	Longwoods Preserve.
Subject	Planning Board Site Plan Review Amendment: The Grange Hall Pub at
From	Carla Nixon, Town Planner
То	Town of Cumberland Planning Board
Date	May 11, 2023

#### I. REQUEST:

The applicant/owner is Synergosity, LLC. The applicant is requesting amendments to an approved site plan for The Grange Hall Pub at Longwoods Preserve. Approximately 55 acres of the 61.55 acre parcel has been placed into permanent conservation and will be used as a working farm and for a public trail network. The parcel is located at 76 Longwoods Road, an access drive from Longwoods Road is named Wander Way. The property is shown on Tax Assessor's Map R3, Lots 6A and 13 and is located in the Rural Residential 1 (RR 1) district. There is a contract zone agreement that allows for the restaurant use and sets out additional requirements and restrictions on the parcel.

Jeff Read, P.E., of Sevee and Maher Engineers prepared the application and will represent the applicant. Al Palmer, P.E., of Gorrill Palmer Engineers has reviewed the plans for the Town.

#### **II. PROJECT HISTORY:**

- 1. June 21, 2022: Sketch Plan Review.
- 2. July 19, 2022: Planning Board Site Plan Approval

#### **III. Requested Amendments**

- 1. Approval of pub building location change and associated patio, parking areas, walks and other site features.
- 2. Approval of the relocated dumpster.
- 3. Relocation of a seasonal bathroom and storage shed.
- 4. Walkways east and north of the building reduced to 5' wide.
- 5. 8' wide gravel service path added around the western end of the building.
- 6. Addition of an outdoor brick oven to the west of the building.
- 7. Addition of a walk in freezer on the south side of the building
- 8. Addition of a 1,000 gallon propane tank
- 9. An outdoor brick oven to the west of the building and outdoor dining area.
- 10. Grades at parking areas adjusted to direct stormwater runoff directly to the southeast.

## IV. Outside Agency Approvals:

Agency	Type of Permit	Status
MDEP	Stormwater Permit by Rule	On file
MDOT	Driveway Entrance Permit	On file
Maine Historic Preservation		Received. Dated 5/16/22
Commission		
Maine Natural Areas	Rare & Exemplary Botanical	Received. Dated: 5/17/22
Program	Features. None documented.	
Maine Inland Fisheries &		Received. Dated: 5/15/22
Wildlife		

## V. Town Engineer's Review: Al Palmer, P.E., Gorrill Palmer. (Note: Applicant's engineer (Jeff Read) has provided responses; see electronic packet)

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

- Site Plan Amendment, dated April 25, 2023, prepared by SME on behalf of the Synergosity, LLC, consisting of 101 pages
- Site Plan Drawing Set, dated April 2023, prepared by SME consisting of 15 drawings

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

Site Plans

1. Site Plan – The dimensions and layout of the dumpster pad on the Site Plan (C103) does not match the detail shown on Sections and Details (C301).

2. Site Plan – We were unable to locate a section/detail for the buildup of this walkway.

3. Site Plan – The entrance on the westerly side of the Building appears to exit onto the Crushed Stone Drip Strip. Dependent on the frequency of use for this entrance, an alternate surface treatment may be desired.

4. Site Grading, Drainage & Erosion Control Plan – Based on the spot grades, it appears that a patron using a wheelchair would be required to navigate the Northerly Building Entrance via a Pea Stone Surfaced Walkway as the Southerly Building Entrance appears to include a step. Is access via a Pea Stone Surfaced Walkway reasonable?

5. Site Grading, Drainage & Erosion Control Plan – It does not appear that Barrier Free Access is provided to the Terrace/Outdoor Dining Area from within the Building.

### Chapter 229 – SITE PLAN REVIEW

#### SECTION 229-10: APPROVAL STANDARDS AND CRITERIA

The following criteria shall be used by the Planning Board in reviewing applications for site plan review and shall serve as minimum requirements for approval of the application. The application shall be approved unless the Planning Board determines that the applicant has failed to meet one or more of these standards. In all instances, the burden of proof shall be on the applicant who must produce evidence sufficient to warrant a finding that all applicable criteria have been met.

#### A. Utilization of the Site

Utilization of the Site - The plan for the development, including buildings, lots, and support facilities, must reflect the natural capabilities of the site to support development. Environmentally sensitive areas, including but not limited to, wetlands, steep slopes, floodplains, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, and sand and gravel aquifers must be maintained and preserved to the maximum extent. The development must include appropriate measures for protecting these resources, including but not limited to, modification of the proposed design of the site, timing of construction, and limiting the extent of excavation.

# There are no known environmentally sensitive areas on the parcel. The site is not located within habitat for rare and endangered plants and animals, or significant wildlife or fisheries habitat.

## Based on the above findings of fact, the Board finds the standards of this section have been met.

#### **B.** Traffic, Circulation and Parking

#### (1)1 Traffic Access and Parking

Vehicular access to and from the development must be safe and convenient.

(a) Any driveway or proposed street must be designed so as to provide the minimum sight distance according to the Maine Department of Transportation standards, to the maximum extent possible.

(b) Points of access and egress must be located to avoid hazardous conflicts with existing turning movements and traffic flows.

(c) The grade of any proposed drive or street must be not more than +3% for a minimum of two (2) car lengths, or forty (40) feet, from the intersection.

(d) The intersection of any access/egress drive or proposed street must function: (a) at a Level of Service D, or better, following development if the project will generate one thousand (1,000) or more vehicle trips per twenty-four (24) hour period; or (b) at a level which will allow safe access into and out of the project if less than one thousand (1,000) trips are generated.

(e) Where a lot has frontage on two (2) or more streets, the primary access to and egress from the lot must be provided from the street where there is less potential for traffic congestion and for traffic and pedestrians hazards. Access from other streets may be allowed if it is safe and does not promote short cutting through the site.

(f) Where it is necessary to safeguard against hazards to traffic and pedestrians and/ or to avoid traffic congestion, the applicant shall be responsible for providing turning lanes, traffic directional islands, and traffic controls within public streets.

(g) Access ways must be designed and have sufficient capacity to avoid queuing of entering vehicles on any public street.

(h) The following criteria must be used to limit the number of driveways serving a proposed project:

[1] No use which generates less than one hundred (1) vehicle trips per day shall have more than one (1) two-way driveway onto a single roadway. Such driveway must be no greater than thirty (30) feet wide.

[2] No use which generates one hundred (1) or more vehicle trips per day shall have more than two (2) points of entry from and two (2) points of egress to a single roadway. The combined width of all access ways must not exceed sixty (60) feet.

#### (2) Access way Location and Spacing

Access ways must meet the following standards:

(a) Private entrance / exits must be located at least fifty (50) feet from the closest un-signalized intersection and one hundred fifty (150) feet from the closest signalized intersection, as measured from the point of tangency for the corner to the point of tangency for the access way. This requirement may be reduced if the shape of the site does not allow conformance with this standard.

(b) Private access ways in or out of a development must be separated by a minimum of seventy-five (75) feet where possible.

#### (3) Internal Vehicular Circulation

The layout of the site must provide for the safe movement of passenger, service, and emergency vehicles through the site.

(a) Projects that will be served by delivery vehicles must provide a clear route for such vehicles with appropriate geometric design to allow turning and backing.

(b) Clear routes of access must be provided and maintained for emergency vehicles to and around buildings and must be posted with appropriate signage (fire lane - no parking).

(c)The layout and design of parking areas must provide for safe and convenient circulation of vehicles throughout the lot.

(d) All roadways must be designed to harmonize with the topographic and natural features of the site insofar as practical by minimizing filling, grading, excavation, or other similar activities which result in unstable soil conditions and soil erosion, by fitting the development to the natural contour of the land and avoiding substantial areas of excessive grade and tree removal, and by retaining existing vegetation during construction. The road network must provide for vehicular, pedestrian, and cyclist safety, all season emergency access, snow storage, and delivery and collection services.

#### (4) Parking Layout and Design

Off street parking must conform to the following standards:

(a) Parking areas with more than two (2) parking spaces must be arranged so that it is not necessary for vehicles to back into the street.

(b) All parking spaces, access drives, and impervious surfaces must be located at least fifteen (15) feet from any side or rear lot line, except where standards for buffer yards require a greater distance. No parking spaces or asphalt type surface shall be located within fifteen (15) feet of the front property line. Parking lots on adjoining lots may be connected by accessways not exceeding twenty-four (24) feet in width.

(c) Parking stalls and aisle layout must conform to the following standards.

Parking Angle	Stall Width	Skew Width	Stall Depth Wie	Aisle dth
90°	9'-0"		18'-0"	24'-0" 2-way
60°	8'-6"	10'-6"	18'-0"	16'-0" 1-way
45°	8'-6"	12'-9"	17'-6"	12'-0" 1-way
30°	8'-6"	17'-0"	17'-0"	12'-0" 1 way

(d) In lots utilizing diagonal parking, the direction of proper traffic flow must be indicated by signs, pavement markings or other permanent indications and maintained as necessary.

(e) Parking areas must be designed to permit each motor vehicle to proceed to and from the parking space provided for it without requiring the moving of any other motor vehicles.

(f) Provisions must be made to restrict the "overhang" of parked vehicles when it might restrict traffic flow on adjacent through roads, restrict pedestrian or bicycle movement on adjacent walkways, or damage landscape materials.

## The amendment does not change the access or circulation plan; The location of 5 parking spaces is modified slightly, but the number of spaces is unchanged.

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

#### (5) Building and Parking Placement

**10.2.5.1** The site design should avoid creating a building surrounded by a parking lot. Parking should be to the side and preferably in the back. In rural, uncongested areas buildings should be set well back from the road so as to conform to the rural character of the area. If the parking is in front, a generous, landscaped buffer between road and parking lot is to be provided. Unused areas should be kept natural, as field, forest, wetland, etc.

**10.2.5.2** Where two or more buildings are proposed, the buildings should be grouped and linked with sidewalks; tree planting should be used to provide shade and break up the scale of the site. Parking areas should be separated from the building by a minimum of five (5) to ten (10) feet. Plantings should be provided along the building edge, particularly where building facades consist of long or unbroken walls.

#### (6) Pedestrian Circulation

The site plan must provide for a system of pedestrian ways within the development appropriate to the type and scale of development. This system must connect the major building entrances/ exits with parking areas and with existing sidewalks if they exist or are planned in the vicinity of the project. The pedestrian network may be located either in the street right-of-way or outside of the right-of-way in open space or recreation areas. The system must be designed to link the project with residential, recreational, and commercial facilities, schools, bus stops, and existing sidewalks in the neighborhood or, when appropriate, to connect the amenities such as parks or open space on or adjacent to the site.

## The building and parking plan, as amended, is appropriate to the type and scale of the development.

Based on the above findings of fact, the Board finds the standards of this section have been met.

#### C. Stormwater Management and Erosion Control

(1) Stormwater Management

Adequate provisions must be made for the collection and disposal of all stormwater that runs off proposed streets, parking areas, roofs, and other surfaces, through a stormwater drainage system and maintenance plan, which must not have adverse impacts on abutting or downstream properties.

(a) To the extent possible, the plan must retain stormwater on the site using the natural features of the site.

(b) Unless the discharge is directly to the ocean or major river segment, stormwater runoff systems must detain or retain water such that the rate of flow from the site after development does not exceed the predevelopment rate.

(c) The applicant must demonstrate that on - and off-site downstream channel or system capacity is sufficient to carry the flow without adverse effects, including but not limited to, flooding and erosion of shoreland areas, or that he / she will be responsible for whatever improvements are needed to provide the required increase in capacity and / or mitigation.

(d) All natural drainage ways must be preserved at their natural gradients and must not be filled or converted to a closed system unless approved as part of the site plan review.

(e) The design of the stormwater drainage system must provide for the disposal of stormwater without damage to streets, adjacent properties, downstream properties, soils, and vegetation.

(f) The design of the storm drainage systems must be fully cognizant of upstream runoff which must pass over or through the site to be developed and provide for this movement.

(g) The biological and chemical properties of the receiving waters must not be degraded by the stormwater runoff from the development site. The use of oil and grease traps in manholes, the use of on-site vegetated waterways, and vegetated buffer strips along waterways and drainage swales, and the reduction in use of deicing salts and fertilizers may be required, especially where the development stormwater discharges into a gravel aquifer area or other water supply source, or a great pond.

#### (2) Erosion Control

(a) All building, site, and roadway designs and layouts must harmonize with existing topography and conserve desirable natural surroundings to the fullest extent possible, such that filling, excavation and earth moving activity must be kept to a minimum. Parking lots on sloped sites must be terraced to avoid undue cut and fill, and / or the need for retaining walls. Natural vegetation must be preserved and protected wherever possible.

(b) Soil erosion and sedimentation of watercourses and water bodies must be minimized by an active program meeting the requirements of the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices, dated March 1991, and as amended from time to time.

The Town Engineer has reviewed and approved the stormwater and erosion control plan.

Based on the above findings of fact, the Board finds the standards of this section have been met.

#### D. Water, Sewer, Utilities and Fire Protection

#### (1) Water Supply Provisions

The development must be provided with a system of water supply that provides each use with an adequate supply of water. If the project is to be served by a public water supply, the applicant must secure and submit a written statement from the supplier that the proposed water supply system conforms with its design and construction standards, will not result in an undue burden on the source of distribution system, and will be installed in a manner adequate to provide needed domestic and fire protection flows.

#### (2) Sewage Disposal Provisions

The development must be provided with a method of disposing of sewage which is in compliance with the State Plumbing Code. If provisions are proposed for on-site waste disposal, all such systems must conform to the Subsurface Wastewater Disposal Rules.

#### (3) Utilities

The development must be provided with electrical, telephone, and telecommunication service adequate to meet the anticipated use of the project. New utility lines and facilities must be screened from view to the extent feasible. If the service in the street or on adjoining lots is underground, the new service must be placed underground.

#### (4) Fire Protection

The site design must comply with the Fire Protection Ordinance. The Fire Chief shall issue the applicant a "Certificate of Compliance" once the applicant has met the design requirement of the Town's Fire Protection Ordinance. A condition of approval is that the Town Engineer, Local Plumbing Inspector and the Fire Chief review and approve the plan prior to issuance of a certificate of occupancy.

With the proposed condition of approval, the Board finds the standards of this section have been met.

#### E. Water Protection

#### (1) Groundwater Protection

The proposed site development and use must not adversely impact either the quality or quantity of groundwater available to abutting properties or to the public water supply systems. Applicants whose projects involve on-site water supply or sewage disposal systems with a capacity of two thousand (2,000) gallons per day or greater must demonstrate that the groundwater at the property line will comply, following development, with the standards for safe drinking water as established by the State of Maine.

#### (2) Water Quality

All aspects of the project must be designed so that:

(a) No person shall locate, store, discharge, or permit the discharge of any treated, untreated, or inadequately treated liquid, gaseous, or solid materials of such nature, quantity, obnoxious, toxicity, or temperature that may run off, seep, percolate, or wash into surface or groundwaters so as to contaminate, pollute, or harm such waters or cause nuisances, such as objectionable shore deposits, floating or submerged debris, oil or scum, color, odor, taste, or unsightliness or be harmful to human, animal, plant, or aquatic life.

(b) All storage facilities for fuel, chemicals, chemical or industrial wastes, and biodegradable raw materials, must meet the standards of the Maine Department of Environmental Protection and the State Fire Marshall's Office.

#### (3) Aquifer Protection

If the site is located within the Town Aquifer Protection Area, a positive finding by the Board that the proposed plan will not adversely affect the aquifer is required.

# The site is not located within the Town Aquifer Protection Area. There will be no adverse impact on the groundwater as a result of these amendments.

Based on the above finding of fact, the Board finds the standards of this section have been met.

#### F. Floodplain Management

If any portion of the site is located within a special flood hazard area as identified by the Federal Emergency Management Agency, all use and development of that portion of the site must be consistent with the Town's Floodplain management provisions.

The areas of the site where the amendments will occur are not located within a floodplain.

Based on the above finding of fact, the Board finds the standards of this section have been met.

#### G. Historic and Archaeological Resources

If any portion of the site has been identified as containing historic or archaeological resources, the development must include appropriate measures for protecting these resources, including but not limited to, modification of the proposed design of the site, timing of construction, and limiting the extent of excavation.

There is a letter of file from the Maine Historic Preservation Commission stating that there are no historic or archaeological resources on the site.

Based on the above finding of fact, the Board finds the standards of this section have been met.

#### H. Exterior Lighting

The proposed development must have adequate exterior lighting to provide for its safe use during nighttime hours, if such use is contemplated. All exterior lighting must be designed and shielded to avoid undue glare, adverse impact on neighboring properties and rights - of way, and the unnecessary lighting of the night sky.

#### There are no changes being made to the lighting plan.

Based on the above findings of fact, the Board finds the standards of this section have not been met.

#### I. Buffering and Landscaping

#### (1) Buffering of Adjacent Uses

The development must provide for the buffering of adjacent uses where there is a transition from one type of use to another use and for the screening of mechanical equipment and service and storage areas. The buffer may be provided by distance, landscaping, fencing, changes in grade, and / or a combination of these or other techniques.

#### (2) Landscaping

Landscaping must be provided as part of site design. The landscape plan for the entire site must use landscape materials to integrate the various elements on site, preserve and enhance the particular identity of the site, and create a pleasing site character. The landscaping should define street edges, break up parking areas, soften the appearance of the development, and protect abutting properties.

#### There are no changes being made to the landscaping and buffering plan.

## Based on the above findings of fact, the Board finds the standards of this section have not been met.

J. Noise

The development must control noise levels such that it will not create a nuisance for neighboring properties.

The contract zone agreement states that amplified music is limited to the hours of 10:00 am to 10:00 pm. Indoor music is allowed until 11:00 a.m. The proposed amendments do not affect this finding.

Based on the above findings of fact, the Board finds the standards of this section have been met.

#### K. Storage of Materials

(1) Exposed nonresidential storage areas, exposed machinery, and areas used for the storage or collection of discarded automobiles, auto parts, metals or other articles of salvage or refuse must have sufficient setbacks and screening (such as a stockade fence or a dense evergreen hedge) to provide a visual buffer sufficient to minimize their impact on abutting residential uses and users of public streets.

#### None of the above items will be stored on site.

(2) All dumpsters or similar large collection receptacles for trash or other wastes must be located on level surfaces which are paved or graveled. Where the dumpster or receptacle is located in a yard which abuts a residential or institutional use or a public street, it must be screened by fencing or landscaping.

## The dumpster location is a proposed amendment. One dumpster is shown on the plan and will be adequately screened.

(3) Where a potential safety hazard to children is likely to arise, physical screening sufficient to deter small children from entering the premises must be provided and maintained in good condition.

#### There are no safety hazards to children on site.

Based on the above findings of fact, the Board finds the standards of this section have been met.

#### L. Capacity of the Applicant

The applicant must demonstrate that he / she has the financial and technical capacity to carry out the project in accordance with this ordinance and the approved plan.

<u>Technical Ability:</u> The Applicant has utilized a professional land surveyor, engineer architect, and licensed soils evaluator in preparation of the original application and a professional engineer to prepare the amendment requests.

<u>Financial Capacity</u>: For final approval, the Applicant provided a letter stating the net worth of the applicant and his ability to fund the project. The cost of the proposed amendments is not significant.

Based on the above findings of fact, the Board finds the standards of this section have been met.

#### M. Design and Performance Standards:

The project is not subject to any Town Design Standards

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#### LIMITATION OF APPROVAL:

Construction of the improvements covered by any site plan approval must be substantially commenced within twelve (12) months of the date upon which the approval was granted. If construction has not been substantially commenced and substantially completed within the specified period, the approval shall be null and void. The applicant may request an extension of the approval deadline prior to expiration of the period. Such request must be in writing and must be made to the Planning Board. The Planning Board may grant up to two (2), six (6) month extensions to the periods 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 deminimus changes as so determined by the Town Planner which do not affect approval standards, is subject to review and approval of the Planning Board prior to implementation.

#### **PROPOSED CONDITION OF APPROVAL:**

1. The amendments shall be reviewed and approved by the Town Engineer, Local Plumbing Inspector and Fire Chief prior to the issuance of an occupancy permit.

From: Libby Gordon <<u>libbymgordon@gmail.com</u>> Sent: Thursday, May 11, 2023 9:40:44 AM To: Carla Nixon <<u>cnixon@cumberlandmaine.com</u>> Subject: LongWoods Preserve proposal

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!

Hello Carla Nixon,

I am writing to share with you and the Cumberland Planning Board my thoughts on the proposal by LongWoods Preserve to have four low impact campsites on their property.

I am happy to see the LongWoods Preserve progress towards sustainable open land and public use for the people of Cumberland, and believe this Preserve is worth the full support of the planning board.

I love the idea of a family or group of friends going to walk and play on the property, seeing the farming taking place, having a farm-to-table dinner at Wander, listening to good local music, and spending the night in a tent or two. This will bring an enriched full experience to the Preserve.

I do anticipate a few challenges with management, however. If campsites are supported by the Board, I hope they will be out of site of passing cars and the public use trails, with proper trash disposal/removal, toilets and water facilities. I would also support restrictions on group size, campfires, light and noise.

Thanks for your thoughtful work on behalf of the people of Cumberland.

Libby Gordon

9 Farms Edge Cumberland 04021



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

May 11, 2023

Carla Nixon, Town Planner Cumberland Town Hall 290 Tuttle Road Cumberland, ME 04021

Subject:The Grange Hall Pub at Longwoods PreserveTown of Cumberland Site Plan Review Amendment ApplicationResponse to Peer Review Comments dated May 8, 2023

Dear Ms. Nixon,

Sevee & Maher Engineers, Inc. (SME) has prepared the following responses to peer review comments by Gorrill-Palmer for The Grange Hall Pub at Longwoods Preserve project received via email on May 9, 2023. The comment headings correspond to the peer review sections included in the memo. The application materials have been revised in response to review comments as indicated below:

#### **ENGINEER PEER REVIEW COMMENTS**

#### Site Plans

1. Site Plan – The dimensions and layout of the dumpster pad on the Site Plan (C103) does not match the detail shown on Sections and Details (C301).

<u>SME Response</u>: Plan sheets have been updated to reflect the detail on C-302.

2. Site Plan – We were unable to locate a section/detail for the buildup of this walkway.

<u>SME Response</u>: Walkways have been revised to provide improved ADA accessibility. Construction details are outlined on C-301.

3. Site Plan – The entrance on the westerly side of the Building appears to exit onto the Crushed Stone Drip Strip. Dependent on the frequency of use for this entrance, an alternate surface treatment may be desired.

<u>SME Response</u>: Walkways have been updated and site grading has been modified to provide better surface treatments and improved building access. Site modifications and revised construction details are included in the updated plan set.

4. Site Grading, Drainage & Erosion Control Plan – Based on the spot grades, it appears that a patron using a wheelchair would be required to navigate the Northerly Building Entrance via a Pea Stone Surfaced Walkway as the Southerly Building Entrance appears to include a step. Is access via a Pea Stone Surfaced Walkway reasonable?



<u>SME Response</u>: As outlined above, walkways and site grading has been revised to provide improved surface treatments and improved ADA accessibility. Site modifications and revised construction details are included in the updated plan set.

5. Site Grading, Drainage & Erosion Control Plan – It does not appear that Barrier Free Access is provided to the Terrace/Outdoor Dining Area from within the Building.

<u>SME Response</u>: The plan has been updated to provide barrier-free access from the building to the terrace/outdoor dining area. Modifications are included in the updated plan set.

If you have any questions or comments, please do not hesitate to contact me. We look forward to reviewing the comments with the Planning Board at the meeting on May 16, 2023.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

Jeffrey T. Read, P.E. Senior Civil Engineer

Attachments

# SYNERGOSITY, LLC THE GRANGE HALL PUB AT LONGWOODS PRESERVE CUMBERLAND, MAINE

# LOCATION MAP



TITLE	DWG NO
COVER SHEET	
GENERAL NOTES, LEGEND, AND ABBREVIATIONS	C-100
EXISTING CONDITIONS AND CLEARING PLAN	C-101
SITE OVERVIEW PLAN	C-102
SITE LAYOUT PLAN	C-103
SITE UTILITY PLAN	C-104
SITE GRADING, DRAINAGE, AND EROSION CONTROL PLAN	C-105
ACCESS DRIVE PLAN AND PROFILE	C-200
EROSION CONTROL NOTES AND DETAILS	C-300
SECTIONS AND DETAILS	C-301
SECTIONS AND DETAILS	C-302
SECTIONS AND DETAILS	C-303
STORMWATER MANAGEMENT PLAN PRE-DEVELOPMENT CONDITIONS	D-100
STORMWATER MANAGEMENT PLAN POST DEVELOPMENT CONDITIONS	D-101
EXISTING CONDITIONS SURVEY	1



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## **GENERAL SITE NOTES:**

- 1. BASE MAP FROM PLAN TITLED "EXISTING CONDITIONS SURVEY FOR ALEXANDER TIMPSON OF 76 LONGWOODS ROAD CUMBERLAND MAINE" PREPARED BY BOUNDARY POINTS PROFESSIONAL LAND SURVEYING, LLC, DATED 8-31-2021.
- 2. EXISTING TOPOGRAPHY WITHIN THE WORK AREA FROM SME TOPOGRAPHIC SURVEY, DATED 4/3/2023. EXISTING TOPOGRAPHY OUTSIDE OF THE WORK AREA FROM MAINE GIS DATA CATALOG, BASED OFF OF LIDAR INFORMATION COLLECTED AND UPDATED IN 2019. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- 3. EXISTING WETLANDS DELINEATED BY COPPI ENVIRONMENTAL, LLC, DATED 4/11/2022.
- 4. PORTIONS OF THE PROPERTY, OUTSIDE OF THE DEVELOPMENT AREA, ARE MAPPED WITHIN FLOOD ZONE A (AREAS OF 100-YEAR FLOOD) PER FEMA FLOOD MAP PANEL 2301620015B, EFFECTIVE DATE MAY 19, 1981.
- 5. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH THAT PORTION OF WORK.
- 6. ALL SITE AND CONSTRUCTION ACTIVITIES SHALL BE IN COMPLIANCE WITH MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS, AND EXISTING FEDERAL, STATE, AND LOCAL PERMITS AND PERMITTING REQUIREMENTS FOR THE SITE.
- 7. PAVEMENT EDGES SHALL BE TRUE TO LINE. SAWCUT EXISTING PAVEMENT IN SMOOTH STRAIGHT LINE WHERE NEW PAVEMENT JOINS. PROVIDE TACK COAT LAYER IF SPECIFIED.

## SURVEYOR'S NOTES

- 1. THIS SURVEY PLAN IS COPYRIGHT PROTECTED. THIS PLAN IS THE PROPERTY OF BOUNDARY POINTS, AND SHALL NOT BE USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF AN AUTHORIZED AGENT OF BOUNDARY POINTS. ALL RIGHTS RESERVED
- 2. THIS SURVEY PLAN IS ONLY VALID IF AUTHENTIC EMBOSSED SEAL AND SIGNATURE OF CERTIFYING PROFESSIONAL APPEAR ON THE FACE OF THIS SURVEY PLAN.
- 3. REFERENCE IS MADE TO THE CONTRACTUAL AGREEMENT BETWEEN THE PROFESSIONAL LAND SURVEYOR AND THE CLIENT.
- 4. THIS SURVEY PLAN IS SUBJECT TO POSSIBLE REVISION UPON RECEIPT OF A CERTIFIED TITLE OPINION.
- 5. ON THE BASIS OF MY KNOWLEDGE, INFORMATION AND BELIEF I CERTIFY EXCLUSIVELY TO THE CLIENT THAT THIS SURVEY PLAN, MADE TO THE NORMAL STANDARD OF CARE, SUBSTANTIALLY CONFORMS TO THE MAIN BOARD OF LICENSURE FOR LAND SURVEYOR STANDARDS.
- 6. NO CERTIFICATION IS MADE TO THE EXISTENCE OR NONEXISTENCE OF HAZARDOUS SUBSTANCES ENVIRONMENTALLY SENSITIVE AREAS, UNDERGROUND UTILITIES, UNDERGROUND STRUCTURES, ZONING REGULATIONS OR REAL ESTATE TITLE.
- 7. DIG SAFE MUST BE CONTACTED AND CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND DIMENSIONS OF ALL UTILITIES PRIOR TO EXCAVATION.
- 8. THE SOURCE OF BEARINGS FOR THIS LAND SURVEY WAS N.A.D. GRID NORTH 1983 LOCATED IN THE WEST ZONE.
- 9. THE PROPERTY SURVEYED IS DESCRIBED IN A DEED TO DANIEL VILLACI DATED 5-13-2002 BOOK 17630, PAGE 14 AND 16 RECORDED IN THE LOCAL REGISTRY OF DEEDS.
- 10. THE PROPERTY IS DEPICTED ON THE TOWN ASSESSOR'S MAP R3 AS LOTS 6A AND 13.

LT

## **GRADING NOTES:**

- EROSION POTENTIAL, AND STABILIZE WITH SEED AND MULCH.
- STABILIZATION WITHIN 7 DAYS OF FINAL GRADING.

## UTILITY NOTES:

- PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.
- CUMBERLAND AND MEDOT.
- MUNICIPAL STANDARDS.

## **DIG SAFE NOTES:**

## FOLLOWING MINIMUM MEASURES:

- KNOW WHERE TO MARK THEIR LINES.

- AS-BUILT DRAWINGS.
- OTHER REASON.
- REQUIREMENTS.
- SAFEGUARD HEALTH AND PROPERTY.
- PUC AT 1-800-452-4699.

## **TYPICAL ABBREVIATIONS:**

ACCMP ACP AGG ALUM APPD APPROX ARMH ASB ASP AUTO AUX AVE AZ	ASPHALT COATED CMP ASBESTOS CEMENT PIPE ACRE AGREGATE ALUMINUM APPROVED APPROXIMATE AIR RELEASE MANHOLE ASBESTOS ASPHALT AUTOMATIC AUXILIARY AVENUE AZIMUTH
BCCMP	BITUMINOUS COATED CMP
BM	BENCH MARK
BIT	BITUMINOUS
BLDG	BUILDING
BOT	BOTTOM
BRG	BEARING
BV	BALL VALVE
CB	CATCH BASIN
CEN	CENTER
CEM LIN	CEMENT LINED
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CL	CLASS
CONC	CONCRETE
CONST	CONSTRUCTION
CONTR	CONTRACTOR
CS	CURB STOP
CTR	CENTER
CU	COPPER
CY	CUBIC YARD
D DBL DEG OR ° DEPT DI DIA OR Ø DIM DIST DN DR DR DWG	DEGREE OF CURVE DOUBLE DEGREE DEPARTMENT DUCTILE IRON DIAMETER DIMENSION DISTANCE DOWN DRAIN DRAWING

<u> </u>		
EA EG ELEC EL ELB	EACH EXISTING GROUND OR GRADE ELECTRIC ELEVATION ELBOW	NITC NTS N/F NO OI
EOP EQUIP EST	EDGE OF PAVEMENT EQUIPMENT ESTIMATED	OC OD
EXC EXIST	EXCAVATE EXISTING	PC PD PI
FI FG FBRGL FDN FLEX FLG FLR FPS FT OR '	FIELD INLET FINISH GRADE FIBERGLASS FOUNDATION FLEXIBLE FLANGE FLOOR FEET PER SECOND FEET FEOTING	PIV PT PERF PP PSI PVC PVMT
GA GAL GALV GPD GPM	GAUGE GALLON GALVANIZED GALLONS PER DAY GALLONS PER MINUTE	RCP ROW RAD REQD RT RTF
HDPE HORIZ HP HYD	HIGH DENSITY POLYETHYLENE HORIZONTAL HORSEPOWER HYDRANT	S SCH SF SHT
ID IN OR " INV INV EL	INSIDE DIAMETER INCHES INVERT INVERT ELEVATION	SMH ST STA SY
LB LC LD LF	POUND LEACHATE COLLECTION LEAK DETECTION LINEAR FEET	TDH TEMP TYP
LOC LT	LOCATION LEACHATE TRANSPORT	UD V
MDOT MH	MAINE DEPARTMENT OF TRANSPORTATION MANHOLE	VATE
MJ MATL MAX	MECHANICAL JOINT MATERIAL MAXIMUM	WG W/
MFR MIN MISC MON	MANUFACTURE MINIMUM MISCELLANEOUS MONUMENT	W/O YD

its i/f io or #	Not to so Now or F Number
)C )D	on cente Outside I
PC PD PIV PIV PERF PP PSI PVC PVMT	POINT OF PERIMETE POINT OF POST IND POINT OF PERFORAT POWER PO POUNDS F POLYVINY PAVEMENT
QTY	QUANTITY
RCP ROW RAD REQD RT RTE	REINFORC RIGHT OF RADIUS REQUIREL RIGHT ROUTE
5 SCH SF SHT SMH ST STA STA SY FAN FOH FEMP FYP	SLOPE SCHEDULI SQUARE F SHEET SANITARY STREET STATION SQUARE Y TANGENT TOTAL DY TEMPORA TYPICAL
JD	UNDERDR
/ /A TEE /ERT	VOLTS VALVE AN VERTICAL
NG N/ N/O	WATER GA WITH WITHOUT
/D	YARD

NOT IN THIS CONTRACT
NOT TO SCALE
NOW OR FORMERLY
NUMBER

CENTER JTSIDE DIAMETER

#### DINT OF CURVE RIMETER DRAIN DINT OF INTERSECTION OST INDICATOR VALVE

DINT OF TANGENT REORATED ower Pole OUNDS PER SQUARE INCH

OLYVINYL CHLORIDE VEMENT

JANTITY

INFORCED CONCRETE PIPE GHT OF WAY

- QUIRED GHT
- DUTE
- .ope Chedule QUARE FEET
- FFT NITARY MANHOLE
- TREET ATION
- QUARE YARD ANGENT
- DTAL DYNAMIC HEAD **EMPORARY**
- PICAL NDERDRAIN
- OLTS ALVE ANCHORING TEE
- ERTICAL

ATER GATE ΤН ITHOUT

1. ADD 4" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL SLOPES STEEPER THAN 3:1, AND ALONG DITCH CHANNELS.

2. MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE FULL DURATION OF CONSTRUCTION. INSPECT WEEKLY AND AFTER EACH STORM AND REPAIR AS NEEDED. REMOVE SEDIMENTS FROM THE SITE. PLACE IN AREA OF LOW

3. PLACE TEMPORARY SOIL STABILIZATION WITHIN 7 DAYS OF INITIAL DISTURBANCE. PLACE PERMANENT SOIL

1. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER

2. COORDINATE WORK ON UTILITY LINES OR WITHIN ROAD RIGHT-OF-WAY WITH THE UTILITY COMPANIES AND TOWN OF

3. ALL PIPING AND DRAINAGE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWN OF CUMBERLAND

PRIOR TO EXCAVATION, VERIFY THE UNDERGROUND UTILITIES, PIPES, STRUCTURES AND FACILITIES. PROVIDE THE

1. PRE-MARK THE BOUNDARIES OF PLANNED EXCAVATION WITH WHITE PAINT, FLAGS OR STAKES, SO UTILITY CREWS

2. CALL DIG SAFE, AT 811, AT LEAST THREE BUSINESS DAYS - BUT NO MORE THAN 30 CALENDAR DAYS - BEFORE STARTING WORK. DO NOT ASSUME SOMEONE ELSE WILL MAKE THE CALL.

3. IF BLASTING, NOTIFY DIG SAFE AT LEAST ONE BUSINESS DAY IN ADVANCE.

4. WAIT THREE BUSINESS DAYS FOR LINES TO BE LOCATED AND MARKED WITH COLOR-CODED PAINT, FLAGS OR STAKES. NOTE THE COLOR OF THE MARKS AND THE TYPE OF UTILITIES THEY INDICATE. TRANSFER THESE MARKS TO THE

5. CONTACT THE LANDOWNER AND OTHER "NON-MEMBER" UTILITIES (WATER, SEWER, GAS, ETC.). FOR THEM TO MARK THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.

6. RE-NOTIFY DIG SAFE AND THE NON-MEMBER UTILITIES IF THE DIGGING, DRILLING OR BLASTING DOES NOT OCCUR WITHIN 30 CALENDAR DAYS, OR IF THE MARKS ARE LOST DUE TO WEATHER CONDITIONS, SITE WORK ACTIVITY OR ANY

7. HAND DIG WITHIN 18 INCHES IN ANY DIRECTION OF ANY UNDERGROUND LINE UNTIL THE LINE IS EXPOSED. MECHANICAL METHODS MAY BE USED FOR INITIAL SITE PENETRATION, SUCH AS REMOVAL OF PAVEMENT OR ROCK. 8. DIG SAFE REQUIREMENTS ARE IN ADDITION TO TOWN, CITY, AND/OR STATE DOT STREET OPENING PERMIT

9. FOR COMPLETE DIG SAFE REQUIREMENTS, CALL THE PUC OR VISIT THEIR WEBSITE.

10. IF YOU DAMAGE, DISLOCATE OR DISTURB ANY UNDERGROUND UTILITY LINE, IMMEDIATELY NOTIFY THE AFFECTED UTILITY. IF DAMAGE CREATES SAFETY CONCERNS, CALL THE FIRE DEPARTMENT AND TAKE IMMEDIATE STEPS TO

11. ANY TIME AN UNDERGROUND LINE IS DAMAGED OR DISTURBED OR IF LINES ARE IMPROPERLY MARKED, YOU MUST FILE AN INCIDENT REPORT WITH THE P.U.C. FOR AN INCIDENT REPORT FORM VISIT WWW.STATE.ME.US/MPUC OR CALL THE

## LEGEND

PROPOSED

\_\_\_\_

\_\_\_\//\_\_

## EXISTING



## **EROSION CONTROL LEGEND**

—— SF ———— SILT FENCE

\*\*\*

DOUBLE ROW OF SILT FENCE (AREAS ADJACENT TO WETLANDS) STABILIZED CONSTRUCTION ENTRANCE STONE CHECK DAMS

	JTR	5/2023	REVISED PER TOWN REVIEW COMMENTS	
	JTR	4/2023	REVISED PER OWNER COMMENTS	
	JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS	
	JTR	6/2022	ISSUED FOR TOWN REVIEW	
REV.	BY	DATE	STATUS	
DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN DIFFIN			SYNERGOSITY, LLC THE GRANGE HALL PUB LONGWOODS PRESERV CUMBERLAND, MAINE GENERAL NOTES, LEGEND, AND AB	AT /E BREVIATIONS
			CME A	DESIGN BY: BAB
				DRAWN BY: SJM
				DATE: 5/2023
			ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE	CHECKED BY: JTR
			4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021	LMN: NONE
			Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com	CTB: SME-STD.CTB
			JOB NO. 21519 DWG FILE GEN-NOTES	C-100



vidds Alex Timpson)76 Longwoods RdiAcad/Plans\BASE dwg. C-101.5/10/2023 8:54:45 AM. s



## ZONING NOTES:

- 1. PROJECT INFORMATION:
- ADDRESS: 76 LONGWOODS ROAD CUMBERLAND, MAINE
- APPLICANT/OWNER: SYNERGOSITY, LLC

PROJECT: THE GRANGE HALL PUB AT LONGWOODS PRESERVE

- 2. ZONING DISTRICT: RURAL RESIDENTIAL 1 (RR1) (CONTRACT ZONE)
- 3. PROPOSED USE: RESTAURANT, FARM-BASED SPECIAL EVENTS, AND CONSERVATION EASEMENT

DIMENSIONAL STANDARDS (CZA ZONE):	

			REQU	IRED	PROPOSED
MIN LOT SIZE: MIN ROAD LENGTH:		MIN LOT SIZE:	2 ACRES		±6.5 ACRES
		MIN ROAD LENGTH:	NONE		±1300 FT
FRO SIDE REA	NT: =: R:	SETBACKS: 15' 15' 15'		>15' >15' >15'	
		MIN LOT FRONTAGE:	200'		>200'
		MAX BUILDING HEIGHT:	40'		28.5'
5.	PARCEL	. ID: MAP R03/LOTS 6A A	ND 13		
6.	PROPOS	SED IMPERVIOUS AREAS:	43,11	5 SF (0.99 ACRES)	
7.	ALL PR	DJECT WORK LOCATED O	UTSIDE	OF THE 100-YEAR	FLOOD ZONE.
-					

8. PARKING SUMMARY: 1 PARKING SPACE PER 3 SEATS 120 SEATS/3 = 40 SPACES
3 ADDITIONAL SPACES FOR UP TO 9 EMPLOYEES 16 ADDITIONAL SPACES FOR PUBLIC TRAIL USE

REQUIREDPROPOSED40 SPACES43 SPACES

- 9. WETLANDS WILL BE IMPACTED FOR THE PROPOSED PROJECT: ±350 SF
- 10. OUTSIDE AGENCY APPROVALS:

MEDEP: STORMWATER PERMIT-BY-RULE MEDOT: DRIVEWAY ENTRANCE PERMIT

11. UTILITIES:

WATER - PRIMARY WELL SEWER - PRIVATE SEPTIC SYSTEM POWER - CENTRAL MAINE POWER

<u>NOTES</u>: 1. SEE DRAWING C-100 FOR GENERAL SITE NOTES AND PLAN REFERENCES.

