 Runoff=0.06 cfs 0.039 af

Subcatchment S2: UPPER METHODIST Runoff Area=83,367 sf 54.63% Impervious Runoff Depth=2.74"
Tc=5.0 min CN=71 Runoff=6.34 cfs 0.437 af

Subcatchment S3: CENTRAL AREAS Runoff Area=175,715 sf 16.40% Impervious Runoff Depth=0.66"
Flow Length=362' Tc=17.0 min UI Adjusted CN=44 Runoff=1.27 cfs 0.223 af

Subcatchment S4: MAIN DRIVE AREA Runoff Area=86,747 sf 54.80% Impervious Runoff Depth=2.74"
Tc=5.0 min CN=71 Runoff=6.60 cfs 0.454 af

Subcatchment S5: MAIN DRIVE AREA Runoff Area=57,927 sf 76.66% Impervious Runoff Depth=4.01"
Tc=5.0 min CN=84 Runoff=6.39 cfs 0.444 af

Subcatchment S6: ENTRANCE FROM Runoff Area=41,209 sf 56.76% Impervious Runoff Depth=2.83"
Tc=5.0 min CN=72 Runoff=3.25 cfs 0.223 af

Subcatchment S7: Grass, Pavement, Runoff Area=756,334 sf 4.91% Impervious Runoff Depth=0.44"
Flow Length=848' Tc=44.4 min CN=40 Runoff=1.88 cfs 0.637 af

Subcatchment S8: LANDSCAPE POND Runoff Area=78,218 sf 100.00% Impervious Runoff Depth=5.56"
Tc=5.0 min CN=98 Runoff=10.57 cfs 0.832 af

Subcatchment S9: EAST PORTION OF SITE Runoff Area=619,024 sf 3.54% Impervious Runoff Depth=0.34"
Flow Length=1,367' Tc=56.6 min CN=38 Runoff=0.87 cfs 0.404 af

Pond 1P: 12" culvert off property Peak Elev=226.39' Storage=7,168 cf Inflow=3.48 cfs 2.386 af
Primary=2.49 cfs 2.361 af Secondary=0.00 cfs 0.000 af Outflow=2.49 cfs 2.361 af

Pond P1: Gravel Wetland Peak Elev=230.50' Storage=58,061 cf Inflow=19.49 cfs 1.736 af
Primary=0.39 cfs 1.082 af Secondary=0.00 cfs 0.000 af Outflow=0.39 cfs 1.082 af

Pond P2: CB-1 Peak Elev=243.66' Inflow=19.41 cfs 1.558 af
36.0" Round Culvert n=0.012 L=152.0' S=0.0125 '/' Outflow=19.41 cfs 1.558 af

Pond P3: CB-4 Peak Elev=250.02' Storage=6 cf Inflow=13.07 cfs 1.122 af
24.0" Round Culvert n=0.012 L=294.0' S=0.0051 '/' Outflow=13.07 cfs 1.122 af

Pond P4: CB-20 Peak Elev=245.63' Inflow=3.25 cfs 0.860 af
12.0" Round Culvert n=0.012 L=149.0' S=0.0362 '/' Outflow=3.25 cfs 0.860 af

Pond P5: CB-16 Peak Elev=254.40' Inflow=6.60 cfs 0.454 af
12.0" Round Culvert n=0.012 L=182.0' S=0.0316 '/' Outflow=6.60 cfs 0.454 af

Pond P6: CB-5 Peak Elev=253.13' Inflow=6.39 cfs 0.444 af
15.0" Round Culvert n=0.012 L=215.0' S=0.0290 '/' Outflow=6.39 cfs 0.444 af

Pond P7: CULVERT OUT OF EXISTING Peak Elev=246.44' Storage=108 cf Inflow=0.87 cfs 0.404 af
Primary=0.87 cfs 0.404 af Secondary=0.00 cfs 0.000 af Outflow=0.87 cfs 0.404 af

Pond P8: Pond Peak Elev=248.85' Storage=36,250 cf Inflow=10.57 cfs 0.832 af
Outflow=0.00 cfs 0.000 af

Pond P9: CB-25 Peak Elev=252.51' Storage=1 cf Inflow=1.88 cfs 0.637 af
12.0" Round Culvert n=0.012 L=224.0' S=0.0080 '/' Outflow=1.88 cfs 0.637 af

Link A1: Inflow=2.49 cfs 2.361 af
Primary=2.49 cfs 2.361 af

Total Runoff Area = 50.913 ac Runoff Volume = 3.872 af Average Runoff Depth = 0.91"
84.07% Pervious = 42.802 ac 15.93% Impervious = 8.111 ac

Summary for Subcatchment S1: AREA DRAINING TO GRAVEL WETLAND

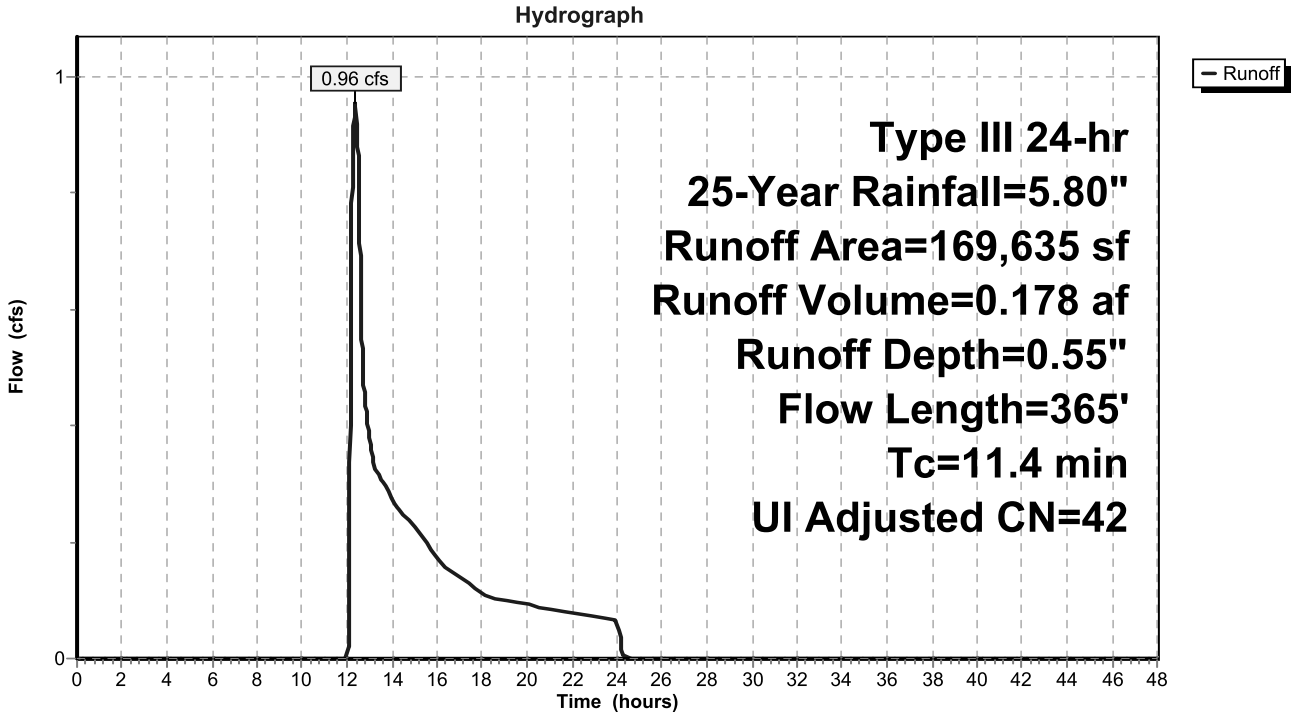
Runoff = 0.96 cfs @ 12.37 hrs, Volume= 0.178 af, Depth= 0.55"
Routed to Pond P1 : Gravel Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Adj	Description
	3,000	30		Woods, Good, HSG A
	120,333	39		>75% Grass cover, Good, HSG A
*	29,990	39		Gravel Wetlands;HSG D
	2,375	76		Gravel roads, HSG A
	12,353	98		Unconnected roofs, HSG A
*	1,584	98		Shed Roofs
	169,635	44	42	Weighted Average, UI Adjusted
	155,698			91.78% Pervious Area
	13,937			8.22% Impervious Area
	12,353			88.63% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	100	0.0850	0.21		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.5	63	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
2.8	202	0.0300	1.21		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
11.4	365	Total			

Subcatchment S1: AREA DRAINING TO GRAVEL WETLAND



Summary for Subcatchment S10: SOUTHERN PORTION OF SITE

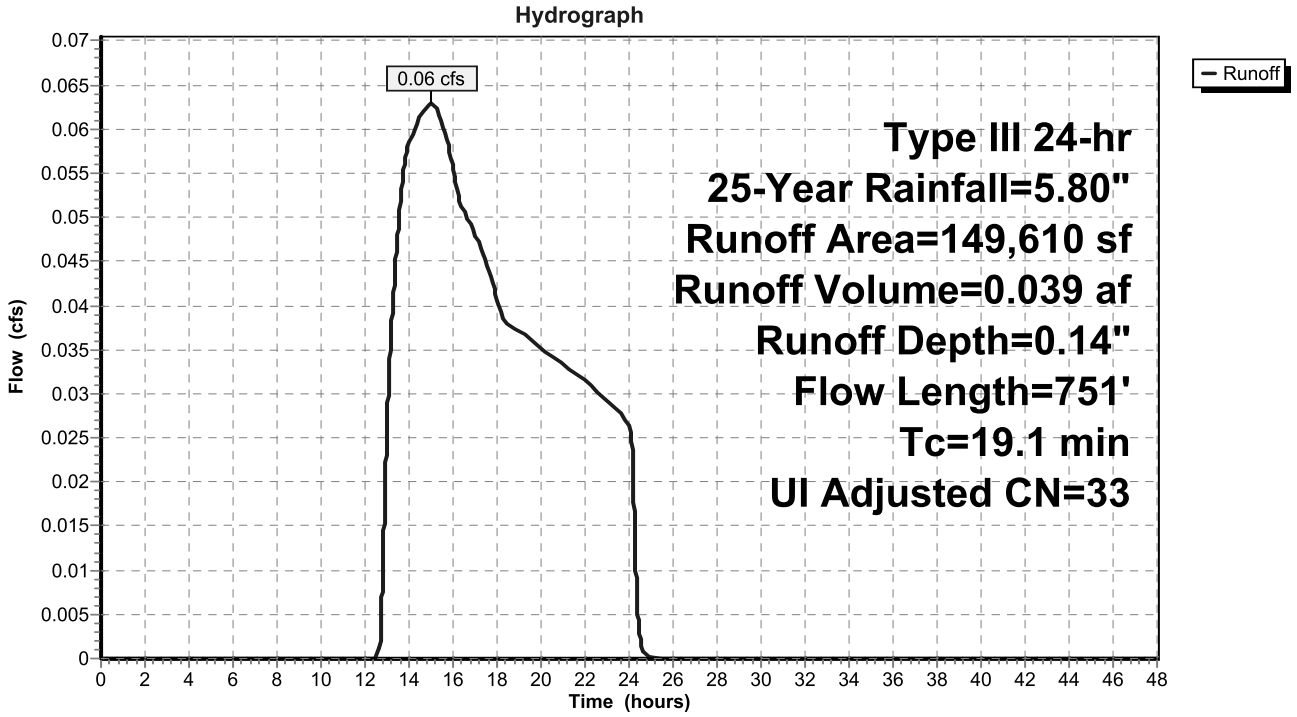
Runoff = 0.06 cfs @ 14.96 hrs, Volume= 0.039 af, Depth= 0.14"
Routed to Pond 1P : 12" culvert off property

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Adj	Description
5,000	39		>75% Grass cover, Good, HSG A
86,953	30		Meadow, non-grazed, HSG A
45,285	30		Woods, Good, HSG A
12,372	98		Unconnected roofs, HSG A
149,610	36	33	Weighted Average, UI Adjusted
137,238			91.73% Pervious Area
12,372			8.27% Impervious Area
12,372			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8	100	0.0780	0.29		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
10.1	598	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.2	53	0.0030	0.27		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
19.1	751	Total			

Subcatchment S10: SOUTHERN PORTION OF SITE



Summary for Subcatchment S2: UPPER METHODIST ENTRANCE ROAD SECTION

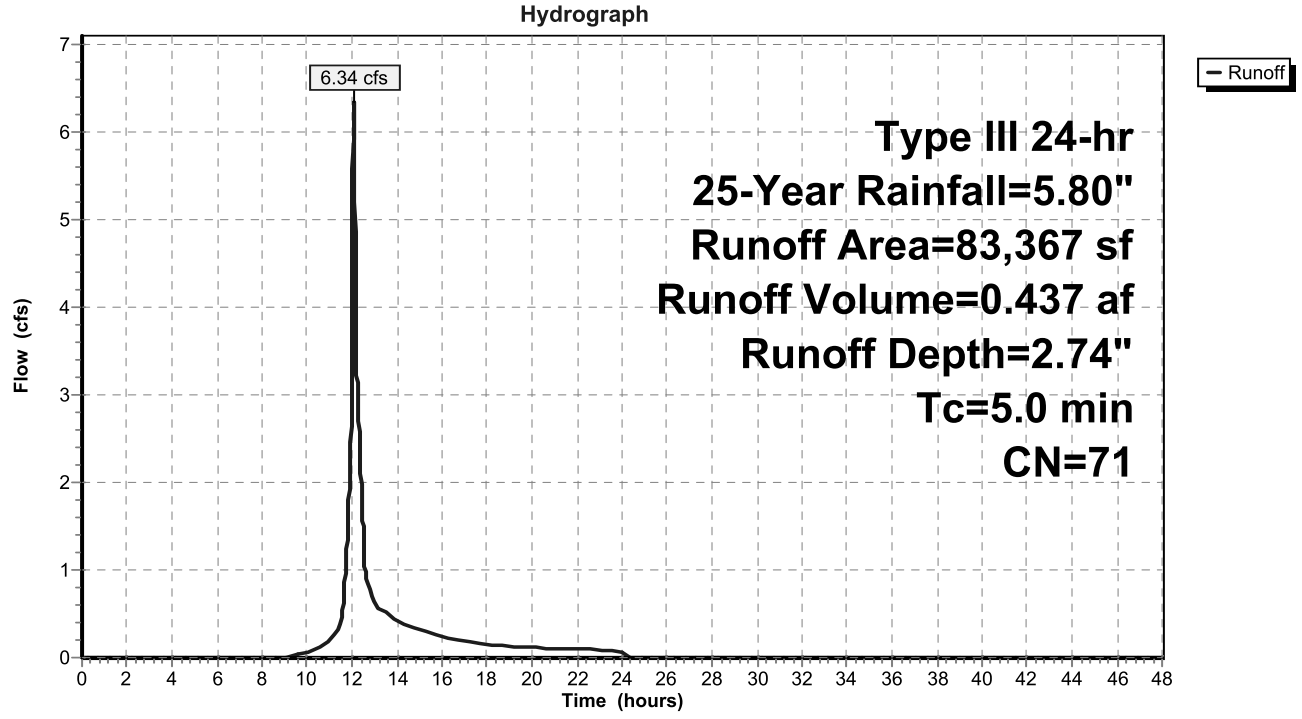
Runoff = 6.34 cfs @ 12.08 hrs, Volume= 0.437 af, Depth= 2.74"
Routed to Pond P2 : CB-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	37,824	39	>75% Grass cover, Good, HSG A
	44,895	98	Paved roads w/curbs & sewers, HSG A
*	648	98	Concrete Pads, HSG A
	83,367	71	Weighted Average
	37,824		45.37% Pervious Area
	45,543		54.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S2: UPPER METHODIST ENTRANCE ROAD SECTION



Summary for Subcatchment S3: CENTRAL AREAS AND HOUSES

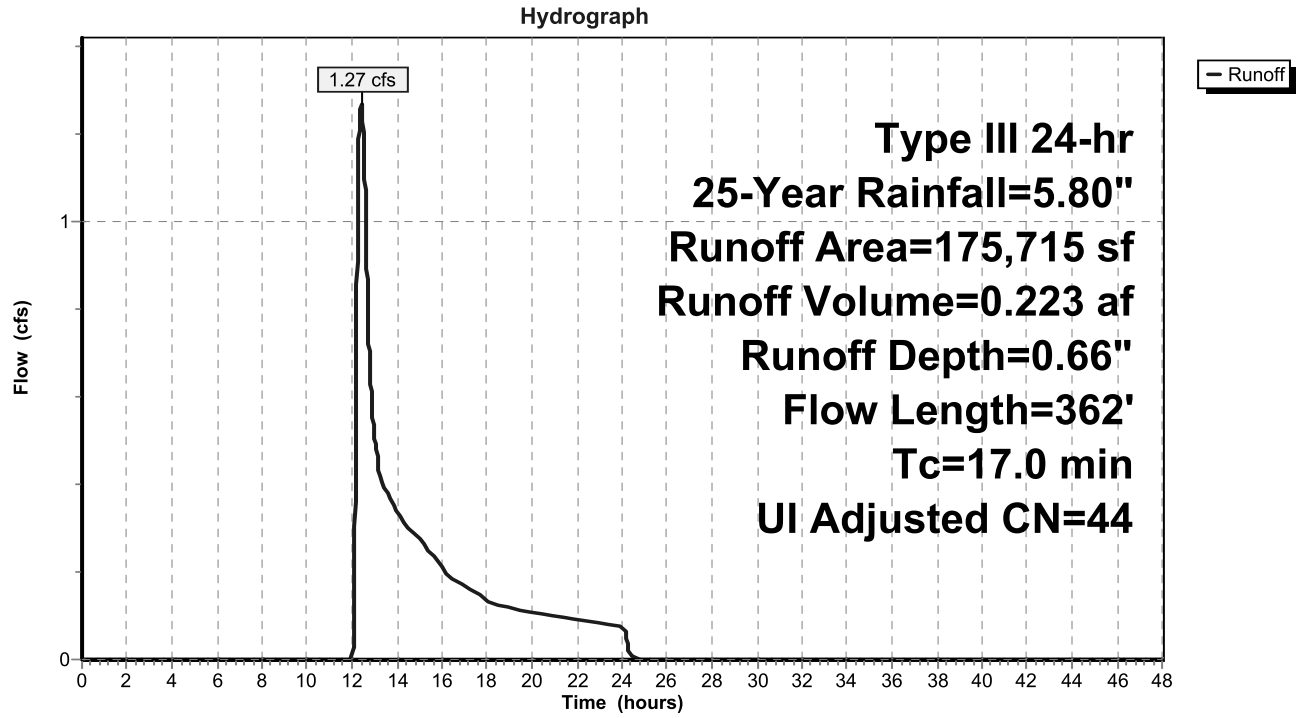
Runoff = 1.27 cfs @ 12.41 hrs, Volume= 0.223 af, Depth= 0.66"
Routed to Pond P3 : CB-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Adj	Description
	146,891	39		>75% Grass cover, Good, HSG A
	25,368	98		Unconnected roofs, HSG A
*	3,456	98		Unconnected roofs, HSG A, SHEDS
	175,715	49	44	Weighted Average, UI Adjusted
	146,891			83.60% Pervious Area
	28,824			16.40% Impervious Area
	28,824			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	100	0.0500	0.17		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
7.0	262	0.0080	0.63		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
17.0	362	Total			

Subcatchment S3: CENTRAL AREAS AND HOUSES



Summary for Subcatchment S4: MAIN DRIVE AREA

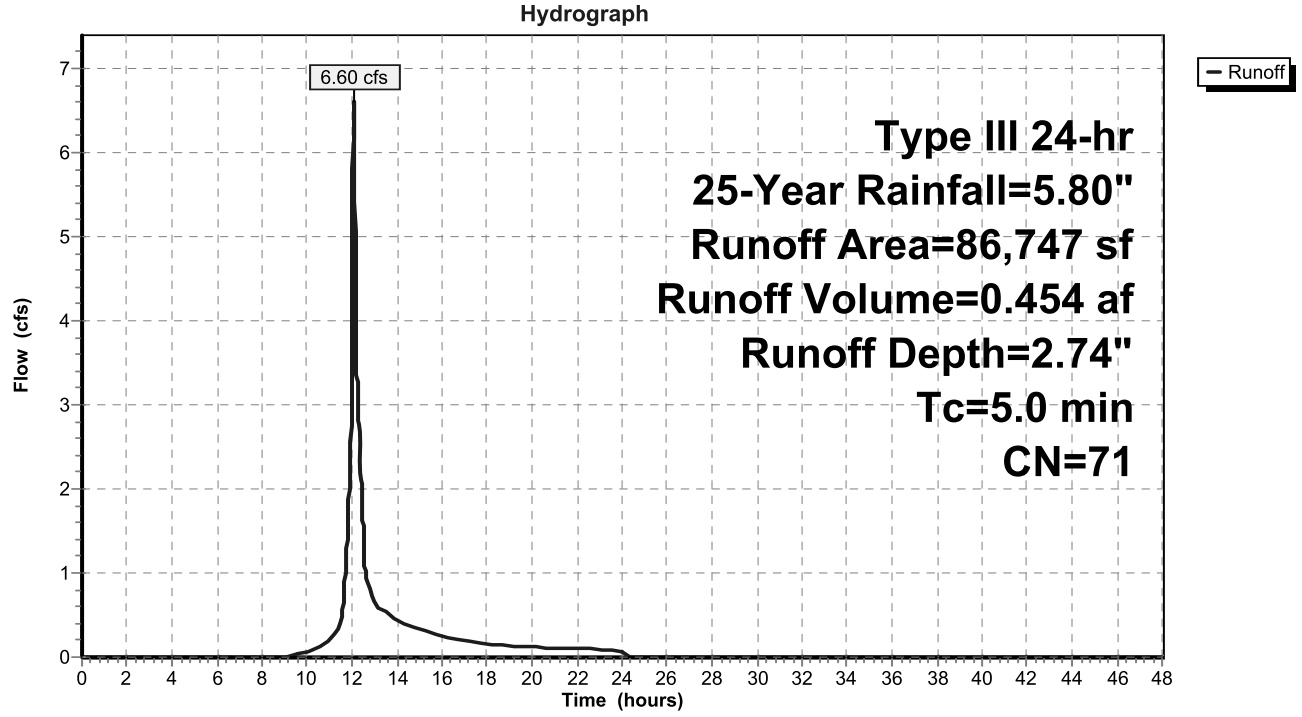
Runoff = 6.60 cfs @ 12.08 hrs, Volume= 0.454 af, Depth= 2.74"
Routed to Pond P5 : CB-16

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	39,211	39	>75% Grass cover, Good, HSG A
	25,855	98	Paved parking, HSG A
	21,114	98	Paved roads w/curbs & sewers, HSG A
*	567	98	Concrete Pads, HSG A
	86,747	71	Weighted Average
	39,211		45.20% Pervious Area
	47,536		54.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S4: MAIN DRIVE AREA



Summary for Subcatchment S5: MAIN DRIVE AREA

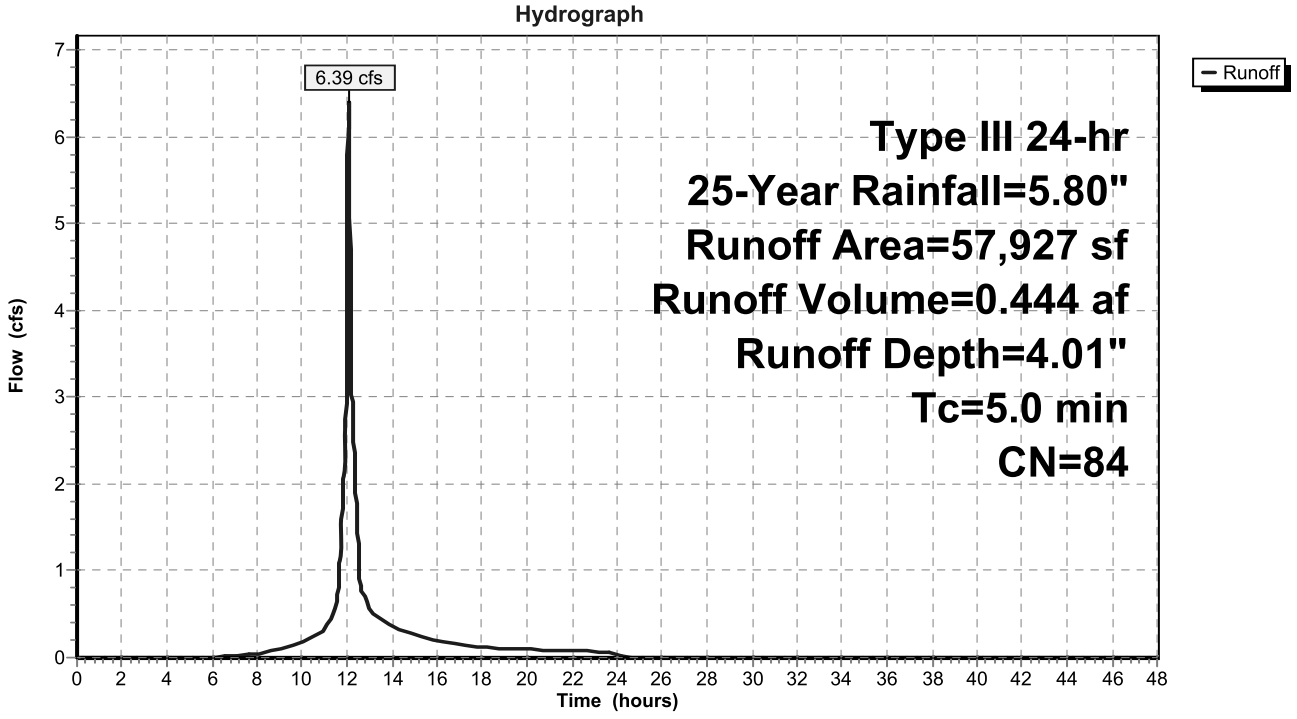
Runoff = 6.39 cfs @ 12.07 hrs, Volume= 0.444 af, Depth= 4.01"
Routed to Pond P6 : CB-5

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	13,520	39	>75% Grass cover, Good, HSG A
	44,245	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	57,927	84	Weighted Average
	13,520		23.34% Pervious Area
	44,407		76.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S5: MAIN DRIVE AREA



Summary for Subcatchment S6: ENTRANCE FROM UPPER METHODIST

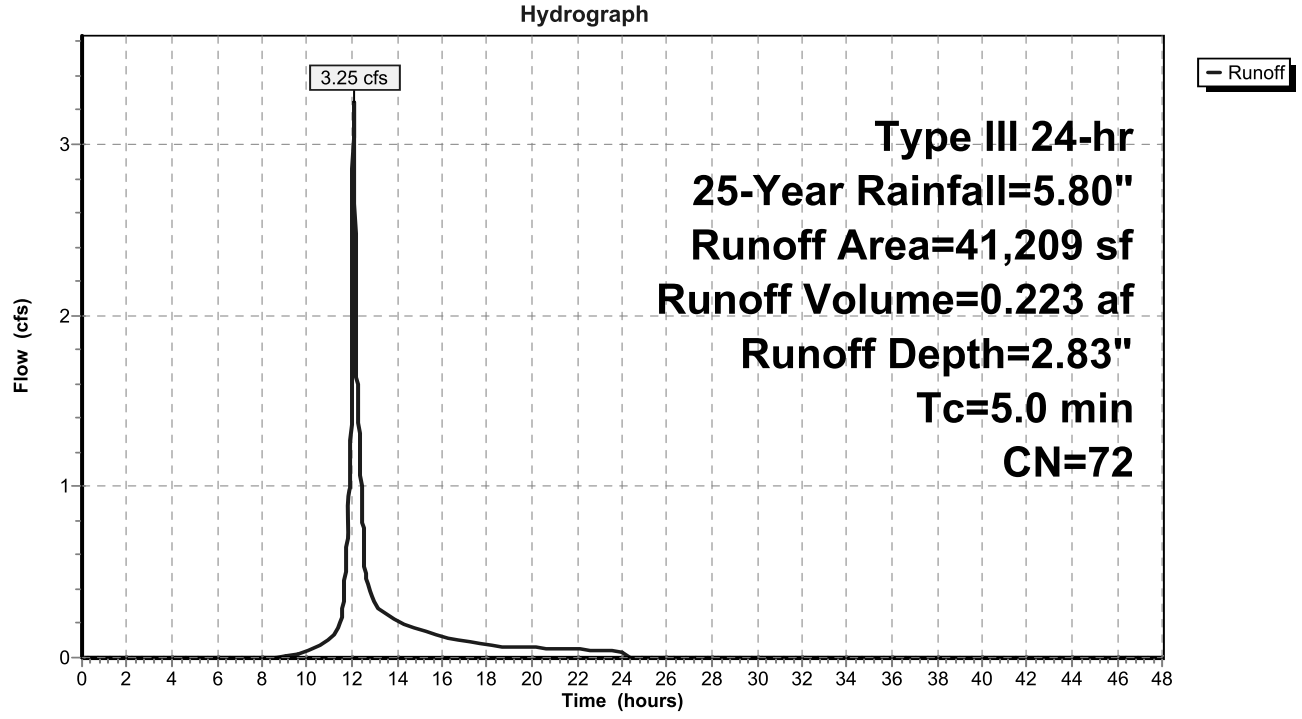
Runoff = 3.25 cfs @ 12.08 hrs, Volume= 0.223 af, Depth= 2.83"
Routed to Pond P4 : CB-20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	17,819	39	>75% Grass cover, Good, HSG A
	23,228	98	Paved roads w/curbs & sewers, HSG A
*	162	98	Concrete Pads, HSG A
	41,209	72	Weighted Average
	17,819		43.24% Pervious Area
	23,390		56.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Tc MUST BE GREATER THAN 5 MIN**

Subcatchment S6: ENTRANCE FROM UPPER METHODIST



Summary for Subcatchment S7: Grass, Pavement, Structure, Tree

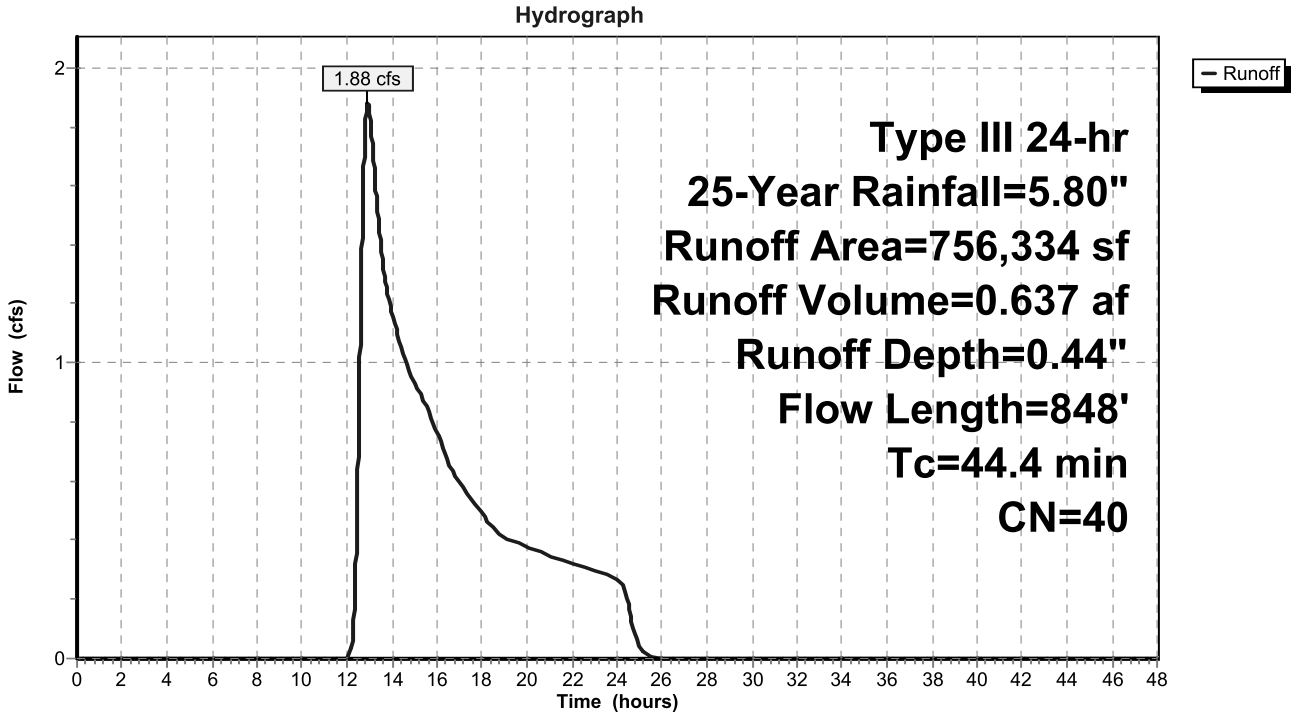
Runoff = 1.88 cfs @ 12.93 hrs, Volume= 0.637 af, Depth= 0.44"
Routed to Pond P9 : CB-25

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	525,655	39	>75% Grass cover, Good, HSG A
	13,036	98	Roofs, HSG A
*	24,137	98	Offsite Existing Roads, HSG A
	5,837	96	Gravel surface, HSG A
	187,669	30	Woods, Good, HSG A
	756,334	40	Weighted Average
	719,161		95.09% Pervious Area
	37,173		4.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
7.6	329	0.0210	0.72		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.3	55	0.4670	3.42		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
0.2	33	0.2500	3.50		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
7.5	331	0.0110	0.73		**Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps
44.4	848	Total			

Subcatchment S7: Grass, Pavement, Structure, Tree



Summary for Subcatchment S8: LANDSCAPE POND

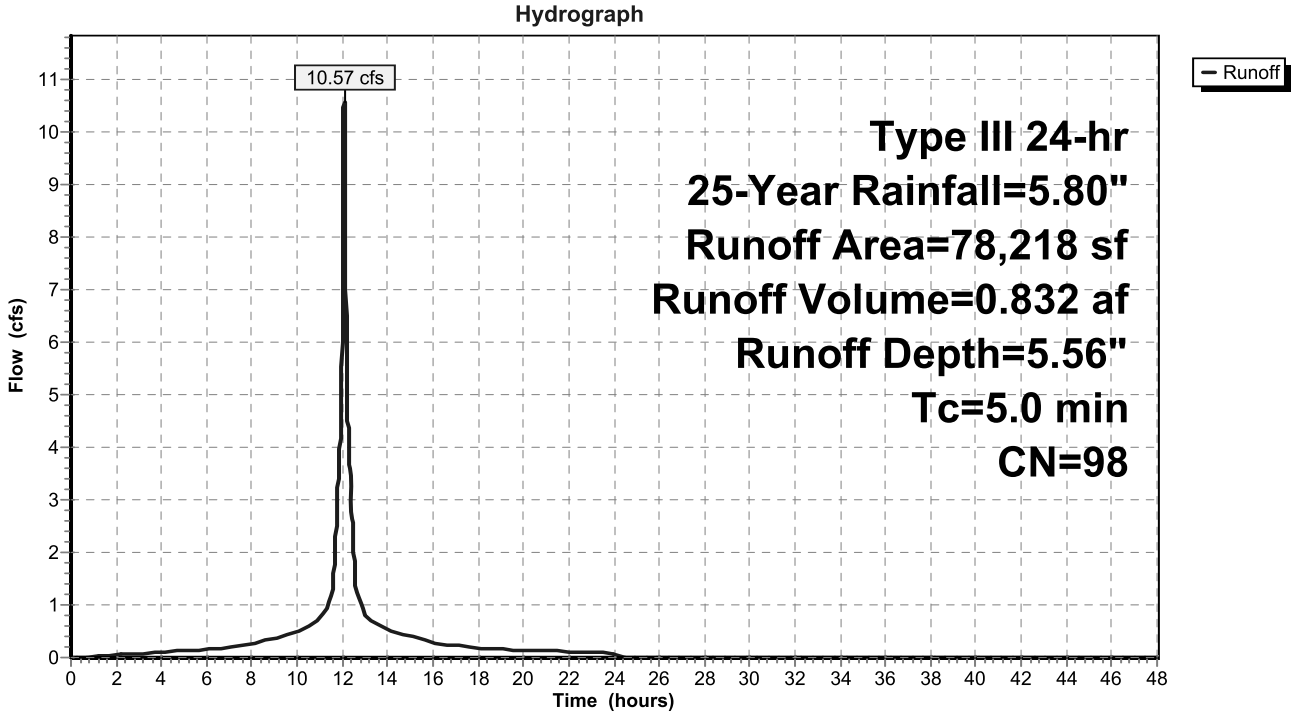
Runoff = 10.57 cfs @ 12.07 hrs, Volume= 0.832 af, Depth= 5.56"
Routed to Pond P8 : Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
78,218	98	Water Surface, HSG A
78,218		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, A-B**

Subcatchment S8: LANDSCAPE POND



Summary for Subcatchment S9: EAST PORTION OF SITE

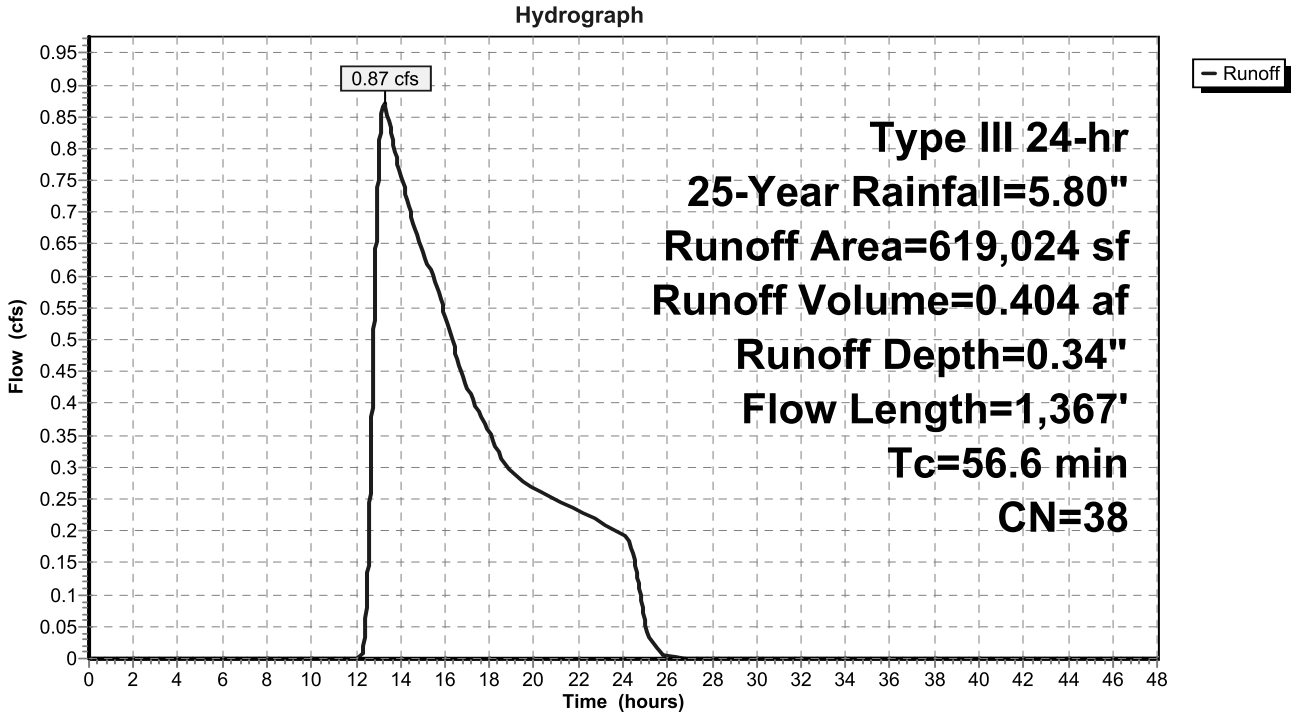
Runoff = 0.87 cfs @ 13.27 hrs, Volume= 0.404 af, Depth= 0.34"
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	351,284	39	>75% Grass cover, Good, HSG A
*	15,499	98	Houses and Court
	6,424	98	Paved roads w/curbs & sewers, HSG A
	237,150	30	Woods, Good, HSG A
	8,667	96	Gravel surface, HSG A
	619,024	38	Weighted Average
	597,101		96.46% Pervious Area
	21,923		3.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
50.1	100	0.0025	0.03		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
2.9	131	0.0230	0.76		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	91	0.4350	3.30		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
3.1	1,045	0.0100	5.55	29.58	**Parabolic Channel,** W=4.00' D=2.00' Area=5.3 sf Perim=5.9' n= 0.025 Earth, clean & winding
56.6	1,367	Total			

Subcatchment S9: EAST PORTION OF SITE



Summary for Pond 1P: 12" culvert off property

Inflow Area = 50.913 ac, 15.93% Impervious, Inflow Depth > 0.56" for 25-Year event
Inflow = 3.48 cfs @ 12.08 hrs, Volume= 2.386 af
Outflow = 2.49 cfs @ 14.13 hrs, Volume= 2.361 af, Atten= 29%, Lag= 123.1 min
Primary = 2.49 cfs @ 14.13 hrs, Volume= 2.361 af
Routed to Link A1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link A1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 226.39' @ 14.13 hrs Surf.Area= 10,121 sf Storage= 7,168 cf

Plug-Flow detention time= 47.0 min calculated for 2.361 af (99% of inflow)
Center-of-Mass det. time= 30.5 min (1,350.7 - 1,320.2)

Volume	Invert	Avail.Storage	Storage Description
#1	224.84'	228,449 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

