City of Auburn, Maine
Planning & Permitting Department
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

PLANNING BOARD AGENDA
March 11th, 2025 – 6:00 p.m.
City Council Chambers, 60 Court Street

1. **ROLL CALL:**
2. **MINUTES:** Review the February 11, 2025, meeting minutes. All meetings are available live and after airing on YouTube https://www.youtube.com/c/CityofAuburnMaine
3. **APPOINTMENT**: The Planning Board will discuss and vote to appoint a student representative to the Planning Board
4. **WORKSHOP:** Capital Improvement Plan: The Planning Board will host a workshop to hear and discuss a presentation on the City of Auburn Capital Improvement Plan
5. **PUBLIC HEARING/ SITE PLAN REVIEW:** Stetson Road Multifamily: The Planning Board will host a Public Hearing for this project, which was previously postponed at the February 11, 2025, meeting, for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by DiPrete Engineering on behalf of A.R. Building Company, proposes 50 residential buildings consisting of 30 four-unit multifamily buildings and 20 duplexes, resulting in a total of 160 residential units. The project is located on Stetson Road, Tax Map 291-011, within the General Business (GB) District.
6. **PUBLIC HEARING/ SITE PLAN REVIEW:** Danville Corner Housing Development: The Planning Board will host a Public Hearing for this project, which was previously postponed at the February 11, 2025, meeting, for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by Terradyn Consultants LLC on behalf of Timothy Millet, proposes 21 two-unit homes, resulting in a total of 42 residential units. The project is located on property owned by Spurwink Services Incorporated, on Danville Corner Road, Tax Map 122-004, within the General Business (GB) District.
7. **PUBLIC HEARING/ SITE PLAN REVIEW:** BWC Gulf Island Pond, LLC – Auburn Solar Project: The Planning Board will host a Public Hearing for this project, which was previously postponed at the February 11, 2025, meeting, for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by Sean Murphy of Flycatcher LLC on behalf of BWC Gulf Island Pond, LLC (a subsidiary of BlueWave Energy), proposes a 1.41 MW DC ground-mounted solar array on approximately 10.12 acres at 224 East Waterman Road, Tax Map 393-010, within the Agriculture and Resource Protection Zoning District.
8. **PUBLIC HEARING/ SITE PLAN REVIEW:** Soper Mill Brook, LLC – Penley Corner Solar Project: The Planning Board will host a Public Hearing for this project, which was previously postponed at the February 11, 2025, meeting, for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by Sean Murphy of Flycatcher LLC on behalf of Soper Mill Brook, LLC (a subsidiary of BlueWave Energy), proposes a 1 MW DC ground-

mounted solar array on approximately 10.91 acres on Penley Corner Road, Tax Map 137-026, within the Agriculture and Resource Protection Zoning District.

9. **PUBLIC HEARING/ SITE PLAN REVIEW:** Salt & Light Community Center: The Planning Board will host a Public Hearing for this project to review and take action on a Site Plan Review and Special Exception application submitted by Darlene Conant on behalf of Salt & Light Community Center. The applicant is proposing a walk-in community center with site improvements and associated infrastructure. The subject property is located at 29 Hampshire Street, Tax Map Lot 240-177, within the T-5.1 - Downtown Traditional Center Zoning District.

10. **PUBLIC COMMENT:**

11. **MISCELLANEOUS:**
    a. Upcoming Agenda Items
    b. Legal Opinion on Validity of Planning Board Vote for Election of Chair and Vice Chair

12. **ADJOURNMENT**

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PLANNING BOARD MEETING MINUTES - DRAFT
February 11th, 2025 – 6:00 p.m.
City Council Chambers, 60 Court Street

1. **ROLL CALL:** Ed Bearor (Associate), Bob Hayes, Paul Jacques, Stacey LeBlanc, Darren Finnegan, Tim DeRoche, Maureen Hopkins, Riley Bergeron

Chair Leblanc recommends an agenda shift to move Public Comment to agenda item #9.

Paul Jaques makes the **motion** to amend the agenda. **Second:** by Tim DeRoche. **Vote:** 7-0 **Motion Carries**

2. **MINUTES:** Review the January 14th 2024 meeting minutes. All meetings are available live and after airing on YouTube https://www.youtube.com/c/CityofAuburnMaine

Motion to Approve: Paul Jacques **Second:** Tim DeRoche **Vote:** 6-0-1 (Riley Bergeron Abstains)

3. **Stetson Road Multifamily:** The Planning Board will reopen this project, previously tabled on January 14, 2025, and postpone for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by DiPrete Engineering on behalf of A.R. Building Company, proposes 56 residential buildings (180 units: 22 duplexes and 34 quadplexes) on Stetson Road, Tax Map 291-011, within the General Business (GB) District. No public hearing or site plan review will take place at this time.

Staff report by John Blais. The developer is reducing the number of units by 20 to bring the total to 160 units. AR Development and DiPrete Engineering are working to update their site plan based on this update and expect to have materials ready for the meeting March 11th.

Motion to re-open discussion of Application for the Stetson Road Multifamily Development: Paul Jacques **Second**: Bob Hayes **Vote**: 7-0 **Motion Carries**

Motion to postpone the Public Hearing for Stetson Rd Multifamily development to March 11th per the applicant's request: Paul Jacques **Second:** Bob Hayes **Vote:** 7-0 **Motion Carries**

4. **Danville Corner Housing Development:** The Planning Board will reopen this project, previously tabled on January 14, 2025, and postpone for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by Terradyn Consultants LLC on behalf of

Timothy Millet, proposes 44 single-family homes on property owned by Spurwink Services Incorporated, located on Danville Corner Road, Tax Map 122-004, within the General Business (GB) District. No public hearing or site plan review will take place at this time.

Staff Report by John Blais. Staff and developers are waiting on legal opinion on density standards for this single family and multi-family related to this development.

Motion to re-open discussion of Application for the Danville Corner Rd Development: Bob Hayes
Second: Paul Jacques **Vote**: 7-0 **Motion Carries**

Motion to postpone the Public Hearing for Danville Corner rd Development to March 11th per the applicant's request: Bob Hayes **Second**: Paul Jacques **Vote**: 7-0 **Motion Carries**

5. **BWC Gulf Island Pond, LLC – Auburn Solar Project:** The Planning Board will open this project, and postpone for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by Sean Murphy of Flycatcher LLC on behalf of BWC Gulf Island Pond, LLC (a subsidiary of BlueWave Energy), proposes a 1.41 MW DC ground-mounted solar array on approximately 10.12 acres at 224 East Waterman Road, Tax Map 393-010, within the Agriculture and Resource Protection Zoning District. No public hearing or site plan review will take place at this time.

Staff Report by John Blais. There are still components to this plan that require clarification.

Motion to Postpone review of agenda item to March 11th: Paul Jacques **Second**: Paul Jacques
Vote: 7-0 **Motion Carries**

6. **Soper Mill Brook, LLC – Penley Corner Solar Project** The Planning Board will open this project, and postpone for further review and action at the March 11, 2025, Planning Board meeting. The application, submitted by Sean Murphy of Flycatcher LLC on behalf of Soper Mill Brook, LLC (a subsidiary of BlueWave Energy), proposes a 1 MW DC ground-mounted solar array on approximately 10.91 acres on Penley Corner Road, Tax Map 137-026, within the Agriculture and Resource Protection Zoning District. No public hearing or site plan review will take place at this time.

Staff Report by John Blais. There are still components to this plan that require clarification.

Motion to Postpone review of agenda item to March 11th: Tim DeRoche **Second**: Darren Finnegan
Vote: 7-0 **Motion Carries**

7. **PUBLIC HEARING/ SITE PLAN REVIEW:** Engine II: The Planning Board will host a public hearing and act on a site plan review application submitted by Woodard & Curran on behalf of the City of Auburn proposing a redevelopment of the Auburn Fire Department Engine II public safety project the subject property is located at 180 South Main Street, Tax Map Lot 211-289 and within the T-4.2B - Traditional Neighborhood Development District

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Staff Report by Natalie Thomsen. This project will be a phased development with first building the new structure and then demolishing the old building. The project requires some waivers to meet operational requirements. Caitlin Suhr from Woodard & Curran and Juliette Tate from Simons Architects provide a presentation about the site design. The new design will bring the building up to current code standards.

Stacy LeBlanc makes a **motion** to Open Public Comment **Second**: Tim DeRoche **Vote**: 7-0

Motion Carries

No Public Comment.

Stacy LeBlanc makes a **motion** to Close Public Comment **Second**: Tim DeRoche **Vote:** 7-0

Motion Carries

Paul Jacques makes a **motion** to approve the requested waiver from Section 60-548B.1, Building Placement and Configuration, to allow a front setback of 86 feet where a maximum of 25 feet is permitted.

Second: Bob Hayes **Vote**: 7-0 **Motion Carries**

Paul Jacques makes a **motion** to approve the requested waiver from Section 60-548B.2, Building Frontages, to allow window and door coverage of 34% where a minimum of 40% is required.

Second: Bob Hayes **Vote**: 7-0 **Motion Carries**

Paul Jacques makes a **motion** to approve the requested waiver from Section 60-548B.3, External Elements, to allow a parking area of 68 feet in width where a maximum of 60 feet is permitted.

Second: Tim Deroche **Vote**: 7-0 **Motion Carries**

Paul Jacques makes a **motion** to approve the requested waiver from Section 60-801, Access Management, to allow two curb cuts less than 150 feet apart.

Second: Tim DeRoche **Vote**: 7-0 **Motion Carries**

Paul Jacques makes a **motion** to approve the requested waiver from Sections 60-548B.3 and 60-607, External Elements and General Provisions, to allow driveway widths of 34 feet and 24 feet where a maximum of 20 feet is permitted.

Second: Darren Finnegan **Vote**: 7-0 **Motion Carries**

Paul Jacques makes a **motion** that the proposal meets the requirements of Sections 60-1277 and 60- 1336 and approves the Site Plan by Woodard & Curran for the phased construction of a new 9,400 square foot fire station adjacent to the current structure. The new facility will include a double apparatus bay, dormitories, kitchen, fitness room, conference room, office space, decontamination areas, and other associated improvements at 180 South

DRAFT

Main Street, Tax Map Lot 211-289. The proposed project has met the standards pursuant to Chapter 60, Article XVI, Division 2- Site Plan Review and Division 3 – Special Exception with the following conditions:

A. *No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.*

B. *Blasting permit in advance of blasting from the City of Auburn, Planning, Permitting and Code Department.*

Second: Bob Hayes **Vote**: 7-0 **Motion Carries**

8. WORKSHOP: The Planning Board will host a workshop to discuss the new Director of Planning.

David Hediger, the new Planning Board Director, was in attendance and introduced himself to the Board. He is looking forward to working with the City and the Planning Board.

9. CHAIR AND VICE CHAIR ELECTION

This item was moved after Public Comment. Eric Cousens clarifies that this item came from the Manager's Office. When referring to Robert's Rules, technically there should have been a motion to accept appointments, then there should have been a vote to make the appointment from the pool of appointments. Chair LeBlanc explains that there has been confusion about policies and procedures expected of the Planning Board and she explains that she would have liked to see the process explained clearly prior to voting if there was a specific expectation for the process of chair nominations. Chair LeBlanc asks staff to bring the question to Legal Council to get their opinion on how to proceed.

Motion to request Legal Counsel to review the Chair and Vice Chair election procedure from the January 14th meeting: Riley Bergeron **Second:** Darren Finnegan **Vote**: 6-1 (*Paul Jacques opposes*) **Motion Carries**

10. PUBLIC COMMENT:

Evan Cyr – 122 Granite Rd – Mr. Cyr refers to the procedures stated in Roberts Rules regarding elections and voting to try and provide some clarity on item #9 regarding the chair and Vice chair elections from the previous meeting.

11. MISCELLANEOUS:

a. Upcoming Agenda Items
   i. 4 projects that were postponed tonight
   ii. Application for a community center at 29 Hampshire Street
b. Comp plan Consultant Update
   i. The committee has met 2 times and meet again at the end of February. The City has signed a contract with the consultant and selected a committee chair and vice chair.

DRAFT

A student member spot to serve on the Planning Board has received an application. The Planning Board will vote to appoint the student member.

12. ADJOURNMENT

Motion to adjourn: Tim DeRoche **Second**: Paul Jacques **Vote**: 7-0 **Meeting Adjourned**

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auburnmaine.gov

CITY OF AUBURN
BOARD & COMMITTEE
APPOINTMENT APPLICATION

Please complete this application for consideration to serve on a board or committee of the City of Auburn. Submission of an application does not imply or guarantee an appointment to any board or committee. The City reserves the right to appoint board and committee members as vacancies arise and to perform background checks or any other necessary investigations on applicants. Incomplete applications and those which list more than one committee will not be considered.

Date: 5/06/24

Last name: Adolphe First name: Ngongele Middle initial: K

Residence address: 229 winter st Ward: _____

City Auburn State: ME Zip code: 04210

Home phone: _____ Work phone: _____ Cell phone: 207-212-2829

Email address: adolphe ngongele123@gmail.com

Current occupation: Student

Previous occupation (if retired or no longer working): _____

Educational and/or experience (or attach your resume): GLHS

Please check which Board or Committee you are interested in serving on. Individual applications are required if you wish to apply for more than one Board or Committee.

___ 9-1-1 Committee
___ Age Friendly Committee
___ Agriculture Committee
___ Airport Board
___ Auburn Housing Authority
___ Audit Committee
___ Cable TV Advisory Board
___ CDBG Loan Committee
___ Citizen's Advisory Committee
___ Community Forest Board
___ Conservation Commission
___ Complete Streets Committee
___ Ethics Panel
___ L/A Transit Committee
___ Parks & Recreation Advisory Board
___ Planning Board
___ Regulatory Advisory Board
___ Sewer District
___ Water District
___ Other _____

Is this application for a ✓ new appointment or ___ reappointment or ___ desire to move from an alternate/associate to full member?

Briefly describe why you want to serve on this committee (please limit to 150 words or less. Please attach additional sheet if needed). I want Student Voices to be heard and I want to be that person who makes it happen

What do you hope to accomplish (please limit to 150 words or less. Please attach additional sheet if needed). Be a voice for the Student and you adults.

Are you presently serving on a City or Community Board or Committee? If so, which one(s)? NO

Dates served (if known)? ___

Have you previously served on a City or Community Board or Committee? If so, which one(s)?

___

Dates served (if known)? ___

How did you learn of this vacancy? MR. Abacha

The City Council strives to promote membership and by practice will attempt to limit the number of boards or committees any one person will serve. The city Council also strives to maintain balance of ward distribution on all boards, commissions, or committees.
Thank you for your interest and willingness to serve our community. The giving of your time is commendable and appreciated. Without people like you coming forward, our community would not be as strong, as vibrant, or as great as it is. On behalf of all of us at the City of Auburn, we hope your volunteer experience is rewarding and we thank you for being an outstanding citizen!
I certify that this information is true to the best of my knowledge and agree to the terms and conditions set forth above.
Signature: Abacha Date: 05/07/24

Please submit your application to,
Susan Clements-Dallaire, City Clerk
60 Court Street, Auburn, ME 04210
207-333-6601, extension 1126 sdallaire@auburnmaine.gov

FOR OFFICE USE ONLY

DATE APPLICATION RECEIVED: ___
APPOINTMENT DATE: ___
TERM EXPIRATION DATE: ___
OATH DATE: ___

City of Auburn, Maine
Office of Planning & Permitting
www.auburnmaine.gov | 60 Court Street
Auburn, Maine 04210
207.333.6601

To: Auburn Planning Board
From: Natalie Thomsen, Planning Coordinator
Re: DiPrete Engineering on behalf of owners A.R. Building Company are applying for a site plan application and SLODA delegated review (Over three acres) approval to 50 Residential buildings: 20 duplexes and 30 quadplexes, sidewalks and a paved drive isle off Stetson Road, also City Assessor's Parcel I.D. 291-011. The proposed project should be considered pursuant to Chapter 60, Article XVI Division 2 – Site Plan Review, Article IV Subdivision, Article IV, Division 13 – GB - General Business District, and Article IV, Division 7- Multifamily Suburban District
Date: March 11, 2025



I. PROPOSAL – DiPrete Engineering on behalf of owners A.R. Building Company are applying for a Site Plan approval to 160 units - 50 Residential buildings: 20 duplexes and 30 quadplexes, sidewalks and a paved drive isle off. The parcel is located on Stetson Road, Tax Map 122-004 and within the GB - General Business District. The site is currently vacant (*see above aerial*).

II. ZONING CONSIDERATIONS – The proposed project is located in the General Business (GB) Zoning District, where multifamily dwellings are permitted as a residential use under the standards of the Multifamily Suburban (MFS) District. Per zoning regulations, any development adding three or more residential units requires subdivision approval from the Planning Board. As the GB District incorporates the residential standards of the MFS District, all multifamily projects must comply with the density, setback, and open space requirements outlined in Sec. 60-307(1) and 60-307(2). This ensures that residential developments in the GB zone follow the same regulatory framework as those in the MFS District, maintaining consistency in lot size, building separation, and site design.

According to Sec. 60-307(2), density regulations vary by housing type, with duplexes limited to 6 units per acre and multifamily buildings (quadplexes) allowed up to 17 units per acre. The site

consists of 29.8 acres, which, if entirely designated for multifamily use, could allow up to 506 units. The proposed development includes 160 units across 50 residential buildings—20 duplexes and 30 quadplexes—with each housing type adhering to its respective density requirement. Additionally, the zoning ordinance mandates 10,000 square feet for the first dwelling and 2,000 square feet for each additional unit, and the project complies with all setback requirements.

The required land per housing type is calculated as follows: duplexes require 6.67 acres (40 units ÷ 6 units per acre), and quadplexes require 7.06 acres (120 units ÷ 17 units per acre), totaling 13.73 acres. Since only 13.73 acres are required to meet density limits, and the site has 29.8 acres, the proposed development is well within compliance, with additional land available for roads, open space, and other site improvements.

Specific standard for principal buildings under 60-500(3)(d) of the General Business II zoning district - more than one principal building may be erected on a lot, provided that the building meets all yard setback requirements and are separated by a distance equivalent to *the height of the higher building or 30 feet*, whichever is greater. The applicant has met this standard.

The Multifamily Suburban District requires that 50% of the site be retained as green space, and the proposed development exceeds this requirement, with 78.6% (23.43 acres) of the 29.81-acre site preserved as open space. Additionally, the zoning ordinance mandates 5,000 square feet of recreational open space per building, totaling 250,000 square feet (5.74 acres) for this project. The applicant has provided 13.62 acres of recreational/open space, ensuring full compliance with and exceeding the district's open space standards.

III. PARKING & ACCESS MANAGEMENT STANDARDS - The project will be accessed from Stetson Road via two private road entrances with new curb openings. The proposal includes parking for two vehicles per dwelling, totaling 322 spaces, with 120 garage spaces and 202 surface spaces.

Article V – Off-Street Parking and Loading
Applicable Standards under Section 60-607

#4: Interior Driveways and Ingress/Egress Requirements
The ordinance requires one parking space per residential unit for multifamily and two-family dwellings. With 160 residential units, the project is required to provide 160 parking spaces. The applicant exceeds this requirement by providing 322 spaces, including 120 garage spaces and 202 surface spaces.

Additionally, all parking spaces meet the dimensional and design standards set forth in Section 60-607, including the minimum space dimensions of 9 feet by 18 feet and proper ingress/egress configurations to ensure safe vehicle movement.