- 2. AERIAL PHOTO FROM GOOGLE EARTH, DATED 5/4/2018.
- 3. THE CONCEPTUAL TRAIL SYSTEM WILL BE LOCATED IN THE FIELD BY THE CHEBEAGUE AND CUMBERLAND LAND TRUST, AND MAINE FARM TRUST IN COORDINATION WITH SYNERGOSITY. ALL TRAILS WILL BE FOOT PATHS.

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\$ .I					
199					
Star in		JTR	5/2023	REVISED PER TOWN REVIEW COMMENTS	
Alton -		JTR	4/2023	REVISED PER OWNER COMMENTS	
and the		JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS	
		JTR	6/2022	ISSUED FOR TOWN REVIEW	
	REV.	BY	DATE	STATUS	
1 / M	DIFFIN 11841			SYNERGOSITY, L THE GRANGE HALL F LONGWOODS PRES CUMBERLAND, MA	LC PUB AT SERVE AINE
ALC AND		SIONAL IN	ill'inner	SITE OVERVIEW F	PLAN
S. Ma				SME	DESIGN BY: BAB
300					DRAWN BY: SJM
				ENGINEERS	DATE: 5/2023
2011				ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIA	NCE CHECKED BY: JTR
Prode Star				4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021	LMN: SITE-OVER
F Her				Phone 207.829.5016 • Fax 207.829.5692 • sme-engineers.con	<sup>n</sup> CTB: SME-STD.CTB
2.15				JOB NO.21519DWG FILEBASE	C-102







SITE GRADING, DRAINAGE, AND DESIGN BY: BAB DRAWN BY: SJM DATE: 5/2023

40 FEET



## **EROSION CONTROL NOTES:**

- A. GENERAL
- 1. All soil erosion and sediment control will be done in accordance with: (1) the Maine Erosion and Sediment Control Handbook: Best Management Practices, Maine Department of Environmental Protection (MEDEP), October 2016.
- 2. The site Contractor (to be determined) will be responsible for the inspection and repair/replacement/maintenance of all erosion control measures, disturbed areas, material storage areas, and vehicle access points until all disturbed areas are stabilized.
- 3. Disturbed areas will be permanently stabilized within 7 days of final grading. Disturbed areas not to be worked upon within 14 days of disturbance will be temporarily stabilized within 7 days of the disturbance.
- 4. In all areas, removal of trees, bushes and other vegetation, as well as disturbance of topsoil will be kept to a minimum while allowing proper site operations.
- 5. Any suitable topsoil will be stripped and stockpiled for reuse as directed by the Owner. Topsoil will be stockpiled in a manner such that natural drainage is not obstructed and no off-site sediment damage will result. In any event, stockpiles will not be located within 100 feet of wetlands and will be at least 50 feet upgradient of the stockpile's perimeter silt fence. The sideslopes of the topsoil stockpile will not exceed 2:1. Silt fence will be installed around the perimeter of all topsoil stockpiles. Topsoil stockpiles will be surrounded with siltation fencing and will be temporarily seeded with Aroostook rye, annual or perennial ryegrass within 7 days of formation, or temporarily mulched.
- 6. Winter excavation and earthwork will be completed so as to minimize exposed areas while satisfactorily completing the project. Limit exposed areas to those areas in which work is to occur during the following 15 days and that can be mulched in one day. All areas will be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded, and mulched.

Install any added measures necessary to control erosion/sedimentation. The particular measure used will be dependent upon site conditions, the size of the area to be protected, and weather conditions.

To minimize areas without erosion control protection, continuation of earthwork operations on additional areas will not begin until the exposed soil surface on the area being worked has been stabilized.

- **B. TEMPORARY MEASURES**
- 1. STABILIZED CONSTRUCTION ENTRANCE/EXIT

A crushed stone stabilized construction entrance/exit will be placed at any point of vehicular access to the site, in accordance with the detail shown on this sheet.

- 2. SILT FENCE
- a. Silt fence will be installed prior to all construction activity, where soil disturbance may result in erosion. Silt fence will be erected at locations shown on the plans and/or downgradient of all construction activity.
- b. Silt fences will be removed when they have served their useful purpose, but not before the upgradient areas have been permanently stabilized.
- c. Silt fences will be inspected immediately after each rainfall and at least daily during prolonged rainfall. They will be inspected if there are any signs of erosion or sedimentation below them. Any required repairs will be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, they will be replaced with a temporary crushed stone check dam.
- d. Sediment deposits will be removed after each storm event if significant build-up has occurred or if deposits exceed half the height of the barrier.
- STONE CHECK DAMS

Stone check dams should be installed before runoff is directed to the swale. Stone check dams will be installed in grass-lined swales and ditches during construction. Remove stone check dams when they have served their useful purpose, but not before upgradient areas have been permanently stabilized.

- 4. EROSION CONTROL MIX SEDIMENT BARRIER
- a. It may be necessary to cut, pack down, or remove tall grasses, brush, or woody vegetation to avoid voids and bridges that allow the washing away of fine soil particles.
- b. Where approved, erosion control mix sediment barriers may be used as a substitute for silt fence. See the details in this drawing set for specifications.
- b. Rock Filter Berms: To provide more filtering capacity or to act as a velocity check dam, a berm's center can be composed of clean crushed rock ranging in size from the french drain stone to riprap.
- 5. TEMPORARY SEEDING

Stabilize disturbed areas that will not be brought to final grade and reduce problems associated with mud and dust production from exposed soil surface during construction

Mixture:	Application Rate (lbs/acre)
Winter Rye	112
Oats	80
Annual Ryegrass	40
Perennial Ryegrass	40
Perennial Ryegrass	40

6. TEMPORARY MULCHING

Use temporary mulch in the following locations and/or circumstances:

- In sensitive areas (within 100 feet of streams, wetlands and in lake watersheds) temporary mulch will be applied within 7 days of exposing spill or prior to any storm event
- Apply temporary mulch within 14 days of disturbance or prior to any storm event in all other areas.
- Areas which have been temporarily or permanently seeded will be mulched immediately following seeding
- Areas which cannot be seeded within the growing season will be mulched for over-winter protection and the area will be seeded at the beginning of the growing seasor
- Mulch can be used in conjunction with tree, shrub, vine, and ground cover plantings.
- Mulch anchoring will be used on slopes greater than 5 percent in late fall (past October 15), and over-winter (October 15 - April 15).

The following materials may be used for temporary mulch:

- a. Hay or Straw material shall be air-dried, free of seeds and coarse material. Apply 2 bales/1,000 sf or 1.5 to 2 tons/acre to cover 90% of ground surface.
- b. Erosion Control Mix: It can be used as a stand-alone reinforcement:
- 2-inches thick for slopes flatter than 3H:1V;
- 4-inches thick for slopes greater than 3H:1V;
- on slopes 2 horizontal to 1 vertical or less; on frozen ground or forested areas; and

• at the edge of gravel parking areas and areas under construction. c. Erosion control mix alone is not suitable:

- on slopes with groundwater seepage;
- at low points with concentrated flows and in gullies;
- at the bottom of steep perimeter slopes exceeding 100 feet in length; • below culvert outlet aprons; and around catch basins and closed storm systems.
- d. Chemical Mulches and Soil Binders: Wide ranges of synthetic spray-on materials are marketed to protect the soil surface. These are emulsions that are mixed with water and applied to the soil. They may be used alone, but most often are used to hold wood fiber, hydro-mulches or straw to the soil surface.
- e. Erosion Control Blankets and Mats: Mats are manufactured combinations of mulch and netting designed to retain soil moisture and modify soil temperature. During the growing season (April 15th to November 1st) use mats indicated on drawings or North American Green (NAG) S75 (or mulch and netting) on:
- the base of grassed waterways; • steep slopes (15 percent or greater); and
- any disturbed soil within 100 feet of lakes, streams, or wetlands.

During the late fall and winter (November 1st to April 15th) use heavy grade mats indicated on drawings for NAG SC250 on all areas noted above plus use lighter grade mats NAG S75 (or mulch and netting) on:

• sideslopes of grassed waterways; and moderate slopes (between 8 and 15 percent).

C. TEMPORARY DUST CONTROL

To prevent the blowing and movement of dust from exposed soil surfaces, and reduce the presence of dust, use water or calcium chloride to control dusting by preserving the moisture level in the road surface materials.

D. CONSTRUCTION DE-WATERING

- 1. Water from construction de-watering operations shall be cleaned of sediment before reaching wetlands, water bodies, streams or site boundaries. Utilize temporary sediment basins, erosion control soil filter berms backed by staked hay bales, A Dirt Bag 55" sediment filter bag by ACF Environmental, or other approved Best Management Practices (BMP's).
- 2. In sensitive areas near streams or ponds, discharge the water from the de-watering operation into a temporary sediment basin created by a surrounding filter berm of uncompacted erosion control mix immediately backed by staked hay bales (see the site details). Locate the temporary sediment basin at lease 100 feet from the nearest water body, such that the filtered water will flow through undisturbed vegetated soil areas prior to reaching the water body or property line.

E. PERMANENT MEASURES

- 1. Riprapped Aprons: All storm drain pipe outlets and the inlet and outlet of culverts will have riprap aprons to protect against scour and deterioration.
- 2. Topsoil, Seed, and Mulch: All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, seeded, and mulched.

Seeded Preparation: Use stockpiled materials spread to the depths shown on the plans, if available. Approved topsoil substitutes may be used. Grade the site as needed.

a. Seeding will be completed by August 15 of each year. Late season seeding may be done between August 15 and October 15. Areas not seeded or which do not obtain satisfactory growth by October 15, will be seeded with Aroostook Rye or mulched. After November 1, or the first killing frost, disturbed areas will be seeded at double the specified application rates, mulched, and anchored.

PERMANENT SEEDING SPECIFICATIONS

Mixture:	Roadside (lbs/acre)	Lawn (lbs/acre)
Kentucky Bluegrass	20	55
White Clover	5	0
Creeping Red Fescue	20	55
Perennial Ryegrass	5	15

- b. Mulch in accordance with specifications for temporary mulching.
- c. If permanent vegetated stabilization cannot be established due to the season of the year, all exposed and disturbed areas not to undergo further disturbance are to have dormant seeding applied and be temporarily mulched to protect the site.
- 3. Ditches and Channels: All ditches on-site will be lined with North American Green S75 erosion control mesh (or an approved equal) upon installation of loam and seed.
- F. WINTER CONSTRUCTION AND STABILIZATION
- 1. Natural Resource Protection: During winter construction, a double-row of sediment barriers (i.e., silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource will be protected a minimum distance of 100 feet on either side from the resource.
- 2. Sediment Barriers: During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.
- 3. Mulching:
  - All areas will be considered to be denuded until seeded and mulched. Hay and
  - straw mulch will be applied at a rate of twice the normal accepted rate.
  - Mulch will not be spread on top of snow.
  - After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.
  - Between the dates of November 1 and April 15, all mulch will be anchored by either mulch netting, emulsion chemical, tracking or wood cellulose fiber.
- 5. Soil Stockpiling: Stockpiles of soil or subsoil will be mulched for over-winter protection with hay or straw at twice the normal rate or with a 4-inch layer of erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpiles shall not be placed (even covered with mulch) within 100 feet from any natural resources. Sediment barriers should be installed downgradient of stockpiles. Stormwater shall be directed away from stockpiles.
- 6. Seeding: Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas will receive 4 inches of loam and seed at an application rate of three times the rate for permanent seeding. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 percent catch) will be revegetated by replacing loam, seed, and mulch.

If dormant seeding is not used for the site, all disturbed areas will be revegetated in the spring.

- 7. Maintenance: Maintenance measures will be applied as needed during the entire construction season. After each rainfall, snow storm, or period of thawing and runoff, and at least once a week, the site Contractor will perform a visual inspection of all installed erosion control measures and perform repairs as needed to ensure their continuous function.
- 8. Identified repairs will be started no later than the end of the net work day and be completed within seven (7) calendar days.



Following the temporary and/or final seeding and mulching, the Contractor will, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 to 90 percent of areas vegetated with vigorous growth.

- G. OVER-WINTER CONSTRUCTION EROSION CONTROL MEASURES
- 1. Stabilization of Disturbed Soil: By October 15, all disturbed soils on areas having a slope less than 15 percent will be seeded and mulched. If the Contractor fails to stabilize these soils by this date, then the Contractor shall stabilize the soil for late fall and winter, by using either temporary seeding or mulching.
- 2. Stabilization of Disturbed Slopes: All slopes to be vegetated will be completed by October 15. The Owner will consider any area having a grade greater than 15 percent (6.5H:1V) to be a slope. Slopes not vegetated by October 15 will receive one of the following actions to stabilize the slope for late fall and winter:
- a. Stabilize the soil with temporary vegetation and erosion control mesh.
- b. Stabilize the slope with erosion control mix. Stabilize the slope with stone riprap.
- d. Slopes steeper than 1.5:1 are prohibited.
- Stabilization of Ditches and Channels: All stone-lined ditches and channels to be used to convey runoff through the winter will be constructed and stabilized by November 15. Grass-lined ditches and channels will be complete by September 15. Grass-lined ditches not stabilized by September 15 shall be lined with either sod or riprap.

H. MAINTENANCE PLAN

Routine Maintenance: Inspection will be performed as outlined in the project's Erosion Control Plan. Inspection will be by a qualified person during wet weather to ensure that the facility performs as intended. Inspection priorities will include checking erosion controls for accumulation of sediments.

Housekeeping

- 1. Spill prevention. Controls must be used 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. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled 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. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.
- 3. Fugitive sediment and dust. Actions must be taken 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 tracking occurs roadways should be swept immediately and no loss once a week and prior to significant storm events.
- 4. Debris and other materials. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- 5. Trench or foundation de-watering. Trench de-watering is the removal of water from trenches, foundations, coffer dams, 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. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the department.
- 6. Authorized Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
- (a) Discharges from firefighting activity;
- (b) Fire hydrant flushings;
- (c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
- (d) Dust control runoff in accordance with permit conditions and section I3;
- (e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
- (f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
- (g) Uncontaminated air conditioning or compressor condensate;
- (h) Uncontaminated groundwater or spring water;
- (i) Foundation or footer drain-water where flows are not contaminated;
- (j) Uncontaminated excavation dewatering (see requirements in section I5);
- (k) Potable water sources including waterline flushings; and
- (I) Landscape irrigation.
- Unauthorized non-stormwater discharges. The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non stormwater, other than those discharges in compliance with section I6. Specifically, the Department's approval does not authorize discharges of the following:
- (a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
- (b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
- (c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
- (d) Toxic or hazardous substances from a spill or other release.
- 8. Additional requirements. Additional requirements may be applied on a site-specific basis.
- J. CONSTRUCTION SEQUENCE
  - In general, the expected sequence of construction for each phase is provided below. Construction is proposed to start in Summer 2022 and end in Spring 2023.
  - Mobilization Install temporary erosion control measures
  - Clearing and grubbing

  - Site stabilization, site utilities, construct reclaimed asphalt access road and parking areas, loam and seed, landscaping
  - Remove temporary erosion control measures



BARRIER OR SILT FENCE FOR SLOPE PROTECTION.



- Site Grading Construct buildings





NTS





- 1"x8" PT BOARDS







PSI @ 28 DAYS.	COVER WEIGHT: BASE WEIGHT:	6,995 lbs 16.755 lbs
RS, DEPENDING ON USE.	TOTAL WEIGHT: AVAILABLE CAPACITY: WORKING CAPACITY :	23,750 lbs 2,067 GAL (MAX) 1,572 GAL (4" DIA PVC)
0 FRAMES AND COVERS.		1,527 GAL (6" DIA PVC)

		JTR	4/2023	REVISED PER OWNER COMMENTS		
		JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS		
		JTR	6/2022	ISSUED FOR TOWN REVIEW		
	REV.	BY	DATE	STATUS		
	HIMINIA THE REAL PROPERTY OF T	E OF M DANIEL DIFFIN 11841 SIONAL		SYNERGOSITY, LLC THE GRANGE HALL PUB AT LONGWOODS PRESERVE CUMBERLAND, MAINE SECTIONS AND DETAILS		
JSHED STONE			SME DESIGN BY: BAB			
DEEP MIN				SEVEE & MAHER DATE: 5/2023		
			ENGINEERS ENVIDONMENTAL • CIVIL • GEOTECHNICAL • WATED • COMPLIANCE CHECKED BY: JTR			
" MIN				4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021		
				Phone 207.829.5016 • Fax 207.829.5692 • sme-engineers.com		
				JOB NO. 21519 DWG FILE DETAILS C-303		

JTR 5/2023 REVISED PER TOWN COMMENTS

— BACKFILL WITH SUITABLE SOILS FROM ON-SITE UNAVAILABLE USE GRANNULAR BORROW (MDOT 703.19). SUITABLE SOILS SHALL MEET THE REQUIREMENTS OF MDOT 703.18. PLACE AND COMPACT IN LAYERS OF 12" THICK OR LESS.

3. EXCAVATION MUST BE AT LEAST 12" WIDER, LONGER AND











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

May 11, 2023

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

Subject: The Grange Hall Pub at Longwoods Preserve Site Plan Amendment Resubmission with Site Design Changes

Dear Ms. Nixon:

On behalf of Synergosity, LLC (Synergosity), Sevee & Maher Engineers, Inc. (SME) is pleased to submit revised information for the proposed Grange Hall Pub (Grange) at Longwoods Preserve (Longwoods) on Longwoods Road in Cumberland. The following changes have been made to the Site and Utility Plans since the Planning Board on July 19, 2022.

- On April 3, 2023, SME visited the project site to complete an existing conditions survey and collect topographic information to support proposed adjustments to the parking area east of the existing building. During our visit, we noticed the Grange structure was different from the location outlined in our original plan set, with building corners shifting 5 to 20 feet to the south and east. The attached plan set has been updated to reflect this change. The patio, parking areas, walks, and other site features have been adjusted to fit the current building location.
- 2. The plan was updated to reflect the septic system modifications previously approved as a minor field change by Town staff on December 8, 2022. A copy of the letter and supporting documentation outlining the proposed modifications to the subsurface wastewater disposal system are included for reference in Attachment 2.

The following changes are proposed based on the completed site modifications outlined above:

- 1. The dumpster was relocated to the southwest corner of the parking area to provide greater separation from the building and closer parking for the five parking spots previously located in that space. The number of parking spaces provided for the facility will remain at 43 spaces, per the original approved site plan.
- 2. The seasonal bathroom and storage shed previously located northeast of the outdoor dining area pathway was relocated southwest of the outdoor dining area to facilitate sewer connection to the updated septic system. Walkways to the previous location were removed to reduce impervious area associated with the development modifications.
- 3. Walkways east and north of the building were reduced to 5 feet wide to reduce impervious area.



- 4. An 8-foot-wide gravel service path was added to provide improved access around the western end of the building to the outdoor dining area. The service path was located 10 feet from the building to allow adequate clearance from building-mounted mechanical equipment located at the western building corner. Updated plans outline additional snow storage adjacent to the proposed service path.
- 5. An outdoor brick oven was added west of the building and outdoor dining area. The oven will be wood-fired and provide seasonal dining options for patrons.
- 6. A walk-in freezer was added south of the service path off the south side of the building to support the restaurant operation. The freezer will be portable and mounted on skids. A 1,000-gallon propane tank will be located an additional 10 feet south of the proposed walk-in freezer.
- 7. Exterior signage for the Grange was relocated from the front of the building to the site access road adjacent to Longwoods Road (ME-9). The applicant believes this location will improve wayfinding and add character to the proposed development. As with the original application, the sign will be coordinated with the Town Planner.
- 8. Grades at the parking area were adjusted to direct stormwater runoff directly to the southeast. This modification will provide a shorter drainage path for stormwater runoff across the proposed parking area and minimize the potential for ponding and puddles in the proposed parking area.
- 9. Proposed site modifications do not significantly alter the overall impervious area for the development or impact drainage patterns for stormwater runoff on the property. With the proposed site improvements, new impervious surface for the development will total at approximately 43,115 square feet, which represents an increase of 1,764 square feet from the original permitted plan. SME updated the stormwater model for the project to reflect the revised impervious area. Updated peak flows for the 2-, 10-, and 25-year/24-hour storm events are summarized in Table 1. The peak flows modeled for the proposed site improvements are the same as the original application submission. Copies of the updated calculations are provided in Attachment 4.

#### TABLE 1

#### 2-Year Storm 10-Year Storm 25-Year Storm Existing Proposed Existing Proposed Existing Proposed Analysis Point 1 10.11 15.92 9.66 16.33 20.63 19.42 (cfs) **Analysis Point 2** 40.69 44.05 90.77 95.73 135.00 140.91 (cfs)

#### STORMWATER QUANTITY SUMMARY

This plan amendment does not include any modifications to the architectural floor plans, elevations, and renderings for this project. No parking spaces were added or eliminated for this site plan amendment. The updated information is attached to this letter in support of this amendment.



We will provide a digital copy via email and look forward to reviewing the project in more detail with the Planning Board. Please feel free to contact me at 207.829.5016 or <u>jtr@smemaine.com</u> if you have any questions or need additional information.

Very truly yours,

SEVEE & MAHER ENGINEERS, INC.

Jeffrey Read, P.E. Project Manager

Attachments

- 1. Revised Appendix A Site Plan Application
- 2. Revised Septic Design
- 3. Stormwater Pre- and Post-Calculations
- 4. Revised Plan set

#### **ATTACHMENT 1**

**REVISED APPENDIX A – SITE PLAN APPLICATION** 



#### SITE PLAN REVIEW Town of Cumberland

#### Appendix C Planning Board Site Plan Review Application

Applicant's nameSynergosity LLC				
Applicant's address 76 Longwoods Road, Cumberland, ME 04021				
Cell phone <u>207-415-7273</u> Home phone <u>N/A</u> Office phone <u>N/A</u>				
Email Addressalex.timpson@ampf.com				
Project address 76 Longwoods Road				
Project name The Grange Hall Pub at Longwoods Preserve				
Describe project Farm to table restaurant and brew pub				
Number of employees 8 to 10				
Days and hours of operation Normal anticipated 11:30 am to 9:00 pm (Events 11am to 12pm)				
Project review and notice fee \$1,650				
Name of representative       Jeff Read, P.E., Sevee and Maher Engineers, Inc.         Contact information: Cell:       207-671-8027         Office:       207-829-5016         What is the applicant's interest in the property?				
Own X       Lease Purchase and sale agreement (provide copy of document)         If you are not the owner, list owner's name, address and phone number N/A				
If you are not the owner, list owner's name, address and phone number <u>N/A</u>				
Boundary Survey Submitted? Yes X No				
Are there any deed restrictions or easements? Yes $X$ NoIf yes, provide information and show easement location on site plan.				
Building Information         Are there existing buildings on the site? Yes       X       No       Number: 2         Will they be removed? Yes       No       X       (Note: A demolition permit is required 10 days         prior to demolition.)				
Will a new structure(s) be built on the site? Yes X No Describe: Grange hall pub seasonal building and storage				
Number of new buildings <u>5</u>				

#### Parking

Number of existing parking space	es 0
Number of new parking spaces_	43
Number of handicapped spaces _	2
Will parking area be paved?	Yes X No

Entrance Location: US Route 9 Width 20' Length 1,300 lf Is it paved? Yes X No X If not, do you plan to pave it?

Where will snow storage for entrance and parking be located? Show on site plan.

#### Utilities

Water: Public water\_\_\_\_\_Well\_X\_\_\_(Show location on site plan.)

Sewer/septic: Public sewer\_\_\_\_Private septic\_X\_\_\_Show location on site plan and submit HHE-200 septic design or location of passing test pit locations if new system is proposed. Also show any wells on abutting properties within 200 feet of the site.

Electric: On site? Yes X No

Show location of existing and proposed utilities on the site plan and indicate if they are above or below ground.

#### Signs

Number: 2 Size: TBD Material: TBD Submit sign design and completed sign application. Will the sign be lighted? TBD Submit information on type and wattage of lights. Show location of sign(s) on the site plan.

#### **Natural Features**

 Show location of any of the following on the site plan:

 River\_\_\_\_\_Stream\_X\_\_\_Wetland X\_\_\_\_Pond \_\_\_\_\_Lake \_\_\_\_Stone walls \_\_\_\_\_

 Are there any other historic or natural features? (Please See Attached)

#### Lighting

Will there be any exterior lights? Yes  $\underline{X}$  No\_\_\_\_\_Show location on site plan (e.g., pole fixtures, wall packs on building) and provide fixture and lumen information.

#### Trees

Show location of existing trees on the site plan and indicate if any are to be removed.

#### Landscaping

Is there existing landscaping on the site? Yes X No\_\_\_\_\_Show type and location on site plan.

Is new landscaping proposed? (Note: if property has frontage on Route 100, a twenty-five-foot landscape easement to the Town is required.)
#### Buffering

Show any existing or proposed buffering measures for adjacent properties, e.g., plantings, fences.

#### **Erosion Control**

Has an erosion and sedimentation control plan been submitted? Yes X No

#### Stormwater Management Plan

Provide stormwater information for both pre and post development of the site. Show location of any detention areas and/or culverts on the site plan.

#### **Fire Protection**

Location of nearest hydrant <u>N/A</u> Sprinklers? <u>No X</u>  $P_{Q_S}$  No <u>No X</u> Please contact the Fire/EMS Department at 829-4573 to discuss any Town or state requirements.

#### Trash

Will trash be stored inside \_\_\_\_\_\_ outside \_X\_\_\_. If outside, will a dumpster be used? Yes \_X\_\_No\_\_\_\_\_. Show location on site plan and show type of screening proposed (e.g., fencing, plantings).

#### **Technical Capacity**

List and provide contact information for all consultants who worked on the project, for example: licensed land surveyor, licensed soils evaluator, professional engineer, attorney, etc. previously approved

#### **Financial Capacity**

Please indicate how project will be financed. If obtaining a bank loan, provide a letter from the bank <u>previously approved</u>

<u> </u>	
•	Zoning district: <u>Contract Zone (RR</u> 1)
•	Minimum lot size: 2 acres
•	Classification of proposed use: Contract Zone
•	Parcel size: 61.55 acres
•	Frontage: None
•	Setbacks: Front 15 Side 15 Rear 15
•	Board of Appeals Required? N/A
•	Tax Map_R03 Lot 13 + 6A Deed book 39147 Deed page 20
•	Floodplain map number 230162 0015 B Designation Zone C
•	Vernal pool identified? No
•	Is parcel in a subdivision? No
•	Outside agency permits required:
	MDEP Tier 1 N/A MDEP Tier 2 N/A Army Corps of Engineers N/A
	MDEP general construction (stormwater) permit (for disturbance of 1 acre or more)
•	MDOT entrance permit previously approved
٠	MDOT traffic movement permit previously approved
٠	Traffic study required previously approved
٠	Hydrogeologic evaluation previously approved
٠	Market study previously approved
٠	Route 1 Design Guidelines? N/A
•	Route 100, VMU or TCD Design Standards? N/A

Th A, Applicant's signature Submission date: \_\_\_\_\_April 25, 2023

# PLANNING BOARD SITE PLAN REVIEW SUBMISSION CHECKLIST

# FOR ALL PROJECTS:

Submission Requirement	Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative	If requesting a waiver, indicate below:
Example: Erosion Control	Plan Sheet E-1	
General Information:		
Completed Site Plan Application		
Form	I his document	
Names and addresses of all	Appendix C previous application	
consultants	rippendix e, previous appreation	
Narrative describing existing	Narrative previous application	
conditions and the proposed project		
Evidence of right, title or interest	Attachment 1	
(deed, option, etc.)		
Names and Addresses of all property	Appendix L previous application	
owners within 200 feet	rependint 9, provious upprodutori	
Boundaries of all contiguous property	Drawing C-101	
under control of owner	Drawing C-101	
Tax map and lot numbers	Drawing C-101	
Area of the parcel	Narrative, previous application	
FEMA Floodplain designation & map	Previous application	
#	Norrotive provide application	
Zoning classification	Narrative, previous application	
Evidence of technical and financial	Appendix B and C previous application	
capability to carry out the project	Proposition D and C, previous application	
Boundary survey	Drawing C-101	
List of waiver requests on separate	Narrative, previous application	
sheet with reason for request.		
Proposed solid waste disposal plan	Narrative, previous application	
Existing Conditions Plan showing:		
Name, registration number and seal	Drawing C-101	
of person who prepared plan		
North arrow, date, scale, legend	Drawing C-101	
Area of the parcel	Drawing C-101	
Setbacks and building envelope	Drawing C-101	
Utilities, including sewer & water,	Drawing C-101	
cuiverts & drains, on-site sewage		
Location of any septic systems	Drawing C-101	
Location, names, widths of existing public or private streets ROW's	Drawing C-101	

Location, dimension of ground floor	Drawing C-101	
elevation of all existing buildings		
	Drawing C-101	
Location, dimension of existing	Drawing C 101	
driveways, parking, loading,	Diawing C-101	
walkways		
Location of intersecting roads &	Drawing C-101	
driveways within 200 feet of the site	Drawing C-101	
Netural and historia factures such as		
water bodies, stands of trees		
streams gravevards stonewalls	Drawing C-101	
floodplains		
Direction of existing surface water	D : 0 101	
drainage across the site & off site	Drawing C-101	
Location, front view, dimensions and	Drowing C 101	
lighting of existing signs	Drawing C-101	
Location and dimensions of existing	Drowing C 101	
easements & copies of documents	Drawing C-101	
Location of nearest fire hydrant or	Drawing C-101	
water supply for fire protection		
Proposed Development Site Plan		
Name of development	Drawing C-102	
Date	Drawing C-102	
North arrow	Drawing C-102	
Scale	Drawing C-102	
Legend	Drawing C-102	
Landscape plan		
Stormwater management	Drawing D-100 and 101	
Wetland delineation	Drawing C-101	
Current & proposed stands of trees	Drawing C-103	
Erosion control plan	Drawing C-105	
Landscape plan		
Lighting/photometric plan	Appendix L, previous application	
Location and dimensions of all	Drawing C-103	
proposed buildings		
Location and size of utilities, including	Drawing C-104	
sewer, water, culverts and drains	-	
Location and dimension of proposed		
on-site septic system; test pit	Drawing C-104 & Appendix G, previous appl	ication
locations and nitrate plumes		
Location of wells on subject property	Drawing C-104	
and within 200 of the site	_	
Location, names and widths of	Drawing C-103	

Location and dimensions of all accessways and loading and unloading facilities	Drawing C-103	
Location and dimension of all existing and proposed pedestrian ways	Drawing C-103	
Location, dimension and # of spaces of proposed parking areas, including handicapped spaces	Drawing C-103	
Total floor area and ground coverage of each proposed building and structure	Drawing C-103	
Proposed sign location and sign lighting	Drawing C-103, C-104	
Proposed lighting location and details	Drawing C-104	
Covenants and deed restrictions proposed	Drawing C-101	
Snow storage location	Drawing C-103	
Solid waste storage location and fencing/buffering	Drawing C-103	
Location of all fire protection	N/A	
Location of all temporary & permanent monuments	Drawing C-101	
Street plans and profiles	N/A	

# ADDITIONAL REQUIREMENTS FOR MAJOR SITE PLAN PROJECTS:

Submission Requirement	Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative	If requesting a waiver, indicate below:
High intensity soils survey	Previously Approved	
Hydro geologic evaluation	Previously Approved	
Traffic Study	Previously Approved	
Market Study	Previously Approved	
Location of proposed recreation areas (parks, playgrounds, other public areas)	N/A	
Location and type of outdoor furniture and features such as benches, fountains.	N/A	

**468** 52-60/112 140 4/25/2023 Date SYNERGOSITY LLC Pay to the • Order of \_\_\_\_\_ of Cumberland \$ 1000. LOWN Onethousand Dollars O Safe Deposite ReyBank National Association 1.800.KEY2YOU" Key.com" review for 2nd Plan Ning Bd Rev, A Ter For needed 200608 101 191401002958# OLGA 1

The new sensity new sensity one sensity new sensity new sensity new sensity one sensity one sensity one sensity new sensity one	AND AND ADDRESS AND ADDRESS AND ADDRESS ADDRES ADDRESS ADDRESS ADD	-
SYNERGOSITY LLC	4/25/2023 Date	67 60/112 140
Pay to the Order of Town of Cumber and Six hundred fifty	\$ 650	Photo Safe Deposit® Details on back
For 2nd planning board review A	ATTA	MP
1011200608: 191401002958. C	3467	

#### \*\* Corrective \*\* WARRANTY DEED {Maine Statutory Short Form}

KNOW ALL PERSONS BY THESE PRESENTS, THAT DANIEL F. VILLACCI and MARIANNA VILLACCI, both with a mailing address of 297 Middle Road, Falmouth, ME 04105 for consideration paid, GRANT to SYNERGOSITY, LLC, a Maine limited liability company with a principal place of business in Scarborough, Maine with WARRANTY COVENANTS, the land in the Town of Cumberland, County of Cumberland, and State of Maine, described as follows:

#### See Attached Exhibit A.

WITNESS, my hand and seal this <u>19</u> day of October 2021.

SIGNED, SEALED AND DELIVERED in the presence of

1 Dami / Villace DANIEL F. VILLACCI MORIANNA VILLACCI MARIANNA VILLACCI

State of Maine County of Cumberland

Then personally appeared the above-named DANIEL F. VILLACCI and MARIANNA VILLACCI and acknowledged the foregoing instrument to be their free act and deed.

ABBEY LOMBARD Notary Public-Maine My Commission Expires February 22, 2025

Before me, SEAL Notary Public Printed Name: Abser L My commission expires: 2/2/2005

1/18/2022, 8:01 PM

#### Exhibit A

#### 76 Longwoods Road, Cumberland

#### Historical Description

Parcel I (76 Longwoods Road):

A certain lot or parcel of land with the buildings thereon, situated on the westerly side of Longwoods Road, in the Town of Cumberland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at an iron pin on the westerly side of Longwoods Road at the northerly corner of land formerly of Owen Farwell; thence South 53° West by said Farwell land and land now or formerly of Bertelle Seekins, one thousand two hundred sixty (1,260) feet, more or less, to an iron pin on the Falmouth Town Line; thence North 38° West by the Falmouth Town Line, one thousand two hundred fifteen (1,215) feet, more or less, to an iron pin at the southerly corner of land now or formerly of Frank E. Oulton; thence North 53° East by said Oulton land; seven hundred eighty-seven (787) feet, more or less, to a pile of stones; thence North 37° 30' West by said Oulton land five hundred eighty-five (585) feet, more or less, to an iron pin at the southerly corner of land conveyed by Roger Boldue to Wallace E. Leavitt, et al, by deed dated March 26, 1956 and recorded in the Cumberland County Registry of Deeds in Book 2281, Page 101; thence North 52° East by said Leavitt land, seven hundred thirty (730) feet, more or less, to an iron pin at the westerly corner of land conveyed by Christen Christensen to Hans Zenas Hansen by deed dated September 7, 1927 and recorded in said Registry of Deeds in Book 1277, Page 92; thence South 36° 30' East by said Hansen land, six hundred three (603) feet, more or less, to an iron pin; thence North 52° East by said Hansen land, one hundred forty-one (141) feet, more or less, to an iron pipe at the westerly corner of land conveyed by Robert Nelson to Henry L. Hanson by deed dated January 10, 1948 and recorded in said Registry of Deeds in Book 1907, Page 68; thence South 32° 30' East by said Hanson land, three hundred twelve (312) feet, more or less, to an iron pin; thence North 52° 30' East by said Hanson land, one hundred forty-seven (147) feet, more or less, to an iron pin on the westerly sideline of Longwoods Road; thence South 10° 45' East by Longwoods Road, one thousand one hundred fifteen (1,115) feet, more or less, to the point of beginning. Containing 54 acres, more or less.

Excepting, however, so much of said premise as was conveyed by Maurice P. Hansen to Central Maine Power Company by deed dated July 27, 1956 and recorded in said Registry of Deeds in Book 2310, Page 495, but this conveyance includes all the rights and privileges reserved in said deed.

This conveyance is made subject to the easement conveyed by Maurice P. Hansen and Marie C. Hansen to New England Telephone and Telegraph Company and Central Maine Power Company by deed dated January 27, 1950 and recorded in said Registry of Deeds in Book 1989, Page 434.

Being a portion of the premises as described in a Warranty Deed from Daniel F. Villacei to Daniel F. Villacei and Marianna Villacei, dated May 13, 2002 and recorded at Book 17630, Page 16 in the Cumberland County Registry of Deeds.

Parcel II (0 Longwoods Road):

A certain lot or parcel of land, located in the Town of Cumberland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a point which is the intersection of the East Branch of the Piscataqua River and the southerly line of a certain lot or parcel of land now of Central Maine Power Company, more particularly described in a deed from Frank E. Oulton and Annie G. Oulton to Central Maine Power Company, dated October 5, 1956 and recorded at the Cumberland County Registry of Deeds, Book 2281, Page 494; thence southeasterly along said southerly line of said Central Maine Power Company land to a point intersecting with the northwesterly line of a certain lot or parcel of land now or formerly of Daniel F. Villacci; thence westerly along said line to a point which is the northwest point of said lot or parcel of land now of Daniel F. Villacci; thence South 42° East by land formerly of Peter Merrill thirty-five (35) rods to said lot or parcel of land now of Daniel F. Villacci to a point; thence running South 48° West by land formerly of Joseph Sawyer forty-seven (47) rods and eight (8) links to the Falmouth and Cumberland line; thence North 41° West by said Falmouth and Cumberland line to the easterly bank of the East Branch of said Piscataqua River; thence running northeasterly and upstream along said easterly bank to the point of beginning; comprising 18 acres more or less;

Also, all rights which the Grantors may have in or with respect to a certain lot or parcel of land now of Central Maine Power Company and described in a deed from Frank E. Oulton and Annie G. Oulton to Central Maine Power Company, dated October 5, 1956 and recorded in said Registry of Deeds in Book 2281, Page 494.

Being a portion of the premises as described in a Warranty Deed from Daniel F. Villacci and Marianna Villacci to Daniel F. Villacci and Marianna Villacci, dated May 13, 2002 and recorded at Book 17630, Page 14 in the Cumberland County Registry of Deeds.

#### New Description

Also conveying all our right, title and interest in the below alternate description of the above-described parcels which is based upon an unrecorded plan entitled "Existing Conditions Survey for Alexander Timpson of 76 Longwoods Road, Cumberland, Maine" dated August 10, 2021, by David Bouffard, PLS:

A certain lot or parcel of land with any improvements thereon, located on the westerly

-----

.....

side of Longwoods Road, also known as State Route 9 in the Town of Cumberland, County of Cumberland, State of Maine and more particularly bounded and described as follows:

**BEGINNING** at a found iron rebar capped PLS 1183 on the westerly side of Longwoods Road at the northerly corner of land formerly of Philip Stanhope as described in Deed Book 2932, Page 385 recorded in the Cumberland County Registry of Deeds;

Thence **S 35°50'39" W, a distance of 1278.39'** along land formerly of Philip L. Stanhope and land now or formerly of Roberto Bertelle as described in Book 3640 Page 172 to a found iron pipe;

Thence **N 56°33'06" W, a distance of 1213.64'** along land now or formerly of Elwin Hansen as described in Book 3029, Page 502 to a found iron pipe;

Thence N 55°12'38" W, a distance of 421.76' along land of Hansen to a found iron pipe;

Thence **N 55°12'38" W, a distance of 437',** more or less, along land now or formerly of Daniel Vallacci as described as the Town of Falmouth Parcel of land in Book 6362, Page 132, to the center of the East Branch of the Piscataqua River;

Thence northerly along the center of the said river about **1,660 feet**, more or less to a point;

Thence **S 55°10'35"** E, about **185'**, more or less along land now or formerly of Central Maine Power Company as described in Book 2281, Page 494 to a point (a tie bearing and distance from the last-mentioned iron pipe to this point is N 04°43'30" W, a distance of 1162.40').

Thence **S 55°10'35" E, a distance of 800.00'** to angle point of Central Maine Power Company land;

Thence **S 85°43'08**" **E**, a distance of **1286.21**' along Central Maine Power Company land as described in Book 2310, Page 495 to Longwoods Road;

Thence S 28°52'05" E, a distance of 546.85' along Longwoods Road to the POINT OF BEGINNING.

Containing an area of 61.56 Acres, more or less.

Also, another parcel of land opposite the before mentioned angle point on northerly side of the 450-foot-wide corridor of Central Maine Power Company land;

**BEGINNING** at a found copper rod with cap on the northerly side of Central Maine Power Company land as described in Book 2310 Page 495 at the westerly corner of land now or formerly of Todd Shallow as described in Deed Book 34990, Page 348 recorded in the Cumberland County Registry of Deeds;

Thence **N 85°43'08" W, a distance of 293.15'** along Central Maine Power Company land as described in Book 2310 Page 495 to an angle point;

Thence N 55°10'35" W, a distance of 106.66' along Central Maine Power Company land to a found iron pipe;

Thence **N 35°02'41" E, a distance of 158.06'** land as is depicted as Lot 1 of the plan recorded in the Cumberland County Registry of Deeds in Plan Book 198 Page 161 to a found iron pipe;

Thence **S 53°43'30" E, a distance of 358.63'** along land now or formerly of Robert Crawford as described in Book 26346 Page 25 and land of said Todd Shallow to the **POINT OF BEGINNING**.