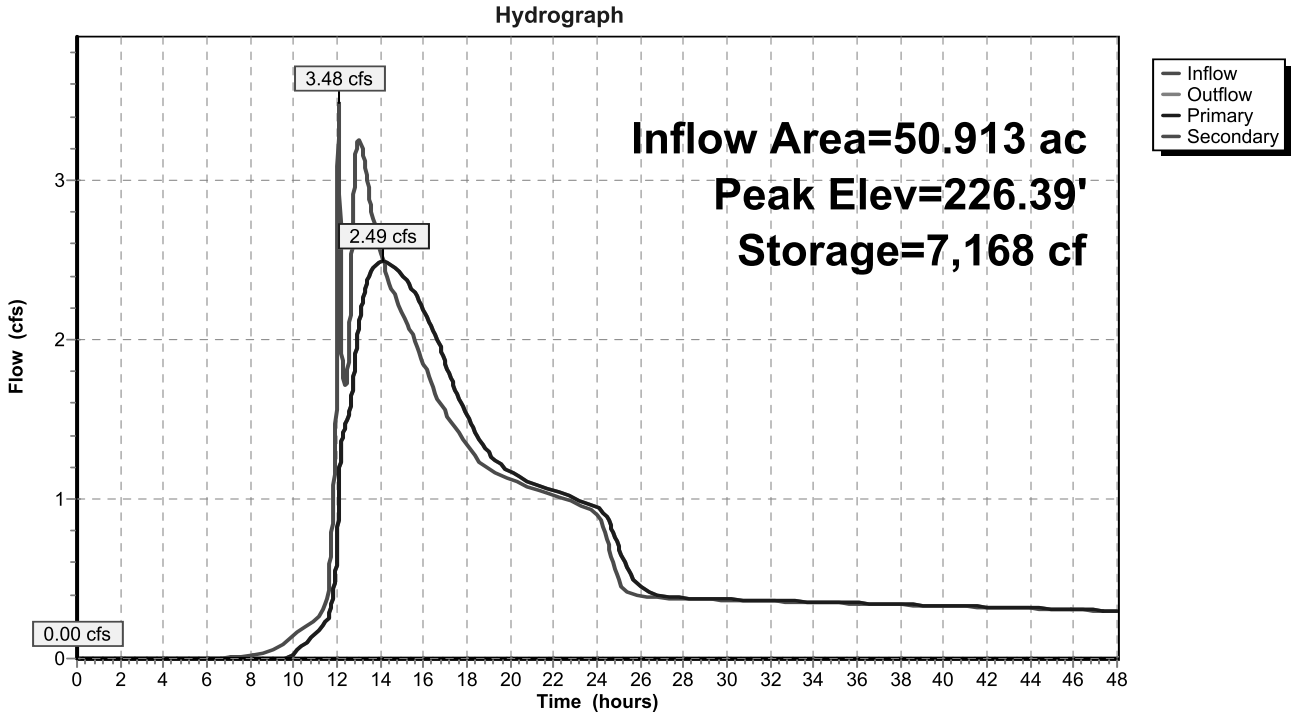
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
224.84	0	0	0
225.00	554	44	44
226.00	7,062	3,808	3,852
227.00	14,988	11,025	14,877
228.00	24,414	19,701	34,578
230.00	48,618	73,032	107,610
232.00	72,221	120,839	228,449

Device	Routing	Invert	Outlet Devices
#1	Primary	225.19'	**12.0" Round Culvert** L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 225.19' / 224.84' S= 0.0095 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	230.00'	**20.0' long + 3.0 '/' SideZ x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.49 cfs @ 14.13 hrs HW=226.39' (Free Discharge)
1=Culvert (Inlet Controls 2.49 cfs @ 3.17 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=224.84' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: 12" culvert off property



Summary for Pond P1: Gravel Wetland

Inflow Area = 13.163 ac, 31.44% Impervious, Inflow Depth = 1.58" for 25-Year event
Inflow = 19.49 cfs @ 12.08 hrs, Volume= 1.736 af
Outflow = 0.39 cfs @ 23.33 hrs, Volume= 1.082 af, Atten= 98%, Lag= 675.3 min
Primary = 0.39 cfs @ 23.33 hrs, Volume= 1.082 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 230.50' @ 23.33 hrs Surf.Area= 27,646 sf Storage= 58,061 cf

Plug-Flow detention time= 998.4 min calculated for 1.082 af (62% of inflow)
Center-of-Mass det. time= 878.6 min (1,731.1 - 852.5)

Volume	Invert	Avail.Storage	Storage Description
#1	228.00'	101,748 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

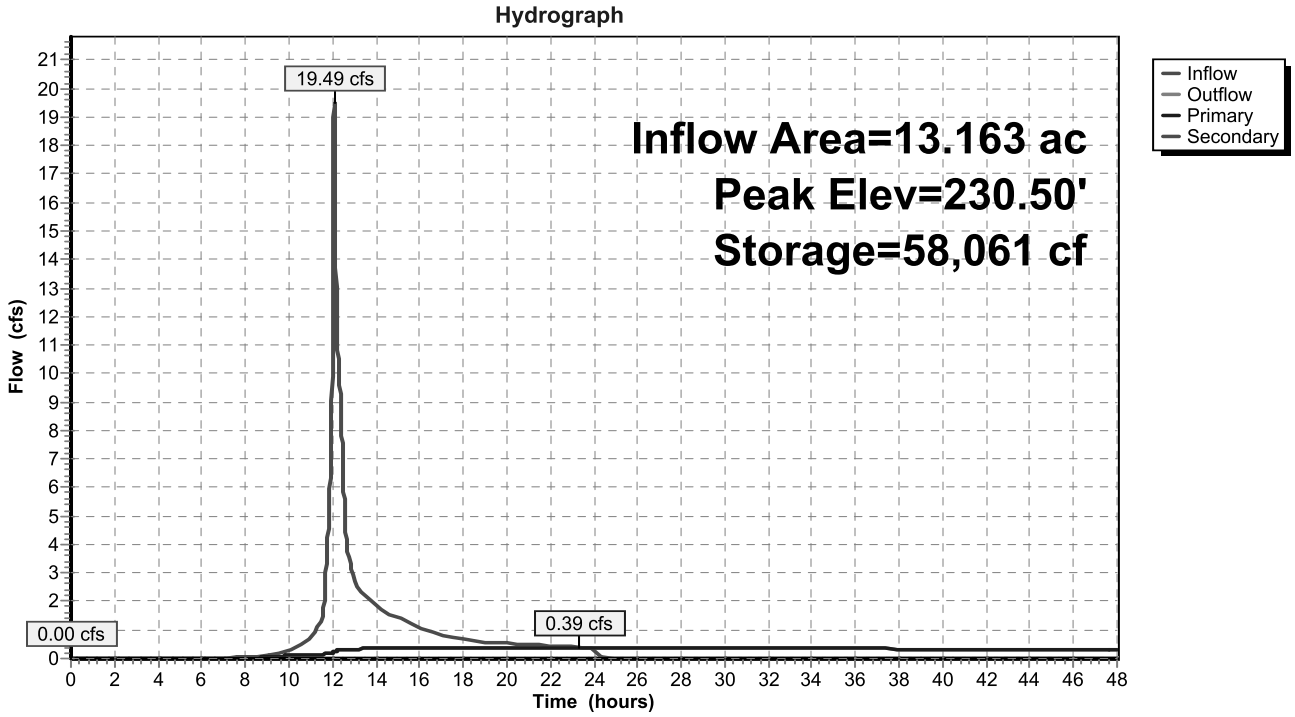
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
228.00	17,742	0	0
230.00	26,749	44,491	44,491
231.00	28,547	27,648	72,139
232.00	30,671	29,609	101,748

Device	Routing	Invert	Outlet Devices
#1	Secondary	231.50'	**20.0' long x 5.0' 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 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Device 4	227.67'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 4	231.00'	**2.5" x 2.5" Horiz. Orifice/Grate X 36.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	226.75'	**12.0" Round Culvert** L= 55.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 226.75' / 226.05' S= 0.0127 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.39 cfs @ 23.33 hrs HW=230.50' (Free Discharge)
└**4=Culvert** (Passes 0.39 cfs of 5.38 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 7.92 fps)
└**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=228.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P1: Gravel Wetland



Summary for Pond P2: CB-1

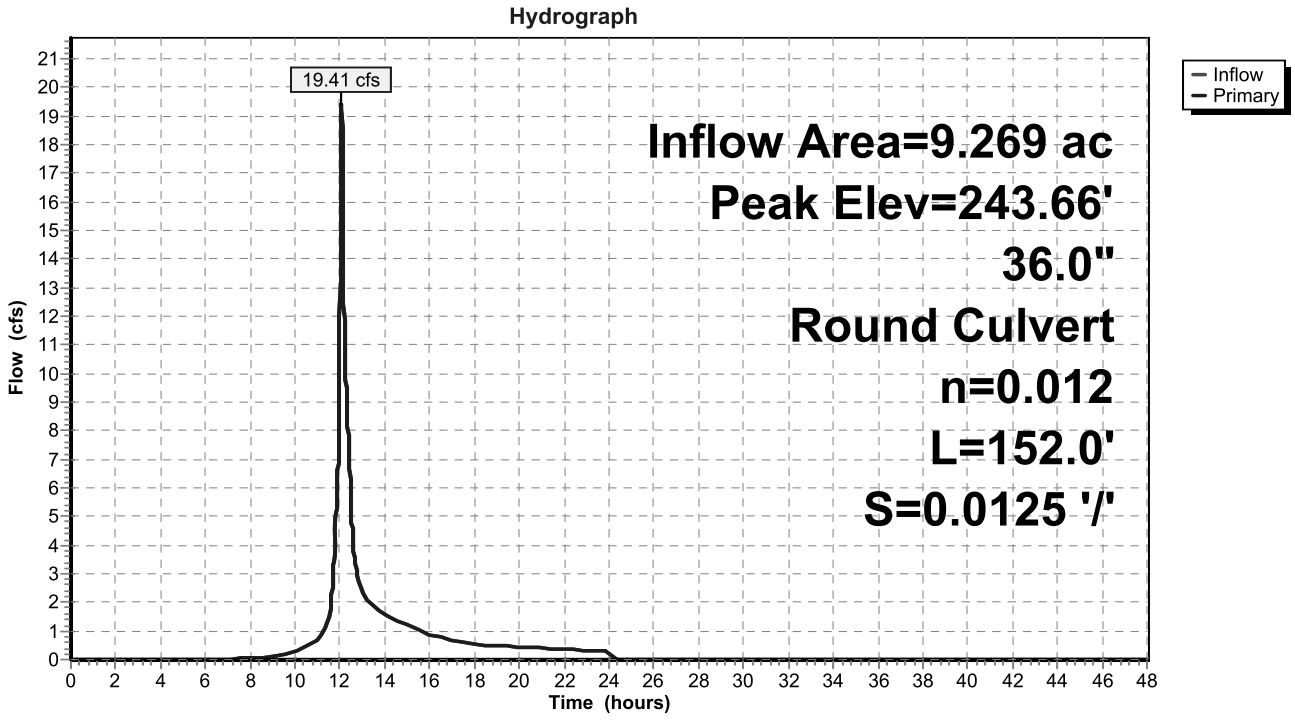
Inflow Area = 9.269 ac, 41.19% Impervious, Inflow Depth = 2.02" for 25-Year event
Inflow = 19.41 cfs @ 12.08 hrs, Volume= 1.558 af
Outflow = 19.41 cfs @ 12.08 hrs, Volume= 1.558 af, Atten= 0%, Lag= 0.0 min
Primary = 19.41 cfs @ 12.08 hrs, Volume= 1.558 af
Routed to Pond P1 : Gravel Wetland

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 243.66' @ 12.08 hrs
Flood Elev= 259.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	241.90'	**36.0" Round Culvert** L= 152.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 241.90' / 240.00' S= 0.0125 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 7.07 sf

Primary OutFlow Max=19.36 cfs @ 12.08 hrs HW=243.65' (Free Discharge)
1=Culvert (Inlet Controls 19.36 cfs @ 4.51 fps)

Pond P2: CB-1



Summary for Pond P3: CB-4

Inflow Area = 7.355 ac, 37.69% Impervious, Inflow Depth = 1.83" for 25-Year event
Inflow = 13.07 cfs @ 12.08 hrs, Volume= 1.122 af
Outflow = 13.07 cfs @ 12.08 hrs, Volume= 1.122 af, Atten= 0%, Lag= 0.0 min
Primary = 13.07 cfs @ 12.08 hrs, Volume= 1.122 af
Routed to Pond P2 : CB-1

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 250.02' @ 12.08 hrs Surf.Area= 531 sf Storage= 6 cf
Flood Elev= 251.00' Surf.Area= 25,384 sf Storage= 12,692 cf

Plug-Flow detention time= 0.0 min calculated for 1.121 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (843.8 - 843.8)

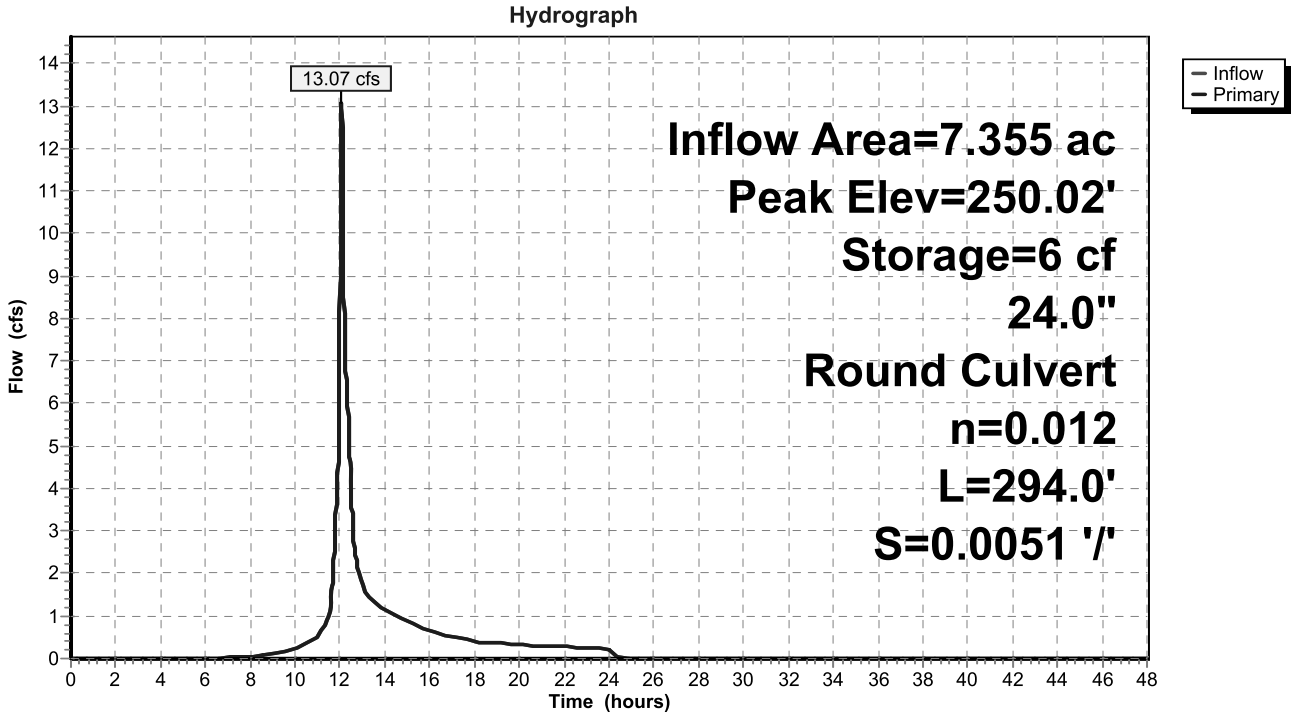
Volume	Invert	Avail.Storage	Storage Description
#1	250.00'	209,091 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
250.00	0	0	0
252.00	50,768	50,768	50,768
254.00	107,555	158,323	209,091

Device	Routing	Invert	Outlet Devices
#1	Primary	245.00'	**24.0" Round Culvert** L= 294.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 245.00' / 243.50' S= 0.0051 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=24.93 cfs @ 12.08 hrs HW=250.02' (Free Discharge)
1=Culvert (Barrel Controls 24.93 cfs @ 7.94 fps)

Pond P3: CB-4


Hydrograph
13.07 cfs
Inflow Area=7.355 ac
Peak Elev=250.02'
Storage=6 cf
24.0"
Round Culvert
n=0.012
L=294.0'
S=0.0051 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond P4: CB-20

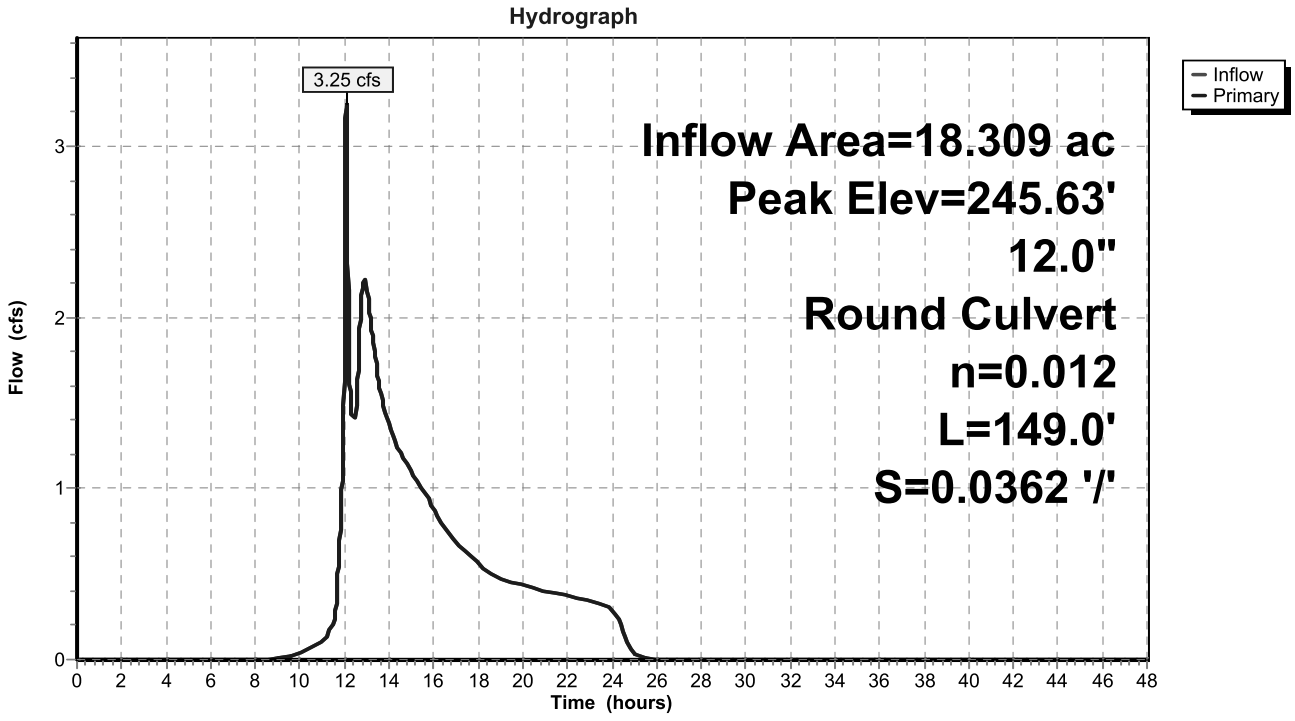
Inflow Area = 18.309 ac, 7.59% Impervious, Inflow Depth = 0.56" for 25-Year event
Inflow = 3.25 cfs @ 12.08 hrs, Volume= 0.860 af
Outflow = 3.25 cfs @ 12.08 hrs, Volume= 0.860 af, Atten= 0%, Lag= 0.0 min
Primary = 3.25 cfs @ 12.08 hrs, Volume= 0.860 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 245.63' @ 12.08 hrs
Flood Elev= 262.34'

Device	Routing	Invert	Outlet Devices
#1	Primary	244.39'	**12.0" Round Culvert** L= 149.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 244.39' / 239.00' S= 0.0362 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.24 cfs @ 12.08 hrs HW=245.63' (Free Discharge)
1=Culvert (Inlet Controls 3.24 cfs @ 4.13 fps)

Pond P4: CB-20



Summary for Pond P5: CB-16

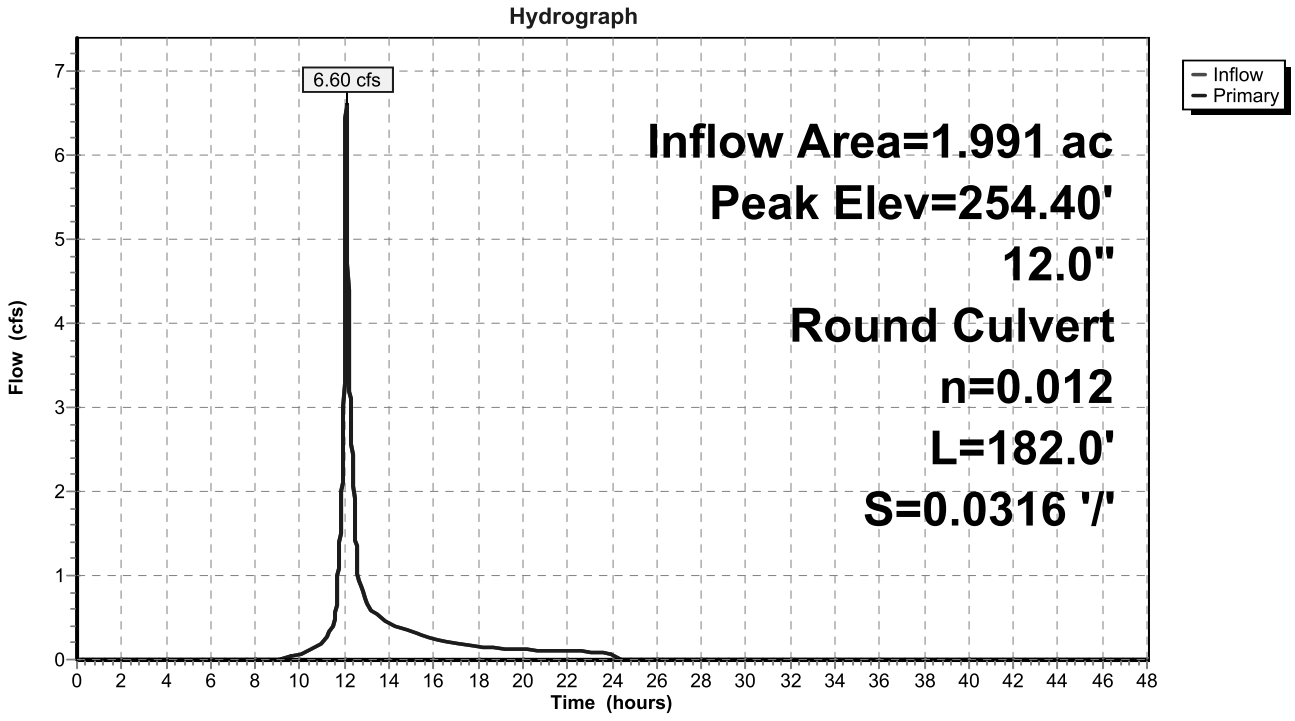
Inflow Area = 1.991 ac, 54.80% Impervious, Inflow Depth = 2.74" for 25-Year event
Inflow = 6.60 cfs @ 12.08 hrs, Volume= 0.454 af
Outflow = 6.60 cfs @ 12.08 hrs, Volume= 0.454 af, Atten= 0%, Lag= 0.0 min
Primary = 6.60 cfs @ 12.08 hrs, Volume= 0.454 af
Routed to Pond P3 : CB-4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 254.40' @ 12.08 hrs
Flood Elev= 255.87'

Device	Routing	Invert	Outlet Devices
#1	Primary	250.86'	**12.0" Round Culvert** L= 182.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 250.86' / 245.10' S= 0.0316 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.59 cfs @ 12.08 hrs HW=254.39' (Free Discharge)
1=Culvert (Inlet Controls 6.59 cfs @ 8.39 fps)

Pond P5: CB-16



Summary for Pond P6: CB-5

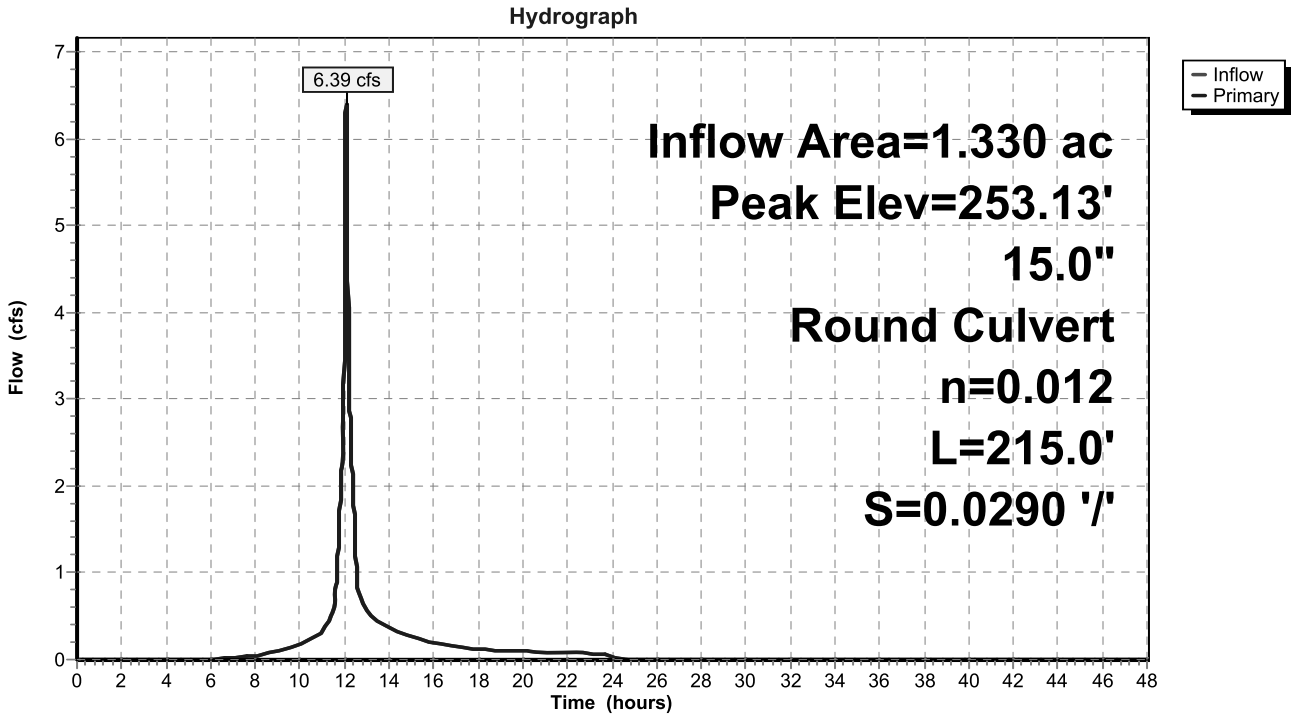
Inflow Area = 1.330 ac, 76.66% Impervious, Inflow Depth = 4.01" for 25-Year event
Inflow = 6.39 cfs @ 12.07 hrs, Volume= 0.444 af
Outflow = 6.39 cfs @ 12.07 hrs, Volume= 0.444 af, Atten= 0%, Lag= 0.0 min
Primary = 6.39 cfs @ 12.07 hrs, Volume= 0.444 af
Routed to Pond P3 : CB-4

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 253.13' @ 12.07 hrs
Flood Elev= 257.83'

Device	Routing	Invert	Outlet Devices
#1	Primary	251.33'	**15.0" Round Culvert** L= 215.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 251.33' / 245.10' S= 0.0290 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.38 cfs @ 12.07 hrs HW=253.12' (Free Discharge)
1=Culvert (Inlet Controls 6.38 cfs @ 5.20 fps)

Pond P6: CB-5



Summary for Pond P7: CULVERT OUT OF EXISTING DRAINAGE DITCH

Inflow Area = 16.006 ac, 14.36% Impervious, Inflow Depth = 0.30" for 25-Year event
Inflow = 0.87 cfs @ 13.27 hrs, Volume= 0.404 af
Outflow = 0.87 cfs @ 13.29 hrs, Volume= 0.404 af, Atten= 0%, Lag= 1.2 min
Primary = 0.87 cfs @ 13.29 hrs, Volume= 0.404 af
Routed to Pond 1P : 12" culvert off property
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 1P : 12" culvert off property

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 246.44' @ 13.29 hrs Surf.Area= 291 sf Storage= 108 cf

Plug-Flow detention time= 2.8 min calculated for 0.404 af (100% of inflow)
Center-of-Mass det. time= 2.8 min (1,027.6 - 1,024.8)

Volume	Invert	Avail.Storage	Storage Description
#1	246.00'	72,372 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

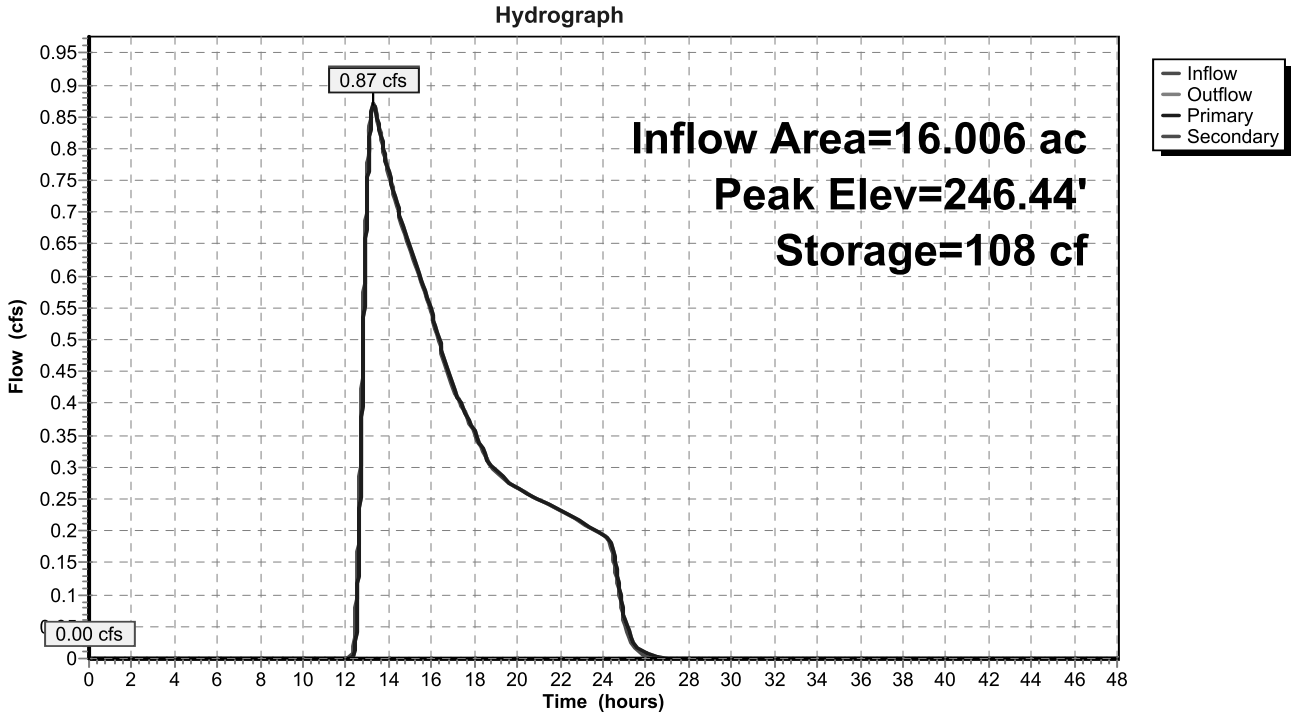
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
246.00	200	0	0
248.00	616	816	816
250.00	18,970	19,586	20,402
252.00	33,000	51,970	72,372

Device	Routing	Invert	Outlet Devices
#1	Primary	246.00'	**15.0" Round Culvert** L= 72.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 246.00' / 245.00' S= 0.0139 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Secondary	250.50'	**30.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.87 cfs @ 13.29 hrs HW=246.44' (Free Discharge)
1=Culvert (Inlet Controls 0.87 cfs @ 2.26 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=246.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P7: CULVERT OUT OF EXISTING DRAINAGE DITCH



Summary for Pond P8: Pond

Inflow Area = 1.796 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Year event
Inflow = 10.57 cfs @ 12.07 hrs, Volume= 0.832 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P7 : CULVERT OUT OF EXISTING DRAINAGE DITCH

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 248.85' @ 24.29 hrs Surf.Area= 44,053 sf Storage= 36,250 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

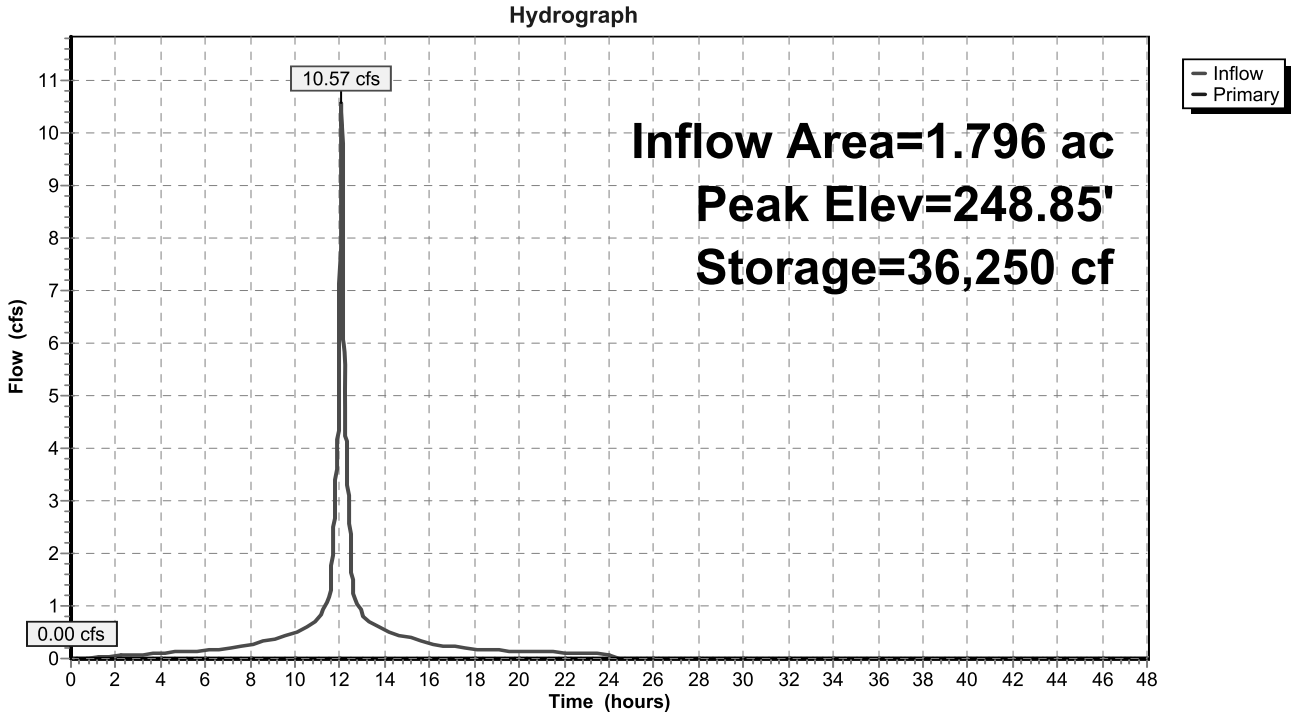
Volume	Invert	Avail.Storage	Storage Description
#1	247.99'	619,118 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
247.99	0	0	0
248.00	40,787	204	204
250.00	48,475	89,262	89,466
252.00	56,791	105,266	194,732
254.00	65,735	122,526	317,258
256.00	75,308	141,043	458,301
258.00	85,509	160,817	619,118

Device	Routing	Invert	Outlet Devices
#1	Primary	251.50'	**85.0' long x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=247.99' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond P8: Pond


Hydrograph
Inflow
Primary
10.57 cfs
0.00 cfs
Inflow Area=1.796 ac
Peak Elev=248.85'
Storage=36,250 cf
Flow (cfs)
Time (hours)
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
0 1 2 3 4 5 6 7 8 9 10 11

Summary for Pond P9: CB-25

Inflow Area = 17.363 ac, 4.91% Impervious, Inflow Depth = 0.44" for 25-Year event
Inflow = 1.88 cfs @ 12.93 hrs, Volume= 0.637 af
Outflow = 1.88 cfs @ 12.93 hrs, Volume= 0.637 af, Atten= 0%, Lag= 0.1 min
Primary = 1.88 cfs @ 12.93 hrs, Volume= 0.637 af
Routed to Pond P4 : CB-20

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 252.51' @ 12.93 hrs Surf.Area= 198 sf Storage= 1 cf
Flood Elev= 252.50' Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.637 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (993.5 - 993.4)

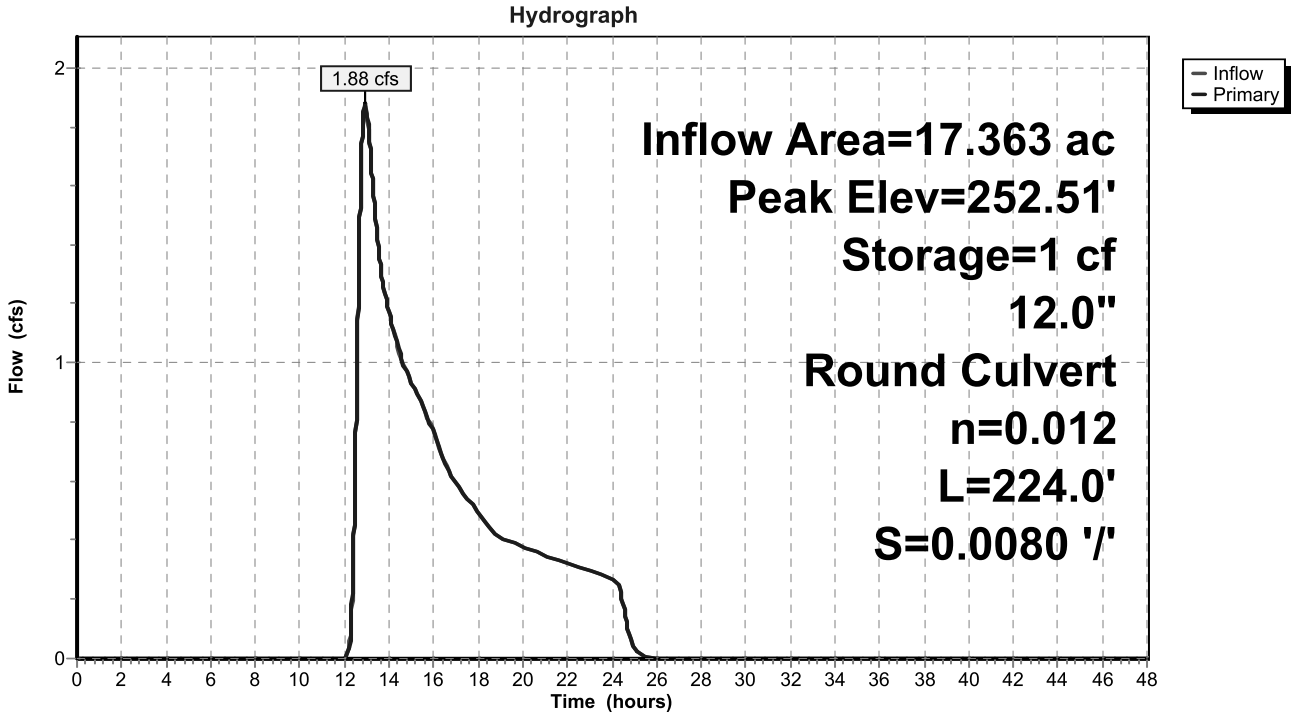
Volume	Invert	Avail.Storage	Storage Description
#1	252.50'	78,844 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.50	0	0	0
254.00	20,347	15,260	15,260
256.00	43,237	63,584	78,844

Device	Routing	Invert	Outlet Devices
#1	Primary	249.50'	**12.0" Round Culvert** L= 224.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 249.50' / 247.71' S= 0.0080 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.49 cfs @ 12.93 hrs HW=252.51' (Free Discharge)
1=Culvert (Barrel Controls 4.49 cfs @ 5.72 fps)

Pond P9: CB-25

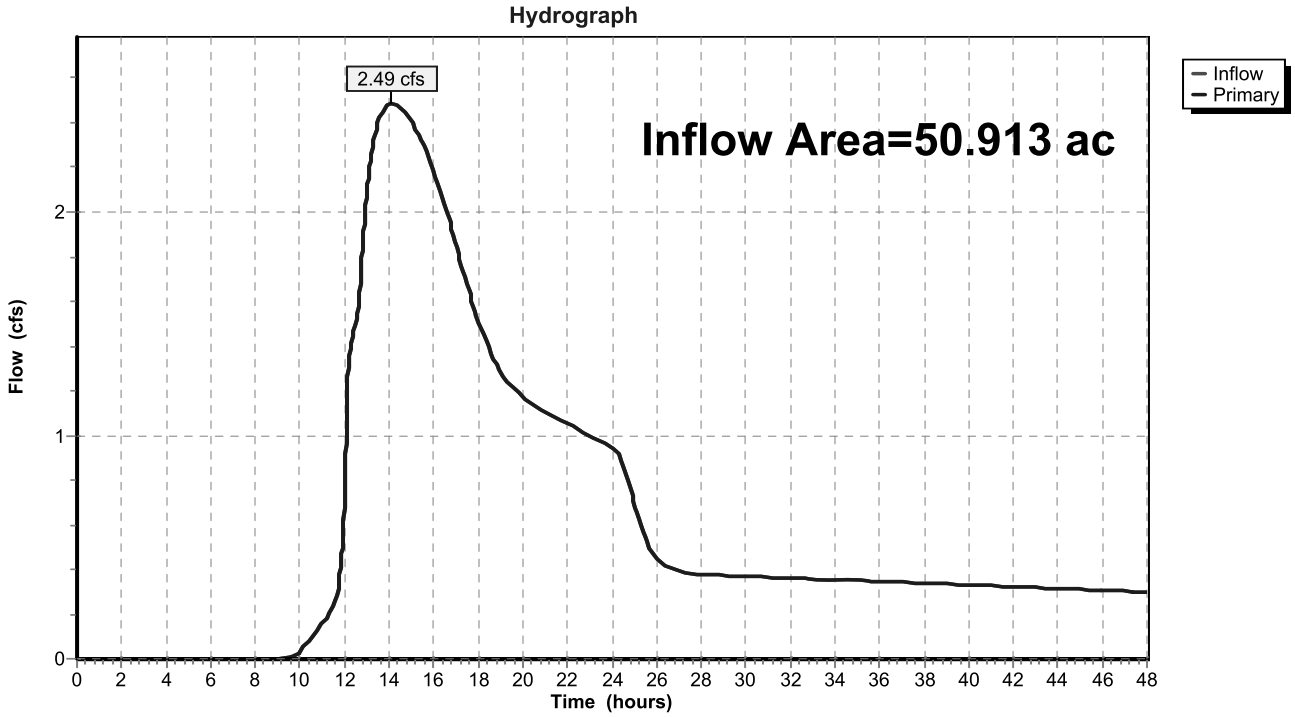

Hydrograph
1.88 cfs
Inflow Area=17.363 ac
Peak Elev=252.51'
Storage=1 cf
12.0"
Round Culvert
n=0.012
L=224.0'
S=0.0080 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Link A1:

Inflow Area = 50.913 ac, 15.93% Impervious, Inflow Depth > 0.56" for 25-Year event
Inflow = 2.49 cfs @ 14.13 hrs, Volume= 2.361 af
Primary = 2.49 cfs @ 14.13 hrs, Volume= 2.361 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link A1:



APPENDIX D

STORMWATER QUALITY BMP TREATMENT SIZING

SME
SEVEE & MAHER
ENGINEERS

SME
SEVEE & MAHER ENGINEERS
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 / Fax: 207.829.5692
smemaine.com

REDEVELOPMENT TREATMENT LEVEL CALCULATIONS

Project Name:	**B.R. Property, LLC**
Project Location:	**77 Blackstrap Road, Cumberland, ME**
Project No:	**230352**
By:	**BAB**
Date:	**12/15/2023**
Checked By:	**DPD**
Date:	**12/15/2023**

LISTING OF AREAS - EXISTING

Area	Pollutant Ranking 0	1	2	3	4	5	Notes
Gravel Pit				900,997			gravel pit
Trees	227,183						trees
Total	**227,183**	**0**	**0**	**900,997**	**0**	**0**	**1,128,180 TOTAL**

LISTING OF AREAS - PROPOSED

Area	Pollutant Ranking 0	1	2	3	4	5	Notes
Driveways				61,007			Driveways
Roadway				87,160			Roadway
Sidewalk				6,671			Sidewalk
House			75,699				House
transformers			2,300				transformers
decks			11,300				decks
patio			7,200				patio
walkways/paths-paved			18,357				
court/swing area			2,874				walkways/paths-paved
sheds			3,600				sheds-no garage units
Grass/trees	855,612						court/swing area
Total	**855,612**	**0**	**117,730**	**154,838**	**0**	**0**	**1,128,180 TOTAL**

EXISTING POLLUTANT RANKING CALCULATIONS

Land Use Type (from MEDEP Chapter 500)	(Square Feet)	(Acres)	Pollutant Ranking	Total Score
Other Roads/Medium Use Parking Lots	0	0.00	4	0.00
Other Parking/Industrial Roofs	900,997	20.68	3	62.05
Other Rooftops/Lawn Areas/Gravel	0	0.00	2	0.00
Landscaped/Stormwater Treatment System	0	0.00	1	0.00
Forest; Meadow mowed no more than twice per yr	227,183	5.22	0	0.00
Total	**1,128,180**	**25.90**	**EIR**	**62.05**

PROPOSED POLLUTANT RANKING CALCULATIONS

Land Use Type (from MEDEP Chapter 500)	(Square Feet)	(Acres)	Pollutant Ranking	Total Score
Other Roads/Medium Use Parking Lots	0	0.00	4	0.00
Other Parking/Industrial Roofs	154,838	3.55	3	10.66
Other Rooftops/Lawn Areas/Gravel	117,730	2.70	2	5.41
Landscaped/Stormwater Treatment System	0	0.00	1	0.00
Forest; Meadow mowed no more than twice per year	855,612	19.64	0	0.00
Total	**1,128,180**	**25.90**	**PIR**	**16.07**

EIR / Redeveloped Acres = **2.4**

PIR / Redeveloped Acres = **0.6**

Ranked Impact Change Due to Redevelopment = **-1.8**

50% treatment is required per Table 3 of Chapter 500 = 564,090 sq ft (12.95 acres)

Total Redeveloped Area (from above table) = 1,128,180

Developed Area Treated (from Stormwater Sizing Calculations) = 572,204

Treatment Percentage Provided = **50.7%**

APPENDIX E

REDEVELOPMENT CALCULATIONS

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ENGINEERS

SME
SEVEE & MAHER ENGINEERS
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 / Fax: 207.829.5692
smemaine.com

REDEVELOPMENT TREATMENT LEVEL CALCULATIONS

Project Name:	**B.R. Property, LLC**
Project Location:	**77 Blackstrap Road, Cumberland, ME**
Project No:	**230352**
By:	**BAB**
Date:	**12/15/2023**
Checked By:	**DPD**
Date:	**12/15/2023**

LISTING OF AREAS - EXISTING

Area	Pollutant Ranking 0	1	2	3	4	5	Notes
Gravel Pit				900,997			gravel pit
Trees	227,183						trees
Total	**227,183**	**0**	**0**	**900,997**	**0**	**0**	**1,128,180 TOTAL**

LISTING OF AREAS - PROPOSED

Area	Pollutant Ranking 0	1	2	3	4	5	Notes
Driveways				61,007			Driveways
Roadway				87,160			Roadway
Sidewalk				6,671			Sidewalk
House			75,699				House
transformers			2,300				transformers
decks			11,300				decks
patio			7,200				patio
walkways/paths-paved			18,357				
court/swing area			2,874				walkways/paths-paved
sheds			3,600				sheds-no garage units
Grass/trees	855,612						court/swing area
Total	**855,612**	**0**	**117,730**	**154,838**	**0**	**0**	**1,128,180 TOTAL**

EXISTING POLLUTANT RANKING CALCULATIONS

Land Use Type (from MEDEP Chapter 500)	(Square Feet)	(Acres)	Pollutant Ranking	Total Score
Other Roads/Medium Use Parking Lots	0	0.00	4	0.00
Other Parking/Industrial Roofs	900,997	20.68	3	62.05
Other Rooftops/Lawn Areas/Gravel	0	0.00	2	0.00
Landscaped/Stormwater Treatment System	0	0.00	1	0.00
Forest; Meadow mowed no more than twice per yr	227,183	5.22	0	0.00
Total	**1,128,180**	**25.90**	**EIR**	**62.05**

PROPOSED POLLUTANT RANKING CALCULATIONS

Land Use Type (from MEDEP Chapter 500)	(Square Feet)	(Acres)	Pollutant Ranking	Total Score
Other Roads/Medium Use Parking Lots	0	0.00	4	0.00
Other Parking/Industrial Roofs	154,838	3.55	3	10.66
Other Rooftops/Lawn Areas/Gravel	117,730	2.70	2	5.41
Landscaped/Stormwater Treatment System	0	0.00	1	0.00
Forest; Meadow mowed no more than twice per year	855,612	19.64	0	0.00
Total	**1,128,180**	**25.90**	**PIR**	**16.07**

EIR / Redeveloped Acres = **2.4**

PIR / Redeveloped Acres = **0.6**

Ranked Impact Change Due to Redevelopment = **-1.8**

50% treatment is required per Table 3 of Chapter 500 = 564,090 sq ft (12.95 acres)

Total Redeveloped Area (from above table) = 1,128,180

Developed Area Treated (from Stormwater Sizing Calculations) = 572,204

Treatment Percentage Provided = **50.7%**

APPENDIX F

POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN

SME
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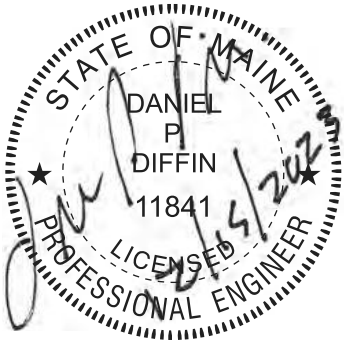
POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN
MINERAL SPRINGS SUBDIVISON
BLACKSTRAP ROAD
CUMBERLAND, MAINE

Prepared for

B.R. PROPERTY, LLC
39 Nubbin Reach
Yarmouth, Maine



December 2023

4 Blanchard Road
P.O. Box 85A
Cumberland, Maine 04021
Phone: 207.829.5016 smemaine.com

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POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN
MINERAL SPRING SUBDIVISON
BLACKSTRAP ROAD
CUMBERLAND, MAINE

1.0 SITE DESCRIPTION

B.R. Property, LLC, a condominium developer, is proposing a 72-unit condominium development on a 40.1-acre parcel of land off Blackstrap Road in Cumberland, Maine. The condominium development will be constructed to reclaim the historical active gravel pit to provide housing for residents within the surrounding Southern Maine area. The site has been an active gravel pit for many years, first owned and operated by BlueRock Paving prior to ownership by B.R. Property, LLC. The site location is shown on Figure 1, Site Location Map on a 7.5-Min USGS Topo Quad Map. More details on the project site are shown in the engineering drawing set provided with this application.

The project area is bordered to the north by Blackstrap Road, the east by the Maine Turnpike (I95), the west by the West Cumberland Community Cemetery, and the south by Upper Methodist Road. The property within the project area was previously used to extract gravel from the earth to supply for infrastructure and construction projects throughout Maine. The ground surface is relatively flat with the entire site draining to a singular area. The site generally slopes from north to south, causing a drainage point along the southern boundary of the site. Additional detail describing site features, topography, and surface drainage patterns is provided in the Stormwater Management Report included in Section 12 of this application.

The condominium complex, Mineral Springs Subdivision, will include 36 affordable homes with no garage, 19 market-rate units with a 1-bay garage, 17 market-rate units with a 2-bay garage. The project will be accessed through a 2,900-linear-foot road with two access points, utilizing the existing pit entrance off Blackstrap Road and an additional access off Upper Methodist Road. The condominium complex will include walking paths around the site for condominium owners and the public to enjoy the reclaimed and revegetated gravel pit area.

The current use of the property is a completed gravel pit which has been operated out of for years. The wetlands were investigated and it was determined that there were no wetlands within the project site. No wetland impacts are anticipated for the duration of this project. Additionally, no streams or vernal pools have been identified within the project area. A copy of the Wetland Reconnaissance Memorandum from Mark Hampton Associates is included in Section 11 of this application submission.

The overall construction of the project will create approximately 25.89 acres of existing developed area; 4.95 acres of this areas will be classified as impervious. The structures will be developed by B.R. Property, LLC and sold to individual property owners. The proposed condominium complex will include

redevelopment of approximately 25.89 acres, including 24.52 acres of existing impervious area. The project will replace the existing developed areas with a total of 4.95 acres of impervious area for roadway, sidewalks, houses, driveways, decks, and storage sheds. Areas All other areas within the parcel will be returned to original condition, prior to pit operations.

Stormwater management for this project will be accomplished using multiple devices, including one gravel wetland, closed storm drains, catch basins, manholes, culverts, and drainage channels for treatment of stormwater runoff to MEDEP Chapter 500 standards. Storage in the gravel wetland will be used to attenuate peak flow runoff from the proposed development to meet flooding standard requirements while providing quality treatment of stormwater runoff.

2.0 FACILITY CONTACTS

Facility:	Mineral Springs Subdivision Blackstrap Road Cumberland, Maine
Owner Representative:	B.R. Property, LLC 39 Nubbin Reach Yarmouth, Maine David Chase Telephone: 207-776-3031 Email: dave@allinconstructioninc.com
Maintenance Responsibility:	B.R. Property, LLC 39 Nubbin Reach Yarmouth, Maine David Chase Telephone: 207-776-3031 Email: dave@allinconstructioninc.com
Consultant/Designer:	Sevee & Maher Engineers 4 Blanchard Road Cumberland, Maine 04021 Daniel P. Diffin, P.E. Telephone: 207-829-5016 Email: dpd@smemaine.com

The contractor hired by B.R. Property, LLC will be responsible after Year 1 for inspection and maintenance of the gravel wetland and stormwater devices, and will have knowledge of erosion and stormwater control, including the standards and conditions in the permit. Post-construction documentation and inspection logs will be maintained by B.R. Property, LLC for a period to exceed five years, as required by Chapter 500.

3.0 POST-CONSTRUCTION STORMWATER MANAGEMENT PLAN OVERVIEW AND OBJECTIVES

The Post-Construction Stormwater Management Plan (PSWMP) is an important component of the overall stormwater management system for the site. The PSWMP addresses various maintenance activities that should occur after construction and site stabilization. Proper implementation of the PSWMP can minimize pollutant generation and transport and maintain the stormwater treatment system to ensure proper operation. This PSWMP includes three primary components:

1. Site Management Practices;
2. Inspections; and
3. Routine Maintenance and Corrective Actions.

3.1 Site Management Practices

Site management practices are aimed at reducing pollutants by minimizing use of certain materials, using alternative materials, or removing pollutants prior to discharge to the stormwater treatment system. These practices shall include:

- Use slow-release sulfur or plastic coated ureaform fertilizers (e.g., Nutralene);
- Do not fertilize vegetated swales once vegetation is established;
- Minimize use of pesticides by using a sound integrated pest management (IPM) approach to monitor and control the actual pests present;
- Collect and remove autumn leaves to minimize transport to the stormwater treatment system;
- Minimize use of de-icing materials and sand;
- Routine sweeping of parking areas and driveways;
- Fertilizers, pesticides and other hazardous materials should be stored in enclosed areas to avoid exposure to precipitation; and
- Material handling should be conducted to minimize risk of spillage and release to the stormwater treatment system.

3.2 Inspections

A series of routine inspections shall be completed to allow for the early identification of potential problems, and to guide routine maintenance activities. Inspections shall be carried out in accordance with the Schedule in Table 1. Dates and observations shall be recorded for each inspection on the attached 'Inspection Log' sheets for the BMPs.

3.3 Routine Maintenance and Corrective Actions

Routine maintenance activities are designed to ensure proper function of the stormwater management system and minimize pollutant transport from the site. Routine maintenance activities must be completed according to the schedule (Table 1) provided in this plan. This schedule is the minimum amount of maintenance required; maintenance that is more frequent may be needed when indicated by the inspections. Corrective actions (supplemental maintenance activities or repairs) should be started within the following workday and should be completed within seven days of the inspection identifying the problem. Each maintenance activity will be recorded on the attached 'Maintenance and Repair Log'.

During construction, the Sitework Contractor (not yet selected by Bid process) shall be responsible for cleaning and maintaining stormwater components on the schedule outlined in Table 1.

Following completion of construction, HEP will be responsible for cleaning and maintaining stormwater components on the schedule outlined in Table 1.

Place removed sediments in an area of low erosion potential, either on-site or off-site, and seed with erosion control seed mix.

The following describes specific stormwater facilities maintenance requirements and minimum schedule of inspection and maintenance.

1. Open swales and ditches need to be inspected in the spring and fall, or after a major rainfall event, to assure that debris or sediments do not reduce the effectiveness of the system. Debris needs to be removed at that time. Sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the structure and proper functioning. Swales that show newly formed channels or gullies will be immediately repaired by reseeding/sodding of bare spots, removal of trash, leaves and/or accumulated sediments, and the control of woody or other undesirable vegetation.
2. Vegetated ditches should be mowed at least once during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated.
3. If sediment in culverts or piped drainage systems exceeds 20 percent of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing or other mechanical means; however, care should be taken to not flush the sediments into the filter basins or retention/detention pond as it will reduce the pond's capacity and hasten the time when it must be cleaned. Storm pipes should be inspected on an annual basis.
4. Outlet control structures shall be cleaned of debris and sediment at least annually to minimize clogging and transportation of sediment during rainfall events.

5. Paved/concrete surfaces shall be swept or vacuumed at least annually in the spring to remove winter sand and periodically during the year on an as-needed basis to minimize the transportation of sediment during rainfall events.
6. The vegetated meadow buffer areas shall be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched. Mowing shall occur no more than twice per year; buffers may not be maintained as a lawn.
7. Catch basin sumps and the outlet control structures shall be cleaned of debris and sediment at least annually to minimize clogging and transportation of sediment during rainfall events.
8. Some erosion may occur at the inflow point of the soil filter basins and gravel wetlands. This needs to be corrected, as necessary. The surface of the treatment basins may clog with fine sediments over time. Maintenance of good grass cover will minimize this. Grass should be mowed not more than two times per season. Any bare areas should be seeded or sodded, as necessary. Inspect the basin's drainage area semi-annually for eroding soil and other sediment sources. Repair eroding areas using appropriate erosion control BMPs immediately. Control sediment sources, such as stockpiles of winter sand, by removing them from the basin's drainage area or surrounding them with sediment control BMPs. Prohibit vehicle access to all filtration areas. Heavy equipment used to maintain or rehabilitate the basins should work from the basin's perimeter.
9. Gravel Wetlands shall be inspected after every major storm (2 inches of rainfall in a 24-hour period) during the first 6 months following construction to ensure proper operation. Thereafter, the facilities shall be inspected at least once every six months following significant rainfall to ensure that the facility is draining between 24 and 48 hours. The plants may need watering, if necessary, during the first growing season. Revegetate if the vegetation is poorly establishing. Identify areas of erosion and make timely repairs. Check all inlets, outlets, and subdrains for proper functioning. Risers may need to be cleaned.
10. Property owners/homeowners' associations shall be educated on the purpose, limits, and allowable use of the buffers.
11. If flows begin to channelize outside of the proposed swales, level spreaders shall be installed prior to the buffers to insure sheet flow through the buffers.

3.4 Housekeeping

1. Spill Prevention. Provide controls to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.
2. Groundwater Protection. Do not handle or store liquid petroleum products and other hazardous materials with the potential to contaminate groundwater in areas of the site draining to an

infiltration area. An “infiltration area” is any area of the site that by design or as a result of soils, topography, and other relevant factors, accumulates runoff that infiltrates into the soil. Provide dikes, berms, sumps, and other forms of secondary containments that prevent discharge to groundwater to isolate portions of the site for the purposes of storage and handling of these materials.

3. Fugitive Sediment and Dust. Provide measures to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control. If off-site tacking occurs, roadway must be swept immediately and no less than once a week prior to a significant stormwater event.

4. Debris and Other Materials. Prevent litter, construction debris, and chemicals exposed to stormwater from becoming a pollutant source.

5. Trench or Foundation Dewatering. Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. Remove the collected water from the ponded area and dispose of in accordance with notes on Drawing C-300 and the project specifications.

6. Non–stormwater Discharges. Identify and prevent contamination by non-stormwater discharges.

7. Additional Requirements. Additional requirements may be applied on a site-specific basis.

3.5 MEDEP 5-Year Re-certification

Submit a certification of the following to the department within three months of the expiration of each five-year interval from the date of issuance of the permit.

a. Identification and Repair of Erosion Problems. All areas of the project site have been inspected for areas of erosion and appropriate steps have been taken to permanently stabilize these areas.

b. Inspection and Repair of Stormwater Control System. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction and appropriate steps have been taken to repair or replace the system, or portions of the system.

c. Maintenance. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.

TABLE 1

LONG-TERM INSPECTION AND MAINTENANCE PLAN

	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years
Vegetated Areas				
Inspect all slopes and embankments	X		X	
Replant bare areas or areas with sparse growth	X		X	
Armor areas with rill erosion with an appropriate lining or divert the erosive flows to on-site areas able to withstand concentrated flows.	X		X	
Stormwater Channels				
Inspect ditches, swales and other open stormwater channels	X	X	X	
Remove any obstructions and accumulated sediments or debris	X	X		
Control vegetated growth and woody vegetation		X		
Repair any erosion of the ditch lining		X		
Mow vegetated ditches		X		
Remove woody vegetation growing through riprap		X		
Repair any slumping side slopes		X		
Replace riprap where underlying filter fabric is showing or where stones have dislodged		X		
Culverts				
Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit	X	X	X	
Repair any erosion damage at the culvert's inlet and outlet	X	X	X	
Catch Basin Systems/Outlet Control Structures				
Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins	X	X		
Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such, and dispose in a legal manner	X	X		
Concrete Surfaces				
Clear accumulated winter sand in parking lots and along roadways	X			
Sweep pavement to remove sediment	X			
Grade road shoulders and remove excess sand either manually or by front-end loader	X			
Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	X			
Rake and replace Superhumus in areas where necessary				
Grassed Underdrained Soil Filters				
Inspect soil filter to see that collected water drains within 24-48 hours of a storm.	X	X	X	
Rototill top 6” soil, or remove and replace the top 3” to 4” of filter soil with clean soil to the proper specification, when the bed fails to drain dry 72 hours after a storm				X
Remove accumulated sediment, dead portions of plants, excessive growth, and weeds.		X		

	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years
Mow grass-covered filter bed no shorter than 6", at a frequency of no more than 2 times per growing season to maintain a high-grass meadow. Do not fertilize unless absolutely needed.	X	X		
Vegetated Meadow Buffers				
Inspect buffers for signs of erosion or concentrated flows through or around buffer		X	X	
Mow grass in buffer no shorter than 6", no more than twice per year	X	X		
Rototill top 6" soil or remove and replace the top 3" to 4" of filter soil with clean soil to the proper specification when the bed fails to drain dry within 24 to 48 hours.				X
Remove accumulated sediment, dead portions of plants, excessive growth, and weeds.		X		
Mow grass-covered filter bed no shorter than 6", at a frequency of no more than 2 times per growing season, to maintain a high-grass meadow. Do not fertilize unless absolutely needed.	X	X		
Gravel Wetlands				
Check the basin for a dense root mat establishment of wetland vegetation.	X	X	X	
Check and clean the risers if there is evidence of standing water, discolored water or accumulated sediments in the cells.	X	X	X	
Check and clean the forebay for sediments, trash and debris. When sediments have accumulated to a depth of 12 inches, standing water is persistent or wetland vegetation become established, the forebay will need to be excavated and reformed	X	X	X	
Check and clean all outlets and overflow spillway if blocked or there is evidence of structural damage or erosion.	X	X	X	
Remove decaying vegetation, litter and debris.	X		X	
Check for foreign species. Particular care must be used to avoid the unintended introduction of invasive species such as purple loosestrife (Lythrum salicaria) and common reed (Phragmites australis). It is recommended that a qualified wetland biologist be consulted when these are found in the area of the gravel wetland.		X		X
Buffers				
Buffers and level spreaders should be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched.		X		

The maintenance needs for most vegetative and stabilization measures may be found in the Maine Erosion and Sediment Control BMPs manual as published in 2016 (or latest version) and/or the Maine Stormwater Best Management Practices Manual.

GRAVEL WETLAND #1 INSPECTION LOG

Date	Device/Area Inspected	Inspected By	Observations, Deficiencies & Recommended Corrective Actions

MAINTENANCE AND REPAIR LOG

Date	Device/Area Inspected	Inspected By	Observations, Deficiencies & Recommended Corrective Actions

Section 5O
Freshwater Wetlands

A wetland delineation was done by Mark Hampton Associates in September 2023. The wetlands found on site are not jurisdictional wetlands to either the State or Federal agencies. The wetlands found were constructed as sediment control structures by the gravel pit owners and since they are man-made, they are not jurisdictional and can be filled in. Mark Hampton Associates wetland report is included with this section.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

7692

October 26, 2023

Mr. David Chase
B. R. Property LLC
39 Nubbin Reach
Yarmouth, ME 04096

Re: Wetland Delineation, 77 Blackstrap Road, Cumberland, ME

Dear Dave,

In September of this year, I completed a delineation of wetlands of the property located at 77 Blackstrap Road Cumberland, ME. The wetland delineation was completed in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Northcentral and Northeast Regions dated January 2012. These manuals require the presence of three parameters for a wetland to be present, wetland hydrology, hydrophytic vegetation, and hydric soils.

The wetlands I found on the parcel were flagged with yellow flagging. The flagging was labeled in an alphanumeric sequence. The wetland flags were located by GPS equipment capable of locating a point to within three feet. The wetland information was forwarded to Sevee & Maher Engineers. The wetlands found on the parcel do not meet the definition of wetlands of special significance as defined by Maine Department of Environmental Protection.

The wetlands found onsite are not jurisdictional wetlands to either the State or Federal agencies. The property is a completed gravel pit which has been operated for decades. The wetlands found on the parcel on not naturally occurring, in fact the wetlands found onsite are in fact man-made sediment control structures. Almost then entire former operating pit floor drain to these sediment basins. The structures have never been maintained and have filled up with sediment and become water bodies and support the growth of hydrophytic vegetation. Since these areas are man-made, they are not jurisdictional wetlands and can be filled in.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mnampton@maine.rr.com

Quality services that meet your deadline

Section 5P
River, Stream or Brook

Not applicable. No rivers, streams or brooks have been identified on or abutting the property.

Section 6
Article IX General Requirements

§ 250-28. Considerations for approval.

In reviewing applications for the subdivisions of land, the Planning Board shall consider the following general requirements. In all instances the burden of proof shall be upon the applicant. *Requirements are below in italics* with the applicant's responses in blue.

§ 250-29. Review and approval by other agencies.

Where review and approval of any subdivision by any other governmental, quasi-governmental agency or public utility is required, evidence of the status of such approval shall be submitted to the Planning Board in writing with the submission of the final application. This project requires a Site Location of Development Act (SLODA) permit from the Maine DEP. The application was submitted December 22, 2023. The DEP has 14 working days to deem the application complete and then a statutory deadline of 195 days after that to process the application. We believe the statutory deadline to process this application is July 29, 2024.

The project proposes to be served by water from the Portland Water District. The Town of Cumberland is extending a 16 inch dia. water main up Blackstrap Road from Route 100 to the project site in order to provide water for this project, and future projects in this area. The developer will connect to the 16 inch main with an 8 inch dia. main which will be routed through the development to serve the homes and fire hydrants.

§ 250-30. Conformity with other state and local regulations.

Any proposed subdivision shall be in conformity with a comprehensive plan or policy statement of the municipality and with the provisions of all pertinent state and local codes and ordinances. The project has been designed to meet all state and local ordinances. The project has been designed under the West Cumberland Housing Overlay District which was written to encourage affordable housing in the Town of Cumberland which this project does.

§ 250-31. Common open spaces.

Common open spaces in a conservation or clustered subdivision should comply with the following requirements:

A. *Land reserved for park and/or recreational purposes shall be of a character, configuration and location suitable for the particular use intended.* The project proposes approximately 25 acres out of the 40 acres as open space. The open space includes active recreation areas such as a basketball court, swing set area, multi purpose grass play area, and passive recreation areas with a pond, park space and walking trails. All homes boarder on the open space and all open space is linked and accessible to the homeowners with walking trails or sidewalks.

B. *When the proposed subdivision is located on a lake, pond, river, or stream, the Planning Board may require, when feasible, that the developer include a portion of the water frontage as part of the common open space.* The proposed project does not front on a lake, pond, river or stream. Although a pond is proposed as part of the project.

C. *The provisions of this section shall not apply to multiplex dwellings, mobile home parks, or Residential Care Facilities. The retention of common open space in Dwellings, Mobile Home Parks or Residential Care Facilities is governed by Chapter 315, Zoning, §§ 315-44, 315-56 and 315-71.*

§ 250-32. Preservation of natural features.

A. *The Planning Board may require that a proposed subdivision design include a landscape plan that will show the preservation of existing trees (10 inches in diameter or more), the replacement of trees and vegetation, graded contours, streams and the preservation of scenic, historic, or environmentally desirable areas. The street and lot layout shall be adapted to the topography, and extensive grading and filling shall be avoided.* The project site is an existing gravel pit with all but the perimeter having been disturbed at some point in its history. A landscape plan has been prepared that shows the majority of existing trees around the perimeter being left undisturbed, and the rest of the site that was gravel pit being revegetated in a number of ways.

1. The first way is that the "developed area" adjacent to proposed homes, street r.o.w. and some of the open space will be loamed and seeded for use as lawn area. Street and ornamental trees are proposed to be planted in this area as well.
2. The next proposed landscape type is the area adjacent to the above developed area which will be part of the open space. This "limited maintenance" area is proposed to be seeded with a limited maintenance mix and mowed two or three times a per year to keep the area as a meadow or field. A variety of trees are planted throughout this area as well.
3. The area outside this limited maintenance area is labeled "un-maintained natural area" which is proposed to be loamed and seeded, and planted in places where buffering is desired with evergreen trees, and then left to grow up naturally. See L-1 Landscape Overview Plan for more information.

B. *A subdivision in which the land cover type at the time of application is forested shall maintain a wooded buffer no less than 75 feet in width along all existing streets. Buildings shall be located within forested portions of the subdivision when the Planning Board determines that to do so will preserve scenic vistas from the street. When the subdivision contains no forest or insufficient forested portions to include the buildings, the subdivision shall be designed to minimize the appearance of buildings when viewed from existing streets.* The existing site is a gravel pit. There is vegetation around the project site's perimeter that will remain, and the proposed homes will be at a much lower elevation than the surrounding homes with the exception of the four homes proposed to front on Upper Methodist Road. The majority of the proposed homes being at a lower elevation, along with the existing perimeter vegetation will help minimize views of the proposed development from travelers and residents on Blackstrap and Upper Methodist Roads

§ 250-33. Utilities.

A. *The size, type and location of public utilities, such as streetlights, electricity, telephones, gas lines, fire hydrants, etc. shall be approved by the Planning Board and installed in accordance with local practice.* All utilities are shown on the plans and are proposed to meet Town standards. We are working with the Town of Cumberland's street lighting provider RTE Energy Services. The lighting catalog sheets are included in section 8 and a photometric

plan is included with the plan set.

B. *Utilities shall be installed underground except as otherwise approved by the Planning Board.* All utilities are proposed to be installed underground.

C. *The provisions of this section shall not apply to mobile home parks. The installation and location of utilities in mobile home parks are governed by Chapter 315, Zoning, § 315-56.*

§ 250-34. Water supply.

A. *A public water supply system with fire hydrants shall be installed at the expense of the applicant or, if in the opinion of the Planning Board service to each lot by a public water system is not feasible, the Planning Board may allow individual wells to be used.* A public water system is proposed and is shown on the plans. Public water will be supplied to each proposed home and the two proposed fire hydrants.

B. *The applicant shall demonstrate by actual test or by a signed affidavit from an authorized representative of the servicing water company that water meeting State of Maine Rules of the Department of Health and Human Services Relating to Drinking Water can be supplied to the subdivision at the rate of at least 350 gallons per day per dwelling unit and at an adequate pressure for fire-fighting purposes.* The development will be served with an 8 inch water main connecting to a 16 inch water main in the Blackstrap Road r.o.w.

C. *The water supply shall be sufficient to meet peak domestic demands and fire protection needs.* The water service has been designed to provide sufficient water to meet peak demands and fire protection needs.

D. *The applicant shall demonstrate in the form of signed affidavits from the servicing water company or by engineering reports prepared by a civil engineer registered in the State of Maine that the proposed subdivision will not result in an undue burden on the source, treatment facilities or distribution system involved or provide adequate assurance that such source, treatment facility or distribution system will be modified to meet the expanded needs.* A letter of capacity to serve has been requested from the Portland Water District.

E. *The minimum water main permitted shall be six inches or a dimension approved by the Portland Water District, and shall be installed at the expense of the applicant.* An 8 inch water main is proposed within the project.

F. *The water supply system shall be designed and installed in accordance with requirements of the Maine Department of Health and Human Services.* Agreed

G. *If a central water supply system is provided by the applicant, location and protection of the source and design, construction and operation of the distribution system and appurtenances and treatment facilities shall conform to the recommendations included in the State of Maine Rules of the Department of Health and Human Services Relating to Drinking Water.* The project will be served by water supplied by the Portland Water District.

H. *The Planning Board may require the applicant at the applicant's own cost to evaluate the effect of withdrawal of groundwater if on-site groundwater supply wells are proposed. An analysis of lowering of the water table during pumping, ground subsidence, reduction in groundwater recharge, saltwater intrusion and/or modification of groundwater flow patterns may be required. The analysis may require pump testing of on-site wells or*

measurements of soil and/or rock permeability, measurement of existing groundwater levels, soil borings, and/or installation of groundwater observation wells. Not applicable no wells are proposed.

I. *No subdivision or use of land shall lower the groundwater table more than 10 feet, reduce on-site groundwater recharge by more than 20%, cause saltwater intrusion or undesirable change in groundwater flow patterns, or cause ground subsidence of more than one inch on abutting property. If the analysis of groundwater withdrawal (Subsection H above) shows that one or more of these effects will occur, that will be the basis for denial of the application.* We do not anticipate the proposed project will lower the groundwater table because the development will be served by the public water supply. We do not believe that the proposed project will reduce on-site groundwater recharge because even though the surface will be changing from primarily gravel to a surface that is approximately 11% impervious the site is fairly flat and there will be a large vegetated area (approximately 35 acres) where rain water will infiltrate.

§ 250-35. Sewage disposal.

A. *A sanitary sewer system shall be installed at the expense of the applicant or, if in the opinion of the Planning Board service to each lot by a sanitary sewer system is not feasible, the Planning Board may allow individual subsurface wastewater disposal systems to be used.* Each home is proposed to have their private subsurface wastewater disposal system.

B. *An applicant shall submit plans for subsurface wastewater disposal designed by an engineer and/or licensed site evaluator, as appropriate, in full compliance with the requirements of the State of Maine Plumbing Code, except as noted herein or in Chapter 315, Zoning.* A soils and groundwater investigation has been done and a report titled "Hydrogeologic Evaluation and Preliminary Site Evaluation for Proposed Mineral Springs Subdivision" prepared be Sevee & Maher Engineers . The septic system design has been done based on this information. The report is included as part of section 5F Sewage Disposal. The project including the proposed impacts of subsurface wastewater disposal is part of the project's Maine DEP Site Location of Development Act application review.

C. *Connections and/or extensions to a public sanitary sewer line shall comply with the requirements of Chapter 216. Sewers, and/or sewer extension design specifications for the Town of Cumberland.* Not applicable no connection to a public sewer is proposed.

D. *The applicant shall apply to the appropriate municipal agencies for certification that the proposed connection(s) and/or extension(s) will not be a burden on the system.* Not applicable no connections or extensions are proposed.

E. *The Planning Board may require a hydrogeologic evaluation where it is concerned about possible groundwater or surface water contamination. Any cluster system shall require a hydrogeologic investigation. The investigation could involve soil borings and installing groundwater observation wells, measurement of groundwater elevation at wells, estimation of the direction and rate of groundwater flow, hydraulic mounding estimate beneath any leach field, measurement of existing groundwater and/or surface water quality, identification of existing water supply wells or springs on abutting properties, and a projection by analytical methods of groundwater and/or surface water quality within and at the property boundaries as a result of subdivision.* A hydrogeologic evaluation has

already been completed. The report is included in Section 5F Sewage Disposal.

F. *The applicant shall specify the location, both horizontally and vertically, of on-site well and subsurface wastewater disposal systems to avoid contamination of proposed or existing water supplies by subsurface wastewater disposal system effluent. No subdivision or use of land shall result in existing groundwater quality exceeding 50% of the physical, biological, chemical and radiological levels for raw and untreated drinking water supply sources specified in the Maine state drinking water regulations. If existing groundwater quality is inferior to the state drinking water regulations, the developer or landowner will not degrade the water quality any further. This criterion shall apply to the property boundaries' existing and proposed water supply wells and springs. If the hydrogeologic evaluation and projection of groundwater and/or surface water quality (Subsection E above) show that the effect of the subdivision or use of land will be to exceed whichever of these groundwater quality standards applies, that will be the basis for denial of the application.* No wells are proposed as part of this project. The project will be served by the public water.

§ 250-36. Trees, esplanades and planting screens.

A. *Street trees and esplanades may be required at the discretion of the Planning Board. Where such improvements are required, they shall be incorporated in the final plan and executed by the applicant as construction of the subdivision progresses.* A major street tree planting is proposed. See landscape plans for additional information.

B. *The subdivision design shall minimize the possibility of noise pollution either from within or without the subdivision (from highway or industrial sources) by providing and maintaining a planting screen easement at least 20 feet wide, except as may otherwise be required by Chapter 315, Zoning, between abutting properties that are so endangered.* There is a decent perimeter buffer of vegetation around most of the existing parcel. The majority of this vegetation is proposed to remain. In addition because the site was excavated for gravel much of the proposed development will be at a lower elevation than the surrounding Blackstrap and Upper Methodist Roads. The turnpike on the east side is screened by existing vegetation as well.

Section 7
Homeowners Association Documents

The Homeowners Association Documents have been prepared by Drummond and Drummond LLP. The Public Offering Statement (Homeowners Association Documents) are included with this section.

The Affordable Housing Agreement between the developer and the Town of Cumberland is shown as Exhibit L in the attached Public Offering Statement.

PUBLIC OFFERING STATEMENT
Mineral Springs, a Condominium
77 Blackstrap Road, Cumberland, Maine

NOTICE

UNLESS A PURCHASER HAS RECEIVED AND REVIEWED A COPY OF THIS PUBLIC OFFERING STATEMENT .PRIOR TO THE EXECUTION OF A CONTRACT FOR SALE, A PURCHASER, BEFORE CONVEYANCE OF A UNIT, MAY CANCEL ANY CONTRACT FOR PURCHASE OF A UNIT FROM THE DECLARANT. UNTIL A BUYER RECEIVES AND REVIEWS THE PUBLIC OFERING STATEMENT, ANY PURCHASE AGREEMENT IS NOT BINDING.

IF A PURCHASER ACCEPTS THE CONVEYANCE OF A UNIT THE PURCHASER MAY NOT CANCEL THE CONTRACT.

ANY DEPOSIT MADE IN CONNECTION WITH THE PURCHASE OF A UNIT WILL BE HELD IN AN ESCROW ACCOUNT UNTIL CLOSING AT THE OFFICES OF THE PURCHASER'S BROKER. THIS DEPOSIT WILL BE RETURNED TO THE PURCHASER IF THE PURCHASER CANCELS THE CONTRACT PURSUANT TO THE ABOVE, AS SET FORTH IN SECTION 1604-107 OF THE MAINE CONDOMINIUM ACT.

ALL PORTIONS OF THIS PUBLIC OFFERING STATEMENT SHOULD BE READ AND REVIEWED CAREFULLY BY A PROSPECTIVE PURCHASER PRIOR TO SIGNING AN AGREEMENT OF SALE. THE DECLARANT'S SALESPERSONS AND OTHER REPRESENTATIVES ARE NOT PERMITTED TO ORALLY CHANGE ANY OF THE TERMS OR CONDITIONS OF THIS PUBLIC OFFERING STATEMENT OR OF THE DOCUMENTS THAT ARE PART OF THIS PUBLIC OFFERING STATEMENT, AND MAY NOT ATTEMPT TO INTERPRET THEIR LEGAL EFFECT.

EFFECTIVE DATE OF THIS PUBLIC OFFERING STATEMENT: _____

THIS PUBLIC OFFERING STATEMENT SUPERCEDES AND REPLACES ALL PRIOR PUBLIC OFFERING STATEMENTS AND AMENDMENTS THERETO ISSUED WITH RESPECT TO MINERAL SPRINGS, A CONDOMINIUM, CUMBERLAND, MAINE.

MINERAL SPRINGS, A CONDOMINIUM
77 BLACKSTRAP ROAD, CUMBERLAND, MAINE

PUBLIC OFFERING STATEMENT

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EXHIBITS

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Declaration of Condominium
(i) Exhibit A- Legal Description
(ii) Exhibit B – Percentage Interests in Common Elements and Percentage of Common Expense Liability (Phase I)
(iii) Exhibit B-1 -Percentage Interest in Common Elements once all Units are declared

EXHIBIT B

Copy of Approved Plat

EXHIBIT C

Bylaws

EXHIBIT D

Rules and Regulations

EXHIBIT E

Form Purchase and Sale Agreement- OMITTED, SBE BROKER

EXHIBIT F

Form Yard License Agreement

EXHIBIT G

Budget (Contact Declarant or Broker for current budget)

EXHIBIT H

Encumbrances; **Exhibit H-1**, DEP Permit

EXHIBIT I

Limitation of Warranties

EXHIBIT J

Acknowledgement of Receipt and Review of Public Offering Statement and 14-day DEP Order Review Period

EXHIBIT K

Design Guidelines

EXHIBIT L

Affordable Housing Agreement and Declaration of Covenants, Conditions, Restrictions

PUBLIC OFFERING STATEMENT

Mineral Springs, a Condominium
77 Blackstrap Cumberland, Maine

I. Description of the Condominium and the Units.

Mineral Springs, a Condominium (the Condominium) located off of Blackstrap Road in Cumberland, Maine (the Property). The Condominium is being developed by B.R. Property, LLC a Maine limited liability company with a principal address of 39 Nubbin Reach, Yarmouth, Maine (the “Declarant"). The Condominium is proposed to consist of up to of seventy-two (72) freestanding residential units. Thirty-six of the units are proposed as “affordable” per the Town of Cumberland affordability requirements.

In addition to owning his or her Unit, each individual Owner owns a specified undivided interest in the Common Elements. This is referred to as the "Percentage Interest." The ownership of this Percentage Interest gives each Owner the right, subject to the terms of Chapter 3l of Title 33 of the Maine Revised Statutes Annotated (the "Condominium Act"), the Declaration, the Bylaws and the Plat and Plans, to use and participate in the control of the Common Elements through membership in the Mineral Springs Homeowners Association (the "Association"). Included in the Common Elements shall be the open space, recreation and common areas as shown on the Plat and Plans. A summary description of the Common Elements can be found in Article Ill of this Statement.

Some portions of the Common Elements are designated as "Limited Common Elements." Each Unit will have appurtenant to it as a Limited Common Element those Items specified in the Declaration. The Limited Common Elements are for the exclusive use of the Owner to whose Unit the Limited Common Element is assigned by the Declaration and plat and Plans, the Declarant or the Association. Some portions of the Common Elements are designated as "Reserved Common Elements." This is an area immediately surrounding a Unit that is licensed to a Unit owner by the Association for the exclusive use of that Owner, who is fully responsible for maintenance,

The Condominium shall consist of a series of Phases. As set forth in the Declaration and described herein, the Declarant reserves various Development Rights. Any Unit under construction shall be completed within one (1) year from the date construction is commenced.