✅ Standard Met

#15: Curb-Cut Width Requirements

For lots with one entrance and exit driveway, the curb cut cannot exceed 32 feet in width. For lots with two or more driveways, each curb cut cannot exceed 20 feet in width, unless approved by the City Engineering Department or MDOT for arterial roads.

The proposal includes a 24-foot curb cut, which complies with ordinance requirements based on the City Engineer's recommendation due to site-specific distance and design considerations.

✅ Standard Met

#10 & #16: Landscaping and Buffering Requirements
Parking areas with more than 80 spaces must include landscaped islands or perimeter buffers. This requirement is met as all parking areas are broken up by the residential buildings, with additional green space and a walking trail incorporated into the site design. The layout ensures that parking is well-integrated into the development, reducing large uninterrupted parking areas and improving overall site aesthetics.

✅ Standard Met

#11: Lighting Requirements
Exterior lighting in parking areas must be shielded to prevent glare on adjacent properties and public highways. The project's lighting plan includes the ALEDS3TN model, which features Type III distribution, designed for roadways and general parking areas. This fixture is downcast and Nightsky compliant, ensuring light is directed appropriately while minimizing light pollution and glare.

✅ Standard Met

#12: Pavement and Markings
All parking areas must be surfaced with impermeable paving materials, properly drained, and clearly marked. The applicant complies with these standards by following Chapter 46 - Streets and Sidewalk Design Standards, which regulate paving materials, drainage, and clearly designated parking spaces. The project ensures proper circulation, safety, and durability of the parking surfaces.

✅ Standard Met

The Stetson Road Multifamily Project complies with all applicable Access Management Standards outlined in Article X, Section 60-800 of Auburn's Zoning Ordinance.

Driveway and Curb Cut Spacing (Sec. 60-800)
The project includes two private road entrances on Stetson Road, which meet the required spacing and sight distance standards. The design facilitates safe ingress and egress while reducing potential conflicts between vehicles and pedestrians.

✅ Standard Met

Sight Distance Requirements (Sec. 60-799)
Driveways and access must be positioned to provide adequate sight distance for approaching and exiting vehicles. Based on Stetson Road's posted speed limit, field measurements confirm that the proposed entrances meet or exceed the ordinance's sight distance requirements.

✅ Standard Met

Pedestrian Access and Connectivity
The project includes two pedestrian crosswalks at the driveway entrances, connecting to existing sidewalks on Stetson Road. This design enhances pedestrian safety and connectivity, minimizing conflicts with vehicular traffic and aligning with the ordinance's emphasis on safe and efficient access management.

✅ Standard Met

A Traffic Impact Study conducted by Sebago Technics determined that the 160-unit development will generate 78 trips during the AM peak hour, 92 trips during the PM peak hour, and 91 trips during the Saturday peak hour. Since the highest peak-hour trip generation remains below the 100-trip threshold, the project does not require a MaineDOT Traffic Movement Permit (TMP). The study confirms that the proposed site access points and roadway network can accommodate the anticipated traffic volumes without significant impact on local traffic flow.

WETLANDS/STORMWATER -
The Auburn Zoning Ordinance requires that stormwater management systems control runoff, prevent flooding, and minimize erosion. All projects must comply with the Maine Department of Environmental Protection (DEP) Chapter 500 stormwater regulations, ensuring that post-development peak runoff rates do not exceed pre-development levels. Additionally, soil erosion and sedimentation control measures must be implemented during and after construction to minimize environmental impacts.

The Stetson Road Multifamily Project complies with Sec. 46-209, as the applicant has submitted a Stormwater Management Plan that includes a detention pond system and sediment forebays to control runoff and prevent flooding. The site will disturb over three acres and introduce new impervious surfaces, triggering the requirement for a Site Location of Development Act (SLODA) permit from Maine DEP, for which Auburn has delegated review authority. The stormwater system has been designed to meet DEP Chapter 500 General Standards, incorporating grass swales and infiltration measures to promote natural filtration and groundwater recharge, ensuring compliance with Auburn's stormwater management standards.

☑ Standard Met

Erosion and Sedimentation Control – Sec. 60-1069

Section 60-1069 requires that erosion control plans be implemented for all development projects to prevent soil loss and sedimentation into nearby water bodies. Projects must adhere to Best Management Practices (BMPs) from the Maine Stormwater Management Design Manual, ensuring that construction activities minimize soil disturbance and effectively manage erosion risks.

The Stetson Road Multifamily Project meets the requirements of Sec. 60-1069 by implementing a comprehensive erosion and sedimentation control plan that includes: Silt fencing, erosion control blankets, and temporary sediment basins to manage runoff and prevent soil loss. Permanent stabilization measures such as loaming, seeding, and riprap to reinforce areas prone to erosion. And a long-term Stormwater Operation & Maintenance Plan, outlining inspection schedules and required upkeep of stormwater infrastructure to sustain long-term effectiveness.

☑ Standard Met

OTHER PERTINENT ITEMS -

The Stetson Road Multifamily Project incorporates several key considerations regarding pedestrian access, construction timelines, and project phasing to ensure compliance with city requirements and efficient execution of the development.

Sidewalk Connectivity
The applicant has proposed a sidewalk alignment, extending from the westerly entrance of the development to the bridge, covering 948 feet. This alignment will enhance pedestrian access by connecting the project back to Center Street, ensuring a safer and more efficient pedestrian network. Staff are recommending this be completed before the issuance of a certificate of occupancy for the last unit constructed in Phase 1 to ensure pedestrian connectivity is accomplished.

Construction Moratorium
Stetson Road is under a construction moratorium until August 2025, restricting any new work within the right-of-way during this period. However, the applicant has confirmed that this will not impact the project's timeline, as no work requiring an exemption from the moratorium is planned.

Project Phasing
The development is proposed to be completed in three phases to ensure a structured build-out. Based on the phasing plan, the sequence is as follows:

Phase 1: Construction of initial residential buildings, internal roadways, and essential infrastructure.
Phase 2: Expansion of additional housing units and further site development.
Phase 3: Finalization of remaining units, landscaping, and project completion.

Each phase will include required stormwater and erosion control measures to comply with Maine DEP and Auburn zoning regulations, ensuring environmental and infrastructure considerations are addressed.

IV. WAIVER REQUEST-

No Waivers are being requested

V. DEPARTMENT REVIEW-

a. **Police -** ✓
b. **Auburn Water and Sewer** – The Applicant has collaborated with Auburn Water & Sewer and plans to connect to the existing public sewer lines. Upon finalizing the pump station design agreement, the systems will be dedicated as public infrastructure.
c. **Fire Department/Code Enforcement** – ✓
d. **Engineering** – The applicant is working with engineering regarding external sidewalks and the movement of poles
e. **Public Services-** ✓
f. **Airport** – ✓

VI. PLANNING BOARD ACTION- The proposed project requires review and findings for approval of Sections 60-1277:

A. Site Plan Review, Section 60-1277:

1. Does the site plan protect adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against artificial and reflected light, sight, sound, dust and vibration; and preservation of light and air?
2. Is the convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas adequately addressed?
3. Are the proposed methods of disposal for wastes adequately addressed?
4. Does the site plan provide adequate protection of environment features on the site and adjacent areas?

B. Subdivision, Sec. 60-1359:

1. Will not result in undue water, air or noise pollution. In making this determination it shall at least consider:
   a. The elevation of land above sea level and its relation to the floodplains, the nature of soils and subsoils and their ability to adequately support waste disposal;
   b. The slope of the land and its effect on effluents;
   c. The availability of streams for disposal of effluents; and
   d. The applicable state and local health and water resources regulations, including stormwater management requirements in accordance with section 60-1301(14);
2. Has sufficient water available for the reasonably foreseeable needs of the subdivision;
3. Will not cause an unreasonable burden on an existing water supply, if one is to be utilized;
4. Will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;
5. Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highways or public roads existing or proposed;

6. Will provide for adequate sewage waste disposal;
7. Will not cause an unreasonable burden on the ability of a municipality to dispose of solid waste and sewage if municipal services are to be utilized;
8. Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas;
9. Is in conformance with a duly adopted subdivision regulation or ordinance, comprehensive plan, development plan, or land use plan, if any;
10. Is funded by a subdivider has adequate financial and technical capacity to meet the standards of this section;
11. Will not adversely affect the character of the surrounding neighborhood and will not tend to depreciate the value of property adjoining the neighboring property under application;
12. Has provisions for on site landscaping that are adequate to screen neighboring properties from unsightly features of the development;
13. Will not create a fire hazard and has provided adequate access to the site for emergency vehicles;
14. Will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater;
15. Does not have long-term cumulative effects of the proposed subdivision will that unreasonably increase a great pond phosphorus concentration during the construction phase and life of the proposed subdivision.

VII. STAFF RECOMMENDATIONS -

Staff recommend the Planning Board find that the Site Plan for the proposed development, meets the requirements of Sec. 60-1277 and Sec. 60-1359 and APPROVE the project application. Staff recommend the following conditions:

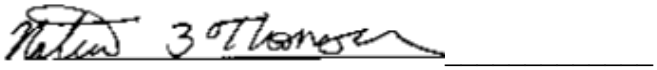
- *No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.*
- *Blasting permit in advance of blasting from the City of Auburn, Planning, Permitting and Code Department.*
- *Prior to the adoption of the sewer lines by the Auburn Water and Sewer District, the Applicant must complete all necessary infrastructure improvements, secure final approval of the pump station design, conduct required testing and inspections, and provide as-built plans and documentation to the satisfaction of the Auburn Water and Sewer District.*
- *Prior to the issuance of a certificate of occupancy for the last unit constructed in Phase 1, the sidewalk along Stetson Road must be completed to the city's satisfaction.*

Suggested Motions:

I make a motion that the proposal meets the requirements of Sections 60-1277 for a Site Plan review and Sec. 60-1359 for subdivision proposing to 50 Residential buildings: 20 duplexes and 30 quadplexes, sidewalks and a paved drive isle off Stetson Road, also City Assessor's Parcel I.D. 291-011. The proposed project should be considered pursuant to Chapter 60, Article XVI Division 2 – Site Plan Review, Article IV Subdivision, Article IV, Division 13 – GB - General Business District, and Article IV, Division 7- Multifamily Suburban District

with the following conditions:

A. *No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.*
B. *Blasting permit in advance of blasting from the City of Auburn, Planning, Permitting and Code Department.*
C. Prior to the adoption of the sewer lines by the Auburn Water and Sewer District, the Applicant must complete all necessary infrastructure improvements, secure final approval of the pump station design, conduct required testing and inspections, and provide as-built plans and documentation to the satisfaction of the Auburn Water and Sewer District.
D. Prior to the issuance of a certificate of occupancy for the last unit constructed in Phase 1, the sidewalk along Stetson Road must be completed to the city's satisfaction.



Natalie Thomsen
Planning Coordinator

DiPrete Engineering

February 25, 2025

John Blais
Deputy Director
Planning, Permitting & Code Department
60 Court Street
Auburn, ME 04210

RE: Stetson Road Multifamily
Auburn, ME
Project #: 2625-032

Dear Mr. Blais:

Enclosed please find the Site Development Review response-to-comments submission materials for the proposed Stetson Road Multifamily project.

In the time since the initial submission on December 9, 2024, the applicant has had multiple discussions with town staff to determine the next steps of this development. As a result, the applicant is proposing to reduce the number of multifamily buildings and units to better fit the town's needs by providing 30' minimum separation between the buildings. The current proposal accompanying this letter is for a 50 residential building development (20 duplex & 30 quadplex), totaling 160 residential units and a maintenance garage.

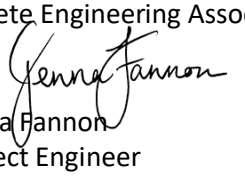
Specific changes to the site plan since December 2024 include:

1. The removal of 4 duplex buildings and 2 duplex buildings. This reduces the total number of units from 180 units to 160 units.
2. The addition of a maintenance building.
3. The reduction in the site's impervious cover from 7.175 acres to 6.382 acres.
4. A rearrangement of duplex and quadplex building locations to meet the required 30 feet building separation.
5. A sidewalk connection for the offsite improvements along Stetson Road starting at the western driveway of the development and approximately 900 linear feet west of towards an existing bridge located on Stetson Road. The City of Auburn will be responsible for any required utility relocation and associated coordination along with any easements needed including construction easements as well as the relocation of any private property structures including but not limited to: mailboxes, signs and light fixtures. See concept plan prepared by Sebago Technics.

These changes are minor and have no substantial impacts to the site's circulation, stormwater, grading, utilities or landscaping. The proposed roadway and stormwater design remain consistent with the original design intent. Considering the changes outlined above, including the reduction of impervious cover, the stormwater design is more conservative. For this reason, the stormwater analysis was not revised for this submission.

If you have any questions on this matter, please feel free to contact me at your earliest convenience.

Sincerely,
DiPrete Engineering Associates, Inc.



Jenna Fannon
Project Engineer
jfannon@diprete-eng.com

DiPrete Engineering

February 25, 2025

John Blais
Deputy Director
Planning, Permitting & Code Department
City of Auburn
60 Court Street
Auburn, ME 04210

RE: Stetson Road Multifamily
Auburn, ME
Project #: 2625-032

Dear Mr. Blais:

DiPrete Engineering has received your comments dated January 14, 2025. DiPrete Engineers has also received the comments from Woodard & Curran dated January 8, 2025. We have reviewed these comments and offer the following in response. The original comments are provided in italics with responses in bold.

City of Auburn Comments:

Sewer System Design and Operation:

1. *Pump Station Design: Include a generator near station 1475 as part of the E1 pump station design. Modify the pump station design to relocate isolation valves from the wetwell to an external valve vault.*

   A generator has been incorporated into the pump station design (see Sheet 13). It is agreed that the addition of an external valve vault is beneficial. However, the pump designer has recommended that the valves shown on the current pump design remain as is, since they help to isolate any individual pumps in case they need to be taken offline for maintenance. The plans have been modified to show a location for an external valve vault and the pump details on Detail Sheet-4 (Sheet 20) have been updated to reflect that addition.

2. *Maintenance and Operations: Submit a detailed maintenance plan and operations manual for the private sewer system. Outline the process for addressing issues with the sewer system, including how these will be communicated to the responsible party in the event of a pump station failure.*

   An Installation & Operation and Maintenance manual for the proposed sewer system is attached. The proposed system will come with a High Tide Monitoring System that will send out a notification to relevant parties when alarm conditions occur.

3. *Testing Requirements: Perform video testing of the sewer lines, ensuring compliance (notes on plan). Include pressure testing for all sewer manholes (notes on plan).*

These notes have been added to the Sanitary Sewer notes section of the Notes & Legend sheet (see Sheet 3).

4. *Service Lines: Update the plans to show individual service lines for each unit instead of the currently proposed shared service lines.*

   The plans have been updated to show individual sewer service lines for each unit.

5. *Design Standards: Ensure all sewer system designs comply with the TR16 Sewer Design Manual.*

   All sewer system designs comply with the TR16 Sewer Design Manual.

Water System Design:

6. *Gate Valves: Include water gate valves every 500 feet on the plans.*

   As shown on the plans, gate valves are included every 500 feet.

7. *Pipe Specifications: Water pipes are required to be Biomax C909 pipes, not CLDIP as currently shown. Identify pipe sizes and include a detailed service layout for the water system.*

   Water pipes have been changed from CLDIP to Biomax C909. Pipe size callouts and layout details are provided on Sheets 12-14.

Potential AWSD Ownership:

8. *Keep in mind that there is still the option for AWSD to take over the sewer system after it is built, provided it is constructed to their standards.*

   Acknowledged.

<u>Woodard & Curran</u>:

1. *We have the following comments on erosion control. It is noted that a written erosion control plan may have been submitted that could address these items, but we did not have that document to review.*
   a. *Double rows of erosion control are required for work in proximity to wetland and natural resource areas. While the resource area will primarily remain outside of the project limit of work, it is recommended that a double row of sediment barrier be called out for the eastern portions of the limit of work that are in proximity to the flagged wetlands. The stream channel does extend into the limit of work, and while the project will ultimately impact this area, interim erosion control may be needed to ensure no impact on downstream resources during construction.*

Please note that the plans call for Class C silt fence along the limit of disturbance within the site. An added layer of erosion control has been added to the plans in the areas with proximity to wetlands and natural resource areas where slope interrupters are not already provided.

b. *Specific areas for a "slope interruption" method of slope protection are called out on the plans. The detail for this system includes rolled erosion control blanket. It is noted that there are other areas on the site with steep slopes that may need this erosion control blanket as well, but not the full slope interruption system.*

Agreed. Please see Note #5 under "Soil Erosion and Sedimentation Control Notes" on the Notes & Legend Sheet (see Sheet 3). This note calls for erosion control mats to be installed, if necessary, to prevent erosion and support vegetation. The plans show the minimum requirements. During construction the site conditions may require additional protection, and it's the contractor's responsibility to ensure compliance with the latest edition of the "Maine Erosion and Sediment Control BMPS" Manual published by Bureau of Land and Water Quality Maine Department of Environmental Protection.

2. *In the stormwater management report, the applicant references that one of the design points has an increase in post development peak flow. The applicant notes that this increase in peak flow, which only occurs in the 2-year storm, is 'insignificant'. Based on the information provided, this increase is considered minor, and the intent of the Maine DEP Chapter 500 Flooding Standard is being met.*
    a. *The design point in question for this minor increase is an existing 18-inch culvert that will not be replaced as part of the project. The culvert has been included as part of the HydroCAD model for the project. The applicant should provide information on the current condition of the culvert to ensure that is able to provide for the full capacity in its existing condition. The application notes that the culvert is located off-site, but if possible, the applicant should consider including the culvert in the site's stormwater O&M plan for at least a visual observation to ensure that it continues to provide for adequate conveyance from the site.*

Based on visual observation, the culvert appeared to be a plastic pipe and in good standing condition. No deformations or breaks were observed at the inlet or outlet location. Water flowing through the pipe was observed at the inlet and outlet location. Prior to the fully developed engineered design, multiple iterations of the pre and post analysis were run to better determine the present and future condition of the culvert from a hydrologic standpoint. These iterations included extended watershed boundaries to include offsite discharges such as the Stetson Road watershed, different runs of TC lines into the swale upgradient from the culvert, and modeling of an existing topo relief point of overflow from the culvert. While all of these were analyzed, the most conservative in our opinion was ultimately used in our post hydrocad analysis.

As shown in the hydrocad analysis, the invert of the existing culvert is at 205.0 and there is a surface overflow approximately 14' wide at elevation 207.2'. The overflow

runs and discharges along North River Road and ultimately discharges west, towards the direction of the culvert outlet. During pre-development conditions, the overflow is triggered at the 5-year storm, with a peak elevation of 207.35'. Post development conditions, the overflow is triggered at the 5- year storm with a peak elevation of 207.31', reducing the peak elevation in post development condition by about 0.4'. Similar occurrences are presented in the 10-year storm where there is a reduction in peak elevation from pre to post development condition. While it's true that the culvert cannot handle the flow of the existing and proposed flow, there is an overflow to the road discharging to the same location of the existing culvert.

As noted above, the existing and proposed condition of the culvert was heavily evaluated to get the best model possible and ensure that the development did not worsen the existing conditions.

The Drainage Structure inspection sheet included in the Operations & Maintenance report has been modified to be called a Drainage Network inspection sheet with the addition of inspection instructions for the existing 18-inch culvert. Please see the attached revised Operations & Maintenance report.