Containing an area of 0.83 Acre, more or less.

The basis of bearings for this description was the Maine State Grid Plane of 1983 located in the West Zone.

Together with any right of way that may exist as a result of long use over the Central Maine Power Company land described in Book 2310, Page 495.

Subject to utility easement as described in Book 1989, Page 434.

Meaning and intending to describe land in the Town of Cumberland, being a portion of the premises as described in a deed to Daniel F. and Marianna Villacci dated May 13, 2002 and recorded in said Registry in Book 6362 Page 132.

#### 0 Winn Road, Falmouth

A certain lot or parcel of land located in the Town of Falmouth, in said Cumberland County and State of Maine, bounded and described as follows:

All land now of Grantor lying southerly of the Cumberland and Falmouth line, easterly of the easterly bank of the East Branch of said Piseataqua River, and westerly of the following described line: beginning at an iron pipe set in the ground at a point on said Cumberland and Falmouth line nineteen (19) rods, more or less, southeasterly from said East Branch of the Piscataqua River, said iron pipe being at the Northerly corner of land now or formerly of Osborn Hanson; thence, southwesterly by said Hanson land eighty (80) rods, more or less, to the most easterly corner of land now or formerly of one Thompson; said land of Grantor being a portion of a certain lot or parcel of land described in a certain deed from Oscar M. Braley and Clara T. Braley to Frank E. Oulton, Frank E. Oulton, Jr. and Edward B. Oulton, dated November 2, 1954, and recorded in the Cumberland County Registry of Deeds at Book 2204, Page 63; comprising of 1.3 acres more or less.

For source of title, reference is made to a deed from Edward B. Oulton et. al to Daniel F. Villaci and Marianna Villaci dated December 29, 1983 and recorded at Book 6362, Page 132 in the Cumberland County Registry of Deeds, and a deed from to Daniel F. Villaci and Marianna Villaci to Daniel F. Villaci and Marianna dated May 13, 2002 and recorded at Book 17630, Page 14.

The purpose of this corrective deed is to include the Falmouth property which was inadvertently left out of the deed from the Grantors herein to the Grantee herein dated September 3, 2021 and recorded at Book 38626, Page 268 in the Cumberland County Registry of Deeds.

Received Recorded Resisten.of:Deeds Feb 0372022/08:45:59A Cumberland Counts Jessica M. Spaulding

MAMAMORE - COMMUNES - SELETION - CO AND MALERICA - COMMUNES

**ATTACHMENT 2** 

**REVISED SEPTIC DESIGN** 





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

November 29, 2022

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

Subject: The Grange Hall Pub at Longwoods Preserve Revised Septic Design

Dear Ms. Nixon:

On behalf of the Synergosity, LLC (Synergosity), Sevee & Maher Engineers, Inc. (SME) is pleased to provide the following explanation of the new proposed septic system and occupancy limitations for the proposed Grange Hall Pub on Longwoods Road in Cumberland.

As outlined in the approved Site Plan Application, the site is currently served by an on-site well and septic system for the existing single-family house and barn. A second well was installed to accommodate the additional flow requirements for the proposed Grange Hall Pub and Restaurant (Pub). A copy of the well log and water quality test results were provided in the Site Plan Application.

In the approved Site Plan Application, the proposed Pub was to be serviced by two new on-site subsurface wastewater disposal systems, each with a design flow under 2,000 gallons per day (gpd). The existing subsurface wastewater disposal system will remain to treat existing flows from the farmhouse and barn.

Upon further review of the anticipated wastewater flows from the Pub, Synergosity and their soil scientist, Mark Cenci, LSE, have determined that the overall design flows for the Pub can be reduced from two subsurface wastewater disposal systems to a single subsurface wastewater disposal system designed for a total of 1,804 gpd. A written description and revised HHE-200 Wastewater Disposal System Application from Mark Cenci are attached for your review.

The proposed modification is based on 85 seats in the restaurant plus 9 employees. Water use for the facility will be monitored and records can be used to verify wastewater flows do not exceed design parameters for the new system.

The subsurface wastewater disposal system is on the interior of the parcel, downgradient of the water supply wells, and a waiver from performing a hydrogeological evaluation was granted with the original project approval. The property is not located within an area designated as a source protection area or a significant sand and gravel aquifer. We do not anticipate any adverse impacts to groundwater from this modification.



We appreciate your consideration for this design modification. Please feel free to contact me at 207.829.5016 or <u>itr@smemaine.com</u> if you have any questions or need additional information.

Very truly yours,

SEVEE & MAHER ENGINEERS, INC.

Jeffrey Read, P.E. Senior Civil Engineer

Attachments

93 Mill Road • North Yarmouth, Maine 04097 Cell: 207.329.3524 • mark@markcenci.com www.markcenci.com

Mark Cenci Geologic, Inc.

CERTIFIED GEOLOGIST/LICENSED SITE

Date: November 28, 2022

To: Cumberland Planning Department

**RE:** Revision to the HHE 200, dated 10/27/22, for Longwoods Preserve

In April 2022 I prepared HHE-200 forms for two wastewater disposal systems to serve a full buildout concept of the Longwoods Preserve. This concept was for two disposal areas, each sized for 75 restaurant seats plus employees.

On 10/27/22 I revised one HHE-200 to be sized for one system to serve as many as 85 seats plus employees. The Design flow calculation is taken from the Wastewater Rules, which allocates 20 gallons per day per seat for a full-service restaurant and 104 gpd for employees. The Design Flow of the food service portion is 1700 gallons per day and the employee portion is 104 gallons per day.

Because restaurant wastewater contains a higher concentration of Total Dissolved Solids and Biological Oxygen Demand than household wastewater, a multiplier of 1.8 is applied to the food service portion of the Design Flow (1,700 gpd). This increases the size of the disposal area to what appears to accommodate 3,168 gallons per day, but in fact this is not a 3,168 gpd system, it is a 1,804 gpd system.

The actual water use will be monitored. These water use records can be used in the future to expand or redesign the system as the needs of the business arise.

Please contact me, email preferred, if further information is useful

Mark Cenci, LSE # 262

SUBSURFACE WA	STEWATER DISPOSAL SYST	EM APPLICATIO	V		Maine Dept.Health & Human Service: Div of Environmental Health, 11 SHS (207) 287-5672 Fax: (207) 887-417
PROP	ERTY LOCATION	>> CA	UTION: LPLA	PPROVAL RE	OUIRED <<
City, Town, or Plantation	UMBERLAND	Town/Oth			
Street or Road 76	LONGWOODS ROSD	Date Permit Issued	/ / F	Permit #	Double Fee Charried [ ]
Subdivision, Lot # 604	JAWOODS PRESERVE				L.P.I. #
OWNER/APP	LICANT INFORMATION	Local Plumbing Insp	ector Signature		
Mailing Address of 173 Owner/Applicant	LLC Solver Applicant SPURNINK ROAD BORDUGH, ME 04074	The Subsurface Wastewa Permit is issued by the Lo authorize the owner or ins with this application and th	tter Disposal System s cal Plumbing Inspector taller to install the disp ne Maine Subsurface V	hall not be installed unti . The Permit shall osal system in accordar Vastewater Disposal Ru	la lowner lown <u>State</u>
Daytime Tel. #	415-7273	Municipal	Tax Map #	Lot #	
OWNER OR APPL I state and acknowledge that the in my knowledge and understand that Local Plumbing Inspector to deny a	ICANT STATEMENT formation submitted is correct to the best of t any faisification is reason for the Department and/or Permit.	I have inspected with the Subsurf	CAUTION: INSPECT the Installation autholi ace Wastewater Dispo	TON REQUIRED Zed above and found it sal Rules Application.	to be in compliance (1st) date approved
Signature of Own	ner or Applicant Date	Local	Plumbing Inspector Sid	nature	(2nd) date anothing
	PER	MIT INFORMATION			
TYPE OF APPLICATION     THIS APPLICATION REC       X First Time System     X No Rule Variance       2. Replacement System     Z. First Time System Variance       Type replaced:     E. Local Plumbing Inspector App       Year installed:     B. Replacement System       3. Expanded System     B. Local Plumbing Inspector App       B. Ac25% Expansion     State & Local Plumbing Inspector App		oval or Approval oval or Approval	DISF 2. Prim 3. Alter 4. Non 5. Holo 6. Non 7. Sepa	POSAL SYSTEM C aplete Non-enginee ittive System (grayv mative Toilet, speci engineered Treatm ing Tank, engineered Dispos arated Laundry Sys	OMPONENTS red System water & alt. toilet) fy: hent Tank (only) gallons bal Field (only) tem
2. Experimental System	A Minimum Lot Size Veriesee	B. Complete Engineered System (2000 gr			system (2000 gpd or more)
5. Seasonal Conversion	5. Sessonal Conversion Dermit		D9. Eng	ineered Treatment	Tank (only)
SIZE OF PROPERTY	DISPOSAL SYSTEM TO SERV	C Eligneered Disposal Field (only)     □1. Pre-treatment, specify:     □2. Miscellaneous Components			
7.5 ISQ. FT.	2. Multiple Family Dwelling Unit, No. of 2. Multiple Family Dwelling, No. of Un	Bedrooms: its:	TY	PE OF WATER SU	PPLY
SHORELAND ZONING	(specify)	. Drilled Well 2. Dug Well 3. Private		3. Private	
Yes Xao	Current Use Beasonal Eyear Round	Aundeveloped	Z. Public	5. Other	
elastic las 7 elas 6 tec 7 tecs en 9 y 1 4 4	DESIGN DETAILS (SY	STEM LAYOUT SHO	OWN ON PAGE	3)	-
CAPACITY: GAL CONCELLE CONDUCTION	C. Stone Bed 2. Stone Trench  C. Stone Trench  C. Size: [2960 20, ft. lin. ft.  C. DISPOSAL FIELD SIZING	GARBAGE DISK X. No 2. Yes C If Yes or Maybe, sp a. multi-compartme b tanks in seri c. increase in tank C. Filter on Tank O EFFLUENT/F.IFOTO	ARBAGE DISPOSAL UNIT No 12. Yes 13. Maybe s or Maybe, specify one below: ulti-compartment tank tanks in series trease in tank capacity ter on Tank Outlet CLUENT/EJECTOR PUMP		DESIGN FLOW gallons per day ASED ON: (dwelling unit(s)) (cother facilities) CALCULATIONS for other facilities TSC ZO GPD EACH CALCULATIONS for other facilities TSC ZO GPD EACH CALCULATIONS for Other facilities TSC ZO GPD EACH
at Observation Hole # TPI Depth [5]" of Most Limiting Soil Factor	<ul> <li>Medium2.6 sq. ft. / gpd</li> <li>MediumLarge 3.3 sq. f.t / gpd</li> <li>Large4.1 sq. ft. / gpd</li> <li>Extra Large5.0 sq. ft. / gpd</li> </ul>	Not Required     Not Required     Required     Required     Specify only for engineer     DOSE:gal	red systems; ions	ATTACH WA LATITU Lat. 3 d Lon. 70 d if g.p.s, state m	TER METER DATA DE AND LONGITUDE Inter of disposal area A S m 5 3 6 9 A S m 6 8 5 7 argin of error: 57
1 7-	SITE EVALI	UATOR STATEMEN	Г		
that the proposed system is Site Evaluators	in compliance with the State of Maine S Signature	on on this property and subsurface Wastewater I 262 SE #	state that the dat Disposal Rules (1 4 - 27 - 2 Date	a reported are ac 0-144A CMR 241 	curate and  ). Z7-ZZ ML
Site Evaluator N	Name Printed	67-3364			
Note : Changes to or deviati	ons from the design should be confirmed		E-mail Ad	dress	

note . Changes to or deviations from the design should be confirmed with the Site Evaluator.

Page 1 of 3





## **ATTACHMENT 3**

STORMWATER PRE- AND POST-CALCULATIONS





The Grange Hall\_PRE\_04252023 Prepared by Sevee & Maher Engineers HydroCAD® 10.20-2g s/n 01260 © 2022 HydroCAD Software Solutions LLC

## Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
0.265	74	>75% Grass cover, Good, HSG C (SC-2)
26.426	80	>75% Grass cover, Good, HSG D (SC-1, SC-2)
0.336	96	Gravel surface, HSG D (SC-1, SC-2)
0.611	93	Paved roads w/open ditches, 50% imp, HSG D (SC-1, SC-2)
0.091	98	Unconnected roofs, HSG D (SC-2)
4.924	55	Woods, Good, HSG B (SC-2)
12.515	70	Woods, Good, HSG C (SC-2)
64.211	77	Woods, Good, HSG D (SC-1, SC-2)
109.380	76	TOTAL AREA

## Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
4.924	HSG B	SC-2
12.781	HSG C	SC-2
91.675	HSG D	SC-1, SC-2
0.000	Other	
109.380		TOTAL AREA

The Grange Hall_PRE_0425202	3 N	IRCC 24-hr D 2-Year Rainfall=3.10"	
Prepared by Sevee & Maher Engine	ers	Printed 4/25/2023	
HydroCAD® 10.20-2g s/n 01260 © 2022	HydroCAD Software Solutions	LLC Page 4	
Time span= Runoff by SC Reach routing by Stor-In	0.00-30.00 hrs, dt=0.01 hrs, S TR-20 method, UH=SCS, d+Trans method - Pond ro	3001 points Weighted-CN uting by Stor-Ind method	
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,157,563 s Flow Length=1,045' Tc=24.	of 0.54% Impervious Runoff Depth=1.20" 6 min CN=78 Runoff=19.76 cfs 2.659 af	
Subcatchment SC-2: Tree, Grass, Flow Len	Runoff Area=3,607,020 s igth=994' Tc=33.4 min UI Ac	of 0.31% Impervious Runoff Depth=1.03" djusted CN=75 Runoff=43.53 cfs 7.085 af	
Reach 1R: Drainage n=0.040 L=1	Avg. Flow Depth=0.90' Ma 1,281.0' S=0.0094 '/' Capacit	ax Vel=2.54 fps Inflow=43.53 cfs 7.085 af ty=231.29 cfs Outflow=40.69 cfs 7.085 af	
Pond 1P: 24" Existing Culvert Primary=10.11	Peak Elev=61.59' Sto cfs 2.655 af Secondary=0.00	rage=23,434 cf Inflow=19.76 cfs 2.659 af ) cfs 0.000 af Outflow=10.11 cfs 2.655 af	
Link AP-1:		Inflow=10.11 cfs 2.655 af Primary=10.11 cfs 2.655 af	
Link AP-2:		Inflow=40.69 cfs 7.085 af Primary=40.69 cfs 7.085 af	
Total Runoff Area = 109.3	380 ac Runoff Volume = 9 99.64% Pervious = 108	9.744 af Average Runoff Depth = 1.0 .983 ac 0.36% Impervious = 0.397 a	7" C

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 19.76 cfs @ 12.36 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 2.659 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

A	rea (sf)	CN I	CN Description				
2	73,224	80 :	>75% Gras	s cover, Go	bod, HSG D		
	1,133	96	Gravel surfa	ace, HSG D	)		
8	70,741	77 \	Noods, Good, HSG D				
	12,465	93	Paved road	s w/open d	litches, 50% imp, HSG D		
1,1	57,563	78	Weighted A	verage			
1,1	51,331	9	99.46% Pei	vious Area			
	6,233		0.54% Impe	ervious Area	а		
-		<u></u>		<b>a</b>			
	Length	Slope	Velocity	Capacity	Description		
(min)	(feet)	(ft/ft)	(ft/sec)	(CIS)			
5.7	100	0.0800	0.29		Sheet Flow, A-B		
					Grass: Short n= 0.150 P2= 3.10"		
3.9	254	0.0240	1.08		Shallow Concentrated Flow, B-C		
					Short Grass Pasture Kv= 7.0 fps		
6.8	257	0.0160	0.63		Shallow Concentrated Flow, C-D		
0.0	40.4	0.0400	0.00		Woodland Kv= 5.0 fps		
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E		
					Short Grass Pasture KV= 7.0 fps		

24.6 1,045 Total

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 43.53 cfs @ 12.50 hrs, Volume= 7.085 af, Depth= 1.03" Routed to Reach 1R : Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

Area (sf)	CN	Adj	Description
877,902	80		>75% Grass cover, Good, HSG D
3,979	98		Unconnected roofs, HSG D
13,496	96		Gravel surface, HSG D
1,926,279	77		Woods, Good, HSG D
545,165	70		Woods, Good, HSG C
214,485	55		Woods, Good, HSG B
11,559	74		>75% Grass cover, Good, HSG C
14,155	93		Paved roads w/open ditches, 50% imp, HSG D
3,607,020	76	75	Weighted Average, UI Adjusted
3,595,964			99.69% Pervious Area
11,057			0.31% Impervious Area
3,979			35.99% Unconnected

## The Grange Hall\_PRE\_04252023

NRCC 24-hr D	2-Year Rair	nfall=3.10"
	Printed	4/25/2023
s LLC		Page 6

Prepared by Sevee & Maher	<sup>-</sup> Engineers
HydroCAD® 10.20-2g s/n 01260	© 2022 HydroCAD Software Solutions LL

Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
2.0	172	0.0400	1.40		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
22.6	479	0.0050	0.35		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, D-E
					Woodland Kv= 5.0 fps

33.4 994 Total

#### Summary for Reach 1R: Drainage

 Inflow Area =
 82.806 ac, 0.31% Impervious, Inflow Depth = 1.03" for 2-Year event

 Inflow =
 43.53 cfs @
 12.50 hrs, Volume=
 7.085 af

 Outflow =
 40.69 cfs @
 12.73 hrs, Volume=
 7.085 af, Atten= 7%, Lag= 13.7 min

 Routed to Link AP-2 :
 800 cm model
 10.00 cm model

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 2.54 fps, Min. Travel Time= 8.4 min Avg. Velocity = 1.00 fps, Avg. Travel Time= 21.3 min

Peak Storage= 20,479 cf @ 12.59 hrs Average Depth at Peak Storage= 0.90', Surface Width= 26.77' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



## Summary for Pond 1P: 24" Existing Culvert

Inflow Are	a =	26.574 ac,	0.54% Imp	ervious,	Inflow D	epth =	1.20"	for 2-	Year eve	ent
Inflow	=	19.76 cfs @	12.36 hrs,	Volume	=	2.659	af			
Outflow	=	10.11 cfs @	12.71 hrs,	Volume	=	2.655	af, At	ten= 49%	6, Lag=	20.6 min
Primary	=	10.11 cfs @	12.71 hrs,	Volume	=	2.655	af		Ū	
Routed	to Link	AP-1 :								
Secondary	/ =	0.00 cfs @	0.00 hrs,	Volume	=	0.000	af			
Routed	to Link	AP-1 :								

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 61.59' @ 12.71 hrs Surf.Area= 25,592 sf Storage= 23,434 cf

Plug-Flow detention time= 42.6 min calculated for 2.654 af (100% of inflow)

Prepared by Sevee & Maher Engineers HydroCAD® 10.20-2g s/n 01260 © 2022 HydroCAD Software Solutions LLC

Center-of-Mass det. time= 41.8 min ( 939.9 - 898.1 )

Volume	Inve	rt Avail.Sto	rage Storage	e Description	
#1	60.0	0' 141,42	27 cf Custon	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio	on	Surf.Area	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
60.0	00	3,955	0	0	
62.0	00	31,236	35,191	35,191	
64.0	00	75,000	106,236	141,427	
Device	Routing	Invert	Outlet Device	es	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet n= 0.013 Co	<b>d Culvert</b> P, mitered to cor Invert= 60.00' / 5 prrugated PE, sm	nform to fill, Ke= 0.700 i9.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf
#2	Seconda	ry 63.00'	<b>10.0' long x</b> Head (feet) ( Coef. (Englis	<b>20.0' breadth B</b> 0.20 0.40 0.60 h) 2.68 2.70 2.	road-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.11 cfs @ 12.71 hrs HW=61.59' (Free Discharge) **1=Culvert** (Inlet Controls 10.11 cfs @ 3.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

## Summary for Link AP-1:

Inflow Area = 26.574 ac, 0.54% Impervious, Inflow Depth > 1.20" for 2-Year event Inflow = 10.11 cfs @ 12.71 hrs, Volume= 2.655 af Primary = 10.11 cfs @ 12.71 hrs, Volume= 2.655 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Link AP-2:

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 1.03" for 2-Year event Inflow = 40.69 cfs @ 12.73 hrs, Volume= 7.085 af Primary = 40.69 cfs @ 12.73 hrs, Volume= 7.085 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

The Grange Hall_PRE_04252023	<b>3</b> NRCC 24-hr D 10	0-Year Rainfall=4.60"
Prepared by Sevee & Maher Engine	ers	Printed 4/25/2023
HydroCAD® 10.20-2g s/n 01260 © 2022 H	HydroCAD Software Solutions LLC	Page 8
Time span=0 Runoff by SCS Reach routing by Stor-Inc	0.00-30.00 hrs, dt=0.01 hrs, 3001 points S TR-20 method, UH=SCS, Weighted-CN d+Trans method - Pond routing by Stor-Ind	method
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,157,563 sf 0.54% Impervie Flow Length=1,045' Tc=24.6 min CN=78 R	ous Runoff Depth=2.38" unoff=40.08 cfs 5.261 af
SubcatchmentSC-2: Tree, Grass, Flow Leng	Runoff Area=3,607,020 sf 0.31% Impervie th=994' Tc=33.4 min UI Adjusted CN=75 Ru	ous Runoff Depth=2.13" noff=94.73 cfs 14.691 af
Reach 1R: Drainage n=0.040 L=1,2	Avg. Flow Depth=1.30' Max Vel=3.26 fps In 281.0' S=0.0094 '/' Capacity=231.29 cfs Out	flow=94.73 cfs  14.691 af flow=90.77 cfs  14.691 af
Pond 1P: 24" Existing Culvert Primary=16.33 (	Peak Elev=62.50' Storage=53,447 cf I cfs 5.257 af Secondary=0.00 cfs 0.000 af Ou	nflow=40.08 cfs  5.261 af tflow=16.33 cfs  5.257 af
Link AP-1:	l Pri	nflow=16.33 cfs  5.257 af mary=16.33 cfs  5.257 af
Link AP-2:	In Prin	flow=90.77 cfs  14.691 af nary=90.77 cfs  14.691 af
Total Runoff Area = 109.38	30 ac Runoff Volume = 19.952 af Averag 99.64% Pervious = 108.983 ac  0.36%	ge Runoff Depth = 2.19" Impervious = 0.397 ac

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 40.08 cfs @ 12.35 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 5.261 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

A	rea (sf)	CN I	Description								
2	73,224	80 :	>75% Grass cover, Good, HSG D								
	1,133	96	Gravel surfa	ace, HSG D	)						
8	70,741	77 \	Woods, Go	od, HSG D							
	12,465	93	Paved road	s w/open d	litches, 50% imp, HSG D						
1,1	57,563	78	Weighted A	verage							
1,1	51,331	9	99.46% Pei	vious Area							
	6,233	(	0.54% Impe	ervious Area	а						
-		<u></u>		<b>a</b>							
	Length	Slope	Velocity	Capacity	Description						
(min)	(feet)	(ft/ft)	(ft/sec)	(CIS)							
5.7	100	0.0800	0.29		Sheet Flow, A-B						
					Grass: Short n= 0.150 P2= 3.10"						
3.9	254	0.0240	1.08		Shallow Concentrated Flow, B-C						
					Short Grass Pasture Kv= 7.0 fps						
6.8	257	0.0160	0.63		Shallow Concentrated Flow, C-D						
0.0	40.4	0.0400	0.00		Woodland Kv= 5.0 fps						
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E						
					Short Grass Pasture KV= 7.0 fps						

24.6 1,045 Total

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 94.73 cfs @ 12.47 hrs, Volume= 14.691 af, Depth= 2.13" Routed to Reach 1R : Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

Area (sf)	CN	Adj	Description
877,902	80		>75% Grass cover, Good, HSG D
3,979	98		Unconnected roofs, HSG D
13,496	96		Gravel surface, HSG D
1,926,279	77		Woods, Good, HSG D
545,165	70		Woods, Good, HSG C
214,485	55		Woods, Good, HSG B
11,559	74		>75% Grass cover, Good, HSG C
14,155	93		Paved roads w/open ditches, 50% imp, HSG D
3,607,020	76	75	Weighted Average, UI Adjusted
3,595,964			99.69% Pervious Area
11,057			0.31% Impervious Area
3,979			35.99% Unconnected

## The Grange Hall\_PRE\_04252023

NRCC 24-hr D	10-Year Rainfall=4.60"
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Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
2.0	172	0.0400	1.40		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
22.6	479	0.0050	0.35		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, D-E
					Woodland Kv= 5.0 fps

33.4 994 Total

#### Summary for Reach 1R: Drainage

 Inflow Area =
 82.806 ac,
 0.31% Impervious, Inflow Depth =
 2.13" for 10-Year event

 Inflow =
 94.73 cfs @
 12.47 hrs, Volume=
 14.691 af

 Outflow =
 90.77 cfs @
 12.66 hrs, Volume=
 14.691 af, Atten= 4%, Lag= 11.3 min

 Routed to Link AP-2 :
 12.66 hrs, Volume=
 14.691 af, Atten= 4%, Lag= 11.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.26 fps, Min. Travel Time= 6.6 min Avg. Velocity = 1.19 fps, Avg. Travel Time= 17.9 min

Peak Storage= 35,718 cf @ 12.55 hrs Average Depth at Peak Storage= 1.30', Surface Width= 32.22' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



## Summary for Pond 1P: 24" Existing Culvert

Inflow Are	a =	26.574 ac,	0.54% Imp	ervious,	Inflow Depth	= 2.	<b>38</b> " t	for	10-Ye	ear eve	nt
Inflow	=	40.08 cfs @	12.35 hrs,	Volume	= 5.2	61 af					
Outflow	=	16.33 cfs @	12.79 hrs,	Volume	= 5.2	57 af,	Atter	า= 5	<b>9%</b> , I	Lag= 2	6.0 min
Primary	=	16.33 cfs @	12.79 hrs,	Volume	= 5.2	57 af				•	
Routed	l to Link	AP-1 :									
Secondary	y =	0.00 cfs @	0.00 hrs,	Volume	= 0.0	00 af					
Routed	I to Link	AP-1 :									

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 62.50' @ 12.79 hrs Surf.Area= 42,126 sf Storage= 53,447 cf

Plug-Flow detention time= 44.4 min calculated for 5.255 af (100% of inflow)

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Center-of-Mass det. time= 44.0 min (916.6 - 872.6)

Volume	Inve	ert Avail.Sto	rage Storage	Description	
#1	60.0	0' 141,4	27 cf Custon	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio	on	Surf.Area	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
60.0	00	3,955	0	0	
62.0	00	31,236	35,191	35,191	
64.0	00	75,000	106,236	141,427	
Device	Routing	Invert	Outlet Device	s	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet I n= 0.013 Co	<b>I Culvert</b> P, mitered to cor Invert= 60.00' / 5 rrugated PE, sm	nform to fill, Ke= 0.700 i9.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf
#2	Seconda	ry 63.00'	<b>10.0' long x</b> Head (feet) ( Coef. (Englisl	<b>20.0' breadth B</b> 0.20 0.40 0.60 h) 2.68 2.70 2.	road-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=16.33 cfs @ 12.79 hrs HW=62.50' (Free Discharge) **1=Culvert** (Inlet Controls 16.33 cfs @ 5.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

## Summary for Link AP-1:

Inflow Area = 26.574 ac, 0.54% Impervious, Inflow Depth > 2.37" for 10-Year event Inflow = 16.33 cfs @ 12.79 hrs, Volume= 5.257 af Primary = 16.33 cfs @ 12.79 hrs, Volume= 5.257 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Link AP-2:

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 2.13" for 10-Year event Inflow = 90.77 cfs @ 12.66 hrs, Volume= 14.691 af Primary = 90.77 cfs @ 12.66 hrs, Volume= 14.691 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

The Grange Hall_PRE_0425202	<b>3</b> NRCC 24-hr D 25-	Year Rainfall=5.80"
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Time span= Runoff by SC Reach routing by Stor-In	0.00-30.00 hrs, dt=0.01 hrs, 3001 points S TR-20 method, UH=SCS, Weighted-CN d+Trans method - Pond routing by Stor-Ind r	nethod
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,157,563 sf 0.54% Imperviou Flow Length=1,045' Tc=24.6 min CN=78 Run	is Runoff Depth=3.40" noff=57.44 cfs 7.536 af
SubcatchmentSC-2: Tree, Grass, Flow Lengt	Runoff Area=3,607,020 sf 0.31% Imperviou h=994' Tc=33.4 min UI Adjusted CN=75 Runof	is Runoff Depth=3.11" f=139.57 cfs 21.477 af
Reach 1R: Drainage n=0.040 L=1,2	Avg. Flow Depth=1.56' Max Vel=3.68 fps Inflov 81.0' S=0.0094 '/' Capacity=231.29 cfs Outflov	v=139.57 cfs  21.477 af v=135.00 cfs  21.476 af
Pond 1P: 24" Existing Culvert Primary=19.45	Peak Elev=63.12' Storage=84,142 cf Inf cfs 7.493 af Secondary=1.18 cfs 0.038 af Outf	low=57.44 cfs  7.536 af low=20.63 cfs  7.531 af
Link AP-1:	Inf Prim	low=20.63 cfs  7.531 af ary=20.63 cfs  7.531 af
Link AP-2:	Inflov Primar	v=135.00 cfs  21.476 af y=135.00 cfs  21.476 af
Total Runoff Area = 109.3	80 ac Runoff Volume = 29.012 af Average 99.64% Pervious = 108.983 ac 0.36%	Runoff Depth = 3.18" mpervious = 0.397 ac

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 57.44 cfs @ 12.35 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 7.536 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

A	rea (sf)	CN	Description							
2	73,224	80	80 >75% Grass cover, Good, HSG D							
	1,133	96	Gravel surfa	ace, HSG D	)					
8	70,741	77	Woods, Go	od, HSG D						
	12,465	93	Paved road	s w/open d	litches, 50% imp, HSG D					
1,157,563		78	Weighted Average							
1,1	51,331	9	99.46% Pei	vious Area						
6,233 0.54% Impervious Are				ervious Area	а					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
5.7	100	0.0800	0.29		Sheet Flow, A-B					
					Grass: Short n= 0.150 P2= 3.10"					
3.9	254	0.0240	1.08		Shallow Concentrated Flow, B-C					
					Short Grass Pasture Kv= 7.0 fps					
6.8	257	0.0160	0.63		Shallow Concentrated Flow, C-D					
					Woodland Kv= 5.0 fps					
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E					
					Short Grass Pasture Kv= 7.0 fps					

24.6 1,045 Total

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 139.57 cfs @ 12.46 hrs, Volume= 21.477 af, Depth= 3.11" Routed to Reach 1R : Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

Area (sf)	CN	Adj	Description
877,902	80		>75% Grass cover, Good, HSG D
3,979	98		Unconnected roofs, HSG D
13,496	96		Gravel surface, HSG D
1,926,279	77		Woods, Good, HSG D
545,165	70		Woods, Good, HSG C
214,485	55		Woods, Good, HSG B
11,559	74		>75% Grass cover, Good, HSG C
14,155	93		Paved roads w/open ditches, 50% imp, HSG D
3,607,020	76	75	Weighted Average, UI Adjusted
3,595,964			99.69% Pervious Area
11,057			0.31% Impervious Area
3,979			35.99% Unconnected

## The Grange Hall\_PRE\_04252023

NRCC 24-hr D	25-Year Rainfall=5.80"
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Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
2.0	172	0.0400	1.40		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
22.6	479	0.0050	0.35		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, D-E
					Woodland Kv= 5.0 fps

33.4 994 Total

#### Summary for Reach 1R: Drainage

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 3.11" for 25-Year event Inflow = 139.57 cfs @ 12.46 hrs, Volume= 21.477 af Outflow = 135.00 cfs @ 12.63 hrs, Volume= 21.476 af, Atten= 3%, Lag= 10.1 min Routed to Link AP-2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.68 fps, Min. Travel Time= 5.8 min Avg. Velocity = 1.31 fps, Avg. Travel Time= 16.3 min

Peak Storage= 47,037 cf @ 12.53 hrs Average Depth at Peak Storage= 1.56', Surface Width= 35.32' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



## Summary for Pond 1P: 24" Existing Culvert

Inflow Area =		26.574 ac,	0.54% Impe	rvious,	Inflow D	)epth =	3.40	" for	25-Y	′ear ev	rent
Inflow	=	57.44 cfs @	12.35 hrs,	Volume	=	7.536	af				
Outflow	=	20.63 cfs @	12.84 hrs,	Volume	=	7.531	af, A	Atten= 6	64%,	Lag=	29.3 min
Primary	=	19.45 cfs @	12.84 hrs,	Volume	=	7.493	af			U	
Routed	l to Link	AP-1 :									
Secondar	y =	1.18 cfs @	12.84 hrs,	Volume	=	0.038	af				
Routed	to Link	AP-1 :									

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 63.12' @ 12.84 hrs Surf.Area= 55,839 sf Storage= 84,142 cf

Plug-Flow detention time= 49.8 min calculated for 7.529 af (100% of inflow)

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Volume Invert Avail.Storage Storage Description Custom Stage Data (Prismatic)Listed below (Recalc) #1 60.00' 141,427 cf Elevation Surf.Area Inc.Store Cum.Store (cubic-feet) (feet) (sq-ft) (cubic-feet) 60.00 3.955 0 0 62.00 31.236 35,191 35,191 64.00 75,000 106.236 141,427 Device Routing Invert **Outlet Devices** #1 Primary 60.00' 24.0" Round Culvert L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 60.00' / 59.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf 10.0' long x 20.0' breadth Broad-Crested Rectangular Weir #2 Secondary 63.00' 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

Center-of-Mass det. time= 49.5 min ( 908.8 - 859.3 )

**Primary OutFlow** Max=19.45 cfs @ 12.84 hrs HW=63.12' (Free Discharge) **1=Culvert** (Inlet Controls 19.45 cfs @ 6.19 fps)

Secondary OutFlow Max=1.17 cfs @ 12.84 hrs HW=63.12' (Free Discharge) 2=Broad-Crested Rectangular Weir (Weir Controls 1.17 cfs @ 0.94 fps)

#### Summary for Link AP-1:

Inflow Area = 26.574 ac, 0.54% Impervious, Inflow Depth > 3.40" for 25-Year event Inflow = 20.63 cfs @ 12.84 hrs, Volume= 7.531 af Primary = 20.63 cfs @ 12.84 hrs, Volume= 7.531 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Link AP-2:

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 3.11" for 25-Year event Inflow = 135.00 cfs @ 12.63 hrs, Volume= 21.476 af Primary = 135.00 cfs @ 12.63 hrs, Volume= 21.476 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs


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### Area Listing (all nodes)

Area	CN	Description
 (acres)		(subcatchment-numbers)
0.265	74	>75% Grass cover, Good, HSG C (SC-2)
25.819	80	>75% Grass cover, Good, HSG D (SC-1, SC-2)
1.535	98	Paved parking, HSG D (SC-2)
0.286	98	Paved roads w/curbs & sewers, HSG D (SC-1)
0.018	98	Unconnected roofs, HSG C (SC-2)
0.183	98	Unconnected roofs, HSG D (SC-2)
4.924	55	Woods, Good, HSG B (SC-2)
12.497	70	Woods, Good, HSG C (SC-2)
63.851	77	Woods, Good, HSG D (SC-1, SC-2)
109.380	76	TOTAL AREA

## Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
4.924	HSG B	SC-2
12.781	HSG C	SC-2
91.675	HSG D	SC-1, SC-2
0.000	Other	
109.380		TOTAL AREA

The Grange Hall_POST_0425202	23 NRCC 24-hr D 2-Year Rainfall=3.10"
Prepared by Sevee & Maher Engine	ers Printed 4/25/2023
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Time span=0 Runoff by SCS Reach routing by Stor-Inc	0.00-30.00 hrs, dt=0.01 hrs, 3001 points S TR-20 method, UH=SCS, Weighted-CN d+Trans method . Pond routing by Stor-Ind method
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,119,751 sf 1.11% Impervious Runoff Depth=1.20" Flow Length=930' Tc=27.8 min CN=78 Runoff=17.99 cfs 2.572 af
SubcatchmentSC-2: Tree, Grass,	Runoff Area=3,644,832 sf 2.08% Impervious Runoff Depth=1.08" Flow Length=1,030' Tc=33.3 min CN=76 Runoff=47.13 cfs 7.551 af
Reach 1R: Drainage n=0.040 L=1	Avg. Flow Depth=0.93' Max Vel=2.61 fps Inflow=47.13 cfs 7.551 af ,281.0' S=0.0094 '/' Capacity=231.29 cfs Outflow=44.05 cfs 7.551 af
Pond 1P: 24" Existing Culvert Primary=9.66	Peak Elev=61.54' Storage=22,211 cf Inflow=17.99 cfs 2.572 af cfs 2.568 af Secondary=0.00 cfs 0.000 af Outflow=9.66 cfs 2.568 af
Link AP-1:	Inflow=9.66 cfs 2.568 af
	Primary=9.66 cfs 2.568 af
Link AP-2:	Inflow=44.05 cfs 7.551 af
	Primary=44.05 cfs 7.551 af
Total Runoff Area = 109.38	30 ac_ Runoff Volume = 10 123 af_Average Runoff Depth = 1 11

Total Runoff Area = 109.380 ac Runoff Volume = 10.123 af Average Runoff Depth = 1.11" 98.15% Pervious = 107.357 ac 1.85% Impervious = 2.023 ac

### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 17.99 cfs @ 12.39 hrs, Volume= 2.572 af, Depth= 1.20" Routed to Pond 1P : 24" Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description					
	235,433	80	>75% Gras	s cover, Go	ood, HSG D			
	871,853	77	Woods, Go	od, HSG D				
	12,465	98	Paved road	ls w/curbs &	& sewers, HSG D			
1,	119,751	78	Weighted Average					
1,	107,286		98.89% Pe	rvious Area				
	12,465		1.11% Impe	ervious Area	а			
To	: Length	Slope	e Velocity	Capacity	Description			
(min)	) (feet)	(ft/ft	) (ft/sec)	(cfs)				
10.0	100	0.0200	0.17		Sheet Flow, A-B			
					Grass: Short n= 0.150 P2= 3.10"			
3.0	147	0.0140	0.83		Shallow Concentrated Flow, B-C			
					Short Grass Pasture Kv= 7.0 fps			
6.6	249	0.0160	0.63		Shallow Concentrated Flow, C-D			
					Woodland Kv= 5.0 fps			
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E			
					Short Grass Pasture Kv= 7.0 fps			
27.8	930	Total						

### 2110 000 10101

### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 47.13 cfs @ 12.47 hrs, Volume= Routed to Reach 1R : Drainage 7.551 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

Area (sf)	CN	Description
889,252	80	>75% Grass cover, Good, HSG D
7,988	98	Unconnected roofs, HSG D
66,879	98	Paved parking, HSG D
1,909,504	77	Woods, Good, HSG D
544,389	70	Woods, Good, HSG C
214,485	55	Woods, Good, HSG B
11,559	74	>75% Grass cover, Good, HSG C
776	98	Unconnected roofs, HSG C
3,644,832	76	Weighted Average
3,569,189		97.92% Pervious Area
75,643		2.08% Impervious Area
8,764		11.59% Unconnected

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.7	82	0.0750	1.92		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
0.1	42	0.0100	5.26	6.46	Pipe Channel, C-D
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
0.3	14	0.0100	0.70		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
1.2	64	0.0150	0.86		Shallow Concentrated Flow, E-F
					Short Grass Pasture Kv= 7.0 fps
1.0	36	0.0150	0.61		Shallow Concentrated Flow, F-G
					Woodland Kv= 5.0 fps
21.2	449	0.0050	0.35		Shallow Concentrated Flow, G-H
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, H-I
					Woodland Kv= 5.0 fps

33.3 1,030 Total

### Summary for Reach 1R: Drainage

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 1.08" for 2-Year event Inflow = 47.13 cfs @ 12.47 hrs, Volume= 7.551 af Outflow = 44.05 cfs @ 12.72 hrs, Volume= 7.551 af, Atten= 7%, Lag= 14.9 min Routed to Link AP-2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 2.61 fps, Min. Travel Time= 8.2 min Avg. Velocity = 1.02 fps, Avg. Travel Time= 21.0 min

Peak Storage= 21,640 cf @ 12.58 hrs Average Depth at Peak Storage= 0.93', Surface Width= 27.27' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'