II. The Maximum Number of Units; Sales to Investors.

The maximum number of Units will be Seventy-Two (72) freestanding units located on approximately 40 acres.

The Declarant may retain Units for rental, and any or all Units owned by Declarant pending sale may be offered for rent to the general public.

Declarant reserves the right to market Units in blocks to investors.

III. Description of the Significant Features of the Declaration, Bylaws and Other Important Documents.

A. The Declaration.

The Condominium has been created by the Declarant recording a Declaration ("the Declaration") and the Plat in the Cumberland County Registry of Deeds. A copy of the Declaration and reduced copy of the Plat, effective as of the date hereof, are attached as Exhibit A and Exhibit B, respectively. The Declaration may be amended to add additional phases and shall be recorded in the Cumberland County Registry of Deeds on or before any conveyance of a Unit (collectively the "plans") (the Declaration, Plat and Plans, collectively, the "Condominium Documents"). The following is a brief narrative description of the significant features of the Declaration.

Article 1 provides the submission of the Property as a Condominium under the Condominium Act and states the name and address of the Condominium.

Article 2 contains the definitions of certain terms used in the Condominium Documents. Article 2 also incorporates the provisions of the Condominium Act (33 M.R.S.A. § 160 l-1 OJ, e/. seq.), and states that those Act provisions apply to the operation and government of the Condominium except (where permitted by the Condominium Act) to the extent contrary provisions are found in the Condominium Documents.

Article 3 and 4 of the Declaration state that the Condominium shall initially consist of a total of seventy-two (72) Units, and describes the boundaries of the Units, the Common Elements, and Limited Common Elements. A Unit in a freestanding building includes the entire building, including all attached appurtenances. Common Elements will be maintained by the Association on behalf of all Owners, und the cost of such maintenance will be shared by all Owners according to their Percentage Interests. All maintenance, repair and replacement of Common Elements will be included in the Common Expenses. Yards surrounding each Unit shall be licensed by the Unit's Owner as a Reserved Common Element, for the Unit Owner's exclusive use.

Article 5 of the Declaration describes the maintenance responsibilities of the Association and the Owners. The Owners are responsible for the maintenance all upkeep of their respective Units, mowing, plowing, private gardens within their yards and any portions of their Yards, Limited Comon Elements and Reserved Common Elements. The Association, or the Association acting through a managing agent, Is responsible "for the maintenance and upkeep of the Common Elements.

Article 6 of the Declaration establishes the Percentage Interests of the Units in the Common Elements, the depicted on Exhibit B to the Declaration, attached hereto. Each Owner will have vote in the Association corresponding to each Unit as set forth on such Exhibit B.

Article 7 of the Declaration sets forth the Association's right to employ a property management firm to act as Managing Agent to oversee daily operation of the Condominium and the allocation of maintenance responsibilities. The Managing Agent will keep the Common Elements maintained. Fees and charges for Managing Agent services performed for the Association, including Yard maintenance, are a Common Expense. Individual Unit Owners may, at their option, arrange with the Managing Agent to perform maintenance responsibilities of the Owner directly, including Yard maintenance excepted from the Association's responsibility. Fees and charges for Managing Agent services performed for the Unit Owner is the Owner's expense, payable through the Association.

Article 8 of the Declaration lists the various easements to which the Condominium or certain portions of the Condominium are subject. It also reserves to the Declarant the right to maintain models, signs and management offices on the Property. (For more information regarding encumbrances to which the Condominium is subject, see Section VI of this Statement.)

Article 9 of the Declaration imposes various restrictions on the use of the Units and various other portions of the Condominium. for example, all Units are restricted to residential use and Owners are barred from conducting any activity that unreasonably interferes with the quiet enjoyment of adjacent Units. There are also restrictions concerning Yards, pets, leasing, timesharing and repairs of Units by Owners.

Article 10 of the Declaration allows the Declarant to reserve certain rights with respect to the development of the Property and describes what those rights are. These rights may be affected and restricted by Town of Cumberland requirements. (For more information regarding development rights reserved by the Declarant, see Section XIX of this Statement.)

Article 11 of the Declaration provides that all present and future owners, lessees, occupants, mortgagees and holders of Land Installment Contracts ("Contract Holders") of Units in the Condominium are subject to the Condominium Documents, and provides for a procedure to be followed in the event of condemnation of all part of the Common Elements.

Article 12 of the Declaration describes the makeup of the Executive Board of the Association. The Executive Board consists of three (3) members and, initially the Declarant will appoint the members of the Executive Board. This Article also provides for the transition from the Declarant appointed Executive Board to an Executive Board controlled by the Owners (for more information regarding this transition see Section XX of this Statement). Article 12 also sets forth the procedure to be followed to resolve any inconsistency among the various Condominium Documents and to amend the Condominium Documents and grants to the Executive Board and any aggrieved Owner the power to abate or' enjoin any violations of the Condominium Documents by Owners, tenants of Owners or the Association.

Article 13 of the Declaration provides for a limitation on the liability of the members, officers and employees of the Executive Board and provides for the indemnification of members of the Executive Board against all expenses and liabilities which they may incur in the performance of their duties, except in circumstances involving willful misconduct or gross negligence. Other

sections in Article 13 provide for the defense of claims against the Association, a disclaimer of bailee liability of the Association, the members of the Executive Board and of any Owner for personal property stored on the Common Elements.

Article 14 deals with the liability of Owners to pay all Common expense assessments allocated to their Units and provides the procedures to be followed to establish reserves, fix assessments and collect Assessments in the event the Owner fails to pay them. Unpaid fees and charges for the Management Agent for services performed for a Unit Owner arc included in the Owner's assessment as a Limited Common Expense.

Article 15 sets forth the rights of Contract Holders and of lenders who provide mortgages or other financing to Purchasers of Units in the Condominium. There are no restrictions on the type of financing; however, lenders and Contact Holders must register with the Association in order to receive notices. Under Article 15.2 and Article 15.3 of the Declaration, mortgagees, Contract Holders, insurers and guarantors of mortgages on the Units are entitled to receive certain notices and are given certain rights.

Article 16 of the Declaration outlines the types and amounts of insurance that the Association and Owner is each required obtain and the various provisions governing such insurance (For more information regarding insurance, sec Section X Ill of this Statement.)

Article 17 provides that the Declarant may assign its rights.

Article 18 outlines the procedure for amendments of the Declaration. With certain exceptions, the Declaration may be amended by vote or agreement of the Owners of Units to which at least sixty-seven percent (67%) of the votes in the Association allocated. In certain cases, amendments to the Declaration must be approved by certain mortgagees of Units representing at least fifty-one percent (51%) of the votes of Units that are subject to mortgages held by those mortgagees.

Article 19 provides the procedure for termination of the Condominium. The Condominium may be terminated only by agreement of the Owners to which eighty percent (80%) of the votes in the Association are allocated, and in certain cases, such termination must be approved by certain mortgagees of Units to which sixty-seven percent (67%) of the votes in the Association allocated to Units subject to mortgages held by those mortgagees are allocated.

Article 20 appoints the Managing Agent, if any, to be the Attorney-in-Fact for each Owner in certain instances regarding personal property, and the management of the Condominium.

Article 21 sets out several general provisions dealing with the construction and application of the Declaration and provides guidelines for giving notice to Unit Owners of matters affecting the Condominium.

Article 22 describes several Town of Cumberland requirements for approval of the condominium development, including a grant of access to Common Elements for inspection and/or maintenance by the Town, compliance with the Town's Common Facilities Ordinance, and the Association's obligation to maintain walking trails. Additionally, pursuant to Town ordinance, at

the time that the control of the Association is turned over by the Declarant to the Owners , the Association shall be provided with sufficient funds to meet the Association's anticipated Common Expense for a period of one (1) year following the date of such turnover.

B. Bylaws of the Association.

The operation and administration of the Association arc governed by the Bylaws. A copy of the Bylaws effective as of the date of delivery of this Public Offering Statement is attached to this Statement as Exhibit C.

Article I of the Bylaws sets out several general provisions dealing with the application and construction of the Bylaws and the location of the Association Office.

Article 2 of the Bylaws provides that all Owners in the Condominium arc members of the Association. Article 2 also sets forth the time, purpose and procedure for annual and special meetings of the Association. The Association is required to conduct meetings at least annually and at the annual meeting the Treasurer of the Association is required to present an annual financial report for the preceding fiscal year and the projected budget for the current fiscal year.

Article 3 provides for an Executive Board of three (3} natural persons. It also describes the time, purpose and procedures for the meetings of the Executive Board, and sets forth the procedures to be followed in the event Executive Board members resign or positions on the Executive Board become vacant. The annual meeting of the Association is initially scheduled to take place on the first Thursday of December of each year. Article 3 also sets forth requirements governing the validity of contracts with interested executive Board members, and permits the Executive Board to enter into a management contract forth professional management of the Condominium.

Article 4 contains provisions governing the election of officers of the Association by the Executive Board and enumerates the duties of those officers.

Article 5 describes the procedure for establishing budgets and the ratification thereof by the Owners. It also sets forth the obligation of Owners to pay Assessments for Common Expenses. Under Article 5.8, the Association, by a two-thirds (2/3) vote may reject any capital expenditure or borrowing approved by the Board, except during the period during which the Declarant may appoint all of the members of the Executive Board.

Article 6 sets Forth the procedure for restoration and repair to the Buildings or other parts of the Condominium if damaged or destroyed.

Article 7 sets forth the procedure for amending the Bylaws, and also provides certain notification rights for holders, insurers and guarantors of mortgages secured by Units of the Condominium.

Article 8 contains general provisions applicable to the Bylaws.

Article 9 describes the seal of the Association.

C. Rules and Regulations.

The Bylaws provide that the Executive Board may promulgate rules and regulations governing the details of the use and operation of the Condominium. A copy of the Rules and Regulations effective as of the date of this public offering statement, if any, is attached to this Statement as **Exhibit D**. These Rules and Regulations generally regulate the Owners' use of the Units, Reserved Common Elements and the Common Elements so as to minimize disruption and interference by one Owner with the rights of others. The Executive Board Occasionally develops polices which may also impact Owners, but which are not codified into the Rules & Regulations.

D. Contracts and Leases to be signed by purchasers at closings, Contracts or Leases that May Extend Beyond Period of Declarant Control.

At closings purchasers are required to sign a Purchase and Sale Contract, a Limitation of Warranty and those documents required regularly to obtain the financing of a Unit and a Yard License Agreement. A Copy of the form of Purchase and Sale Contract will be provided by the listing broker to the purchaser(s). A copy of the Yard License Agreement is attached as Exhibit F. A copy of the Limitation of Warranties is attached is Exhibit I for purchasers who purchase a unit from the Declarant.

At the time of purchase there may be in place a contract with a Managing Agent. The Association through the Executive Board has no obligation to employ a professional experienced Managing Agent who shall oversee the daily operation and maintenance of the Condominium; provided, however, no agreement for such professional management of the Condominium will exceed a term of three years but may be renewed upon Consent of the Association. Such agreement shall obligate the Managing Agent to provide regular maintenance services directly to Unit Owners at the Unit Owners' option for a fee that is payable through the Association. Such agreement shall be cancelable by either party without cause and without a termination fee upon not less than sixty (60) days nor more than ninety (90) days written notice and shall be cancelable by the Executive Board with cause upon not less than (30) days written notice. Any agreement for professional management negotiated by the Declarant shall meet the same requirements for agreements negotiated by the Association and cannot exceed one year but may be renewed upon consent of the Association.

E. Projected Budget and Current Balance Sheet.

The Executive Board of the Association, or the Declarant, has prepared a budget for the 12-month period beginning January 1 and ending December 31, of the current calendar year (the "Budget"), which has been adopted by the Members at a meeting of Members duly called and held in accordance with the Bylaws. A copy of the current Budget for the Association is included in this Public Offering Statement as Exhibit G, or if not attached, may be obtained from the Broker or the Declarant. In accordance with Section 1603-115 of the Act, and section 6.2 of the Declaration, the Association may adopt an annual Budget allowing for different categories or amounts of monthly assessments as applicable to Built Units that are (i) fully constructed and benefiting from all Common Expenses and (ii) Un-Built Units that are not fully constructed or

otherwise benefiting from all Common Expenses (e.g., incomplete or unoccupied units, may be assessed a lower monthly assessment if such Units do not benefit from common expenses relating to common utilities, trash removal, snow removal, etc.), and may assess Built and Un-built Units based upon the reduced level of expenses that benefit such Un-Built Units. In order to maintain the monthly assessment at the levels established in the Budget, the Budget may contain an additional amount to be paid by the Declarant to maintain the monthly assessment at levels anticipated to be paid by Unit Owners when the Condominium is fully built. Increases in condominium assessments payable by Unit Owners may occur in the future to reflect increases in expense items such as grounds keeping services or insurance premiums. Any such adjustment will be reflected in revised or subsequent year budgets to be presented to the Association for approval at a meeting of the Unit Owners.

The budget has been prepared based upon what the Declarant believes to be the best current estimates of future costs based on information currently available, and maintenances costs of similar properties. The budget establishes a reserve for future capital for repair and replacement. Such amounts are held by the Association in a separate reserve account. There are no other reserves.

F. Affordable Housing Agreement and Declaration of Covenants, Conditions, Restrictions.

The Developer, by agreement with the Town of Cumberland, has submitted the Units listed in Exhibit A of the Affordable Housing Agreement and Declaration of Covenants, Conditions, Restrictions (the "Affordability Covenants") to the conditions thereof for the term set forth in *Section 2* of the Affordability Covenants. Those conditions shall remain enforceable by the Town of Cumberland for the duration of the term. The following is a brief narrative description of the significant features of the Affordability Covenants.

Section 1 of the Affordability Covenants explains the intent of the Town and the Developer that 36 of the 72 Units comprising the Condominium shall enhance marketability of the affordable units by making it available to moderate-income families.

Section 2 sets the term of the Affordability Covenants at a duration of 30 years from the effective date thereof. Upon the expiration of that 30-year period the Affordability Covenants shall automatically be released.

Section 3 empowers the Town of Cumberland to enforce the Affordability Covenants for such time as they remain in full force and effect with respect to the affected Units.

Section 4 requires that the Developer convey each of the affected units to a Qualified Buyer, defined as a person or household with a gross income not exceeding 120% of the Area Median Income for the Portland, Maine Metro Area. *Section 4* also provides that if the Developer is unable to transfer to a Qualified Buyer after listing an affected unit for a period of at least 180 days, it may rent that unit for a period of up to 2 years, at which point it may again market the property for sale to a Qualified Buyer.

Section 5 provides for the construction and interpretation of the Affordability Covenants in accordance with statutory law, 33 M.R.S. § 121.

Section 6 exempts certain transfers from the Affordability Covenants. While the specific types of transfers listed in *Section 6* are considered exempt, they do not release the unit from the Affordability Covenants for the purpose of future transfers.

Section 7 entitles the Town of Cumberland to enforce its rights under the Affordability Covenants upon a violation thereof.

Section 9 requires a mutual, written agreement between the Town of Cumberland and the Developer in order to amend the Affordability Covenants as recorded.

Section 10 provides that, in the event a clause or portion of the Affordability Covenants is deemed invalid, the remainder shall nonetheless be enforceable.

Section 11 provides that the Developer's successors shall be bound by the Affordability Covenants.

Section 12 provides for the construction of the Affordability Covenants according to Miane law.

Section 14 sets forth the requirements for any notice provided under the Affordability Covenants.

Section 16 provides that the Town and the Developer do not waive any of their respective rights under the Affordability Covenants in any case in which, by act or omission, they fail to enforce such rights.

IV. Declarant Services.

There are no services the Declarant currently provides not reflected in the budget or expenses currently paid which the Declarant expects may become at any future time a Common Expense to the Association.

V. Initial or Special Fees Due From the Purchaser at Closing.

At closing, the Purchaser of a Unit will be required to pay in advance a fee for condominium reserves in an amount equal to two (2) months' Common Expense Assessments for the unit purchased. The Purchaser will be required to pay the standard settlement costs as described in the Purchase and Sale Contract and the purchaser's prorated share of any Common Expense Assessment paid by the Declarant.

At each closing on the sale of a Unit to an initial purchaser, purchasers may be required to prepay for any costs associated with initiating utility services to that Unit. Association billings for water and sewer charges are due to the Association at the time such bills are rendered, and such changes are in addition to the Condominium dues assessed against each Unit.

VI. Liens, Defects and Encumbrances Affecting the Title to the Condominium and Units.

The Condominium and Units are subject to the terms of the Declaration, as recorded, the conditions shown on the Plat and Plans, as recorded, the Bylaws and any Rules and Regulations issued, as each of these may be amended from time to time. In addition, the condominium is subject to the following:

(a) The encumbrances, if any, listed on the attached Exhibit H.

(b) Statutory easements granted by the Condominium Act, including(i) the casement provided by Section 1602-114 of the Condominium Act, which provides that a Unit: or Common Element is subject to a valid easement to the extent that any other Unit or Common Element encroaches upon it; (ii) the provisions of Section 1602-115 of the Condominium Act which allows the Declarant to maintain sales offices, management offices and models in the Condominium (such right being set forth in Article 8.1 of the Declaration); and, (iii) the easement provided in Section 1602-116 of the Condominium Act, which allows the Declarant an casement through the Common Elements, and, if necessary, through portions of the Limited Common Elements, as may be reasonably necessary to facilitate the completion of the Condominium, to exercise any Development Right or Special Declarant Right reserved by the Declarant in Article 10 of the Declaration and elsewhere in the Condominium Documents.

(c) Unrecorded easements, discrepancies, conflicts in boundary lines, shortages of area and encroachments that an accurate and complete survey of the Condominium as built, would disclose.

(d) Easements and restrictions described in Article 8 of the Declaration including the following:

(e) The Units and all Common Elements are subject to easements in favor of the Declarant, other owners, and appropriate utility service companies and governmental agencies. further, the Executive Board shall have the right and power to convoy permits, licenses and easements over the Common Elements for the installments, maintenance, repair and replacement of utility equipment, roads, for the protection of the natural scenic and open space values of the Property, and for other purposes necessary for the proper operation of the Condominium including, but not limited to cellar drains. Such rights are in addition to the Executive Board's right to license the Reserved Common Areas to the Appurtenant Unit owner;

(f) Those portions of the Common Elements not located within the buildings in which the Units are located are subject to an easement in favor of the Declarant to maintain and correct drainage of surface are water;

(g) The Common Elements and Units are subject to an easement in favor of the Declarant for the purposes of construction, reconstruction, maintenance, renovation, repair, replacement or correction of the Units or Common Elements, and for the construction of shared cellar drains;

(h) The Common Elements (not including the Limited Common Elements and licensed Reserved Common Areas) are subject to an easement in favor of the Owners, their Invitees, employees, tenants and servants, the Association and the agents and employees of the Association for access through each portion of the Common Elements, subject to the requirements and charges imposed by the Executive Board;

(i) The Common Elements are subject to an easement in favor of the Association, its agents, employees and independent contractors for the purpose of inspection, upkeep, maintenance, repair and replacement of the Common Elements;

(j) The Units and the Limited Common Elements are subject to an easement in favor of the Association, Its agents, employees, and independent contractors for inspection of the Units and Limited Common Elements and Property, for inspection, maintenance, repair and replacement of the Common Elements or the Limited Common Elements and property situated in or accessible from such Units or Limited Common Elements and for the correction of emergency conditions;

(k) The Units and the Limited Common Elements subject to an easement in favor of the Owner benefited and the Association, its agents, employees and independent contractors for the installation, repair, maintenance, use, removal and/or replacement of pipes, ducts, electrical, telephone, telegraph and other communication systems and all other utility lines which are part of the Common Elements and pass through a portion of one or more Units;

(l) If the construction, reconstruction, repair, shifting, settlement or other movement of any portion of the Condominium results either in the Common Elements encroaching on any Unit, or in any Unit encroaching on the Common Elements or on any other Unit, a valid easement shall exist during the period of the encroachment for the encroachment and for the maintenance thereof;

(m) The Common Elements are subject to an easement in favor of the benefited Units (a) for installation, repair, maintenance, use, removal and/or replacement of pipes, ducts, heating and air conditioning systems, electrical, telephone and other communication wiring and cables and all other utility lines and conduits which arc part of or exclusively serve a single Unit and which pass across or through a portion of the Common Elements;

(n) The Property is subject to terms and conditions of the Subdivision Plan, and the terms and conditions of any related subdivision or site plan permits or approvals granted by the Town of Cumberland (the "Town"), as evidenced by said Subdivision Plan.

VII. Financing Offered or Arranged by the Declarant.

The Declarant does not plan to offer financing to any buyers. The Declarant may recommend certain lenders who are familiar with the Condominium and who have expertise in condominium lending; however, prospective purchasers are free to choose any lender they desire.

VIII. Warranties.

With respect to the Units being sold and the Common Elements appurtenant thereto, the Condominium Act provides as follows:

§ 1604-112. Express warranties of quality.

(a) Express warranties made by any seller to a purchaser of a unit, if relied upon by the purchaser, are only created as follows:

1) Any writ ton affirmation of fact or promise which relates to the unit, its use, or rights appurtenant thereto, area improvements to the condominium that would directly benefit the unit, or the right to use or have the benefit of facilities not located in the condominium, creates an express warranty that the unit: and related rights and uses will conform to the affirmation or promise;

2) Any model or description of the physical characteristics of the condominium, including plans and specifications of or for improvements, creates an express warranty that the condominium will substantially conform to the model or description;

3) Any written description of the quantity or extent of the real estate comprising the condominium, including Plat or surveys, creates an express warranty that the condominium will conform to the description, subject to customary tolerances; and,

4) A provision that a buyer may put a unit only to a specified use is an express warranty that the specified use is lawful.

(b) Neither formal words, such as "warranty" or "guarantee", nor a specific intention to make a warranty, are necessary to create an express warranty of quality, but a statement purporting to be merely an opinion or commendation of the real estate or its value does not create a warranty.

(c) Any conveyance of a Unit transfers to the purchaser all express warranties of quality made by previous sellers.

§ 1604-113. Implied warranties of quality.

(a) A declarant and any person in the business of selling real estate for his own account warrants that a unit will be in at least as good condition at the earlier of the time of the conveyance or delivery of possession as it was at the rime of contracting, reasonable wear and tear excepted.

(b) A declarant and any person in the business or selling real estate for his own account Impliedly warrants that a unit and the common elements in the condominium are suitable for the ordinary uses of real estate of its type and that any improvements made or contracted for by him, or made by any person before the creation of the condominium, will be:

1) Free from defective materials; and,
2) Constructed in accordance with applicable law, according to sound engineering and construction standards and In a workmanlike manner', Construction complying with the

National Building Code and Code Administrators (BOCA) Basic Building Code or equivalent applicable local building code, if any, shall be deemed to satisfy such sound engineering or construction standards.

(c) In addition, a declarant warrants to a purchaser from him of a unit that may be used for residential use that an existing use, continuation of which is contemplated by the parties, does not violate applicable law at the earlier of the time of conveyance or delivery or possession.

(d) Warranties imposed by this section may be excluded or modified as specified in section 1604-114.

(e) For purposes of this section, improvements made or contracted for by an affiliate of a declarant, section 1601-103, paragraph (1), are made or contracted for by the Declarant.

(f) Any conveyance of a unit transfers to the purchaser all of the Declarant's implied warranties of quality.

§ 1604-114. Exclusion or modification of implied warranties of quality.

(a) Except as limited by subsection (b) with respect to a purchaser of a unit that may be used for residential use, implied warranties of quality:

1) May be excluded or modified by agreement of the parties; and,

2) Are excluded by expressions of disclaimer, such as "as is", "with all faults", or other language which in common understanding calls the buyer's attention to the exclusion of warranties.

(b) With respect to a purchaser of a unit that may be occupied for residential use, no general disclaimer of implied warranties of quality is effective, but a declarant may disclaim liability in an instrument signed by the purchaser, for a specified defect or specified failure to comply with applicable law, if the defect or failure entered into and became a part of the basis of the bargain.

§ 1.604-115. Statute of limitations for warranties.

(a) A judicial proceeding for breach of any obligation arising under section 1604-112 or 1604-113 must be commenced within 6 years after the cause of action accrues, but the parties may agree to reduce the period of limitation to not less than 2 years. With respect to a unit that may be occupied for residential use, an agreement to reduce the period of limitation must be evidenced by a separate instrument executed by the purchaser.

NOTE: PURSUANT TO § 1604-ll5(a) PURCHASERS OF UNITS WILL BE REQUIRED TO SIGN A SEPARATE AGREEMENT, ATTACHED HERETO AS EXHIBIT I, TO REDUCE THE PERIOD OF LIMITATION FROM SIX (6) YEARS TO TWO (2) YEARS.

(b) Subject to subsection (c), a cause of action for breach of warranty of quality, regardless of the purchaser's lack of knowledge of the breach, accrues:

1) As to a unit, at the time the purchaser to whom the warranty is first made enters into possession If a possessory interest was conveyed or at the time of acceptance of the Instrument of conveyance if a nonpossessory interest was conveyed; and later:

2) As to each common element, at the time the common element is completed or, if

i) As to a common clement which may be added to the condominium or portion thereof, at the time the first unit therein is conveyed to a bona fide purchaser; or
ii)
iii) As to a common element within any other portion of the condominium, at the time the first unit in the condominium is conveyed to a bona fide purchaser,

(c) If a warranty of quality explicitly extends to future performance or duration of any improvement or component of the condominium, the cause of action accrues at the time the breach is discovered or at the end of the period for which the warranty explicitly extends, whichever is earlier.

IX. Right to Cancel Purchase (Limitations of Warranties).

The Declarant shall provide a purchaser of a Unit with a copy of this Public Offering Statement and all amendments thereto before the execution of a contract for sale. Unless prior to the execution of a contract for sale, a purchaser acknowledges in writing receipt and review of such offering statement, the purchaser, upon written notice to the Declarant, may caned the contract at any time prior to conveyance of the Unit, unless the purchaser shall, Subsequently, expressly and in writing waive such right to cancel after having received and reviewed such offering statement **ACCORDINGLY, PURCHASERS WILL BE REQUIRED TO ACKNOWLEDGE THE RECEIPT AND REVIEW OF' THIS PUBLIC OFFERING STATEMENT IN WRITING, BY SIGNING THE FORM ATTACHED AS EXHIBIT J.**

If the Purchaser elects to cancel, he or she may do so by hand delivering a notice thereof or by mailing the notice by prepaid United States mail to the Declarant. The cancellation shall be without penalty and any deposit made by the Purchaser shall be promptly refunded in its entirety.

Once a purchaser accepts the conveyance of a Unit, he may not cancel the contract.

X. Unsatisfied Judgments, Pending Legal Proceedings.

As of the date of delivery of this Statement, there are no judgments against the Association, nor is the Association a party to any pending litigation. The Declarant has no actual knowledge of any pending litigation that would be of any significance to the Condominium or the Property.

XI. Escrow of Deposits.

Any deposit made in connection with the purchase or reservation of a Unit from the Declarant shall be placed in escrow by Declarant and held either in this State in an account designated solely for that purpose by a licensed title insurance company, an attorney, a licensed real estate broker or an institution
whose accounts are insured by a governmental agency or instrumentality until the deposit is: (1) delivered to the Declarant at closing; (2) delivered to the Declarant because of purchaser's default under a contract to purchase the unit; or (3) refunded to the purchaser.

XII. Restraints on Transfers.

Section 1604-102 of the Condominium Act prohibits the Declarant from offering any interest in a Unit until the Declarant has prepared and delivered to a Purchaser a Current Public Offering Statement.

The Condominium Act further provides that no part of the Common Elements may be sold except in conjunction with the sale of an interest in a Unit; provided, however, the Act does permit the sale of Common Elements or portions thereof by the Association upon the required vote of the members. No conditions are placed on this right of the Association by the Declaration.

The Declaration imposes the following restrictions on use of an Owner's Unit.

(a) The Units (with the exception of any such Units during the time period when they are being used by the Declarant as a sample, model or sales office) are restricted to residential use.

(b) No Owner may obstruct the Common Elements in any way. Fences in Yards are permitted only with the approval of the Executive Board, subject to rules and regulations established by the Association.

(c) No Owner may carry on any practice, or permit any practice to be carried on, which unreasonably interferes with the quiet enjoyment of the occupants of any other Unit. The Property, including any portion of the Yard for which the Owner is responsible, is to be maintained in a clean and sanitary condition, and no Owner may place any garbage, trash or rubbish anywhere in the Property other than in his own Unit and in or on such parts of the Common Elements as may be designated for such purpose by the Executive Board.

(d) No Unit shall be used, occupied or kept in a manner that in any way increases the fire insurance premiums for the Properly without the prior written permission of the Executive Board.

(e) No Owner of any Unit (other than the Declarant in connection with its marketing and sale of the Units) may erect any sign on or in his Unit or any Limited Common Element which is visible from outside his Unit or from the Common Elements without in each instance having obtained the prior written permission of the Executive Board.

(f) Pets shall be allowed in accordance with the Declaration and Rules and Regulations; outdoor cats are prohibited.

(g) The Executive Board may from time to time promulgate reasonable Rules and Regulations, not in conflict with the provisions of the Declaration, concerning the use and enjoyment of the Property. Copies of the then current Rules and Regulations and any amendments thereto shall be furnished to all Owners by the Association promptly after the adoption of such Rules and Regulations and any amendments thereto.

(h) Except as otherwise provided in the Declaration no Unit shall be altered, remodeled or renovated unless such alteration, remodeling or renovation shall be approved in writing by a majority vote of the Executive Board of the Association. Any such approval shall identify the alteration, remodeling or renovation to be done in reasonable detail! and shall establish a budget therefor. All such alterations, remodeling or renovation shall be conducted by the Owner.

(i) No Owner shall cause any material to be furnished to his Unit or any labor to be performed therein or thereon except in the manner set forth in the Declaration.

The Declarant shall have the right to operate any Units owned by the Declarant as a rental project, except as provided by the Affordability Covenants. An Owner, other than the Declarant may sell or lease his or her Unit, however, the Executive Board may prescribe a form of lease or specific provisions for any lease offered by an Owner other than the Declarant.

The Rules and Regulations attached to this Statement as Exhibits D further restrict the Owners' use of the Common Elements and of the Units.

The Affordability Covenants restrict the sale of the Affordable Housing Unit, as defined in the Affordability Covenants, to Qualified Buyers with specific income requirements. The Town of Cumberland may enforce the Affordability Covenants in the event that an Owner attempts to transfer to an unqualified buyer by having the purported sale, transfer, or disposition declared null and void.

XIII. Insurance

Article 16 of the Declaration sets forth the provisions concerning the types and amounts of insurance coverage to be provided by the Association and maintained by Unit Owners. Each Unit shall be insured by its Owner by a policy of fire and property damage insurance in an amount equal to one hundred percent (100%) of the current replacement cost of the Unit. It will be the individual responsibility of the Owners to insure their Unit, personal property and liability insurance to cover claims arising out of the use or ownership of the Units. Personal property of the Owner will not be insured by the Association. Owners are advised to consult the Executive Board or the Managing Agent be lore purchasing their own insurance.

The Association will carry, to the extent required by Section 1603-113 of the Act, property insurance on the Common Elements and shall maintain a liability insurance policy on behalf of the Association and all Owners to insure them against liability arising out of the ownership or use of the Common Elements, worker's compensation insurance, directors and officers insurance, flood insurance, If applicable and available, covering anyone who either handles or is responsible for handling funds held or administered by the Association. The cost of maintaining each of such insurance policies and bonds shall be a Common Expense.

The liability policy will not insure Owners against liability arising from an accident or injury occurring within their Units or from their own negligence.

XlV. Fees on the Use of Common Elements; Financial Arrangements for Improvements.

There are no current or expected fees or charges to be paid by Owners for the use of Common Elements and other facilities related to the Condominium other than the assessments for management and upkeep of the Condominium.

XV. Unusual and Material Circumstances, Features and Characteristics, Zoning and Land Use Requirements Affecting the Condominium.

(a) Zoning and Land Use Requirements. The Condominium Is located in the Industrial Zone and West Cumberland Housing Overlay District as established by the Zoning Ordinance of the Town of Cumberland. The Property does not fall within a special flood hazard area as delineated on the flood insurance rate map for Cumberland, Maine (Eft: Date ----------. The Property is subject to a Maine Department of Environmental Protection Order _____, recorded in Book _____, Page _____ of the Cumberland County Registry of Deeds, all further described in Exhibit H.

(b) Conditional Partial Assignment of Declarant Rights. The Declarant may assign certain rights regarding certain condominium Units including the right to declare the units, direct the construction of the units and sell the units.

XVI. Common Expense Assessments.

The projected Common Expense Assessments for each Unit are set forth in the Budget, a copy of which is attached to this Statement as Exhibit G or, if not attached, is available from the broker or the Declarant.

The assessments do not vary seasonally but may change each year as the annual budget is approved by the Association. If all 72 Units are developed the Owner's allocated share would be 1/72, or 1.39%.

XVII. Owner’s Liability for Real Estate Taxes, Assessments and Other Charges.

By statute, a municipality must separately assess and tax individual Units with each Owner therefore liable only for real estate taxes, municipal assessments and other municipal charges against his or her own Unit, with no liability for such obligations against other Units.

XVIII. Liens for Assessments and Other Claims.

All sums assessed by the Association constitute the personal liability only of the Owner thereby assessed. The Condominium Act provides a lien process by which the Association can perfect liens for the non" payment of assessments and foreclose them through a judicial proceeding. That liability constitutes a lien only against that Owner's Unit.

In addition, other liens such as judgment liens against the Association run against the Units and not the common elements. No other property of an Owner is subject to a lien of a judgment creditor of the Association.

XIX. Development Rights Reserved by the Declarant.

ln addition to the easement rights reserved in Article 8 of the Declaration, the Declarant reserves to itself and for the benefit of its successors and assigns the right until construction, marketing and sale of all Units are completed to:

(a) connect with and make use of utility lines, wires, pipes and conduits located on the Property for construction and sales purposes, provided that the Declarant shall be responsible for the cost of services so used;

(b) use the Common Elements for ingress and egress, for the repair and construction of Units and Common Elements including the movement and temporary storage of construction materials and equipment, and for the installation of signs and lighting for sales and promotional purposes;

(c) exercise any and all development rights as are now allowed or in the future may be allowed by the Condominium Act;

(d) complete all contemplated improvements on the Plat and Plans;

(e) relocate any improvements shown on the Plat and Plans and construct additional Common Element improvements;

(f) maintain models and a sales office;

(g) exercise the easements reserved to it in the Declaration;

(h) appoint or remove any officer or Executive Board member during any period of Declarant control of the Association set forth In Article 10 of the Declaration; and

(i) exercise any other Special Declarant Rights as are now allowed or in the future may be allowed by the Condominium Act.

The exercise of any Development Rights shall be in accordance with and governed by the provisions of the Condominium Act, including Section 1602-110.

The Declarant intends to develop the Condominium in a series of phases. Initially, the Declaration creates _____ Units, reflected in the approved Plat as Phase I. Each subsequent Unit or Units created will be an additional separate phase. Declarant expressly reserves the right to vary buildings, Units, Limited Common Elements and the locations at its discretion, subject to the restrictions set forth in the Declaration. However, all such future Units, Common Elements and Limited Common Elements shall be consistent with the initial Units in terms of the quality of construction, general architectural style and principal materials, provided that the Declarant may substitute construction materials and technique of equal or better quality.

Any Limited Common Elements created pursuant to any Development Right reserved will be of the same general types and sizes as the Limited Common Elements within other parts of the Condominium.

The proportion of Limited Common Elements to Units created pursuant to any Development Right reserved by the Declarant are intended to be approximately equal to the proportion existing within other parts of the Condominium.

All restrictions in the Declaration affecting use, occupancy, and alienation of Units will apply to any Units of the same type created pursuant to any Development Right reserved by the Declarant.

XX. The Owners Association.

The Condominium Act provides for the self-governing of the Condominium by an Owners Association, in this instance called "Mineral Springs Condo Association"

The Association is organized as a non-profit condominium corporation under Maine law. The Bylaws provide that the powers and responsibilities of the Association are delegated to the Condominium's Executive Board, some of which in turn may be sub-delegated to the Managing Agent. The Executive Board has the power and responsibility in administering the Condominium to, among other things:

(a) Prepare the annual budget;

(b) Make and collect assessments against the Owners for Common Expenses;

(c) Provide for the upkeep, maintenance and care Common Elements;

(d) Designate and license Reserved Common Areas to Unit Owners;

(e) Designate, hire and dismiss the personnel necessary for the maintenance of the Condominium;

(f) Make rules and regulations concerning the use of the Condominium;

(g) Establish a bank account on behalf of the Association;

(h) Make alterations to the Condominium;

(i) Enforce by legal means the provisions of the Condominium instruments;

(j) Obtain necessary insurance;

(k) Pay the cost of services rendered to the Condominium; and

(l) Keep the books of account of the Condominium.

The Declaration describes the makeup of the Executive Board of the Association. The Executive Board consists of three (3) members elected by Owners, except that the Declarant will initially appoint the members of the Executive Board in accordance with Article 12 of the Declaration.

Not later than the earlier of (i) 60 days after the conveyance by the Declarant to Owners other than the Declarant of seventy-five percent (75%) of the Units for the entire project, including any additional Units which may be added to the Condominium in Phase II or Ill, or (ii) seven (7) years following conveyance of the first Unit to an Owner other than the Declarant, all members of the Executive Board appointed by the Declarant shall resign and the Owners (including the Declarant to the extent of Units owned by the Declarant) shall elect new members of the Executive Board all in accordance with the Bylaws of the Association.

NO PERSON HAS BEEN AUTHORIZED BY THE DECLARANT TO MAKE ANY STATEMENT, REPRESENTATION OR WARRANTY NOT SPECIFICALLY CONTAINED HEREIN; AND NOTHING IN THIS PUBLIC OFFERING STATEMENT MAY BE CHANGED OR MODIFIED ORALLY.

ANY INFORMATION OR DATA ABOUT THE CONDOMINIUM THAT IS NOT INCLUDED IN THIS PUBLIC OFFERING STATEMENT SHOULD NOT AND MUST NOT BE RELIED UPON.

IN WITNESS WHEROF, B.R. Property, LLC. has caused this instrument to be sealed with its company seal and signed in its company name by David Chase, its _____, thereunto duly Authorized, this _____ of the month of _____, 2024.

SIGNED, SEALED AND DELIVERED
In the presence of:

B.R. Property , LLC

_____
Witness

By_____
Name: David Chase
Its

EXHIBIT A

DECLARATION OF CONDOMINIUM

MINERAL SPRINGS, A CONDOMINIUM
77 Blackstrap Road, Cumberland, Maine

ARTICLE 1
SUBMISSION

Section 1.1. Submission of Property. B.R. Property, LLC, a Maine limited liability company with a place of business In Yarmouth, Maine ("Declarant"), owner in fee simple of the land described in Exhibit A annexed hereto, located within the Town of Cumberland, Cumberland County, Maine (the "Land"), hereby submits the Land, together with all improvements, easements, rights and appurtenances thereunto belonging (the "Property") to the provisions of Chapter 31 of Title 33 of the Maine Revised Statutes Annotated, as amended, known as the Maine Condominium Act ("Condominium Act" or "Act") and hereby creates with respect to the Property a condominium, to be known as "Mineral Springs, a Condominium" (the "Condominium"). The Property is also shown on the following plat and plans: (i) the plan recorded on._____, in the Cumberland County Registry of Deeds in Plan Book____, Page_____, identified as follows: "Plan of Condominium Plat, Mineral Springs, a Condominium" dated ---------- (collectively the "Plat"); and (ii) on individual unit plans to be recorded in the Cumberland County Registry of Deeds on or before the conveyance of each Unit (collectively the "Plans"). Reference is also made to the plans identified as "Overall Subdivision Plan Mineral Springs Subdivision," dated ---------- , and recorded in the Cumberland County Registry of Deeds in Plan Book _____, Page _____ as the same may be amended (collectively the "Subdivision Plan").

Section 1.2. Name and Address of Condominium. The name of the Condominium shall be "Mineral Springs, a Condominium." The address of the Condominium is 77 Blackstrap Road, Cumberland , Maine 04021. The name of the unit owners association is the "Mineral Springs Condo Association" (the "Association") and Its address is 39 Nubbin Reach, Yarmouth, Maine 04096.

Section 1.3. Description of Condominium Development. Initially, the Condominium consists of the Land described in the attached Exhibit A and consisting of seventy-two (72) units, which are identified on the Plat as Units l-72.

ARTICLE 2
DEFINITIONS

Section 2.1. Terms Defined in the Act. Capitalized terms are defined herein or in the Plat and Plans, otherwise they shall have the meanings specified or used in the Condominium Act. In the case of conflict between the meanings specified or used in the Act, those meanings specified or used in the Condominium Act shall control.

Section 2.2. Terms Specifically Defined in the Declaration. In addition to the terms hereinabove defined, the following terms shall have the following meanings in this Declaration, the Bylaws, and Plat and Plans:

(a) "Additional Units" means the Units, if any, which may be added by the Declarant to the Condominium in accordance with Section 10 of this Declaration.
(b) "Assessment" means the Owner's share of the anticipated Common Expenses, allocated by Percentage Interest, for the Association's fiscal year as reflected in the budget adopted by the Executive Board for such year.
(c) "Association" means the Homeowners Association of the Condominium, which is known as the Mineral Springs Condo Association.
(d) "Buildings" (or in the singular, a "Building") means any residential, service or recreational structure or other improvement now or hereafter constructed on the Property.
(e) "Built Units" means constructed Units for which a certificate of occupancy has been issued by the Town of Cumberland.
(f) "Bylaws" means the document having that name and providing for the governance of the Association, pursuant to Section 1603-106 of the Condominium Act, as such document may be amended from time to time.
(g) "Common Elements" (or in the singular, a "Common Element") means those parts of the Property other than the Units as described either in the Condominium Act as being Common Elements or described herein as being Common Elements. Common Elements includes those items defined in the Town of Cumberland Land Subdivision Ordinance as "Private Common Use Improvements" and any reference in said ordinance to Private Common Use Improvements shall mean Common Elements for purposes of this Declaration and the Association
(h) "Common Expenses" means expenditures made by or financial liabilities of the Association together with any allocations to reserves.