3. *There are a few minor comments on the gravel wetland design.*
   a. *On the design plans provided, for the stormwater gravel wetland detail plan on sheet 15, it is recommended that more detail be noted on locations of proposed cleanouts and risers on the underdrain piping within the gravel wetland. It may just be an issue with the line type used for the plan, but it is not clear on the plan view where these cleanouts are located.*

      A larger circle has been added for visibility in the locations where the proposed cleanouts and risers are placed for the gravel wetland. Please see Sheet 16.

   b. *The gravel wetland detail includes notes for the use of 6-inch diameter underdrain, while the details call for 8-inch pipes. The desired pipe size should be clarified.*

      The discrepancy has been corrected on the plans to call out an 8-inch diameter underdrain.

   c. *It is recommended that the extent of the impermeable liner be shown on the plan view for the gravel wetland. The detail shows the liner beneath the forebay, and the spillway, and including the liner on the plan view will clarify the full extent and identify all pipe structure and other system feature elements that will need to cross the liner.*

      An approximate liner outline callout and hatch have been added to the plans for clarity. Please see Sheet 16.

   d. *The plan view and detail call for a "top of berm elevation" of 260, however the plan view shows that the center top of berm contour is 257. The applicant should clarify to avoid*

confusion as this may just be a difference in what is being referred to as the "top of berm".

The forebay spillway callout on the Gravel Wetland Detail has been modified to specify an elevation of 257.

e. *In the HydroCAD model for Cell 1 of the gravel wetland, the spillway was modeled as a sharp-crested weir. It is recommended that a broad-crested weir is more appropriate for the model considering the proposed shape of the weir.*

HydroCAD has been modified to model a broad-crested weir for Cell 1 of the gravel wetland. There were no impacts to the peak storms for this revision. Please see the attached HydroCAD printouts for reference.

f. *In the HydroCAD model for Cell 2 of the gravel wetland, the outlet piping is modeled as 24-inch pipe. The plans call for 12-inch pipe. In addition, the invert called out for Device #1 for the secondary routing does not appear to correspond to any invert on the plan. It is recommended that the HydroCAD model for the gravel wetland be cross-checked with the final plan to ensure consistency.*

HydroCAD has been updated to match the inverts, size, and lengths of the pipes shown on the plan set. There were no impacts to the peak storms for these updates. Please see the attached HydroCAD printouts for reference.

Please, feel free to contact me if you have any further questions regarding this matter.

Sincerely,
DiPrete Engineering Associates, Inc.

Jenna Fannon
Project Engineer
jfannon@diprete-eng.com

Post HydroCAD 2-Year Storm Analysis

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 100: Post-1 Runoff Area=6.374 ac 61.92% Impervious Runoff Depth=1.90"
Tc=6.0 min CN=89 Runoff=14.14 cfs 1.009 af

Subcatchment 101: Post-2 Runoff Area=0.190 ac 0.00% Impervious Runoff Depth=0.91"
Tc=6.0 min CN=74 Runoff=0.19 cfs 0.014 af

Subcatchment 103: Post-3 Runoff Area=1.011 ac 0.00% Impervious Runoff Depth=0.67"
Tc=6.0 min CN=69 Runoff=0.67 cfs 0.056 af

Subcatchment 105: Post-4 Runoff Area=0.712 ac 3.69% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=77 Runoff=0.86 cfs 0.064 af

Subcatchment 106: Post-5 Runoff Area=0.365 ac 5.38% Impervious Runoff Depth=0.63"
Tc=6.0 min CN=68 Runoff=0.22 cfs 0.019 af

Subcatchment 200: Post-6 Runoff Area=1.135 ac 0.00% Impervious Runoff Depth=0.76"
Flow Length=713' Tc=14.2 min CN=71 Runoff=0.69 cfs 0.072 af

Subcatchment 300: Post-7 Runoff Area=0.531 ac 99.72% Impervious Runoff Depth=2.77"
Tc=6.0 min CN=98 Runoff=1.54 cfs 0.123 af

Subcatchment 301: Post-8 Runoff Area=0.229 ac 44.93% Impervious Runoff Depth=1.25"
Tc=6.0 min CN=80 Runoff=0.33 cfs 0.024 af

Subcatchment 302: Post-9 Runoff Area=2.993 ac 0.00% Impervious Runoff Depth=0.54"
Flow Length=617' Tc=10.9 min CN=66 Runoff=1.22 cfs 0.136 af

Subcatchment 303: Post-10 Runoff Area=2.896 ac 0.00% Impervious Runoff Depth=0.81"
Flow Length=484' Tc=8.9 min CN=72 Runoff=2.24 cfs 0.195 af

Subcatchment 304: Post-11 Runoff Area=1.972 ac 0.00% Impervious Runoff Depth=0.76"
Tc=6.0 min CN=71 Runoff=1.56 cfs 0.125 af

Subcatchment 305: Post-12 Runoff Area=0.155 ac 0.00% Impervious Runoff Depth=0.76"
Tc=6.0 min CN=71 Runoff=0.12 cfs 0.010 af

Subcatchment 306: Post-13 Runoff Area=5.601 ac 56.81% Impervious Runoff Depth=1.45"
Tc=6.0 min CN=83 Runoff=9.47 cfs 0.675 af

Subcatchment 308: Post-14 Runoff Area=0.451 ac 0.00% Impervious Runoff Depth=0.47"
Tc=6.0 min CN=64 Runoff=0.17 cfs 0.018 af

Subcatchment 310: Post-15 Runoff Area=0.372 ac 0.00% Impervious Runoff Depth=0.71"
Tc=6.0 min CN=70 Runoff=0.27 cfs 0.022 af

Subcatchment 312: Post-16 Runoff Area=0.274 ac 77.68% Impervious Runoff Depth=2.07"
Tc=6.0 min CN=91 Runoff=0.66 cfs 0.047 af

Subcatchment 400: Post-17 Runoff Area=6.081 ac 0.00% Impervious Runoff Depth=0.71"
Flow Length=817' Tc=14.6 min CN=70 Runoff=3.34 cfs 0.362 af

Reach A: offsite stream segment A Avg. Flow Depth=0.38' Max Vel=1.57 fps Inflow=1.87 cfs 0.146 af
n=0.080 L=283.0' S=0.0601 '/' Capacity=20.36 cfs Outflow=1.73 cfs 0.146 af

Reach B: offsite stream segment B Avg. Flow Depth=0.53' Max Vel=1.51 fps Inflow=2.82 cfs 0.282 af
n=0.080 L=132.0' S=0.0356 '/' Capacity=13.45 cfs Outflow=2.78 cfs 0.282 af

Reach C: offsite stream segment C Avg. Flow Depth=0.36' Max Vel=1.27 fps Inflow=2.78 cfs 0.282 af
n=0.080 L=180.0' S=0.0228 '/' Capacity=36.85 cfs Outflow=2.69 cfs 0.282 af

Reach D: offsite stream segment D Avg. Flow Depth=0.52' Max Vel=1.37 fps Inflow=4.78 cfs 0.477 af
n=0.080 L=296.0' S=0.0172 '/' Capacity=32.05 cfs Outflow=4.50 cfs 0.477 af

Reach E: offsite stream segment E Avg. Flow Depth=0.60' Max Vel=1.40 fps Inflow=5.54 cfs 0.602 af
n=0.080 L=143.0' S=0.0154 '/' Capacity=85.69 cfs Outflow=5.50 cfs 0.602 af

Pond 102: Sediment Forebay Peak Elev=265.25' Storage=4,322 cf Inflow=15.19 cfs 1.087 af
Outflow=15.15 cfs 0.998 af

Pond 104: Infiltration Pond A Peak Elev=264.15' Storage=25,656 cf Inflow=15.82 cfs 1.054 af
Discarded=0.16 cfs 0.676 af Primary=1.04 cfs 0.378 af Secondary=0.00 cfs 0.000 af Outflow=1.20 cfs 1.054 af

Pond 307: Forebay Peak Elev=257.21' Inflow=9.59 cfs 0.685 af
Outflow=9.59 cfs 0.685 af

Pond 309: Gravel Wetland (Cell 1) Peak Elev=256.28' Storage=9,434 cf Inflow=9.75 cfs 0.703 af
Primary=2.11 cfs 0.630 af Secondary=0.00 cfs 0.000 af Outflow=2.11 cfs 0.630 af

Pond 311: Gravel Wetland (Cell 2) Peak Elev=255.64' Storage=13,658 cf Inflow=2.32 cfs 0.652 af
Primary=0.45 cfs 0.495 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.45 cfs 0.495 af

Pond 313: Existing 18" Culvert Peak Elev=206.51' Inflow=5.85 cfs 0.649 af
Primary=5.85 cfs 0.649 af Secondary=0.00 cfs 0.000 af Outflow=5.85 cfs 0.649 af

Link 107: DP-1: Stetson Road Inflow=1.07 cfs 0.397 af
Primary=1.07 cfs 0.397 af

Link 201: DP-2: Western Neighbor Inflow=0.69 cfs 0.072 af
Primary=0.69 cfs 0.072 af

Link 314: DP-3: North River Road Culvert Inflow=5.85 cfs 0.649 af
Primary=5.85 cfs 0.649 af

Link 401: DP-4: Southern Property Wetland Edge Inflow=0.45 cfs 0.495 af
Primary=0.45 cfs 0.495 af

Link 511: DP-5: Southern Neighbor Inflow=3.34 cfs 0.362 af
Primary=3.34 cfs 0.362 af

Post HydroCAD 10-Year Storm Analysis

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 100: Post-1 Runoff Area=6.374 ac 61.92% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=89 Runoff=22.74 cfs 1.650 af

Subcatchment 101: Post-2 Runoff Area=0.190 ac 0.00% Impervious Runoff Depth=1.82"
Tc=6.0 min CN=74 Runoff=0.40 cfs 0.029 af

Subcatchment 103: Post-3 Runoff Area=1.011 ac 0.00% Impervious Runoff Depth=1.47"
Tc=6.0 min CN=69 Runoff=1.66 cfs 0.124 af

Subcatchment 105: Post-4 Runoff Area=0.712 ac 3.69% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=77 Runoff=1.70 cfs 0.122 af

Subcatchment 106: Post-5 Runoff Area=0.365 ac 5.38% Impervious Runoff Depth=1.40"
Tc=6.0 min CN=68 Runoff=0.57 cfs 0.043 af

Subcatchment 200: Post-6 Runoff Area=1.135 ac 0.00% Impervious Runoff Depth=1.60"
Flow Length=713' Tc=14.2 min CN=71 Runoff=1.59 cfs 0.152 af

Subcatchment 300: Post-7 Runoff Area=0.531 ac 99.72% Impervious Runoff Depth=4.06"
Tc=6.0 min CN=98 Runoff=2.23 cfs 0.180 af

Subcatchment 301: Post-8 Runoff Area=0.229 ac 44.93% Impervious Runoff Depth=2.29"
Tc=6.0 min CN=80 Runoff=0.61 cfs 0.044 af

Subcatchment 302: Post-9 Runoff Area=2.993 ac 0.00% Impervious Runoff Depth=1.27"
Flow Length=617' Tc=10.9 min CN=66 Runoff=3.49 cfs 0.317 af

Subcatchment 303: Post-10 Runoff Area=2.896 ac 0.00% Impervious Runoff Depth=1.67"
Flow Length=484' Tc=8.9 min CN=72 Runoff=5.01 cfs 0.404 af

Subcatchment 304: Post-11 Runoff Area=1.972 ac 0.00% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=71 Runoff=3.60 cfs 0.264 af

Subcatchment 305: Post-12 Runoff Area=0.155 ac 0.00% Impervious Runoff Depth=1.60"
Tc=6.0 min CN=71 Runoff=0.28 cfs 0.021 af

Subcatchment 306: Post-13 Runoff Area=5.601 ac 56.81% Impervious Runoff Depth=2.55"
Tc=6.0 min CN=83 Runoff=16.73 cfs 1.190 af

Subcatchment 308: Post-14 Runoff Area=0.451 ac 0.00% Impervious Runoff Depth=1.15"
Tc=6.0 min CN=64 Runoff=0.55 cfs 0.043 af

Subcatchment 310: Post-15 Runoff Area=0.372 ac 0.00% Impervious Runoff Depth=1.53"
Tc=6.0 min CN=70 Runoff=0.64 cfs 0.047 af

Subcatchment 312: Post-16 Runoff Area=0.274 ac 77.68% Impervious Runoff Depth=3.31"
Tc=6.0 min CN=91 Runoff=1.03 cfs 0.075 af

Subcatchment 400: Post-17 Runoff Area=6.081 ac 0.00% Impervious Runoff Depth=1.53"
Flow Length=817' Tc=14.6 min CN=70 Runoff=8.01 cfs 0.777 af

Reach A: offsite stream segment A Avg. Flow Depth=0.45' Max Vel=1.75 fps Inflow=2.84 cfs 0.224 af
n=0.080 L=283.0' S=0.0601 '/' Capacity=20.36 cfs Outflow=2.66 cfs 0.224 af

Reach B: offsite stream segment B Avg. Flow Depth=0.72' Max Vel=1.82 fps Inflow=5.96 cfs 0.540 af
n=0.080 L=132.0' S=0.0356 '/' Capacity=13.45 cfs Outflow=5.90 cfs 0.540 af

Reach C: offsite stream segment C Avg. Flow Depth=0.56' Max Vel=1.63 fps Inflow=5.90 cfs 0.540 af
n=0.080 L=180.0' S=0.0228 '/' Capacity=36.85 cfs Outflow=5.79 cfs 0.540 af

Reach D: offsite stream segment D Avg. Flow Depth=0.82' Max Vel=1.76 fps Inflow=10.52 cfs 0.944 af
n=0.080 L=296.0' S=0.0172 '/' Capacity=32.05 cfs Outflow=10.08 cfs 0.944 af

Reach E: offsite stream segment E Avg. Flow Depth=0.94' Max Vel=1.80 fps Inflow=12.56 cfs 1.208 af
n=0.080 L=143.0' S=0.0154 '/' Capacity=85.69 cfs Outflow=12.48 cfs 1.208 af

Pond 102: Sediment Forebay Peak Elev=265.35' Storage=4,491 cf Inflow=24.84 cfs 1.800 af
Outflow=24.80 cfs 1.711 af

Pond 104: Infiltration Pond A Peak Elev=264.95' Storage=36,852 cf Inflow=26.46 cfs 1.835 af
Discarded=0.17 cfs 0.701 af Primary=5.59 cfs 1.134 af Secondary=0.00 cfs 0.000 af Outflow=5.76 cfs 1.835 af

Pond 307: Forebay Peak Elev=257.52' Inflow=17.01 cfs 1.210 af
Outflow=17.01 cfs 1.210 af

Pond 309: Gravel Wetland (Cell 1) Peak Elev=256.90' Storage=12,819 cf Inflow=17.55 cfs 1.253 af
Primary=2.12 cfs 0.457 af Secondary=10.00 cfs 0.724 af Outflow=11.81 cfs 1.181 af

Pond 311: Gravel Wetland (Cell 2) Peak Elev=256.86' Storage=25,596 cf Inflow=12.28 cfs 1.228 af
Primary=0.65 cfs 1.071 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.65 cfs 1.071 af

Pond 313: Existing 18" Culvert Peak Elev=207.45' Inflow=13.11 cfs 1.283 af
Primary=8.76 cfs 1.211 af Secondary=4.35 cfs 0.072 af Outflow=13.11 cfs 1.283 af

Link 107: DP-1: Stetson Road Inflow=5.75 cfs 1.176 af
Primary=5.75 cfs 1.176 af

Link 201: DP-2: Western Neighbor Inflow=1.59 cfs 0.152 af
Primary=1.59 cfs 0.152 af

Link 314: DP-3: North River Road Culvert Inflow=13.11 cfs 1.283 af
Primary=13.11 cfs 1.283 af

Link 401: DP-4: Southern Property Wetland Edge Inflow=0.65 cfs 1.071 af
Primary=0.65 cfs 1.071 af

Link 511: DP-5: Southern Neighbor Inflow=8.01 cfs 0.777 af
Primary=8.01 cfs 0.777 af

Post HydroCAD 25-Year Storm Analysis

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 100: Post-1 Runoff Area=6.374 ac 61.92% Impervious Runoff Depth=4.16"
Tc=6.0 min CN=89 Runoff=30.02 cfs 2.208 af

Subcatchment 101: Post-2 Runoff Area=0.190 ac 0.00% Impervious Runoff Depth=2.69"
Tc=6.0 min CN=74 Runoff=0.60 cfs 0.042 af

Pond 102: Sediment Forebay Peak Elev=265.76' Storage=5,266 cf Inflow=33.09 cfs 2.426 af
Outflow=33.05 cfs 2.337 af

Subcatchment 103: Post-3 Runoff Area=1.011 ac 0.00% Impervious Runoff Depth=2.25"
Tc=6.0 min CN=69 Runoff=2.63 cfs 0.190 af

Pond 104: Infiltration Pond A Peak Elev=265.76' Storage=48,877 cf Inflow=35.68 cfs 2.527 af
Discarded=0.19 cfs 0.717 af Primary=8.04 cfs 1.809 af Secondary=0.00 cfs 0.000 af Outflow=8.23 cfs 2.527 af

Subcatchment 105: Post-4 Runoff Area=0.712 ac 3.69% Impervious Runoff Depth=2.96"
Tc=6.0 min CN=77 Runoff=2.47 cfs 0.176 af

Subcatchment 106: Post-5 Runoff Area=0.365 ac 5.38% Impervious Runoff Depth=2.17"
Tc=6.0 min CN=68 Runoff=0.91 cfs 0.066 af

Link 107: DP-1: Stetson Road Inflow=8.32 cfs 1.875 af
Primary=8.32 cfs 1.875 af

Subcatchment 200: Post-6 Runoff Area=1.135 ac 0.00% Impervious Runoff Depth=2.42"
Flow Length=713' Tc=14.2 min CN=71 Runoff=2.46 cfs 0.229 af

Link 201: DP-2: Western Neighbor Inflow=2.46 cfs 0.229 af
Primary=2.46 cfs 0.229 af

Subcatchment 300: Post-7 Runoff Area=0.531 ac 99.72% Impervious Runoff Depth=5.16"
Tc=6.0 min CN=98 Runoff=2.81 cfs 0.229 af

Subcatchment 301: Post-8 Runoff Area=0.229 ac 44.93% Impervious Runoff Depth=3.24"
Tc=6.0 min CN=80 Runoff=0.87 cfs 0.062 af

Subcatchment 302: Post-9 Runoff Area=2.993 ac 0.00% Impervious Runoff Depth=2.01"
Flow Length=617' Tc=10.9 min CN=66 Runoff=5.77 cfs 0.500 af

Subcatchment 303: Post-10 Runoff Area=2.896 ac 0.00% Impervious Runoff Depth=2.51"
Flow Length=484' Tc=8.9 min CN=72 Runoff=7.66 cfs 0.606 af

Subcatchment 304: Post-11 Runoff Area=1.972 ac 0.00% Impervious Runoff Depth=2.42"
Tc=6.0 min CN=71 Runoff=5.56 cfs 0.398 af

Subcatchment 305: Post-12 Runoff Area=0.155 ac 0.00% Impervious Runoff Depth=2.42"
Tc=6.0 min CN=71 Runoff=0.44 cfs 0.031 af

Subcatchment 306: Post-13 Runoff Area=5.601 ac 56.81% Impervious Runoff Depth=3.54"
Tc=6.0 min CN=83 Runoff=23.07 cfs 1.651 af

Pond 307: Forebay Peak Elev=257.86' Inflow=23.50 cfs 1.683 af
Outflow=23.50 cfs 1.683 af