‡

### Summary for Pond 1P: 24" Existing Culvert

Inflow Area = 25.706 ac. 1.11% Impervious, Inflow Depth = 1.20" for 2-Year event Inflow 17.99 cfs @ 12.39 hrs, Volume= 2.572 af = 9.66 cfs @ 12.76 hrs, Volume= Outflow = 2.568 af, Atten= 46%, Lag= 22.1 min 9.66 cfs @ 12.76 hrs, Volume= Primary = 2.568 af Routed to Link AP-1: Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Routed to Link AP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 61.54' @ 12.76 hrs Surf.Area= 24,932 sf Storage= 22,211 cf

Plug-Flow detention time= 42.8 min calculated for 2.568 af (100% of inflow) Center-of-Mass det. time= 41.9 min (943.0 - 901.1)

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	60.00	' 141,42	27 cf Custon	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio (fee	on S et)	ourf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
60.0 62.0 64.0	00 00 00	3,955 31,236 75,000	0 35,191 106,236	0 35,191 141,427	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet I n= 0.013 Co	<b>l Culvert</b> P, mitered to cou Invert= 60.00' / 5 rrugated PE, sm	nform to fill, Ke= 0.700 59.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf
#2	Secondary	/ 63.00'	<b>10.0' long x</b> Head (feet) ( Coef. (Englis)	<b>20.0' breadth B</b> 0.20 0.40 0.60 h) 2.68 2.70 2.	70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=9.66 cfs @ 12.76 hrs HW=61.54' (Free Discharge) **1=Culvert** (Inlet Controls 9.66 cfs @ 3.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

### Summary for Link AP-1:

Inflow Area = 25.706 ac, 1.11% Impervious, Inflow Depth > 1.20" for 2-Year event Inflow = 9.66 cfs @ 12.76 hrs, Volume= 2.568 af Primary = 9.66 cfs @ 12.76 hrs, Volume= 2.568 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

### Summary for Link AP-2:

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 1.08" for 2-Year event Inflow = 44.05 cfs @ 12.72 hrs, Volume= 7.551 af Primary = 44.05 cfs @ 12.72 hrs, Volume= 7.551 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

The Grange Hall_POST_04252023 Prepared by Sevee & Maher Engineer	NRCC 24-hr D         10-Year Rainfall=4.60"           rs         Printed         4/25/2023
HydroCAD® 10.20-2g s/n 01260 © 2022 Hy	rdroCAD Software Solutions LLC Page 9
Time span=0. Runoff by SCS Reach routing by Stor-Ind+	00-30.00 hrs, dt=0.01 hrs, 3001 points TR-20 method, UH=SCS, Weighted-CN -Trans method - Pond routing by Stor-Ind method
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,119,751 sf 1.11% Impervious Runoff Depth=2.38" Flow Length=930' Tc=27.8 min CN=78 Runoff=36.58 cfs 5.089 af
Subcatchment SC-2: Tree, Grass, Flo	Runoff Area=3,644,832 sf 2.08% Impervious Runoff Depth=2.21" w Length=1,030' Tc=33.3 min CN=76 Runoff=100.13 cfs 15.409 af
Reach 1R: Drainage A n=0.040 L=1,28	vg. Flow Depth=1.33' Max Vel=3.31 fps Inflow=100.13 cfs 15.409 af 31.0' S=0.0094 '/' Capacity=231.29 cfs Outflow=95.73 cfs 15.409 af
Pond 1P: 24" Existing Culvert Primary=15.92 cfs	Peak Elev=62.42' Storage=50,363 cf Inflow=36.58 cfs 5.089 af s 5.085 af Secondary=0.00 cfs 0.000 af Outflow=15.92 cfs 5.085 af
Link AP-1:	Inflow=15.92 cfs 5.085 af Primary=15.92 cfs 5.085 af
Link AP-2:	Inflow=95.73 cfs 15.409 af Primary=95.73 cfs 15.409 af
Total Runoff Area = 109.380	ac Runoff Volume = 20.498 af Average Runoff Depth = 2.25

... 98.15% Pervious = 107.357 ac 1.85% Impervious = 2.023 ac

### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 36.58 cfs @ 12.39 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 5.089 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

 A	rea (sf)	CN	Description					
2	35,433	80	>75% Grass cover, Good, HSG D					
8	71,853	77	Woods, Go	od, HSG D				
	12,465	98	Paved road	s w/curbs &	& sewers, HSG D			
1,1	19,751	78	Weighted A	verage				
1,1	07,286		98.89% Per	vious Area				
	12,465		1.11% Impe	ervious Area	а			
_		-		<b>-</b>				
ŢĊ	Length	Slope	e Velocity	Capacity	Description			
 (min)	(feet)	(ft/ft	) (ft/sec)	(cfs)				
10.0	100	0.0200	0.17		Sheet Flow, A-B			
					Grass: Short n= 0.150 P2= 3.10"			
3.0	147	0.0140	0.83		Shallow Concentrated Flow, B-C			
					Short Grass Pasture Kv= 7.0 fps			
6.6	249	0.0160	0.63		Shallow Concentrated Flow, C-D			
					Woodland Kv= 5.0 fps			
8.2	434	0.0160	) 0.89		Shallow Concentrated Flow, D-E			
					Short Grass Pasture Kv= 7.0 fps			
070	000	Total						

### 27.8 930 Total

### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 100.13 cfs @ 12.47 hrs, Volume= Routed to Reach 1R : Drainage 15.409 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

Area (sf)	CN	Description
889,252	80	>75% Grass cover, Good, HSG D
7,988	98	Unconnected roofs, HSG D
66,879	98	Paved parking, HSG D
1,909,504	77	Woods, Good, HSG D
544,389	70	Woods, Good, HSG C
214,485	55	Woods, Good, HSG B
11,559	74	>75% Grass cover, Good, HSG C
776	98	Unconnected roofs, HSG C
3,644,832	76	Weighted Average
3,569,189		97.92% Pervious Area
75,643		2.08% Impervious Area
8,764		11.59% Unconnected

### The Grange Hall\_POST\_04252023

Prepared by Sevee & Maher Engineers

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.7	82	0.0750	1.92		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
0.1	42	0.0100	5.26	6.46	Pipe Channel, C-D
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
0.3	14	0.0100	0.70		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
1.2	64	0.0150	0.86		Shallow Concentrated Flow, E-F
					Short Grass Pasture Kv= 7.0 fps
1.0	36	0.0150	0.61		Shallow Concentrated Flow, F-G
					Woodland Kv= 5.0 fps
21.2	449	0.0050	0.35		Shallow Concentrated Flow, G-H
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, H-I
					Woodland Kv= 5.0 fps

33.3 1,030 Total

### Summary for Reach 1R: Drainage

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 2.21" for 10-Year event Inflow = 100.13 cfs @ 12.47 hrs, Volume= 15.409 af Outflow = 95.73 cfs @ 12.66 hrs, Volume= 15.409 af, Atten= 4%, Lag= 11.3 min Routed to Link AP-2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.31 fps, Min. Travel Time= 6.5 min Avg. Velocity = 1.20 fps, Avg. Travel Time= 17.7 min

Peak Storage= 37,061 cf @ 12.55 hrs Average Depth at Peak Storage= 1.33', Surface Width= 32.62' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



NRCC 24-hr D 10-Year Rainfall=4.60" Printed 4/25/2023

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### Summary for Pond 1P: 24" Existing Culvert

Inflow Area = 25.706 ac. 1.11% Impervious, Inflow Depth = 2.38" for 10-Year event Inflow 36.58 cfs @ 12.39 hrs, Volume= 5.089 af = 15.92 cfs @ 12.84 hrs, Volume= Outflow = 5.085 af, Atten= 56%, Lag= 27.0 min 15.92 cfs @ 12.84 hrs, Volume= Primary = 5.085 af Routed to Link AP-1: Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Routed to Link AP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 62.42' @ 12.84 hrs Surf.Area= 40,493 sf Storage= 50,363 cf

Plug-Flow detention time= 44.0 min calculated for 5.083 af (100% of inflow) Center-of-Mass det. time= 43.5 min ( 919.1 - 875.6 )

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	60.00	)' 141,42	27 cf Custom	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio	on S et)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
60.0 62.0 64.0	00 00 00	3,955 31,236 75,000	0 35,191 106,236	0 35,191 141,427	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CPF Inlet / Outlet I n= 0.013 Cor <b>10.0' long</b>	I Culvert P, mitered to cor nvert= 60.00' / 5 rrugated PE, sm 20 0' breadth B	nform to fill, Ke= 0.700 i9.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf road-Crested Rectangular Weir
π2	Occondar	y 00.00	Head (feet) 0 Coef. (English	0.20 0.40 0.60 n) 2.68 2.70 2.	0.80 1.00 1.20 1.40 1.60 70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=15.92 cfs @ 12.84 hrs HW=62.42' (Free Discharge) **1=Culvert** (Inlet Controls 15.92 cfs @ 5.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

### Summary for Link AP-1:

Inflow Area = 25.706 ac, 1.11% Impervious, Inflow Depth > 2.37" for 10-Year event Inflow = 15.92 cfs @ 12.84 hrs, Volume= 5.085 af Primary = 15.92 cfs @ 12.84 hrs, Volume= 5.085 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

### Summary for Link AP-2:

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Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 2.21" for 10-Year event 95.73 cfs @ 12.66 hrs, Volume= 95.73 cfs @ 12.66 hrs, Volume= Inflow 15.409 af = = 15.409 af, Atten= 0%, Lag= 0.0 min Primary Routed to nonexistent node 4L

The Grange Hall_POST_04252	023	NRCC 24-hr D	25-Year Rainfall=5.80"
Prepared by Sevee & Maher Engir	neers		Printed 4/25/2023
HydroCAD® 10.20-2g s/n 01260 © 202.	2 HydroCAD Software Solut	IONS LLC	Page 14
Time span	=0.00-30.00 hrs, dt=0.01	hrs, 3001 points	nd method
Runoff by S	CS TR-20 method, UH=S	CS, Weighted-CN	
Reach routing by Stor-	Ind+Trans method - Pon	d routing by Stor-I	
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,119,	751 sf 1.11% Impei	vious Runoff Depth=3.40"
	Flow Length=930' Tc	=27.8 min CN=78	Runoff=52.46 cfs 7.289 af
SubcatchmentSC-2: Tree, Grass,	Runoff Area=3,644,	332 sf 2.08% Imper	vious Runoff Depth=3.21"
	Flow Length=1,030' Tc=3	3.3 min CN=76 R	unoff=146.15 cfs 22.370 af
Reach 1R: Drainage n=0.040 L=1	Avg. Flow Depth=1.59'	Max Vel=3.73 fps li	nflow=146.15 cfs 22.370 af
	,281.0' S=0.0094 '/' Capa	icity=231.29 cfs Ou	tflow=140.91 cfs 22.370 af
Pond 1P: 24" Existing Culvert	Peak Elev=63.05'	Storage=80,038 cf	Inflow=52.46 cfs
Primary=19.1	1 cfs  7.278 af   Secondary=	€0.31 cfs_0.007 af	
Link AP-1:		I	Inflow=19.42 cfs
Link AP-2:		lı Pri	nflow=140.91 cfs 22.370 af mary=140.91 cfs 22.370 af
Total Runoff Area = 109.	380 ac Runoff Volume	= 29.660 af Ave	rage Runoff Depth = 3.25

Total Runoff Area = 109.380 ac Runoff Volume = 29.660 af Average Runoff Depth = 3.25" 98.15% Pervious = 107.357 ac 1.85% Impervious = 2.023 ac

### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 52.46 cfs @ 12.39 hrs, Volume= 7.289 af, Depth= 3.40" Routed to Pond 1P : 24" Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

Α	rea (sf)	CN [	Description		
2	35,433	80 >	>75% Gras	s cover, Go	ood, HSG D
8	71,853	77 \	Noods, Go	od, HSG D	
	12,465	98 F	Paved road	s w/curbs &	k sewers, HSG D
1,1	19,751	78 \	Neighted A	verage	
1,1	07,286	ę	98.89% Per	vious Area	
	12,465		1.11% Impe	ervious Area	a
_				_	
Tc	Length	Slope	Velocity	Capacity	Description
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)	
10.0	100	0.0200	0.17		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
3.0	147	0.0140	0.83		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
6.6	249	0.0160	0.63		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
27.8	930	Total			

## Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 146.15 cfs @ 12.47 hrs, Volume= Routed to Reach 1R : Drainage

22.370 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

Area (sf)	CN	Description
889,252	80	>75% Grass cover, Good, HSG D
7,988	98	Unconnected roofs, HSG D
66,879	98	Paved parking, HSG D
1,909,504	77	Woods, Good, HSG D
544,389	70	Woods, Good, HSG C
214,485	55	Woods, Good, HSG B
11,559	74	>75% Grass cover, Good, HSG C
776	98	Unconnected roofs, HSG C
3,644,832	76	Weighted Average
3,569,189		97.92% Pervious Area
75,643		2.08% Impervious Area
8,764		11.59% Unconnected

### The Grange Hall\_POST\_04252023

Prepared by Sevee & Maher Engineers

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.7	82	0.0750	1.92		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
0.1	42	0.0100	5.26	6.46	Pipe Channel, C-D
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
0.3	14	0.0100	0.70		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
1.2	64	0.0150	0.86		Shallow Concentrated Flow, E-F
					Short Grass Pasture Kv= 7.0 fps
1.0	36	0.0150	0.61		Shallow Concentrated Flow, F-G
					Woodland Kv= 5.0 fps
21.2	449	0.0050	0.35		Shallow Concentrated Flow, G-H
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, H-I
					Woodland Kv= 5.0 fps

33.3 1,030 Total

### Summary for Reach 1R: Drainage

 Inflow Area =
 83.674 ac, 2.08% Impervious, Inflow Depth = 3.21" for 25-Year event

 Inflow =
 146.15 cfs @
 12.47 hrs, Volume=
 22.370 af

 Outflow =
 140.91 cfs @
 12.63 hrs, Volume=
 22.370 af, Atten= 4%, Lag= 9.7 min

 Routed to Link AP-2 :
 8

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.73 fps, Min. Travel Time= 5.7 min Avg. Velocity = 1.32 fps, Avg. Travel Time= 16.1 min

Peak Storage= 48,454 cf @ 12.53 hrs Average Depth at Peak Storage= 1.59' , Surface Width= 35.67' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



NRCC 24-hr D 25-Year Rainfall=5.80" Printed 4/25/2023

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### Summary for Pond 1P: 24" Existing Culvert

Inflow Area = 25.706 ac. 1.11% Impervious, Inflow Depth = 3.40" for 25-Year event Inflow 52.46 cfs @ 12.39 hrs, Volume= 7.289 af = 19.42 cfs @ 12.91 hrs, Volume= Outflow = 7.285 af, Atten= 63%, Lag= 31.5 min 19.11 cfs @ 12.91 hrs, Volume= Primary = 7.278 af Routed to Link AP-1 : Secondary = 0.31 cfs @ 12.91 hrs, Volume= 0.007 af Routed to Link AP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 63.05' @ 12.91 hrs Surf.Area= 54,207 sf Storage= 80,038 cf

Plug-Flow detention time= 49.4 min calculated for 7.285 af (100% of inflow) Center-of-Mass det. time= 49.0 min (911.3 - 862.2)

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	60.00	' 141,42	27 cf Custon	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio (fee	on S et)	ourf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
60.0 62.0 64.0	00 00 00	3,955 31,236 75,000	0 35,191 106,236	0 35,191 141,427	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet I n= 0.013 Co	<b>l Culvert</b> P, mitered to cou Invert= 60.00' / 5 rrugated PE, sm	nform to fill, Ke= 0.700 59.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf
#2	Secondary	/ 63.00'	<b>10.0' long x</b> Head (feet) ( Coef. (Englis)	<b>20.0' breadth B</b> 0.20 0.40 0.60 h) 2.68 2.70 2.	70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=19.11 cfs @ 12.91 hrs HW=63.05' (Free Discharge) **1=Culvert** (Inlet Controls 19.11 cfs @ 6.08 fps)

Secondary OutFlow Max=0.30 cfs @ 12.91 hrs HW=63.05' (Free Discharge) 2=Broad-Crested Rectangular Weir (Weir Controls 0.30 cfs @ 0.60 fps)

### Summary for Link AP-1:

Inflow Area = 25.706 ac, 1.11% Impervious, Inflow Depth > 3.40" for 25-Year event Inflow = 19.42 cfs @ 12.91 hrs, Volume= 7.285 af Primary = 19.42 cfs @ 12.91 hrs, Volume= 7.285 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

### Summary for Link AP-2:

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 3.21" for 25-Year event Inflow = 140.91 cfs @ 12.63 hrs, Volume= 22.370 af Primary = 140.91 cfs @ 12.63 hrs, Volume= 22.370 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

**ATTACHMENT 4** 

**REVISED PLAN SET** 



# SYNERGOSITY, LLC THE GRANGE HALL PUB AT LONGWOODS PRESERVE CUMBERLAND, MAINE

# LOCATION MAP



TITLE	DWG NO
COVER SHEET	
GENERAL NOTES, LEGEND, AND ABBREVIATIONS	C-100
EXISTING CONDITIONS AND CLEARING PLAN	C-101
SITE OVERVIEW PLAN	C-102
SITE LAYOUT PLAN	C-103
SITE UTILITY PLAN	C-104
SITE GRADING, DRAINAGE, AND EROSION CONTROL PLAN	C-105
ACCESS DRIVE PLAN AND PROFILE	C-200
EROSION CONTROL NOTES AND DETAILS	C-300
SECTIONS AND DETAILS	C-301
SECTIONS AND DETAILS	C-302
SECTIONS AND DETAILS	C-303
STORMWATER MANAGEMENT PLAN PRE-DEVELOPMENT CONDITIONS	D-100
STORMWATER MANAGEMENT PLAN POST DEVELOPMENT CONDITIONS	D-101
EXISTING CONDITIONS SURVEY	1



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## **GENERAL SITE NOTES:**

- 1. BASE MAP FROM PLAN TITLED "EXISTING CONDITIONS SURVEY FOR ALEXANDER TIMPSON OF 76 LONGWOODS ROAD CUMBERLAND MAINE" PREPARED BY BOUNDARY POINTS PROFESSIONAL LAND SURVEYING, LLC, DATED 8-31-2021.
- 2. EXISTING TOPOGRAPHY WITHIN THE WORK AREA FROM SME TOPOGRAPHIC SURVEY, DATED 4/3/2023. EXISTING TOPOGRAPHY OUTSIDE OF THE WORK AREA FROM MAINE GIS DATA CATALOG, BASED OFF OF LIDAR INFORMATION COLLECTED AND UPDATED IN 2019. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- 3. EXISTING WETLANDS DELINEATED BY COPPI ENVIRONMENTAL, LLC, DATED 4/11/2022.
- 4. PORTIONS OF THE PROPERTY, OUTSIDE OF THE DEVELOPMENT AREA, ARE MAPPED WITHIN FLOOD ZONE A (AREAS OF 100-YEAR FLOOD) PER FEMA FLOOD MAP PANEL 2301620015B, EFFECTIVE DATE MAY 19, 1981.
- 5. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH THAT PORTION OF WORK.
- 6. ALL SITE AND CONSTRUCTION ACTIVITIES SHALL BE IN COMPLIANCE WITH MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS, AND EXISTING FEDERAL, STATE, AND LOCAL PERMITS AND PERMITTING REQUIREMENTS FOR THE SITE.
- 7. PAVEMENT EDGES SHALL BE TRUE TO LINE. SAWCUT EXISTING PAVEMENT IN SMOOTH STRAIGHT LINE WHERE NEW PAVEMENT JOINS. PROVIDE TACK COAT LAYER IF SPECIFIED.

## SURVEYOR'S NOTES

- 1. THIS SURVEY PLAN IS COPYRIGHT PROTECTED. THIS PLAN IS THE PROPERTY OF BOUNDARY POINTS, AND SHALL NOT BE USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF AN AUTHORIZED AGENT OF BOUNDARY POINTS. ALL RIGHTS RESERVED
- 2. THIS SURVEY PLAN IS ONLY VALID IF AUTHENTIC EMBOSSED SEAL AND SIGNATURE OF CERTIFYING PROFESSIONAL APPEAR ON THE FACE OF THIS SURVEY PLAN.
- 3. REFERENCE IS MADE TO THE CONTRACTUAL AGREEMENT BETWEEN THE PROFESSIONAL LAND SURVEYOR AND THE CLIENT.
- 4. THIS SURVEY PLAN IS SUBJECT TO POSSIBLE REVISION UPON RECEIPT OF A CERTIFIED TITLE OPINION.
- 5. ON THE BASIS OF MY KNOWLEDGE, INFORMATION AND BELIEF I CERTIFY EXCLUSIVELY TO THE CLIENT THAT THIS SURVEY PLAN, MADE TO THE NORMAL STANDARD OF CARE, SUBSTANTIALLY CONFORMS TO THE MAIN BOARD OF LICENSURE FOR LAND SURVEYOR STANDARDS.
- 6. NO CERTIFICATION IS MADE TO THE EXISTENCE OR NONEXISTENCE OF HAZARDOUS SUBSTANCES ENVIRONMENTALLY SENSITIVE AREAS, UNDERGROUND UTILITIES, UNDERGROUND STRUCTURES, ZONING REGULATIONS OR REAL ESTATE TITLE.
- 7. DIG SAFE MUST BE CONTACTED AND CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND DIMENSIONS OF ALL UTILITIES PRIOR TO EXCAVATION.
- 8. THE SOURCE OF BEARINGS FOR THIS LAND SURVEY WAS N.A.D. GRID NORTH 1983 LOCATED IN THE WEST ZONE.
- 9. THE PROPERTY SURVEYED IS DESCRIBED IN A DEED TO DANIEL VILLACI DATED 5-13-2002 BOOK 17630, PAGE 14 AND 16 RECORDED IN THE LOCAL REGISTRY OF DEEDS.
- 10. THE PROPERTY IS DEPICTED ON THE TOWN ASSESSOR'S MAP R3 AS LOTS 6A AND 13.

LT

## **GRADING NOTES:**

- EROSION POTENTIAL, AND STABILIZE WITH SEED AND MULCH.
- STABILIZATION WITHIN 7 DAYS OF FINAL GRADING.

## UTILITY NOTES:

- PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.
- CUMBERLAND AND MEDOT.
- MUNICIPAL STANDARDS.

## **DIG SAFE NOTES:**

## FOLLOWING MINIMUM MEASURES:

- KNOW WHERE TO MARK THEIR LINES.

- AS-BUILT DRAWINGS.
- OTHER REASON.
- REQUIREMENTS.
- SAFEGUARD HEALTH AND PROPERTY.
- PUC AT 1-800-452-4699.

# **TYPICAL ABBREVIATIONS:**

ACCMP ACP AGG ALUM APPD APPROX ARMH ASB ASP AUTO AUX AVE AZ	ASPHALT COATED CMP ASBESTOS CEMENT PIPE ACRE AGREGATE ALUMINUM APPROVED APPROXIMATE AIR RELEASE MANHOLE ASBESTOS ASPHALT AUTOMATIC AUXILIARY AVENUE AZIMUTH
BCCMP	BITUMINOUS COATED CMP
BM	BENCH MARK
BIT	BITUMINOUS
BLDG	BUILDING
BOT	BOTTOM
BRG	BEARING
BV	BALL VALVE
CB	CATCH BASIN
CEN	CENTER
CEM LIN	CEMENT LINED
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CL	CLASS
CONC	CONCRETE
CONST	CONSTRUCTION
CONTR	CONTRACTOR
CS	CURB STOP
CTR	CENTER
CU	COPPER
CY	CUBIC YARD
D DBL DEG OR ° DEPT DI DIA OR Ø DIM DIST DN DR DR DWG	DEGREE OF CURVE DOUBLE DEGREE DEPARTMENT DUCTILE IRON DIAMETER DIMENSION DISTANCE DOWN DRAIN DRAWING

<u>1101</u>		
EA EG ELEC EL ELB	EACH EXISTING GROUND OR GRADE ELECTRIC ELEVATION ELBOW	NITC NTS N/F NO OI
EOP EQUIP EST	EDGE OF PAVEMENT EQUIPMENT ESTIMATED	OC OD
EXC EXIST	EXCAVATE EXISTING	PC PD PI
FI FG FBRGL FDN FLEX FLG FLR FPS FT OR '	FIELD INLET FINISH GRADE FIBERGLASS FOUNDATION FLEXIBLE FLANGE FLOOR FEET PER SECOND FEET FEOTING	PIV PT PERF PP PSI PVC PVMT
GA GAL GALV GPD GPM	GAUGE GALLON GALVANIZED GALLONS PER DAY GALLONS PER MINUTE	RCP ROW RAD REQD RT RTF
HDPE HORIZ HP HYD	HIGH DENSITY POLYETHYLENE HORIZONTAL HORSEPOWER HYDRANT	S SCH SF SHT
ID IN OR " INV INV EL	INSIDE DIAMETER INCHES INVERT INVERT ELEVATION	SMH ST STA SY
LB LC LD LF	POUND LEACHATE COLLECTION LEAK DETECTION LINEAR FEET	TDH TEMP TYP
LOC LT	LOCATION LEACHATE TRANSPORT	UD V
MDOT MH	MAINE DEPARTMENT OF TRANSPORTATION MANHOLE	VATE
MJ MATL MAX	MECHANICAL JOINT MATERIAL MAXIMUM	WG W/
MFR MIN MISC MON	MANUFACTURE MINIMUM MISCELLANEOUS MONUMENT	W/O YD

its i/f io or #	Not to so Now or F Number
)C )D	on cente Outside I
PC PD PIV PIV PERF PP PSI PVC PVMT	POINT OF PERIMETE POINT OF POST IND POINT OF PERFORAT POWER PO POUNDS F POLYVINY PAVEMENT
QTY	QUANTITY
RCP ROW RAD REQD RT RTE	REINFORC RIGHT OF RADIUS REQUIREL RIGHT ROUTE
5 SCH SF SHT SMH ST STA STA SY FAN FOH FEMP FYP	SLOPE SCHEDULI SQUARE F SHEET SANITARY STREET STATION SQUARE Y TANGENT TOTAL DY TEMPORA TYPICAL
JD	UNDERDR
/ /A TEE /ERT	VOLTS VALVE AN VERTICAL
NG N/ N/O	WATER GA WITH WITHOUT
/D	YARD

NOT IN THIS CONTRACT
NOT TO SCALE
NOW OR FORMERLY
NUMBER

CENTER JTSIDE DIAMETER

### DINT OF CURVE RIMETER DRAIN DINT OF INTERSECTION OST INDICATOR VALVE

DINT OF TANGENT REORATED ower Pole OUNDS PER SQUARE INCH

OLYVINYL CHLORIDE VEMENT

JANTITY

INFORCED CONCRETE PIPE GHT OF WAY

- QUIRED GHT
- DUTE
- .ope Chedule QUARE FEET
- FFT NITARY MANHOLE
- TREET ATION
- QUARE YARD ANGENT
- DTAL DYNAMIC HEAD **MPORARY**
- PICAL NDERDRAIN
- OLTS ALVE ANCHORING TEE
- ERTICAL

ATER GATE ΤН ITHOUT

1. ADD 4" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL SLOPES STEEPER THAN 3:1, AND ALONG DITCH CHANNELS.

2. MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE FULL DURATION OF CONSTRUCTION. INSPECT WEEKLY AND AFTER EACH STORM AND REPAIR AS NEEDED. REMOVE SEDIMENTS FROM THE SITE. PLACE IN AREA OF LOW

3. PLACE TEMPORARY SOIL STABILIZATION WITHIN 7 DAYS OF INITIAL DISTURBANCE. PLACE PERMANENT SOIL

1. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER

2. COORDINATE WORK ON UTILITY LINES OR WITHIN ROAD RIGHT-OF-WAY WITH THE UTILITY COMPANIES AND TOWN OF

3. ALL PIPING AND DRAINAGE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWN OF CUMBERLAND

PRIOR TO EXCAVATION, VERIFY THE UNDERGROUND UTILITIES, PIPES, STRUCTURES AND FACILITIES. PROVIDE THE

1. PRE-MARK THE BOUNDARIES OF PLANNED EXCAVATION WITH WHITE PAINT, FLAGS OR STAKES, SO UTILITY CREWS

2. CALL DIG SAFE, AT 811, AT LEAST THREE BUSINESS DAYS - BUT NO MORE THAN 30 CALENDAR DAYS - BEFORE STARTING WORK. DO NOT ASSUME SOMEONE ELSE WILL MAKE THE CALL.

3. IF BLASTING, NOTIFY DIG SAFE AT LEAST ONE BUSINESS DAY IN ADVANCE.

4. WAIT THREE BUSINESS DAYS FOR LINES TO BE LOCATED AND MARKED WITH COLOR-CODED PAINT, FLAGS OR STAKES. NOTE THE COLOR OF THE MARKS AND THE TYPE OF UTILITIES THEY INDICATE. TRANSFER THESE MARKS TO THE

5. CONTACT THE LANDOWNER AND OTHER "NON-MEMBER" UTILITIES (WATER, SEWER, GAS, ETC.). FOR THEM TO MARK THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.

6. RE-NOTIFY DIG SAFE AND THE NON-MEMBER UTILITIES IF THE DIGGING, DRILLING OR BLASTING DOES NOT OCCUR WITHIN 30 CALENDAR DAYS, OR IF THE MARKS ARE LOST DUE TO WEATHER CONDITIONS, SITE WORK ACTIVITY OR ANY

7. HAND DIG WITHIN 18 INCHES IN ANY DIRECTION OF ANY UNDERGROUND LINE UNTIL THE LINE IS EXPOSED. MECHANICAL METHODS MAY BE USED FOR INITIAL SITE PENETRATION, SUCH AS REMOVAL OF PAVEMENT OR ROCK. 8. DIG SAFE REQUIREMENTS ARE IN ADDITION TO TOWN, CITY, AND/OR STATE DOT STREET OPENING PERMIT

9. FOR COMPLETE DIG SAFE REQUIREMENTS, CALL THE PUC OR VISIT THEIR WEBSITE.

10. IF YOU DAMAGE, DISLOCATE OR DISTURB ANY UNDERGROUND UTILITY LINE, IMMEDIATELY NOTIFY THE AFFECTED UTILITY. IF DAMAGE CREATES SAFETY CONCERNS, CALL THE FIRE DEPARTMENT AND TAKE IMMEDIATE STEPS TO

11. ANY TIME AN UNDERGROUND LINE IS DAMAGED OR DISTURBED OR IF LINES ARE IMPROPERLY MARKED, YOU MUST FILE AN INCIDENT REPORT WITH THE P.U.C. FOR AN INCIDENT REPORT FORM VISIT WWW.STATE.ME.US/MPUC OR CALL THE

## LEGEND

PROPOSED

\_\_\_\_

\_\_\_\//\_\_

## EXISTING



## **EROSION CONTROL LEGEND**

—— SF ———— SILT FENCE

\*\*\*

DOUBLE ROW OF SILT FENCE (AREAS ADJACENT TO WETLANDS) STABILIZED CONSTRUCTION ENTRANCE STONE CHECK DAMS

	JTR	5/2023	REVISED PER TOWN REVIEW COMMENTS	
	JTR	4/2023	REVISED PER OWNER COMMENTS	
	JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS	
	JTR	6/2022	ISSUED FOR TOWN REVIEW	
REV.	BY	DATE	STATUS	
HIM AT A PROVIDE A PROVIDA PROVIDE A PROVIDE A PROVIDE A PROVIDE A PROVIDE A PROVIDE A	E OF AN DANIEL DIFFIN 11841 CENSED		SYNERGOSITY, LLC THE GRANGE HALL PUB LONGWOODS PRESERV CUMBERLAND, MAINE GENERAL NOTES, LEGEND, AND AB	AT /E BREVIATIONS
			CME A	DESIGN BY: BAB
				DRAWN BY: SJM
				DATE: 5/2023
			ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE	CHECKED BY: JTR
			4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021	LMN: NONE
			Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com	CTB: SME-STD.CTB
			JOB NO. 21519 DWG FILE GEN-NOTES	C-100



vidds Alex Timpson)76 Longwoods RdiAcad/Plans\BASE dwg. C-101.5/10/2023 8:54:45 AM. s



## ZONING NOTES:

- 1. PROJECT INFORMATION:
- ADDRESS: 76 LONGWOODS ROAD CUMBERLAND, MAINE
- APPLICANT/OWNER: SYNERGOSITY, LLC

PROJECT: THE GRANGE HALL PUB AT LONGWOODS PRESERVE

- 2. ZONING DISTRICT: RURAL RESIDENTIAL 1 (RR1) (CONTRACT ZONE)
- 3. PROPOSED USE: RESTAURANT, FARM-BASED SPECIAL EVENTS, AND CONSERVATION EASEMENT

DIMENSIONAL STANDARDS (CZA ZONE):	

			REQUI	IRED	PROPOSED			
		MIN LOT SIZE:	2 ACR	ES	±6.5 ACRES			
MIN RO		MIN ROAD LENGTH:	NONE		±1300 FT			
FRO SIDE REA	NT: =: R:	SETBACKS: 15' 15' 15'		>15' >15' >15'				
		MIN LOT FRONTAGE:	200'		>200'			
		MAX BUILDING HEIGHT:	40'		28.5'			
5.	PARCEL	. ID: MAP R03/LOTS 6A A	ND 13					
6.	PROPOS	SED IMPERVIOUS AREAS:	43,115	5 SF (0.99 ACRES)				
7.	ALL PROJECT WORK LOCATED OUTSIDE OF THE 100-YEAR FLOOD ZONE.							
-								

8. PARKING SUMMARY: 1 PARKING SPACE PER 3 SEATS 120 SEATS/3 = 40 SPACES
3 ADDITIONAL SPACES FOR UP TO 9 EMPLOYEES 16 ADDITIONAL SPACES FOR PUBLIC TRAIL USE

REQUIREDPROPOSED40 SPACES43 SPACES

- 9. WETLANDS WILL BE IMPACTED FOR THE PROPOSED PROJECT: ±350 SF
- 10. OUTSIDE AGENCY APPROVALS:

MEDEP: STORMWATER PERMIT-BY-RULE MEDOT: DRIVEWAY ENTRANCE PERMIT

11. UTILITIES:

WATER - PRIMARY WELL SEWER - PRIVATE SEPTIC SYSTEM POWER - CENTRAL MAINE POWER

<u>NOTES</u>: 1. SEE DRAWING C-100 FOR GENERAL SITE NOTES AND PLAN REFERENCES.

- 2. AERIAL PHOTO FROM GOOGLE EARTH, DATED 5/4/2018.
- 3. THE CONCEPTUAL TRAIL SYSTEM WILL BE LOCATED IN THE FIELD BY THE CHEBEAGUE AND CUMBERLAND LAND TRUST, AND MAINE FARM TRUST IN COORDINATION WITH SYNERGOSITY. ALL TRAILS WILL BE FOOT PATHS.

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199									
Star in		JTR	5/2023	REVISED PER TOWN REVIEW COMMENTS					
Alton -		JTR	4/2023	REVISED PER OWNER COMMENTS					
and the		JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS					
		JTR	6/2022	ISSUED FOR TOWN REVIEW					
	REV.	BY	DATE	STATUS					
1 / M	DIFFIN DIFFIN DIFFIN 11841			SYNERGOSITY, LLC THE GRANGE HALL PUB AT LONGWOODS PRESERVE CUMBERLAND, MAINE					
ALC AND				SITE OVERVIEW PLAN					
S. Ma				SME	DESIGN BY: BAB				
300					DRAWN BY: SJM				
				ENGINEERS	DATE: 5/2023				
2011				ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIAN	NCE CHECKED BY: JTR				
and and				4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021	LMN: SITE-OVER				
F Her				Phone 207.829.5016 • Fax 207.829.5692 • sme-engineers.com	CTB: SME-STD.CTB				
2.15				JOB NO. 21519 DWG FILE BASE	C-102				







SITE GRADING, DRAINAGE, AND DESIGN BY: BAB DRAWN BY: SJM DATE: 5/2023

40 FEET



# **EROSION CONTROL NOTES:**

- A. GENERAL
- 1. All soil erosion and sediment control will be done in accordance with: (1) the Maine Erosion and Sediment Control Handbook: Best Management Practices, Maine Department of Environmental Protection (MEDEP), October 2016.
- 2. The site Contractor (to be determined) will be responsible for the inspection and repair/replacement/maintenance of all erosion control measures, disturbed areas, material storage areas, and vehicle access points until all disturbed areas are stabilized.
- 3. Disturbed areas will be permanently stabilized within 7 days of final grading. Disturbed areas not to be worked upon within 14 days of disturbance will be temporarily stabilized within 7 days of the disturbance.
- 4. In all areas, removal of trees, bushes and other vegetation, as well as disturbance of topsoil will be kept to a minimum while allowing proper site operations.
- 5. Any suitable topsoil will be stripped and stockpiled for reuse as directed by the Owner. Topsoil will be stockpiled in a manner such that natural drainage is not obstructed and no off-site sediment damage will result. In any event, stockpiles will not be located within 100 feet of wetlands and will be at least 50 feet upgradient of the stockpile's perimeter silt fence. The sideslopes of the topsoil stockpile will not exceed 2:1. Silt fence will be installed around the perimeter of all topsoil stockpiles. Topsoil stockpiles will be surrounded with siltation fencing and will be temporarily seeded with Aroostook rye, annual or perennial ryegrass within 7 days of formation, or temporarily mulched.
- 6. Winter excavation and earthwork will be completed so as to minimize exposed areas while satisfactorily completing the project. Limit exposed areas to those areas in which work is to occur during the following 15 days and that can be mulched in one day. All areas will be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded, and mulched.

Install any added measures necessary to control erosion/sedimentation. The particular measure used will be dependent upon site conditions, the size of the area to be protected, and weather conditions.

To minimize areas without erosion control protection, continuation of earthwork operations on additional areas will not begin until the exposed soil surface on the area being worked has been stabilized.

- **B. TEMPORARY MEASURES**
- 1. STABILIZED CONSTRUCTION ENTRANCE/EXIT

A crushed stone stabilized construction entrance/exit will be placed at any point of vehicular access to the site, in accordance with the detail shown on this sheet.

- 2. SILT FENCE
- a. Silt fence will be installed prior to all construction activity, where soil disturbance may result in erosion. Silt fence will be erected at locations shown on the plans and/or downgradient of all construction activity.
- b. Silt fences will be removed when they have served their useful purpose, but not before the upgradient areas have been permanently stabilized.
- c. Silt fences will be inspected immediately after each rainfall and at least daily during prolonged rainfall. They will be inspected if there are any signs of erosion or sedimentation below them. Any required repairs will be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, they will be replaced with a temporary crushed stone check dam.
- d. Sediment deposits will be removed after each storm event if significant build-up has occurred or if deposits exceed half the height of the barrier.
- STONE CHECK DAMS

Stone check dams should be installed before runoff is directed to the swale. Stone check dams will be installed in grass-lined swales and ditches during construction. Remove stone check dams when they have served their useful purpose, but not before upgradient areas have been permanently stabilized.

- 4. EROSION CONTROL MIX SEDIMENT BARRIER
- a. It may be necessary to cut, pack down, or remove tall grasses, brush, or woody vegetation to avoid voids and bridges that allow the washing away of fine soil particles.
- b. Where approved, erosion control mix sediment barriers may be used as a substitute for silt fence. See the details in this drawing set for specifications.
- b. Rock Filter Berms: To provide more filtering capacity or to act as a velocity check dam, a berm's center can be composed of clean crushed rock ranging in size from the french drain stone to riprap.
- 5. TEMPORARY SEEDING

Stabilize disturbed areas that will not be brought to final grade and reduce problems associated with mud and dust production from exposed soil surface during construction

Mixture:	Application Rate (lbs/acre)
Winter Rye	112
Oats	80
Annual Ryegrass	40
Perennial Ryegrass	40
Perennial Ryegrass	40

6. TEMPORARY MULCHING

Use temporary mulch in the following locations and/or circumstances:

- In sensitive areas (within 100 feet of streams, wetlands and in lake watersheds) temporary mulch will be applied within 7 days of exposing spill or prior to any storm event
- Apply temporary mulch within 14 days of disturbance or prior to any storm event in all other areas.
- Areas which have been temporarily or permanently seeded will be mulched immediately following seeding
- Areas which cannot be seeded within the growing season will be mulched for over-winter protection and the area will be seeded at the beginning of the growing seasor
- Mulch can be used in conjunction with tree, shrub, vine, and ground cover plantings.
- Mulch anchoring will be used on slopes greater than 5 percent in late fall (past October 15), and over-winter (October 15 - April 15).