(i) "Condominium" means the Condominium described in Section 1.1 above.

(j) "Condominium Documents" means the Declaration, Plat and Plans, Bylaws and Rules and Regulations.

(k) "Declarant" means B.R. Property, LLC. a Maine limited liability company, its successors and assigns.

(l) "Declaration" means this document, as the same may be amended from time to time.

(m) "Development Rights" means those rights defined in Section 1601 -103(11) of the Condominium Act, as it may be amended from time to time, including, but not limited to, those rights which the Declarant has reserved to itself, if any, to add real estate to the Condominium, to create Units, Common Elements or Limited Common Elements within the Condominium, to subdivide Units or, convert Units into Common Elements, or to withdraw any Real Estate, Units, or Property from the Condominium.

(n) Omitted.

(o) "Eligible Mortgage Holder" means the holder of a recorded first mortgage on a Unit, or the holder of a recorded or unrecorded Land Installment Contract, which has delivered written notice to the Association by prepaid United States mail, return receipt requested, or by delivery in hand securing a receipt therefore, which notice shall state the mortgagee's name and address, the Unit Owner's name and address, and the identifying number of the Unit, and shall state that the mortgage is a recorded first mortgage. Such notice shall be deemed to have been given reasonably prior to the proposed actions described in Section 15.2 if sent at the time notice thereof is given to the Unit Owners.

(p) "Executive Board" means the Executive Board of the Association. The terms executive Board and Board of Directors shall be interchangeable.

(q) "Insurance Trust Agreement" means that certain agreement, if any, between the Association and the Insurance Trustee providing for the management and disbursement of insurance proceeds in accordance with Section 16.3 hereof.

(r) "Insurance Trustee" means the entity responsible for the management and disbursement of insurance proceeds pursuant to the Insurance Trust Agreement, if any.

(s) "Land Installment Contract" means a contract under which the Declarant or an Owner agrees to sell or otherwise convey a Unit or other real property interest in a Unit or any portion thereof to a buyer and that buyer agrees to pay the purchase price in subsequent payments and the Declarant or Owner retains title to the Unit as security for the buyer's obligation under the Contract. The Declarant or Owner may assign its rights under the Contract to any third party.

(t) "Limited Common Elements" (or in the singular, a "Limited Common Element") means those parts of the Common Elements allocated for the exclusive use of a Unit. In the event of any discrepancy between the Condominium Act and Condominium Documents, the terms of the Condominium Documents shall control with respect to Limited Common Elements.

(u) "Limited Common Expenses" mean: (i) the Common Expenses associated with the maintenance, repair or replacement of a Limited Common Element which shall be assessed against the Unit(s) to which that Limited Common Element is assigned, in proportion to the relative Common Expense liabilities as between themselves, as the Executive Board may periodically define; and (ii) the Common Expenses for services benefiting fewer than all the Units, which are assessed exclusively against the Units benefited in accordance with the use of such services as permitted by Section 1603-115(c) of the Condominium Act.

(v) "Manager" or "Managing Agent" means the agent of the management company appointed by the Association to manage the Condominium or provide maintenance services.
(w) "Mortgagee" means the holder of any recorded mortgage encumbering one or more of the Units or the holder of a recorded or unrecorded Land Installment Contract.
(x) "Owner" means the record owner or owners of a Unit but does not include a person or entity having an interest in a Unit solely as security for an obligation.
(y) "Percentage Interest" means the undivided interest in the Common Elements appurtenant to a Unit, as set forth on Exhibit B attached hereto, as the same may be amended from time to time.
(z) "Property" means the Property described in Section 1.1 above.
(aa) "Private Common Use Improvements," as used in the Town of Cumberland Land Subdivision Ordinance, shall, for the purposes of this Declaration and associated Condominium Documents, have the same meaning as Common Elements.
(bb) "Plat and Plans" means the Plat and Plans as defined in Section 1.1 above, which are recorded in the Cumberland County Registry of Deeds, and as such may be amended and supplemented from time to time.
(cc) "Record" means to record in the Cumberland County Registry of Deeds.
(dd) "Reserved Common Element" means a portion of the Common Elements immediately surrounding a Unit that is licensed to a Unit owner as a Reserved Common Element.
(ee) "Rules and Regulations" means such rules and regulations as are promulgated by the Declarant or the Executive Board from time to time with respect to the use of all or any portion of the Property.
(ff) "Section" means one or more residential Buildings developed at or around the same time pursuant to the Development Rights and Special Declarant Rights set forth in Article 10 hereof.
(gg) "Special Assessment" means an Owner's share of any assessment made by the Executive Board in addition to the Assessment.
(hh) "Special Declarant Rights" means those rights defined in Section 1601-103(25) of the Condominium Act, as it may be amended from time to time, including, but not limited to, those rights the Declarant has reserved to itself to complete improvements, to maintain sales offices, to use easements through Common Elements for the purpose of making improvements within the Condominium, and to appoint or remove any officer of the Association during any period of Declarant control.
(ii) "Unit" means a physical portion of the Condominium created by this Declaration or any amendment thereto and designated for separate ownership or occupancy, the boundaries of which are described in Article 3 hereto.
(jj) "Un-built Units" means declared Units that are not built, or that are not completed, and for which a certificate of occupancy from the Town of Cumberland has not been issued. Once a certificate of occupancy has been issued, such Unit shall be treated as a Built Unit.
(kk) "Yard" means a portion of the Common Elements immediately surrounding a Unit that is licensed to a Unit owner as a Reserved Common Element.

Section 2.3. Provisions of the Condominium Act. The provisions of the Condominium Act shall apply to and govern the operation and governance of the Condominium, except to the extent that contrary provisions, not prohibited by the Act, are contained in one or more of the Condominium Documents.

ARTICLE 3
UNIT BOUNDARIES

Section 3.1. Units. Seventy-Two (72) residential condominium units consisting of one (1) Unit buildings, are hereby created and declared under this Declaration on the Land designated on the Plat. The Land designated on the Plat is more particularly described on the attached Exhibit A. Attached as Exhibit B hereto is a list of all Units, their identifying numbers, common element interest, common expense liability and vote appurtenant to each Unit, based upon the completion of the seventy-two (72) Units created hereby.

Section 3.2. Unit Boundaries. The boundary lines of each Unit are as shown on the Plat and Plans and shall conform with unit boundaries as described in the Act to the extent not described herein.

(a) For condominium buildings containing one (1) unit, the entire building and appurtenances attached thereto shall be the extent of the Unit's Boundaries, as follows:
   1) The upper and lower (horizontal) boundaries of each level of each Unit shall be the following boundaries extended to the intersection with the vertical (perimeter) boundaries: (i) Upper Boundary: the exterior surface of the roof of the Unit; (ii) Lower Boundary: the horizontal plane of the lower surface of the concrete subfloor slab.

   2) The vertical (perimeter) boundaries of each Unit shall be the exterior surface of the outside walls of the Building bounding the Unit.

   3) Boundary lines shall also be the outside surface of the exterior structures and fixtures attached to the Unit or enclosing the Unit and separating it from the Common Elements, including the exterior surface of doors, windows and storm windows, and glass walls, and their frames, sills and thresholds, shutters, awnings, window boxes, front and rear steps and railings, balconies, porches, decks, patios, sun rooms and dormers, including all finish materials.

(b) For avoidance of doubt, as to all buildings with one (1) unit, all internal structures contained within and external structures attached to the building are included in the Unit, including, without limitation, roofing framing and covering, chimneys and flues, wall framing, insulation, sheathing, clapboards, studs, joists, load bearing portions of the building, attic structural elements, foundation walls, all floor slabs, garage slab floors, and interior foundation drains.

(c) Each Unit's identifying number is shown on the Plat and on Exhibit B.

(d) The exact location of vertical unit boundaries of each Unit will be established at the time of construction or initial conveyance of each Unit, whichever is earlier to occur, and shall be set forth on an individual Unit plan to be recorded on or before the initial conveyance of each Unit. Exhibit C attached hereto contains a listing of plan book and page references of each of the Unit plans recorded for the Units that have been conveyed to purchasers as of the date

hereof. Exhibit C shall be amended as each additional unit is initially sold to incorporate the book and page references of each Unit Plan showing the location of the vertical and horizontal unit boundaries of each unit constructed and sold.

ARTICLE 4
DESCRIPTION AND ALLOCATION OF COMMON ELEMENTS, LIMITED COMMON ELEMENTS AND RESERVED COMMON ELEMENTS

Section 4.1. Description of Common Elements. Common Elements shall consist of all of the Property except the individual Units, and shall include the land, pond, basketball court, trail and playground for common use, all wires, pipes, ducts, foundation drains, electrical wiring and conduits, public and private utility lines (other than those which are contained within the Unit and serve only that Unit), and any easements as set forth in Exhibit A for parking, access, and utilities; and in addition, all other parts of the Property necessary and convenient to its existence, maintenance and safety, normally in common use as defined in the Condominium Act, except such parts of the Property as may be specifically excepted or reserved herein or in any exhibit attached hereto. As provided in Section 1602-102(2) of the Condominium Act, any wires, ducts, pipes, or other fixtures located within a Unit but serving another Unit or Units are part of the Common Elements. Each Owner shall have the right to use the Common Elements in common with all other Owners, as may be required for the purposes of ingress and egress to and use, occupancy and enjoyment of the respective Owners and guests, tenants, and other authorized occupants, licensees, and visitors of the Owner. The use of the Common Elements and the rights of the Owners with respect thereto shall be subject to and governed by the provisions of the Act and Condominium Documents. Without limitation, the Common Elements shall specifically include the following:

(a) Grounds. The land, lawns, trees, any forested areas, signage, parking spaces as identified on the Plats and Plans, common mailboxes, any common facilities as shown on the Plat and Plans.

(b) Systems & Utilities. Electric distribution to each unit meter, water distribution to each unit master valve, storm and unit drainage system, water lines servicing more than one unit (in foundation, basement, and exterior walls), electrical wiring from meter and serving more than one unit (in foundation and exterior walls).

(c) Other. All other parts of the property necessary or convenient to its existence, maintenance and safety or normally in common use, except as otherwise expressly provided.

Section 4.2. Description of Limited Common Elements. Limited Common Elements shall mean all wires, ducts, pipes, drains or other fixtures serving only one Unit. Those portions of the Limited Common Elements serving only a single Unit are Limited Common Elements allocated only to the Unit that they serve. Limited Common Elements that service less than all Units but more than one Unit shall be allocated equally to the serviced Units.

Section 4.3. Locations of Common and Limited Common Elements. Except for the Limited Common Elements described in Section 4.2 above, the locations of the Common Elements and Limited Common Elements are shown on the Plat and Plans.

Section 4.4. Reserved Common Elements. Each Unit Owner shall be granted a license from the Association to exclusive use of space adjacent to his Unit as yard space (a "Yard"). The Executive Board shall have the power in its discretion to define the boundaries of the Yard area and grant a revocable license to an Owner to use the Yard (a "Yard License Agreement"), subject to the Rules and Regulations established by the Association. Such license is revocable by the Association during the Unit Owner's ownership of the Unit only in the event of default of the license agreement for such Yard. Such designation of a licensed Yard area by the Executive Board shall not be construed as a sale or disposition of the Common Elements.

Section 4.5. Location of Reserved Common Elements. The locations of the Reserved Common Elements for each Unit are shown on the recorded plat. A building envelope is shown in each Reserved Common Element for each Unit. The Unit must be built within the building envelope. The individual Plans are not recorded, but are a part of the Yard License Agreement, which shall be retained in the records of the Association.

Section 4.6. Alteration of Common Elements by the Declarant. The Declarant reserves the right to modify, alter, remove or improve portions of the Common Elements, including without limitation, any equipment, fixtures and appurtenances, when in the Declarant's judgment it is necessary or desirable to do so.

ARTICLE 5
MAINTENANCE RESPONSIBILITIES

Section 5.1. Maintenance Responsibilities. Notwithstanding the ownership of the various portions of the Common Elements and the Units by virtue of the foregoing boundary descriptions, the Units and Common Elements shall be maintained and repaired by each unit Owner and by the Association in accordance with the provisions of Section 1603-l 07 of the Act, except as expressly set forth to the contrary herein.

Section 5.2. Maintenance and Inspection of Limited Common Elements. The maintenance, repair and replacement of Limited Common Elements created, if any, shall be the responsibility of the Association, with the cost thereof, if any, to be allocated among the Units so benefitted, except as otherwise noted in the Condominium Documents.

Section 5.3. Maintenance and Inspection of Reserved Common Elements. Maintenance of the Reserved Common Elements licensed to the Units shall be the responsibility of the Association, with the cost thereof to be treated as a Common Expense. Notwithstanding the foregoing, the Unit Owner shall be responsible for maintenance of any portion of his Yard that is (a) designated as a private garden area by consent and approval of the Association, or (b) not reasonably accessible to the Association's maintenance equipment as a result of fencing or other structures installed by the Unit Owner.

Section 5.4. Maintenance and Inspection of Common Elements.

(a) The Association, or the Managing Agent of the Association in accordance with Article 7, shall be responsible for the maintenance, repair and replacement (unless, if in the opinion of the Board of Directors such expense was necessitated by the negligence, misuse or neglect of a unit Owner) of all of the Common Elements whether located inside or outside of the Units, the cost of which shall be charged to the Unit Owners as a Common Expense except as otherwise provided herein with regard to Limited Common Elements and certain Reserved Common Elements. The maintenance, repair and replacement of Common Elements located within a Unit, if any, for which the Unit Owner is not responsible, to the extent required for the functioning of or for connecting utilities to the Property and Units, shall be furnished by the Association as part of the Common Expenses.

(b) The Association shall cause the regular inspection of Common Elements at intervals specified by the Town of Cumberland and at such other times as the Association deems appropriate.

Section 5.5. Maintenance of Unit. Each unit Owner shall keep and maintain his Unit, private garden area and fenced Yard areas inaccessible to the Association's maintenance equipment, if any, including the building, grounds, equipment, appliances and appurtenances in good order, condition and repair and in a clean and sanitary condition, whether such maintenance and repair shall be structural or non-structural, ordinary or extraordinary, and shall do all property maintenance, redecorating, painting and varnishing which may at any time be necessary to maintain the good appearance and condition of his Unit and portion of the Yard he is responsible to maintain. No unit Owner shall sweep or throw, or permit to be swept or thrown, from his Unit any dirt, debris or other substance. In addition, each unit Owner shall be responsible for all damage to any other Units or to the Common Elements resulting from his failure or neglect to make any of the repairs required by this Article. Each unit Owner shall perform his responsibility in such manner as shall not unreasonably disturb or interfere with the other unit Owners. Each unit Owner shall promptly report to the Executive Board or the managing agent any defect or need for repairs for which the Association is responsible. No unit Owner shall change the exterior color of his or her Unit nor alter the exterior materials or structure without the written approval of the Board of Directors. All exterior maintenance shall be undertaken so as to maintain the general character and quality of the condominium. No work shall be undertaken without all necessary State and local permits and approvals, and copies of all such permits and approvals shall be given to the Association.

Section 5.6. Liability of Owner. Each unit Owner shall be liable for, and the Association shall have a lien against his Unit for, the expense of maintenance, repair or replacement of any portion of another Unit or the Common Elements, including Limited Common Elements and Reserved Common Elements, of another Unit caused by such unit Owner's act, neglect or carelessness or by that of any member of such unit Owner's family, or such unit Owner's guests, employees, agents, lessees, or their pets, and the Association shall have the right to cure, correct, maintain, repair or replace any damage or disrepair resulting from such act of neglect or carelessness. The Association shall also have the right to perform maintenance required of a unit Owner under Section 5.5., but not performed by the unit Owner, including, without limitation, services of the

Managing Agent requested by the unit Owner and the unit Owner shall be liable for and the Association shall have a lien against the Unit for the expense of such maintenance. Such liability shall include any increase in fire insurance rates occasioned by use, misuse, occupancy, or abandonment of any Unit or its appurtenances. Nothing herein contained, however, shall be construed so as to modify any waiver by insurance companies of rights of subrogation against such unit Owner.

ARTICLE 6
ALLOCATION OF PERCENTAGE INTERESTS, COMMON EXPENSES AND VOTING RIGHTS

Section 6.1. Percentage Interests. Attached hereto as Exhibit B is a list of Units by their identifying number and the Percentage Interest appurtenant to each Unit, for all Units created as of the time of the recording of this Declaration together with an explanation of the formula by which such Percentage Interest is determined.

Section 6.2. Common Expenses. The liability of each Unit for the Common Expenses of the Condominium shall be the same percentage share as the Percentage Interest set forth on Exhibit B, and as such shall be determined by the same formula by which the Percentage Interest is determined. Notwithstanding the foregoing, and in accordance with Section 1603-115 of the Act, the Association may adopt an annual Budget allowing for different categories or amounts of monthly assessments as applicable to Built Units that are (i) fully constructed and benefiting from all Common Expenses and (ii) Un-Built Units that are not fully constructed or otherwise benefiting from all Common Expenses (e.g., incomplete or unoccupied units, may be assessed a lower monthly assessment if such Units do not benefit from common expenses relating to common utilities, trash removal, snow removal, etc.), and may assess Built and Unbuilt Units based upon the reduced level of expenses that benefit such Un-Built Units.

All Utilities that are not separately metered or billed to a Unit shall be treated as part of the Common Expenses; provided however, that the Declarant or the Association shall have the right to separately meter or submeter any or all utilities used by each Unit and to allocate expenses as Common Expenses or Limited Common Expenses, as the case may be.

Section 6.3. Allocation of Owners' Voting Rights. Each Owner of a Unit shall be entitled to vote as described on Exhibit B. If a Unit is owned by more than one person or entity, the voting interest shall not be divided and the vote for the Unit shall be cast by only one of the Owners as determined by a majority of the Owners of such Unit.

ARTICLE 7
MANAGEMENT

Section 7.1. Managing Agent. The Association shall have the obligation to employ a professional experienced property management firm to provide property maintenance services to individual Unit Owners at their request and/or to the Association, and the right to employ the same firm or another professional experienced property management firm to oversee the daily operation of the Condominium in accordance with the provisions of the Act and the Declaration

(either or both firms, a "Managing Agent"); provided, however, that no agreement for such professional services may exceed a term of three (3) years but may be renewed upon consent of the Association. Such agreement(s) shall be cancelable by either party without cause and without a termination fee upon not less than sixty (60) days nor more than ninety (90) days written notice and shall be cancelable by the Executive Board with cause upon not less than thirty (30) days written notice. Any agreement for professional management negotiated by the Declarant shall meet the requirements of this Article 7 for such agreements negotiated by the Association and shall not exceed one (1) year, but may be renewed upon consent of the Association.

Section 7.2. Maintenance Responsibilities. A Managing Agent, or the Association through the Executive Board in the absence of a Managing Agent, shall be responsible for maintenance, repair and replacement of the Common Elements and Common Property including, but not limited to, the Limited Common Elements but excluding any private garden areas or portions of Yards accessible only to the Unit Owner as a result of fencing or other structures. The cost of the provision of such services shall be a Common Expense. The Managing Agent performing property maintenance services shall be required by contract to make itself available to provide services for individual Unit Owners upon request for any maintenance responsibilities of the individual Unit Owner, in the Yard or Unit, to be payable through the Association by assessment upon the Unit Owner receiving such services.

ARTICLE 8
EASEMENTS

Section 8.1. Additional Easements. In addition to the easements provided for by the Act, the following easements are hereby created:

(a) All Units shall be subject to an easement in favor of the Declarant pursuant to Section 1602-115 of the Condominium Act. The Declarant reserves the right to use any Units owned or leased by the Declarant and any Common Element as models, management offices, sales offices for this and other projects or customer service offices; and the Declarant reserves the right to relocate the same from time to time within the Property; upon relocation, the furnishings thereof may be removed. The Declarant further reserves the right to maintain on the Property such advertising signs as may comply with applicable governmental regulations, which may be placed in any location on the Property and may be relocated or removed, all at the sole discretion of the Declarant. Prior to assignment as Limited Common Elements, the Declarant shall have the right to restrict the use of certain Common Element parking areas for sales purposes and to use such areas for sales purposes. Further, the Declarant shall have the right to erect temporary offices on any Common Element parking areas for models, sales, management, customer service and similar purposes. This easement shall continue until the Declarant has conveyed all Units in the Condominium to Owners other than the Declarant.

(a) The Units and Common Elements (including Reserved Common Elements) shall be, and hereby are, made subject to easements in favor of the Declarant, other Owners, appropriate utility and service companies, cable television companies and governmental agencies or authorities for such utility and service lines and equipment as may be necessary or desirable to serve any portion of the Property. The easements created by this Section 8.1(b) shall

include, without limitation, rights of the Declarant, any Owner or the providing utility or service company, or governmental agency or authority to install, lay, maintain, repair, relocate and replace gas lines, pipes and conduits, water mains and pipes, sewer system components and drain lines, drainage ditches and telephone wires and equipment, television equipment and facilities (cable or otherwise), electrical wires, conduits, and equipment and ducts and vents over, under, through along and on the Units and Common Elements: Notwithstanding the foregoing provisions of this Section 8.1(b), any such easement through a Unit shall be located either in or substantially in the same location as such facilities or similar facilities existed at the time of first conveyance of a Unit and license of a Yard by the Declarant or so as not to materially or unreasonably interfere with the use, occupancy, or quiet enjoyment of the Unit and Yard by its occupants. With respect to any utility lines or equipment serving only the Condominium and located upon the Common Elements, the Executive Board shall have the right and power to dedicate and convey title to the same to any private or public utility company. The Executive Board shall also have the right and power to convey permits, licenses and easements over the Common Elements for the installation, maintenance, repair and replacement of utility poles, lines, wires and other equipment to any private or public utility company. In addition, the Executive Board shall have the right to grant permits, licenses and easements over the Common Elements for the building and maintenance of roads, for the protection of the natural, scenic and open space values of the Property, and for other purposes necessary for the proper operation of the Condominium.

(b) The Declarant reserves for as long as it is entitled to exercise any Development Right an easement on, over and under those portions of the Common Elements (including Yards) not located within a Building for the purpose of maintaining and/or correcting drainage of surface water in order to maintain reasonable standards of health, safety and appearance. The easement created by this Section 8.l(c) expressly includes the right to cut any trees, bushes, or shrubbery, to grade the soil, or to take any other action reasonably determined to be necessary. The Declarant or the Association, as the case may be, shall restore the affected property as closely to its original condition as is practicable.

(c) The Common Elements (other than the Limited Common Elements and Reserved Common Elements) shall be, and hereby are made, subject to an easement in favor of the Owners and their invitees, employees, tenants and servants, the Association and the agents and employees of the Association for access, egress and ingress over, through and across each portion thereof, pursuant to such requirements and subject to such charges as the Executive Board may from time to time prescribe; provided that nothing contained herein shall create any access easement in favor of Owners with respect to such portions of the Common Elements which are not needed in order to gain access to one or more Units and as to which the Executive Board may from time to time determine it to be necessary or desirable to limit or control access by Owners or the occupants of Units, or both, including, by way of illustration and not limitation, machinery and equipment rooms, and any management agent's office, provided, however, that every Owner shall have an unrestricted right of ingress and egress to his Unit for his specified Period of Use. Until the Declarant conveys the last Unit to an Owner other than Declarant, the Declarant shall have the right to restrict access by owners to management and sales offices and areas located on or in any Common Element.

(d) The Common Elements (including, but not limited to, the Limited Common Elements and Reserved Common Elements) and Units are subject to an easement in favor of the Declarant for the purposes of construction, reconstruction, maintenance, repair, renovation, replacement or correction of the Units or Common Elements.

(e) The Common Elements (including, but not limited to, the Limited Common Elements and Reserved Common Elements) shall be and hereby are made subject to an easement in favor of the Association and the agents, employees and independent contractors thereof for the purpose of the inspection, upkeep, maintenance, repair and replacement of the Common Elements, and Property (including, but not limited to the Limited Common Elements and Property and Reserved Common Elements and Property).

(f) The Common Elements (including, but not limited to, the Limited Common Elements and Yards) shall be and hereby are made subject to the following easements in favor of the Units benefited for the installation, repair, maintenance, use, removal and/or replacement of pipes, ducts, heating and air conditioning systems, electrical, telephone and other communication wiring and cables and all other utility lines and conduits which are part of or exclusively serve a single Unit and which pass across or through a portion of the Common Elements;

(g) To the extent necessary, every Unit shall have an easement for structural support over the Common Elements, and every Unit and the Common Elements shall be subject to an easement for structural support in favor of every Unit. The Units, Reserved Common Elements and the Limited Common Elements are hereby made subject to the following easements:

1) In favor of the Association and its agents, employees and independent contractors, (i) for inspection of the Units, Reserved Common Elements and Limited Common Elements in order to verify the performance by Owners of all items of maintenance and repair for which they are responsible, (ii) for inspection, maintenance, repair and replacement of the Common Elements and Property or the Limited Common Elements and Property situated in or accessible from such Units or Limited Common Elements or both, (iii) for correction of emergency conditions in one or more Units, Reserved Common Elements or Limited Common Elements, or any of them, or casualties to the Common Elements and Property, the Limited Common Elements and Property, the Reserved Common Elements and Property and/or the Units, and (iv) to do any other work reasonably necessary for the proper maintenance of the Condominium, it being understood and agreed that the Association and its agents, employees and independent contractors shall take reasonable steps to minimize any interference with an Owner's use of his Unit resulting from the Association's exercise of any rights it may have pursuant to this Section 8.1 (i)(l) and the following Section 8.l(i)(2) or both;

2) In favor of the Owner benefited thereby and the Association and its agents, employees and independent contractors, for the installation, repair, maintenance, use, removal and/or replacement of pipes, ducts, electrical, telephone, telegraph or other communication systems and all other utility lines and conduits which are part of the Common Elements,

and which pass across or through a portion of one or more Units or Reserved Common Elements.

(h) If construction, reconstruction, .repair, shifting, settlement or other movement of any portion of the Condominium results either in the Common Elements encroaching on any Unit, or in any Unit encroaching on the Common Elements or on any other Unit, a valid easement shall exist during the period of the encroachment for the encroachment and for the maintenance thereof.

(i) All easements, rights and restrictions described and mentioned in this Declaration are easements appurtenant, running with the land and the Property, including by way of illustration but not limitation the Units and the Common Elements, and (except as expressly may be otherwise provided herein or in the instrument creating the same) shall continue in full force and effect until the termination of this Declaration.

Section 8.2. Reservation of Easement Rights. Until the construction, marketing and sale of all Units is completed, the Declarant reserves the right to grant to any third party any license or easement in, on, over or through the Property, in addition to and not in limitation of those set forth above, which license or easement is determined by the Declarant, in its reasonable judgment, to be necessary for the development or improvement of the Property. Any such license or easement granted hereunder may be recorded by the Declarant at its sole cost and expense. The Association, at the request of the Declarant, shall execute and deliver in recordable form any instrument or document necessary or appropriate to confirm the grant of such license or easement.

Section 8.3. Additional Easements. Covenants, Restrictions, DEP Order. The Property is also subject to any easements and restrictions set forth on the attached Exhibit A and as shown on the Plat and Plans and the Site Plan, and is further subject to the following:

(a) Subdivision Plan. Terms and conditions of the Subdivision Plan; and

(b) Town Approvals. Terms and conditions of any related subdivision or site plan permits or approvals granted by the Town of Cumberland (the "Town"), as evidenced by said Subdivision Plan (collectively, the "Town Approvals"), whether or not such terms and conditions are noted or referenced on the Plan or on any other instrument recorded in the Cumberland County Registry of Deeds.

ARTICLE 9
RESTRICTIONS ON USE, SALE AND LEASE OF UNITS

Section 9.1. The following restrictions shall apply to the use of the Condominium:

(a) Residential Use. The Units and Common are restricted to residential use. The Units may not be used for any other purposes by the Owner or any future Owner. No present or future owner of any Unit shall permit his Unit to be used or occupied for any purpose other than as a single family residence. Notwithstanding any of the foregoing, an Owner may use a Unit for the

purpose of a home office, provided, however, that any such use complies with all applicable state and local laws and ordinances, and that such use is otherwise consistent with the Condominium Documents.

(b) Obstruction of Common Elements. No Owner may obstruct the Common Elements in any way except that fences around Yards may be permitted by the Association, in accordance with its applicable Rules and Regulations. No Owner may store anything in or on the Common Elements without the prior written consent of the Executive Board.

(c) Quiet Enjoyment. No Owner may carry on any practice, or permit any practice to be carried on, which unreasonably interferes with the quiet enjoyment of the occupants of any other Unit. The Property is to be maintained in a clean and sanitary condition, and no Owner may place any garbage, trash or rubbish anywhere in the Property other than in his own Unit and in or on such parts of the Common Elements as may be designated for such purpose by the Executive Board.

(d) Fire Hazards. No Unit shall be used, occupied or kept in a manner that in any way increases the fire insurance premiums for the property without the prior written permission of the Executive Board.

(e) Signs. No Owner (other than the Declarant in connection with its marketing and sale of the Units) may erect any sign on or in his Unit or any Limited Common Element which is visible from outside his Unit or from the Common Elements, without in each instance having obtained the prior written permission of the Executive Board.

(f) Pets and Animals. No animals, except as common household pets in accordance with the Rules and Regulations, shall be kept or maintained on the property, nor shall common household pets be kept, bred or maintained for commercial purposes on the Property. Owners are responsible for immediate clean-up of pet waste. Unless otherwise permitted by the Board, authorized pets shall not be permitted outside of Units unless they are accompanied by an adult person and carried or leashed. The Board of Directors may make further provisions in the Rules for the control and regulation of household pets in the Condominium and any pets kept in violation of this Declaration or the Rules and Regulations may be removed from the Condominium by the Association. Additionally, the Board may specifically regulate or exclude from the Condominium particular breeds or species of dogs or other pets as determined by the Board to be necessary for the safety and quiet enjoyment of the Condominium and as necessary to conform with any insurance requirements relating to the Condominium. The owner of a unit where a pet is kept or maintained shall be responsible and may be assessed by the Board of Directors for all damages to the property resulting from the maintenance or conduct of said pet, and any costs incurred by the Association in enforcing the Rules prescribed or to be prescribed by the Board of Directors for the control and regulation of pets in the Condominium and each such owner shall be deemed to indemnify and hold the Board harmless against such loss or liability resulting from said pet. Notwithstanding any of the foregoing, and in accordance with the terms and conditions of the DEP Order referenced herein above, cats may be kept as pets at the Condominium only as indoor pets; therefore any cat kept as a pet by any Owner is strictly prohibited from all outdoor Common Element areas of the Condominium.

(g) Rules and Regulations. The Executive Board shall promulgate reasonable Rules and Regulations, not in conflict with the provisions of this Declaration, concerning the use and enjoyment of the Property. Copies of the then current Rules and Regulations and any amendments thereto shall be furnished to all Owners by the Association promptly after the adoption. of such Rules and Regulations and any amendments thereto.

(h) Alterations to Units. Except as otherwise provided herein, approval by a majority vote of the Executive Board of the Association is required for: (i) alteration, remodeling or renovation of the exterior of any Unit. Executive Board approval shall not be required for interior alterations of any Unit or interior renovations that do not affect the structural integrity of any Common Elements. When making any alteration, the Unit Owner is required to obtain all necessary approvals and permits as may be required by the Town of Cumberland, engage insured contractors to perform the services, and otherwise comply with all Rules of Regulations of the Association.

(i) Yards. The Executive Board shall promulgate reasonable Rules and Regulations, not in conflict with the provisions of this Declaration, concerning the use and maintenance of Yards.

(j) Porch Additions. If the record owner(s) of the subject Unit affirmatively elects, with the written approval of the Board of Directors of the Association based on each Owner's compliance with the standards set forth hereinafter and municipal approval as may be required by the Town of Cumberland, all to be evidenced by a recorded instrument duly executed and acknowledged, the unit Owner may create a porch attached to the rear side of a unit in the area as shown on the Plat and Plans as a patio or deck by enclosing such patio or deck. A porch, once added in accordance with the provisions of this Declaration, shall be part of the Unit and shall be insured and maintained at the sole expense of the Unit Owner as part of the Unit. The exercise of such right is subject to the following limitations, compliance with which shall be approved by the Board of Directors of the Association in their discretion prior to construction:

1) The porches shall be of first quality, permanent construction and not impair the structural integrity, mechanical systems or support of the buildings or Common Elements;

2) The porches shall be compatible with the architectural design and quality of construction of the Condominium and existing buildings; and

3) The porches may be built only in the locations of the patio or deck area, except as may be approved by the Association and the Town of Cumberland. The porches shall strictly comply with all fire, building codes and other governmental requirements.

The Association may require a bond or other assurances of compliance with the foregoing standards. At all times after such election each unit Owner: shall preserve and maintain the structural integrity and architectural style, the mechanical and utility systems, and the support of all portions of the Property and Common Elements; and shall strictly comply with all fire, building code and other governmental laws, ordinances and requirements. Any such unit Owner or his respective heirs, mortgagees or assigns, may at any time revoke such election by

instrument duly executed and acknowledged served on to other such owners and duly recorded, and thereafter may seal up passageways and/or remove the stairs, doors and their frames, and/or install a permanent wall, floor ceiling or other partitions, at all times preserving the structural integrity of the building and Common Elements, if any.

(k) Labor, Mechanic's Liens. No Owner shall cause any material to be furnished to his Unit or any labor to be performed therein or thereon except in the manner set forth in subparagraph (h) and (i) above. Each Owner shall indemnify and hold the other Owners of his Unit harmless against any loss, damage or claim arising out of his breach of the provisions of this Section 9.1, including but not limited to the costs of removing any unauthorized improvements, any repairing and restoring the Unit to substantially its condition prior to such alteration, remodeling, renovation or repair and the cost of removing, bonding, defending or paying any mechanic's or materialmen's liens.

Section 9.2. Sale and Lease of Units.

(a) The Declarant shall have the right to operate any Units owned by the Declarant as a rental project. The Declarant may establish and maintain in the Units and Common Elements, all offices, signs and other accouterments normally used in the operation of, such rental properties in the sole discretion of the Declarant. Such operation shall be for the benefit of the Declarant and neither the Association nor any Owner (other than the Declarant) shall have any right or interest in the profits or losses thereof.

(b) There shall be no rental program offered to the Owners by Declarant, Managing Agent or any third parties. Subject to the approval of the Executive Board, an Owner other than the Declarant may rent his or her Unit in accordance with a written lease agreement. The Executive Board may prescribe by resolution a form of lease or specific provisions to be included in any lease of a Unit owned by a party other than the Declarant, and thereafter no Owner other than the Declarant shall execute a lease of his or her Unit which is not in compliance with such resolution. Each tenant and lease shall be subject to the covenants, restrictions and conditions set forth in the Declaration and all other Condominium Documents, including without limitation the enforcement rights reserved to the Executive Board pursuant to Section 12.3 herein.

(c) This Section .9.2. shall not be deemed or construed to impair a Mortgagee's right to foreclose, accept a deed in lieu of foreclosure or sell or lease a Unit so acquired by the Mortgagee.

Section 9.3. Time Share Ownership Prohibited. No ownership interest in any Unit shall or may be subdivided to permit "time sharing" or any other devices to effect interval ownership. For the purposes of this subsection, such devices shall be deemed to include, without limitation, the use of corporations, partnerships and tenancies in common in which four or more persons not members of a single household have acquired by means other than inheritance, devise or operation of law, a direct or indirect, equitable or legal, right to occupy or arrangement, formal or informal regarding occupancy of the same unit.

ARTICLE 10
DEVELOPMENT RIGHTS AND SPECIAL DECLARANT RIGHTS

Section 10.1. General Development Rights. In addition to the easement rights reserved in Article 8, the Declarant reserves to itself and for the benefit of its successors and assigns the right:

(a) Until the construction,' marketing and sale of all Units is completed, including any future Units which may be created under this Declaration, to connect with and make use of utility lines, wires, pipes and conduits located on the Property for construction and sales purposes, provided that the Declarant shall be responsible for the cost of services so used;

(b) Until the construction, marketing and sale of all Units is completed, including any future Units which may be created under this Declaration, to use the Common Elements for ingress and egress, for the repair and construction of Units and Common Elements including the movement and temporary storage of construction materials and equipment, and for the installation of signs and lighting for sales and promotional purposes;

(c) Until the construction, marketing and sale of all Units is completed, including any future Units which may be created under this Declaration, to subdivide or convert Units into Common Elements, to withdraw Units or real estate from the Condominium and any and all other Development Rights as are ow allowed or in the future may be allowed by the Condominium Act. No land may be withdrawn from the Condominium if a Unit has been legally located on such land unless the Owner and any Eligible Mortgage Holder of the Unit have consented. No easement rights may be withdrawn in connection with such withdrawn land across any existing Unit unless the Owner and any Eligible Mortgage Holder of the Unit have consented. Once such land and associated easements have been withdrawn, they shall no longer be subject to the terms of this Declaration or any of the covenants and restrictions set forth herein. Any withdrawal of land must be structured so that the balance of the Condominium complies with applicable zoning and subdivision ordinance requirements of the Town of Cumberland. Declarant reserves the right to withdraw portions of said land at different times and in separate portions with boundaries other than those depicted on the Plat and Plans and in such order as it deems appropriate, provided, however, that land may only be withdrawn in accordance with applicable federal, state, and municipal laws, regulations, and ordinances. Declarant further reserves the right to create easements as it deems necessary over Common Areas of the Condominium benefiting such withdrawn land. Otherwise no consent of the Association, any Unit owners or the Association is required. Once such land has been withdrawn it shall be released from all terms, covenants and restrictions set forth in this Declaration, and it may be developed and used in any manner permitted by the Town of Cumberland Zoning and Land use Ordinances as they may vary; and

(d) Until the construction, marketing and sale of all Units is completed, including any future Units which may be created under this Declaration, to complete all improvements shown on the Plat and Plans, to relocate any improvements shown on the Plat and Plans, construct additional Common Element improvements on any part of the Property, to exercise the Development Rights set forth herein, to maintain models and sales offices and to exercise the

easements as set forth in Article 8 hereof, to make the Condominium part of a larger condominium, to make the Condominium subject to a master association, to appoint or remove any officer or Executive Board member during any period of Declarant control of the Association and any and all other Special Declarant Rights as are now allowed or in the future may be allowed by the Condominium Act. The real estate subject to these Development Rights and Special Declarant Rights is all of the Property, except those portions lying within the boundaries of declared Units and upon which declared Units are located.

(e) Appoint and remove members of the Board of Directors and Officers of the Association in accordance with Section 12.1.

(f) Set the location of the vertical unit boundaries of each Unit at the time of construction of the foundation of the Unit or at time of initial conveyance of the Unit, whichever is earlier, and subject to approval by the Town of Cumberland in the event that the location is materially different than shown on the recorded Plat. Location of vertical unit boundaries shall be set forth' in individual unit plans to be recorded at the time of initial conveyance of each Unit, and referenced on Exhibit C attached hereto. The Declarant reserves the right, without seeking consents of Unit Owners or Eligible Mortgagees, to prepare, execute and record amendments to this Declaration, to amend Exhibit C to reference additional Unit plans as such Unit plans are recorded and to prepare and record amendments to the Plat and Plans to show the location of Units as constructed.

Section 10.2. Exercise of Rights. The exercise of the Development Rights and Special Declarant Rights reserved herein shall be in accordance with and governed by the provisions of the Act, including without limitation Section 1602-110 of the Act. A copy of all amendments to this Declaration prepared by Declarant shall be forwarded to Eligible Mortgage Holders upon request. Further, in accordance with Section 1602-l09(f) of the Condominium Act, the Declarant will either record new Plat and Plans or record an affidavit that the Plat and Plans previously recorded conform to the requirements of the Act. Said amendment shall become effective upon recording without the consent of any other person.

Section 10.3. Amendment, Waiver, Etc. This Article 10 shall not be amended without the written consent of the Declarant duly recorded in the Cumberland County Registry of Deeds. The rights and benefits of ARTICLE 5 and all other rights of Declarant set forth in this Declaration, the Bylaws or otherwise, as amended from time to time, may be transferred in whole or part by recorded instrument specifically referring to this Section and executed by Declarant and its successor or assignee. The Declarant shall have the right to waive the Development and Special Declarant Rights reserved hereunder in whole or part by an written instrument provided that such waiver shall only be effective upon recording in said Registry of Deeds and such waiver shall be subject to the limitations of Section 1603-103(d) of the Act regarding Declarant Control of the Association.

Section 10.4. Other Declarant Amendments. The Declarant further reserves the right, without seeking consents of Unit Owners or Eligible Mortgagees, to prepare, execute and record amendments to the Declaration and the Plats and Plans to correct technical errors, to address requirements of approval of the Town of Cumberland or any other governmental authority

having jurisdiction over the Condominium, or as may be reasonably required for the Declarant to be able to obtain underwriting approval for secondary mortgage market financing on the Units, provided that no such amendment shall have a material adverse effect upon the use or enjoyment of any Unit, other than a Unit owned by the Declarant.