Subcatchment 308: Post-14 Runoff Area=0.451 ac 0.00% Impervious Runoff Depth=1.85"
Tc=6.0 min CN=64 Runoff=0.93 cfs 0.069 af

Pond 309: Gravel Wetland (Cell 1) Peak Elev=257.85' Storage=18,957 cf Inflow=24.43 cfs 1.752 af
Primary=1.80 cfs 0.397 af Secondary=20.78 cfs 1.283 af Outflow=22.38 cfs 1.679 af

Subcatchment 310: Post-15 Runoff Area=0.372 ac 0.00% Impervious Runoff Depth=2.34"
Tc=6.0 min CN=70 Runoff=1.01 cfs 0.072 af

Pond 311: Gravel Wetland (Cell 2) Peak Elev=257.85' Storage=36,851 cf Inflow=23.33 cfs 1.752 af
Primary=0.77 cfs 1.594 af Secondary=0.00 cfs 0.000 af Tertiary=0.00 cfs 0.000 af Outflow=0.77 cfs 1.594 af

Subcatchment 312: Post-16 Runoff Area=0.274 ac 77.68% Impervious Runoff Depth=4.37"
Tc=6.0 min CN=91 Runoff=1.34 cfs 0.100 af

Pond 313: Existing 18" Culvert Peak Elev=207.65' Inflow=20.19 cfs 1.894 af
Primary=9.25 cfs 1.644 af Secondary=10.94 cfs 0.250 af Outflow=20.19 cfs 1.894 af

Link 314: DP-3: North River Road Culvert Inflow=20.19 cfs 1.894 af
Primary=20.19 cfs 1.894 af

Subcatchment 400: Post-17 Runoff Area=6.081 ac 0.00% Impervious Runoff Depth=2.34"
Flow Length=817' Tc=14.6 min CN=70 Runoff=12.54 cfs 1.185 af

Link 401: DP-4: Southern Property Wetland Edge Inflow=0.77 cfs 1.594 af
Primary=0.77 cfs 1.594 af

Link 511: DP-5: Southern Neighbor Inflow=12.54 cfs 1.185 af
Primary=12.54 cfs 1.185 af

Reach A: offsite stream segment A Avg. Flow Depth=0.50' Max Vel=1.87 fps Inflow=3.68 cfs 0.290 af
n=0.080 L=283.0' S=0.0601 '/' Capacity=20.36 cfs Outflow=3.46 cfs 0.290 af

Reach B: offsite stream segment B Avg. Flow Depth=0.85' Max Vel=2.02 fps Inflow=9.00 cfs 0.791 af
n=0.080 L=132.0' S=0.0356 '/' Capacity=13.45 cfs Outflow=8.93 cfs 0.791 af

Reach C: offsite stream segment C Avg. Flow Depth=0.70' Max Vel=1.86 fps Inflow=8.93 cfs 0.791 af
n=0.080 L=180.0' S=0.0228 '/' Capacity=36.85 cfs Outflow=8.79 cfs 0.791 af

Reach D: offsite stream segment D Avg. Flow Depth=1.03' Max Vel=1.99 fps Inflow=16.07 cfs 1.396 af
n=0.080 L=296.0' S=0.0172 '/' Capacity=32.05 cfs Outflow=15.51 cfs 1.396 af

Reach E: offsite stream segment E Avg. Flow Depth=1.19' Max Vel=2.04 fps Inflow=19.43 cfs 1.795 af
n=0.080 L=143.0' S=0.0154 '/' Capacity=85.69 cfs Outflow=19.32 cfs 1.795 af

Summary for Subcatchment 100: Post-1

Runoff = 30.02 cfs @ 12.09 hrs, Volume= 2.208 af, Depth= 4.16"
Routed to Pond 102 : Sediment Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.266	61	>75% Grass cover, Good, HSG B
0.954	74	>75% Grass cover, Good, HSG C
1.207	80	>75% Grass cover, Good, HSG D
0.335	98	Impervious, HSG B
0.746	98	Impervious, HSG C
1.195	98	Impervious, HSG D
0.193	98	Roofs, HSG B
0.583	98	Roofs, HSG C
0.895	98	Roofs, HSG D
6.374	89	Weighted Average
2.427	76	38.08% Pervious Area
3.947	98	61.92% Impervious Area

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

Summary for Subcatchment 101: Post-2

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.042 af, Depth= 2.69"
Routed to Pond 102 : Sediment Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.006	61	>75% Grass cover, Good, HSG B
0.184	74	>75% Grass cover, Good, HSG C
0.190	74	Weighted Average
0.190	74	100.00% Pervious Area

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

Summary for Pond 102: Sediment Forebay

Inflow Area = 7.276 ac, 54.61% Impervious, Inflow Depth = 4.00" for 25-Year event
Inflow = 33.09 cfs @ 12.09 hrs, Volume= 2.426 af
Outflow = 33.05 cfs @ 12.09 hrs, Volume= 2.337 af, Atten= 0%, Lag= 0.2 min
Primary = 33.05 cfs @ 12.09 hrs, Volume= 2.337 af
Routed to Pond 104 : Infiltration Pond A

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 265.76' @ 12.50 hrs Surf.Area= 1,951 sf Storage= 5,266 cf

Plug-Flow detention time= 35.1 min calculated for 2.337 af (96% of inflow)
Center-of-Mass det. time= 13.7 min (808.7 - 795.0)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	7,948 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	908	0	0
263.00	1,151	1,030	1,030
264.00	1,418	1,285	2,314
265.00	1,711	1,565	3,879
265.50	1,867	895	4,773
266.00	2,029	974	5,747
267.00	2,372	2,201	7,948

Device	Routing	Invert	Outlet Devices
#1	Primary	265.00'	**42.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=33.03 cfs @ 12.09 hrs HW=265.42' TW=264.83' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 33.03 cfs @ 1.89 fps)

Summary for Subcatchment 103: Post-3

Runoff = 2.63 cfs @ 12.09 hrs, Volume= 0.190 af, Depth= 2.25"
Routed to Pond 104 : Infiltration Pond A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.506	61	>75% Grass cover, Good, HSG B
0.219	74	>75% Grass cover, Good, HSG C
0.286	80	>75% Grass cover, Good, HSG D
1.011	69	Weighted Average
1.011	69	100.00% Pervious Area

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

Summary for Pond 104: Infiltration Pond A

Inflow Area = 8.287 ac, 47.95% Impervious, Inflow Depth = 3.66" for 25-Year event
Inflow = 35.68 cfs @ 12.09 hrs, Volume= 2.527 af
Outflow = 8.23 cfs @ 12.49 hrs, Volume= 2.527 af, Atten= 77%, Lag= 24.0 min
Discarded = 0.19 cfs @ 12.49 hrs, Volume= 0.717 af
Primary = 8.04 cfs @ 12.49 hrs, Volume= 1.809 af
Routed to Link 107 : DP-1: Stetson Road
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 107 : DP-1: Stetson Road

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 265.76' @ 12.49 hrs Surf.Area= 15,520 sf Storage= 48,877 cf

Plug-Flow detention time= 459.1 min calculated for 2.527 af (100% of inflow)
Center-of-Mass det. time= 459.1 min (1,270.6 - 811.5)

Volume	Invert	Avail.Storage	Storage Description
#1	262.00'	69,262 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.00	10,603	0	0
264.00	13,114	23,717	23,717
266.00	15,852	28,966	52,683
267.00	17,305	16,579	69,262

Device	Routing	Invert	Outlet Devices
#1	Secondary	266.00'	**30.0' long x 10.0' breadth Emergency Overflow** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	262.00'	**0.520 in/hr Exfiltration over Surface area** Phase-In= 0.01'
#3	Primary	261.00'	**15.00" Round Culvert** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 261.00' / 260.00' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#4	Device 3	263.85'	**24.00" W x 8.00" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.19 cfs @ 12.49 hrs HW=265.76' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=8.04 cfs @ 12.49 hrs HW=265.76' TW=0.00' (Dynamic Tailwater)
└**3=Culvert** (Passes 8.04 cfs of 12.01 cfs potential flow)
└**4=Orifice/Grate** (Orifice Controls 8.04 cfs @ 6.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=262.00' TW=0.00' (Dynamic Tailwater)
└**1=Emergency Overflow** (Controls 0.00 cfs)

Summary for Subcatchment 105: Post-4

Runoff = 2.47 cfs @ 12.09 hrs, Volume= 0.176 af, Depth= 2.96"
Routed to Pond 102 : Sediment Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.380	74	>75% Grass cover, Good, HSG C
0.306	80	>75% Grass cover, Good, HSG D
0.026	98	Impervious, HSG D
0.000	98	Offsite Impervious, HSG D
0.712	77	Weighted Average
0.686	77	96.31% Pervious Area
0.026	98	3.69% Impervious Area

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

Summary for Subcatchment 106: Post-5

Runoff = 0.91 cfs @ 12.09 hrs, Volume= 0.066 af, Depth= 2.17"
Routed to Link 107 : DP-1: Stetson Road

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.134	61	>75% Grass cover, Good, HSG B
0.164	74	>75% Grass cover, Good, HSG C
0.020	98	Impervious, HSG C
0.016	58	Meadow, non-grazed, HSG B
0.002	71	Meadow, non-grazed, HSG C
0.030	55	Woods, Good, HSG B
0.000	70	Woods, Good, HSG C
0.365	68	Weighted Average
0.345	67	94.62% Pervious Area
0.020	98	5.38% Impervious Area

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

Summary for Link 107: DP-1: Stetson Road

Inflow Area = 8.652 ac, 46.15% Impervious, Inflow Depth = 2.60" for 25-Year event
Inflow = 8.32 cfs @ 12.44 hrs, Volume= 1.875 af
Primary = 8.32 cfs @ 12.44 hrs, Volume= 1.875 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 200: Post-6

Runoff = 2.46 cfs @ 12.20 hrs, Volume= 0.229 af, Depth= 2.42"
Routed to Link 201 : DP-2: Western Neighbor

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.101	61	>75% Grass cover, Good, HSG B
0.048	74	>75% Grass cover, Good, HSG C
0.371	80	>75% Grass cover, Good, HSG D
0.256	55	Woods, Good, HSG B
0.359	77	Woods, Good, HSG D
1.135	71	Weighted Average
1.135	71	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0630	0.19		**Sheet Flow, A** Grass: Dense n= 0.240 P2= 3.30"
4.0	367	0.0480	1.53		**Shallow Concentrated Flow, C** Short Grass Pasture Kv= 7.0 fps
1.3	246	0.0414	3.28		**Shallow Concentrated Flow, C** Unpaved Kv= 16.1 fps
14.2	713	Total			

Summary for Link 201: DP-2: Western Neighbor

Inflow Area = 1.135 ac, 0.00% Impervious, Inflow Depth = 2.42" for 25-Year event
Inflow = 2.46 cfs @ 12.20 hrs, Volume= 0.229 af
Primary = 2.46 cfs @ 12.20 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 300: Post-7

Runoff = 2.81 cfs @ 12.08 hrs, Volume= 0.229 af, Depth= 5.16"
Routed to Reach A : offsite stream segment A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.001	61	>75% Grass cover, Good, HSG B
0.001	80	>75% Grass cover, Good, HSG D
0.411	98	Offsite Impervious, HSG B
0.083	98	Offsite Impervious, HSG C
0.036	98	Offsite Impervious, HSG D
0.531	98	Weighted Average
0.001	69	0.28% Pervious Area
0.530	98	99.72% Impervious Area

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

Summary for Subcatchment 301: Post-8

Runoff = 0.87 cfs @ 12.09 hrs, Volume= 0.062 af, Depth= 3.24"
Routed to Reach A : offsite stream segment A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.000	74	>75% Grass cover, Good, HSG C
0.109	65	Brush, Good, HSG C
0.103	98	Offsite Impervious, HSG C
0.017	70	Woods, Good, HSG C
0.229	80	Weighted Average
0.126	66	55.07% Pervious Area
0.103	98	44.93% Impervious Area

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

Summary for Subcatchment 302: Post-9

Runoff = 5.77 cfs @ 12.16 hrs, Volume= 0.500 af, Depth= 2.01"
Routed to Reach B : offsite stream segment B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.436	61	>75% Grass cover, Good, HSG B
0.000	74	>75% Grass cover, Good, HSG C
0.647	58	Meadow, non-grazed, HSG B
0.481	71	Meadow, non-grazed, HSG C
0.171	78	Meadow, non-grazed, HSG D
0.324	55	Woods, Good, HSG B
0.735	70	Woods, Good, HSG C
0.199	77	Woods, Good, HSG D
2.993	66	Weighted Average
2.993	66	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	105	0.0700	0.20		**Sheet Flow, A** Grass: Dense n= 0.240 P2= 3.30"
0.5	67	0.0880	2.08		**Shallow Concentrated Flow, B** Short Grass Pasture Kv= 7.0 fps
1.5	445	0.1000	5.09		**Shallow Concentrated Flow, C** Unpaved Kv= 16.1 fps
10.9	617	Total			

Summary for Subcatchment 303: Post-10

Runoff = 7.66 cfs @ 12.13 hrs, Volume= 0.606 af, Depth= 2.51"
Routed to Reach D : offsite stream segment D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.190	61	>75% Grass cover, Good, HSG B
0.610	74	>75% Grass cover, Good, HSG C
0.154	65	Brush, Good, HSG C
0.003	58	Meadow, non-grazed, HSG B
0.628	71	Meadow, non-grazed, HSG C
0.026	78	Meadow, non-grazed, HSG D
0.000	98	Offsite Impervious, HSG C
0.008	55	Woods, Good, HSG B
0.700	70	Woods, Good, HSG C
0.577	77	Woods, Good, HSG D
2.896	72	Weighted Average
2.896	72	100.00% Pervious Area
0.000	98	0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	100	0.1200	0.24		**Sheet Flow, A**
					Grass: Dense n= 0.240 P2= 3.30"
1.4	199	0.1200	2.42		**Shallow Concentrated Flow, B**
					Short Grass Pasture Kv= 7.0 fps
0.6	185	0.0990	5.07		**Shallow Concentrated Flow, C**
					Unpaved Kv= 16.1 fps
8.9	484	Total			

Summary for Subcatchment 304: Post-11

Runoff = 5.56 cfs @ 12.09 hrs, Volume= 0.398 af, Depth= 2.42"
Routed to Reach E : offsite stream segment E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.369	74	>75% Grass cover, Good, HSG C
0.089	65	Brush, Good, HSG C
1.088	71	Meadow, non-grazed, HSG C
0.428	70	Woods, Good, HSG C
1.972	71	Weighted Average
1.972	71	100.00% Pervious Area

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

Summary for Subcatchment 305: Post-12

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.031 af, Depth= 2.42"
Routed to Pond 307 : Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.039	61	>75% Grass cover, Good, HSG B
0.116	74	>75% Grass cover, Good, HSG C
0.155	71	Weighted Average
0.155	71	100.00% Pervious Area

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

Summary for Subcatchment 306: Post-13

Runoff = 23.07 cfs @ 12.09 hrs, Volume= 1.651 af, Depth= 3.54"
Routed to Pond 307 : Forebay

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
1.900	61	>75% Grass cover, Good, HSG B
0.435	74	>75% Grass cover, Good, HSG C
0.084	80	>75% Grass cover, Good, HSG D
1.355	98	Impervious, HSG B
0.457	98	Impervious, HSG C
0.070	98	Impervious, HSG D
0.902	98	Roofs, HSG B
0.349	98	Roofs, HSG C
0.049	98	Roofs, HSG D
5.601	83	Weighted Average
2.419	64	43.19% Pervious Area
3.182	98	56.81% Impervious Area

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

Summary for Pond 307: Forebay

Inflow Area = 5.755 ac, 55.29% Impervious, Inflow Depth = 3.51" for 25-Year event
Inflow = 23.50 cfs @ 12.09 hrs, Volume= 1.683 af
Outflow = 23.50 cfs @ 12.09 hrs, Volume= 1.683 af, Atten= 0%, Lag= 0.0 min
Primary = 23.50 cfs @ 12.09 hrs, Volume= 1.683 af
Routed to Pond 309 : Gravel Wetland (Cell 1)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 257.86' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	256.50'	**5.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=23.22 cfs @ 12.09 hrs HW=257.86' TW=257.07' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 23.22 cfs @ 3.42 fps)

Summary for Subcatchment 308: Post-14

Runoff = 0.93 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 1.85"
Routed to Pond 309 : Gravel Wetland (Cell 1)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.338	61	>75% Grass cover, Good, HSG B
0.113	74	>75% Grass cover, Good, HSG C
0.000	98	Impervious, HSG B
0.000	98	Roofs, HSG B
0.451	64	Weighted Average
0.451	64	100.00% Pervious Area
0.000	98	0.00% Impervious Area

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

Summary for Pond 309: Gravel Wetland (Cell 1)

Inflow Area = 6.206 ac, 51.27% Impervious, Inflow Depth = 3.39" for 25-Year event
Inflow = 24.43 cfs @ 12.09 hrs, Volume= 1.752 af
Outflow = 22.38 cfs @ 12.12 hrs, Volume= 1.679 af, Atten= 8%, Lag= 2.0 min
Primary = 1.80 cfs @ 12.05 hrs, Volume= 0.397 af
Routed to Pond 311 : Gravel Wetland (Cell 2)
Secondary = 20.78 cfs @ 12.12 hrs, Volume= 1.283 af
Routed to Pond 311 : Gravel Wetland (Cell 2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 257.85' @ 16.35 hrs Surf.Area= 17,751 sf Storage= 18,957 cf

Plug-Flow detention time= 265.7 min calculated for 1.679 af (96% of inflow)
Center-of-Mass det. time= 242.3 min (1,055.1 - 812.8)

Volume	Invert	Avail.Storage	Storage Description
#1	252.08'	2,880 cf	**Stone (Prismatic)** Listed below (Recalc) 7,200 cf Overall x 40.0% Voids
#2	254.08'	270 cf	**Gravel (Prismatic)** Listed below (Recalc) 900 cf Overall x 30.0% Voids
#3	254.33'	724 cf	**Wetland (Prismatic)** Listed below (Recalc) 2,412 cf Overall x 30.0% Voids
#4	255.00'	23,880 cf	**Detention (Prismatic)** Listed below (Recalc)
		27,754 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.08	3,600	0	0
254.08	3,600	7,200	7,200

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.08	3,600	0	0
254.33	3,600	900	900

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.33	3,600	0	0
255.00	3,600	2,412	2,412

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
255.00	3,600	0	0
256.00	4,770	4,185	4,185
257.00	5,980	5,375	9,560
257.50	6,600	3,145	12,705
258.00	7,100	3,425	16,130
259.00	8,400	7,750	23,880

Device	Routing	Invert	Outlet Devices
#1	Primary	252.08'	**8.00" Round Culvert** L= 26.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 252.08' / 252.08' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf
#2	Secondary	256.50'	**16.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=1.77 cfs @ 12.05 hrs HW=256.93' TW=255.15' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.77 cfs @ 5.07 fps)

Secondary OutFlow Max=20.75 cfs @ 12.12 hrs HW=257.11' TW=255.76' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 20.75 cfs @ 2.11 fps)

Summary for Subcatchment 310: Post-15

Runoff = 1.01 cfs @ 12.09 hrs, Volume= 0.072 af, Depth= 2.34"
Routed to Pond 311 : Gravel Wetland (Cell 2)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.108	61	>75% Grass cover, Good, HSG B
0.264	74	>75% Grass cover, Good, HSG C
0.372	70	Weighted Average
0.372	70	100.00% Pervious Area