The following materials may be used for temporary mulch:

- a. Hay or Straw material shall be air-dried, free of seeds and coarse material. Apply 2 bales/1,000 sf or 1.5 to 2 tons/acre to cover 90% of ground surface.
- b. Erosion Control Mix: It can be used as a stand-alone reinforcement:
- 2-inches thick for slopes flatter than 3H:1V;
- 4-inches thick for slopes greater than 3H:1V;
- on slopes 2 horizontal to 1 vertical or less; on frozen ground or forested areas; and

• at the edge of gravel parking areas and areas under construction. c. Erosion control mix alone is not suitable:

- on slopes with groundwater seepage;
- at low points with concentrated flows and in gullies;
- at the bottom of steep perimeter slopes exceeding 100 feet in length; • below culvert outlet aprons; and around catch basins and closed storm systems.
- d. Chemical Mulches and Soil Binders: Wide ranges of synthetic spray-on materials are marketed to protect the soil surface. These are emulsions that are mixed with water and applied to the soil. They may be used alone, but most often are used to hold wood fiber, hydro-mulches or straw to the soil surface.
- e. Erosion Control Blankets and Mats: Mats are manufactured combinations of mulch and netting designed to retain soil moisture and modify soil temperature. During the growing season (April 15th to November 1st) use mats indicated on drawings or North American Green (NAG) S75 (or mulch and netting) on:
- the base of grassed waterways; • steep slopes (15 percent or greater); and
- any disturbed soil within 100 feet of lakes, streams, or wetlands.

During the late fall and winter (November 1st to April 15th) use heavy grade mats indicated on drawings for NAG SC250 on all areas noted above plus use lighter grade mats NAG S75 (or mulch and netting) on:

• sideslopes of grassed waterways; and moderate slopes (between 8 and 15 percent).

C. TEMPORARY DUST CONTROL

To prevent the blowing and movement of dust from exposed soil surfaces, and reduce the presence of dust, use water or calcium chloride to control dusting by preserving the moisture level in the road surface materials.

D. CONSTRUCTION DE-WATERING

- 1. Water from construction de-watering operations shall be cleaned of sediment before reaching wetlands, water bodies, streams or site boundaries. Utilize temporary sediment basins, erosion control soil filter berms backed by staked hay bales, A Dirt Bag 55" sediment filter bag by ACF Environmental, or other approved Best Management Practices (BMP's).
- 2. In sensitive areas near streams or ponds, discharge the water from the de-watering operation into a temporary sediment basin created by a surrounding filter berm of uncompacted erosion control mix immediately backed by staked hay bales (see the site details). Locate the temporary sediment basin at lease 100 feet from the nearest water body, such that the filtered water will flow through undisturbed vegetated soil areas prior to reaching the water body or property line.

E. PERMANENT MEASURES

- 1. Riprapped Aprons: All storm drain pipe outlets and the inlet and outlet of culverts will have riprap aprons to protect against scour and deterioration.
- 2. Topsoil, Seed, and Mulch: All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, seeded, and mulched.

Seeded Preparation: Use stockpiled materials spread to the depths shown on the plans, if available. Approved topsoil substitutes may be used. Grade the site as needed.

a. Seeding will be completed by August 15 of each year. Late season seeding may be done between August 15 and October 15. Areas not seeded or which do not obtain satisfactory growth by October 15, will be seeded with Aroostook Rye or mulched. After November 1, or the first killing frost, disturbed areas will be seeded at double the specified application rates, mulched, and anchored.

PERMANENT SEEDING SPECIFICATIONS

Mixture:	Roadside (lbs/acre)	Lawn (lbs/acre)
Kentucky Bluegrass	20	55
White Clover	5	0
Creeping Red Fescue	20	55
Perennial Ryegrass	5	15

- b. Mulch in accordance with specifications for temporary mulching.
- c. If permanent vegetated stabilization cannot be established due to the season of the year, all exposed and disturbed areas not to undergo further disturbance are to have dormant seeding applied and be temporarily mulched to protect the site.
- 3. Ditches and Channels: All ditches on-site will be lined with North American Green S75 erosion control mesh (or an approved equal) upon installation of loam and seed.
- F. WINTER CONSTRUCTION AND STABILIZATION
- 1. Natural Resource Protection: During winter construction, a double-row of sediment barriers (i.e., silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource will be protected a minimum distance of 100 feet on either side from the resource.
- 2. Sediment Barriers: During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.
- 3. Mulching:
  - All areas will be considered to be denuded until seeded and mulched. Hay and
  - straw mulch will be applied at a rate of twice the normal accepted rate.
  - Mulch will not be spread on top of snow.
  - After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.
  - Between the dates of November 1 and April 15, all mulch will be anchored by either mulch netting, emulsion chemical, tracking or wood cellulose fiber.
- 5. Soil Stockpiling: Stockpiles of soil or subsoil will be mulched for over-winter protection with hay or straw at twice the normal rate or with a 4-inch layer of erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpiles shall not be placed (even covered with mulch) within 100 feet from any natural resources. Sediment barriers should be installed downgradient of stockpiles. Stormwater shall be directed away from stockpiles.
- 6. Seeding: Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas will receive 4 inches of loam and seed at an application rate of three times the rate for permanent seeding. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 percent catch) will be revegetated by replacing loam, seed, and mulch.

If dormant seeding is not used for the site, all disturbed areas will be revegetated in the spring.

- 7. Maintenance: Maintenance measures will be applied as needed during the entire construction season. After each rainfall, snow storm, or period of thawing and runoff, and at least once a week, the site Contractor will perform a visual inspection of all installed erosion control measures and perform repairs as needed to ensure their continuous function.
- 8. Identified repairs will be started no later than the end of the net work day and be completed within seven (7) calendar days.

![](_page_98_Picture_81.jpeg)

Following the temporary and/or final seeding and mulching, the Contractor will, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 to 90 percent of areas vegetated with vigorous growth.

- G. OVER-WINTER CONSTRUCTION EROSION CONTROL MEASURES
- 1. Stabilization of Disturbed Soil: By October 15, all disturbed soils on areas having a slope less than 15 percent will be seeded and mulched. If the Contractor fails to stabilize these soils by this date, then the Contractor shall stabilize the soil for late fall and winter, by using either temporary seeding or mulching.
- 2. Stabilization of Disturbed Slopes: All slopes to be vegetated will be completed by October 15. The Owner will consider any area having a grade greater than 15 percent (6.5H:1V) to be a slope. Slopes not vegetated by October 15 will receive one of the following actions to stabilize the slope for late fall and winter:
- a. Stabilize the soil with temporary vegetation and erosion control mesh.
- b. Stabilize the slope with erosion control mix. Stabilize the slope with stone riprap.
- d. Slopes steeper than 1.5:1 are prohibited.
- Stabilization of Ditches and Channels: All stone-lined ditches and channels to be used to convey runoff through the winter will be constructed and stabilized by November 15. Grass-lined ditches and channels will be complete by September 15. Grass-lined ditches not stabilized by September 15 shall be lined with either sod or riprap.

H. MAINTENANCE PLAN

Routine Maintenance: Inspection will be performed as outlined in the project's Erosion Control Plan. Inspection will be by a qualified person during wet weather to ensure that the facility performs as intended. Inspection priorities will include checking erosion controls for accumulation of sediments.

Housekeeping

- 1. Spill prevention. Controls must be used 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. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled 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. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.
- 3. Fugitive sediment and dust. Actions must be taken 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 tracking occurs roadways should be swept immediately and no loss once a week and prior to significant storm events.
- 4. Debris and other materials. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- 5. Trench or foundation de-watering. Trench de-watering is the removal of water from trenches, foundations, coffer dams, 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. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the department.
- 6. Authorized Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
- (a) Discharges from firefighting activity;
- (b) Fire hydrant flushings;
- (c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
- (d) Dust control runoff in accordance with permit conditions and section I3;
- (e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
- (f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
- (g) Uncontaminated air conditioning or compressor condensate;
- (h) Uncontaminated groundwater or spring water;
- (i) Foundation or footer drain-water where flows are not contaminated;
- (j) Uncontaminated excavation dewatering (see requirements in section I5);
- (k) Potable water sources including waterline flushings; and
- (I) Landscape irrigation.
- Unauthorized non-stormwater discharges. The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non stormwater, other than those discharges in compliance with section I6. Specifically, the Department's approval does not authorize discharges of the following:
- (a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
- (b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
- (c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
- (d) Toxic or hazardous substances from a spill or other release.
- 8. Additional requirements. Additional requirements may be applied on a site-specific basis.
- J. CONSTRUCTION SEQUENCE
  - In general, the expected sequence of construction for each phase is provided below. Construction is proposed to start in Summer 2022 and end in Spring 2023.
  - Mobilization Install temporary erosion control measures
  - Clearing and grubbing

  - Site stabilization, site utilities, construct reclaimed asphalt access road and parking areas, loam and seed, landscaping
  - Remove temporary erosion control measures

![](_page_98_Figure_124.jpeg)

BARRIER OR SILT FENCE FOR SLOPE PROTECTION.

![](_page_98_Figure_142.jpeg)

- Site Grading Construct buildings

![](_page_99_Figure_0.jpeg)

![](_page_100_Figure_0.jpeg)

NTS

![](_page_100_Figure_3.jpeg)

![](_page_100_Figure_5.jpeg)

- 1"x8" PT BOARDS

![](_page_100_Figure_6.jpeg)

![](_page_100_Figure_7.jpeg)

![](_page_101_Figure_0.jpeg)

PSI @ 28 DAYS.	COVER WEIGHT: BASE WEIGHT:	6,995 lbs 16.755 lbs
RS, DEPENDING ON USE.	TOTAL WEIGHT: AVAILABLE CAPACITY: WORKING CAPACITY :	23,750 lbs 2,067 GAL (MAX) 1,572 GAL (4" DIA PVC)
0 FRAMES AND COVERS.		1,527 GAL (6" DIA PVC)

		JTR	4/2023	3 REVISED PER OWNER COMMENTS					
		JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS					
	ISSUED FOR TOWN REVIEW								
	REV.	BY	DATE	STATUS					
	HIMINIA THE REAL PROPERTY OF T	E OF M DANIEL DIFFIN 11841 SIONAL		SYNERGOSITY, LLC THE GRANGE HALL PUB AT LONGWOODS PRESERVE CUMBERLAND, MAINE SECTIONS AND DETAILS					
ISHED STONE				SME DESIGN BY: BAB					
DEEP MIN				SEVEE & MAHER DATE: 5/2023					
				ENGINEERS ENVIDONMENTAL • CIVIL • GEOTECHNICAL • WATED • COMPLIANCE CHECKED BY: JTR					
" MIN				4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021					
				Phone 207.829.5016 • Fax 207.829.5692 • sme-engineers.com					
				JOB NO. 21519 DWG FILE DETAILS C-303					

JTR 5/2023 REVISED PER TOWN COMMENTS

— BACKFILL WITH SUITABLE SOILS FROM ON-SITE UNAVAILABLE USE GRANNULAR BORROW (MDOT 703.19). SUITABLE SOILS SHALL MEET THE REQUIREMENTS OF MDOT 703.18. PLACE AND COMPACT IN LAYERS OF 12" THICK OR LESS.

3. EXCAVATION MUST BE AT LEAST 12" WIDER, LONGER AND

![](_page_102_Figure_0.jpeg)

![](_page_103_Figure_0.jpeg)

![](_page_104_Figure_0.jpeg)

![](_page_104_Figure_11.jpeg)

## Chebeague& Cumberland Land Trust

Nurturing land, sea and community

371 Tuttle Road, Suite 2 Cumberland, ME 04021 ccltmaine.org

### **BOARD OF DIRECTORS**

Brian Allenby, 1st Vice President Geroge Bates Jeff Bryant Heidi Fitz Beverly Johnson Matie Little, Secretary Diane Lukac Erin McAllister Leah McDonald, 2nd Vice President Stephanie Miskell Ayres Stockly Geoff Summa Rod Vogel, President Courtney Wilson, Treasurer

### STAFF

Penny Asherman Executive Director

Jonathan Dawson Stewardship Coordinator

Jill McMahon Membership & Outreach Associate

DIRECTORS EMERITI Robert Crawford Stephen W. Moriarty

![](_page_105_Picture_10.jpeg)

April 28, 2023

Alex Timpson Joe Atwood LongWoods Preserve 76 Longwoods Road Cumberland, ME 04021

Dear Alex and Joe,

Thank you for your request of March 7, 2023, and additional information on March 22, 2023, to locate three "sheds" (subsequently updated to four) and one composting toilet on the LongWoods Preserve Conservation Area with the purpose of providing glamp sites for guests to stay overnight on the property. The CCLT Board appreciates the intention of Synergosity, LLC, Wander Group, LLC, and Ambarona Farm to work collaboratively with CCLT to bring this vision of small business, farming and conservation all together in a successful model.

The CCLT Board met on April 26, 2023 to review your request. The Board determined that the four "sheds" do not meet the definition of non-habitable, temporary, or minor recreational structures in section 6.2.12(c)(i) and section 5.37 of the LongWoods Agricultural Conservation Easement. The Easement does allow for these structures and commercial enterprise to be built within the Farmstead Area under the Home-Based Enterprise Section 5.25. In addition, the structures could be located within the Excluded Zone from the Agricultural Conservation Easement. The CCLT Board did approve the composting toilet as presented. If you chose to use tent platforms and temporary or seasonal tents as permitted in the Easement, the composting toilet and setbacks from the stream are important components to protect the water quality and ecological values in the Conservation Area.

Thank you for working with CCLT as we settle into the implementation phase of this project. We look forward to celebrating your opening soon and sharing the vision with the extended community.

Sincerely,

Penny Asherman Executive Director

![](_page_106_Picture_0.jpeg)

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

April 25, 2023

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

Subject: The Grange Hall Pub at Longwoods Preserve Site Plan Amendment Resubmission with Site Design Changes

Dear Ms. Nixon:

On behalf of Synergosity, LLC (Synergosity), Sevee & Maher Engineers, Inc. (SME) is pleased to submit revised information for the proposed Grange Hall Pub (Grange) at Longwoods Preserve (Longwoods) on Longwoods Road in Cumberland. The following changes have been made to the Site and Utility Plans since the Planning Board on July 19, 2022.

- On April 3, 2023, SME visited the project site to complete an existing conditions survey and collect topographic information to support proposed adjustments to the parking area east of the existing building. During our visit, we noticed the Grange structure was different from the location outlined in our original plan set, with building corners shifting 5 ft to 20 ft to the south and east. The attached plan set has been updated to reflect this change. The patio, parking areas, walks, and other site features have been adjusted to fit the current building location.
- 2. The dumpster was relocated to the southwest corner of the parking area to provide greater separation from the building and closer parking for the five parking spots previously located in that space. The number of parking spaces provided for the facility will remain at 43 spaces per the original approved site plan.
- 3. The plan was updated to reflect the septic system modifications previously approved as a minor field change by Town staff on December 8, 2022. A copy of the letter and supporting documentation outlining the proposed modifications to the subsurface wastewater disposal system are included for reference in Attachment 2.
- 4. The seasonal bathroom and storage shed previously located northeast of the outdoor dining area pathway was relocated southwest of the outdoor dining area to facilitate sewer connection to the updated septic system. Walkways to the previous location were removed to reduce impervious area associated with the development modifications.
- 5. Walkways east and north of the building were reduced to 5 feet wide to reduce impervious area.
- 6. An 8-foot-wide gravel service path was added to provide improved access around the western end of the building to the outdoor dining area. The service path was located 10 feet from the building to allow adequate clearance from building-mounted mechanical equipment located at

![](_page_107_Picture_0.jpeg)

the western building corner. Updated plans outline additional snow storage adjacent to the proposed service path.

- 7. An outdoor brick oven was added west of the building and outdoor dining area. The oven will be wood-fired and provide seasonal dining options for patrons.
- 8. A walk-in freezer was added south of the service path off the south side of the building to support the restaurant operation. The freezer will be portable and mounted on skids. A 1,000-gallon propane tank will be located an additional 10 feet south of the proposed walk-in freezer.
- 9. Four campsites and three outdoor composting toilets were added to the conservation property southwest of the Grange development. Campsites will be designed to blend with the natural environment, with minor limbing of trees and removal of any brush and undergrowth only. No additional clearing or grubbing is proposed. Sites will be maintained by Ambarona Farm staff, the tenants and managers of the Maine Farmland Trust parcel included with the overall site development to offer remote luxury camping sites for patrons. Electric and water services are not planned for the proposed campsites. A narrative outlining the benefits of agrotourism and cut sheets for the composting toilet are included in Attachment 3.
- 10. Exterior signage for the Grange was relocated from the front of the building to the main access road adjacent to the farmhouse driveway. The applicant believes this location will improve wayfinding along the site access drive and add character to the proposed development. As with the original application, the sign will be coordinated with the Town Planner.
- 11. Grades at the parking area were adjusted to direct stormwater runoff directly to the southeast. This modification will provide a shorter drainage path for stormwater runoff across the proposed parking area and minimize the potential for ponding and puddles in the proposed parking area.
- 12. Proposed site modifications do not significantly alter the overall impervious area for the development or impact drainage patterns for stormwater runoff on the property. With the proposed site improvements, new impervious surface for the development will total at approximately 43,115 square feet, which represents an increase of 1,764 square feet from the original permitted plan. SME updated the stormwater model for the project to reflect the revised impervious area. Updated peak flows for the 2-, 10-, and 25-year/24-hour storm events are summarized in Table 1. Copies of the updated calculations are provided in Attachment 4.

### TABLE 1

	2-Year Storm		10-Year Storm		25-Year Storm	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Analysis Point 1 (cfs)	10.11	9.66	16.33	15.92	20.63	19.42
Analysis Point 2 (cfs)	40.69	44.05	90.77	95.73	135.00	140.91

### STORMWATER QUANTITY SUMMARY


This plan amendment does not include any modifications to the architectural floor plans, elevations, and renderings for this project. No parking spaces were added or eliminated for this site plan amendment. The updated information is attached to this letter in support of this amendment.

We will provide a digital copy via email and look forward to reviewing the project in more detail with the Planning Board. Please feel free to contact me at 207.829.5016 or <u>itr@smemaine.com</u> if you have any questions or need additional information.

Very truly yours,

SEVEE & MAHER ENGINEERS, INC.

Jeffrey Read, P.E. Project Manager

Attachments

- 1. Revised Appendix A Site Plan Application
- 2. Revised Septic Design
- 3. Campsite Details
- 4. Stormwater Pre- and Post-Calculations
- 5. Revised Plan set

# **ATTACHMENT 1**

**REVISED APPENDIX A – SITE PLAN APPLICATION** 



### SITE PLAN REVIEW Town of Cumberland

# Appendix C Planning Board Site Plan Review Application

Applicant's address       76 Longwoods Road, Cumberland, ME 04021         Cell phone       207-415-7273       Home phone       N/A         Email Address       alex.timpson@ampf.com         Project address       76 Longwoods Road         Project name       The Grange Hall Pub at Longwoods Preserve         Describe project       Farm to table restaurant and brew pub         Number of employees       8 to 10         Days and hours of operation       Normal anticipated 11:30 am to 9:00 pm (Events 11am to 12pm)         Project review and notice fee       \$1,650         Name of representative       Jeff Read, P.E., Sevee and Maher Engineers, Inc.         Contact information: Cell:       207-671-8027       Office:       207-829-5016         What is the applicant's interest in the property?       Own       X       Lagge       Surphage and reliance and
Cell phone       207-415-7273       Home phone       N/A       Office phone       N/A         Email Address       alex.timpson@ampf.com       Project address       76 Longwoods Road         Project address       76 Longwoods Road       Project name       The Grange Hall Pub at Longwoods Preserve         Describe project       Farm to table restaurant and brew pub       Number of employees       8 to 10         Days and hours of operation       Normal anticipated 11:30 am to 9:00 pm (Events 11am to 12pm)         Project review and notice fee       \$1,650         Name of representative       Jeff Read, P.E., Sevee and Maher Engineers, Inc.         Contact information: Cell:       207-671-8027       Office:       207-829-5016         What is the applicant's interest in the property?       Own       X       Lacco       Furthere and cele sequence of the property?
Email Address       alex.timpson@ampf.com         Project address       76 Longwoods Road         Project name       The Grange Hall Pub at Longwoods Preserve         Describe project       Farm to table restaurant and brew pub         Number of employees       8 to 10         Days and hours of operation       Normal anticipated 11:30 am to 9:00 pm (Events 11am to 12pm)         Project review and notice fee       \$1,650         Name of representative       Jeff Read, P.E., Sevee and Maher Engineers, Inc.         Contact information: Cell:       207-671-8027         Office:       207-829-5016
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Describe project Farm to table restaurant and brew pub Number of employees 8 to 10 Days and hours of operation Normal anticipated 11:30 am to 9:00 pm (Events 11am to 12pm) Project review and notice fee \$1,650 Name of representative Jeff Read, P.E., Sevee and Maher Engineers, Inc. Contact information: Cell: 207-671-8027 Office: 207-829-5016 What is the applicant's interest in the property?
Number of employees       8 to 10         Days and hours of operation       Normal anticipated 11:30 am to 9:00 pm (Events 11am to 12pm)         Project review and notice fee       \$1,650         Name of representative       Jeff Read, P.E., Sevee and Maher Engineers, Inc.         Contact information: Cell:       207-671-8027         Office:       207-829-5016         What is the applicant's interest in the property?         Own       X         Lease       Purchase and sele assessment
Days and hours of operation       Normal anticipated 11:30 am to 9:00 pm (Events 11am to 12pm)         Project review and notice fee       \$1,650         Name of representative       Jeff Read, P.E., Sevee and Maher Engineers, Inc.         Contact information: Cell:       207-671-8027         Office:       207-829-5016         What is the applicant's interest in the property?         Own       X         Leage       Burghees and sele segments
Project review and notice fee <u>\$1,650</u> Name of representative <u>Jeff Read, P.E., Sevee and Maher Engineers, Inc.</u> Contact information: Cell: <u>207-671-8027</u> Office: <u>207-829-5016</u> What is the applicant's interest in the property? Own X Jease Purchase and asla severaged to the property?
Name of representative       Jeff Read, P.E., Sevee and Maher Engineers, Inc.         Contact information: Cell:       207-671-8027         Office:       207-829-5016         What is the applicant's interest in the property?         Own       X         Lease       Durchese and sele semement
Contact information: Cell: <u>207-671-8027</u> Office: <u>207-829-5016</u> What is the applicant's interest in the property?
What is the applicant's interest in the property?
Own X Loose Burchese and sele concernent ( 11 11 11
If you are not the owner, list owner's name, address and phone number <u>N/A</u>
If you are not the owner, list owner's name, address and phone number N/A
Boundary Survey Submitted? Yes X No
Are there any deed restrictions or easements? Yes $X$ NoIf yes, provide information and show easement location on site plan.
Building Information         Are there existing buildings on the site? Yes       X       No       Number: 2         Will they be removed? Yes       No       X       (Note: A demolition permit is required 10 days prior to demolition.)
Will a new structure(s) be built on the site? Yes $X = N_0$
Describe: <u>Grange hall pub s</u> easonal building and storage
Number of new buildings <u>5</u>
Square footage 2 212 of 240 of 16 of 16 of and 16 of

### Parking

Number of existing parking space	es0
Number of new parking spaces_	43
Number of handicapped spaces _	2
Will parking area be paved?	Yes X No

Entrance Location: US Route 9 Width 20' Length 1,300 lf Is it paved? Yes X No X If not, do you plan to pave it?

Where will snow storage for entrance and parking be located? Show on site plan.

### Utilities

Water: Public water\_\_\_\_\_Well\_X\_\_\_(Show location on site plan.)

Sewer/septic: Public sewer\_\_\_\_Private septic\_X\_\_\_Show location on site plan and submit HHE-200 septic design or location of passing test pit locations if new system is proposed. Also show any wells on abutting properties within 200 feet of the site.

Electric: On site? Yes X No

Show location of existing and proposed utilities on the site plan and indicate if they are above or below ground.

### Signs

Number: 2 Size: TBD Material: TBD Submit sign design and completed sign application. Will the sign be lighted? TBD Submit information on type and wattage of lights. Show location of sign(s) on the site plan.

### **Natural Features**

 Show location of any of the following on the site plan:

 River\_\_\_\_\_Stream\_X\_\_\_Wetland X\_\_\_\_Pond \_\_\_\_\_Lake \_\_\_\_Stone walls \_\_\_\_\_

 Are there any other historic or natural features? (Please See Attached)

### Lighting

Will there be any exterior lights? Yes  $\underline{X}$  No\_\_\_\_\_Show location on site plan (e.g., pole fixtures, wall packs on building) and provide fixture and lumen information.

### Trees

Show location of existing trees on the site plan and indicate if any are to be removed.

### Landscaping

Is there existing landscaping on the site? Yes X No\_\_\_\_\_Show type and location on site plan.

Is new landscaping proposed? (Note: if property has frontage on Route 100, a twenty-five-foot landscape easement to the Town is required.)

### Buffering

Show any existing or proposed buffering measures for adjacent properties, e.g., plantings, fences.

### **Erosion Control**

Has an erosion and sedimentation control plan been submitted? Yes X No

### Stormwater Management Plan

Provide stormwater information for both pre and post development of the site. Show location of any detention areas and/or culverts on the site plan.

### **Fire Protection**

Location of nearest hydrant <u>N/A</u> Sprinklers? <u>No X</u>  $P_{Q_S}$  No <u>No X</u> Please contact the Fire/EMS Department at 829-4573 to discuss any Town or state requirements.

### Trash

Will trash be stored inside \_\_\_\_\_\_ outside \_X\_\_\_. If outside, will a dumpster be used? Yes \_X\_\_No\_\_\_\_\_. Show location on site plan and show type of screening proposed (e.g., fencing, plantings).

### **Technical Capacity**

List and provide contact information for all consultants who worked on the project, for example: licensed land surveyor, licensed soils evaluator, professional engineer, attorney, etc. previously approved

### **Financial Capacity**

Please indicate how project will be financed. If obtaining a bank loan, provide a letter from the bank <u>previously approved</u>

<u> </u>	
•	Zoning district: <u>Contract Zone (RR</u> 1)
•	Minimum lot size: 2 acres
•	Classification of proposed use: Contract Zone
•	Parcel size: 61.55 acres
•	Frontage: None
•	Setbacks: Front 15 Side 15 Rear 15
•	Board of Appeals Required? N/A
•	Tax Map_R03 Lot 13 + 6A Deed book 39147 Deed page 20
•	Floodplain map number 230162 0015 B Designation Zone C
•	Vernal pool identified? No
•	Is parcel in a subdivision? No
•	Outside agency permits required:
	MDEP Tier 1 N/A MDEP Tier 2 N/A Army Corps of Engineers N/A
	MDEP general construction (stormwater) permit (for disturbance of 1 acre or more)
•	MDOT entrance permit previously approved
٠	MDOT traffic movement permit previously approved
•	Traffic study required previously approved
٠	Hydrogeologic evaluation previously approved
٠	Market study previously approved
٠	Route 1 Design Guidelines? N/A
•	Route 100, VMU or TCD Design Standards? N/A

Th A, Applicant's signature Submission date: \_\_\_\_\_April 25, 2023

# PLANNING BOARD SITE PLAN REVIEW SUBMISSION CHECKLIST

# FOR ALL PROJECTS:

Submission Requirement	Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative	If requesting a waiver, indicate below:
Example: Erosion Control	Plan Sheet E-1	
General Information:		
Completed Site Plan Application		
Form	I his document	
Names and addresses of all	Appendix C previous application	
consultants	rippendix e, previous appreation	
Narrative describing existing	Narrative previous application	
conditions and the proposed project		
Evidence of right, title or interest	Attachment 1	
(deed, option, etc.)		
Names and Addresses of all property	Appendix L previous application	
owners within 200 feet	rependint 9, provious upprodutori	
Boundaries of all contiguous property	Drawing C-101	
under control of owner	Drawing C-101	
Tax map and lot numbers	Drawing C-101	
Area of the parcel	Narrative, previous application	
FEMA Floodplain designation & map	Previous application	
#	Norrotive provide application	
Zoning classification	Narrative, previous application	
Evidence of technical and financial	Appendix B and C previous application	
capability to carry out the project	Proposition D and C, previous application	
Boundary survey	Drawing C-101	
List of waiver requests on separate	Narrative, previous application	
sheet with reason for request.		
Proposed solid waste disposal plan	Narrative, previous application	
Existing Conditions Plan showing:		
Name, registration number and seal	Drawing C-101	
of person who prepared plan		
North arrow, date, scale, legend	Drawing C-101	
Area of the parcel	Drawing C-101	
Setbacks and building envelope	Drawing C-101	
Utilities, including sewer & water,	Drawing C-101	
cuiverts & drains, on-site sewage		
Location of any septic systems	Drawing C-101	
Location, names, widths of existing public or private streets ROW's	Drawing C-101	

Location, dimension of ground floor	Drawing C-101	
elevation of all existing buildings		
	Drawing C-101	
Location, dimension of existing	Drawing C 101	
driveways, parking, loading,	Diawing C-101	
walkways		
Location of intersecting roads &	Drawing C-101	
driveways within 200 feet of the site	Drawing C-101	
Netural and historia factures such as		
water bodies, stands of trees		
streams gravevards stonewalls	Drawing C-101	
floodplains		
Direction of existing surface water	D : 0 101	
drainage across the site & off site	Drawing C-101	
Location, front view, dimensions and	Drowing C 101	
lighting of existing signs	Drawing C-101	
Location and dimensions of existing	Drowing C 101	
easements & copies of documents	Drawing C-101	
Location of nearest fire hydrant or	Drawing C-101	
water supply for fire protection		
Proposed Development Site Plan		
Name of development	Drawing C-102	
Date	Drawing C-102	
North arrow	Drawing C-102	
Scale	Drawing C-102	
Legend	Drawing C-102	
Landscape plan		
Stormwater management	Drawing D-100 and 101	
Wetland delineation	Drawing C-101	
Current & proposed stands of trees	Drawing C-103	
Erosion control plan	Drawing C-105	
Landscape plan		
Lighting/photometric plan	Appendix L, previous application	
Location and dimensions of all	Drawing C-103	
proposed buildings		
Location and size of utilities, including	Drawing C-104	
sewer, water, culverts and drains		
Location and dimension of proposed		
on-site septic system; test pit	Drawing C-104 & Appendix G, previous application	
locations and nitrate plumes		
Location of wells on subject property	Drawing C-104	
and within 200 of the site	_	
Location, names and widths of	Drawing C-103	

Location and dimensions of all accessways and loading and unloading facilities	Drawing C-103	
Location and dimension of all existing and proposed pedestrian ways	Drawing C-103	
Location, dimension and # of spaces of proposed parking areas, including handicapped spaces	Drawing C-103	
Total floor area and ground coverage of each proposed building and structure	Drawing C-103	
Proposed sign location and sign lighting	Drawing C-103, C-104	
Proposed lighting location and details	Drawing C-104	
Covenants and deed restrictions proposed	Drawing C-101	
Snow storage location	Drawing C-103	
Solid waste storage location and fencing/buffering	Drawing C-103	
Location of all fire protection	N/A	
Location of all temporary & permanent monuments	Drawing C-101	
Street plans and profiles	N/A	

# ADDITIONAL REQUIREMENTS FOR MAJOR SITE PLAN PROJECTS:

Submission Requirement	Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative	If requesting a waiver, indicate below:
High intensity soils survey	Previously Approved	
Hydro geologic evaluation	Previously Approved	
Traffic Study	Previously Approved	
Market Study	Previously Approved	
Location of proposed recreation areas (parks, playgrounds, other public areas)	N/A	
Location and type of outdoor furniture and features such as benches, fountains.	N/A	

**468** 52-60/112 140 4/25/2023 Date SYNERGOSITY LLC Pay to the • Order of \_\_\_\_\_ of Cumberland \$ 1000. LOWN Onethousand Dollars O Safe Deposite ReyBank National Association 1.800.KEY2YOU" Key.com" review for 2nd Plan Ning Bd Rev, A Ter For needed 200608 101 191401002958# OLGA 1

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SYNERGOSITY LLC	25/202 Date	467 52-60/112 140
Pay to the Order of Town of Cumber and Six hundred fifty	S Dol	650. – lars O Photo Salo Salo Salo Salo Salo Salo Salo Sal
For 2nd planning board review Ark	The	a MP
1011200608: 191401002958: 046		

# \*\* Corrective \*\* WARRANTY DEED {Maine Statutory Short Form}

KNOW ALL PERSONS BY THESE PRESENTS, THAT DANIEL F. VILLACCI and MARIANNA VILLACCI, both with a mailing address of 297 Middle Road, Falmouth, ME 04105 for consideration paid, GRANT to SYNERGOSITY, LLC, a Maine limited liability company with a principal place of business in Scarborough, Maine with WARRANTY COVENANTS, the land in the Town of Cumberland, County of Cumberland, and State of Maine, described as follows:

#### See Attached Exhibit A.

WITNESS, my hand and seal this <u>19</u> day of October 2021.

SIGNED, SEALED AND DELIVERED in the presence of

1 Dami / Villace DANIEL F. VILLACCI MORIANNA VILLACCI MARIANNA VILLACCI

State of Maine County of Cumberland

Then personally appeared the above-named DANIEL F. VILLACCI and MARIANNA VILLACCI and acknowledged the foregoing instrument to be their free act and deed.

ABBEY LOMBARD Notary Public-Maine My Commission Expires February 22, 2025

Before me, SEAL Notary Public Printed Name: Abser L My commission expires: 2/2/2005

1/18/2022, 8:01 PM

### Exhibit A

#### 76 Longwoods Road, Cumberland

### Historical Description

Parcel I (76 Longwoods Road):

A certain lot or parcel of land with the buildings thereon, situated on the westerly side of Longwoods Road, in the Town of Cumberland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at an iron pin on the westerly side of Longwoods Road at the northerly corner of land formerly of Owen Farwell; thence South 53° West by said Farwell land and land now or formerly of Bertelle Seekins, one thousand two hundred sixty (1,260) feet, more or less, to an iron pin on the Falmouth Town Line; thence North 38° West by the Falmouth Town Line, one thousand two hundred fifteen (1,215) feet, more or less, to an iron pin at the southerly corner of land now or formerly of Frank E. Oulton; thence North 53° East by said Oulton land; seven hundred eighty-seven (787) feet, more or less, to a pile of stones; thence North 37° 30' West by said Oulton land five hundred eighty-five (585) feet, more or less, to an iron pin at the southerly corner of land conveyed by Roger Boldue to Wallace E. Leavitt, et al, by deed dated March 26, 1956 and recorded in the Cumberland County Registry of Deeds in Book 2281, Page 101; thence North 52° East by said Leavitt land, seven hundred thirty (730) feet, more or less, to an iron pin at the westerly corner of land conveyed by Christen Christensen to Hans Zenas Hansen by deed dated September 7, 1927 and recorded in said Registry of Deeds in Book 1277, Page 92; thence South 36° 30' East by said Hansen land, six hundred three (603) feet, more or less, to an iron pin; thence North 52° East by said Hansen land, one hundred forty-one (141) feet, more or less, to an iron pipe at the westerly corner of land conveyed by Robert Nelson to Henry L. Hanson by deed dated January 10, 1948 and recorded in said Registry of Deeds in Book 1907, Page 68; thence South 32° 30' East by said Hanson land, three hundred twelve (312) feet, more or less, to an iron pin; thence North 52° 30' East by said Hanson land, one hundred forty-seven (147) feet, more or less, to an iron pin on the westerly sideline of Longwoods Road; thence South 10° 45' East by Longwoods Road, one thousand one hundred fifteen (1,115) feet, more or less, to the point of beginning. Containing 54 acres, more or less.

Excepting, however, so much of said premise as was conveyed by Maurice P. Hansen to Central Maine Power Company by deed dated July 27, 1956 and recorded in said Registry of Deeds in Book 2310, Page 495, but this conveyance includes all the rights and privileges reserved in said deed.

This conveyance is made subject to the easement conveyed by Maurice P. Hansen and Marie C. Hansen to New England Telephone and Telegraph Company and Central Maine Power Company by deed dated January 27, 1950 and recorded in said Registry of Deeds in Book 1989, Page 434.

Being a portion of the premises as described in a Warranty Deed from Daniel F. Villacei to Daniel F. Villacei and Marianna Villacei, dated May 13, 2002 and recorded at Book 17630, Page 16 in the Cumberland County Registry of Deeds.

Parcel II (0 Longwoods Road):

A certain lot or parcel of land, located in the Town of Cumberland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a point which is the intersection of the East Branch of the Piscataqua River and the southerly line of a certain lot or parcel of land now of Central Maine Power Company, more particularly described in a deed from Frank E. Oulton and Annie G. Oulton to Central Maine Power Company, dated October 5, 1956 and recorded at the Cumberland County Registry of Deeds, Book 2281, Page 494; thence southeasterly along said southerly line of said Central Maine Power Company land to a point intersecting with the northwesterly line of a certain lot or parcel of land now or formerly of Daniel F. Villacci; thence westerly along said line to a point which is the northwest point of said lot or parcel of land now of Daniel F. Villacci; thence South 42° East by land formerly of Peter Merrill thirty-five (35) rods to said lot or parcel of land now of Daniel F. Villacci to a point; thence running South 48° West by land formerly of Joseph Sawyer forty-seven (47) rods and eight (8) links to the Falmouth and Cumberland line; thence North 41° West by said Falmouth and Cumberland line to the easterly bank of the East Branch of said Piscataqua River; thence running northeasterly and upstream along said easterly bank to the point of beginning; comprising 18 acres more or less;

Also, all rights which the Grantors may have in or with respect to a certain lot or parcel of land now of Central Maine Power Company and described in a deed from Frank E. Oulton and Annie G. Oulton to Central Maine Power Company, dated October 5, 1956 and recorded in said Registry of Deeds in Book 2281, Page 494.

Being a portion of the premises as described in a Warranty Deed from Daniel F. Villacci and Marianna Villacci to Daniel F. Villacci and Marianna Villacci, dated May 13, 2002 and recorded at Book 17630, Page 14 in the Cumberland County Registry of Deeds.

### New Description

Also conveying all our right, title and interest in the below alternate description of the above-described parcels which is based upon an unrecorded plan entitled "Existing Conditions Survey for Alexander Timpson of 76 Longwoods Road, Cumberland, Maine" dated August 10, 2021, by David Bouffard, PLS:

A certain lot or parcel of land with any improvements thereon, located on the westerly

-----

.....

side of Longwoods Road, also known as State Route 9 in the Town of Cumberland, County of Cumberland, State of Maine and more particularly bounded and described as follows:

**BEGINNING** at a found iron rebar capped PLS 1183 on the westerly side of Longwoods Road at the northerly corner of land formerly of Philip Stanhope as described in Deed Book 2932, Page 385 recorded in the Cumberland County Registry of Deeds;

Thence **S 35°50'39" W, a distance of 1278.39'** along land formerly of Philip L. Stanhope and land now or formerly of Roberto Bertelle as described in Book 3640 Page 172 to a found iron pipe;

Thence **N 56°33'06" W, a distance of 1213.64**' along land now or formerly of Elwin Hansen as described in Book 3029, Page 502 to a found iron pipe;

Thence N 55°12'38" W, a distance of 421.76' along land of Hansen to a found iron pipe;

Thence **N 55°12'38" W, a distance of 437',** more or less, along land now or formerly of Daniel Vallacci as described as the Town of Falmouth Parcel of land in Book 6362, Page 132, to the center of the East Branch of the Piscataqua River;

Thence northerly along the center of the said river about **1,660 feet**, more or less to a point;

Thence **S 55°10'35"** E, about **185'**, more or less along land now or formerly of Central Maine Power Company as described in Book 2281, Page 494 to a point (a tie bearing and distance from the last-mentioned iron pipe to this point is N 04°43'30" W, a distance of 1162.40').

Thence **S 55°10'35" E, a distance of 800.00'** to angle point of Central Maine Power Company land;

Thence **S 85°43'08**" **E**, a distance of **1286.21**' along Central Maine Power Company land as described in Book 2310, Page 495 to Longwoods Road;

Thence S 28°52'05" E, a distance of 546.85' along Longwoods Road to the POINT OF BEGINNING.

Containing an area of 61.56 Acres, more or less.

Also, another parcel of land opposite the before mentioned angle point on northerly side of the 450-foot-wide corridor of Central Maine Power Company land;

**BEGINNING** at a found copper rod with cap on the northerly side of Central Maine Power Company land as described in Book 2310 Page 495 at the westerly corner of land now or formerly of Todd Shallow as described in Deed Book 34990, Page 348 recorded in the Cumberland County Registry of Deeds;

Thence **N 85°43'08" W, a distance of 293.15'** along Central Maine Power Company land as described in Book 2310 Page 495 to an angle point;

Thence N 55°10'35" W, a distance of 106.66' along Central Maine Power Company land to a found iron pipe;

Thence **N 35°02'41" E, a distance of 158.06'** land as is depicted as Lot 1 of the plan recorded in the Cumberland County Registry of Deeds in Plan Book 198 Page 161 to a found iron pipe;

Thence **S 53°43'30" E, a distance of 358.63'** along land now or formerly of Robert Crawford as described in Book 26346 Page 25 and land of said Todd Shallow to the **POINT OF BEGINNING**.

Containing an area of 0.83 Acre, more or less.

The basis of bearings for this description was the Maine State Grid Plane of 1983 located in the West Zone.

Together with any right of way that may exist as a result of long use over the Central Maine Power Company land described in Book 2310, Page 495.

Subject to utility easement as described in Book 1989, Page 434.