ARTICLE 11
UNITS SUBJECT TO CONDOMINIUM DOCUMENTS, EMINENT DOMAIN

Section 11.1. Applicability of Condominium Documents. Each present and future Owner, tenant, occupant and Mortgagee of a Unit therein shall be subject to and shall comply with the provisions of the Act, and with the covenants, conditions and restrictions as set forth in the Condominium Documents and the deed to such Unit; provided that nothing contained herein shall impose upon any tenant of a Unit or Mortgagee any obligation which the Act or one or more of such documents, or both, make applicable only to Owners (including, without limitation, the obligation to pay assessments for Common Expenses). The acceptance of a deed or mortgage to any Unit therein, or the entering into of a lease or the entering into occupancy of any Unit therein shall constitute an agreement that the provisions of the Act and the covenants, conditions and restrictions set forth in the Condominium Documents and the deed to such Unit therein are accepted and ratified by such grantee, Mortgagee or tenant. All of such provisions shall be covenants running with the land and shall bind any person having at any time any interest or estate in such Unit, as though such provisions were recited and stipulated at length in each and every deed, conveyance, mortgage, contract or lease thereof. The Association and any aggrieved Owner shall have a right of action against Owners who fail to comply with the provisions of the Condominium Documents, the Act, or with decisions made by the Association or the Executive Board. Aggrieved Owners shall have similar rights of action against the Association.

Section 11.2. Eminent Domain. Whenever all or part of the Common Elements shall be taken, injured or destroyed by eminent domain, each Owner shall be entitled to notice thereof and to participate in the proceedings incident thereto, provided, however, that the Association shall officially, represent the Owners in such proceedings. In any proceedings for the determination of damages, such damages shall be determined for such taking, injury or destruction as a whole and not for each Owner's interest therein and any award for such damages shall be payable to the Association for the benefit of the Owners and Mortgagees. Notwithstanding the foregoing, if the Association elects to distribute such award of damages to the Owners, any amount payable to an Owner shall be paid instead to the Owner's Mortgagee upon the written request of such Mortgagee to an officer of the Executive Board.

ARTICLE 12
EXECUTIVE BOARD OF THE ASSOCIATION

Section 12.1. Members.

(a) The Executive Board shall consist of a minimum of three (3) members and a maximum of nine (9) members. The initial Executive Board shall consist of three (3) members consisting of David Chase, Anne Chase and Chris Chase. The members of the initial Executive Board shall be appointed, removed and replaced from time to time by the Declarant without the

necessity of obtaining resignations. The Declarant-appointed members of the Executive Board, which may include the Declarant, shall be replaced with Owners in accordance with the provisions of paragraph (b) of this Section 12.1.

(b) Not later than the earlier of (i) sixty (60) days after the conveyance of 75% of all of the Units that may be created hereunder to Owners other than the Declarant, as such percentage is calculated in accordance with Section 1603-103(f) of the Act or (ii) seven (7) years following conveyance of the first Unit to an Owner other than the Declarant (the "Period of Declarant Control"), all members of the Executive Board appointed by the Declarant shall resign and the Owners (including the Declarant to the extent of any Units owned by the Declarant at that time) shall elect new members of the Executive Board in accordance with the Bylaws.

(c) The Executive Board shall have the authority to change the number of Directors and shall possess all of the duties; and powers granted to the Executive Board by the Act.

Section 12.2. Disputes.

(a) Regarding Owners, Condominium, and Condominium Documents. In the event of any dispute or disagreement between any Owners relating to the Property, or any questions of interpretation or application of the provisions of the Condominium Documents, the determination thereof by the Executive Board shall be final and binding on each and all such Owners. The Executive Board shall have the authority to seek a declaratory judgment or other appropriate judicial relief in order to assist it in carrying out its responsibilities under this Section 12.2. All costs of obtaining such a judgment shall be borne by the disputants, or in the absence of disputants, by the Association as a Common Expense.

(b) Disputes with Declarant. In any dispute between one or more unit Owners and the Declarant regarding the Common Elements, the Board of Directors shall act for the unit Owners, and any agreement with respect thereto by the Board shall be conclusive and binding upon the unit owners. All claims, disputes and other matters in question between the Declarant, on the one hand, and the Association or any unit owners on the other hand, arising out of or relating to, a unit, the common elements, the limited common elements, this Declaration, the Bylaws, or the deed to any unit or the breach thereof, or the course of dealing between any unit owner, the Association and the Declarant, except for claims which have been waived by the acceptance of a deed, shall be decided by binding arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then applicable unless the parties mutually agree otherwise in writing. This agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof. Notice of the demand for arbitration shall be filed in writing with the other parties and with the American Arbitration Association. The demand for arbitration shall be made within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in

question would be barred by the applicable statute of limitations or other principles of law and equity.

Section 12.3. Abating and Enjoining Violations by Owners. The violation of any Rules and Regulations adopted by the Executive Board, the breach of any provision contained in the Bylaws or the breach of any provision of this Declaration or the Act by any Owner or tenant of such Owner, shall give the Executive Board the right, in addition to any other rights to which it may be entitled, to enjoin, abate or remedy by appropriate legal proceedings, either by law or equity, the continuance of any such breach.

ARTICLE 13
LIMITATION OF LIABILITY

Section 13.1. Limited Liability of the Executive Board. The Executive Board and its members in their capacity as members, officers and employees:

(a) Shall not be liable for the failure of any service to be obtained by the Executive Board and paid for by the Association, or for injury or damage to persons or property caused by the elements or by another Owner or person on the Property, or resulting from electricity, gas, water, rain, dust or sand which may leak or flow from the outside or from any part of the Buildings, or from any of its pipes, drains, conduits, appliances, or equipment, or from any other place unless in each such instance such injury or damage has been caused by the willful misconduct or gross negligence of the Association or the Executive Board;

(b) Shall not be liable to the Owners or any mortgagees as a result of the performance of the Executive Board members' duties for any mistakes of judgment, negligence or otherwise, except for the Executive Board members' own willful misconduct or gross negligence;

(c) Shall have no personal liability in contract to an Owner, any mortgagee, or any other person or entity under any agreement, check, contract, deed, lease, mortgage, instrument or transaction entered into by them on behalf of the Executive Board or the Association in the performance of the Executive Board members' duties;

(d) Shall not be liable to an Owner, or such Owner's tenants, employees, agents, customers or guests, for loss or damage caused by theft of or damage to personal property left by such Owner or his tenants, employees, agents, customers or guests in a Unit, or in or on the Common Elements or Limited Common Elements, except for the Executive Board members' own willful misconduct or gross negligence;

(e) Shall have no personal liability in tort to an Owner, any mortgagee, or any other person or entity, direct or imputed, by virtue of acts performed by or for them, except for the Executive Board members' own willful misconduct or gross negligence in the performance of their duties; and

(f) Shall have no personal liability arising out of the use, misuse or condition of the Buildings, or which might in any other way be assessed against or imputed to the Executive Board

members as a result of or by virtue of their performance of their duties, except for the Executive Board members' own willful misconduct or gross negligence.

Section 13.2. Indemnification. Each member of the Executive Board in his capacity as an Executive Board member, officer or both, shall be indemnified by the Association against all expenses and liabilities, including attorneys' fees, reasonably incurred by or imposed upon him in connection with any proceeding in which he may become involved by reason of his being or having been a member and/or officer of the Executive Board, or any settlement of any such proceeding, whether or not he is an Executive Board member, officer or both at the time such expenses are incurred, except in such cases wherein such Executive Board member and/or officer is adjudged guilty of willful misconduct or gross negligence in the performance of his duties or any other standard imposed by the Condominium Act; provided that, in the event of a settlement, this indemnification shall apply only if and when the Executive Board (with the affected member abstaining if he is then an Executive Board member) approves such settlement and reimbursement as being in the best interests of the Association. The indemnification by the Owners set forth in this Section 13.2 shall be paid by the Association on behalf of the Owners and shall constitute a Common Expense and shall be assessed and collectible as such. Such right of indemnification shall not be deemed exclusive of any other rights to which such Executive Board member and/or officer may be entitled as a matter of law or agreement or by vote of the Owners or otherwise.

Section 13.3. Joint and Several Liability of Owners and Lessees. Each Owner shall be jointly and severally liable with any tenants of the Unit owned by such Owner for all liabilities arising out of the ownership, occupancy, use, misuse, or condition of any Unit or any portion of the Common Elements or Limited Common Elements.

Section 13.4. Defense of Claims. Complaints filed in any State or Federal court brought against the Association, the Executive Board or the officers, employees or agents thereof their respective capacities as such, or the Condominium as a whole, shall be directed to the Executive Board of the Association, which shall promptly give written notice thereof to the Owners and the holders of any mortgages and such complaints shall be defended by the Association. The Owners and the holders of mortgages shall have no right to participate other than through the Association in such defense. Complaints of a nature specified in Section 13.3 hereof against one or more but less than all Owners shall be defended by such Owners who are defendants themselves and such Owners shall promptly give written notice of the institution of any such suit to the association and to the holders of any mortgages encumbering such Units.

ARTICLE 14
ASSESSMENTS; LIABILITY OF OWNERS

Section 14.1. Power to Assess. The Association, acting through the Executive Board in accordance with the Bylaws, shall have the power to fix and determine, from time to time, the sums necessary and adequate to provide for the Common Expenses, including, but not limited to such amounts as are necessary for the maintenance, repair and replacement of the Common Elements, Limited Common Elements and Reserved Common Elements as set forth in Section 7.2 hereof, such amounts as are necessary for uncollectible Assessments or Reserved Common

Element Area license fee or maintenance expenses otherwise the responsibility of a Unit Owner; budget deficits; such expenses as are necessary for the Association's share of any Common Expenses for any master association which the Association may now or hereafter be a member of; such reserves as are hereinafter described and such additional reserves as the Executive Board shall deem necessary or prudent, and such other expenses as are specifically provided for in the Condominium Act, this Declaration or the Bylaws. The Association shall establish an adequate reserve fund for maintenance, repair and replacement of all of those Elements and Property for which the Association is responsible which are anticipated to require replacement, repair or maintenance on a periodic basis, to cover any deductible amount for insurance policies maintained by the Association, and to provide sufficient funds to meet the Association's anticipated expenses for one year after the date on which the management of the Association is to be turned over to the owners pursuant to Section 12.1 (b). The reserve fund shall be funded as a part of the Common Expenses.

Section 14.2. Assessments for Limited Common Expenses. The Association, acting through the Executive Board in accordance with Section 1603-115(c) of the Act and the Bylaws and as circumstances may reasonably require, shall assess Common Expenses and Limited Common Expenses as follows: (i) If a Limited Common Expense or Common Expense only benefits a single Unit (e.g. fees and charges of the Managing Agent for services performed for an individual Unit Owner at its request), that Limited Common Expense or Common Expense may be assessed solely against the Unit benefited; and (ii) If a Limited Common Expense benefits more than a single Unit but fewer than all the Units, that Limited Common Expense may be assessed exclusively against the Units benefited in equal proportion between such Units, or, at the election of the Executive Board, in proportion to the relative Common Expense liabilities of such Units as between themselves, as the Executive Board may periodically determine, as those Common Expense liabilities may be changed as provided in Section 6.2 and Exhibit B. Pursuant to the foregoing, and in accordance with Section 1603-115 of the Act, the Association may adopt an annual Budget allowing for different categories or amounts of monthly assessments as applicable to Built Units that are (i) fully connected and benefiting from all Common Expenses and (ii) Un-Built Units that are not fully constructed or otherwise benefiting from all Common Expenses (e.g., incomplete or unoccupied units, may be assessed a lower monthly assessment if such Units do not benefit from common expenses relating to common utilities, trash removal, snow removal, etc.).

Section 14.3. Special Assessments. If the cash requirement estimated at the beginning of any fiscal year shall prove to be insufficient to cover the actual Common Expenses for such fiscal year for any reason (including by way of illustration and not limitation, any Owner's non-payment of his Assessment or municipal assessments not yet assessed), the Executive Board shall have the power, at any time it. deems necessary and proper, to levy one or more Special Assessments against each Owner. Special Assessments shall be due and payable in the manner and on the date set forth in the notice thereof.

Section 14.4. Payment of Assessments. Each Owner, including the Declarant to the extent it is the owner of any unsold Units, shall pay all Assessments levied by the Association. Liability for such assessments shall be determined in accordance with the formula set forth in Exhibit B hereto and the budget established by the Association in accordance with the Bylaws. Penalties

for delinquent assessments shall be set forth in the Rules and Regulations of the Condominium. Notwithstanding anything herein to the contrary, and with respect to any assessments levied by the Association against Un- built Units owned by the Declarant, the Declarant in its discretion may elect either: (a) in lieu of paying any monthly or other periodic assessments, to make an annual contribution to the Association on or before the last day of each calendar year in an amount equal to the reasonable value of services actually received by Declarant as part of the Common Expenses or Limited Common Expenses for such year, as may be reasonably determined by the Declarant; or (b) offset against such assessments the value of either (i) amounts paid directly by the Declarant for any expenses relating to the Common Expenses or Limited Common Expenses of the Condominium, or (ii) the value of any services provided by the Declarant for the benefit of the Association that would otherwise constitute a Common Expense or Limited Common Expense of the Condominium.

Section 14.5. Failure to Fix New Assessments. If the Executive Board shall fail to fix new Assessments for Common Expenses for the subsequent fiscal year before the expiration of any fiscal year, the Owners shall continue to pay the same sums they were paying for such Assessments during the fiscal year just ended and such sum shall be deemed to be the new Assessments for the succeeding fiscal year. If the Executive Board shall change the Assessment at a later date, the difference between the new Assessment, if greater, and the previous year's Assessment up to the effective date of the new Assessment shall be treated as if it were a Special Assessment under Section 14.2 hereof; thereafter each Owner shall pay the new Assessment. In the event the new Assessment is less than the previous year's Assessment, in the sole discretion of the Executive Board, the excess either shall be refunded to the Owners, credited against future Assessments or retained by the Association for reserves.

Section 14.6. Exemption by Waiver. No Owner may exempt himself from liability for the Common Expenses by waiver of the enjoyment of the right to use any of the Common Elements or by the abandonment of his Unit or otherwise.

Section 14.7. Personal Liability of Owners. All sums assessed by the Association as an Assessment, Special Assessment or Assessment for Limited Common Expenses or Reserved Common Expenses shall constitute the personal liability of the Owner of the Unit so assessed and also, until fully paid, shall constitute a lien against such Unit pursuant to Section 1603-116 of the Condominium Act. The Association shall take action for failure to pay any assessment or other charges pursuant to Section 1603-116 of the Condominium Act. The delinquent Owner shall be obligated to pay (a) all expenses of the Executive Board, including reasonable attorneys' fees and costs, incurred in the collection of the delinquent assessment by legal proceedings or otherwise, and (b) any amounts paid by the Executive Board for taxes or on account of superior liens or otherwise to protect its lien, which expenses and amounts, together with accrued interest, shall be deemed to constitute part of the delinquent assessment and shall be collectible as such.

Section 14.8. Liability of Purchaser of Unit for Unpaid Assessments. Upon the voluntary sale, conveyance or any other voluntary transfer of a Unit or any interest therein, the grantee thereof shall not be personally liable with the grantor thereof for all unpaid Assessments for Common Expenses, special assessments, Limited Common Expenses, Reserved Common Expenses, which are a charge against the Unit as of the date of consummation of the sale, conveyance or transfer,

unless such grantee agrees to assume the obligation therefor. A lien against the Unit so purchased for Assessments imposed pursuant to this Declaration or the Condominium Act shall not be affected by such sale, conveyance or other transfer, however.

Section 14.9. Subordination of Certain Charges. Any Assessments or any fees, charges, late charges, fines and interest that may be levied by the Association pursuant to Section 1603-102 of the Condominium Act or otherwise shall be subordinate to any first mortgage lien recorded before the due date of the Assessment or the due date of the first installment payable on the Assessment.

Section 14.10. Surplus. The Budget of the Association shall set forth general Common Expenses. Any amounts accumulated from assessments for Common Expenses in excess of the amount required for actual Common Expenses and reserves for future Common Expenses, unless otherwise directed by the Executive Board, in its sole discretion, shall be credited to each Owner, such credit to be applied to the next Assessments of Common Expenses due from said Owners under the current fiscal year's budget, and thereafter until exhausted, or retained by the Association for reserves.

ARTICLE 15
RIGHTS OF MORTGAGEES, CONTRACT HOLDERS, INSURERS AND GUARANTORS:

Section 15.1. Subject to Declaration. Whether or not it expressly so states, any mortgage which constitutes a lien against a Unit and an obligation secured thereby shall provide generally that the mortgage and the rights and obligations of the parties thereto shall be subject to the terms and conditions of the Act, the Declaration, the Plat and Plans and any Rules and Regulations.

Section 15.2. Rights of Eligible Mortgage Holders.

(a) The Association shall send reasonable prior written notice by prepaid United States mail to Eligible Mortgage Holders of the consideration by the Association of the following proposed actions, except where such change may be affected by the Declarant in exercise of a Development Right or otherwise:

1) The termination of the Condominium pursuant to Section 1602-118 of the Condominium Act;
2) A change in the allocated interest of a Unit or Unit, a change in the boundaries of a Unit or a subdivision of a Unit;
3) The merger or consolidation of the Condominium with another condominium;
4) The conveyance or subjection to a security interest of any portion of the Common Elements;
5) The proposed use of any proceeds of hazard insurance required to be maintained by the Association under, Section 1603-113(a) of the Condominium Act, or of any condemnation proceeds, for purposes other than the repair or restoration of the damaged property;

6) The adoption of any proposed budget by the Executive Board and of the date of the scheduled Owners' meeting to consider ratification thereof. A summary of the proposed budget shall accompany this notice;
7) Any default in the performance or payment by an Owner of any obligations under the Declaration, including, without limitation, default in the payment of Common Expense liabilities;

(b) In the event of any proposed actions described in subsection (a), paragraphs (1), (2), (3), (4), or (5) hereinabove, an Eligible Mortgage Holder shall have the right, but not the obligation, in place of the Owner to cast the votes allocated to that Unit or give or withhold any consent required of the Owner for such action by delivering written notice to the Association with a copy to the Owner prior to or at the time of the taking of the proposed action, which notice shall be sent by prepaid United States mail, return receipt requested, or by delivery in hand. Failure of the Eligible Mortgage Holder to so exercise such rights shall constitute a waiver thereof and shall not preclude the Owner from exercising such right. In the event of any default described in subsection (a), paragraph (7), the Eligible Mortgage Holder shall have the right, but not the obligation, to cure such default.

(c) In addition, an Eligible Mortgage Holder or its representative shall have the right to attend Association and Executive Board meetings for the purposes of discussing the matters described in subsection (a), paragraphs (I) through (6).

Section 15.3. Liability for Use and Charges. Any Mortgagee who obtains title to a Unit pursuant to the remedies provided in a mortgage for foreclosure of such mortgage or a deed in lieu of foreclosure shall not be liable for such Owner's unpaid assessments or charges which accrue prior to the acquisition of title to such Unit by the Mortgagee, except to the extent otherwise provided for in either of the Act and except to the extent that such Mortgagee is liable as an Owner for the payment of such unpaid assessment or charge that is assessed against the Mortgagee as a result of all Owners being reassessed for the aggregate amount of such deficiency.

Section 15.4. Condemnation Rights. No provision of this Declaration shall give an Owner, or any other party, priority over any rights of the Mortgagee of a Unit pursuant to its mortgage in the case of a distribution to such Owner of insurance proceeds or condemnation award for loss to or a taking of one or more Units and/or Common Elements.

Section 15.5. Books and Records. Any Mortgagee shall have the right exercisable by written notice to the Executive Board, to examine the books and records of the Association and to require that it be provided with a copy of each annual report of the Association and other financial data of the Association reasonably requested by such Mortgagee.

ARTICLE 16
INSURANCE

Section 16.1. Types and Amounts. The Association shall maintain as a Common Expense and to the extent reasonably available, the following types and amounts of insurance:

(a) Property insurance insuring against all risks of direct .physical loss normally covered by the standard extended coverage endorsement and commonly insured against, including those covered by the standard "all risk" endorsement, or such other fire and casualty insurance as the Executive Board may determine provides equal or greater protection for the Owners and their Mortgagees, if any, in each case complying with the applicable requirements of Section 16.2 hereof. The insurance maintained by the Association shall cover all Common Elements and Limited Common Elements to the extent required by Section 1603-113 of the Act, and building service equipment and common equipment, fixtures, personal property and supplies owned by the Association, excluding the Units or any portions thereof. The amount of any such hazard insurance obtained pursuant to this paragraph (a) shall be equal to one hundred percent (100%) of the current replacement cost of any improvements to the Common Elements, at the time the insurance is purchased and at each renewal date without deduction for depreciation, exclusive of land, foundations, excavation and other items normally excluded from coverage. Such hazard insurance policy may, at the option of the Association, contain a "deductible" provision in an amount not to exceed the lesser of $10,000 or one percent (1%) of the policy face amount. Funds to cover this deductible amount shall be included in the Association's reserve fund, once the reserve fund contains sufficient funds to cover such amount through the payment of Unit Owner assessments. The named insured under the policy shall be "Mineral Springs Condo Association, for the use and benefit of the individual owners", or a specified authorized representative of the Association, including but not limited to any Insurance Trustee, and the Association or its representative, as the case may be, shall be designated to represent the Owners in any proceedings, negotiations or settlements under such policy. The "loss payable" clause of such policy shall show the Association or the Insurance Trustee, if any, as a trustee for each Owner and each Mortgagee of a Unit. Such policy shall also contain a standard mortgage clause naming separately the Mortgagees of the Units, their successors and assigns. If the Executive Board fails within sixty (60) days after the date of an insured loss to initiate a claim for damages recoverable under the policy or policies obtained pursuant to this paragraph (a), any Mortgagee may initiate such a claim on behalf of the Association.

(b) Comprehensive Liability Insurance, including medical payments insurance, complying with the requirements of Section 16.2 hereof, insuring the Owners, in their capacity as Owners and Association members and any managing agent retained by the Association, against any liability to the public or to other Owners, their tenants or invitees, relating in any way to the ownership and/or use of the Common Elements, Limited Common Elements, and any other areas under the supervision of the Association and any part thereof. Such insurance policy shall contain a "severability of interest endorsement" or equivalent, coverage which precludes the insurer from denying the claim of an Owner because of the negligent acts of the Association or another Owner. Such insurance shall include coverage for bodily injury and property damage that results from the operation, maintenance or use of the Common Elements, Limited Common Elements and Reserved Common Elements, any liability resulting from lawsuits related to employment contracts in which the Association is a party, water damage liability, liability for non-owned and hired automobiles, liability for property of others, and such other risks as are customarily covered in similar projects. The amount of such liability insurance shall be at least $1,000,000.00 for bodily injury and property damage

for any single occurrence. The scope and amount of coverage of all liability insurance policies shall be reviewed at least once each year by the Executive Board and may be changed in its discretion provided that such policies shall continue to comply with the requirements of this Section and Section 16.2 hereof. To the extent reasonably available, Mortgagees shall be named, upon their written request, as additional insureds under the Association's liability policy or policies.

(c) Such worker's compensation insurance as applicable law may require, if any.

(d) Insurance to satisfy the indemnification obligation of the Association and all Owners set out in Section 13.2 hereof if and to the extent available, including but not limited to insurance coverage commonly referred to as "Directors and Officers Insurance."

(e) If at any time it is determined that all or any part of the improvements on the Property are located within a special flood hazard area, a master or blanket policy of flood insurance covering the any portion of the improvements comprising any Common Elements, and building service equipment and common equipment, fixtures, personal property and supplies owned by the Association, but excluding the Units and all other personal property of the Owner. The amount of any such flood insurance obtained pursuant to this paragraph (e) shall be equal to the lesser of one hundred percent (100%) of the insurable value of the property insured or the maximum coverage available under the appropriate National Flood Insurance Administration program. Such flood insurance policy may, at the option of the Association, contain a "deductible" provision in an amount not to exceed the lesser of $5,000 or one percent (1%) of the policy face amount. Funds to cover this amount shall be included in the Association reserve fund.

Section 16.2. Required Provisions. Insurance obtained by the Association shall be in accordance with the following provisions:

(a) Exclusive authority to adjust losses under policies hereafter in force on the Property shall be vested in the Executive Board or its authorized representative.

(b) Each Owner shall obtain property, casualty and liability insurance on his Unit and Yard at his own expense as set forth in Section 16.6 below; provided, however, that: (l) such policies shall not be invalidated by the waivers of subrogation required to be contained in policies required by this Declaration; and (2) no Owner shall be entitled to maintain insurance coverage in such a way as to decrease the amount which the Association may realize under any insurance policy which the Association may have in force on the Property at any particular time.

(c) With respect to the insurance policies described in subsection (a) and (b) of Section 16.1 issued to the Association, and covering all or any part of the Properly, the Association shall cause such policies to provide that: (I) Each Owner is an insured person under such policies with respect to liability arising out of his ownership of an undivided interest in the Common Elements or membership in the Association; (2) The insurer waives its right to subrogation under the policy against any Owner or members of his household; (3) No act or omission by

any Owner, unless acting within the scope of his authority on behalf of the Association will void such policies or be a condition to recovery under such policies or prejudice the coverage under such policies in any way; (4) If at the time of a loss under such policies there is other insurance in the name of a Owner covering the same risk covered by the policy, the Association's policy provides primary insurance; (5) The liability of the insurer shall not be affected by, and the insurer shall not claim, any right of set-off, counterclaim, apportionment, proration, or contribution by reason of any other insurance obtained by or for any Owner; (6) The insurer shall be relieved from no liability for loss occurring while the hazard to the Property is increased, whether or not within the knowledge or control of the Executive Board, or because of any breach of warranty or condition or any other act or neglect by the Executive Board or any Owner or any other person under either of them; (7) Such policies may not be canceled nor may coverage thereunder be substantially changed (whether or not requested by the Executive Board) except by the insurer giving at least thirty (30) days prior written notice thereof to the Executive Board, the Insurance Trustee, if any, Owners, and every other party in interest who shall have requested such notice of the insurer; and (8) The insurer will recognize any Insurance Trust Agreement entered into by the Association.

Section 16.3. Insurance Trustee and Power of Attorney. Notwithstanding any of the provisions and requirements of this Article relating to property or liability insurance, the Executive Board may designate as an insured, on behalf of the Association, the Association's authorized representative, including any trustee with whom the Association may enter into any Insurance Trust Agreement or any successor to such trustee (hereinafter referred to as the "Insurance Trustee"), who shall have the exclusive authority to negotiate losses under any policy, providing such property or liability insurance.

Section 16.4. Repair of Damage or Destruction to Condominium. The repair or replacement of any damaged or destroyed portion of the Condominium shall be done in accordance with and governed by the provisions of Sections 1603-113(e) and (h) of the Condominium Act.

Section 16.5. Additional Insurance. Nothing in this Declaration shall be construed to limit the authority of the Executive Board to obtain additional insurance which it deems advisable.

Section 16.6. Unit Owner to Obtain Insurance on Unit.

(a) Each Unit Owner shall maintain at its own expense and to the extent reasonably available (i) property insurance insuring against all risks of direct physical loss normally covered by the standard extended coverage endorsement and commonly insured against, including those covered by the standard "all risk" endorsement, in each case complying with the applicable requirements of this Section 16.6. The amount of such hazard insurance obtained pursuant to this paragraph (a) shall be equal to one hundred percent (100%) of the current replacement cost of the Unit and any improvements to the Unit, at the time the insurance is purchased and at each renewal date without deduction for depreciation, exclusive of land, foundations, excavation and other items normally excluded from coverage. Such hazard insurance policy may contain a "deductible" provision in an amount not to exceed the lesser of $10,000 or one percent (1%) of the policy face amount. Such policy shall also contain a standard mortgage clause naming separately the Mortgagees of the Unit, their successors and assigns; and. (ii)

Comprehensive Liability Insurance, including medical payments insurance, complying with the requirements of Section 16.6(b) hereof, insuring the Owners and Association members and any managing agent retained by the Association, against any liability to the public or to other Owners, their tenants or invitees, relating in any way to the ownership and/or use of the Unit, Yard and any part thereof. Such insurance policy shall contain a "severability of interest endorsement" or equivalent, coverage which precludes the insurer from denying a claim of the Association because of the negligent acts of the Owner or another Owner. Such insurance shall include coverage for bodily injury and property damage that results from use of the Unit, Yard, water damage liability, liability for property of others, and such other risks as are customarily covered in such policies. The amount of such liability insurance shall be at least $500,000.00 for bodily injury and property damage for any single occurrence.

(b) With respect to the insurance policies described in subsection 16.6(a) issued to the Unit Owner, the Unit Owner shall cause such policies to provide that: (1) The insurer waives its right to subrogation under the policy against the Association and the Declarant; (2) No act or omission by the Association or Declarant will void such policies or be a condition to recovery under' such policies or prejudice the coverage under such policies in any way; (3) If at the time of a loss under such policies there is other insurance in the name of the Association or Declarant covering the same risk covered by the policy, the Owner's policy provides primary insurance; (4) The liability of the insurer shall not be affected by, and the insurer shall not claim, any right of set-off, counterclaim, apportionment, proration, or contribution by reason of any other insurance obtained by or for the Association or Declarant; (5) The insurer shall be relieved from no liability for loss occurring because of any breach of warranty or condition or any other act or neglect by the Association, the Declarant or any person under either of them; (6) Such policy may not be cancelled nor may coverage thereunder be substantially changed except by the insurer giving at least thirty (30) days prior written notice thereof to Owner and every other party in interest who shall have requested such notice of the insurer.

(c) Each Unit Owner is required to file a copy of such individual policy or policies with the Association within thirty (30) days after purchase of such insurance.

(d) Under no circumstances shall the Association or Declarant be liable for any losses or damages incurred by a unit owner resulting from any failure or insufficiency of the Unit Owner's insurance policy or policies.

Section 16.7. Additional Requirements. All policies shall be written with a company authorized to do business in the State of Maine and, for the hazard insurance policy described in Section 16.l(a) hereof, such company must hold a general policy holder's rating of at least "A" by Best's Insurance Reports, or by an equivalent rating bureau should Best's Insurance Reports cease to be issued.

ARTICLE 17
ASSIGNABILITY OF DECLARANT'S RIGHTS

The Declarant may assign any or all of its rights or privileges reserved or established by this Declaration or the Act in accordance with the provisions of the applicable Act.

ARTICLE 18
AMENDMENT OF DECLARATION

Pursuant to Section 1602-117 of the Condominium Act and except as provided herein for amendments which may be executed by the Declarant, the Association or certain Owners, this Declaration may be amended only by vote or agreement of owners of Units to which at least sixty-seven percent (67%) of the votes in the Association are allocated. In addition, approval of amendments of a material nature must be obtained from Eligible Mortgage Holders representing at least 51% of the votes of Units that are subject to mortgages held by Eligible Mortgage Holders. A change to any of the following, except where such change may be effected by the Declarant in exercise of a Development Right or otherwise would be considered as material:

(a) voting rights;
(b) assessments, assessment liens, or subordination of assessment liens;
(c) reserves for maintenance, repair and replacement of Common Elements;
(d) responsibility for maintenance and repairs;
(e) reallocation of interests in the Common or Limited Common Elements, or rights to their use;
(f) boundaries of any Unit, except for locations of decks or patios or for the establishment of the initial location of vertical and horizontal unit boundaries as may be approved by the Town of Cumberland;
(g) convertibility of Units into Common Elements or Common Elements into Units;
(h) expansion or contraction of the Condominium, or the addition, annexation or withdrawal of property to or from the Condominium;
(i) insurance or fidelity bonds;
(j) leasing of Units;
(k) imposition of any restrictions on an Owner's right to sell or transfer his or her Unit;
(l) a decision by the Association to establish self-management when professional management had been required previously by an Eligible Mortgage Holder;
(m) restoration or repair of the Condominium (after a hazard damage or partial condemnation) in a manner other than that specified in the Condominium Documents;
(n) any action to terminate the legal status of the Condominium after substantial destruction or condemnation occurs; or
(o) any provisions that expressly benefit holders, insurers or guarantors of mortgages on the Units.

If the amendment is not of such a material nature, such as the correction of a technical error or the clarification of a statement, the approval of an Eligible Mortgage Holder may be assumed when that eligible Mortgage Holder has failed to submit response to any written proposal for an amendment within thirty (30) days after the proposal is made.

ARTICLE 19

TERMINATION

The Condominium may be terminated only by agreement of the Owners of Units to which eighty percent (80%) of the votes in the Association are allocated; provided, however, that if the Condominium is being terminated for reasons other than substantial destruction or condemnation of the Condominium, the termination of the Condominium must also be approved by Eligible Mortgage Holders of Units to which at least sixty-seven percent (67%) of the votes of Units subject to mortgages held by Eligible Mortgage Holders are allocated. Termination of the Condominium will be governed by the provisions of Section 1602-118 of the Condominium Act.

ARTICLE 20

ATTORNEY IN FACT

Each Owner by his acceptance of the deed or other conveyance vesting in him a Unit does hereby constitute and appoint the Managing Agent acting from time to time with full power of substitution, as his true and lawful attorney in his name, place and stead to enter into all agreements which the Managing Agent is authorized to enter into pursuant to the terms of this Declaration and which the Managing Agent in its discretion may believe are necessary and proper to carry out the agent's responsibilities and duties. Each Owner stipulates and agrees that the Power of Attorney created by this Article 20 is coupled with an interest. The action of the Managing Agent in settling any claim for damage to any personal property shall be binding upon each Owner in the absence of fraud or clear mistake.

ARTICLE 21

GENERAL PROVISIONS

Section 21.1. Headings. The headings used in this Declaration and the table of contents are inserted solely as a matter of convenience for the readers of this Declaration and shall not be relied upon or used in construing the effect or meaning of any of the provisions of this Declaration.

Section 21.2. Severability. The provisions of this Declaration shall be deemed independent and severable, and the invalidity or unenforceability of any provision or portion thereof shall not affect the validity or enforceability of any other provision or portion hereof unless such deletions shall destroy the uniform plan of development and operation of the Condominium which this Declaration is intended to create.

Section 21.3. Applicable Law. This Declaration shall be governed and construed according to the laws of the State of Maine.

Section 21.4. Interpretation. The provisions of this Declaration-shall be liberally construed in order to effect Declarant's desire to create a uniform plan for development and operation of the Condominium.

Section 21.5. Effective Date. This Declaration shall become effective when it and the Plat and Plans have been recorded.

Section 21.6. Notices. Unless otherwise provided by the Condominium Documents, all notices and other communications required or permitted to be given under or in connection with this Declaration shall be in writing and shall be deemed given when delivered in person or on the third business day after the day on which mailed by regular U.S. mail, postage prepaid, addressed to the address maintained in the register of current addresses established by the Association.

Section 21.7. Exhibits. All exhibits attached to this Declaration are hereby made a part of this Declaration.

Section 21.8. Pronouns. Wherever used, the singular number shall include the plural, the plural the singular and the use of any gender shall include all genders.

ARTICLE 22

INSPECTION BY TOWN, COMPLIANCE REGARDING COMMON FACILITIES

Section 22.1. Association Records. Pursuant to the Town of Cumberland (the "Town") Subdivision Ordinance, request by the Town Code Enforcement Officer, Plumbing Inspector, or Town Engineer, the Association shall produce for inspection and copying at Cumberland Town Hall, or permit the inspection and copying at its own office of, any or all of its corporate, financial, operating, inspection, and maintenance records, reports, contracts, budgets and other papers, for the purposes of determining its performance of any compliance with the requirements of the Declaration and the Town of Cumberland Zoning Ordinance.

Section 22.2. Private Common Use Improvements. Pursuant to the Common Facilities Ordinance, the Code Enforcement Officer, the Plumbing Inspector, or his authorized representative, or the Town Engineer, and other duly authorized employees of the Town bearing proper credentials or identification, shall be permitted to enter at all reasonable times, upon all real or personal property necessary to the operation of the private common use improvements, for inspection, observation, measurement, sampling, and testing related to the operation, maintenance, and repair of the private Common Use Improvements.

Section 22.3. Compliance with Common Facilities Ordinance, Enforcement. The Private Common Use Improvements of the Condominium shall be maintained by the Association in compliance with the Town's Common Facilities Ordinance. In the event that the Declarant, the Association, or any Owner of the Condominium shall violate the terms of this Declaration adopted pursuant to the Town's Common Facilities Ordinance, such violation shall be deemed a

violation of such Common Facilities Ordinance and in addition to any other remedies available to any party under this Declaration, the Town of Cumberland shall have all powers of enforcement with respect to such violation in accordance with Part L of the Common Facilities Ordinance.

Section 22.4. Funding of Common Expense Account. In accordance with Part (C) of the Common Facilities Ordinance, at the time that the control of the Association is turned over by the Declarant to the Owners in accordance with Section 12.1 of this Declaration, the Association shall be provided with sufficient funds to meet the Association's anticipated Common Expenses for a period of one (1) year following the date of such turnover of the Association control.

Section 22.5. Completion of Certain Improvements by Association. The development was approved by the Town of Cumberland on the condition that the Declarant _____ In the event the Declarant fails to make these improvements prior to the end of the Declarant Control Period then the Association shall satisfy these requirements at its expense.

Section 22.6. Completion and Maintenance of Trails by Association. The approved plans show walking trails within the development. The trails are to be approximately 4 feet in width with the surface consisting of reclaimed asphalt. The Declarant is responsible for the construction of the trails and at the end of the Declarant Control Period the Association shall be responsible for the maintenance of the trails.

[DECLARATION OF CONDOMINIUM - SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Declarant, B.R. Property, LLC, and the Association, Mineral Springs Condo Association have caused this Declaration to be signed in their respective names by David Chase, in his capacity as Member of B.R. Property, LLC, and in his capacity as President of Mineral Springs Condo Association, thereunto duly authorized, this _____ day of the month of _____, 2024.

SIGNED, SEALED AND DELIVERED
In the presence of:

_____

B.R. Property, LLC

By:_____
Name: David Chase
Its: Member

[DECLARATION OF CONDOMINIUM - SIGNATURE PAGE]

(i) EXHIBIT A

Condominium Parcel
Mineral Springs, a Condominium
Cumberland, Maine

A certain lot or parcel of land situated ….

The total area of the above-described parcel is approximately 40 Acres.

(ii) EXHIBIT B
DECLARATION OF CONDOMINIUM
MINERAL SPRINGS, A CONDOMINIUM, CUMBERLAND, MAINE
PERCENTAGE INTERESTS IN COMMON ELEMENTS AND PERCENTAGE OF COMMON EXPENSE LIABILITY

*A Unit's Percentage Interest and percentage of Common Expense liability shall be determined by dividing 100 by the number of Units.

Unit No.	Unit Percentage Interest	Vote
1	1.38%	1
2	1.38%	1
3	1.38%	1
4	1.38%	1
5	1.38%	1
6	1.38%	1
7	1.38%	1
8	1.38%	1
9	1.38%	1
10	1.38%	1
11	1.38%	1
12	1.38%	1
13	1.38%	1
14	1.38%	1
15	1.38%	1
16	1.38%	1
17	1.38%	1
18	1.38%	1
19	1.38%	1
20	1.38%	1
21	1.38%	1
22	1.38%	1
23	1.38%	1
24	1.38%	1
25	1.38%	1
26	1.38%	1
27	1.38%	1
28	1.38%	1
29	1.38%	1
30	1.38%	1
31	1.38%	1
32	1.38%	1
33	1.38%	1
34	1.38%	1
35	1.38%	1
36	1.38%	1

Unit No.	Unit Percentage Interest	Vote
37	1.38%	1
38	1.38%	1
39	1.38%	1
40	1.38%	1
41	1.38%	1
42	1.38%	1
43	1.38%	1
44	1.38%	1
45	1.38%	1
46	1.38%	1
47	1.38%	1
48	1.38%	1
49	1.38%	1
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61	1.38%	1
62	1.38%	1
63	1.38%	1
64	1.38%	1
65	1.38%	1
66	1.38%	1
67	1.38%	1
68	1.38%	1
69	1.38%	1
70	1.38%	1
71	1.38%	1
72	1.38%	1

(iii) EXHIBIT B-1
TO
DECLARATION OF MINERAL SPRINGS, A CONDOMINIUM

The following table contains a listing of the Unit Plans for each of the Units that have been constructed and sold. Each Unit Plan sets forth the actual location of the Vertical and Horizontal Unit Boundaries of the Unit, as required by the Act and as set forth in Section 3.2 (f) of this Declaration. As additional Units are sold and additional Unit Plans are recorded, the Declarant shall record an amendment to this Declaration amending this Exhibit C to incorporate by reference the recording information of each additional Unit Plan. The Unit Plans for sold and constructed Units as of the date of the recording of this Exhibit Care as follows:

Unit Number	Plan Book and Page of Recorded Unit Plan

EXHIBIT B
COPY OF APPROVED PLAT

EXHIBIT C
BYLAWS

MINERAL SPRINGS HOMEOWNERS' ASSOCIATION
77 Blackstrap Road, Cumberland, Maine

ARTICLE 1
INTRODUCTORY PROVISIONS

Section 1.1. Applicability. These Bylaws ("Bylaws") shall relate solely to the property called Mineral Springs, A Condominium, located at Blackstrap Road, Cumberland, Maine (the "Property"), more fully described in the Declaration of Condominium dated,_____2023, the Plat and Plans attached thereto (collectively, the "Declaration"), recorded in the Cumberland County Registry of Deeds, as amended and supplemented.

Section 1.2. Definitions. The capitalized terms used herein without definition shall have the same definitions as such terms have in the Declaration and the Maine Condominium Act, 33 M.R.S.A. §§1601-101 et seq. (the "Condominium Act" or "Act"). Unless otherwise provided, in the event of inconsistencies in definitions among the Declaration and the Condominium Act, the Declaration shall control.

Section 1.3. Compliance. Pursuant to the provisions of the Condominium Act, every Owner and all persons entitled to occupy a Unit shall comply with these Bylaws.

Section 1.4. Name and Office. The" name of the Condominium is the "Mineral Springs, a Condominium". The address of the Condominium is Blackstrap Road, Cumberland, Maine 04021, The name of the Condominium association is "Mineral Springs Homeowners' Association" (the "Association") and its address is Blackstrap Road, Cumberland, Maine 04021. The office of the Condominium and the Association and the Executive Board shall be located at the Property or at such other place as may be designated from time to time by the Executive Board.

Section l.5. Incorporation of Statutory Law. Except as expressly provided herein, in the Declaration, or in the Act, the Association shall be governed by the provisions of any applicable statute of the State of Maine.