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

Summary for Pond 311: Gravel Wetland (Cell 2)

Inflow Area = 6.578 ac, 48.37% Impervious, Inflow Depth = 3.20" for 25-Year event
Inflow = 23.33 cfs @ 12.12 hrs, Volume= 1.752 af
Outflow = 0.77 cfs @ 16.34 hrs, Volume= 1.594 af, Atten= 97%, Lag= 253.2 min
Primary = 0.77 cfs @ 16.34 hrs, Volume= 1.594 af
Routed to Link 401 : DP-4: Southern Property Wetland Edge
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach E : offsite stream segment E
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach E : offsite stream segment E

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Starting Elev= 38.33' Storage= 0 cf
Peak Elev= 257.85' @ 16.34 hrs Surf.Area= 35,369 sf Storage= 36,851 cf

Plug-Flow detention time= 631.4 min calculated for 1.594 af (91% of inflow)
Center-of-Mass det. time= 514.6 min (1,560.9 - 1,046.4)

Volume	Invert	Avail.Storage	Storage Description
#1	252.08'	6,240 cf	**Stone (Prismatic)** Listed below (Recalc) 15,600 cf Overall x 40.0% Voids
#2	254.08'	585 cf	**Gravel (Prismatic)** Listed below (Recalc) 1,950 cf Overall x 30.0% Voids
#3	254.33'	1,568 cf	**Wetland (Prismatic)** Listed below (Recalc) 5,226 cf Overall x 30.0% Voids
#4	255.00'	61,801 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		70,194 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
252.08	7,800	0	0
254.08	7,800	15,600	15,600

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.08	7,800	0	0
254.33	7,800	1,950	1,950

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
254.33	7,800	0	0
255.00	7,800	5,226	5,226

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
255.00	7,800	0	0
256.00	9,340	8,570	8,570
257.00	10,875	10,108	18,678
257.50	11,660	5,634	24,311
258.00	12,100	5,940	30,251
259.00	13,000	12,550	42,801
260.00	25,000	19,000	61,801

Device	Routing	Invert	Outlet Devices
#1	Secondary	254.33'	**12.00" Round Culvert** L= 34.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 254.33' / 253.00' S= 0.0391 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Primary	254.33'	**12.00" Round Culvert** L= 98.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 254.33' / 253.00' S= 0.0136 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#3	Device 2	254.33'	**4.00" Vert. OCS Orifice** C= 0.600 Limited to weir flow at low heads
#4	Tertiary	259.00'	**18.0' long x 0.5' breadth Emergency Spillway** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Device 1	258.55'	**24.00" x 24.00" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 2	258.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.77 cfs @ 16.34 hrs HW=257.85' TW=0.00' (Dynamic Tailwater)
↑└─**2=Culvert** (Passes 0.77 cfs of 5.78 cfs potential flow)
  ↑└─**3=OCS Orifice** (Orifice Controls 0.77 cfs @ 8.82 fps)
  └─**6=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=252.08' TW=207.50' (Dynamic Tailwater)
↑└─**1=Culvert** (Controls 0.00 cfs)
  ↑└─**5=Orifice/Grate** (Controls 0.00 cfs)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=252.08' TW=207.50' (Dynamic Tailwater)
↑└─**4=Emergency Spillway** (Controls 0.00 cfs)

Summary for Subcatchment 312: Post-16

Runoff = 1.34 cfs @ 12.08 hrs, Volume= 0.100 af, Depth= 4.37"
Routed to Pond 313 : Existing 18" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.061	65	Brush, Good, HSG C
0.213	98	Offsite Impervious, HSG C
0.274	91	Weighted Average
0.061	65	22.32% Pervious Area
0.213	98	77.68% Impervious Area

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

Summary for Pond 313: Existing 18" Culvert

Inflow Area = 8.895 ac, 9.50% Impervious, Inflow Depth = 2.56" for 25-Year event
Inflow = 20.19 cfs @ 12.17 hrs, Volume= 1.894 af
Outflow = 20.19 cfs @ 12.17 hrs, Volume= 1.894 af, Atten= 0%, Lag= 0.0 min
Primary = 9.25 cfs @ 12.17 hrs, Volume= 1.644 af
Routed to Link 314 : DP-3: North River Road Culvert
Secondary = 10.94 cfs @ 12.17 hrs, Volume= 0.250 af
Routed to Link 314 : DP-3: North River Road Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 207.65' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	205.00'	**18.00" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 205.00' / 204.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Secondary	207.20'	**14.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=9.25 cfs @ 12.17 hrs HW=207.65' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 9.25 cfs @ 5.24 fps)

Secondary OutFlow Max=10.93 cfs @ 12.17 hrs HW=207.65' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 10.93 cfs @ 1.74 fps)

Summary for Link 314: DP-3: North River Road Culvert

Inflow Area = 8.895 ac, 9.50% Impervious, Inflow Depth = 2.56" for 25-Year event
Inflow = 20.19 cfs @ 12.17 hrs, Volume= 1.894 af
Primary = 20.19 cfs @ 12.17 hrs, Volume= 1.894 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 400: Post-17

Runoff = 12.54 cfs @ 12.21 hrs, Volume= 1.185 af, Depth= 2.34"
Routed to Link 511 : DP-5: Southern Neighbor

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.40"

Area (ac)	CN	Description
0.413	61	>75% Grass cover, Good, HSG B
0.772	74	>75% Grass cover, Good, HSG C
0.031	80	>75% Grass cover, Good, HSG D
0.042	58	Meadow, non-grazed, HSG B
0.466	71	Meadow, non-grazed, HSG C
0.233	78	Meadow, non-grazed, HSG D
0.449	55	Woods, Good, HSG B
2.658	70	Woods, Good, HSG C
1.017	77	Woods, Good, HSG D
6.081	70	Weighted Average
6.081	70	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	59	0.1120	0.21		**Sheet Flow, A** Grass: Dense n= 0.240 P2= 3.30"
7.3	41	0.1900	0.09		**Sheet Flow, B** Woods: Dense underbrush n= 0.800 P2= 3.30"
2.7	717	0.0768	4.46		**Shallow Concentrated Flow, C** Unpaved Kv= 16.1 fps
14.6	817	Total			

Summary for Link 401: DP-4: Southern Property Wetland Edge

Inflow Area = 6.578 ac, 48.37% Impervious, Inflow Depth > 2.91" for 25-Year event
Inflow = 0.77 cfs @ 16.34 hrs, Volume= 1.594 af
Primary = 0.77 cfs @ 16.34 hrs, Volume= 1.594 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Summary for Link 511: DP-5: Southern Neighbor

Inflow Area = 6.081 ac, 0.00% Impervious, Inflow Depth = 2.34" for 25-Year event
Inflow = 12.54 cfs @ 12.21 hrs, Volume= 1.185 af
Primary = 12.54 cfs @ 12.21 hrs, Volume= 1.185 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

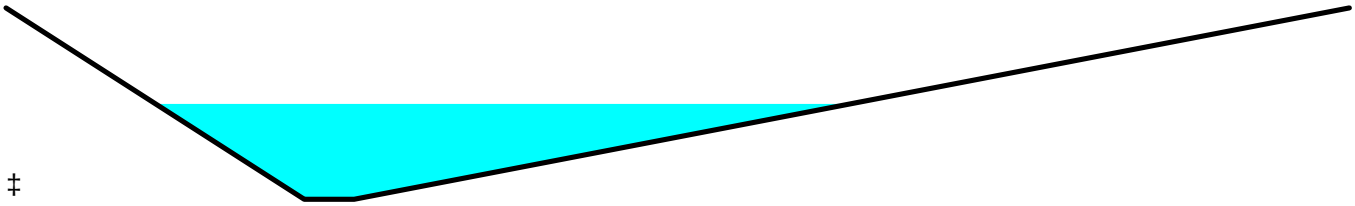
Summary for Reach A: offsite stream segment A

Inflow Area = 0.760 ac, 83.24% Impervious, Inflow Depth = 4.59" for 25-Year event
Inflow = 3.68 cfs @ 12.08 hrs, Volume= 0.290 af
Outflow = 3.46 cfs @ 12.11 hrs, Volume= 0.290 af, Atten= 6%, Lag= 1.7 min
Routed to Reach B : offsite stream segment B

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.87 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.67 fps, Avg. Travel Time= 7.0 min

Peak Storage= 525 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.50' , Surface Width= 6.96'
Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 20.36 cfs

0.50' x 1.00' deep channel, n= 0.080 Earth, long dense weeds
Side Slope Z-value= 3.0 10.0 '/' Top Width= 13.50'
Length= 283.0' Slope= 0.0601 '/'
Inlet Invert= 238.40', Outlet Invert= 221.40'



‡

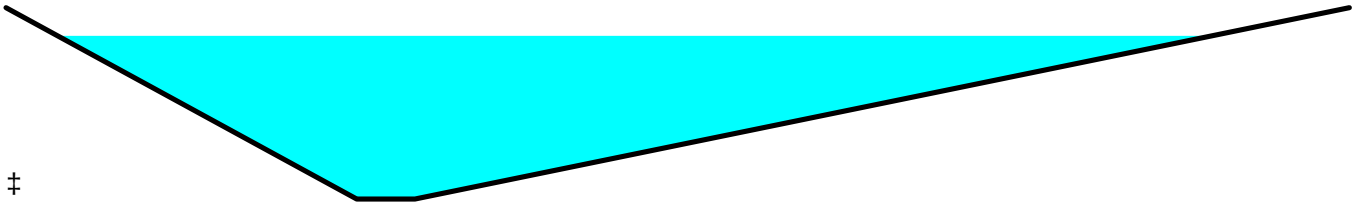
Summary for Reach B: offsite stream segment B

Inflow Area = 3.753 ac, 16.85% Impervious, Inflow Depth = 2.53" for 25-Year event
Inflow = 9.00 cfs @ 12.14 hrs, Volume= 0.791 af
Outflow = 8.93 cfs @ 12.15 hrs, Volume= 0.791 af, Atten= 1%, Lag= 0.8 min
Routed to Reach C : offsite stream segment C

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.02 fps, Min. Travel Time= 1.1 min
Avg. Velocity = 0.70 fps, Avg. Travel Time= 3.1 min

Peak Storage= 582 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.85' , Surface Width= 9.86'
Bank-Full Depth= 1.00' Flow Area= 6.0 sf, Capacity= 13.45 cfs

0.50' x 1.00' deep channel, n= 0.080 Earth, long dense weeds
Side Slope Z-value= 3.0 8.0 '/' Top Width= 11.50'
Length= 132.0' Slope= 0.0356 '/'
Inlet Invert= 221.40', Outlet Invert= 216.70'



‡

Summary for Reach C: offsite stream segment C

Inflow Area = 3.753 ac, 16.85% Impervious, Inflow Depth = 2.53" for 25-Year event
Inflow = 8.93 cfs @ 12.15 hrs, Volume= 0.791 af
Outflow = 8.79 cfs @ 12.17 hrs, Volume= 0.791 af, Atten= 2%, Lag= 1.2 min
Routed to Reach D : offsite stream segment D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.86 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 6.4 min

Peak Storage= 852 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.70' , Surface Width= 8.51'
Bank-Full Depth= 1.50' Flow Area= 13.1 sf, Capacity= 36.85 cfs

5.00' x 1.50' deep channel, n= 0.080 Earth, long dense weeds
Side Slope Z-value= 3.0 2.0 '/' Top Width= 12.50'
Length= 180.0' Slope= 0.0228 '/'
Inlet Invert= 216.70', Outlet Invert= 212.60'



‡

Summary for Reach D: offsite stream segment D

Inflow Area = 6.649 ac, 9.51% Impervious, Inflow Depth = 2.52" for 25-Year event
Inflow = 16.07 cfs @ 12.15 hrs, Volume= 1.396 af
Outflow = 15.51 cfs @ 12.18 hrs, Volume= 1.396 af, Atten= 3%, Lag= 1.9 min
Routed to Reach E : offsite stream segment E

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.99 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 10.3 min

Peak Storage= 2,305 cf @ 12.18 hrs
Average Depth at Peak Storage= 1.03' , Surface Width= 10.14'
Bank-Full Depth= 1.50' Flow Area= 13.1 sf, Capacity= 32.05 cfs

5.00' x 1.50' deep channel, n= 0.080 Earth, long dense weeds
Side Slope Z-value= 3.0 2.0 '/' Top Width= 12.50'
Length= 296.0' Slope= 0.0172 '/'
Inlet Invert= 212.60', Outlet Invert= 207.50'



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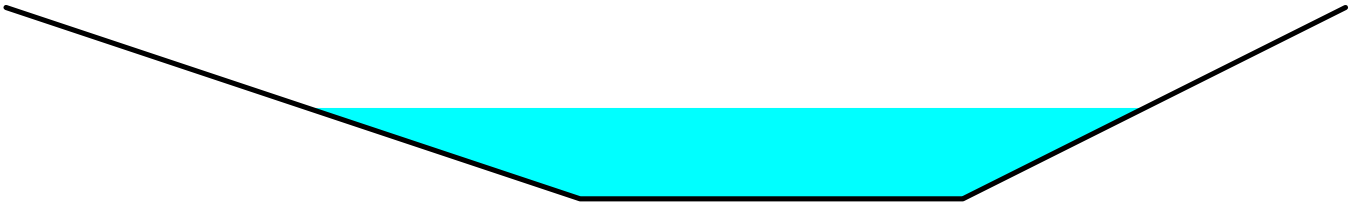
Summary for Reach E: offsite stream segment E

Inflow Area = 8.621 ac, 7.34% Impervious, Inflow Depth = 2.50" for 25-Year event
Inflow = 19.43 cfs @ 12.16 hrs, Volume= 1.795 af
Outflow = 19.32 cfs @ 12.18 hrs, Volume= 1.795 af, Atten= 1%, Lag= 0.9 min
Routed to Pond 313 : Existing 18" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.04 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 4.7 min

Peak Storage= 1,357 cf @ 12.18 hrs
Average Depth at Peak Storage= 1.19' , Surface Width= 10.95'
Bank-Full Depth= 2.50' Flow Area= 28.1 sf, Capacity= 85.69 cfs

5.00' x 2.50' deep channel, n= 0.080 Earth, long dense weeds
Side Slope Z-value= 3.0 2.0 '/' Top Width= 17.50'
Length= 143.0' Slope= 0.0154 '/'
Inlet Invert= 207.50', Outlet Invert= 205.30'



DiPrete Engineering

Project # 2625-032

February 25, 2025

Stormwater System Operation & Maintenance

Stetson Road, Auburn, ME

Parcel ID 129-011

Applicant:

A.R. Building Company, Inc.
310 Seven Fields Boulevard, Suite 350
Seven Fields, PA 16046



Table of Contents

Operation & Maintenance Plan Overview 1
Stormwater System Owner / Party Responsible for O&M 2
Public Safety 3
Stormwater System Plan 4
Inspections & Maintenance 6
DEP 5-Year Re-Certification 8
Appendix A – Inspection Schedule & Maintenance Checklists 9
Appendix B – Five-Year Recertification for Long-term Maintenance of Stormwater Management System 31

Operation & Maintenance Plan Overview

An essential component of a successful Stormwater System (SS) is the ongoing Operation and Maintenance (O&M) of the various components of the stormwater drainage, control, and conveyance systems. These components include swales, pipes, catch basins, and treatment/ control devices are commonly referred to as Best Management Practices (BMPs). Failure to provide effective maintenance can reduce the hydraulic capacity and the pollutant removal efficiency of stormwater practices.

Many people expect that stormwater facilities will continue to function correctly forever. However, it is inevitable that deterioration of the stormwater system will occur once it becomes operational. The question is not whether stormwater system maintenance is necessary but how often.

This plan has been developed to proactively address operations and maintenance to minimize potential problems and maximize potential stormwater runoff treatment and management. Ongoing inspections and maintenance will extend the service life of the Best Management Practices.

This plan addresses:

1. Stormwater management system(s) owners;
2. The party or parties responsible for operation and maintenance, including how future property owners will be notified of the presence of the stormwater management system and the requirement for proper operation and maintenance;
3. A description and delineation of public safety features;
4. The routine (scheduled) and non-routine (corrective) maintenance tasks for each BMP to be undertaken after construction is complete and a schedule for implementing those tasks;
5. A plan that is drawn to scale and shows the location of all stormwater BMPs in each treatment train along with the discharge point;
6. An estimated operation and maintenance budget; and
7. Funding source for operation and maintenance activities and equipment.

A major contributor to unmaintained stormwater facilities is a lack of clear ownership and responsibility definition. In order for an inspection and maintenance program to be effective, the roles for each responsibility must be clearly defined prior to construction of a system. This can be accomplished with a maintenance agreement between the site owners and the responsible authority.

This report is suitable for recording as an attachment to a maintenance agreement between the site owner and the responsible authority. A copy of a sample agreement prepared by RIDEM is attached to this report as Appendix B.

Stormwater System Owner / Party Responsible for O&M

Stormwater BMPs are maintained during construction by the site contractor as identified in the Soil Erosion and Sediment Control Plan (SESC) for the site. A copy of the SESC is required to be kept on site during construction. The SESC requires maintenance and inspection of the BMPs during the construction phase of project and requires a log be kept of these activities. Once construction is complete and the contractor's warranty period is elapsed, the contractor must obtain the signature of the stormwater system's owner releasing the contractor from his maintenance and inspection responsibilities. A copy of this release of contractor's responsibility must be attached to this document.

The Owners Association will be the owner of the stormwater system located outside of public right of ways and all stormwater BMP. Upon completion of construction, and creation of the Owners Association, their legal name along with mailing and emergency contact information must be added below.

Owner; _____

Mailing Address; _____

_____

Emergency Contact Name; _____

Phone; _____

Transfer of Ownership

In the event that the owner of any property included in the Owner's Association changes, the current owner (grantor) must provide a copy of this document to the new owner (grantee). In addition, the Owners Association must provide all new members with a copy of this document.

The Stormwater System Owner is the Party Responsible for the ongoing O&M of the system.

The two key components to adequately maintain the stormwater infrastructure are:

1. Performance of periodic and scheduled inspections
2. Performance of scheduled maintenance

The actual operation and maintenance of the system may be performed by a third party designated by the owner. If the owner contracts with a third party for O&M the name, address, and emergency contact information must be added below, and updated if the third-party designee changes.

Name: _____

Mailing Address: _____

_____

Emergency Contact Name: _____

Phone: _____

Public Safety

Public safety was a critical factor in designing the stormwater system. Public safety features included in this design are:

- Accessibility to Stormwater BMPs
- Winter & Non-Winter Maintenance

Accessibility to Stormwater BMPs

As shown on the site plans, all stormwater BMPs are accessible from the roadway.

Winter Maintenance

The following tasks must be performed to protect public safety during the winter season:

- Roadways and parking lots will be salted/ sanded/ plowed in accordance with applicable City of Auburn and MaineDOT guidelines;
- Inspect the open and closed drainage networks adjacent to the snow stockpiles to ensure they are free of clogging and debris;
- Inspect roadways and drainage structures post-storm event to alleviate any signs of icing or damming.