Meaning and intending to describe land in the Town of Cumberland, being a portion of the premises as described in a deed to Daniel F. and Marianna Villacci dated May 13, 2002 and recorded in said Registry in Book 6362 Page 132.

#### 0 Winn Road, Falmouth

A certain lot or parcel of land located in the Town of Falmouth, in said Cumberland County and State of Maine, bounded and described as follows:

All land now of Grantor lying southerly of the Cumberland and Falmouth line, easterly of the easterly bank of the East Branch of said Piseataqua River, and westerly of the following described line: beginning at an iron pipe set in the ground at a point on said Cumberland and Falmouth line nineteen (19) rods, more or less, southeasterly from said East Branch of the Piscataqua River, said iron pipe being at the Northerly corner of land now or formerly of Osborn Hanson; thence, southwesterly by said Hanson land eighty (80) rods, more or less, to the most easterly corner of land now or formerly of one Thompson; said land of Grantor being a portion of a certain lot or parcel of land described in a certain deed from Oscar M. Braley and Clara T. Braley to Frank E. Oulton, Frank E. Oulton, Jr. and Edward B. Oulton, dated November 2, 1954, and recorded in the Cumberland County Registry of Deeds at Book 2204, Page 63; comprising of 1.3 acres more or less.

For source of title, reference is made to a deed from Edward B. Oulton et. al to Daniel F. Villaci and Marianna Villaci dated December 29, 1983 and recorded at Book 6362, Page 132 in the Cumberland County Registry of Deeds, and a deed from to Daniel F. Villaci and Marianna Villaci to Daniel F. Villaci and Marianna dated May 13, 2002 and recorded at Book 17630, Page 14.

The purpose of this corrective deed is to include the Falmouth property which was inadvertently left out of the deed from the Grantors herein to the Grantee herein dated September 3, 2021 and recorded at Book 38626, Page 268 in the Cumberland County Registry of Deeds.

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**ATTACHMENT 2** 

**REVISED SEPTIC DESIGN** 





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

November 29, 2022

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

Subject: The Grange Hall Pub at Longwoods Preserve Revised Septic Design

Dear Ms. Nixon:

On behalf of the Synergosity, LLC (Synergosity), Sevee & Maher Engineers, Inc. (SME) is pleased to provide the following explanation of the new proposed septic system and occupancy limitations for the proposed Grange Hall Pub on Longwoods Road in Cumberland.

As outlined in the approved Site Plan Application, the site is currently served by an on-site well and septic system for the existing single-family house and barn. A second well was installed to accommodate the additional flow requirements for the proposed Grange Hall Pub and Restaurant (Pub). A copy of the well log and water quality test results were provided in the Site Plan Application.

In the approved Site Plan Application, the proposed Pub was to be serviced by two new on-site subsurface wastewater disposal systems, each with a design flow under 2,000 gallons per day (gpd). The existing subsurface wastewater disposal system will remain to treat existing flows from the farmhouse and barn.

Upon further review of the anticipated wastewater flows from the Pub, Synergosity and their soil scientist, Mark Cenci, LSE, have determined that the overall design flows for the Pub can be reduced from two subsurface wastewater disposal systems to a single subsurface wastewater disposal system designed for a total of 1,804 gpd. A written description and revised HHE-200 Wastewater Disposal System Application from Mark Cenci are attached for your review.

The proposed modification is based on 85 seats in the restaurant plus 9 employees. Water use for the facility will be monitored and records can be used to verify wastewater flows do not exceed design parameters for the new system.

The subsurface wastewater disposal system is on the interior of the parcel, downgradient of the water supply wells, and a waiver from performing a hydrogeological evaluation was granted with the original project approval. The property is not located within an area designated as a source protection area or a significant sand and gravel aquifer. We do not anticipate any adverse impacts to groundwater from this modification.



We appreciate your consideration for this design modification. Please feel free to contact me at 207.829.5016 or <u>itr@smemaine.com</u> if you have any questions or need additional information.

Very truly yours,

SEVEE & MAHER ENGINEERS, INC.

Jeffrey Read, P.E. Senior Civil Engineer

Attachments

93 Mill Road • North Yarmouth, Maine 04097 Cell: 207.329.3524 • mark@markcenci.com www.markcenci.com

Mark Cenci Geologic, Inc.

CERTIFIED GEOLOGIST/LICENSED SITE

Date: November 28, 2022

To: Cumberland Planning Department

**RE:** Revision to the HHE 200, dated 10/27/22, for Longwoods Preserve

In April 2022 I prepared HHE-200 forms for two wastewater disposal systems to serve a full buildout concept of the Longwoods Preserve. This concept was for two disposal areas, each sized for 75 restaurant seats plus employees.

On 10/27/22 I revised one HHE-200 to be sized for one system to serve as many as 85 seats plus employees. The Design flow calculation is taken from the Wastewater Rules, which allocates 20 gallons per day per seat for a full-service restaurant and 104 gpd for employees. The Design Flow of the food service portion is 1700 gallons per day and the employee portion is 104 gallons per day.

Because restaurant wastewater contains a higher concentration of Total Dissolved Solids and Biological Oxygen Demand than household wastewater, a multiplier of 1.8 is applied to the food service portion of the Design Flow (1,700 gpd). This increases the size of the disposal area to what appears to accommodate 3,168 gallons per day, but in fact this is not a 3,168 gpd system, it is a 1,804 gpd system.

The actual water use will be monitored. These water use records can be used in the future to expand or redesign the system as the needs of the business arise.

Please contact me, email preferred, if further information is useful

Mark Cenci, LSE # 262

SUBSURFACE WA	STEWATER DISPOSAL SYST	EM APPLICATIO	N		Maine Dept.Health & Human Service: Div of Environmental Health, 11 SHS (207) 287-5672 Fax: (207) 287-417
PROPERTY LOCATION		>> CAUTION: LPI APPROVAL REQUIRED <<			
City, Town, or Plantation	UMBERLAND	Town/Altr			
Street or Road 76	LONGWOODS ROSD	Date Permit Issued	/ / F	Permit #	Double Fee Charged [ ]
Subdivision, Lot #	JAWOODS PRESERVE				L.P.I. #
OWNER/APP	LICANT INFORMATION	Local Plumbing Insp	ector Signature		
Mailing Address of 173 Owner/Applicant	LLC Solver Applicant SPURNINK ROAD BORDUGH, ME 04074	Owner Downer Town     Owner Towner     Owner Town     Owner Towner     Owner     Owner Towner     Owner     Owner Towner     Owner     Owner Towner     Owner     Own			la lown o State
Daytime Tel. #	415-7273	Municipal	Tax Map #	Lot #	
OWNER OR APP I state and acknowledge that the in my knowledge and understand that Local Plumbing Inspector to deny a	ICANT STATEMENT formation submitted is correct to the best of t any faisification is reason for the Department and/or a Permit.	I have inspected with the Subsurf	CAUTION: INSPECT the installation autholi ace Wastewater Dispo	TON REQUIRED rzed above and found it osal Rules Application.	to be in compliance (1st) date approved
Signature of Ow	ner or Applicant Date	Local	Plumbing Inspector Sid	onature	(2nd) date anomalad
	PER	MIT INFORMATION			(and) date approved
<ul> <li>First Time System</li> <li>Replacement System</li> <li>Type replaced:</li> <li>Year installed:</li> <li>Expanded System</li> <li>25% Expansion</li> <li>25% Expansion</li> </ul>	No Rule Variance     Z. First Time System Variance     D. State & Local Plumbing Inspector Appre     D. State & Local Plumbing Inspector     G. Replacement System Variance     G. Local Plumbing Inspector Appre     D. State & Local Plumbing Inspector	oval or Approval oval or Approval	DISF 2. Prim 2. Prim 2. Alter 24. Non 25. Holo 26. Non 27. Sepa	OSAL SYSTEM C applete Non-enginee hitive System (grays mative Toilet, speci engineered Treatm ling Tank, engineered Dispos arated Laundry Sys	OMPONENTS water & alt. toilet) fly: nent Tank (only) gallons sal Field (only) stem
2. Experimental System	2 Minimum Let Pine Mariana		□8. Com	plete Engineered S	System (2000 gpd or more)
5. Seasonal Conversion	Minimum Lot Size Variance	D9. Enginee		ineered Treatment	Tank (only)
SIZE OF PROPERTY	DISPOSAL SYSTEM TO SERV	VE	Image: Disposal Field (only)         Image: Disposal Field (only) <td< td=""><td></td></td<>		
7.5 ISQ. FT	Single Family Dwelling Unit, No. of     2. Multiple Family Dwelling, No. of Un	Bedrooms:			PPLY
SHORELAND ZONING	X. Other: SINKANI		X. Drilled	Vell 2. Dug Well	3. Private
Yes Xao	(specity) Current Use Beasonal D'ear Round	Aundeveloped	4. Public	5. Other	
	DESIGN DETAILS (SY	STEM LAYOUT SHO	OWN ON PAGE	3)	
CAPACITY: GAL CONDITION CAPACITY: GAL CAP	DISPOSAL FIELD TYPE & SIZE     d. Stone Bed 2. Stone Trench     S. Proprietary Device     s. cluster array 12. Linear     S. ciuster array 12. Linear     S. other:     SIZE: [2960 acq. ft. lin. ft.     ASS DISPOSAL FIELD SIZING	GARBAGE DISF Q. No 2. Yes C If Yes or Maybe, sp a. multi-compartme btanks in seri c. increase in tank G. Filter on Tank O EFFLUENT/EJECTO	POSAL UNIT 3. Maybe recify one below: ant tank ies capacity utlet DR PUMP	BASE BASE A. Table 4A (d) Table 4C(ot SHOW CAL SEA TS 9(EMPLA) B. Section 4G	ESIGN FLOW gallons per day D ON: welling unit(s)) her facilities) CULATIONS for other facilities $C \ge O \ APD \ EACH$ $EF \le C \ i \ge APD \ EAC$ (meter readings)
at Observation Hole # [PI Depth [5] " of Most Limiting Soil Factor	<ul> <li>Medium2.6 sq. ft. / gpd</li> <li>MediumLarge 3.3 sq. f.t / gpd</li> <li>Large4.1 sq. ft. / gpd</li> <li>Extra Large5.0 sq. ft. / gpd</li> </ul>	Not Required     Any Be Required     Required     Specify only for engineer     DOSE:gal	red systems: lons	ATTACH WA LATITU Lat 3 d Lon 7 0 d if g.p.s, state m	TER METER DATA <b>DE AND LONGITUDE</b> Inter of disposal area 45  m 53  s 69 45  m 53  s 69 argin of error: 57
1 7 -	SITE EVALI	UATOR STATEMEN	Г		
that the proposed system is Site Evaluator	in compliance with the State of Maine S Signature	on on this property and ubsurface Wastewater I 262 SE#	state that the dat Disposal Rules (1 4 - 27 - 2 Date	a reported are ac 0-144A CMR 24 	curate and 1). 27-22 ML
Site Evaluator I	Name Printed	enhone Alumbar			
Note : Changes to or deviati	ons from the design should be confirmed		E-mail Ad	ldress	

note . Changes to or deviations from the design should be confirmed with the Site Evaluator.

Page 1 of 3





**ATTACHMENT 3** 

**CAMPSITE DETAILS** 



### The Wander Group Perspective:

The Wander Group team is incredibly passionate about bringing value to the Cumberland and Greater Portland community. For us, this is not just about making a buck. We are trying to prove a concept about how a small business enterprise and a small scale regenerative ag operation can work together to support each other, be good stewards of the land, and make locally grown products more consistently available to our community.

Wander Group is actively pursuing and supporting what this property was preserved for: **FARMING**! This is, of course, the purpose of Maine Farmland Trust, and property being actively and sustainably farmed following a conservation easement is not always the case. We are making what MFT stands for a reality on LWP.

## Leveraging Agrotourism:

Our society's view of farming is that it's always been a tough way to make a living, and struggling financially is intrinsically part of the farming lifestyle. From our perspective and the perspective of our farmers (**Jordan and Molly - Ambarona Farm**), it does not have to be that way!

If properly supported, Ambarona Farm can become a staple in the Cumberland community, and the best way to ensure the longevity of a small scale farm is to leverage agrotourism. This can be done in a number of ways, but the most logical option is to offer small scale on-site lodging to allow patrons of the farm to truly experience the farm lifestyle.

Our small scale camping operation creates many financial opportunities (not just the lodging fee) and is designed to directly benefit Ambarona Farm. Jordan and Molly will be managing the campsites, and ensuring minimal impact on the land. Additionally, having overnight guests on the property provides Ambarona Farm an opportunity to offer value-added experiences to the guests to further increase their earning potential. This could be a number of paid experiences, from farming classes, to milking a cow, to gardening 101, the list goes on.

These opportunities to create multiple streams of revenue for the farm takes financial pressure off of the farming operation. The result of this is hard to quantify at this stage in the project, but we believe this strategy will open the doors to truly create something of value for the community. We will be able to hire more farm hands, experiment with new crops, increase yields and offerings for local customers, spend more money on property maintenance and stewardship (*trail enhancements*), invest in critical farming infrastructure, and more.

From our perspective, this translates into more time and resources to properly oversee conservation of the property and not just maintain the conservation value of LongWoods Preserve, but enhance the conservation value.

# Relevant sections of the comprehensive plan that support our intentions with this line of business:

• To encourage agriculture-related businesses. ACTIONS: 1. Reduce restrictions on farm buildings and operations. 2. Expand the use of locally grown products. Possible approaches are to encourage additional days and locations for farmers' markets; incorporating the locally grown food into the school nutrition program (*The camping*)

# business provides the farm with disposable income to enhance their farming operation and increase the output of products they can offer to the community)

- Facilitate the development of mixed use projects.
- To support the growing, harvesting, and sale of locally produced food products
- Two of the goals of this plan are to explore alternative revenue sources and to provide opportunities for non-residential development in order to shift some of the tax burden from residents to commercial taxpayers.

NOTE:

All campsites are non-permanent structures and can be moved at any time in the event it threatens the conservation value of the property. The structures require little to no sitework (other than limbing and cutting dead trees) and above ground footings using concrete blocks or small amounts of crushed stone. If the ground is level enough, they can sit right on the ground without the need for free standing footings or crushed stone.

The location of these sheds are interchangeable and we are open to suggestions about which style should go on which site.

## Site 1

Footprint: 12X20 - 240 sq feet

This is our largest structure and is the same structure as the outdoor restroom that sits on the development parcel near the restaurant.

<u>Site 2</u>: Footprint: 10X16 - 160 Sq feet

<u>Site 3</u>: Footprint: 12X16 - 192 Sq feet

<u>Site 4</u>: Footprint: 10X12 - 120 sq feet

## **Outhouse**

### Footprint: 16 sq feet

Composting Toilet: We have not made a decision on this yet as we plan to let Jordan and Molly make this decision since they will be the ones maintaining it. We have a healthy budget for this, so whatever we get, it has to be environmentally friendly, easy to clean and service, and emit no odors outside the outhouse itself.






















Nature's Head, Inc. www.NaturesHead.net

Sales PO Box 250 Van Buren, OH 45889 Phone: 251-295-3043 Email: sales@NaturesHead.net

> Corporate 535 Bayou Sara Avenue Saraland, AL 36571



Made in the USA

# Nature's Head® Composting Toilet

Congratulations on your acquisition of a NATURE'S HEAD<sup>®</sup> composting toilet! Although the concept of a composting head (toilet) is not a new one, the unit which you have purchased is the freshest of the new generation of this kind of product.

We saw a need for an improved design and more user-friendly product. The concept has been refined and reworked to provide you with a product that is easier to use, aesthetically pleasing, more space-efficient, and more affordable alternative to other products. While designed to withstand the rigors of the boating environment, the NATURE'S HEAD® toilet is well suited for many other applications.

Wherever you choose to install your new NATURE'S HEAD<sup>®</sup> toilet, it is sure to provide you with years of worry-free sanitation solutions without the hassles, inconvenience, expense, and odors of other sanitation systems.

## WHAT'S IN THE BOX?

- 1) Your new NATURE'S HEAD® composting toilet
- 2) Liquids Bottle and Cap
- 3) Basic installation kit:
  - 5 feet of  $1\frac{1}{2}$  inch inside diameter hose with ends
  - inside vent flange
  - agitator handle
  - 2 mounting brackets and knobs
  - 4 mounting screws (for wood floor installations)
  - 6' single pin cable for 12 volt fan
  - fuse holder and fuse for direct battery attachment
  - Allen wrench for installation of spider handle
  - Spray bottle
- 4) Instruction manual
- 5) Warranty Card

#### Note: The exhaust fan for the head was installed before shipment.

## INSTALLATION

#### ITEMS YOU MAY NEED TO COMPLETE YOUR INSTALLATION

Your NATURE'S HEAD® composting toilet comes with most of the items necessary for completion of your installation. The outside vent is not included because each application is different and many will require a different vent. Also the 12V to 110V Power Transformer (AC Adapter) is not included because all installations do not require this.

#### What might I need to install Nature's Head...

#### ... for My Tiny House installation?

If you are using 110 volt house power, you will need our Power Transformer (AC Adapter). If using 12 volt, batteries and or solar, the toilet comes with the necessary parts. Our PVC vent assembly is an easy way to vent through the wall or floor.

#### ... for My **RV** installation?

The toilet comes with the 12 volt parts needed. You will need our Power Transformer (AC Adapter) to plug into an outlet to power the fan ONLY if using 110 house power. The mushroom vent is an easy way to vent through the side or roof. The PVC vent is good for through the floor venting. You may already have an existing vent to connect to.

#### ... for My Tiny House or Cabin installation?

The toilet comes with everything for a 12 volt system. If using 110, house power you will need our Power Transformer (AC Adapter) to plug into an outlet to power the fan. The PVC vent is a good way to vent through the wall or the floor on a raised cabin.

#### ... for My Boat installation?

The toilet comes with the 12 volt parts needed. The venting, you can use the mushroom vent for cabin side or roof. It can also be used over an old pump out fitting hole.

## **INSTALLATION**, continued

#### **Hose Length**

Some installations may require increased hose lengths which may be purchased on a per foot basis. PVC pipe, available at most home improvement or hardware stores, may also be substituted for longer hose sections.

#### **Floor Construction**

For floor construction other than wood, a different type of mounting bolt may be required. If the installation is on concrete floor, many customers have found it convenient to mount the toilet to a section of plywood rather than trying to drill masonry. The plywood can be placed on the concrete floor and painted or varnished for appearance.

#### **Electrical Requirements**

If regular household current is available (110 volts), the head can be powered by a 12 volt Power Transformer (AC Adapter). These may be purchased from Nature's Head, Inc.

#### **Composting Medium**

Some type of composting medium is required.

Sphagnum Peat Moss: The most commonly used material is sphagnum

peat moss (organic) which is available at most garden stores or home improvement stores. It is usually available in a shrink-wrapped 3 ft cubic bale for \$8 to \$10. This quantity of sphagnum peat moss should sustain use of the head for a year or longer. The sphagnum peat moss should be organic, no additives. DO NOT use MIRACLE-GRO peat moss, as it is enriched with plant food.





**Coconut Coir:** Coconut fiber (also referred to as

Example

coir brick) is also an acceptable composting medium. However, it is more costly and less readily available. It may be obtained at hydroponic gardening outlets or online. The bricks on the left weigh 250 grams (a bit more

than  $\frac{1}{2}$  pound each). Coir bricks can be placed in a plastic bag: add 5 measuring cups of water per brick and let sit for 12 hours. This brick will expand to just a little more than 2  $\frac{1}{2}$  gallons.

## **INSTALLATION:** Dimensions





Dimensions can vary up to 4% due to the rotational moulding of polyethylene plastic.

Please note as stated in our instructions the following.

- Allow approximately 1.5 inches behind toilet if against a bulkhead or wall for the bowl to tilt for servicing.
- To disengage the bowl from the base, face the toilet. The bowl slides to the left 2 inches to disconnect from the slip hinge
- Handle and agitator, as well as the fan housing, can be switched to either side.

## **INSTALLATION:** Dimensions



## **INSTALLATION:** Location

When selecting the location for your new Nature's Head®, be certain to allow enough space behind and on both sides for the toilet to function and be serviced.



Be sure that the lid will open fully. You must also be certain that the bowl has enough room to tilt rearward to allow for its removal and for the removal of the 11/4" liquid tank.

If mounted against a wall or bulkhead, allow a minimum of  $1\frac{1}{2}$  inches between the toilet and the wall.

It is necessary to allow adequate room for the hose connection and agitator handle. Both of these may be relocated to the opposite side of the unit if needed. In some space-restricted areas it may be necessary to offset the toilet to one side or even turn the toilet slightly to one side to allow for extra clearance.



With the standard handle attached, the width of the unit is 21 inches. For more confined spaces, the optional spider handle decreases the width to  $17 \frac{3}{4}$  inches. Two inches, to the left side of the head (as you face it), is required to slide the bowl off the slip hinge for servicing the base.

In severely confined spaces, removing the mounting knobs and sliding the toilet away from the mounting location may be a more desirable method of servicing the unit.

## **INSTALLATION:** Mounting



It is necessary to secure your toilet to the floor using the two L-brackets.

The normal mounting is to position the L-brackets under the base in the recesses in the toilet, as shown on the left. Counter sunk mounting screws are included for installing to a wood floor.

To mount the L-brackets to the floor, position the base of the toilet in the previously selected location. Attach the L-brackets to the toilet with the knobs provided. If you choose to mount the L-brackets facing out (not under the toilet) simply mark the holes of the brackets on the floor with a pencil for drill locations. If you choose to mount them under the toilet, carefully trace around as much of the outline of the bracket as possible. Measure the distance between the bracket and the lines you drew.

Now remove the brackets from the toilet and move the toilet out of the way. Carefully position the L-brackets inside of the lines that you drew and mark the holes for drilling. Before drilling any holes in your floor or walls, be sure you know what is behind them! The holes in the brackets are for #12 countersunk bolts or screws. If you are using the screws provided you will need to drill a 1/8 inch pilot hole in the drill marks you made on the floor.

If you are uncertain if your brackets are positioned correctly, drill and mount just one bracket. Then reposition the toilet and mount to the one attached bracket. Check the positioning of your other bracket and marks. If all looks good, proceed with drilling and mounting the other bracket. If your markings are off, adjust your lines and proceed with mounting the second bracket. If mounting the toilet to a floor that will get wet frequently, a small amount of sealant should be placed in the holes before installing your screws. Attach your toilet and check to be sure everything works and fits as you intended.

Do not over tighten the hold down knobs as you will damage the threads in the base!

## **INSTALLATION: Venting**

The unit must be vented to the outside of your cabin whether it is a boat, RV, truck, or vacation property. This helps keep your bathroom smelling fresh, and allows for proper growth of beneficial bacteria which facilitates the composting process.

Installing the venting system will be the most difficult portion of the installation. The average do-it-yourselfer should be able to easily accomplish this if one is familiar with and has the proper tools. Depending on the type and placement of your vent, you may be required to cut holes in the wall, ceiling, or the floor. If you are unsure if you are qualified to complete this portion, it may be wise to hire a contractor or handyman to do this for you.



Due to the variety of ventilation choices available, the external vent has not been provided. Mushroom vents, solar vents, and our PVC Vent Assembly Kit are commonly used for venting to the exterior. All of these can be purchased from Nature's Head.

The unit may be vented vertically through the roof, or most common horizontally through

the wall, or down through the floor. For installations in homes, cabins, and other permanent structures the venting can be placed horizontally through the wall with our PVC Vent Kit.

This vent flange, included with the toilet, is used beneath a mushroom vent or solar vent and connects directly to the hose.





**INSTALLATION:** Venting

## **Attaching the Handle**

The toilet is shipped with the agitator handle unattached and must be installed before use. The standard handle is attached with a collar and hairpin clip, while the spider handle attaches with an allen set screw and locknut. In the event that the handle must be moved to the opposite site of the base, the agitator must be manually removed, reversed, and reinstalled. A Video showing how to reverse the agitators can be found on NaturesHead.net/Installation

## **Reversing the Fan and Filter Housing**

If installation of the ventilating hose is more favorable on one side of the unit than the other, the fan/filter housing is interchangeable with the filter-only housing. This is accomplished by swapping sides with the components and their respective housings. A Video showing how to reverse the fan and filter housing can be found onNaturesHead.net/ Installation.

## **INSTALLATION:** Venting, continued

Attaching a mesh fabric or screen (not provided) over the opening is necessary to prevent the entry of insects into the system. Any mesh fabric such as window screen or nylon netting will provide an adequate insect barrier.



If a sharp 90 degree turn from the fan housing is needed, a 1<sup>1</sup>/4 inch PVC street elbow (not provided) may be used to achieve a proper configuration.

Installations on boats and RV's are easily managed with the stainless steel mushroom vent with the builtin screen and adjustable top which is self-sealing.

In this case, the vent flange provided with the toilet would be placed on the inside wall around the opening to the vent with the flat side to the wall. On many boats, the pump-out fitting can be removed and the mushroom vent mounted over the existing hole. The venting hose provided with the unit will attach directly to the adapter.

Clamping the hose to the fan housing is not necessary on the connection for the head, and normally not necessary on the exterior connecter. With an overhead connection, you may find it necessary to clamp this end depending on the amount of support provided for the vent hose. If the hose is supported properly, you will probably not need a clamp. The vent hose must be attached to the housing which has the fan inside it. The unit is designed to pull fresh air through the head and ventilate it outside. If you disassemble the fan housing, always check to be certain that the fan is blowing out of the vent before re-attaching the vent hose.

## **INSTALLATION: Venting**

# NATURE'S HEAD®

Mushroom Vent Installation



## **INSTALLATION: POWER CONNECTION**



As with all electrical connections, be sure your head is on a fused circuit. The fuse should be no less than 2 amps and no more than 5 amps (12V). A fuse holder and fuse are provided for use in a non-protected 12 volt system such as direct attachment to a battery.

The fan may also be powered by a 110 volt source with a Power Transformer (AC Adapter) that reduces the power to 12 volts. If the system is being powered by the 110 volt Power Transformer (AC Adapter) disregard the fuse, fuse holder and single pin cable as they are intended for use ONLY with a 12 volt power source. No fuse is required when using the Power Transformer (AC Adapter).

These Power Transformers (AC Adapter) are available through Nature's Head,Inc.



#### Assistance

If you are unsure about your wiring system or requirements, consult an electrician.

If you are unsure of a particular step in the installation of your Nature's Head, please check the FAQs for Installation on our website, www. natureshead.net. If you are unable to resolve the issue, send us an email giving your name, phone number, address, distributor name, and a brief description of how we may help.

hold it to the wall or deck.

## USING YOUR NATURE'S HEAD

The waterless, urine separating design contributes the extraordinary holding capacity. The composting section holds approximately 60 to 80 uses.

The time frame to empty the solids bin varies with number of people and the time period. The toilet is designed for 1 to 4 people full-time. Generally, two people full-time people's usage will require emptying approximately every 3 weeks; additional people will shorten the time. If using just on weekends with 2 people, that can extend time to 2 months or more. Just a couple of days of non-use extends the period of time. Usually, the level of the compost will not increase; if it does it will be minimal.

The urine bottle holds 2.2 gallons and will require more frequent emptying; two people might need to empty after 3-4 days.

Before use, it is necessary to add compost material to the base of the unit. Gallon size "ZIPLOC®" type bags are an inexpensive manner for storing the medium. To fill your toilet or refill it after emptying, pour two one-gallon bags of pre-moistened sphagnum peat moss or coconut fiber into the base of the toilet. The sphagnum peat moss should rise to



the level of, or cover, the agitator bar in a horizontal position.

The sphagnum peat moss should be damp and crumbly, never wet or soupy. If your sphagnum peat moss or coconut fiber is dry, add a small amount of water. When not in use, the lid of the toilet should be in the closed position, preventing the entry of insects and allowing proper ventilation. The peat moss must be regular/organic sphagnum peat moss, no additives. DO NOT use MIRACLE-GRO peat moss.

Do not add additional medium after solids usage. Doing this will result in too much sphagnum peat moss or coconut coir in the unit and will limit your time of usage before emptying.

The primary concept of our composting toilet is the separation of liquids and solid wastes! Be sure to inform your guests as to the proper use of your head. This will allow proper composting action and assist your guests in feeling comfortable with a new piece of equipment.

## USAGE, continued

Allowing the overflow of urine into the composting chamber will cause unpleasant odor and prevent proper compost action.

Seated usage is recommended. While seated, the unit may be used with the trap door in the open or closed position. Whether male or female, the user's liquids and solids will be directed to the correct locations from this position. With any bowel movement, the trap door must be open. Male stand-up usage is less acceptable as splatter may result. In the event that the unit is used in a standing position, the trapdoor must remain closed in order to prevent mingling of liquid and solid wastes.

Toilet paper is typically placed in the toilet. Since paper products do not decompose as quickly as solid wastes, they will be visible long after the solid matter has broken down. Any type of toilet paper is acceptable; less substantial brands (such as marine or RV paper) will compost the quickest.

Diapers, wipes and tampons should not be placed in the solids bin. Many brands of these items are made from a mix of rayon and non-organic cotton, and are commonly chlorine-bleached. These will not decompose.

Most users keep a small spray bottle (included) filled with a mixture of water and 2 oz of white vinegar nearby to spray off the bowl in the event that some solid waste adheres to the bowl. Spritzing of the bowl also assists in cleansing the urine passages.

All urine has an odor. It will not be noticed with normal use. It will be present when the storage container is open to the air for emptying. For persistent urine odors in the container, add a few ounces of white vinegar, and/or a few drops of Dawn dishwashing soap to reduce this odor.

After solid waste addition, the sphagnum peat moss or coconut fiber must be agitated 2-3 revolutions slowly in order to mix the waste into the compost and promote the composting process. Contents of the solid waste container must be kept moist, not wet, and remain separated from the liquid waste.

## USAGE, continued

When the toilet is functioning correctly, the composted matter will have a musty or soil-like odor and the visual appearance will be very similar to that of the original sphagnum peat moss. It is not normal for the compost to be wet or for there to be odor problems

If the compost is staying wet and you have odor problems, the solids tank is becoming contaminated with urine and steps must be taken to prevent this. If this persists, and you are unable to determine how it is becoming contaminated, please contact us for help.

Vomiting and diarrhea, if not persistent, are unlikely to affect the head function. If increased wetness of the compost results, the situation may be corrected with the addition of a small amount of dry compost medium.

## **USAGE: Emptying**

The liquid waste vessel will contain approximately 2.2 gallons of urine. The translucent material of the container allows easy visualization of the liquid level.

To empty the liquid waste container:

1) Release the latches located at both front sides of the unit which secure the bowl to the base, 2) Raise the bowl to an angle of approximately 45 degrees, install the cap, and remove the bottle, 3) Dispose of the



contents in an appropriate manner. The urine bottle maybe emptied into a conventional toilet or other appropriate facility. Many books and articles have been written on the benefits of using diluted urine as a fertilizer. This may also be part of your environmental plan for disposing of wastes in a cabin situation.

Should overflow of the liquid waste container occur, the liquid will remain confined to the container base so long as the overflow is not excessive. The liquid tank should be emptied frequently and rinsed with water with detergent or vinegar added. Allowing urine to remain in the storage container for extended periods is unwise as this will result in increased odor production. If the toilet is used in combined bathroom/ shower, you may wish to drill a drain hole in the urine tank holder if water accumulation becomes a problem.

## **USAGE: Emptying**

With the bottle assembly removed, lift the seat unit several inches and slide it to the left to disengage the slip hinge. (You may need to unhook your vent hose and power supply if it is necessary to move the bowl to the side.) Remove the knobs from the mounting brackets at each side of the base and the base is now ready to empty.





One of the simplest methods to empty is to place a 13 gallon kitchen bag over the opening of the base (NOTE: the bag does NOT go in the base.) The bag should fit tightly over the rim and allow you to invert the base and empty the contents into the bag without spillage. This is especially useful when the toilet is used for boats and other mobile units, as removing the toilet is unnecessary.

It is unnecessary to clean the interior of the solid waste container as composting will continue from the residual matter clinging to the sides.

Cleaning the base unit, especially with any chemicals, may inhibit its ability to generate the good bacteria that is breaking down the solid wastes. Simply empty, put in more sphagnum peat moss, and re-assemble your toilet.

It is best you do not leave the liquid wastes in the tank for extended periods. While everyone is different, some urine will smell bad if allowed to sit for extended periods.

## **USAGE:** Disposal

The recommended procedure for disposing of the contents of the solid waste tank is placing it in a proper composting bin to allow it to fully decompose. When traveling in a boat or RV, this may not be practical. The contents of the solid waste tank may be safely placed into a conventional dumpster if it has been allowed to compost fully. When fully composted, the solid wastes may be used to fertilize non-ingestible plantings. Placing human waste compost on edible plants or vegetables is not recommended.

Full-time users have some special circumstances to deal with. Full-time use does not allow enough time for the solid wastes to compost. The most recent waste, although mixed with the already composted material, will not be decomposed. This also means that the fecal bacteria (present in fresh human wastes) may still be present. We recommend taking precautions such as the use of gloves if you may come into contact with waste material. It is advisable that you delay emptying the solid waste for 6-8 hours after the last use.

Another method for dealing with non-composted wastes (if space allows) is to purchase the "extra base" option and swap out the bases. The extra base comes complete with all the necessary hardware, agitator, and bottle holder. It also comes with a vented lid so the contents can be set aside and allowed to compost. A storage bin utilizing the trash bag method of emptying, placing the bag into a small plastic bucket, ventilating the lid, then allow it to finish composting may be constructed. In a cabin setting, contents could be emptied into a traditional compost bin and allowed to finish there. Solids that have not fully composted for at least a year are not suitable for use on ingestible plants.

## **CLEANSING & MAINTENANCE**

A quick spray of water and white vinegar or a natural cleaner from the squirt bottle (included) is all that is needed to keep your NH fresh between uses. If necessary, a moistened paper towel (no synthetics) is excellent for cleansing the interior (as well as the exterior) of the head.

For more intensive cleansing or dried-on matter, a paper towel moistened with a 1:1 solution of vinegar and water may be used, and disposed of, in the same manner, after cleaning. Bleach, ammonia, and other commercial cleaning compounds should never be added to your composting head as they will interfere with the composting process and may lead to unpleasant odors. These cleaners maybe used to clean the exterior surfaces.

Maintenance requirements for the head are very minimal. All metal parts (bolts, hinges, latches, knobs, agitator, and trapdoor components) are either stainless steel or brass. Filters on each side of the base should be removed and cleaned yearly or when emptying the solid wastes. Each filter is secured to the housing with 2 Phillips-head bolts. Remove the bolts, clean and replace. Caution should be taken so that the fan is reinstalled with the airflow exiting the unit.

The full-size molded-in seat of the head is designed for safety and comfort and requires no special care.

## **CUSTOMER SERVICE**

We are committed to providing our customers with outstanding service. If you need assistance please email us, giving us your name, address, telephone number. Approximate date of purchase and name of distributor would be helpful.

## Contact Us. Email: Sales@NaturesHead.net Phone: 251-295-3043

We periodically send newsletters to our customers and friends in order to share ideas and solutions suggested by our customers, to alert you to new developments and to provide other relevant information. If you have never received one of our newsletters, we invite you to sign up by clicking the link in the footer of our webpage: www.natureshead.net

## **TROUBLESHOOTING**

#### Find more troubleshooting and FAQ information online at natureshead.net/ installation\_use. Or email us at sales@natureshead.net.

**Fan not working.** If using 12 volt battery, check for voltage. Be sure the wire marked positive is attached to the positive from the battery. Check the fuse. Check to see if the single pin hookup is making contact. If using the 110 to the 12v Power Transformer (AC Adapter), check voltage at the outlet. Verify the single pin connection. Try unplugging and reconnecting. When the fan is running, make sure the fan is blowing outward. If the fan is still not working, contact Nature's Head or your distributor for a free replacement.

**Compost seems too wet.** If too wet due to prolonged diarrhea, add a small amount of sphagnum peat moss. If wet due to excessive condensation, also add a little spagnum peat moss. Make sure excessive wetness is not due to someone urinating directly into the compost section. This can also contribute to an unpleasant odor. The compost area should have only a musty smell. If a sewage odor is present, please contact Nature's Head for consultation.

**Compost seems too dry.** If the compost is dry or hard, add some water and turn the agitator after the sphagnum peat moss has absorbed the moisture.

**Cold Conditions.** Composting works from 55 degrees and warmer. The warmer it is, the faster it composts. When the temperature drops to freezing, the compost will be dormant until heat is introduced to the area.

**Fruit flies or gnats.** If your toilet incurs flies or gnats, add five cups of natural Diatomaceous Earth to the compost. This can be purchased at swimming pool supply stores or hardware stores. You may also want to try Gnatrol, following packaging directions. If neither of these work, please call us.

**Agitator handle turns with difficulty.** If the compost gets dry, the handle may not turn easily. Adding used coffee grounds results in added moisture and keeps the compost loose so that it mixes better.

## FAQs

We update our Frequently Asked Questions regularly on our website. Please visit NaturesHead.net/faq where you will find many tips, suggestions and solutions that will be helpful to you. For enhanced capacity and convenience, consider these options for your NATURE'S HEAD® Composting Toilet. All items are available for purchase on our website www.NaturesHead.net, from our distributors, or by phone at 251-295-3043.

## **EXTENDED CAPACITY**

**Extra Liquids Bottle** Bottle with cap.



#### Extra Base, with Lid

Complete with lids for storage allow for further composting and to extend the use of the unit. Bases have the agitator and hinge pre-installed for rapid change out. Handle is included.

#### Lid for Solids Bin

Vented lid for use when transporting solids bin is necessary.

#### **Power Transformer (AC Adapter)**

Optional 110 V adapter, used only when using 110V (house) power.

## VENTS

#### **Mushroom Ventilator**

Polished 304 sheet stainless steel with a screw down knob to open and close the vent. Includes a stainless steel mesh mosquito screen.

#### **PVC Vent Assembly for Structures**

Screened vent assembly for through-the-wall installation in structures such as cabins, homes, workshops, barns. Fits 1 5/8 inch opening. 16" connector pipe can be shortened as required. Can be installed horizontally or vertically. Vent hose snugly fits end of connector pipe.









## Nature's Head® Composting Toilet

#### LIMITED WARRANTY

This NATURE'S HEAD® composting toilet and its components are warranted against defects in materials and workmanship for five (5) years from the initial purchase date. During this period any NATURE'S HEAD® toilet, after inspection by Nature's Head, Inc., if deemed defective will be repaired or replaced without cost to the customer.

This warranty extends to the original purchaser only and is non-transferable. Only consumers who purchased the NATURE'S HEAD® toilet from Nature's Head, Inc., or an authorized dealer, and who install, operate, and maintain the toilet in conformance with the instructions in this manual may obtain coverage under this Limited Warranty.

This Warranty does not apply to any problem caused by any condition, malfunction, or damage: (1) caused by defects other than defects in material or workmanship; (2) resulting from normal wear and tear, improper installation, improper maintenance or repair, misuse, abuse, negligence, accident, alteration of a part or the product, or any external cause; or (3) to any accessories, materials, products, or parts not manufactured or supplied by Nature's Head, Inc.

Nature's Head, Inc. makes no other warranty, either express or implied, including but not limited to implied warranties of merchantability, fitness for a particular purpose, or conformity to any representation or description, with respect to the NATURE'S HEAD<sup>®</sup> product or any of its parts or accessories, other than as expressly set forth in this Warranty. Nature's Head, Inc. makes no warranty or representation, either express or implied, with respect to any other manufacturer's product or documentation, its quality, performance, merchantability, fitness for a particular purpose, or conformity to any representation or description. To the extent permitted by law, this warranty and remedies set forth below are exclusive and in lieu of all others, oral or written, expressed or implied. No dealer, distributor, reseller, agent or employee is authorized to make any modification, extension or addition to this Warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages. If such exclusions or limitations are prohibited under the applicable law, the above limitation or exclusion may not apply. This Warranty gives you specific legal rights and you may have other rights, which vary from state to state.

#### LIMITATION OF LIABILITY

EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE MAXIMUM EXTENT PERMITTED BY LAW, NATURE'S HEAD INC. IS NOT RESPONSIBLE FOR SPE-CIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO DAMAGES TO PERSONAL OR REAL PROPERTY, RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOSS OF USE. THE FOREGOING LIMITATION SHALL NOT APPLY TO DEATH OR PERSONAL INJURY CLAIMS, OR ANY STATUTORY LIABILITY FOR INTENTIONAL AND GROSS NEGLIGENT ACTS AND/OR OMISSIONS.

Warranty claims should be addressed to Nature's Head, Inc. PO Box 250, Van Buren, OH, 45889 or by E-mail to Sales@NaturesHead.net. Include a copy of the sales receipt or other evidence of the date and place of purchase of the toilet and a description of the problem.