ARTICLE 2
THE ASSOCIATION

Section 2.1. Membership. The Association is a Maine not for profit corporation, all the members of which are the owners of Units In the Property, The Declarant, being the initial owner of all Units, initially shall constitute all of the members of the Association. A person shall automatically become a member of the Association at the time he records the legal title instrument to his Unit in the Cumberland County Registry of Deeds, and he shall continue to be a member so long as he continues to hold title to such Unit. An Owner shall not be permitted to

resign from membership in the Association prior to the time when he transfers title to his Unit to another. No membership may be transferred in any way except as appurtenant to the transfer of title to the Unit to which that membership pertains. Transfer of membership shall be automatic upon recordation of transfer of title, but the Association may treat the prior Owner as the member for all purposes until satisfactory evidence of the recording of the instrument transferring title shall be presented to the Secretary of the Executive Board. The date of recordation of an instrument of conveyance in the Cumberland County Registry of Deeds shall be determinative of all disputes concerning the date of transfer of title to any Unit or Units. A mortgage conveyance of any Unit, however, shall not operate to transfer membership until the mortgage is foreclosed or the Unit sold in lieu of foreclosure.

Section 2.2. Meetings. Meetings of the Association shall be conducted in accordance with the following:

(a) Annual Meetings.

1) Owners shall hold Annual Meetings for the purposes stated in Section 2.2. (a) (2) hereof (the "Annual Meeting"). The Annual Meeting of the Owners shall be held on the first (1st) Thursday in December of each year, at 7:00 pm unless otherwise determined by the Association, and shall take place at the Property or at such locations as may be determined by the Association.

    i) The purpose of the Annual Meeting of the Association shall be to elect the members of the Executive Board unless the Executive Board is under the period of Declarant control pursuant to Section 12.1 of the Declaration, or unless such action is being taken pursuant to the provisions of Section 2.2. (b) hereof or Section 3.5. hereof, and to conduct such other business as may be required or permitted by law, the Declaration or these Bylaws to be done by a vote of Owners. The Treasurer of the Executive Board shall present at each Annual Meeting a financial report of the receipts and Common Expenses for the Association's immediately preceding fiscal year, itemized receipts and expenditures, the allocation thereof to each Owner, and any changes expected for the present fiscal year. A copy of such financial report shall be sent to each Owner not less than five (5) days prior to the Annual Meeting.

(b) Special Meetings.

1) The President shall call a special meeting of the Association if so directed by resolution of the Executive Board or upon petition signed and presented to the Secretary by Owners entitled to cast at least seventy-five percent (75%) of the votes in the Association. The notice of any special meeting shall state the time, the place and purpose thereof. Such meetings shall be held within forty-five (45) days after receipt by the President of said resolution or petition; provided, however, if the purpose includes the consideration of the rejection of a capital expenditure pursuant to Section 5.8. hereof, such meeting shall be held within fifteen (15) days after receipt by the President of said resolution or petition. No business shall be transacted at a special meeting except as stated in the notice.

2) Within sixty (60) days after the date of which all members of the Executive Board must resign pursuant to Section 12.1 of the Declaration, a special meeting of the Association shall be held at which all of the members of the Executive Board shall resign, and the Owners, including the Declarant if the Declarant owns one or more Units, shall thereupon elect successor members of the Executive Board to act in the place of those resigning. The initial three (3) Board members shall be elected as follows: (i) the candidate receiving the highest number of votes shall be elected to a term of three (3) years, (ii) the second highest to a term of two (2) years and (iii) the lowest for a term on one (I) year. Thereafter, successor members shall be elected to a term of one (I) year. Thereafter, successor members shall be elected to a term of one (1) year.

(c) Notice. Notices to Owners of meetings of the Association or meetings of the Executive Board which Owners who are not Executive Board members are entitled or invited to attend pursuant to Section 3.3. (e) hereof shall be delivered either: (1) by hand; (2) by prepaid U.S. mail to the mailing address designated in writing by the Owner to the Managing Agent or, in the absence of a Managing Agent, the Executive Board; or (3) by verifiable electronic mail to an address designated in writing for such purpose by the Owner to the Managing Agent or, in the absence of a Managing Agent, the Executive Board. If a notice sent to Owners pursuant to the foregoing sentence includes an item on the proposed agenda that would require the approval of Eligible Mortgage Holders pursuant to Section 15.2 of the Declaration, a copy of such notice will also be sent to the Eligible Mortgage Holders. All such notices shall be delivered to all Owners (and Eligible Mortgage Holders, if applicable) not less than ten (10) nor more than sixty (60) days in advance of the date of the meeting to which the notice relates and shall state the date, time and place of the meeting and the items on the agenda, including the general nature of any proposed amendment to the Declaration or Bylaws. The Secretary of the Executive Board shall cause all such notices to be delivered as aforesaid. Notice sent by mail shall be deemed to have been delivered on the second day after the date of mailing, in the case of notices by mail or electronic mail, or the date of deposit in the Owner's (or if applicable, in the Eligible Mortgage Holder's) mailbox in the case of hand delivery. No subject may be dealt with at any Annual Meeting or special meeting of the Association, unless the notice for such meeting stated that such subject would be discussed at such meeting.

(d) Quorum. Except as set forth below, the presence in person or by proxy of Owners to which at least fifty percent (50%) of the total votes in the Association are allocated at the commencement of a meeting shall constitute a quorum at that meeting of the Association. If a quorum is not present, Owners entitled to cast a majority of the votes represented at such meeting may adjourn the meeting to a time not less than forty-eight (48) hours after the time for which the original meeting was called. If a meeting is adjourned, the quorum at such second meeting shall be deemed present throughout any meeting of the Association if Owners to which at least fifty percent (50%) of the total votes in the Association are allocated are present in person or by proxy at the beginning of the meeting.

(e) Voting.

1) Each Unit shall vote in accordance with Exhibit B attached to the Declaration, and each Owner shall be entitled to cast the vote allocated to his Unit as set forth in the

Declaration. When the ownership of a Unit is in more than one person, the person who shall be entitled to cast the vote of such Unit shall be the person owning such Unit who is present. If more than one person owning such Unit is present, then such vote shall be cast only in accordance with the majority in interest of the Owners pursuant to Section 1603-110 of the Condominium Act. There shall be deemed to be majority agreement if any one of the multiple Owners casts the votes allocated to that Unit without protest being made promptly to the person presiding over the meeting by any of the other Owners of the Unit. Subject to the requirement of the Condominium Act, wherever the approval or disapproval of an Owner is required by the Condominium Act, the Declaration or these Bylaws, such approval or disapproval shall be made only by the person who would be entitled to cast the vote of such Unit at any meeting of the Association.

2) Except with respect to the election of members of the Executive Board and except where a greater number is required by the Condominium Act, the Declaration or by these Bylaws, the approval of the Owners to which more than fifty percent (50%) of the aggregate votes in the Condominium are allocated voting in person or by proxy at one time at a duly convened meeting at which a quorum is present (50% of quorum) is required to adopt decisions at any meeting of the Association. In all elections for Executive Board members, each Owner shall be entitled to cast for each vacancy to be filled at such election the number of votes allocated to the Unit or Units owned by such Owner. Those candidates for election receiving the greatest number of votes cast in such elections shall be elected. If the Declarant owns or holds title to one or more Units, the Declarant shall have the right at any meeting of the Association to cast the votes to which such Unit or Unit owned by the Association may be cast. There shall be no cumulative or class voting or splitting of votes.

3) Notwithstanding anything to the contrary herein, during the period of Declarant control pursuant to Section 12.1 of the Declaration, the Annual Meetings and any Special Meetings of the Members shall be held only for the purpose of ratifying the budget, adopting amendments to the Declaration and the Bylaws and such other actions that may be allowed by the Declaration, the Act or that may be expressly allowed by these Bylaws, but no such actions of the Members shall in any way limit the authority of the Declarant to fully exercise the authority granted under the Act, the Declaration and these Bylaws during the period of Declarant control as set forth in Section 12.1 of the Declaration and section 1603-103 of the Act.

(f) Proxies. A vote may be cast in person or by proxy. If a Unit is owned by more than one person, each Owner of the Unit may vote through a duly executed proxy. Such proxy may be granted by any Owner only in favor of another Owner, the holder of a mortgage on a Unit or the Declarant. Proxies shall be duly executed in writing, shall be valid only for the particular meeting designated therein and must be filed with the Secretary before the appointed time of the meeting. Such proxy shall be deemed revoked only by actual receipt by the person presiding over the meeting of written notice of revocation from the grantor of the proxy. No proxy shall be valid for a period in excess of one year after the execution thereof. A proxy is void if it is not dated or purports to be revocable without notice.

(g) Actions of Association without a Meeting. Any action required or permitted to be taken by a vote of the Association may be taken without a meeting if all Owners shall individually or collectively consent in writing to such action. Any such written consent shall be filed with the proceedings of the Association.

(h) Conduct of Meetings. The President shall preside over all meetings of the Association, and the Secretary shall keep the minutes of the meeting and record in a Minute Book all resolutions adopted at the meeting as well as keep a record of all transactions occurring at the meeting. The President may appoint a person to serve as parliamentarian at any meeting of the Association. The then current edition of Robert's Rules of Order shall govern the conduct of all meetings of the Association when not in conflict with the Declaration or these Bylaws. All votes shall be tallied by tellers appointed by the President.

Section 2.3. Copies of Association Documents. The Association shall have current copies of the Declaration, Plat and Plans, these Bylaws, the Rules and Regulations and any other rules concerning the Property as well as its own books, records and financial statements available for inspection by Owners. These documents shall be available during normal business hours.

ARTICLE 3
EXECUTIVE BOARD

Section 3.1. Composition. The affairs of the Association shall be governed by the Executive Board. The Executive Board shall consist of three (3) natural individuals, all of whom shall be Owners or designees of the Declarant. The initial Executive Board shall consist of David Chase, Anne Chase and Christopher Chase.

Section 3.2. Election and Term of Office.

(a) At the Annual Meeting of the Association, subject to Section 12.1 of the Declaration, the election of members of the Executive Board whose terms have expired shall be held. The term of office of any Executive Board member to be elected (except as may be set forth in Section 2.2. (b) (2), and Section 3.5. hereof) shall be fixed at one (1) year. The members of the Executive Board shall hold office until the earlier to occur of the election of their respective successors or their death, adjudication of incompetency, removal or resignation. An Executive Board member may serve an unlimited number of terms and may succeed himself.

(b) Persons qualified to be members of the Executive Board may be nominated for election only as follows:

1) Any Owner may submit to the Secretary at least thirty (30) days before the meeting at which the election is to be held a nominating petition signed by Owners to which at least twenty percent 20% of the votes in the Association are allocated, together with the statement that the person nominated is willing to serve on the Executive Board and a biographical sketch of the nominee. The Secretary shall mail or hand deliver copies of the submitted items to every Owner together with the notice of such meeting; and

2) Nominations may be submitted from the floor at a meeting at which the election is held for each vacancy on the Executive Board for which no more than one person has been nominated by petition.

Section 3.3. Meetings. Meetings of the Executive Board shall be conducted in accordance with the following.

(a) Time and Location. The Executive Board shall hold an annual meeting within ten (10) days following the Annual Meeting of the Association for the purpose of electing officers, as more fully set forth in Article 4 hereof, and for any other purpose which may be required or permitted by law, the Declaration or these Bylaws to be done by a vote of the Executive Board. The Executive Board shall hold meetings at the call of the President or upon request to the President by at least a majority of the members of the Executive Board; provided however that:

1) In any event, the Executive Board shall meet at least three (3) times each fiscal year (in addition to the annual meeting of the Executive Board), unless all members of the Executive Board shall waive such requirements as to a particular meeting or meetings;

2) The first such Executive Board meeting shall be held promptly after the date on which the Declaration is recorded;

3) There shall be a meeting of the Executive Board on or before the first day of the eleventh month of each fiscal year for the purpose of adopting the budget of the Association for the next following fiscal year of the Association; and

4) The President shall call any Executive Board meeting requested by a majority of the members of the Executive Board for a date occurring not less than five (5) nor more than twenty (20) days after the receipt of such request.

5) The President shall designate the time and location of Executive Board meetings. No business shall be transacted at Executive Board meetings other than as specified in the notice thereof.

(b) Notice. Not less than forty-eight (48) hours prior to the time of any Executive Board meeting, a written notice stating the date, time and place of such meeting shall be delivered, in the same manner provided in Section 2.2(c) for Association meeting notices, to each Executive Board member at the address given to the Executive Board by such Executive Board member for such purpose. Any Executive Board member may waive notice of a meeting or consent to any action of the Executive Board without a meeting. An Executive Board member's attendance at a meeting shall constitute his waiver of notice of such meeting.

(c) Quorum of the Executive Board. At all meetings of the Executive Board a majority of the members shall constitute a quorum for the transaction of business, and the votes of a majority of the members present at a meeting at which a quorum is present shall constitute a decision of the Executive Board. If at any meeting of the Executive Board there shall be less than a quorum present, a majority of those present may adjourn the meeting from time to time. At any such

adjourned meeting at which a quorum is present, any business which might have been transacted at the meeting originally called may be transacted without further notice. One or more members of the Executive Board may participate in and be counted for quorum purposes at any meeting be means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other.

(d) Voting. Each Executive Board member shall be entitled to cast one vote. A vote of the majority of the members of the Executive Board present at any meeting at which a quorum is present shall bind the Executive Board for all purposes unless otherwise provided in the Declaration or these Bylaws.

(e) Organization. Executive Board meetings may be held under such reasonable rules consistent with these Bylaws as the Executive Board may determine. The Executive Board is hereby entitled to promulgate such rules. Except for the meeting to approve the budget of the Association referred to in this Section 3.3. (e), Owners who are not Executive Board members shall have no right to attend Executive Board meetings but the Executive Board may, in its sole discretion, elect to allow such Owners to attend a particular meeting or meetings. If the Executive Board does elect to allow Owners who are not Executive Board members to attend a particular meeting or meetings, the Secretary shall give prior notice in the manner provided in Section 2.2. (c) hereof, to all Owners of each meeting at which Owners are entitled or invited to be present; provided, however, that the failure to give such notice shall neither invalidate any actions taken by the Executive Board at such meeting nor impose any liability on the Executive Board or its officers and/or members for the failure to give such notice. All Owners shall have the right to attend and be heard, but not the right to vote, at the Executive Board meeting at which the fiscal year budget of the Association shall be presented to the Executive Board for adoption. The Secretary of the Executive Board shall give Owners notice of such meeting, accompanied by a copy of the proposed budget, in the manner provided in Section 2.2. (c) hereof.

(f) Conduct of Meetings. The President shall preside over all meetings of the Executive Board and the Secretary shall keep a Minute Book of the Executive Board meetings, recording therein all resolutions adopted by the Executive Board and a record of all transactions and proceedings occurring at such meetings. The then current edition of Robert's Rules of Order shall govern the conduct of the meeting of the Executive Board if and to the extent such Rules are not in conflict with the Declaration or these Bylaws.

(g) Action without a meeting. Any action by the Executive Board required or permitted to be taken at any meeting may be taken without a meeting if all of the members of the Executive Board shall individually or collectively consent in writing to such action. Any such written consent shall be filed with the minutes of the proceedings of the Executive Board.

Section 3.4. Resignation and Removal. Except with respect to members designated by Declarant, at any regular or special meeting of the Association duly called, any one or more of the members of the Executive Board may be removed with or without cause by Owners entitled to cast a majority of all votes in the Association and a successor may then and there be elected to fill the vacancy thus created. Any Owner proposing removal of a Board member shall give notice

thereof to the Secretary. Any member whose removal has been proposed by an Owner shall be given at least ten (10) days' notice by the Secretary of the time, place and purpose of the meeting and shall be given an opportunity to be heard at the meeting. A member of the Executive Board may resign at any time and shall be deemed to have resigned upon transfer of title to his Unit. The Declarant shall have the right to remove and replace any and all members appointed by the Declarant at any time and from time to time until the required resignation date specified in Section 12.1 of the Declaration.

Section 3.5. Vacancies. Any vacancy or vacancies on the Executive Board, whether caused by resignation, removal, death, adjudication of, incompetency, or an increase in size of the Executive Board, shall be filled by the Executive Board with an interim appointee who shall serve until the next Annual Meeting of the Association at which time such vacancy may be filled by the vote of the Owners to which more than fifty percent (50%) of the votes in the Association are allocated voting in person or by proxy at any one time at a duly conveyed meeting at which a quorum is present (50 % of quorum), provided, however, that the Declarant shall have the right to fill any vacancy created by the resignation, death, or adjudication of, incompetency of a member who had been appointed by the Declarant and had not been elected by the Owners. If the vacancy results from removal by the Association, the election of a new member or members may be held at the same meeting where such removal takes place and notice of a petition for removal shall be considered notice of an election to fill each vacancy so caused. The vote of Owners to which more than fifty percent (50%) of the votes present at such meeting in person or by proxy (50% of Quorum) shall cause the postponement of the election to a later date, but if such vacancy is not filled within sixty (60) days after it occurs, the Executive Board shall promptly thereafter elect a replacement.

Section 3.6. Compensation. No member of the Executive Board shall receive compensation for performing his duties as a member of the Executive Board unless such compensation is expressly authorized or approved by a vote of Owners to which more than fifty percent (50%) of the votes in the Association are allocated, at any Annual or special meeting of the Association. Executive Board Members shall be entitled to reimbursement for all reasonable expenses they incur in carrying out their duties.

Section 3.7. Validity of Contracts with Interested Executive Board Members. No contract or other transaction between the Association and one or more of its Executive Board members or between the Association and any corporation, firm or association in which one or more of the Executive Board members are directors or officers, or are financially interested, shall be void or voidable because such Executive Board member or members are present at any meeting of the Executive Board which authorized or approved the contract or transaction or because his or their votes are counted, if the circumstances specified in either of the following subparagraphs exists:

(a) The fact that an Executive Board member is also such a director or officer or has such financial interest is disclosed or known to the Executive Board and is noted in the minutes thereof, and the Executive Board authorizes, approves or ratifies the contract or transaction in good faith by a vote sufficient for the purpose without counting the vote or votes of such Executive Board Member or members; or

(b) The contract or transaction is made in good faith and is not unconscionable to the Association at the time it is authorized, approved or ratified.

Section 3.8. Inclusion of Interested Executive Board Members in a Quorum. Any Executive Board member holding such director or officer position or having such financial interest in another corporation, firm or association may be counted in determining the presence of a quorum at a meeting of the Executive Board or a committee thereof which authorizes, approves or ratifies a contract or transaction of the type described in Section 3.7. hereof.

Section 3.9. Powers of the Executive Board.

(a) Enumeration. The Executive Board shall have all of the powers and duties granted by the Condominium Act and the laws governing nonprofit corporations or both.

(b) Limitation. Nothing in this Section or elsewhere in these Bylaws shall be considered to grant to the Executive Board or to the officers of the Association any powers or duties which, by law, are possessed by Owners. Unless otherwise provided herein or in the Condominium Act or in the Declaration, the Executive Board, unless under the period of Declarant control pursuant to Section 12.1 of the Declaration, shall comply with the instructions of Owners to which more than two- thirds (2/3) of the votes in the Association are allocated present in person or by proxy, as expressed in the resolution duly adopted at any Annual or special meeting of the Owners.

(c) Delegation of Powers; Managing Agent. The Executive Board may employ for the Condominium a Managing Agent at a compensation established by the Executive Board. The Managing Agent shall perform such duties and services as the Executive Board shall authorize, including, but not limited to all of the duties listed in the Declaration and these Bylaws; provided, however, where a Managing Agent does not have the power to act under the Declaration or these Bylaws, the Managing Agent may act as an advisor or in an advisory capacity to the Executive Board. The Executive Board may delegate to the Managing Agent all of the powers granted to the Executive Board by the Condominium Act, the Declaration and these Bylaws other than the following powers: (i) to adopt an annual budget and any amendment thereto or to asses Common Expenses; (ii) to designate repeal or amend rules and regulations; (iii) to designate signatories on Association bank accounts; (iv) to borrow money on behalf of the Association; (v) to acquire mortgages on Units; and (vi) to assign Common Elements as Limited Common Elements. Any contract with the Managing Agent must provide that it shall be cancelable by either party without cause and without a termination fee upon not less than sixty (60) days nor more than ninety (90) days written notice and shall be cancelable by the Executive Board with cause upon not less than thirty (30) days written notice. Any such contract negotiated by the Declarant shall meet all requirements of this Section 3.9. (c) for contracts negotiated by the Association and shall not exceed one year but may be renewed upon consent of the Association.

ARTICLE 4
OFFICERS

Section 4.1. Election. Subject to Article 12 of the Declaration, at the first meeting of the Executive Board, and at every Annual Meeting of the Executive Board thereafter the Executive Board members, if a quorum is present, shall elect Executive Board officers of the Association for the following year, such officers to serve for a one year term and until their respective successors are elected. The officers to be elected are: President, Secretary, Treasurer and such other officers as the Executive Board shall determine. Each officer may serve an unlimited number of terms so long as such member or officer continues to be reelected to the Executive Board. Any member may hold two offices simultaneously, except that the President shall not hold any other office.

Section 4.2. Duties. The duties of the officers shall be as follows:

(a) President. The President shall be the chief executive officer of the Association and the chairperson of the Executive Board. The President shall be responsible for implementing the decisions of the Executive Board and in that capacity shall direct, supervise, coordinate and have general control over the affairs of the Association and the Executive Board, subject to the limitations of the laws of the State of Maine, the Condominium Documents and the actions of the Executive Board. The President shall have the power to sign checks and other documents on behalf of the Association and the Executive Board, or both, with or without the signatures of any other officers as may be determined by the Executive Board. The President shall preside at all meetings of either body at which he is in attendance and shall be a member of all committees. If the President is absent from such meetings the senior officer of the Association present at such meeting shall preside, and in the absence of any officer, the body holding the meeting shall elect a person to preside. If the Executive Board so provides, the President also shall have any or all of the powers and duties ordinarily attributable to the chief executive officer of a corporation domiciled in Maine.

(b) Secretary. Unless otherwise determined by the Executive Board, the Secretary shall keep or cause to be kept all records (or copies thereof if the original documents are not available to the Association) of the Association and the Executive Board shall have the authority to affix the seal of the Association to any documents requiring such seal. The Secretary shall give or cause to be given all notices as required by law, the Declaration or these Bylaws, shall take and keep or cause to be taken and kept minutes of all meetings of the Association, the Executive Board and all committees, and shall take and keep or cause to be taken and kept at the Association's office a record of the names and addresses of all Owners as well as copies of the Declaration, the Plat and Plans, these Bylaws and the Rules and Regulations, all of which shall be available at the office of the Association for inspection by Owners or prospective Owners during normal business hours and for distribution to them at such reasonable charges (if any) as may be set from time to time by the Executive Board. The Secretary shall keep or cause to be kept the register of Eligible Mortgage Holders. The Secretary shall also perform all duties and have such other powers as are ordinarily attributable to the Secretary of a corporation domiciled in Maine.

(c) Treasurer. Unless otherwise determined by the Executive Board, the Treasurer shall have the charge and custody of, and be responsible for, all funds and securities of the Association, shall deposit or cause to be deposited all such funds in depositories as the Executive Board may direct, shall keep or cause to be kept correct and complete accounts and records of all financial transactions of the Association and the Executive Board and shall submit or cause to be submitted to the Executive Board and the Association such reports thereof as the Condominium Act, the Declaration, the Executive Board, or these Bylaws may from time to time require. Such records shall include, without limitation, chronological listings of all receipts and expenditures on account of the Common Elements, Limited Common Elements, and each Unit, the amount of each assessment for Common Expenses and expenses accessible to individual Units, if any, and the amount paid and the amounts due on such assessments. Such records shall specify and itemize the maintenance, repair and replacement expenses relating to the Common Elements and the Limited Common Elements and any other expenses incurred by the Association. The foregoing financial records shall be kept at the Association's office and shall be available there for inspection by Owners or prospective Owners during normal business hours. The Treasurer shall, upon request, provide any person who shall have entered into a written agreement to purchase a Unit with a written statement of the information required to be provided by the Association pursuant to Sections 1603-116 (h) and 1604-108 (b) of the Condominium Act. The Treasurer shall also perform such duties and have such powers as are ordinarily attributable to the Treasurer of a corporation domiciled in Maine. The Executive Board may grant to the Treasurer the power to sign checks on behalf of the Association, with or without the signatures of any other officers, subject to any terms or limitations as may be determined by the Executive Board in its discretion.

Section 4.3. Compensation. The officers of the Executive Board shall serve without compensation for their services in such capacity unless such compensation is expressly authorized or approved by a vote of Owners to which more than fifty percent (50%) of the votes in the Association are allocated to any Annual or special meeting of the Association. Officers of the Executive Board shall be entitled to reimbursement for all reasonable expenses they incur in carrying out their duties.

Section 4.4. Resignation and Removal. Any officer may resign at any time by written notice to the Executive Board, such resignation to become effective at the next Executive Board meeting. Any officer who ceases to be a member of the Executive Board for any reason also shall be deemed to have resigned or been removed, ipso facto, from any Executive Board office he may have held. Any officer may be removed from his office at any time by a majority vote of the Executive Board whenever in the judgment of the Executive Board members the interests of the Association will be best served thereby, or by the vote of the Association with or without cause, in the same manner as set forth for the removal of Executive Board members in Section 3.4. hereof.

Section 4.5. Vacancies. Vacancies caused by resignation or removal of officers or the creation of new officers may be filled by a majority vote of the Executive Board members, if the vacancy resulted from action of the Executive Board. If, however, the vacancy resulted from action by the Association, such vacancy shall be filled in the same manner as set forth in Section 3.5. hereof for filling Executive Board vacancies.

ARTICLE 5
COMMON EXPENSES; BUDGETS

Section 5.1. Fiscal Year. The fiscal year of the Association shall be the calendar year unless otherwise determined by the Executive Board; provided, however, that the first fiscal year shall begin upon the recordation of the Declaration and end on December 31 of the same year.

Section 5.2. Preparation and Approval of Budget.

(a) Adoption. On or before the first day of December of each year (or sixty (60) days before the beginning of the fiscal year if the fiscal year is other than the calendar year), the Executive Board shall adopt an annual budget for the Association containing an estimate of the total amount considered necessary to pay the cost of maintenance, management, operation, repair and replacement of the Common Elements, Limited Common Elements, and Limited Common Property, in accordance with Article 14 of the Declaration, and those parts of the Units as to
(b) which it is the responsibility of the Executive Board to maintain, repair and replace; and the cost of wages, materials, insurance premiums, services, supplies and other expenses that may be declared to be Common Expenses or Limited Common Expenses by the Condominium Act, the Declaration , these Bylaws or a resolution of the Association and which will be required during the ensuing fiscal year for management and administrative expenses; the cost of such utilities as may be furnished by the Association; the amount of such reserves as shall be reasonably established by the Executive Board including operating contingency reserves for expenses both unanticipated and extraordinary and reserves for periodic maintenance, repair and replacement of the Common Elements, Limited Common Elements, and Limited Common Property; and such other expenses of the Association as may be approved by the Executive Board including operating deficiencies, if any, for prior periods. Such budget shall be based upon the estimated number of Units expected during the upcoming fiscal year, and Common Expenses and Limited Common Expenses anticipated to be incurred by Association relative to such Units.

(c) Available for Inspection. On or before the next succeeding fifth day of December (or fifty-five (55) days before the beginning of the fiscal year, if the fiscal year is other than the calendar year), the Executive Board shall make available for inspection at the Association office the budget and a summary of the budget in a reasonably itemized form that sets forth the amount of the Common Expenses. Such budget shall constitute the basis for determining each Owner's assessments for Common Expenses of the Association.

(d) Ratification of Budget. The Executive Board shall set and notice a date for a meeting of the Owners to consider ratification of such budget not less than ten (I0) days nor more than thirty (30) days after mailing of such budget and summary. The meeting set by the Board for such ratification may coincide with the annual meeting as described in Section 2.2 (a). Unless at that meeting a majority of all the Owners of all Units reject such budget, such budget is ratified, whether or not a quorum is present. In the event such proposed budget is rejected, the budget last ratified by the Owners shall be continued until such time as the Owners ratify a subsequent budget proposed by the Executive Board.

(e) Reasonable Efforts. The Executive Board, shall make reasonable efforts to meet the deadlines set forth above, but compliance with such deadlines shall not be a condition precedent to the effectiveness of any budget.

Section 5.3. Assessment and Payment of Common Expenses

(a) Common Expenses. The Executive Board shall calculate the Assessments for Common Expenses against each Unit by dividing the total amount of the estimated funds required for the operation of the Property set forth in the budget adopted by the Executive Board for the fiscal year in question by the estimated number of Units in the Condominium anticipated during such fiscal year. Such assessments shall be due and payable in accordance with the Rules and Regulations of the Condominium and, in any event, prior to an Owner's occupancy of his or her Unit and shall be a lien against each Owner's Unit as provided in the Condominium Act or in the Declaration. In accordance with Section 1603-115 of the Act, and section 6.2 of the Declaration, the Association may adopt an annual Budget allowing for different categories or amounts of monthly assessments as applicable to Built Units that are (i) fully constructed and benefiting from all Common Expenses and (ii) Un-Built Units that are not fully constructed or otherwise benefiting from all Common Expenses (e.g., incomplete or unoccupied units, may be assessed a lower monthly assessment if such Units do not benefit from common expenses relating to common utilities, trash removal, snow removal, etc.), and may assess Built and Un-built Units based upon the reduced level of expenses that benefit such Un-Built Units.

Within ninety (90) days after the end of each fiscal year, the Executive Board shall prepare and deliver to each Owner and to each record holder of a first mortgage or a Land Installment Contract on a Unit who has registered an address with the Secretary and requested to receive the accounting, an itemized accounting of the Common Expenses and funds received during such fiscal year less expenditures actually incurred and sums paid into reserves. Any net shortage with regard to Common Expenses, after application of such reserves as the Executive Board may determine, and after application of any voluntary payments that the Declarant may elect to pay shall be assessed promptly against the Owners in equal shares and shall be payable as a Special Assessment, in such manner as the Executive Board may determine.

(b) Reserves. Extraordinary expenditures not originally included in the annual budget which may become necessary during the year may be charged first against reserves for working capital, operations, contingencies, and replacements. If the reserves are deemed to be inadequate for any reason, including non-payment of any Owner's assessments, the Executive Board may at any time levy further assessments for Common Expenses which shall be assessed against the Owners or in accordance with their Percentage Interests and shall be payable as a special assessment, in such manner as the Executive Board may determine.

Section 5.4. Further Assessments. The Executive Board shall serve notice on all Owners of any further assessments pursuant to Sections 5.3. (a), or 5.3. (c) or otherwise as permitted or required by the Condominium Act, the Declaration and these Bylaws by a statement in writing giving the amount and reasons therefor, and such further assessments, unless otherwise specified in the notice, shall become effective ten (I 0) days after the delivery of such notice of further assessments. All Owners so assessed shall be obligated to pay the amount of such further

assessments. Such assessments shall be a lien as of the effective date set forth in the preceding Sections 5.3. (a) and 5.3. (c).

Section 5.5. Initial Budget. At or prior to the time assessment of Common Expenses commences, the Executive Board shall adopt the budget, as described in this Article 5, for the period commencing on the date of the recording of the Declaration in the Cumberland County Registry of Deeds and ending on the last day of the fiscal year during which such commencement date occurs. Assessments shall be levied and become a lien against the Owners during such period as is provided in Section 5.3. above.

Section 5.6. Effect of Failure to Prepare or Adopt Budget. The failure or delay of the Executive Board to prepare or adopt a budget for any fiscal year shall not constitute a waiver or release in any manner of an Owner's obligation to pay his allocable share of the Common Expenses as herein provided whenever the same shall be determined and, in the absence of any annual budget or adjusted budget, each Owner shall continue to pay each Assessment at the rate established for the previous fiscal year until the new annual or adjusted budget shall have been adopted.

Section 5.7. Accounts; Audits. All sums collected by the Executive Board with respect to assessments against the Owners or from any other source may be commingled into a single fund, except that the portion of the assessment allocated to property taxes, for both real and personal property, shall be deposited and maintained in an escrow account pursuant to 33 M.R.S.A. §593(5). All books and records of the Association shall be kept in accordance with good and accepted accounting practices and the same shall be audited at least once each year by an independent accountant retained by the Executive Board. The Association shall make an audited statement for the preceding fiscal year available to any holder, insurer or guarantor of a first Mortgage secured by a Unit who submits a written request therefor to the Association.

Section 5.8. Limitations on Expenditures and Borrowing. Anything herein to the contrary notwithstanding, the Association, by a vote of more than two-thirds (2/3) of all votes in the Association present, may reject any capital expenditure or borrowing approved by the Executive Board, within thirty (30) days after approval by the Executive Board; provided, however, that this Section shall not apply to the Executive Board so long as a majority of its members are appointed by the Declarant pursuant to Section 10.1 of the Declaration.

Section 5.9. Statement of Common Expenses. The Executive Board shall promptly provide any Owner, contract purchaser or proposed Mortgagee so requesting the same in writing with a written statement of all unpaid assessments for Common Expenses and Limited Common Expenses, if any, due from such Owner. The Executive Board may impose a reasonable charge for the preparation of such statement to cover the cost of its preparation, to the extent permitted by the Condominium Act.

ARTICLE 6
REPAIR OR RECONSTRUCTION

Section 6.1. Restoration of Property Out of Common Expense Fund. Damage to or destruction of the Buildings shall be promptly repaired and restored by the Association in accordance with

the provisions of Article 7 of the Declaration, Sections 1603-113 (e) and (h) of the Condominium Act, as the same may be amended from time to time. The Executive Board shall be responsible for accomplishing the full repair or reconstruction which shall be paid out of the Common Expense fund. The disbursement of funds for such repair or reconstruction shall, at the option of the Executive Board, be made only as the work progresses upon approval of a qualified architect who shall have furnished a description satisfactory to the Executive Board of the costs involved and the services and materials to be furnished by the contractors, subcontractors and materialmen. Owners may apply the proceeds from their individual property insurance policies, if any, to the share of such Common Expenses as may be assessed to them. The Executive Board shall be responsible for restoring the Property only to substantially the same condition as it was immediately prior to the damage. If any physical changes are made to any restored Unit or the Common Elements, or any combination of them, which renders inaccurate the Plat and Plans which are then of record, the Executive Board shall record amended Plat and Plans showing such changes.

ARTICLE 7
AMENDMENTS TO BYLAWS; NOTICE RIGHTS OF MORTGAGE HOLDERS, INSURERS, GUARANTORS

Section 7.1. General Requirements; Consent of Declarant or Holders or Mortgages; Curative Amendments to Bylaws. Except as otherwise provided in any one or more of these Bylaws, the Declaration or the Condominium Act, these Bylaws may not be amended during Declarant's period of control pursuant to the Declaration unless it consents to said amendment. If the Declarant consents, then the Bylaws may be amended by the vote of the Owners entitled to cast a majority of the votes in the Association, cast in person or by proxy at a meeting duly held in accordance with the provisions of these Bylaws; provided, however that if such amendment shall make any change which would have a material effect upon any rights, privileges, powers and options of the Declarant, such amendment shall require the joinder of the Declarant; and further provided that no amendment seeking (i) to abandon, encumber, sell or transfer any portion of the Common Elements, or (ii) to abandon or terminate the condominium form of ownership of the Property except as otherwise provided in the Declaration, shall be effective without the prior written approval of all Mortgagees holding mortgages and all holders of Land Installment Contracts encumbering the Units. Notwithstanding the foregoing, amendments of a material nature must be approved by Owners entitled to cast at least sixty-seven percent (67%) of the total allocated votes in the Association and by Eligible Mortgage Holders representing at least fifty-one percent (51%) of the votes of Units subject to mortgages held by Eligible Mortgage Holders. A change to any of the following, except where such change may be effected by the Declarant in exercise of a Development Right or otherwise, would be considered material:

(a) voting rights;
(b) assessments, assessment liens, or subordination of assessment liens;
(c) reserves for maintenance, repair and replacement of Common Elements;
(d) responsibility for maintenance and repairs;
(e) reallocation of interests in the Common or Limited Common Elements, or rights to their use;

(f) boundaries of any Unit, except for locations of decks or patios or for the establishment of the initial location of vertical and horizontal unit boundaries as may be approved by the Town of Cumberland;
(g) convertibility of Units into Common Elements or Common Elements into Units;
(h) expansion or contraction of the Condominium; or the addition, annexation or withdrawal of property to or from the Condominium;
(i) insurance;
(j) leasing of Units;
(k) imposition of any restrictions on an Owner's right to sell or transfer his or her Unit;
(l) decision by the Association to establish self-management when professional management had been required previously by an Eligible Mortgage Holder;
(m) restoration or repair of the Condominium (after a hazard damage or partial condemnation) in a manner other than that specified in the Condominium Documents;
(n) any action to terminate the legal status of the Condominium after substantial destruction or condemnation occurs; or
(o) any provisions that expressly benefit holders, insurers or guarantors of mortgages on the Units.

If the amendment is not of such a material nature, such as the correction of a technical error or the clarification of a statement, the approval of an Eligible Mortgage Holder may be assumed when that Eligible Mortgage Holder has failed to submit a response to any written proposal for an amendment within thirty (30) days after the proposal is made.

Section 7.2. Amendments to the Declaration. The Declaration may be amended pursuant to the provisions of the Condominium Act and of the Declaration. The President is empowered to prepare and execute any amendments to the Declaration on behalf of the Association and the Secretary or any Assistant Secretary is empowered to attest, seal with the Association's corporate seal and record any such amendments on behalf of the Association.

Section 7.3. Notice Rights of Mortgage Holders. Insurers. Guarantors.

(a) Notice. The Association shall send timely written notice by prepaid United States mail to holders, insurers, and guarantors of the mortgage on any Unit of the following matters:

1) any condemnation or casualty loss that affects either a material portion of the Condominium or the Unit securing the mortgage;

2) any sixty (60) day delinquency in the payment of assessments or other charges owed by the Owner of any Unit securing the mortgage;

3) a lapse, cancellation, or material modification of any insurance policy maintained by the Association; and

4) any proposed action that requires the consent of fifty one percent (51%) of the Eligible Mortgage Holders.

(b) Request for Notice Required. To receive the written notice provided in this Section 7.3, the mortgage holder, insurer, or guarantor shall send a written request for this information to the Association, stating both its name and address and the Unit number or address of the Unit on which it holds, insures, or guarantees the mortgage.

ARTICLE 8
GENERAL PROVISIONS

Section 8.1. Severability. The provisions of these Bylaws shall be deemed independent and severable and the invalidity, partial invalidity or unenforceability of any provision or portion hereof shall not affect the validity or enforceability of any other provision or portion thereof unless the deletion of such invalid or unenforceable provision shall destroy the uniform plan for development and operation of the Property which the Declaration and these Bylaws are intended to create.

Section 8.2. Conflicts. The Acts and the Declaration shall control in the event of any conflict between the provisions thereof and the provisions of these Bylaws. The Act, the Declaration and these Bylaws shall control in the case of any conflict between the provisions thereof and the provisions of the Rules and Regulations.

Section 8.3. Notices. All notices or other communications required or permitted under these Bylaws shall be in writing and shall be deemed to have been given when personally delivered or on the second business day after the day on which mailed by regular U.S. mail, postage prepaid (or otherwise as the Condominium Act may permit), (a) if to an Owner at the single address which the Owner shall designate in writing and file with the Managing Agent, or Secretary if no Managing Agent, or, if no such address is designated, at the address of the Unit of such Owner, or (b) if to the Association, the Executive Board or to the Managing Agent, at the principal office of the Association and to the Managing Agent or at such other address as shall be designated by notice in writing to the Owners pursuant to this Section. If a Unit is owned by more than one person, each such person who so designates a single address in writing to the Managing Agent, or Secretary if no Managing Agent, shall be entitled to receive all notices hereunder.

Section 8.4. Headings. The headings preceding the various Sections of these Bylaws and any Table of Contents are intended solely for the convenience of readers of the Bylaws and in no way define, limit or describe the scope of these Bylaws or the intent of any provision thereof.

Section 8.5. Gender. The use of the masculine gender in these Bylaws shall be deemed to include the feminine and neuter genders, and the use of the singular shall be deemed to include the plural, and vice versa, whenever the context so requires.

Effective Date: _____, 2024 Mineral Springs Homeowners' Association

By:_____
Name: David Chase
Its: President

EXHIBIT D

RULES AND REGULATIONS
Mineral Springs, a Condominium
Adopted: _____, 2024

1 Mineral Springs Homeowners' Association (the "Association"), acting through its Executive Board, has adopted the following Rules and Regulations ("Regulations"). These Regulations may be amended from time to time by resolution of the Executive Board.

2 Wherever in these Regulations reference is made to "Unit owners," such term shall apply to the owner of any Unit, to his or her family or tenants, whether or not in residence, servants, employees, agents, visitors and to any guests, invitees or licensees of such Unit owner, his or her family or tenant of such Unit owner. Wherever in these Regulations reference is made to the Association, such reference shall include the Association and the Managing Agent, if any, when the Managing Agent is acting on behalf of the Association.

3 The Unit owners shall comply with all the Regulations hereinafter set forth governing the buildings, roads, grounds, and any other appurtenances,

4 No part of the Condominium shall be used for any purpose except residential housing and home occupations to the extent allowed by the Ordinances of the Town of Cumberland, Maine,

5 There shall be no obstruction of the Common Elements. Nothing shall be stored on the Common Elements without the prior consent of the Executive Board as expressly provided herein or in the Bylaws.

6 Nothing shall be done or kept in any of the Common Elements which will increase the rate of insurance carried by the Association without the prior written consent of the Executive Board. No Unit owner shall permit anything to be done or kept in his or her Unit or on the Common Elements which will result in the cancellation of insurance carried by the Association or which would be in violation of any public law, ordinance or regulation. No gasoline or other explosive or inflammable material may be kept in any Unit or storage area. No waste shall be committed on the Common Elements.

7 All garbage and trash must be placed in the proper receptacles designated for refuse collection, and no garbage or trash shall be placed elsewhere on any Common Element. No bulk waste may be placed in or near the trash receptacles. Each Unit owner is responsible for the removal of any bulk waste.