Non-Winter Maintenance

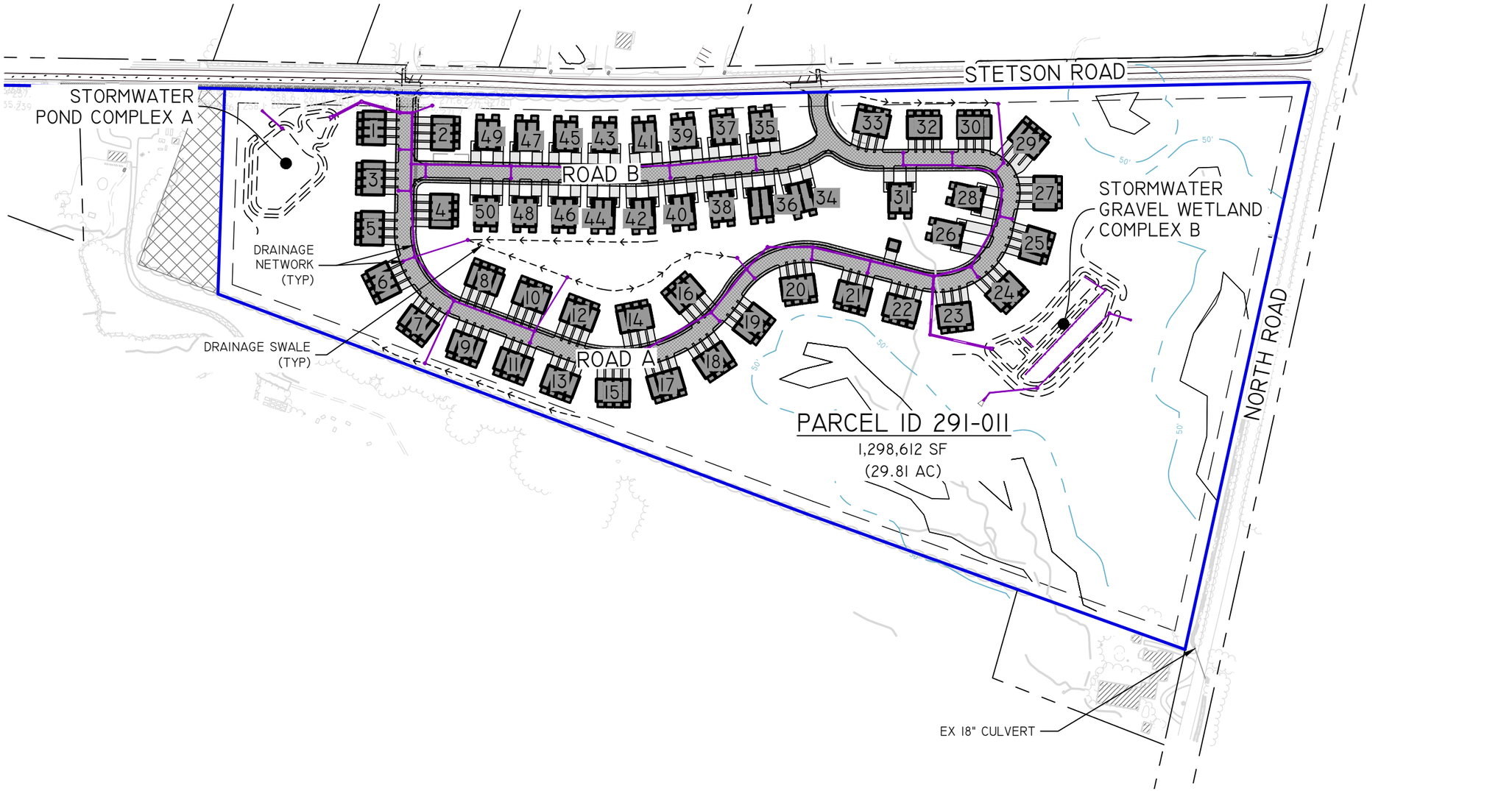
The following tasks must be performed to protect public safety during the non-winter seasons:

- Roadways and parking lots will be swept in accordance with applicable City of Auburn and MaineDOT guidelines;
- The stormwater management systems must be inspected and maintained in accordance with the enclosed Operations & Maintenance Plan.

Particular care must be taken in the operation and maintenance of these features.

Stormwater System Plan

A plan identifying each component of the stormwater system is included on the following page.



SCALE: 1"=200'

0 100' 200' 400'

DiPrete Engineering
Two Stafford Court Cranston, RI 02920
tel 401-943-1000 fax 401-464-6006 www.diprete-eng.com
Boston • Providence • Newport

O&M PLAN

STETSON ROAD

AUBURN, MAINE

PREPARED FOR:

A.R. BUILDING COMPANY, INC.

310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

DATE: 02-25-2025

SHEET 1 OF 1

DE JOB NO: 2625-032 COPYRIGHT 2025 BY DIPRETE ENGINEERING ASSOCIATES, INC.

Z:\DEMAIN\PROJECTS\2625-032 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2625-032-PLAN.DWG PLOTTED: 2/25/2025

Inspections & Maintenance

Inspections must be performed on a regular basis and scheduled based on the BMP type and configuration. It is not mandatory that all inspectors be trained engineers, but they must have some knowledge or experience with stormwater systems and in general, trained stormwater engineers should direct the inspectors. Follow-up inspections by registered professional engineers must be performed where a routine inspection has revealed a question of structural or hydraulic integrity affecting public safety.

Not all inspections can be conducted by direct human observation. For subsurface systems, video equipment may be required. There may be cases where other specialized equipment is necessary. The inspection program must be tailored to address the operational characteristics of the system.

The inspection process must document observations made in the field and must cover structural conditions, hydraulic operational conditions, evidence of vandalism, condition of vegetation, occurrence of obstructions, unsafe conditions, and build-up of trash, sediments and pollutants.

Maintenance of the stormwater management system is essential and can be divided into two types, scheduled and corrective.

Scheduled maintenance tasks are those that are typically accomplished on a regular basis and can generally be scheduled without referencing inspection reports. These items consist of such things as vegetation maintenance (such as mowing) and trash and debris removal. These tasks are required at well-defined time intervals and are a requirement for all stormwater structural facilities.

Corrective maintenance tasks consist of items such as sediment removal, stream bank stabilization, and outlet structure repairs that are done on an as-needed basis. These tasks are typically scheduled based on inspection results or in response to complaints.

Since specialized equipment may be required, some maintenance tasks can be effectively handled on a contract basis with an outside entity specializing in that field. In addition, some maintenance may also require a formal design and bid process to accomplish the work.

Appendix A provides an "Inspection Schedule & Maintenance Checklist" for the stormwater system components on this site. Completed checklists must be maintained as an ongoing record of inspections for each component of the stormwater system.

In addition to the maintenance of the stormwater system, maintenance of other site improvements can significantly enhance the ability for the BMPs to function as designed. Several of these have been listed below, along with the recommended maintenance.

Lawn, Garden and Landscape Management

- Lawns should be cut no shorter than 1-1/2" in the spring and fall to stimulate root growth, and no shorter than 2 to 3 inches throughout the summer.
- Infiltration ponds should be mowed at least twice per year.
- Fertilize no more than twice per year, once in May-June and once in September-October.
- Avoid spreading fertilizer on impervious surfaces.
- Weeds should be dug or pulled out. Large areas of weeds can be removed by covering with large plastic sheet(s) for a few days.
- Chemical pesticides should be used as a last resort. A healthy lawn is naturally disease resistant.
    - Visible insects can be removed by hand, by spraying with water, or even vacuum cleaning.
    - Store bought traps, specific for a species, can be used.
    - Slugs and other soft bodied insects can be eliminated using diatomaceous earth.
    - Plants infected with bacteria and fungi should be removed and disposed of.
    - Beneficial organisms should be maintained on the property and should be encouraged/ attracted to the property. Homeowners and property facility maintenance personal should become familiar with beneficial organisms.
- Irrigation should be minimal if required at all. Most lawns do not require watering and will become dormant during dry periods.
    - Established lawns require no more than one inch of water per week.
    - Areas should be watered before 9am to avoid evaporation.
    -

Road and Parking Area Management

Street and Parking Lot Sweeping

- All street and parking areas on site must be swept a minimum of 2 times per year.

Deicing:

- Salt storage areas must be completely covered and located on an impervious surface.
- Runoff must be contained in appropriate areas.
- See The Rhode Island Stormwater Design and Installation Standards Manual Appendix G for approved deicing agents and ways to reduce deicer impacts. The manual Appendices can be found online at: http://www.dem.ri.gov/programs/benviron/water/permits/ripdes/stwater/pdfs/swdsnapd.pdf

Sealants:

- Only asphalt based sealants are permitted, no coal-tar based asphalt sealants can be used on site.

Snow Removal:

- Snow must not be dumped in any water body including rivers, reservoirs, ponds, lakes, wetlands, bays, or the ocean.
- Avoid disposing of snow on top of storm drain catch basins or stormwater drainage swales or ditches.
- Snow must be stored in upland areas, not in or adjacent to water bodies or wetlands. Snow must be stored in a location that will allow snow melt and enter the onsite drainage system so it can be treated by onsite BMPs.

Solid Waste Containment

- Trash and recycling receptacles must be located onsite for all commercial areas.

Reference: Additional information relating to operation and maintenance of specific BMPs can be found in Volume III of the Maine Stormwater Management Design Manual
https://www.maine.gov/dep/land/stormwater/stormwaterbmps/#

DEP 5-Year Re-Certification

Long-term inspection and maintenance by a DEP approved stormwater maintenance inspector shall be regularly provided under a five-year binding inspection and maintenance contract that must be renewed prior to contact expiration. A certification of the following must be submitted to the MEDEP withing three months of the expiration of each five-year interval from the date of issuance of the permit. The form is provided in Appendix B.

Upon completion of construction, the owner of the property and stormwater system must file the 5-Year re-certification with MEDEP.

Identification and Repair of Erosion

Certification that all areas of the development have been inspected for erosion, and appropriate steps have been taken to permanently stabilize these areas.

Identification and Repair of Stormwater Control System

Certification that all aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the failing systems.

Maintenance

Certification that the erosion control and stormwater maintenance plan for the site is being implemented as written, and a maintenance log has been created and is being maintained.

Appendix A – Inspection Schedule & Maintenance Checklists

Drainage Network
(Catch Basins, Manholes, etc.)
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Notes:

- Beyond inspection frequency noted, inspections shall be completed after storms equal to or greater than the 1-year 24-hour Type III storm event (2.7" of rain fall)
- All Checklist Maintenance items are MANDATORY.
- During inspections, if maintenance items are found not to be applicable, note as N/A in comments
- All removed sediments shall be disposed at an approved and permitted location.
- All hazardous debris removed shall be disposed of in accordance with state and federal regulations by a properly licensed contractor

MAINTENANCE ITEM	SATISFACTORY (YES/NO)	COMMENTS
Semi-annually, during spring and late fall, inspect drainage structures for damage		
Use a vacuum truck or other means to clean out any sediment or debris present in any drainage structure or whenever sediments reach ½ of the sump depth, which ever comes first.		
Semi-annually inspect drainage structures for debris, obstruction to flow, and accumulated winter sand and remove as necessary		
1. Existing 18"Culvert on North Road		
Quarterly inspection to ensure drainage pipe is clear of debris		
Annual inspection of the drainage pipe for damage		

Drainage Network
(Catch Basins, Manholes, etc.)
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

COMMENTS:

ACTIONS TO BE TAKEN:

Sediment Forebay
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Notes:

- Beyond inspection frequency noted in parenthesis, i.e. (quarterly), inspections shall be completed after storms equal to or greater than the 1-year 24-hour Type III storm event (2.7" of rain fall)
- All Checklist Maintenance items are MANDATORY.
- During inspections, if maintenance items are found not to be applicable, note as N/A in comments
- All removed sediments shall be disposed at an approved and permitted location.
- All hazardous debris removed shall be disposed of in accordance with state and federal regulations by a properly licensed contractor

MAINTENANCE ITEM	SATISFACTORY (YES/NO)	COMMENTS
1. Debris Cleanout (Quarterly)		
The sediment forebay and sediment trap isolation chamber clear of debris or		
Inflow pipes / inlet area clear of debris		
Outflow pipes / outlet area clear of debris		
Overflow Weir / outlet area clear of debris		
2. Sedimentation (Quarterly)		
Obvious trapping of sediment		
Greater than 50% of storage volume remaining. If less than 50% of storage volume remaining, sediments to be removed and disposed of. (see notes at end of Forebay		

Sediment Forebay
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

3. Vegetation (Quarterly)		
Vegetation within sediment forebay to be limited to 18" in height.		
4. Embankments (Quarterly)		
Evidence of erosion		
Seeps/leaks on downstream face		
Slope protection or riprap failure		
Slopes stabilized with vegetation, slope protection, riprap, etc		

COMMENTS:

Sediment Forebay
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

ACTIONS TO BE TAKEN:

Grassed Channel or Grassed Swale
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Notes:

- **Beyond inspection frequency noted in parenthesis, i.e. (quarterly), inspections shall be completed after storms equal to or greater than the 1-year 24-hour Type III storm event (2.7" of rain fall)**
- **All Checklist Maintenance items are MANDATORY.**
- **During inspections, if maintenance items are found not to be applicable, note as N/A in comments**
- **All removed sediments shall be disposed at an approved and permitted location.**
- **All hazardous debris removed shall be disposed of in accordance with state and federal regulations by a properly licensed contractor**
- **If the surface of the grass channel becomes clogged to the point that standing water is observed on the surface 48 hours after precipitation events, the bottom should be roto-tilled or cultivated to break up any hard-packed sediment, and then reseeded**

MAINTENANCE ITEM	SATISFACTORY (YES/NO)	COMMENTS
1. Debris Cleanout (Quarterly)*		
The channel/swale bottom is clear of debris or litter.		
Inflow pipes / inlet areas clear of debris		
Outflow pipes / outlet area clear of debris		
Overflow Weir / outlet area clear of debris		
2. Sedimentation (Quarterly)*		
Obvious trapping of sediment		

Grassed Channel or Grassed Swale
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

When sediment accumulates to a depth of approximately ¼ of the original design depth, it should be removed, and the channel should be reconfigured to its original dimensions		
3. Vegetation (Quarterly)*		
The grass in the channel should be mowed at least 2 times during the growing season		
Dethatching swale bottom and removal of thatching		
4. Embankments (Quarterly)*		
Evidence of erosion		
Slopes stabilized with vegetation, slope protection, riprap, etc		

COMMENTS:

Grassed Channel or Grassed Swale
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

ACTIONS TO BE TAKEN:

Gravel Wetland
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Notes:

- **During the first year, the basin shall be inspected semi-annually and following major storm events.**
- **Debris and sediment buildup shall be removed from the forebay and basin as needed. Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. Maintaining good vegetative cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity.**
- **The gravel wetland should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filter should be inspected at least once every six months to ensure that it is draining within 48 hours following a one inch storm or greater. Following storms that fill the system and overflow is observed, the soil filter should drain in no less than 24 to 48 hours. If the system drains too fast, an orifice may need to be added on the underdrain outlet or, if already present, may need to be modified.**
- **Sediment Removal: Sediment and plant debris should be removed from the pretreatment structure at least annually.**
- **Check and clean the risers if there is evidence of standing water, discolored water or accumulated sediments in the cells.**
- **Removal any decaying vegetation, litter, and debris that may be found.**
- **Check for foreign species. Particular care must be used to avoid the unintended introduction of invasive species such as purple loosestrife (Lythrum salicaria) and common reed (Phragmites australis). It is recommended that a qualified wetland biologist be consulted when these are found in the area of the gravel wetland.**
- **Plant biomass shall be harvested annually.**

MAINTENANCE ITEM	**SATISFACTORY (YES/NO)**	**COMMENTS**
1. Debris Cleanout (Quarterly)		
Wetland and contributing areas clean of debris including yard waste, litter and limbs		

Gravel Wetland
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Spillway/ Weir / outlet area clear of debris		
2. Sedimentation (Quarterly)		
Obvious trapping of sediment		
Removal of sediment when depth is greater than 1.0 inches over filter media bed.		
3. Vegetation (Quarterly)		
If there are plantings within the wetland areas: • Plant height is not less than design water depth. • Plant composition according to approved plans. No placement of inappropriate plans		
Vegetated areas should be replenished (to the original depth) every other year, as directed by inspection records.		
Seasonally plants may need to be watered, treating of diseased trees and shrubs, inspection of soil and repair eroded areas, and removal of litter and debris.		
Every 3 years pruning or replacement of wood vegetation.		
If 50% of vegetation coverage is not established after 2 years reinforcement planting is required.		

Gravel Wetland
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

4. Embankments (Quarterly)		
Evidence of erosion		
Slopes stabilized with vegetation, slope protection, riprap, etc		

Gravel Wetland
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

COMMENTS:

ACTIONS TO BE TAKEN:

Infiltration Pond
Operation, Maintenance, and Management
Inspection Checklist

Project:	Date:
Location:	Time:
Site Status:	Inspector:

Notes:

- Beyond inspection frequency noted in parenthesis, i.e. (semi-annually), inspections shall be completed:
    - after storms equal to or greater than the 1-year 24-hour Type III storm event (2.7" of rain fall)
    - after every storm during the first 3 months of operating (noting how long water remains standing in the basin after a storm
    - standing water within the basin 48 to 72 hours after a storm indicates that the infiltration capacity may have been overestimated)
    - twice a year thereafter and when there are discharges through the high outlet.
- All Checklist Maintenance items are MANDATORY.
- During inspections, if maintenance items are found not to be applicable, note as N/A in comments
- All removed sediments shall be disposed at an approved location or other facility permitted by MassDEP.
- All hazardous debris removed shall be disposed of in accordance with state and federal regulations (Hazardous waste Regulations, 310 CMR 30.000) by a properly licensed contr actor
- Infiltration Ponds Only: When infiltration rates decrease below design infiltration rates, remove accumulated surface sediments and rototill pond bottom. Revegetate bottom of infiltration pond as needed.
- Mow the buffer area, side slopes and basin bottom grassed floor; rake if stone bottom; remove trash grass clipping and accumulated organic matter semi-annually.
- Important items to check during the inspection include:
    - Signs of differential settlement
    - Cracking.
    - Erosion.
    - Leakage in the embankments
    - Tree growth on the embankments.
    - Condition of riprap.
    - Sediment accumulation and
    - The health of the turf.

Infiltration Pond
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

MAINTENANCE ITEM	SATISFACTORY (YES/NO)	COMMENTS
1. Embankment and Emergency Spillway (Semi-Annually)		
Vegetation and ground cover adequate. Area free of accumulated organic matter.		
Embankment erosion or tree growth.		
The area at the top of the basin must provide unimpeded vehicular access around the entire basin perimeter and shall be no less than 12 feet.		
Signs of differential settlement.		
The health of the vegetation.		
Animal burrows.		
Unauthorized planting.		
Cracking, bulging or sliding of dam.		
• Upstream face		
• Downstream face		
• At or beyond toe		
• Downstream		
• Upstream		
• Emergency spillway		
Basin, toe & chimney drains clear and functioning.		