**NATURE'S HEAD**<sup>®</sup> is a registered trademark of Nature's Head, Inc. All other marks are the property of their respective owners-



#### NATURE'S HEAD, INC.

PO Box 250 Van Buren, OH 45889

251-295-3043

www.NaturesHead.net

## **ATTACHMENT 4**

STORMWATER PRE- AND POST-CALCULATIONS





The Grange Hall\_PRE\_04252023 Prepared by Sevee & Maher Engineers HydroCAD® 10.20-2g s/n 01260 © 2022 HydroCAD Software Solutions LLC

## Area Listing (all nodes)

Area	CN	Description
(acres)		(subcatchment-numbers)
0.265	74	>75% Grass cover, Good, HSG C (SC-2)
26.426	80	>75% Grass cover, Good, HSG D (SC-1, SC-2)
0.336	96	Gravel surface, HSG D (SC-1, SC-2)
0.611	93	Paved roads w/open ditches, 50% imp, HSG D (SC-1, SC-2)
0.091	98	Unconnected roofs, HSG D (SC-2)
4.924	55	Woods, Good, HSG B (SC-2)
12.515	70	Woods, Good, HSG C (SC-2)
64.211	77	Woods, Good, HSG D (SC-1, SC-2)
109.380	76	TOTAL AREA

## Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
4.924	HSG B	SC-2
12.781	HSG C	SC-2
91.675	HSG D	SC-1, SC-2
0.000	Other	
109.380		TOTAL AREA

The Grange Hall_PRE_0425202	3 N	IRCC 24-hr D 2-Year Rainfall=3.10"	
Prepared by Sevee & Maher Engine	ers	Printed 4/25/2023	
HydroCAD® 10.20-2g s/n 01260 © 2022	HydroCAD Software Solutions	LLC Page 4	
Time span= Runoff by SC Reach routing by Stor-In	0.00-30.00 hrs, dt=0.01 hrs, S TR-20 method, UH=SCS, d+Trans method - Pond ro	3001 points Weighted-CN uting by Stor-Ind method	
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,157,563 s Flow Length=1,045' Tc=24.	of 0.54% Impervious Runoff Depth=1.20" 6 min CN=78 Runoff=19.76 cfs 2.659 af	
Subcatchment SC-2: Tree, Grass, Flow Len	Runoff Area=3,607,020 s igth=994' Tc=33.4 min UI Ac	of 0.31% Impervious Runoff Depth=1.03" djusted CN=75 Runoff=43.53 cfs 7.085 af	
Reach 1R: Drainage	Avg. Flow Depth=0.90' Ma 1,281.0' S=0.0094 '/' Capacit	ax Vel=2.54 fps Inflow=43.53 cfs 7.085 af ty=231.29 cfs Outflow=40.69 cfs 7.085 af	
Pond 1P: 24" Existing Culvert Primary=10.11	Peak Elev=61.59' Sto cfs 2.655 af Secondary=0.00	rage=23,434 cf Inflow=19.76 cfs 2.659 af ) cfs 0.000 af Outflow=10.11 cfs 2.655 af	
Link AP-1:		Inflow=10.11 cfs 2.655 af Primary=10.11 cfs 2.655 af	
Link AP-2:		Inflow=40.69 cfs 7.085 af Primary=40.69 cfs 7.085 af	
Total Runoff Area = 109.3	380 ac Runoff Volume = 9 99.64% Pervious = 108	9.744 af Average Runoff Depth = 1.0 .983 ac 0.36% Impervious = 0.397 a	7" C

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 19.76 cfs @ 12.36 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 2.659 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

A	rea (sf)	CN I	Description					
2	73,224	80 :	>75% Grass cover, Good, HSG D					
	1,133	96	Gravel surfa	ace, HSG D	)			
8	70,741	77 \	Woods, Go	od, HSG D				
	12,465	93	Paved road	s w/open d	litches, 50% imp, HSG D			
1,1	57,563	78	Weighted A	verage				
1,1	51,331	9	99.46% Pei	vious Area				
	6,233		0.54% Impe	ervious Area	а			
-		<u></u>		<b>a</b>				
	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(CIS)				
5.7	100	0.0800	0.29		Sheet Flow, A-B			
					Grass: Short n= 0.150 P2= 3.10"			
3.9	254	0.0240	1.08		Shallow Concentrated Flow, B-C			
					Short Grass Pasture Kv= 7.0 fps			
6.8	257	0.0160	0.63		Shallow Concentrated Flow, C-D			
0.0	40.4	0.0400	0.00		Woodland Kv= 5.0 fps			
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E			
					Short Grass Pasture KV= 7.0 fps			

24.6 1,045 Total

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 43.53 cfs @ 12.50 hrs, Volume= 7.085 af, Depth= 1.03" Routed to Reach 1R : Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

Area (sf)	CN	Adj	Description
877,902	80		>75% Grass cover, Good, HSG D
3,979	98		Unconnected roofs, HSG D
13,496	96		Gravel surface, HSG D
1,926,279	77		Woods, Good, HSG D
545,165	70		Woods, Good, HSG C
214,485	55		Woods, Good, HSG B
11,559	74		>75% Grass cover, Good, HSG C
14,155	93		Paved roads w/open ditches, 50% imp, HSG D
3,607,020	76	75	Weighted Average, UI Adjusted
3,595,964			99.69% Pervious Area
11,057			0.31% Impervious Area
3,979			35.99% Unconnected

#### The Grange Hall\_PRE\_04252023

NRCC 24-hr D	2-Year Rair	nfall=3.10"
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Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
2.0	172	0.0400	1.40		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
22.6	479	0.0050	0.35		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, D-E
					Woodland Kv= 5.0 fps

33.4 994 Total

#### Summary for Reach 1R: Drainage

 Inflow Area =
 82.806 ac, 0.31% Impervious, Inflow Depth = 1.03" for 2-Year event

 Inflow =
 43.53 cfs @
 12.50 hrs, Volume=
 7.085 af

 Outflow =
 40.69 cfs @
 12.73 hrs, Volume=
 7.085 af, Atten= 7%, Lag= 13.7 min

 Routed to Link AP-2 :
 800 cm model
 10.00 cm model

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 2.54 fps, Min. Travel Time= 8.4 min Avg. Velocity = 1.00 fps, Avg. Travel Time= 21.3 min

Peak Storage= 20,479 cf @ 12.59 hrs Average Depth at Peak Storage= 0.90', Surface Width= 26.77' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



## Summary for Pond 1P: 24" Existing Culvert

Inflow Are	a =	26.574 ac,	0.54% Imp	ervious,	Inflow D	epth =	1.20"	for 2-	Year eve	ent
Inflow	=	19.76 cfs @	12.36 hrs,	Volume	=	2.659	af			
Outflow	=	10.11 cfs @	12.71 hrs,	Volume	=	2.655	af, At	ten= 49%	6, Lag=	20.6 min
Primary	=	10.11 cfs @	12.71 hrs,	Volume	=	2.655	af		Ū	
Routed	to Link	AP-1 :								
Secondary	/ =	0.00 cfs @	0.00 hrs,	Volume	=	0.000	af			
Routed	to Link	AP-1 :								

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 61.59' @ 12.71 hrs Surf.Area= 25,592 sf Storage= 23,434 cf

Plug-Flow detention time= 42.6 min calculated for 2.654 af (100% of inflow)

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Center-of-Mass det. time= 41.8 min ( 939.9 - 898.1 )

Volume	Inve	rt Avail.Sto	rage Storage	e Description	
#1	60.0	0' 141,42	27 cf Custon	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio	on	Surf.Area	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
60.0	00	3,955	0	0	
62.0	00	31,236	35,191	35,191	
64.0	00	75,000	106,236	141,427	
Device	Routing	Invert	Outlet Device	es	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet n= 0.013 Co	<b>d Culvert</b> P, mitered to cor Invert= 60.00' / 5 prrugated PE, sm	nform to fill, Ke= 0.700 i9.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf
#2	Seconda	ry 63.00'	<b>10.0' long x 20.0' breadth Broad-Crested Rectangular Weir</b> 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=10.11 cfs @ 12.71 hrs HW=61.59' (Free Discharge) **1=Culvert** (Inlet Controls 10.11 cfs @ 3.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

#### Summary for Link AP-1:

Inflow Area = 26.574 ac, 0.54% Impervious, Inflow Depth > 1.20" for 2-Year event Inflow = 10.11 cfs @ 12.71 hrs, Volume= 2.655 af Primary = 10.11 cfs @ 12.71 hrs, Volume= 2.655 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

#### Summary for Link AP-2:

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 1.03" for 2-Year event Inflow = 40.69 cfs @ 12.73 hrs, Volume= 7.085 af Primary = 40.69 cfs @ 12.73 hrs, Volume= 7.085 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

The Grange Hall_PRE_04252023	<b>3</b> NRCC 24-hr D 10	0-Year Rainfall=4.60"
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HydroCAD® 10.20-2g s/n 01260 © 2022 H	HydroCAD Software Solutions LLC	Page 8
Time span=0 Runoff by SCS Reach routing by Stor-Inc	0.00-30.00 hrs, dt=0.01 hrs, 3001 points S TR-20 method, UH=SCS, Weighted-CN d+Trans method - Pond routing by Stor-Ind	method
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,157,563 sf 0.54% Impervie Flow Length=1,045' Tc=24.6 min CN=78 R	ous Runoff Depth=2.38" unoff=40.08 cfs 5.261 af
SubcatchmentSC-2: Tree, Grass, Flow Leng	Runoff Area=3,607,020 sf 0.31% Impervie th=994' Tc=33.4 min UI Adjusted CN=75 Ru	ous Runoff Depth=2.13" noff=94.73 cfs 14.691 af
Reach 1R: Drainage n=0.040 L=1,2	Avg. Flow Depth=1.30' Max Vel=3.26 fps In 281.0' S=0.0094 '/' Capacity=231.29 cfs Out	flow=94.73 cfs  14.691 af flow=90.77 cfs  14.691 af
Pond 1P: 24" Existing Culvert Primary=16.33 (	Peak Elev=62.50' Storage=53,447 cf I cfs 5.257 af Secondary=0.00 cfs 0.000 af Ou	nflow=40.08 cfs  5.261 af tflow=16.33 cfs  5.257 af
Link AP-1:	l Pri	nflow=16.33 cfs  5.257 af mary=16.33 cfs  5.257 af
Link AP-2:	In Prin	flow=90.77 cfs  14.691 af nary=90.77 cfs  14.691 af
Total Runoff Area = 109.38	30 ac Runoff Volume = 19.952 af Averag 99.64% Pervious = 108.983 ac  0.36%	ge Runoff Depth = 2.19" Impervious = 0.397 ac

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 40.08 cfs @ 12.35 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 5.261 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

A	rea (sf)	CN I	Description					
2	73,224	80 :	>75% Grass cover, Good, HSG D					
	1,133	96	Gravel surfa	ace, HSG D	)			
8	70,741	77 \	Woods, Go	od, HSG D				
	12,465	93	Paved road	s w/open d	litches, 50% imp, HSG D			
1,1	57,563	78	Weighted A	verage				
1,1	51,331	9	99.46% Pei	vious Area				
	6,233	(	0.54% Impe	ervious Area	а			
-		<u></u>		<b>a</b>				
	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(CIS)				
5.7	100	0.0800	0.29		Sheet Flow, A-B			
					Grass: Short n= 0.150 P2= 3.10"			
3.9	254	0.0240	1.08		Shallow Concentrated Flow, B-C			
					Short Grass Pasture Kv= 7.0 fps			
6.8	257	0.0160	0.63		Shallow Concentrated Flow, C-D			
0.0	40.4	0.0400	0.00		Woodland Kv= 5.0 fps			
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E			
					Short Grass Pasture KV= 7.0 fps			

24.6 1,045 Total

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 94.73 cfs @ 12.47 hrs, Volume= 14.691 af, Depth= 2.13" Routed to Reach 1R : Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

Area (sf)	CN	Adj	Description
877,902	80		>75% Grass cover, Good, HSG D
3,979	98		Unconnected roofs, HSG D
13,496	96		Gravel surface, HSG D
1,926,279	77		Woods, Good, HSG D
545,165	70		Woods, Good, HSG C
214,485	55		Woods, Good, HSG B
11,559	74		>75% Grass cover, Good, HSG C
14,155	93		Paved roads w/open ditches, 50% imp, HSG D
3,607,020	76	75	Weighted Average, UI Adjusted
3,595,964			99.69% Pervious Area
11,057			0.31% Impervious Area
3,979			35.99% Unconnected

#### The Grange Hall\_PRE\_04252023

NRCC 24-hr D	10-Year Rainfall=4.60"
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Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
2.0	172	0.0400	1.40		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
22.6	479	0.0050	0.35		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, D-E
					Woodland Kv= 5.0 fps

33.4 994 Total

#### Summary for Reach 1R: Drainage

 Inflow Area =
 82.806 ac,
 0.31% Impervious, Inflow Depth =
 2.13" for 10-Year event

 Inflow =
 94.73 cfs @
 12.47 hrs, Volume=
 14.691 af

 Outflow =
 90.77 cfs @
 12.66 hrs, Volume=
 14.691 af, Atten= 4%, Lag= 11.3 min

 Routed to Link AP-2 :
 12.66 hrs, Volume=
 14.691 af, Atten= 4%, Lag= 11.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.26 fps, Min. Travel Time= 6.6 min Avg. Velocity = 1.19 fps, Avg. Travel Time= 17.9 min

Peak Storage= 35,718 cf @ 12.55 hrs Average Depth at Peak Storage= 1.30', Surface Width= 32.22' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



## Summary for Pond 1P: 24" Existing Culvert

Inflow Are	a =	26.574 ac,	0.54% Imp	ervious,	Inflow Depth	= 2.	<b>38</b> " t	for	10-Ye	ear eve	nt
Inflow	=	40.08 cfs @	12.35 hrs,	Volume	= 5.2	61 af					
Outflow	=	16.33 cfs @	12.79 hrs,	Volume	= 5.2	57 af,	Atter	า= 5	<b>9%</b> , I	Lag= 2	6.0 min
Primary	=	16.33 cfs @	12.79 hrs,	Volume	= 5.2	57 af				•	
Routed	l to Link	AP-1 :									
Secondary	y =	0.00 cfs @	0.00 hrs,	Volume	= 0.0	00 af					
Routed	I to Link	AP-1 :									

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 62.50' @ 12.79 hrs Surf.Area= 42,126 sf Storage= 53,447 cf

Plug-Flow detention time= 44.4 min calculated for 5.255 af (100% of inflow)

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Center-of-Mass det. time= 44.0 min (916.6 - 872.6)

Volume	Inve	ert Avail.Sto	orage Storage	Description	
#1	60.0	00' 141,4	27 cf Custom	n Stage Data (Pi	rismatic)Listed below (Recalc)
Elevatio	on	Surf.Area	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
60.0	00	3,955	0	0	
62.0	00	31,236	35,191	35,191	
64.0	00	75,000	106,236	141,427	
Device	Routing	Invert	Outlet Device	s	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet I n= 0.013 Con	<b>I Culvert</b> P, mitered to cor Invert= 60.00' / 5 rrugated PE, sm	nform to fill, Ke= 0.700 i9.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf
#2 Secondar		ry 63.00'	<b>10.0' long x</b> Head (feet) ( Coef. (Englist	<b>20.0' breadth B</b> 0.20 0.40 0.60 h) 2.68 2.70 2.	road-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=16.33 cfs @ 12.79 hrs HW=62.50' (Free Discharge) **1=Culvert** (Inlet Controls 16.33 cfs @ 5.20 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

#### Summary for Link AP-1:

Inflow Area = 26.574 ac, 0.54% Impervious, Inflow Depth > 2.37" for 10-Year event Inflow = 16.33 cfs @ 12.79 hrs, Volume= 5.257 af Primary = 16.33 cfs @ 12.79 hrs, Volume= 5.257 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

#### Summary for Link AP-2:

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 2.13" for 10-Year event Inflow = 90.77 cfs @ 12.66 hrs, Volume= 14.691 af Primary = 90.77 cfs @ 12.66 hrs, Volume= 14.691 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

The Grange Hall_PRE_0425202	<b>3</b> NRCC 24-hr D 25	-Year Rainfall=5.80"
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Time span= Runoff by SC Reach routing by Stor-In	0.00-30.00 hrs, dt=0.01 hrs, 3001 points S TR-20 method, UH=SCS, Weighted-CN d+Trans method - Pond routing by Stor-Ind r	nethod
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,157,563 sf 0.54% Imperviou Flow Length=1,045' Tc=24.6 min CN=78 Ru	us Runoff Depth=3.40" noff=57.44 cfs 7.536 af
SubcatchmentSC-2: Tree, Grass, Flow Lengt	Runoff Area=3,607,020 sf 0.31% Imperviou h=994' Tc=33.4 min UI Adjusted CN=75 Runo	us Runoff Depth=3.11" ff=139.57 cfs 21.477 af
Reach 1R: Drainage n=0.040 L=1,2	Avg. Flow Depth=1.56' Max Vel=3.68 fps Inflov 81.0' S=0.0094 '/' Capacity=231.29 cfs Outflov	<i>w</i> =139.57 cfs 21.477 af <i>w</i> =135.00 cfs 21.476 af
Pond 1P: 24" Existing Culvert Primary=19.45	Peak Elev=63.12' Storage=84,142 cf Int cfs 7.493 af Secondary=1.18 cfs 0.038 af Out	flow=57.44 cfs  7.536 af flow=20.63 cfs  7.531 af
Link AP-1:	In Prin	flow=20.63 cfs 7.531 af nary=20.63 cfs 7.531 af
Link AP-2:	Inflov Primar	w=135.00 cfs  21.476 af y=135.00 cfs  21.476 af
Total Runoff Area = 109.3	80 ac Runoff Volume = 29.012 af Average 99.64% Pervious = 108.983 ac 0.36%	e Runoff Depth = 3.18" Impervious = 0.397 ac

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 57.44 cfs @ 12.35 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 7.536 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

A	rea (sf)	CN I	Description					
2	73,224	80 :	>75% Grass cover, Good, HSG D					
	1,133	96	Gravel surfa	ace, HSG D	)			
8	70,741	77 \	Woods, Go	od, HSG D				
	12,465	93	Paved road	s w/open d	litches, 50% imp, HSG D			
1,1	57,563	78	Weighted A	verage				
1,1	51,331	9	99.46% Pei	vious Area				
	6,233		0.54% Impe	ervious Area	а			
-		<u></u>		<b>a</b>				
	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(CIS)				
5.7	100	0.0800	0.29		Sheet Flow, A-B			
					Grass: Short n= 0.150 P2= 3.10"			
3.9	254	0.0240	1.08		Shallow Concentrated Flow, B-C			
					Short Grass Pasture Kv= 7.0 fps			
6.8	257	0.0160	0.63		Shallow Concentrated Flow, C-D			
0.0	40.4	0.0400	0.00		Woodland Kv= 5.0 fps			
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E			
					Short Grass Pasture KV= 7.0 fps			

24.6 1,045 Total

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 139.57 cfs @ 12.46 hrs, Volume= 21.477 af, Depth= 3.11" Routed to Reach 1R : Drainage

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

Area (sf)	CN	Adj	Description
877,902	80		>75% Grass cover, Good, HSG D
3,979	98		Unconnected roofs, HSG D
13,496	96		Gravel surface, HSG D
1,926,279	77		Woods, Good, HSG D
545,165	70		Woods, Good, HSG C
214,485	55		Woods, Good, HSG B
11,559	74		>75% Grass cover, Good, HSG C
14,155	93		Paved roads w/open ditches, 50% imp, HSG D
3,607,020	76	75	Weighted Average, UI Adjusted
3,595,964			99.69% Pervious Area
11,057			0.31% Impervious Area
3,979			35.99% Unconnected

#### The Grange Hall\_PRE\_04252023

NRCC 24-hr D	25-Year Rainfall=5.80"
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Тс	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
2.0	172	0.0400	1.40		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
22.6	479	0.0050	0.35		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, D-E
					Woodland Kv= 5.0 fps

33.4 994 Total

#### Summary for Reach 1R: Drainage

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 3.11" for 25-Year event Inflow = 139.57 cfs @ 12.46 hrs, Volume= 21.477 af Outflow = 135.00 cfs @ 12.63 hrs, Volume= 21.476 af, Atten= 3%, Lag= 10.1 min Routed to Link AP-2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.68 fps, Min. Travel Time= 5.8 min Avg. Velocity = 1.31 fps, Avg. Travel Time= 16.3 min

Peak Storage= 47,037 cf @ 12.53 hrs Average Depth at Peak Storage= 1.56', Surface Width= 35.32' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



## Summary for Pond 1P: 24" Existing Culvert

Inflow Are	a =	26.574 ac,	0.54% Impe	rvious,	Inflow D	)epth =	3.40	" for	25-Y	′ear ev	rent
Inflow	=	57.44 cfs @	12.35 hrs,	Volume	=	7.536	af				
Outflow	=	20.63 cfs @	12.84 hrs,	Volume	=	7.531	af, A	Atten= 6	64%,	Lag=	29.3 min
Primary	=	19.45 cfs @	12.84 hrs,	Volume	=	7.493	af			U	
Routed	l to Link	AP-1 :									
Secondar	y =	1.18 cfs @	12.84 hrs,	Volume	=	0.038	af				
Routed	to Link	AP-1 :									

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 63.12' @ 12.84 hrs Surf.Area= 55,839 sf Storage= 84,142 cf

Plug-Flow detention time= 49.8 min calculated for 7.529 af (100% of inflow)

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Volume Invert Avail.Storage Storage Description Custom Stage Data (Prismatic)Listed below (Recalc) #1 60.00' 141,427 cf Elevation Surf.Area Inc.Store Cum.Store (cubic-feet) (feet) (sq-ft) (cubic-feet) 60.00 3.955 0 0 62.00 31.236 35,191 35,191 64.00 75,000 106.236 141,427 Device Routing Invert **Outlet Devices** #1 Primary 60.00' 24.0" Round Culvert L= 50.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 60.00' / 59.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf 10.0' long x 20.0' breadth Broad-Crested Rectangular Weir #2 Secondary 63.00' 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

Center-of-Mass det. time= 49.5 min ( 908.8 - 859.3 )

**Primary OutFlow** Max=19.45 cfs @ 12.84 hrs HW=63.12' (Free Discharge) **1=Culvert** (Inlet Controls 19.45 cfs @ 6.19 fps)

Secondary OutFlow Max=1.17 cfs @ 12.84 hrs HW=63.12' (Free Discharge) 2=Broad-Crested Rectangular Weir (Weir Controls 1.17 cfs @ 0.94 fps)

#### Summary for Link AP-1:

Inflow Area = 26.574 ac, 0.54% Impervious, Inflow Depth > 3.40" for 25-Year event Inflow = 20.63 cfs @ 12.84 hrs, Volume= 7.531 af Primary = 20.63 cfs @ 12.84 hrs, Volume= 7.531 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

#### Summary for Link AP-2:

Inflow Area = 82.806 ac, 0.31% Impervious, Inflow Depth = 3.11" for 25-Year event Inflow = 135.00 cfs @ 12.63 hrs, Volume= 21.476 af Primary = 135.00 cfs @ 12.63 hrs, Volume= 21.476 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs



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## Area Listing (all nodes)

Area	CN	Description
 (acres)		(subcatchment-numbers)
0.265	74	>75% Grass cover, Good, HSG C (SC-2)
25.819	80	>75% Grass cover, Good, HSG D (SC-1, SC-2)
1.535	98	Paved parking, HSG D (SC-2)
0.286	98	Paved roads w/curbs & sewers, HSG D (SC-1)
0.018	98	Unconnected roofs, HSG C (SC-2)
0.183	98	Unconnected roofs, HSG D (SC-2)
4.924	55	Woods, Good, HSG B (SC-2)
12.497	70	Woods, Good, HSG C (SC-2)
63.851	77	Woods, Good, HSG D (SC-1, SC-2)
109.380	76	TOTAL AREA

## Soil Listing (all nodes)

Area	Soil	Subcatchment
(acres)	Group	Numbers
0.000	HSG A	
4.924	HSG B	SC-2
12.781	HSG C	SC-2
91.675	HSG D	SC-1, SC-2
0.000	Other	
109.380		TOTAL AREA

The Grange Hall_POST_0425202	23 NRCC 24-hr D 2-Year Rainfall=3.10"
Prepared by Sevee & Maher Engine	ers Printed 4/25/2023
HydroCAD® 10.20-2g s/n 01260 © 2022 H	HydroCAD Software Solutions LLC Page 4
Time span=0 Runoff by SCS Reach routing by Stor-Inc	0.00-30.00 hrs, dt=0.01 hrs, 3001 points S TR-20 method, UH=SCS, Weighted-CN d+Trans method - Pond routing by Stor-Ind method
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,119,751 sf 1.11% Impervious Runoff Depth=1.20" Flow Length=930' Tc=27.8 min CN=78 Runoff=17.99 cfs 2.572 af
SubcatchmentSC-2: Tree, Grass,	Runoff Area=3,644,832 sf 2.08% Impervious Runoff Depth=1.08" Flow Length=1,030' Tc=33.3 min CN=76 Runoff=47.13 cfs 7.551 af
Reach 1R: Drainage n=0.040 L=1	Avg. Flow Depth=0.93' Max Vel=2.61 fps Inflow=47.13 cfs 7.551 af ,281.0' S=0.0094 '/' Capacity=231.29 cfs Outflow=44.05 cfs 7.551 af
Pond 1P: 24" Existing Culvert Primary=9.66	Peak Elev=61.54' Storage=22,211 cf Inflow=17.99 cfs 2.572 af cfs 2.568 af Secondary=0.00 cfs 0.000 af Outflow=9.66 cfs 2.568 af
Link AP-1:	Inflow=9.66 cfs 2.568 af
	Primary=9.66 cfs 2.568 af
Link AP-2:	Inflow=44.05 cfs 7.551 af
	Primary=44.05 cfs 7.551 af
Total Runoff Area = 109.38	30 ac_ Runoff Volume = 10 123 af_Average Runoff Depth = 1 11

Total Runoff Area = 109.380 ac Runoff Volume = 10.123 af Average Runoff Depth = 1.11" 98.15% Pervious = 107.357 ac 1.85% Impervious = 2.023 ac

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 17.99 cfs @ 12.39 hrs, Volume= 2.572 af, Depth= 1.20" Routed to Pond 1P : 24" Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

	Area (sf)	CN	Description					
	235,433	80	>75% Gras	s cover, Go	ood, HSG D			
	871,853	77	Woods, Good, HSG D					
12,465 98			Paved roads w/curbs & sewers, HSG D					
1.	119,751	78	Weighted Average					
1,	107,286		98.89% Pe	rvious Area				
	12,465		1.11% Impe	ervious Area	а			
Tc	: Length	Slope	e Velocity	Capacity	Description			
(min)	) (feet)	(ft/ft	) (ft/sec)	(cfs)				
10.0	100	0.0200	0.17		Sheet Flow, A-B			
					Grass: Short n= 0.150 P2= 3.10"			
3.0	147	0.0140	0.83		Shallow Concentrated Flow, B-C			
					Short Grass Pasture Kv= 7.0 fps			
6.6	249	0.0160	0.63		Shallow Concentrated Flow, C-D			
					Woodland Kv= 5.0 fps			
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E			
					Short Grass Pasture Kv= 7.0 fps			
27.8	930	Total						

#### 2110 000 10101

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 47.13 cfs @ 12.47 hrs, Volume= Routed to Reach 1R : Drainage 7.551 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 2-Year Rainfall=3.10"

Area (sf)	CN	Description
889,252	80	>75% Grass cover, Good, HSG D
7,988	98	Unconnected roofs, HSG D
66,879	98	Paved parking, HSG D
1,909,504	77	Woods, Good, HSG D
544,389	70	Woods, Good, HSG C
214,485	55	Woods, Good, HSG B
11,559	74	>75% Grass cover, Good, HSG C
776	98	Unconnected roofs, HSG C
3,644,832	76	Weighted Average
3,569,189		97.92% Pervious Area
75,643		2.08% Impervious Area
8,764		11.59% Unconnected

#### The Grange Hall\_POST\_04252023

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.7	82	0.0750	1.92		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
0.1	42	0.0100	5.26	6.46	Pipe Channel, C-D
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
0.3	14	0.0100	0.70		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
1.2	64	0.0150	0.86		Shallow Concentrated Flow, E-F
					Short Grass Pasture Kv= 7.0 fps
1.0	36	0.0150	0.61		Shallow Concentrated Flow, F-G
					Woodland Kv= 5.0 fps
21.2	449	0.0050	0.35		Shallow Concentrated Flow, G-H
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, H-I
					Woodland Kv= 5.0 fps

33.3 1,030 Total

#### Summary for Reach 1R: Drainage

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 1.08" for 2-Year event Inflow = 47.13 cfs @ 12.47 hrs, Volume= 7.551 af Outflow = 44.05 cfs @ 12.72 hrs, Volume= 7.551 af, Atten= 7%, Lag= 14.9 min Routed to Link AP-2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 2.61 fps, Min. Travel Time= 8.2 min Avg. Velocity = 1.02 fps, Avg. Travel Time= 21.0 min

Peak Storage= 21,640 cf @ 12.58 hrs Average Depth at Peak Storage= 0.93' , Surface Width= 27.27' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'

‡

#### Summary for Pond 1P: 24" Existing Culvert

Inflow Area = 25.706 ac. 1.11% Impervious, Inflow Depth = 1.20" for 2-Year event Inflow 17.99 cfs @ 12.39 hrs, Volume= 2.572 af = 9.66 cfs @ 12.76 hrs, Volume= Outflow = 2.568 af, Atten= 46%, Lag= 22.1 min 9.66 cfs @ 12.76 hrs, Volume= Primary = 2.568 af Routed to Link AP-1: Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Routed to Link AP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 61.54' @ 12.76 hrs Surf.Area= 24,932 sf Storage= 22,211 cf

Plug-Flow detention time= 42.8 min calculated for 2.568 af (100% of inflow) Center-of-Mass det. time= 41.9 min (943.0 - 901.1)

Volume	Inver	t Avail.Sto	rage Storage	Description		
#1	60.00	' 141,42	27 cf Custon	n Stage Data (P	rismatic)Listed below (Recalc)	
Elevatio (fee	on S et)	ourf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
60.0 62.0 64.0	00 00 00	3,955 31,236 75,000	0 35,191 106,236	0 35,191 141,427		
Device	Routing	Invert	Outlet Device	S		
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet I n= 0.013 Co	<b>l Culvert</b> P, mitered to cou Invert= 60.00' / 5 rrugated PE, sm	nform to fill, Ke= 0.700 59.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf	
#2 Secondary 63.00'		<b>10.0' long x 20.0' breadth Broad-Crested Rectangular Weir</b> 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=9.66 cfs @ 12.76 hrs HW=61.54' (Free Discharge) **1=Culvert** (Inlet Controls 9.66 cfs @ 3.73 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

#### Summary for Link AP-1:

Inflow Area = 25.706 ac, 1.11% Impervious, Inflow Depth > 1.20" for 2-Year event Inflow = 9.66 cfs @ 12.76 hrs, Volume= 2.568 af Primary = 9.66 cfs @ 12.76 hrs, Volume= 2.568 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
# Summary for Link AP-2:

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 1.08" for 2-Year event Inflow = 44.05 cfs @ 12.72 hrs, Volume= 7.551 af Primary = 44.05 cfs @ 12.72 hrs, Volume= 7.551 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

The Grange Hall_POST_04252023 Prepared by Sevee & Maher Engineer	NRCC 24-hr D   10-Year Rainfall=4.60"     rs   Printed   4/25/2023
HydroCAD® 10.20-2g s/n 01260 © 2022 Hy	rdroCAD Software Solutions LLC Page 9
Time span=0. Runoff by SCS Reach routing by Stor-Ind+	00-30.00 hrs, dt=0.01 hrs, 3001 points TR-20 method, UH=SCS, Weighted-CN -Trans method - Pond routing by Stor-Ind method
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,119,751 sf 1.11% Impervious Runoff Depth=2.38" Flow Length=930' Tc=27.8 min CN=78 Runoff=36.58 cfs 5.089 af
Subcatchment SC-2: Tree, Grass, Flo	Runoff Area=3,644,832 sf 2.08% Impervious Runoff Depth=2.21" w Length=1,030' Tc=33.3 min CN=76 Runoff=100.13 cfs 15.409 af
Reach 1R: Drainage A n=0.040 L=1,28	vg. Flow Depth=1.33' Max Vel=3.31 fps Inflow=100.13 cfs 15.409 af 31.0' S=0.0094 '/' Capacity=231.29 cfs Outflow=95.73 cfs 15.409 af
Pond 1P: 24" Existing Culvert Primary=15.92 cfs	Peak Elev=62.42' Storage=50,363 cf Inflow=36.58 cfs 5.089 af s 5.085 af Secondary=0.00 cfs 0.000 af Outflow=15.92 cfs 5.085 af
Link AP-1:	Inflow=15.92 cfs 5.085 af Primary=15.92 cfs 5.085 af
Link AP-2:	Inflow=95.73 cfs 15.409 af Primary=95.73 cfs 15.409 af
Total Runoff Area = 109.380	ac Runoff Volume = 20.498 af Average Runoff Depth = 2.25

... 98.15% Pervious = 107.357 ac 1.85% Impervious = 2.023 ac

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 36.58 cfs @ 12.39 hrs, Volume= Routed to Pond 1P : 24" Existing Culvert 5.089 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

 A	rea (sf)	CN	Description		
2	35,433	80	>75% Grass cover, Good, HSG D		
8	71,853	77	Woods, Go	od, HSG D	
	12,465	98	Paved road	s w/curbs &	& sewers, HSG D
1,1	19,751	78	Weighted A	verage	
1,1	07,286		98.89% Per	vious Area	
	12,465		1.11% Impe	ervious Area	а
_		-		<b>-</b>	
ŢĊ	Length	Slope	e Velocity	Capacity	Description
 (min)	(feet)	(ft/ft	) (ft/sec)	(cfs)	
10.0	100	0.0200	0.17		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
3.0	147	0.0140	0.83		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
6.6	249	0.0160	0.63		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
070	000	Total			

#### 27.8 930 Total

#### Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 100.13 cfs @ 12.47 hrs, Volume= Routed to Reach 1R : Drainage 15.409 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 10-Year Rainfall=4.60"

Area (sf)	CN	Description
889,252	80	>75% Grass cover, Good, HSG D
7,988	98	Unconnected roofs, HSG D
66,879	98	Paved parking, HSG D
1,909,504	77	Woods, Good, HSG D
544,389	70	Woods, Good, HSG C
214,485	55	Woods, Good, HSG B
11,559	74	>75% Grass cover, Good, HSG C
776	98	Unconnected roofs, HSG C
3,644,832	76	Weighted Average
3,569,189		97.92% Pervious Area
75,643		2.08% Impervious Area
8,764		11.59% Unconnected

# The Grange Hall\_POST\_04252023

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.7	82	0.0750	1.92		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
0.1	42	0.0100	5.26	6.46	Pipe Channel, C-D
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
0.3	14	0.0100	0.70		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
1.2	64	0.0150	0.86		Shallow Concentrated Flow, E-F
					Short Grass Pasture Kv= 7.0 fps
1.0	36	0.0150	0.61		Shallow Concentrated Flow, F-G
					Woodland Kv= 5.0 fps
21.2	449	0.0050	0.35		Shallow Concentrated Flow, G-H
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, H-I
					Woodland Kv= 5.0 fps

33.3 1,030 Total

# Summary for Reach 1R: Drainage

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 2.21" for 10-Year event Inflow = 100.13 cfs @ 12.47 hrs, Volume= 15.409 af Outflow = 95.73 cfs @ 12.66 hrs, Volume= 15.409 af, Atten= 4%, Lag= 11.3 min Routed to Link AP-2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.31 fps, Min. Travel Time= 6.5 min Avg. Velocity = 1.20 fps, Avg. Travel Time= 17.7 min

Peak Storage= 37,061 cf @ 12.55 hrs Average Depth at Peak Storage= 1.33', Surface Width= 32.62' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



NRCC 24-hr D 10-Year Rainfall=4.60" Printed 4/25/2023

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# Summary for Pond 1P: 24" Existing Culvert

Inflow Area = 25.706 ac. 1.11% Impervious, Inflow Depth = 2.38" for 10-Year event Inflow 36.58 cfs @ 12.39 hrs, Volume= 5.089 af = 15.92 cfs @ 12.84 hrs, Volume= Outflow = 5.085 af, Atten= 56%, Lag= 27.0 min 15.92 cfs @ 12.84 hrs, Volume= Primary = 5.085 af Routed to Link AP-1: Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af Routed to Link AP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 62.42' @ 12.84 hrs Surf.Area= 40,493 sf Storage= 50,363 cf

Plug-Flow detention time= 44.0 min calculated for 5.083 af (100% of inflow) Center-of-Mass det. time= 43.5 min ( 919.1 - 875.6 )

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	60.00	)' 141,42	27 cf Custom	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio	on S et)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
60.0 62.0 64.0	00 00 00	3,955 31,236 75,000	0 35,191 106,236	0 35,191 141,427	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CPF Inlet / Outlet I n= 0.013 Cor <b>10.0' long</b>	I Culvert P, mitered to cor nvert= 60.00' / 5 rrugated PE, sm 20 0' breadth B	nform to fill, Ke= 0.700 i9.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf road-Crested Rectangular Weir
π2	Occondar	y 00.00	Head (feet) 0 Coef. (English	0.20 0.40 0.60 n) 2.68 2.70 2.	0.80 1.00 1.20 1.40 1.60 70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=15.92 cfs @ 12.84 hrs HW=62.42' (Free Discharge) **1=Culvert** (Inlet Controls 15.92 cfs @ 5.07 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=60.00' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

# Summary for Link AP-1:

Inflow Area = 25.706 ac, 1.11% Impervious, Inflow Depth > 2.37" for 10-Year event Inflow = 15.92 cfs @ 12.84 hrs, Volume= 5.085 af Primary = 15.92 cfs @ 12.84 hrs, Volume= 5.085 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

# Summary for Link AP-2:

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Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 2.21" for 10-Year event 95.73 cfs @ 12.66 hrs, Volume= 95.73 cfs @ 12.66 hrs, Volume= Inflow 15.409 af = = 15.409 af, Atten= 0%, Lag= 0.0 min Primary Routed to nonexistent node 4L

The Grange Hall_POST_04252	023	NRCC 24-hr D	25-Year Rainfall=5.80"
Prepared by Sevee & Maher Engir	neers		Printed 4/25/2023
HydroCAD® 10.20-2g s/n 01260 © 202.	2 HydroCAD Software Solut	IONS LLC	Page 14
Time span	=0.00-30.00 hrs, dt=0.01	hrs, 3001 points	nd method
Runoff by S	CS TR-20 method, UH=S	CS, Weighted-CN	
Reach routing by Stor-	Ind+Trans method - Pon	d routing by Stor-I	
SubcatchmentSC-1: Tree, Grass,	Runoff Area=1,119,	751 sf 1.11% Impei	vious Runoff Depth=3.40"
	Flow Length=930' Tc	=27.8 min CN=78	Runoff=52.46 cfs 7.289 af
SubcatchmentSC-2: Tree, Grass,	Runoff Area=3,644,	332 sf 2.08% Imper	vious Runoff Depth=3.21"
	Flow Length=1,030' Tc=3	3.3 min CN=76 R	unoff=146.15 cfs 22.370 af
Reach 1R: Drainage n=0.040 L=1	Avg. Flow Depth=1.59'	Max Vel=3.73 fps li	nflow=146.15 cfs 22.370 af
	,281.0' S=0.0094 '/' Capa	icity=231.29 cfs Ou	tflow=140.91 cfs 22.370 af
Pond 1P: 24" Existing Culvert	Peak Elev=63.05'	Storage=80,038 cf	Inflow=52.46 cfs
Primary=19.1	1 cfs  7.278 af   Secondary=	⊧0.31 cfs 0.007 af 0	
Link AP-1:		I	Inflow=19.42 cfs
Link AP-2:		lı Pri	nflow=140.91 cfs 22.370 af mary=140.91 cfs 22.370 af
Total Runoff Area = 109.	380 ac Runoff Volume	= 29.660 af Ave	rage Runoff Depth = 3.25

Total Runoff Area = 109.380 ac Runoff Volume = 29.660 af Average Runoff Depth = 3.25" 98.15% Pervious = 107.357 ac 1.85% Impervious = 2.023 ac

#### Summary for Subcatchment SC-1: Tree, Grass, Pavement

Runoff = 52.46 cfs @ 12.39 hrs, Volume= 7.289 af, Depth= 3.40" Routed to Pond 1P : 24" Existing Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

Α	rea (sf)	CN [	Description		
2	35,433	80 >75% Grass cover, Go			ood, HSG D
8	71,853	77 \	Noods, Go	od, HSG D	
	12,465	98 F	Paved road	s w/curbs &	k sewers, HSG D
1,1	19,751	78 \	Neighted A	verage	
1,1	07,286	ę	98.89% Per	vious Area	
	12,465		1.11% Impe	ervious Area	a
_				_	
Tc	Length	Slope	Velocity	Capacity	Description
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)	
10.0	100	0.0200	0.17		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
3.0	147	0.0140	0.83		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
6.6	249	0.0160	0.63		Shallow Concentrated Flow, C-D
					Woodland Kv= 5.0 fps
8.2	434	0.0160	0.89		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
27.8	930	Total			