8 Each Unit owner shall keep his or her Unit in a good state preservation, repair and cleanliness.

9 No noxious or offensive activity shall be carried out on in any Unit or on the Common Elements, nor shall anything be done therein which may be or become an annoyance or nuisance to the other Unit owners or occupants. No Unit owner shall make or permit any disturbing noises in the building or do or permit anything which will interfere with the rights, comforts or convenience of other Unit owners. All Unit owners shall keep the noise volume in their Units sufficiently reduced at all times so as not to disturb other Unit owners.

10 No "For Sale," "For Rent" or "For Lease" signs or other window displays or advertising be maintained or permitted on any part of the Condominium or in any Unit, nor shall any Unit be used or rented for transient, hotel or motel purposes. The right is reserved by the Declarant and the Executive Board or the Managing Agent, to place "For Sale," "For Rent" or "For Lease" signs on any unsold or unoccupied Units, and the right is hereby given to any Mortgagee who may become the owner of any Unit to place such signs on any Unit owned by such Mortgagee, but in no event will any sign be larger than one (1) foot by two (2) feet.

11 No Unit owner shall cause or permit anything to be hung, displayed or exposed on the exterior of a Unit or the Common Elements appurtenant thereto, whether through or upon windows, doors or masonry of such Unit, that may be readily seen by other Unit owners. The prohibition herein includes, without limitation, laundry, clothing, signs, awnings, canopies or any other items.

12 No Unit shall be used for any unlawful purpose, and no Unit owner shall do or permit any unlawful act in or upon his or her Unit.

13 Except for personal household pets normally housed in residences similar to the Units (e.g., dogs, cats, caged birds, etc.), no other animals shall be raised, bred or kept in any Unit or on the Common Elements. No outdoor cats shall be allowed. The keeping of any allowable pets as described in this Section 13 shall at all times be subject to compliance with the Declaration and these Regulations.

14 A personal household pet as described in Section 13 above may be maintained in a Unit so long as it is not a nuisance. Actions which will constitute a nuisance include, but are not limited to, abnormal or unreasonable crying, barking, scratching or unhygienic offensiveness, or unleashed pets in the Common Elements.

15 Pet owners are fully responsible for personal injuries and/or property damage caused by their pets.

16 All pets must be leashed.

17 Owners of pets walked upon the Common Elements must promptly clean up their pet's droppings.

18 All Unit owners shall observe and abide by all parking and traffic regulations as posted by the Association or by municipal authorities. Vehicles parked in violation of any such regulations may be towed away at the Unit owner's sole risk and expense.

19 Parking so as to block driveways shall not be permitted. If any vehicle owned or operated by a Unit owner, any member of his or her family, tenants, guests, invitees or licensees shall be illegally parked or abandoned on the Condominium, the Association shall be held harmless by such Unit owner for any and all damages or losses that may ensue, and any and all rights in connection therewith that the owner or driver may have under the provisions of state or local laws and ordinances are hereby expressly waived. The Unit owner shall indemnify the Association against any liability which may be imposed on the Association as a result of such illegal parking or abandonment and any consequences thereof.

20 Any damage to the Common Elements caused by a Unit owner or such Unit owner's pets shall be repaired at the expense of the Unit owner.

21 All charges and assessments imposed by the Association are due and payable on the first day of each month, unless otherwise specified. Payment shall be made by cash, check or money order, payable to the Association.

22 Complaints regarding the management of the Condominium or regarding actions of other Unit owners shall be made in writing to the Executive Board. No Unit owner shall direct, supervise or in any manner attempt to assert control over or request favors of any employee of the Managing Agent or the Association.

EXHIBIT E
PURCHASE AND SALE AGREEMENT FORM

See broker for purchase and sale agreement.

EXHIBIT F
YARD LICENSE AGREEMENT FORM

MINERAL SPRINGS, A CONDOMINIUM
77 Blackstrap Road, Cumberland, Maine

YARD LICENSE AGREEMENT

LICENSOR:	Mineral Springs Condo Association (the "Association") 77 Blackstrap Road, Cumberland, Maine 04105
LICENSEE:	_____(the "Unit Owners")
UNIT:	Unit No _____ (the Unit), created by virtue of the Declaration of Condominium of Mineral Springs a Condominium, dated _____, 2023and recorded in the Cumberland County Registry of Deeds in Book _____, Page ____, as amended (the "Declaration"). Capitalized terms not otherwise defined herein shall have the meaning assigned in the Declaration.
PREMISES:	The portion of the Common Elements immediately surrounding the Unit, as more particularly depicted on the _____ Plan attached hereto as Exhibit A (the "Yard").
TERM:	The term of this License shall Commence on_____ and shall remain in effect until terminated in accordance with the terms and conditions hereof (the "License Term").

The parties agree that this Yard License Agreement creates no interest or estate ln land or and in no event shall it be deemed to convey an adverse possession right, easement, lease or sublease, but instead it creates only a revocable license from the Licensor to the Licensee.

In consideration of the mutual covenants contained in this License Agreement, the parties agree as follows:

1. Grant of License. License hereby grants to Licensee an exclusive license to occupy and use the Premises as a private yard for personal and family use only (including use by a renter to whom Licensee rents its Unit in accordance with the Rules and Regulations of the Association) (the "Permitted Use"), subject to all liens, encumbrances, easements, agreements, conditions, restrictions, zoning laws, Development Rights of the Declarant, and governmental or any other regulations now or hereafter affecting or governing the Yard. This license is conditioned upon the following:

(a) Licensee shall comply with the Rules and Regulations promulgated from time to time by Licensor concerning use, safety, maintenance or permitted or restricted activities in the Yard; and

(b) Licensee's use of the Yard shall not interfere with use by others of any easements, rights of way, Common Elements or other Units of the Condominium, or with the property maintenance activities of the Licensor.

(c) License shall not to make any use of the Yard other than the Permitted Use or any use of the Yard that is improper, offensive or illegal, nor permit any act or thing to be done on the Yard which constitutes a nuisance or which may make void or voidable any insurance on the Yard.

(d) Licensee is responsible for any damage caused by Licensee or Licensee's guests and invitees to the portion of the Yard maintained by Licensee and shall promptly repair the damage or reimburse Licensor for the costs to repair the same.

2. Maintenance and Repair; Changes to Yard. Licensor is responsible for maintenance of the entire Yard to commercially reasonable standards (the "Standard Maintenance") unless ruled until the Association approves changes to the Yard that result in Licensee becoming responsible for some or all maintenance, at the discretion of the Association. Licensee shall become responsible for maintenance of any private garden areas, and it may become responsible for maintenance of any portion of the Yard that is not reasonably accessible to the Association's maintenance equipment as a result of installed fencing or other structures. Licensee is responsible for seeking approval of the Association in accordance with the Rules and Regulations prior to making any change requiring such Association approval. At the time of the Association's approval and to the extent necessary to reflect the approved change(s), Exhibit A, Sketch Plan shall be revised to depict the approved changes and Exhibit B, Owners' Maintenance, shall be revised to describe the date of the change, the character of the change, and the extent, if any, of the Licensee's responsibility for maintenance. Any fencing or other structures within the Yard must be approved by the Unit Owner's Association whose goal shall be to promote a safe and esthetically consistent appearance to the development. Criteria for meeting these goals may be further set forth in the Rules and Regulations as determined by the Unit Owner's Association.

3. Obligations of Licensor. Licensor makes no representations or warranties as to the adequacy of the Yard for the intended use by Licensee. Licensor's obligation to make any improvements or alterations to the Yard are set forth in the Declaration. Licensor shall retain a copy of this Yard License Agreement, as amended, in its files and shall make it available for inspection by all Unit Owners.

4. Default by Licensee. If Licensee defaults in the performance or compliance with any of the agreements, terms, or conditions in this License, Licensor, at any time, may give written notice to Licensee specifying such event of default or defaults and a time period for cure. Failure of Licensee to effect a cure within the time period specified in the notice shall result in the immediate termination of this License without further notice from the Association. Licensee

agrees to pay all costs and expenses, including reasonable attorneys' fees and penalties, incurred by Licensor in enforcing the provisions of this License in the event of any breach or default by Licensee.

(a) Upon any such revocation or termination of this License, the Yard shall revert to a Common Element, subject to easements and use rights as set forth in the Declaration.

(b) Upon any such revocation or termination of this License, Licensee and all persons claiming under it, shall quit and peacefully surrender the Yard to Licensor, and Licensor may without further notice enter or re-enter the Yard and possess and repossess itself thereof and may dispossess Licensee and remove any personal property from the Yard without being liable to prosecution therefor, and may have, hold and enjoy the Yard.

(c) Licensee covenants and agrees, in the event of any such revocation or termination of this License, to be liable to Licensor for all costs and expenses of returning the Yard to the same condition as existed upon the commencement of the Term. Any and all rights and remedies which Licensor may have under this License upon any breach shall be in addition to such rights and remedies as Licensor may have at law or in equity.

5. Reserved Rights of Licensor. Licensor reserves all other rights not inconsistent or incompatible with the rights granted herein, including, without limitation, the right to enter the Yard in order to perform maintenance of the Yard and for all other purposes for which the Licensor may require access over or across the Yard.

6. Waiver. Failure of Licensor to complain of any act or omission on the part of the Licensee, no matter how long the same may continue, shall not be deemed to be a waiver by Licensor of any of its rights hereunder. No waiver by Licensor at any time, express or implied, of any breach of any provision of this License shall be deemed a waiver of a breach of any other provision of this License or a consent to any subsequent breach of the same or any other provision.

7. Insurance. Licensee agrees to maintain insurance coverage as required by the Declaration, covering any liability it may have regarding the use of the Yard.

8. Invalidity of Particular Provisions. If any term or provision of this License or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this License, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of this License shall be valid and enforced to the fullest extent permitted by law. This License shall be governed by the laws of the State of Maine.

9. Heirs, Successors and Assigns. Licensee shall not have the right at any time to assign or sublicense this License or any part or the whole of the Yard by operation of law or otherwise, except to a purchaser of the Unit. The terms and provisions of this License shall be binding upon

and inure to the benefit of the heirs, executors, administrators, successors and permitted assigns, respectively, of Licensor and Licensee.

10. Gender, Numbers, Captions. As used in this License and when required by the context, each number (singular or plural) shall include all numbers, and each gender shall include all genders. If more than one licensee executes this license, all licensees are and shall be jointly and severally liable for the obligations of the "Licensee" hereunder. The caption and headings throughout this License are for convenience of reference only and the words contained therein shall in no way be held or deemed to define, limit, explain, modify, amplify or add to the interpretation, construction or meaning of any provision of, or the scope or intent of, this License, nor in any way affect this License.

11. Entire Agreement. This instrument contains the entire and only agreement between the parties, and no oral statements or representations or prior written matter not contained in this instrument shall have any force or effect. This License shall not be modified in any way except by a writing executed by both parties. Licensee agrees and acknowledges that the relationship between the parties hereto is that of licensor and licensee only, and that this Agreement does not constitute a lease or otherwise create a landlord and tenant relationship between Licensor and Licensee. Licensee hereby waives the right to claim the protections or provisions of State or Federal law which may from time to time be granted to tenants in a landlord and tenant relationship.

THIS INSTRUMENT IS NOT TO BE RECORDED

IN WITNESS WHEREOF, the parties hereto have caused this License Agreement to be executed as of the most recent date listed below.

WITNESS: MINERAL SPRINGS CONDO ASSOCIATION

_____ By: _____
Dated: _____

_____ By: _____
Dated: _____

BUYER:

_____ By: _____
Dated: _____

Exhibit A

Unit ____Yard License Diagram

Exhibit B

Unit ____ Owners' Maintenance

Date	Nature of Change	Responsibility of Owners

EXHIBIT G
BUDGET FOR HOA FEES

Budget for HOA Fees for Mineral Springs			
Management Fee			
Insurance			
Admin / legal /professional			
Electricity			
Common area maintenance, mowing			
And plowing roadways			
Mandatory plowing driveways			
Mowing individual houses			
Fertilization / treatment for all lawns			
Landscape Maintenance			
Common area property taxes			
Replacement reserves			
Inspection & maintenance of stormwater system			
_____ divided by 72 households			

EXHIBIT H
ENCUMBRANCES OF RECORD

1. Any facts, rights, interest, or claims of persons or parties in possession, which are not shown by the public record.

2. Any encroachment, encumbrance, violation, variation, discrepancy, conflict in boundary lines, shortage in area, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land, and which are not shown by the public records.

3. Any lien, or right to a lien, for services, labor or material heretofore or hereafter furnished, imposed by law and not shown by the public records.

4. Liens for real estate taxes for the current fiscal year, which are not yet due and payable, and liens for any unpaid municipal assessments, water, and sewer charges, if any.

5. Covenants, conditions, restrictions, reservations, easements, liens for common area assessments, options, powers of attorney and limitations on title, created by or set forth or described in the condominium law of the State in which the unit is located, the Unit Deed, the Declaration of Condominium, in the related By-Laws, Site Plans as duly recorded in the appropriate land records as the same may have been lawfully amended.

6. Covenants, conditions, restrictions, reservations, assessments and limitations on title, created by or set forth in the Declaration of Affordable Housing Covenants dated _____ _____, 2024 and recorded in the Cumberland County Registry of Deeds in Book _____, Page _ _____.

7. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I-Requirements are met.

8. Terms and conditions of a State of Maine Department of Environmental Protection Order dated _____, 2024 and recorded in the Cumberland County Registry of Deeds in Book_____, Page _____.

9. Covenants, conditions, restrictions, reservations, easements, liens for assessments, options, powers of attorney, and limitations on title, created by the Unit Ownership Act of the State of Maine, Chapter 10 of Title 33 of the Maine Revised Statutes of 1964, as amended and the Maine Condominium Act, Chapter 31 of Title 33 of the Maine Revised Statutes of 1964, as amended, or set forth: in the Declaration of Condominium for Mineral Springs, A Condominium, Blackstrap Road, Cumberland, Maine, dated _____, 2024 and recorded in the Cumberland County Registry of Deeds in Book _____, Page ____, as may be amended; in the related By-Laws; in any instrument creating the estate or interest insured by the Policy; and in any other allied instrument referred to in any of the instruments aforesaid.

10. Any and all matters set forth on the plan entitled "Overall Subdivision Plan of Mineral Springs Subdivision, Blackstrap Road, Cumberland, Maine for B.R. Property, LLC. recorded in the Cumberland County Registry of Deeds in Plan Book _____, Page _____.

11. Any and all matters set forth on the plan entitled "Condominium Plat of Mineral Springs, a Condominium, Mountain Road, Cumberland, Maine for West Cumberland Development II, LLC" recorded in the Cumberland County Registry of Deeds in Plan Book 220, Pages 222-224.

EXHIBIT H-1
MAINE DEP PERMIT

EXHIBIT I
LIMITATION OF WARRANTIES

Mineral Springs, a Condominium
77 Blackstrap Road, Cumberland Maine

WHEREAS, B.R. Property, LLC. a Maine limited liability company with a principal address of 39 Nubbin Reach, Yarmouth, Maine ("Declarant") and the undersigned purchaser(s) (the "Purchaser") have entered into a certain Purchase and Sale Agreement dated _____ for the purchase of Unit_____(the "Unit") of Mineral Springs , a Condominium;

WHERAS, pursuant to Section 1602-1 15 of the Maine Condominium Act (the "Act"), a judicial proceeding brought by the Purchaser against the Declarant for the breach oh any obligation arising under Section 1604- 1 12 of the Act, concerning express warranties of quality, or under Section 1604-113 of the Act, concerning implied warranties of quality, must be commenced by Purchaser within six (6) years after the cause of action accrues, and that Declarant and Purchaser may agree to reduce the period of limitation to not less than 2 years, provided that an agreement to reduce the period of limitation must be evidenced by a separate instrument executed by the Purchaser.

Agreement to Limitation of Warranties

NOW THEREFORE, the undersigned Purchaser hereby agrees to limit the period of limitations under Section .1604-115 of the Act to two (2) years for the breach of any express or implied warranties by Declarant in connection with sale of the Unit to Purchaser. Further, the parties agree that the Declarant is not liable for any defect in any improvements that were not made or contracted for by B.R. Property, LLC.

Dated this _____ day of _____, 2024

PURCHASER(S):

_____
Printed Name:

_____
Printed Name:

EXIHIBIT J
ACKNOWLEDGEMENT OF RECEIPT AND REVIEW
of
PUBLIC OFFERING STATEMENT
and **Department of Environmental Protection Order _____**
for
Mineral Springs, a Condominium
77 Blackstrap Road, Cumberland, Maine

The undersigned purchaser(s) of Unit _____ of the Mineral Springs, a

Condominium (the "Condominium"), hereby acknowledge(s) receipt and review of the

Public Offering Statement for Condominium, with an effective date of

"Public Offering Statement"), together with all exhibits and attachments, including the DEP Order attached thereto us Exhibit H-1, at least Fourteen (14) days prior to the date of closing on the sale of the Unit. The Public Offering Statement supersedes and replaces any prior Public Offering Statements and any amendments thereto.

Dated this _____day of _____,2024

PURCHASER(S):

_____
Printed Name:

_____
Printed Name:

EXHIBIT K
MINERAL SPRINGS NEIGHBORHOOD DESIGN GUIDELINES

Overview:

- Must be based on one of the given designs. Customizations can be made but need to be approved by developer. The developer reserves the right to include additional designs.

Exterior:

- Garages; Each garage bay must have its own architectural grad/style garage door.
- Driveway shall be designed to accommodate two parked passenger vehicles without obstruction of the sidewalk walk. All driveway was must be paved.
- Roofing material- Sloped roofs may be finished in slate, architectural asphalt shingles and standing seam or Hat seam metal systems. Metal roofing with exposed fastener systems are prohibited. Architectural asphalt shingles must be black or salt & pepper. Metal roofing must be black or gray. Developer reserves the right to approve additional colors on a case by case basis.
- Windows must be black or white. Developer may approve another color.
- Siding material: LP Smart Side, composite, vinyl shake and clapboards- Builder must limit the amount of seams per run. Developer to approve color.
- Front door style: Must be a Jeld-Wen or Simpson door. Door must have zero sidelights or two sidelights.
- Basements and foundations. Full or partial basements are required. No slabs allowed.
- Utility meters Cannot be placed on primary façade.
- Solar array restrictions; Panels must not be installed on the street facing side.
- Walkways- primary walkway must be constructed with brick, concrete or granite unit pavers, stamped concrete, bluestone or other native stone.
- Granite steps required to front porch.
- Association mailboxes- TBD
- Light post- granite post with standard lantern for every lot.
- Restrictions on "private recreation": No swimming pools, swing sets. Hot tubs maybe approved If screened with a natural/plant barrier from neighbors
- No fencing except for an underground electrical fence for animal containment.
- Fence or privacy screen maybe approved by developer
- Seasonal lighting rules: Lights may be turned on at Thanksgiving and need to be removed by January 15th. No inflatables.
- Sign restrictions -for sales are allowed. Other signs must be taken down within 48 hours of event.
- No long term parking for vehicles, boats, trailers, snowmobiles.
- No radon systems permitted on the outside. All homes must have an Interior space for radon piping to be installed.
- Irrigation required. Group pricing TBD
- Sod required in front yard

- All window air condition units and/or heat pumps are not allowed to be installed in the street view.

EXHIBIT L
TOWN OF CUMBERLAND

Affordable Housing Agreement and

Declaration of Covenants, Conditions, Restrictions

This Affordable Housing Agreement and Declaration of Covenants, Conditions, and Restrictions (the "**Declaration**") is entered into by and between the **TOWN OF CUMBERLAND,** a municipal corporation organized and existing under the laws of the State of Maine, with a mailing address of 290 Tuttle Road, Cumberland, Maine 04021 (the "**Town**") and **B.R. PROPERTY, LLC**, a Maine limited liability company with a mailing address of 39 Nubbin Reach, Yarmouth, ME 04096 (the "**Developer**").

W I T N E S E T H

WHEREAS, the Town has enacted the West Cumberland Housing Overlay District (Town of Cumberland Code of Ordinances § 315-28.1) to "encourage the development of affordable housing units by assisting developers in making the provision of these units economically viable, while providing assurances to the Town that these units will maintain a high degree of quality and will remain affordable to the target population over a reasonable period of time"; and

WHEREAS, the Developer is the owner in fee simple of certain real property located at 77 Blackstrap Road in Cumberland, which is more particularly defined as Map R7, Lot 53 of the Tax Maps of the Town of Cumberland and is more particularly described in **Exhibit A** (the "**Property**"); and

WHEREAS, the Developer intends to construct seventy-two (72) single-family homes on the Property, all of which will be units within a single condominium to be named, "Mineral Springs, A Condominium" (the "**Development**"); and

WHEREAS, the Development was approved by the Town of Cumberland Planning Board on ____, which said approved development plan was recorded in the Cumberland County Registry of Deeds in Plan Book ____, Page _____ (the "**Plan**"); and

WHEREAS, the Development was approved by the Planning Board on the condition that fifty percent (50%) of the total number of units in the Development be made affordable for those making up to 120% of Area Median Income, as defined herein ("**Affordable Housing Units**"); and

WHEREAS, the Developer has designated thirty-six (36) single-family homes within the Development as "**Affordable Housing Units**," being the Units more particularly described in **Exhibit B**, as more particularly shown on the Plan; and

WHEREAS, a condition of approval of the Plan was that the Town and Developer execute and record this Declaration prior to the issuance of the certificate of occupancy for any unit of housing shown on the Plan; and

WHEREAS, in order to fulfil these conditions of approval and the purpose of the West Cumberland Housing Overlay District, the Developer hereby agrees to place certain restrictions on the sale and sale price of the Affordable Housing Units on the terms and conditions hereinafter provided, and in accordance with Maine law, including but not limited to 33 M.R.S. § 121, *et seq.*

NOW THEREFORE, in consideration of the mutual undertaking set forth herein, the Town and the Developer hereby agree as follows:

1. **Parties' Intent**. The terms and conditions contained in this Declaration have been freely and voluntarily accepted by the parties, each with the independent and informed advice of legal counsel. The provisions and restrictions contained herein exist to further the mutual purposes and goals of the Developer and the Town set forth herein to create and preserve access to decent and affordable housing and home ownership opportunities for residents of the Town of Cumberland. It is the express understanding and intent of the parties that the terms and conditions of this Declaration will enhance the marketability of the Property by making the Property affordable to moderate-income families who, without such provisions, would be unable to afford property within the Town of Cumberland.

2. **Term**. The term of this Declaration shall be for a period beginning on the date that it is recorded in the Cumberland County Registry of Deeds (the "**Effective Date**") and ending on the date that is **thirty** (**30) years** from the Effective Date, after which time this Declaration shall automatically expire and the covenants and restrictions set forth herein shall be deemed satisfied and released.

3. **Enforceability of Covenants**. The covenants and restrictions set forth herein are intended to be and shall be considered covenants that run with the Property described in **Exhibit A** and shall bind all subsequent owners and holders of any interest in said real estate, including the owners of any individual Affordable Housing Unit therein, and the Mineral Springs Condo Association. The Town or its designee may enforce the covenants set forth herein as a contract beneficiary. The covenants of the Developer set forth herein shall survive a sale, transfer, or other disposition of the Development by the Developer, a foreclosure or transfer of title in lieu of foreclosure, or the repayment of any loan, but shall cease to apply to the Development in the event of involuntary noncompliance caused by substantial

destruction, seizure, requisition, or change in law, or an action of a governmental agency that prevents the Town from enforcing the covenants.

4. **Transfer to Qualified Buyer**. Except as set forth herein, the Developer may only sell, transfer, or otherwise dispose of an Affordable Housing Unit to a Qualified Buyer, as that term is defined herein. Any purported sale, transfer, or other disposition to any other person or entity done without following the procedures set forth below, or in violation of the price limitations set forth herein, shall be **null and void**. For purposes of this Declaration, the term "**Qualified Buyer**" means a person or household with a gross income not exceeding 120% of the HUD Greater Portland Metropolitan Statistical Area median income figures ("**AMI**") for a household of the size as calculated by the Town and which person or household must intend to and in fact occupy the Affordable Housing Unit as their primary residence. Affordable Housing Units may not be rented out by the Developer, or a Qualified Buyer, for short or long-term periods during the term of this Declaration. Notwithstanding the foregoing, if the Developer, in good faith, markets an Affordable Housing Unit continuously for a period of not less than One Hundred Eighty (180) days without receiving a reasonable offer to sell such Affordable Housing Unit, then Developer may lease such Affordable Housing Unit for a period of up to two (2) years to any **Qualified Renter**, which shall mean a person or household with a gross income not exceeding 80% of AMI. In any such case, the Developer shall resume marketing the Affordable Housing Unit for sale upon the expiration of said two-year period, under the terms and conditions of this Declaration.

5. **Construction and Duration**. The covenants and restrictions contained herein shall run with the Property and shall continue until the expiration of the Term established in Section 2 above. Developer covenants and agrees for themselves and their heirs, personal representatives and assigns that the rights and restrictions contained herein shall be for the benefit of the Town, its successors and assigns, and shall be binding on all future purchasers of an Affordable Housing Unit in the Development. Developer and the Town agree and intend that this Declaration and the covenants contained herein are to be interpreted as "Affordable Housing Covenants" as defined by 33 M.R.S. § 121.

6. **Exempted Transfers**. Notwithstanding anything to the contrary contained herein, the terms of this Declaration shall not apply to the following types of transfers of an Affordable Housing Unit:

A. Transfers by the Developer to a mortgagee in lieu of foreclosure;

B. Transfers by a mortgagee immediately following a transfer to such mortgagee by deed in lieu of foreclosure;

C. Transfers by a mortgagee of Developer pursuant to and as a result of a foreclosure judgment and sale;

D. Transfers by a mortgagee immediately following a transfer to such mortgagee as a result of a foreclosure; or

E. Transfers by the transferee of any transfer described in subsection C above which results from a mortgage servicing relationship between a servicing lender and a governmental entity serving as a secondary market mortgage purchaser;

F. Transfer pursuant to a valid divorce decree; and

G. Transfer resulting from the death of one or more owner(s) of an Affordable Housing Unit by operation of law or pursuant to the express terms of any will.

provided, however, that this Declaration shall apply in full to all subsequent transfers of the Affordable Housing Unit not described in subsections A through G of this Section, and any such subsequent transferees shall own the Affordable Housing Unit as an "Owner" subject in all respects to all of the terms and conditions of this Declaration. The provisions in this paragraph shall apply in the same manner to all subsequent holders of mortgages on the Property.

7. **Violation**. In the event of any violation of this Declaration by the Developer or its heirs, successors, or assigns, including but not limited to any owner/prospective seller of an Affordable Housing Unit, the Town or its designee shall be entitled to exercise any of its rights under this Declaration and applicable law, maintain an action in law or in equity to recover damages incurred by the Town from such failure, including but not limited to reasonable attorney's fees and costs, and to require the Developer or prospective seller, through injunctive relief or specific performance, to comply with the provisions and covenants set forth herein and to immediately cure any failure to comply with the covenants set forth herein.

8. **Indemnification**. The Developer shall indemnify and hold the Town and its agents, officers and employees harmless from and against any and all claims, demands, liability, loss, cost, or expenses, including but not limited to attorney's fees and other costs of litigation incurred by the Town arising out of or in any way related to the Developer's breach of any of its obligations under this Declaration or any action taken by the Town to enforce or exercise its rights under this Declaration as a result of such breach, except for claims arising from the gross negligence or willful acts of the Town. Under no circumstances shall the provision of indemnification under this Declaration be construed to waive or otherwise limit any of the defenses, immunities, or limitations of liability available to the Town under the Maine Tort Claims Act, 14 M.R.S. § 8101, *et seq.*, or other applicable law. The provisions of this Section shall survive the term of this Declaration indefinitely.

9. **Amendments**. This Declaration may only be amended or modified, in whole or in party, by written agreement of the Developer and the Town clearly express the intent to modify the Declaration.

10. **Severability**. The validity of any clause, part, or provision of this Declaration, shall not affect the validity of the remaining parts thereof.

11. **Successors and Assigns**. This Declaration shall be binding upon the Developer's respective heirs, personal representatives, executors, administrators, transferees, successors, and assigns, and shall inure to the benefit of and shall be enforceable by the Town, its successors, transferees, and assigns. The Developer shall reference this Declaration in any deed, condominium declaration, or other conveyance documents that conveys all or part of the Development.

12. **Governing Law**. This Declaration shall be construed in accordance with and governed by the laws of the State of Maine, without regard to any contrary conflict of laws provisions.

13. **Additional Documents**. The Developer shall execute such other documents the Town reasonable deems necessary in order to effectuate the intent and purpose of this Declaration.

14. **Notices**. Any notice or demand required or provided for in this Declaration shall be in writing and shall be deemed to have been sufficiently given for all purposes when hand-delivered or mailed by certified or registered United States Mail, postage prepaid, or sent by overnight United States mail or overnight commercial delivery service to the Developer, its heirs and assigns, or the Town at their respective addresses as set forth above, or at such other address as either of them may from time to time hereafter designate by notice given to the other as herein provided.

15. **Integration**. This Declaration completely and fully supersedes all other prior or contemporaneous understandings or agreements, both written and oral, between the Town and the Developer relating to the specific subject matter of this Declaration.

16. **Waiver**. Notwithstanding anything contained herein, failure of the Town to complain of any act or omission on the part of Developer, or its heirs, successors, or assigns, no matter how long the same may continue, shall not be deemed to be a waiver by the Town of any of under this Declaration.

IN WITNESS WHEREOF, this Declaration has been duly executed by the Town of Cumberland and B.R. Property, LLC as of this _____ day of _____, 2024.

TOWN OF CUMBERLAND

_____ _____

Witness William R. Shane, P.E., its

Town Manager

STATE OF MAINE

CUMBERLAND, ss. _____, 2024

Personally appeared before the above-named William R. Shane, duly authorized Town Manager of the Town of Cumberland, and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of said Town of Cumberland.

Before me,

_____

Notary Public / Attorney at Law

_____

Name:

B.R. PROPERTY, LLC

_____ _____

Witness David Chase, its

Manager

STATE OF MAINE

CUMBERLAND, ss. _____, 2024

Personally appeared before the above-named David Chase, duly authorized Manager of the B.R. Property, LLC, and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of said B.R. Property, LLC.

Before me,

_____

Notary Public / Attorney at Law

_____

Name:

EXHIBIT A

Property Description

A certain lot or parcel of land, with the buildings and improvements thereon, situated in the Town of Cumberland, County of Cumberland, and State of Maine, lying on the easterly side of the Blackstrap Road, and being more particularly described as follows:

BEGINNING at the southwest corner of land of Durward W. Safford on the line of said road;

THENCE, running easterly on said Safford line to an iron stake and land of one Leavitt;

THENCE, running southerly on line of said Leavitt land to an iron stake and said Leavitt land;

THENCE, running westerly on the line of said land of said Leavitt to the road aforesaid;

THENCE running northerly on the line of the road to the PLACE OF BEGINNING.

Excepting that portion of the premises conveyed by deed of Cumberland Sand and Gravel Company, Inc. to Antonio Mancini and Pauline Mancini, dated June 3, 1966 and recorded in the Cumberland County Registry of Deeds in Book 2973, Page 140.

Further excepting that portion of the premises conveyed by deed of Alton R. Russell and Hilda W. Russell to Maine Turnpike Authority, dated January 26, 1954 and recorded in said Registry in Book 2166, Page 439.

Meaning and intending to describe a portion of the premises, more particularly “Parcel III,” as conveyed to Grantor by deed of Pike Industries, Inc., dated October 14, 2009 and recorded in said Registry of Deeds in Book 27325, Page 312.

EXHIBIT B

Affordable Housing Units

The following units are hereby designated as Affordable Housing Units, as further defined in this Declaration:

- Unit 2
- Unit 3
- Unit 4
- Unit 6
- Unit 7
- Unit 9
- Unit 12
- Unit 14
- Unit 15
- Unit 17
- Unit 18
- Unit 24
- Unit 25
- Unit 27
- Unit 29
- Unit 34
- Unit 35
- Unit 36
- Unit 38
- Unit 39
- Unit 41
- Unit 50
- Unit 52
- Unit 53
- Unit 54
- Unit 55
- Unit 56
- Unit 58
- Unit 59
- Unit 61
- Unit 63
- Unit 64
- Unit 65
- Unit 66
- Unit 67
- Unit ?

Section 8
Street Lighting

Street lighting is proposed at the five parking locations and the four street intersections. We are working with RealTerm Energy Solutions, the energy company that works with the Town of Cumberland on street lighting to supply the proposed lighting design and street lights. The proposed light fixture is the LED American Revolution as manufactured by American Electrical Lighting. The parking area fixtures are proposed at a 10 foot mounting height, and the intersection fixtures are proposed at a 16 foot mounting height. A fixture catalog cut sheet and a photometric plan are included as part of this section.

Intersection fixtures at a 16 ft. mounting height
Parking area fixtures at a 10 ft. mounting height

American Revolution LED
Series 247L

PRODUCT OVERVIEW

Applications:

Streetscapes
Walkways
Pathways
Parks

IP66 Optics

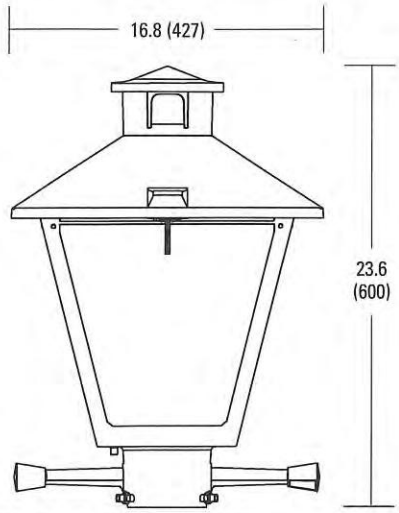
Features:

- Colonial LED lantern, replaces up to 250W HID models for street and area lighting applications
- Fifteen (15) LED performance packages deliver just the right amount of light for any given application up to 9,000 lumens
- Available in color temperature choices of 2700K, 3000K and 4000K
- Four (4) distinct light distribution options provide design flexibility, available in Type II, Type III, Type IV, and Type V
- Available with acrylic or polycarbonate lens
- Die-cast aluminum housing, engineered for sturdy lifelong performance
- Luminaire is rated for 3g vibration per ANSI C136.31
- Die-cast aluminum hood features a trigger latch (TL) option and captive thumb screws for fast, easy electrical and optical chamber access
- Standard paint finish is smooth gloss
- Housing is tenon pole-mounted and designed for use with a 3" tall by 2-3/8" to 3" diameter tenon, and secured by three set screws
- Rated LED and driver life greater than 100,000 hours at 25°C
- Surge protection device (standard) exceeds ANSI/IEEE C62.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Enhanced (10kV/5kA). 20KV Option exceeds ANSI/IEEE C62.41-2002 Category C High (10kV/10kA) and ANSI C136.2-2015 Extreme (20kV/10kA)
- Equipped with LED electronic 0-10V dimmable driver with DALI driver option

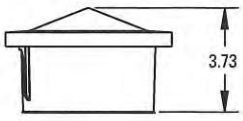
Standards:

- Complies with all applicable ANSI C136 standards.
- CSA listed and suitable for up to 40°C ambient
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

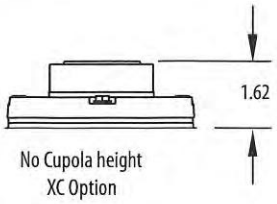
DIMENSIONS



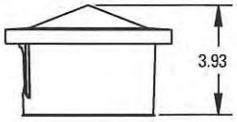
Effective Projected Area (EPA)
The EPA for the American Revolution Series 247 is 1.6 sq. ft.
Fixture weight = 36 lbs.



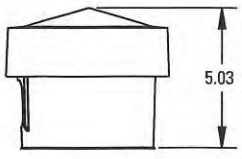
Cupola height
P3 with SCC option
Shown in line diagram



No Cupola height
XC Option



Cupola height
P7 with SCC option

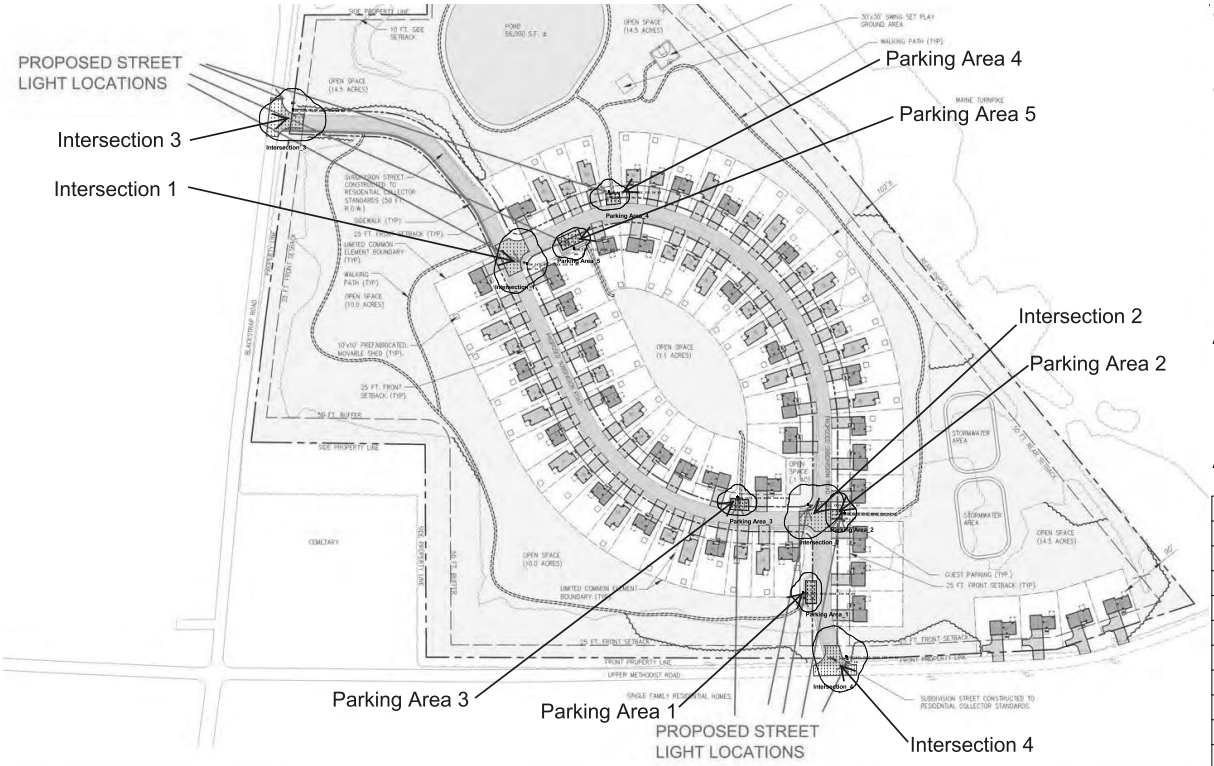


Cupola height
P7 with SNC option

**See Cupola Control Node Compatibility chart to ensure compatibility with smart controls*

All dimensions are inches (millimeters) unless otherwise noted.

Design 01- Mineral Springs Subdivision.AGI



ANSI/IES RP-8-21
(Design and Maintenance of Roadway and Parking Facility Lighting)

Recommended Maintained Illuminance Values for Parking Lots
(basic requirements, not for security lighting):
Functional Classification: Drive Aisles/Parking Areas
Minimum Horizontal Illuminance (lux/fc): 2 / 0.2 @ 0.0m
Minimum vertical illuminance at 1.5m (lux/fc): 1 / 0.1 @1.5m
Uniformity Ratio (Max:Min): 20:1

Pavement Illuminance Criteria for Full Intersection Lighting:
Functional Classification: Collector/Local
Pedestrian Activity Level Classification: Low
Illuminance (lux/fc): 10 / 0.9
Average-to-Minimum Uniformity Ratio (Eavg/Emin): 4.0

Functional Classification: Local/Local
Pedestrian Activity Level Classification: Low
Illuminance (lux/fc): 8 / 0.7
Average-to-Minimum Uniformity Ratio (Eavg/Emin): 6.0

Calculation Summary

Label	Units	Avg	Max	Min	Avg/Min	Max/Min
Intersection_1	Fc	0.63	1.4	0.1	6.30	14.00
Intersection_2	Fc	0.67	1.5	0.1	6.70	15.00
Intersection_3	Fc	0.70	2.2	0.1	7.00	22.00
Intersection_4	Fc	0.77	2.1	0.1	7.70	21.00
Parking Area_1	Fc	0.60	1.4	0.2	3.00	7.00
Parking Area_2	Fc	0.90	1.3	0.6	1.50	2.17
Parking Area_3	Fc	0.68	1.2	0.2	3.40	6.00
Parking Area_4	Fc	0.69	1.1	0.3	2.30	3.67
Parking Area_5	Fc	0.56	1.5	0.2	2.80	7.50

Luminaire Schedule

Symbol	Qty	Part Number	Arrangement	LLF	Wattage	Lumens	[MANUFAC]	IES Class	BUG Rating	LER	Mounting Height (ft)
▣	2	80W_247L P202 XXXX 30K R4 AY	Single	0.850	80	7745	American Electric Lighting	Type IV	B2-U3-G3	97	16
▣	2	70W_247L P201 XXXX 30K R4 AY	Single	0.850	70	7059	American Electric Lighting	Type IV	B2-U3-G3	101	16
▣	5	20W_247L P101 XXXX 30K R4 AY	Single	0.850	20	2223	American Electric Lighting	Type IV	B1-U3-G2	111	10

DISCLAIMER: Calculations have been performed according to IESNA & CIE standards and good practice. Some differences between measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as road dimensions, mounting height, roadway surface and ambient lights significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.
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RTE ENERGY SOLUTIONS
Annapolis | Montreal
1 (866) 422-5200
rte-es.com
info@rte-es.com
A division of Realterm Global

Photometric Model:
Roadway:Design 01- Mineral Springs Subdivision.AGI
Designed by: Cristhian Granados

Date : 2024-02-20
AGi32® Version 21.1.84