Infiltration Pond
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Seeps/leaks on downstream face.		
Slope protection or riprap failure.		
Vertical/horizontal alignment of top of dam "As-Built".		
Emergency Spillway clear of obstructions and debris.		
2. Riser and Principal Spillway (Semi-Annually)		
Type: Reinforced Concrete___ Corrugated Pipe_____ Masonry_____ Low-flow orifice obstructed		
Low-flow trash rack • Debris removal necessary		
• Corrosion control		
Weir trash rack maintenance • Debris removal necessary		
• Corrosion control		
Excessive Sediment accumulation inside riser.		
Concrete/Masonry condition riser and barrels • cracks or displacement		
• Minor spalling (<1")		
• Major spalling (rebars exposed)		
• Joint failures		
• Water tightness		
Metal pipe Condition.		
Control Valve • Operational/ Exercised		

Infiltration Pond
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

• Chained and Locked		
Basin Drain Valve • Operational/ Exercised		
Outfall channels functioning.		
3. Dry Basin Areas (Semi-Annually)		
Vegetation adequate. Area free of accumulated organic matter.		
Undesirable vegetative growth.		
Undesirable woody vegetation.		
Low-flow channels clear of obstructions.		
Standing water or wet spots.		
Annual mowing of vegetation along the maintenance access roads.		
Annual inspection of vegetation within basin.		
Prune all dead or dying vegetation within the extents of the basin or WVTS.		
Sediment and/or trash accumulation		
Remove all herbaceous vegetation root stock when overcrowding of the maintenance access to the facility, remove any vegetation that has a negative impact on stormwater flowage through facility, and trim any overgrown vegetation within the basin.		
Replace any/all original vegetation that has died off or has not fully established, as determined at the time of the inspection.		
Any invasive vegetation encroaching upon the perimeter of the facility should be pruned or removed if it is prohibiting access to the		

Infiltration Pond
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

facility, compromising sight visibility and/or compromising original design vegetation.		
4. Condition of Outfalls (Semi-Annually)		
Riprap failures.		
Slope erosion.		
Storm drain pipes.		
Endwalls/ Headwalls		
Other (specify).		
5. Emergent Vegetation (Semi-Annually)		
Semi-annual mowing of vegetation: Semi-Annual mowing of the basin setback is only required along maintenance rights-of-way and the embankment. The remaining setback can be managed as rangeland or forest.		
Dominant emergent plants: Survival of desired emergent plant species. Distribution according to planting plan.		
Evidence of invasive species.		
Maintenance of adequate water depths for desired emergent plant species.		
Harvesting of emergent plantings needed.		
Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment.		
Eutrophication level of the WVTS.		
6. Permanent Lined Concrete Chute Area (Semi-Annually)		
Upstream face.		

Infiltration Pond
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Downstream face.		
Seeps/leaks on concrete face.		
Joint failures.		
Riprap failures.		
Concrete Chute not displacing .		
Spillway clear of obstructions, debris, sediment and/or trash accumulation.		
7. Monitoring Well (Semi-Annually)		
Opening clear of debris/ easily located.		
8. Draw Down System (Semi-Annually)		
Pipe outlet clear of debris/ easily located.		
Sock clear of sediment/ blockage.		
Perforated and solid pipe clear of sediment/ debris.		
Valve location clear of debris/ easily located.		

COMMENTS:

Infiltration Pond
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

ACTIONS TO BE TAKEN:

Street Sweeping
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

Notes:

- Beyond inspection frequency noted in parenthesis, i.e. (quarterly), inspections shall be completed after storms equal to or greater than the 1-year 24-hour Type III storm event (2.7" of rain fall)
- All Checklist Maintenance items are MANDATORY.
- During inspections, if maintenance items are found not to be applicable, note as N/A in comments
- All removed sediments shall be disposed at an approved and permitted location.
- All hazardous debris removed shall be disposed of in accordance with state and federal regulations by a properly licensed contractor

MAINTENANCE ITEM	SATISFACTORY (YES/NO)	COMMENTS
Sweep all roadways two times per year. One of these sweepings must occur after winter sanding operations have concluded.		

COMMENTS:

Street Sweeping
Operation, Maintenance, and Management
Inspection Checklist

Project: Date:

Location: Time:

Site Status: Inspector:

ACTIONS TO BE TAKEN:

Appendix B – Five-Year Recertification for Long-term Maintenance of Stormwater Management System

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Land Resources
17 State House Station
Augusta, Maine 04333

FIVE-YEAR RECERTIFICATION FOR LONG-TERM MAINTENANCE OF STORMWATER MANAGEMENT SYSTEMS

For Site Location & Stormwater Projects

This form complies with the condition that requires reporting every 5 years on the long-term maintenance of stormwater management structures of projects permitted under the Stormwater Management Law since 2005. Complete the following sections, include inspection photos, and use additional paper if needed. A copy of the report if the inspection was performed by a professional experienced in BMP maintenance should be included. Electronic copy of this form and information about the five-year recertication are available on the Maine DEP website at: http://www.maine.gov/dep/land/stormwater/stormwaterbmps/

Please type or print in black ink only

Owner/Licensee		**3rd Party Inspection Company** (if applicable)	
Name of Representative:		**Name of Inspector or preparer of report:**	
Company:		**Company:**	
Mailing Address:		**Mailing Address:**	
Daytime Phone #:		**Daytime Phone #:**	
E-mail Address:		**E-mail Address:**	

LOCATION OF DEVELOPMENT			
Name of Project:			
Address and Town:			
DEP Permit Number:		**Year of Permit:**	

PROJECT SPECIFICS	
If the project is unfinished, please describe its current status and your plans for the future. The filing of this report of on-site long-term maintenance activities is still required.	
If the project is within a MPDES Regulated Town, the maintenance report prepared for the town should be submitted with this form.	
If the project is a subdivision with a Homeowner's association, identify the responsible party.	
Confirm that the required recording of deed restrictions for the protection of buffers or conservation land has been done, and that the buffers are maintained according to the restrictions.	
Identify the contractor for the required renewal of a 5-year maintenance contract for the inspection, cleaning and maintenance of manufactured proprietary structures.	
Is a maintenance log available for review?	

LONG-TERM MAINTENANCE (please comment on the following):
All areas of the development have been inspected for erosion, and appropriate steps have been taken to permanently stabilize these areas.
All stormwater control structures have been inspected for damage, wear, malfunction, and appropriate steps have been taken to repair or replace the failing systems.
The erosion control and stormwater maintenance plan for the site is being implemented as written, and a maintenance log has been created and is being maintained.

CERTIFICATIONS/SIGNATURES
By signing below. the owner (or authorized agent) certifies that all stormwater management structures at the project described above are stable and operational as designed.
Signed:_____ **Title**_____**Date:**_____
This completed form and all supporting documents summarized above shall be sent to the following address. An emailed report is appropriate and should be sent to Recert-DEP@maine.gov Five-year Recertification Bureau of Land Resources 17 State House Station Augusta, ME 04333 Tel: (207) 287-2624 or (207) 287-2602

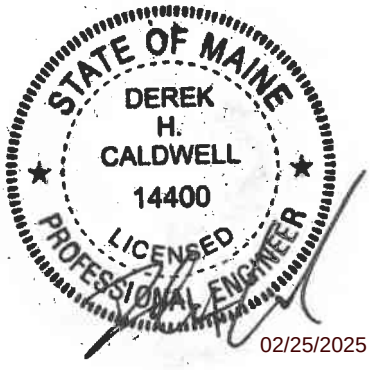
SEBAGO TECHNICS

CIVIL ENGINEERING ▪ SURVEYING ▪ LANDSCAPE ARCHITECTURE

Traffic Impact Study
Stetson Multi-Family Residential Development
Auburn, Maine

Applicant:
A.R. Building Company
310 Seven Field Blvd, Suite 350
Seven Fields, Pennsylvania 16064

Prepared By:
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106



February 25, 2025

Traffic Impact Study

Stetson Multi-Family Residential Development

Auburn, Maine

Table of Contents

1.0 Introduction 2
2.0 Study Area 2
3.0 Existing Conditions 2
4.0 Site Access 2
5.0 Base Traffic Volumes 5
6.0 Project Generated Trips 6
7.0 Trip Assignment 6
8.0 Capacity Analysis 11
9.0 Crash Data Analysis 14
10.0 Conclusion and Recommendations 14

List of Appendices

A. Turning Movement Count Data
B. MaineDOT Crash Data
C. SimTraffic Reports
D. Intersection Improvement Concept Plan

1.0 Introduction

On behalf of A.R. Building Company, Sebago Technics, Inc. has prepared this Traffic Impact Study (TIS) to evaluate the impact of the proposed Stetson Road Multi-Family Residential Development on the adjacent roadway network. The project is proposed to develop a total of 160 residential dwelling units in a mix of duplex and quadplex structures on a currently undeveloped parcel of land located on the southerly side of Stetson Road approximately opposite the existing Schooner Estates senior living facility, Central Maine Medical Office Building and Andwell Hospice House. Access to the development is proposed by way to two new unsignalized driveways on the southerly side of Stetson Road. This study provides information on the background traffic volume data, traffic projected to be generated by the development and an analysis of projected operations at the study intersections.

2.0 Study Area

This study area, as discussed at a preliminary scoping meeting held with the City of Auburn, consists of the two new site driveways and the signalized intersection of Center Street at Stetson Road/Joline Road.

As requested, a conceptual plan and cost estimate for the implementation of a new signalized pedestrian crossing at the intersection of Center Street at Auburn Plaza has been prepared. A preliminary evaluation of this crossing was agreed upon as the best potential location for a future pedestrian crossing of Center Street, considering both the Stetson Road and Auburn Plaza intersections.

3.0 Existing Conditions

The development is proposed on the parcel identified as 294-011 on the southerly side of Stetson Road, opposite the existing Schooner Estates senior living facility, Central Maine Medical Office Building and Andwell Hospice House. The site is currently undeveloped.

Near the development, Stetson Road is classified as a local road with a posted speed limit of 30 MPH, consisting of one travel lane in each direction. There is an existing sidewalk on the northerly side of the road.

The signalized intersection of Center Street (Route 4) at Stetson Road/Joline Drive, located approximately 0.40 miles to the west of the development, is coordinated with the signalized intersection of Center Street at Auburn Plaza to the south and the other intersections on the Center Street corridor. The signal today operates with a basic 4-phase structure and all permissive movements. No signalized crossings or pedestrian equipment is present.

Existing signal timing and phasing were obtained from AVCOG and were also verified on the local signal controller.

4.0 Site Access

Access to the development is proposed via two (2) full-movement driveways on Stetson Road. The eastern driveway is located approximately 870 feet west of the intersection with North River Road. The western driveway is approximately 710 feet west of the eastern driveway. Both proposed drives are to be 24 feet in width and constructed of asphalt.

Stetson Road is classified as a local road with a posted speed limit of 30 MPH. The speed limit was confirmed based on signage in the field and the MaineDOT Public Map Viewer.

Sight distance requirements were reviewed in accordance with the City of Auburn's *Code of Ordinances* for low to medium volume driveways as well as MaineDOT's *Chapter 299, Highway Driveway and Entrance Rules* requirements, summarized in Table 1 below.

Table 1– Minimum Sight Distance Requirements

Posted Speed (MPH)	*City of Auburn Sight Distance (feet)*
25	250
30	300
35	350
40	400
45	450
50	500
55	550

Sight distance was measured in the field on January 17, 2025, and reported below in Table 2.

Table 2 – Sight Distance Measurements

Entrance	*City Requirement (feet)*	*Looking Left (feet)*	*Looking Right (feet)*
Eastern Access	300	600+	345
Western Access		350	600+

Sight distance from both proposed site driveway locations was found to meet the requirements in both directions as outlined in the City of Auburn code of ordinances.

LOCATION MAP



The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.65 Miles

1 inch = 0.7 miles

Date: 1/8/2025
Time: 3:03:44 PM

5.0 Base Traffic Volumes

Turning Movement Counts previously collected by AVCOG for the Center Street at Stetson Road/Joline Drive intersection on May 29, 2024, were obtained. These counts were then adjusted to the 30th Highest Hour using the most recent published 2023 MaineDOT Weekly Group Mean Factors. Bath Road is a Group I road resulting in an adjustment factor to the design 30th Highest Hour of 0.89/0.88 = 1.01 Additionally, the counts were adjusted to a future project opening year of 2026 an annual growth factor of 1.0% was assumed.

Figure 1 shows the adjusted 2026 No-Build peak hour volumes.

6.0 Project Generated Trips

Trip generation was completed utilizing the 11th Edition of the Institute of Transportation Engineers (ITE), *Trip Generation Manual* and Land use code (LUC) 215 – Single-Family Attached Housing based on the independent variable of 160 dwelling units. Trip generation for the development is shown in Table 3.

Table 3 – ITE Trip Generation
Land Use Code 215 – Single-Family Attached Housing
160 Dwelling Units

	Rate/Equation	Total Trips	Entering %	Exiting %	Entering Trips	Exiting Trips
Weekday	T = 7.62(X) - 50.48	1169	50%	50%	585	584
AM Peak Hour of Adjacent Street	T = 0.52(X) - 5.70	78	25%	75%	20	58
PM Peak Hour of Adjacent Street	T = 0.60(X) - 3.93	92	59%	41%	54	38
AM Peak Hour of Generator	Ln(T) = 0.92 Ln(X) - 0.26	82	25%	75%	21	61
PM Peak Hour of Generator	Ln(T) = 0.88 Ln(X) + 0.06	92	62%	38%	57	35
Saturday Peak Hour	0.57	91	48%	52%	44	47

As seen in the previous table, the development is calculated to generate 82 trips, 92 trips, and 91 trips during the AM, PM, and Saturday peak hours of the generator, respectively. As such, a MaineDOT TMP is not required.

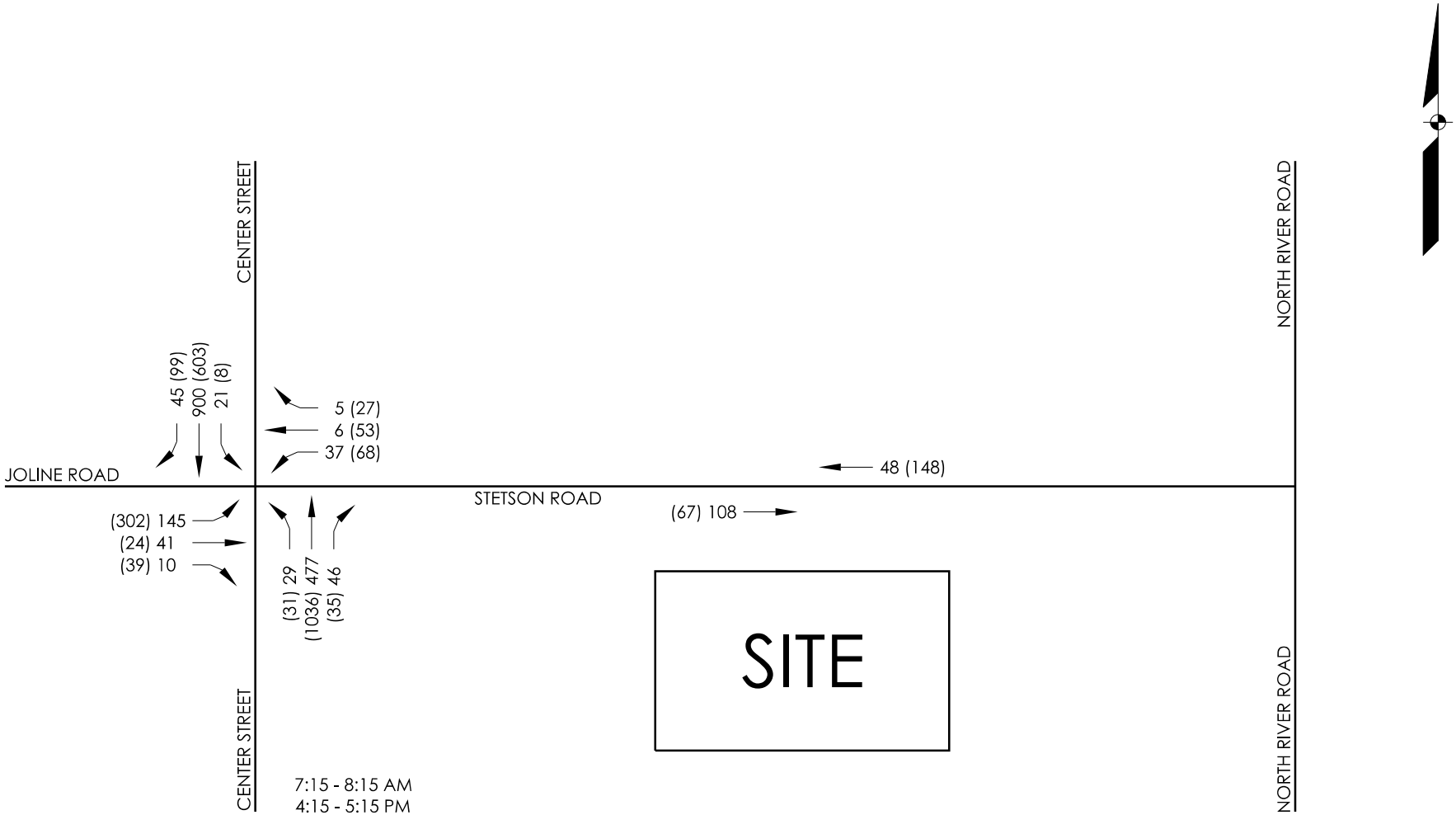
7.0 Trip Assignment

The project generated trips were distributed to the surrounding roadway network using existing turning movement count data for the intersection of Center Street at Stetson Road/Joliene Drive and assumed trip origin/destination trends for the development traffic. Table 4 summarizes the proposed trip distribution.

Table 4 – Proposed Trip Distribution

Origin/Destination	Percent Distribution
Center Street to/from the North	25%
Center Street to/from the South	65%
Joliene Road to/from the West	8%
River Road to/from the East	2%
Total	***100%***

This distribution was revised from the previously presented preliminary traffic impact assessment to distribute a greater percentage of the development trips to/from Center Street to the south, considering destinations/origins such as Downtown Auburn, Lewiston and the MTA Exit 75. The base traffic volumes, primary trip assignments and resultant full build volumes are included in the attached Figures.