# Summary for Subcatchment SC-2: Tree, Grass, Structure, Pavement

Runoff = 146.15 cfs @ 12.47 hrs, Volume= Routed to Reach 1R : Drainage

22.370 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs NRCC 24-hr D 25-Year Rainfall=5.80"

Area (sf)	CN	Description
889,252	80	>75% Grass cover, Good, HSG D
7,988	98	Unconnected roofs, HSG D
66,879	98	Paved parking, HSG D
1,909,504	77	Woods, Good, HSG D
544,389	70	Woods, Good, HSG C
214,485	55	Woods, Good, HSG B
11,559	74	>75% Grass cover, Good, HSG C
776	98	Unconnected roofs, HSG C
3,644,832	76	Weighted Average
3,569,189		97.92% Pervious Area
75,643		2.08% Impervious Area
8,764		11.59% Unconnected

# The Grange Hall\_POST\_04252023

Prepared by Sevee & Maher Engineers

HydroCAD® 10.20-2g s/n 01260 © 2022 HydroCAD Software Solutions LLC

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.4	100	0.0600	0.26		Sheet Flow, A-B
					Grass: Short n= 0.150 P2= 3.10"
0.7	82	0.0750	1.92		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
0.1	42	0.0100	5.26	6.46	Pipe Channel, C-D
					15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'
					n= 0.013 Corrugated PE, smooth interior
0.3	14	0.0100	0.70		Shallow Concentrated Flow, D-E
					Short Grass Pasture Kv= 7.0 fps
1.2	64	0.0150	0.86		Shallow Concentrated Flow, E-F
					Short Grass Pasture Kv= 7.0 fps
1.0	36	0.0150	0.61		Shallow Concentrated Flow, F-G
					Woodland Kv= 5.0 fps
21.2	449	0.0050	0.35		Shallow Concentrated Flow, G-H
					Woodland Kv= 5.0 fps
2.4	243	0.1100	1.66		Shallow Concentrated Flow, H-I
					Woodland Kv= 5.0 fps

33.3 1,030 Total

# Summary for Reach 1R: Drainage

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 3.21" for 25-Year event Inflow = 146.15 cfs @ 12.47 hrs, Volume= 22.370 af Outflow = 140.91 cfs @ 12.63 hrs, Volume= 22.370 af, Atten= 4%, Lag= 9.7 min Routed to Link AP-2 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Max. Velocity= 3.73 fps, Min. Travel Time= 5.7 min Avg. Velocity = 1.32 fps, Avg. Travel Time= 16.1 min

Peak Storage= 48,454 cf @ 12.53 hrs Average Depth at Peak Storage= 1.59' , Surface Width= 35.67' Bank-Full Depth= 2.00' Flow Area= 53.3 sf, Capacity= 231.29 cfs

40.00' x 2.00' deep Parabolic Channel, n= 0.040 Winding stream, pools & shoals Length= 1,281.0' Slope= 0.0094 '/' Inlet Invert= 42.00', Outlet Invert= 30.00'



NRCC 24-hr D 25-Year Rainfall=5.80" Printed 4/25/2023

Page 16

### Summary for Pond 1P: 24" Existing Culvert

Inflow Area = 25.706 ac. 1.11% Impervious, Inflow Depth = 3.40" for 25-Year event Inflow 52.46 cfs @ 12.39 hrs, Volume= 7.289 af = 19.42 cfs @ 12.91 hrs, Volume= Outflow = 7.285 af, Atten= 63%, Lag= 31.5 min 19.11 cfs @ 12.91 hrs, Volume= Primary = 7.278 af Routed to Link AP-1 : Secondary = 0.31 cfs @ 12.91 hrs, Volume= 0.007 af Routed to Link AP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs Peak Elev= 63.05' @ 12.91 hrs Surf.Area= 54,207 sf Storage= 80,038 cf

Plug-Flow detention time= 49.4 min calculated for 7.285 af (100% of inflow) Center-of-Mass det. time= 49.0 min (911.3 - 862.2)

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	60.00	' 141,42	27 cf Custon	n Stage Data (P	rismatic)Listed below (Recalc)
Elevatio (fee	on S et)	ourf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
60.0 62.0 64.0	00 00 00	3,955 31,236 75,000	0 35,191 106,236	0 35,191 141,427	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	60.00'	<b>24.0" Round</b> L= 50.0' CP Inlet / Outlet I n= 0.013 Co	<b>l Culvert</b> P, mitered to cou Invert= 60.00' / 5 rrugated PE, sm	nform to fill, Ke= 0.700 59.00' S= 0.0200 '/' Cc= 0.900 ooth interior, Flow Area= 3.14 sf
#2	Secondary	/ 63.00'	<b>10.0' long x</b> Head (feet) ( Coef. (Englis)	<b>20.0' breadth B</b> 0.20 0.40 0.60 h) 2.68 2.70 2.	70 2.64 2.63 2.64 2.64 2.63

**Primary OutFlow** Max=19.11 cfs @ 12.91 hrs HW=63.05' (Free Discharge) **1=Culvert** (Inlet Controls 19.11 cfs @ 6.08 fps)

Secondary OutFlow Max=0.30 cfs @ 12.91 hrs HW=63.05' (Free Discharge) 2=Broad-Crested Rectangular Weir (Weir Controls 0.30 cfs @ 0.60 fps)

# Summary for Link AP-1:

Inflow Area = 25.706 ac, 1.11% Impervious, Inflow Depth > 3.40" for 25-Year event Inflow = 19.42 cfs @ 12.91 hrs, Volume= 7.285 af Primary = 19.42 cfs @ 12.91 hrs, Volume= 7.285 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

# Summary for Link AP-2:

Inflow Area = 83.674 ac, 2.08% Impervious, Inflow Depth = 3.21" for 25-Year event Inflow = 140.91 cfs @ 12.63 hrs, Volume= 22.370 af Primary = 140.91 cfs @ 12.63 hrs, Volume= 22.370 af, Atten= 0%, Lag= 0.0 min Routed to nonexistent node 4L

**ATTACHMENT 5** 

**REVISED PLAN SET** 



# SYNERGOSITY, LLC THE GRANGE HALL PUB AT LONGWOODS PRESERVE CUMBERLAND, MAINE

# LOCATION MAP



1000 0

TITLE	DWG NO
COVER SHEET	
GENERAL NOTES, LEGEND, AND ABBREVIATIONS	C-100
EXISTING CONDITIONS AND CLEARING PLAN	C-101
SITE OVERVIEW PLAN	C-102
SITE LAYOUT PLAN	C-103
SITE UTILITY PLAN	C-104
SITE GRADING, DRAINAGE, AND EROSION CONTROL PLAN	C-105
ACCESS DRIVE PLAN AND PROFILE	C-200
EROSION CONTROL NOTES AND DETAILS	C-300
SECTIONS AND DETAILS	C-301
SECTIONS AND DETAILS	C-302
SECTIONS AND DETAILS	C-303
STORMWATER MANAGEMENT PLAN PRE-DEVELOPMENT CONDITIONS	D-100
STORMWATER MANAGEMENT PLAN POST DEVELOPMENT CONDITIONS	D-101
EXISTING CONDITIONS SURVEY	1



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# **GENERAL SITE NOTES:**

- 1. BASE MAP FROM PLAN TITLED "EXISTING CONDITIONS SURVEY FOR ALEXANDER TIMPSON OF 76 LONGWOODS ROAD CUMBERLAND MAINE" PREPARED BY BOUNDARY POINTS PROFESSIONAL LAND SURVEYING, LLC, DATED 8-31-2021.
- 2. EXISTING TOPOGRAPHY WITHIN THE WORK AREA FROM SME TOPOGRAPHIC SURVEY, DATED 4/3/2023, EXISTING TOPOGRAPHY OUTSIDE OF THE WORK AREA FROM MAINE GIS DATA CATALOG, BASED OFF OF LIDAR INFORMATION COLLECTED AND UPDATED IN 2019. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- 3. EXISTING WETLANDS DELINEATED BY COPPI ENVIRONMENTAL, LLC, DATED 4/11/2022.
- 4. PORTIONS OF THE PROPERTY, OUTSIDE OF THE DEVELOPMENT AREA, ARE MAPPED WITHIN FLOOD ZONE A (AREAS OF 100-YEAR FLOOD) PER FEMA FLOOD MAP PANEL 2301620015B, EFFECTIVE DATE MAY 19, 1981.
- 5. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO THE ENGINEER. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH THAT PORTION OF WORK.
- 6. ALL SITE AND CONSTRUCTION ACTIVITIES SHALL BE IN COMPLIANCE WITH MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS, AND EXISTING FEDERAL, STATE, AND LOCAL PERMITS AND PERMITTING REQUIREMENTS FOR THE SITE.
- 7. PAVEMENT EDGES SHALL BE TRUE TO LINE. SAWCUT EXISTING PAVEMENT IN SMOOTH STRAIGHT LINE WHERE NEW PAVEMENT JOINS. PROVIDE TACK COAT LAYER IF SPECIFIED.

# SURVEYOR'S NOTES

- 1. THIS SURVEY PLAN IS COPYRIGHT PROTECTED. THIS PLAN IS THE PROPERTY OF BOUNDARY POINTS, AND SHALL NOT BE USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF AN AUTHORIZED AGENT OF BOUNDARY POINTS. ALL RIGHTS RESERVED
- 2. THIS SURVEY PLAN IS ONLY VALID IF AUTHENTIC EMBOSSED SEAL AND SIGNATURE OF CERTIFYING PROFESSIONAL APPEAR ON THE FACE OF THIS SURVEY PLAN.
- 3. REFERENCE IS MADE TO THE CONTRACTUAL AGREEMENT BETWEEN THE PROFESSIONAL LAND SURVEYOR AND THE CLIENT.
- 4. THIS SURVEY PLAN IS SUBJECT TO POSSIBLE REVISION UPON RECEIPT OF A CERTIFIED TITLE OPINION.
- 5. ON THE BASIS OF MY KNOWLEDGE, INFORMATION AND BELIEF I CERTIFY EXCLUSIVELY TO THE CLIENT THAT THIS SURVEY PLAN, MADE TO THE NORMAL STANDARD OF CARE, SUBSTANTIALLY CONFORMS TO THE MAIN BOARD OF LICENSURE FOR LAND SURVEYOR STANDARDS.
- 6. NO CERTIFICATION IS MADE TO THE EXISTENCE OR NONEXISTENCE OF HAZARDOUS SUBSTANCES ENVIRONMENTALLY SENSITIVE AREAS, UNDERGROUND UTILITIES, UNDERGROUND STRUCTURES, ZONING REGULATIONS OR REAL ESTATE TITLE.
- 7. DIG SAFE MUST BE CONTACTED AND CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND DIMENSIONS OF ALL UTILITIES PRIOR TO EXCAVATION.
- 8. THE SOURCE OF BEARINGS FOR THIS LAND SURVEY WAS N.A.D. GRID NORTH 1983 LOCATED IN THE WEST ZONE.
- 9. THE PROPERTY SURVEYED IS DESCRIBED IN A DEED TO DANIEL VILLACI DATED 5-13-2002 BOOK 17630, PAGE 14 AND 16 RECORDED IN THE LOCAL REGISTRY OF DEEDS.
- 10. THE PROPERTY IS DEPICTED ON THE TOWN ASSESSOR'S MAP R3 AS LOTS 6A AND 13.

# **GRADING NOTES:**

- EROSION POTENTIAL, AND STABILIZE WITH SEED AND MULCH.
- STABILIZATION WITHIN 7 DAYS OF FINAL GRADING.

# UTILITY NOTES:

- PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.
- CUMBERLAND AND MEDOT.
- MUNICIPAL STANDARDS.

# DIG SAFE NOTES:

# FOLLOWING MINIMUM MEASURES:

- KNOW WHERE TO MARK THEIR LINES.

- AS-BUILT DRAWINGS.
- OTHER REASON.
- REQUIREMENTS.
- SAFEGUARD HEALTH AND PROPERTY.
- PUC AT 1-800-452-4699.

# **TYPICAL ABBREVIATIONS:**

ACCMP ACP AGG ALUM APPD APPROX ARMH ASB ASP AUTO AUX AVE AZ	ASPHALT COATED CMP ASBESTOS CEMENT PIPE ACRE AGGREGATE ALUMINUM APPROVED APPROXIMATE AIR RELEASE MANHOLE ASBESTOS ASPHALT AUTOMATIC AUXILIARY AVENUE AZIMUTH
BCCMP	BITUMINOUS COATED CMP
BM	BENCH MARK
BIT	BITUMINOUS
BLDG	BUILDING
BOT	BOTTOM
BRG	BEARING
BV	BALL VALVE
CB	CATCH BASIN
CEN	CENTER
CEM LIN	CEMENT LINED
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CF	CUBIC FEET
CFS	CUBIC FEET PER SECOND
CI	CAST IRON
CL	CLASS
CONC	CONCRETE
CONST	CONSTRUCTION
CONTR	CONTRACTOR
CS	CURB STOP
CTR	CENTER
CU	COPPER
CY	CUBIC YARD
D	DEGREE OF CURVE
DBL	DOUBLE
DEG OR °	DEGREE
DEPT	DEPARTMENT
DI	DUCTILE IRON
DIA OR Ø	DIAMETER
DIM	DIMENSION
DIST	DISTANCE
DN	DOWN
DR	DRAIN
DWG	DRAWING

EACH EXISTING GROUND OR GRADE ELECTRIC ELEVATION ELBOW EDGE OF PAVEMENT EQUIPMENT ESTIMATED EXCAVATE EXISTING	NI N/ N( OI P( PI
FIELD INLET FINISH GRADE FIBERGLASS FOUNDATION FLEXIBLE FLANGE FLOOR FEET PER SECOND FEET FOOTING	P1 P1 P1 P1 P1 P1 P1 P1 P1 Q
GAUGE GALLON GALVANIZED GALLONS PER DAY GALLONS PER MINUTE	R R R R
HIGH DENSITY POLYETHYLENE HORIZONTAL HORSEPOWER HYDRANT	S S S S
INSIDE DIAMETER INCHES INVERT INVERT ELEVATION	S S S T
POUND LEACHATE COLLECTION LEAK DETECTION LINEAR FEET LOCATION LEACHATE TRANSPORT	TI TI T U V
MAINE DEPARTMENT OF TRANSPORTATION MANHOLE MECHANICAL JOINT MATERIAL MAXIMUM MANUFACTURE MINIMUM MISCELLANEOUS MONUMENT	
	EACH EXISTING GROUND OR GRADE ELECTRIC ELEVATION EDGE OF PAVEMENT EQUIPMENT ESTIMATED EXCAVATE EXISTING FIELD INLET FINISH GRADE FIBERGLASS FOUNDATION FLEXIBLE FLANGE FLOOR FEET PER SECOND FEET FOOTING GAUGE GALLON SPER DAY GALLONS PER MINUTE HIGH DENSITY POLYETHYLENE HORIZONTAL HORSEPOWER HYDRANT INSIDE DIAMETER INCHES INVERT INVERT ELEVATION FACHATE COLLECTION EACHATE COLLECTION EACHATE COLLECTION EACHATE TRANSPORT INVERT FEET LOCATION EACHATE TRANSPORT MAINE DEPARTMENT OF TRANSPORTATION MANHOLE MISCELLANEOUS MONUMENT

NITC NTS N/F NO OR #	NO NO NO NUI
DC DD	ON OU
PC PD PI VIV PT PERF PP PSI PV VC PVMT	PO PEF PO PO PO PO PO PO PO
QTY	QU
RCP ROW RAD REQD RT RTE	REI RIC RAI REC RIC RO
5 SCH SF SHT SMH ST STA STA STA STA TAN FAN FAN FOH FEMP FYP JD JD / A TEE /ERT	SLC SCI SQ SHI SAI ST/ SQ TAI TO TEI TYI UN VO VAI VEI
NG N/ N/O	WA WI WI
/D	YAI

NOT IN THIS CONTRACT OT TO SCALE W OR FORMERLY MBER

#### CENTER JTSIDE DIAMETER

INT OF CURVE RIMETER DRAIN INT OF INTERSECTION OST INDICATOR VALVE INT OF TANGENT

REORATED WER POLE UNDS PER SQUARE INCH LYVINYL CHLORIDE VEMENT

IANTITY

INFORCED CONCRETE PIPE GHT OF WAY

- DIUS QUIRED GHT
- UTE ope Hedule
- UARE FEET
- NITARY MANHOLE
- REET ATION UARE YARD
- NGENT
- DTAL DYNAMIC HEAD MPORARY
- OLTS

- RD

- THOUT

- PICAL
- IDERDRAIN
- LVE ANCHORING TEE ERTICAL
- ATER GATE

1. ADD 4" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL SLOPES STEEPER THAN 3:1, AND ALONG DITCH CHANNELS.

2. MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE FULL DURATION OF CONSTRUCTION. INSPECT WEEKLY AND AFTER EACH STORM AND REPAIR AS NEEDED. REMOVE SEDIMENTS FROM THE SITE. PLACE IN AREA OF LOW

3. PLACE TEMPORARY SOIL STABILIZATION WITHIN 7 DAYS OF INITIAL DISTURBANCE. PLACE PERMANENT SOIL

1. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER

2. COORDINATE WORK ON UTILITY LINES OR WITHIN ROAD RIGHT-OF-WAY WITH THE UTILITY COMPANIES AND TOWN OF

3. ALL PIPING AND DRAINAGE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE TOWN OF CUMBERLAND

PRIOR TO EXCAVATION, VERIFY THE UNDERGROUND UTILITIES, PIPES, STRUCTURES AND FACILITIES. PROVIDE THE

1. PRE-MARK THE BOUNDARIES OF PLANNED EXCAVATION WITH WHITE PAINT, FLAGS OR STAKES, SO UTILITY CREWS

2. CALL DIG SAFE, AT 811, AT LEAST THREE BUSINESS DAYS - BUT NO MORE THAN 30 CALENDAR DAYS - BEFORE STARTING WORK. DO NOT ASSUME SOMEONE ELSE WILL MAKE THE CALL.

3. IF BLASTING, NOTIFY DIG SAFE AT LEAST ONE BUSINESS DAY IN ADVANCE.

4. WAIT THREE BUSINESS DAYS FOR LINES TO BE LOCATED AND MARKED WITH COLOR-CODED PAINT, FLAGS OR STAKES. NOTE THE COLOR OF THE MARKS AND THE TYPE OF UTILITIES THEY INDICATE. TRANSFER THESE MARKS TO THE

5. CONTACT THE LANDOWNER AND OTHER "NON-MEMBER" UTILITIES (WATER, SEWER, GAS, ETC.). FOR THEM TO MARK THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.

6. RE-NOTIFY DIG SAFE AND THE NON-MEMBER UTILITIES IF THE DIGGING, DRILLING OR BLASTING DOES NOT OCCUR WITHIN 30 CALENDAR DAYS, OR IF THE MARKS ARE LOST DUE TO WEATHER CONDITIONS, SITE WORK ACTIVITY OR ANY

7. HAND DIG WITHIN 18 INCHES IN ANY DIRECTION OF ANY UNDERGROUND LINE UNTIL THE LINE IS EXPOSED. MECHANICAL METHODS MAY BE USED FOR INITIAL SITE PENETRATION, SUCH AS REMOVAL OF PAVEMENT OR ROCK. 8. DIG SAFE REQUIREMENTS ARE IN ADDITION TO TOWN, CITY, AND/OR STATE DOT STREET OPENING PERMIT

9. FOR COMPLETE DIG SAFE REQUIREMENTS, CALL THE PUC OR VISIT THEIR WEBSITE.

10. IF YOU DAMAGE, DISLOCATE OR DISTURB ANY UNDERGROUND UTILITY LINE, IMMEDIATELY NOTIFY THE AFFECTED UTILITY. IF DAMAGE CREATES SAFETY CONCERNS, CALL THE FIRE DEPARTMENT AND TAKE IMMEDIATE STEPS TO

11. ANY TIME AN UNDERGROUND LINE IS DAMAGED OR DISTURBED OR IF LINES ARE IMPROPERLY MARKED, YOU MUST FILE AN INCIDENT REPORT WITH THE P.U.C. FOR AN INCIDENT REPORT FORM VISIT WWW.STATE.ME.US/MPUC OR CALL THE

# LEGEND

PROPOSED

\_\_\_\_

# EXISTING



# **EROSION CONTROL LEGEND**



DOUBLE ROW OF SILT FENCE (AREAS ADJACENT TO WETLANDS) STABILIZED CONSTRUCTION ENTRANCE STONE CHECK DAMS

	JTR	4/2023	REVISED PER OWNER COMMENTS	
	JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS	
	JTR	6/2022	ISSUED FOR TOWN REVIEW	
REV.	BY	DATE	STATUS	
DANIEL THE OF MARINE			SYNERGOSITY, LLC THE GRANGE HALL PUB LONGWOODS PRESER CUMBERLAND, MAINE GENERAL NOTES, LEGEND, AND AE	AT /E BREVIATIONS
				DESIGN BY: BB DRAWN BY: SJM
			SEVEE & MAHER	DATE: 4/2023
				CHECKED BY: DPD
			4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021	LMN: NONE
			Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com	CTB: SME-STD
			JOB NO. 21519 DWG FILE GEN-NOTS-LGND	C-100



hdfs/Alex Timpson/76 Lonawoods Bd/Acad/Plans/BASE.dwa. C-101. 4/25/2023 7:01:08 AM. 5



# ZONING NOTES:

- 1. PROJECT INFORMATION:
- ADDRESS: 76 LONGWOODS ROAD CUMBERLAND, MAINE

APPLICANT/OWNER: SYNERGOSITY, LLC

PROJECT: THE GRANGE HALL PUB AT LONGWOODS PRESERVE

- 2. ZONING DISTRICT: RURAL RESIDENTIAL 1 (RR1) (CONTRACT ZONE)
- 3. PROPOSED USE: RESTAURANT, FARM-BASED SPECIAL EVENTS, AND CONSERVATION EASEMENT

DIMENSIONAL STANDARDS (CZA ZONE):	
DEOLIDED	

			REQU	IRED	PROPOSED	
		MIN LOT SIZE:	2 ACF	RES	±6.5 ACRES	
		MIN ROAD LENGTH:	NONE	E	±1300 FT	
FRO SIDE REA	NT: =: R:	SETBACKS: 15' 15' 15'		>15' >15' >15'		
		MIN LOT FRONTAGE:	200'		>200'	
		MAX BUILDING HEIGHT:	40'		28.5'	
5.	PARCEL ID: MAP R03/LOTS 6A AND 13					
6.	PROPOSED IMPERVIOUS AREAS: 43,115 SF (0.99 ACRES)					
7.	ALL PROJECT WORK LOCATED OUTSIDE OF THE 100-YEAR FLOOD ZONE.					
8.	PARKING SUMMARY: 1 PARKING SPACE PER 3 SEATS					

120 SEATS/3 = 40 SPACES

3 ADDITIONAL SPACES FOR UP TO 9 EMPLOYEES 16 ADDITIONAL SPACES FOR PUBLIC TRAIL USE

REQUIREDPROPOSED40 SPACES43 SPACES

9. WETLANDS WILL BE IMPACTED FOR THE PROPOSED PROJECT: ±350 SF

10. OUTSIDE AGENCY APPROVALS:

MEDEP: STORMWATER PERMIT-BY-RULE MEDOT: DRIVEWAY ENTRANCE PERMIT

11. UTILITIES:

WATER - PRIMARY WELL SEWER - PRIVATE SEPTIC SYSTEM POWER - CENTRAL MAINE POWER

<u>NOTES</u>: 1. SEE DRAWING C-100 FOR GENERAL SITE NOTES AND PLAN REFERENCES.

- 2. AERIAL PHOTO FROM GOOGLE EARTH, DATED 5/4/2018.
- 3. THE CONCEPTUAL TRAIL SYSTEM WILL BE LOCATED IN THE FIELD BY THE CHEBEAGUE AND CUMBERLAND LAND TRUST, AND MAINE FARM TRUST IN COORDINATION WITH SYNERGOSITY. ALL TRAILS WILL BE FOOT PATHS.
- 4. CAMP SITES WILL BE CLEARED OF TREE LIMBS, BRUSH, AND SURFACE DEBRIS. NO TREE CUTTING, CLEARING, OR GRUBBING IS INCLUDED IN THIS PROJECT

ALL AND	No. X	W. W.			100 200 FEET
1					
19.9					
Se.		JTR	4/2023	REVISED PER OWNER COMMENTS	
1		JTR	7/2022	REVISED PER TOWN REVIEW COMMENTS	
		JTR	6/2022	ISSUED FOR TOWN REVIEW	
	REV.	BY	DATE	STATUS	
*// 在	A REAL PROPERTY OF THE PROPERT	E OF M DANIEL P. DIREN 11841	ER V ANT	THE GRANGE HALL PUB LONGWOODS PRESER CUMBERLAND, MAINE	АТ /Е Е
A State	Anning Contraction	S/ONAL EN	GINTER	SITE OVERVIEW PLAN	Ν
In					DESIGN BY: JTR
					DRAWN BY: SJM
				ENGINEERS	DATE: 4/2023
				ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE	CHECKED BY: DPD
1				4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021	LMN: SITE-OVER
10077				Phone 207.829.5016 • Fax 207.829.5692 • sme-engineers.com	CTB: SME-STD
3.7				JOB NO. 21519 DWG FILE BASE	C-102







74								
		JTR	4/2023	REVISED P	PER OWNER	COMMENTS		
		JTR	7/2022	REVISED P	PER TOWN R	EVIEW COMMEN	TS	
		JTR	6/2022	ISSUED FC	DR TOWN RE	VIEW		
	REV.	BY	DATE	STATUS				
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	0	(PANIEL )						
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	Uning	STONAL EN	mmn					ΔΝ
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//					SEVE	E & MAHER		DATE: 4/2023
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/							nberland Maine 0/021	LMN: GRAD-EROS
į,				Phone	207.829.5016	5 • Fax 207.829.56	92 • sme-engineers.com	CTB: SME-STD
				JOB NO.	21519	DWG FIL	E BASE	C-105

40 FEET



# **EROSION CONTROL NOTES:**

- A. GENERAL
- 1. All soil erosion and sediment control will be done in accordance with: (1) the Maine Erosion and Sediment Control Handbook: Best Management Practices, Maine Department of Environmental Protection (MEDEP), October 2016.
- 2. The site Contractor (to be determined) will be responsible for the inspection and repair/replacement/maintenance of all erosion control measures, disturbed areas, material storage areas, and vehicle access points until all disturbed areas are stabilized.
- 3. Disturbed areas will be permanently stabilized within 7 days of final grading. Disturbed areas not to be worked upon within 14 days of disturbance will be temporarily stabilized within 7 days of the disturbance.
- 4. In all areas, removal of trees, bushes and other vegetation, as well as disturbance of topsoil will be kept to a minimum while allowing proper site operations.
- 5. Any suitable topsoil will be stripped and stockpiled for reuse as directed by the Owner. Topsoil will be stockpiled in a manner such that natural drainage is not obstructed and no off-site sediment damage will result. In any event, stockpiles will not be located within 100 feet of wetlands and will be at least 50 feet upgradient of the stockpile's perimeter silt fence. The sideslopes of the topsoil stockpile will not exceed 2:1. Silt fence will be installed around the perimeter of all topsoil stockpiles. Topsoil stockpiles will be surrounded with siltation fencing and will be temporarily seeded with Aroostook rye, annual or perennial ryegrass within 7 days of formation, or temporarily mulched.
- 6. Winter excavation and earthwork will be completed so as to minimize exposed areas while satisfactorily completing the project. Limit exposed areas to those areas in which work is to occur during the following 15 days and that can be mulched in one day. All areas will be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded, and mulched.

Install any added measures necessary to control erosion/sedimentation. The particular measure used will be dependent upon site conditions, the size of the area to be protected, and weather conditions.

To minimize areas without erosion control protection, continuation of earthwork operations on additional areas will not begin until the exposed soil surface on the area being worked has been stabilized.

- **B. TEMPORARY MEASURES**
- 1. STABILIZED CONSTRUCTION ENTRANCE/EXIT

A crushed stone stabilized construction entrance/exit will be placed at any point of vehicular access to the site, in accordance with the detail shown on this sheet.

- 2. SILT FENCE
- a. Silt fence will be installed prior to all construction activity, where soil disturbance may result in erosion. Silt fence will be erected at locations shown on the plans and/or downgradient of all construction activity.
- b. Silt fences will be removed when they have served their useful purpose, but not before the upgradient areas have been permanently stabilized.
- c. Silt fences will be inspected immediately after each rainfall and at least daily during prolonged rainfall. They will be inspected if there are any signs of erosion or sedimentation below them. Any required repairs will be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, they will be replaced with a temporary crushed stone check dam.
- d. Sediment deposits will be removed after each storm event if significant build-up has occurred or if deposits exceed half the height of the barrier.
- STONE CHECK DAMS

Stone check dams should be installed before runoff is directed to the swale. Stone check dams will be installed in grass-lined swales and ditches during construction. Remove stone check dams when they have served their useful purpose, but not before upgradient areas have been permanently stabilized.

- 4. EROSION CONTROL MIX SEDIMENT BARRIER
- a. It may be necessary to cut, pack down, or remove tall grasses, brush, or woody vegetation to avoid voids and bridges that allow the washing away of fine soil particles.
- b. Where approved, erosion control mix sediment barriers may be used as a substitute for silt fence. See the details in this drawing set for specifications.
- b. Rock Filter Berms: To provide more filtering capacity or to act as a velocity check dam, a berm's center can be composed of clean crushed rock ranging in size from the french drain stone to riprap.

#### 5. TEMPORARY SEEDING

Stabilize disturbed areas that will not be brought to final grade and reduce problems associated with mud and dust production from exposed soil surface during construction with temporary vegetation.

#### TEMPORARY SEEDING SPECIFICATIONS

Mixture:	Application Rate (lbs/acre)
Winter Rye	112
Oats	80
Annual Ryegrass	40
Perennial Ryegrass	40
Perennial Ryegrass	40

6. TEMPORARY MULCHING

Use temporary mulch in the following locations and/or circumstances:

- In sensitive areas (within 100 feet of streams, wetlands and in lake watersheds) temporary mulch will be applied within 7 days of exposing spill or prior to any storm event
- Apply temporary mulch within 14 days of disturbance or prior to any storm event in all other areas.
- Areas which have been temporarily or permanently seeded will be mulched immediately following seeding
- Areas which cannot be seeded within the growing season will be mulched for over-winter protection and the area will be seeded at the beginning of the growing season
- Mulch can be used in conjunction with tree, shrub, vine, and ground cover plantings
- Mulch anchoring will be used on slopes greater than 5 percent in late fall (past October 15), and over-winter (October 15 - April 15).

The following materials may be used for temporary mulch:

- a. Hay or Straw material shall be air-dried, free of seeds and coarse material. Apply 2 bales/1,000 sf or 1.5 to 2 tons/acre to cover 90% of ground surface.
- b. Erosion Control Mix: It can be used as a stand-alone reinforcement:
- 2-inches thick for slopes flatter than 3H:1V:
- 4-inches thick for slopes greater than 3H:1V; • on slopes 2 horizontal to 1 vertical or less;
- on frozen ground or forested areas; and

• at the edge of gravel parking areas and areas under construction. c. Erosion control mix alone is not suitable:

- on slopes with groundwater seepage;
- at low points with concentrated flows and in gullies;
- at the bottom of steep perimeter slopes exceeding 100 feet in length; • below culvert outlet aprons; and around catch basins and closed storm systems.
- d. Chemical Mulches and Soil Binders: Wide ranges of synthetic spray-on materials are marketed to protect the soil surface. These are emulsions that are mixed with water and applied to the soil. They may be used alone, but most often are used to hold wood fiber, hydro-mulches or straw to the soil surface.
- e. Erosion Control Blankets and Mats: Mats are manufactured combinations of mulch and netting designed to retain soil moisture and modify soil temperature. During the growing season (April 15th to November 1st) use mats indicated on drawings or North American Green (NAG) S75 (or mulch and netting) on: • the base of grassed waterways;
- steep slopes (15 percent or greater); and
- any disturbed soil within 100 feet of lakes, streams, or wetlands.

During the late fall and winter (November 1st to April 15th) use heavy grade mats indicated on drawings for NAG SC250 on all areas noted above plus use lighter grade mats NAG S75 (or mulch and netting) on:

• sideslopes of grassed waterways; and moderate slopes (between 8 and 15 percent).

C. TEMPORARY DUST CONTROL

To prevent the blowing and movement of dust from exposed soil surfaces, and reduce the presence of dust, use water or calcium chloride to control dusting by preserving the moisture level in the road surface materials.

D. CONSTRUCTION DE-WATERING

- 1. Water from construction de-watering operations shall be cleaned of sediment before reaching wetlands, water bodies, streams or site boundaries. Utilize temporary sediment basins, erosion control soil filter berms backed by staked hay bales, A Dirt Bag 55" sediment filter bag by ACF Environmental, or other approved Best Management Practices (BMP's).
- 2. In sensitive areas near streams or ponds, discharge the water from the de-watering operation into a temporary sediment basin created by a surrounding filter berm of uncompacted erosion control mix immediately backed by staked hay bales (see the site details). Locate the temporary sediment basin at lease 100 feet from the nearest water body, such that the filtered water will flow through undisturbed vegetated soil areas prior to reaching the water body or property line.

E. PERMANENT MEASURES

- 1. Riprapped Aprons: All storm drain pipe outlets and the inlet and outlet of culverts will have riprap aprons to protect against scour and deterioration.
- 2. Topsoil, Seed, and Mulch: All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, seeded, and mulched.

Seeded Preparation: Use stockpiled materials spread to the depths shown on the plans, if available. Approved topsoil substitutes may be used. Grade the site as needed.

a. Seeding will be completed by August 15 of each year. Late season seeding may be done between August 15 and October 15. Areas not seeded or which do not obtain satisfactory growth by October 15, will be seeded with Aroostook Rye or mulched. After November 1, or the first killing frost, disturbed areas will be seeded at double the specified application rates, mulched, and anchored.

PERMANENT SEEDING SPECIFICATIONS

(lbs/acre)	(lbs/acre)
20	55
5	0
20	55
5	15
	20 5 20 5 5

- b. Mulch in accordance with specifications for temporary mulching.
- c. If permanent vegetated stabilization cannot be established due to the season of the year, all exposed and disturbed areas not to undergo further disturbance are to have dormant seeding applied and be temporarily mulched to protect the site.

3. Ditches and Channels: All ditches on-site will be lined with North American Green S75 erosion control mesh (or an approved equal) upon installation of loam and seed.

- F. WINTER CONSTRUCTION AND STABILIZATION
- 1. Natural Resource Protection: During winter construction, a double-row of sediment barriers (i.e., silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource will be protected a minimum distance of 100 feet on either side from the resource.
- 2. Sediment Barriers: During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.
- 3. Mulching:
  - All areas will be considered to be denuded until seeded and mulched. Hay and
  - straw mulch will be applied at a rate of twice the normal accepted rate.
  - Mulch will not be spread on top of snow.
  - After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.
  - Between the dates of November 1 and April 15, all mulch will be anchored by either mulch netting, emulsion chemical, tracking or wood cellulose fiber.
- 5. Soil Stockpiling: Stockpiles of soil or subsoil will be mulched for over-winter protection with hay or straw at twice the normal rate or with a 4-inch layer of erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpiles shall not be placed (even covered with mulch) within 100 feet from any natural resources. Sediment barriers should be installed downgradient of stockpiles. Stormwater shall be directed away from stockpiles.
- 6. Seeding: Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas will receive 4 inches of loam and seed at an application rate of three times the rate for permanent seeding. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 percent catch) will be revegetated by replacing loam, seed, and mulch.

If dormant seeding is not used for the site, all disturbed areas will be revegetated in the spring.

- 7. Maintenance: Maintenance measures will be applied as needed during the entire construction season. After each rainfall, snow storm, or period of thawing and runoff, and at least once a week, the site Contractor will perform a visual inspection of all installed erosion control measures and perform repairs as needed to ensure their continuous function.
- 8. Identified repairs will be started no later than the end of the net work day and be completed within seven (7) calendar days.

Following the temporary and/or final seeding and mulching, the Contractor will, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 to 90 percent of areas vegetated with vigorous growth.

- G. OVER-WINTER CONSTRUCTION EROSION CONTROL MEASURES
- 1. Stabilization of Disturbed Soil: By October 15, all disturbed soils on areas having a slope less than 15 percent will be seeded and mulched. If the Contractor fails to stabilize these soils by this date, then the Contractor shall stabilize the soil for late fall and winter, by using either temporary seeding or mulching.
- 2. Stabilization of Disturbed Slopes: All slopes to be vegetated will be completed by October 15. The Owner will consider any area having a grade greater than 15 percent (6.5H:1V) to be a slope. Slopes not vegetated by October 15 will receive one of the following actions to stabilize the slope for late fall and winter:
- a. Stabilize the soil with temporary vegetation and erosion control mesh.
- b. Stabilize the slope with erosion control mix. Stabilize the slope with stone riprap.
- d. Slopes steeper than 1.5:1 are prohibited.
- Stabilization of Ditches and Channels: All stone-lined ditches and channels to be used to convey runoff through the winter will be constructed and stabilized by November 15. Grass-lined ditches and channels will be complete by September 15. Grass-lined ditches not stabilized by September 15 shall be lined with either sod or riprap.

H. MAINTENANCE PLAN

Routine Maintenance: Inspection will be performed as outlined in the project's Erosion Control Plan. Inspection will be by a qualified person during wet weather to ensure that the facility performs as intended. Inspection priorities will include checking erosion controls for accumulation of sediments.

Housekeeping

- 1. Spill prevention. Controls must be used 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. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled 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. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.
- 3. Fugitive sediment and dust. Actions must be taken 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 tracking occurs roadways should be swept immediately and no loss once a week and prior to significant storm events.
- 4. Debris and other materials. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.
- 5. Trench or foundation de-watering. Trench de-watering is the removal of water from trenches, foundations, coffer dams, 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. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the department.
- 6. Authorized Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:
- (a) Discharges from firefighting activity;
- (b) Fire hydrant flushings;
- (c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
- (d) Dust control runoff in accordance with permit conditions and section I3;
- (e) Routine external building washdown, not including surface paint removal, that does not involve detergents;
- (f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
- (q) Uncontaminated air conditioning or compressor condensate;
- (h) Uncontaminated groundwater or spring water;
- (i) Foundation or footer drain-water where flows are not contaminated;
- (j) Uncontaminated excavation dewatering (see requirements in section I5);
- (k) Potable water sources including waterline flushings; and
- (I) Landscape irrigation.
- 7. Unauthorized non-stormwater discharges. The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non stormwater, other than those discharges in compliance with section I6. Specifically, the Department's approval does not authorize discharges of the following:
- (a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
- (b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance:
- (c) Soaps, solvents, or detergents used in vehicle and equipment washing; and
- (d) Toxic or hazardous substances from a spill or other release.
- 8. Additional requirements. Additional requirements may be applied on a site-specific basis.
- J. CONSTRUCTION SEQUENCE
  - In general, the expected sequence of construction for each phase is provided below. Construction is proposed to start in Summer 2022 and end in Spring 2023.
  - Mobilization Install temporary erosion control measures
  - Clearing and grubbing
  - Site Grading
  - Construct buildings
  - Site stabilization, site utilities, construct reclaimed asphalt access road and parking areas, loam and seed, landscaping
  - Remove temporary erosion control measures



BARRIER OR SILT FENCE FOR SLOPE PROTECTION.















NTS





PSI @ 28 DAYS.	COVER WEIGHT:	6,995 lbs
	BASE WEIGHT:	16,755 lbs
	TOTAL WEIGHT:	23,750 lbs
RS, DEPENDING ON USE.	AVAILABLE CAPACITY:	2,067 GAL (MAX)
	WORKING CAPACITY :	1,572 GAL (4" DIA PVC)
		1,527 GAL (6" DIA PVC)
0 FRAMES AND COVERS.		

		JTR	4/2023	REVISED PER OWNER COMMENTS
	JTR 7/2022			REVISED PER TOWN REVIEW COMMENTS
		JTR	6/2022	ISSUED FOR TOWN REVIEW
	REV.	BY	DATE	STATUS
	DANIE DANIE P. DIREN 11841			SYNERGOSITY, LLC THE GRANGE HALL PUB AT LONGWOODS PRESERVE CUMBERLAND, MAINE
	S/ONAL ENGLIGHT			SECTIONS AND DETAILS
RUSHED STONE ' DEEP MIN				SME DESIGN BY: BB   SEVEE & MAHER DRAWN BY: SJM   ENGINEERS DATE: 4/2023   ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE CHECKED BY: DPD
2" MIN				4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021LMN: NONEPhone 207.829.5016 • Fax 207.829.5692 • sme-engineers.comCTB: SME-STD
				JOB NO. 21519 DWG FILE DETAILS C-303

TANK, 1,000 GALLON REGULAR SEPTIC TANK

2. KEYED JOINTS IN TANK TO BE SEALED WITH BUTYL RUBBER.