KEY

AM PEAK HOUR
(PM PEAK HOUR)

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

2026 NO-BUILD VOLUMES

CENTER STREET AT STETSON ROAD

LOCATION: STETSON ROAD
AUBURN, MAINE

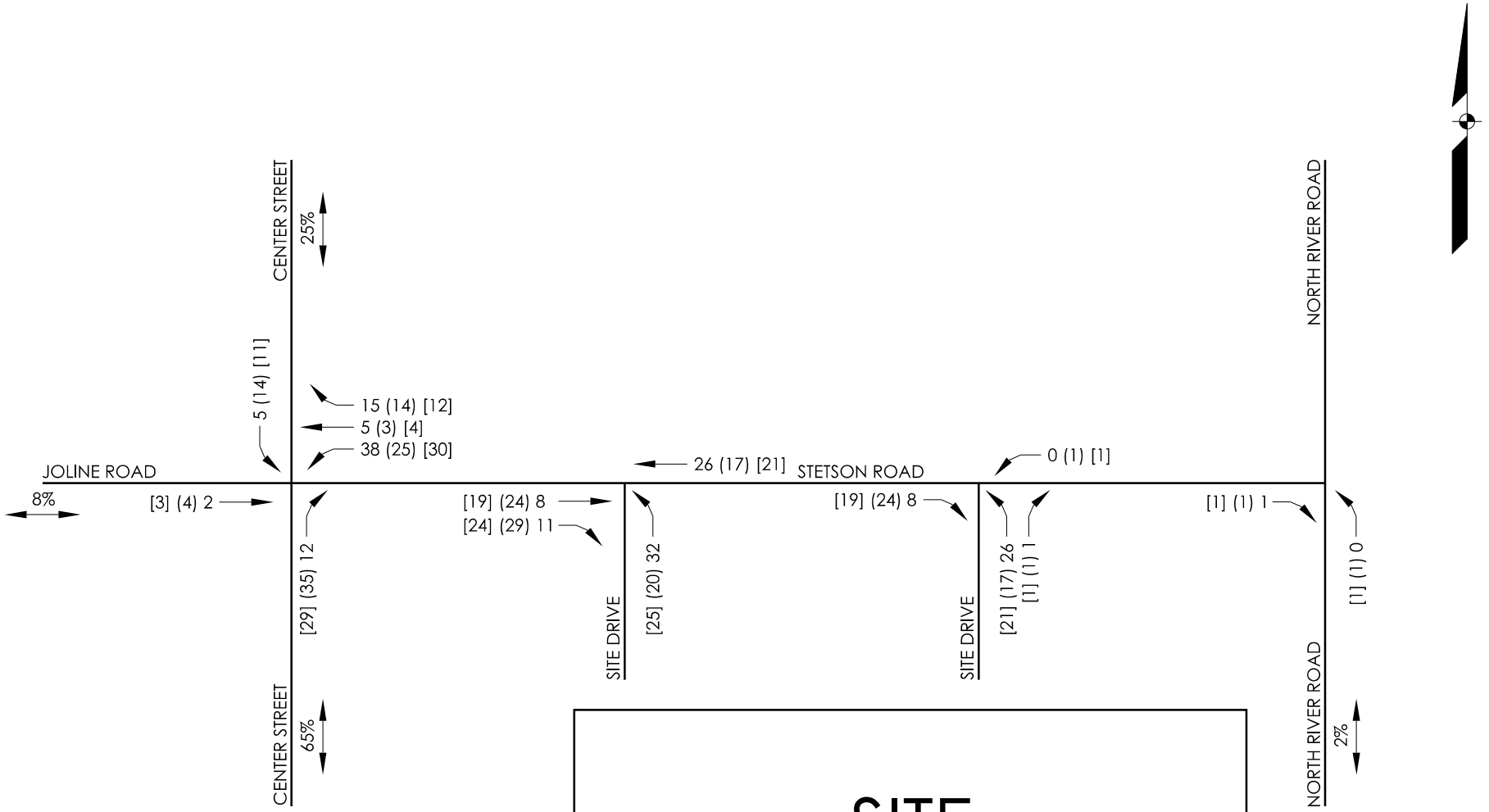
FOR: A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350
SEVEN FIELDS, PENNSYLVANIA 16046

SCALE: N.T.S

DATE: 02/24/25

SHEET: 1 OF 3

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PROJECT TRIP GENERATION

	AM	PM	SAT
ENTERING	19	54	44
EXITING	59	38	47
TOTAL	78	92	91

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

TRIP ASSIGNMENTS

STETSON ROAD MULTI-FAMILY HOUSING

LOCATION: STETSON ROAD
AUBURN, MAINE

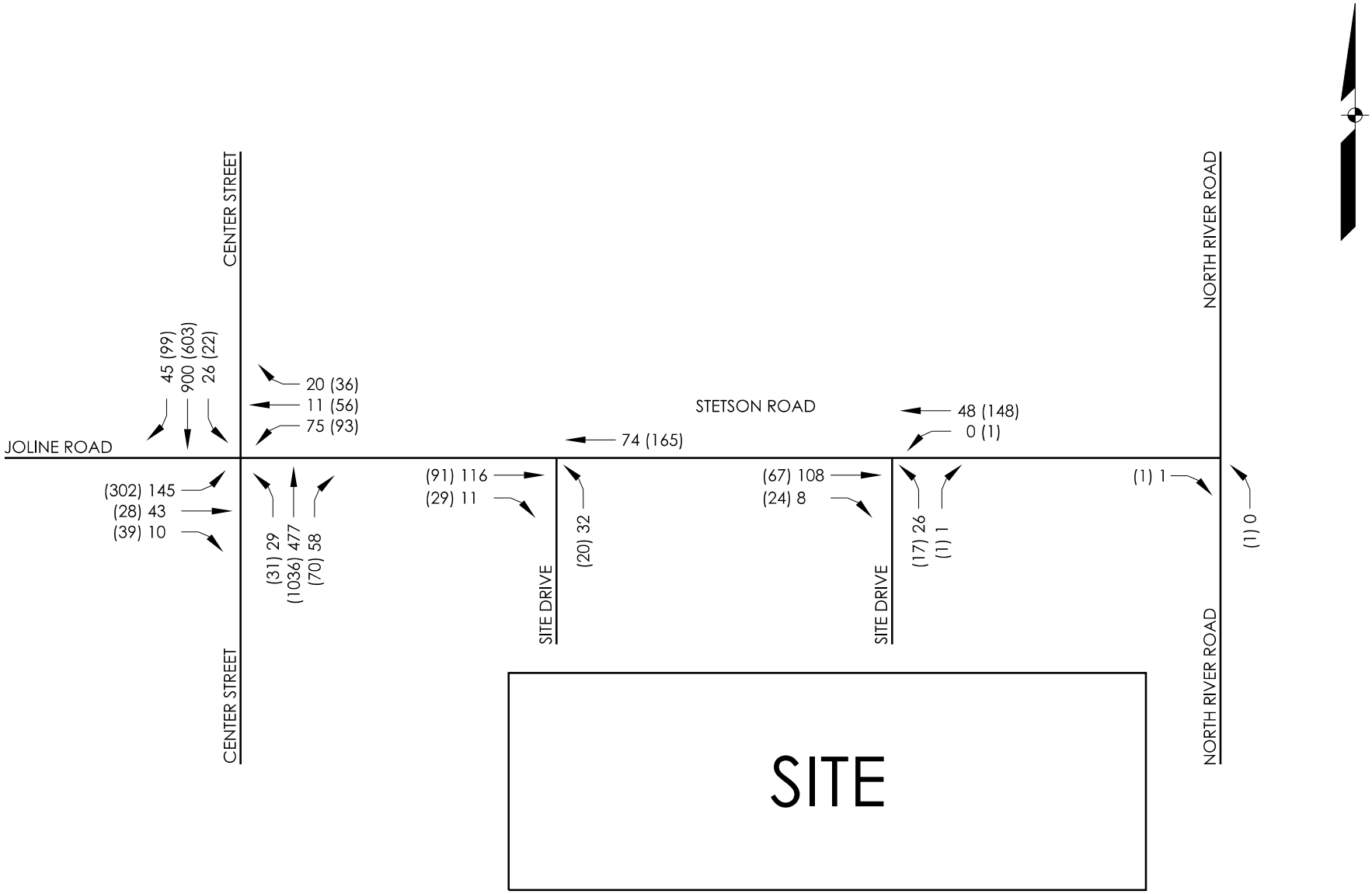
FOR: A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350
SEVEN FIELDS, PENNSYLVANIA 16046

SCALE: N.T.S

DATE: 02/24/25

SHEET: 2 OF 3

...\240337 Traffic_Diagrams_DHC.dgn



SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

2026 BUILD VOLUMES

STETSON ROAD MULTI-FAMILY HOUSING

LOCATION: STETSON ROAD
AUBURN, MAINE

FOR: A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350
SEVEN FIELDS, PENNSYLVANIA 16046

SCALE: N.T.S

DATE: 02/24/25

SHEET: 3 OF 3

...\240337 Traffic_Diagrams_DHC.dgn

8.0 Capacity Analysis

A capacity analysis of the study intersection was performed utilizing Synchro/SimTraffic v11 to calculate the control delay, or the average amount of delay that a vehicle experiences as it travels through an intersection or section of roadway, and the calculated 95th Percentile Queue lengths. The analysis for signalized intersections was completed taking the average of ten SimTraffic simulation runs each consisting of a 15-minute seeding interval and a 1-hour recording interval. Level of Service (LOS) is determined by the control delay, in terms of A through F, with A being optimal and F being unacceptable. Capacity analysis for unsignalized intersections was completed using the Highway Capacity Manual 6th Edition Methodology within the Synchro software. The LOS and control delay for signalized and unsignalized intersections as defined by the Highway Capacity Manual is shown below.

Table 4: LOS Criteria - Motorized Vehicle Mode

Level of Service (LOS)	Signalized Control Delay (Sec./Vehicle)	*Unsignalized Control Delay (Sec./Vehicle)*
A	≤10	≤10
B	>10-≤20	>10-≤15
C	>20-≤35	>15-≤25
D	>35-≤55	>25-≤35
E	>55-≤80	>35-≤50
F	>80	>50

The analysis was completed for the study area intersections for the opening year 2026 for the No-Build and Build conditions during the AM and PM Peak Hours. Optimized existing signal timings were used for this analysis. It is noted that the adjacent signalized intersection of Center Street at Auburn Plaza was included in the Synchro model as it is coordinated with the study intersection of Center Street at Stetson Road, but results for the intersection are not included as projected traffic volumes from the development would not be significant to impact operations at this intersection.

The following tables summarize the results of the capacity and queueing analysis.

Table 5: Capacity Analysis Summary
Center Street at Stetson Road/Joline Drive (Signalized)

	2026 AM No-Build		2026 AM Build		2026 PM No-Build		2026 PM Build	
Movement	**Delay (s/veh)**	**LOS**	**Delay (s/veh)**	**LOS**	**Delay (s/veh)**	**LOS**	**Delay (s/veh)**	**LOS**
Joline Dr EBL	33	C	33	C	31	C	33	C
Joline Dr EBT	29	C	27	C	20	C	24	C
Joline Dr EBT	12	B	15	B	12	B	13	B
Stetson Rd WBL	33	C	36	D	24	C	24	C
Stetson Rd WBT	9	A	9	A	17	B	18	B
Stetson Rd WBR	6	A	8	A	14	B	15	B
Center St NBL	23	C	27	C	31	C	33	C
Center St NBT	4	A	5	A	12	B	13	B
Center St NBR	2	A	2	A	8	A	9	A
Center St SBL	12	B	15	B	35	D	43	D
Center St SBT	6	A	7	A	11	B	12	B
Center St SBR	3	A	4	A	7	A	7	A
Overall	9	A	10	B	15	B	16	B

Table 6: Queuing Analysis Summary
Center Street at Stetson Road/Joline Drive (Signalized)

		95th Percentile Queue Length (FT)			
Lane Group	**Storage Length (FT)**	**2026 AM No-Build**	**2026 AM Build**	**2026 PM No-Build**	**2026 PM Build**
Joline Rd EB L	*110*	123	120	152	152
Joline Rd EB TR		80	82	245	282
Stetson Rd WB L	*110*	57	95	68	86
Stetson Rd WB TR		18	44	72	83
Center St NB L	*110*	36	37	59	70
Center St NB T	*350*	95	104	217	230
Center St NB TR	*350*	67	75	197	214
Center St SB L	*100*	21	32	25	37
Center St SB T		132	147	156	160
Center St SB TR		112	129	141	144

As shown in Table 5, all movements are expected to operate with LOS D or better under both no-build and build conditions. Therefore, no capacity related issues are identified with the addition of project generated traffic to the existing signalized intersection.

Additionally, as requested by City staff at the project scoping meeting, we have evaluated the implementation of protected only signal phasing for the Center Street left turn movements. Currently these movements, like all turn movements at the intersection, operate with permissive phasing and must yield to opposing Center Street traffic. The revised signal timing and phasing for this operation assumes two actuated leading left turn phases (Phases 1 and 5).

Existing coordination pattern cycle lengths were held as to not require pattern changes to other signals in the system. Split time for the new leading phases subtracted from Center Street through movements. It is noted that if this modification is pursued, further coordination offset adjustment should be evaluated once operational. New stop-bar detection would also be required to be installed for the left turn movements.

Tables 7 & 8 show the results of the capacity and queuing analysis for this requested Alternative.

Table 7: Capacity Analysis Summary –
Center Street at Stetson Road/Joline Drive (Signalized) – Alternative 1
Center Street Protected Left Turns

	2026 AM No-Build		2026 AM Build		2026 PM No-Build		2026 PM Build	
Movement	**Delay (s/veh)**	**LOS**	**Delay (s/veh)**	**LOS**	**Delay (s/veh)**	**LOS**	**Delay (s/veh)**	**LOS**
Joline Dr EBL	32	C	35	D	37	D	41	D
Joline Dr EBT	28	C	29	C	26	C	31	C
Joline Dr EBT	15	B	13	B	13	B	19	B
Stetson Rd WBL	32	C	35	C	24	C	25	C
Stetson Rd WBT	10	A	9	A	18	B	17	B
Stetson Rd WBR	5	A	7	A	16	B	15	B
Center St NBL	38	D	40	D	44	D	44	D
Center St NBT	6	A	7	A	13	B	16	B
Center St NBR	2	A	3	A	8	A	12	B
Center St SBL	43	D	41	D	42	D	45	D
Center St SBT	9	A	9	A	14	B	15	B
Center St SBR	5	A	5	A	8	A	8	A
Overall	12	B	13	B	17	B	20	B

Table 8: Queuing Analysis Summary
Center Street at Stetson Road/Joline Drive (Signalized) – Alternative 1
Center Street Protected Left Turns

		95th Percentile Queue Length (FT)			
Lane Group	Storage Length (FT)	2026 AM No-Build	2026 AM Build	2026 PM No-Build	2026 PM Build
Joline Rd EB L	*110*	122	127	155	155
Joline Rd EB TR		68	107	308	354
Stetson Rd WB L	*110*	57	93	66	87
Stetson Rd WB TR		18	49	70	81
Center St NB L	*110*	41	36	73	90
Center St NB T	*350*	128	131	223	271
Center St NB TR	*350*	94	95	201	254
Center St SB L	*100*	39	34	37	40
Center St SB T		171	180	175	179
Center St SB TR		155	160	162	162

As shown, delay, LOS and queuing would be similar under either the existing phasing or revised phasing with protected only left turns for Center Street. Therefore, the decision to implement these changes would be based on expected safety benefits of limiting left turn conflicts and general City policy or preference regarding signal phasing.

9.0 Crash Data Analysis

A review of the MaineDOT crash data for the most recent available three-year period (2021-2023) shows no High Crash Locations (HCL) within the study area. Intersections and roadway links are considered to be High Crash Locations (HCL's) if they have a Critical Rate Factor (CRF) greater than 1.0 and have minimum of 8 accidents in a three-year period.

The intersection of Center Street at Joline Drive/Stetson Road had 21 total reported crashes with a CRF of 0.76 in the three-year period with 23.8% resulting in injury. Of the 21 crashes 11 were considered an intersection movement, typically an angle collision resulting from a driver failing to properly yield the right of way. Five of these crashes noted red light running as the contributing driver action. The other crashes at the intersection were rear end collisions which, consistent with typical trends at signalized intersections.

10.0 Conclusion and Recommendations

- The proposed Stetson Road Multi-Family Residential development, to consist of 160 residential units, is calculated to generate a total of 82 trips, 92 trips, and 91 trips during the AM, PM, and Saturday peak hours of the generator, respectively. Since the highest calculated peak hour trip generation is less than 100 trips, a MaineDOT Traffic Movement Permit is not required for the development.

- The presented capacity analysis for the signalized intersection of Center Street at Stetson Road/Joline Drive and the proposed unsignalized site driveways at Stetson Road shows LOS to be D or better for all movements under both No-Build and Build analysis scenarios, indicating the addition of project traffic would be expected to adversely impact operations of the signalized intersection or along Stetson Road in the area of the proposed driveways.

- As requested at the project's scoping meeting, an evaluation of protected-only left turn phasing for the Center Street northbound and southbound left turn movements found that such a modification would not have a significant impact on operations in terms of delay, LOS and queuing compared to existing conditions. It is noted that properly implementing such phasing would require updates to the existing signal system wiring, signal heads and video detection. This decision to implement this change would therefore be driven by other considerations such as the potential safety benefit of reducing crashes due to permissive left-turn movements. The addition of project generated traffic does not introduce a new operational or safety issue.

- In addition to the above discussed vehicular capacity analysis and as requested at the project's scoping meeting, a conceptual plan and cost estimate for the implementation of a new signalized pedestrian crossing at the intersection of Center Street at Auburn Plaza has been prepared. A preliminary evaluation of this crossing was agreed upon as the best potential location for a future pedestrian crossing of Center Street, considering both the Stetson Road and Auburn Plaza intersections. The attached conceptual plan outlines the preliminary scope of work assumed to construct new ADA compliant pedestrian ramps, install new pedestrian-related traffic signal equipment, and implement the new equipment into the existing system. It is our understanding that there are future major improvement projects currently in the planning stages which may introduce modifications to the study intersections as well as the other signalized intersections along the Center Street corridor. It is recommended that the addition of the subject pedestrian crossing be incorporated into such a project to ensure the layout will match any future plans.

- The project will also be constructing approximately 900' of new sidewalk on the southerly side of Stetson Road, connecting the proposed site driveway with the existing sidewalk along Stetson Road to the west. This existing sidewalk then connects to the sidewalk on the easterly side of Center Street which continues southerly.

A. Turning Movement Count Data

AVCOG
125 Manley Road

Auburn, Maine, United States 04210
(207) 783-9186 bpineau@avcog.org

Count Name: Auburn_Center/Stetson/Joline
Site Code:
Start Date: 05/29/2024

Turning Movement Data

Start Time	Center St Southbound					Stetson Rd Westbound					Center St Northbound					Joline Dr Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
6:00 AM	2	146	1	0	149	0	0	3	0	3	3	45	2	0	50	0	2	8	0	10	212
6:15 AM	8	166	0	0	174	0	0	1	0	1	2	51	1	0	54	0	2	8	0	10	239
6:30 AM	7	191	2	0	200	0	2	4	0	6	6	62	1	0	69	1	5	13	0	19	294
6:45 AM	9	192	4	0	205	1	1	1	0	3	15	77	3	0	95	4	12	19	0	35	338
Hourly Total	26	695	7	0	728	1	3	9	0	13	26	235	7	0	268	5	21	48	0	74	1083
7:00 AM	5	206	4	0	215	1	1	8	0	10	16	95	2	0	113	2	8	16	0	26	364
7:15 AM	9	215	1	0	225	0	1	9	0	10	22	116	6	0	144	2	10	32	0	44	423
7:30 AM	9	208	5	0	222	1	0	7	0	8	10	97	9	0	116	1	9	40	0	50	396
7:45 AM	17	259	8	0	284	1	2	6	0	9	6	113	9	0	128	4	16	31	0	51	472
Hourly Total	40	888	18	0	946	3	4	30	0	37	54	421	26	0	501	9	43	119	0	171	1655
8:00 AM	9	190	6	0	205	3	3	14	0	20	7	136	4	0	147	3	5	38	0	46	418
8:15 AM	14	149	3	0	166	2	3	8	0	13	14	112	7	0	133	5	6	31	0	42	354
8:30 AM	12	147	2	0	161	5	9	7	0	21	12	121	8	0	141	2	8	38	0	48	371
8:45 AM	8	150	3	0	161	2	3	5	0	10	11	113	8	0	132	7	5	28	0	40	343
Hourly Total	43	636	14	0	693	12	18	34	0	64	44	482	27	0	553	17	24	135	0	176	1486
9:00 AM	13	155	3	0	171	4	5	8	0	17	5	111	5	0	121	4	3	48	0	55	364
9:15 AM	15	139	1	0	155	4	2	19	0	25	14	92	6	0	112	9	7	34	0	50	342
9:30 AM	14	156	2	0	172	4	7	11	0	22	6	106	4	0	116	4	7	26	0	37	347
9:45 AM	10	136	2	0	148	2	5	10	0	17	10	115	5	0	130	5	4	28	0	37	332
Hourly Total	52	586	8	0	646	14	19	48	0	81	35	424	20	0	479	22	21	136	0	179	1385
10:00 AM	13	118	2	0	133	2	8	9	0	19	16	131	6	0	153	7	6	31	0	44	349
10:15 AM	10	138	1	0	149	6	4	10	0	20	14	118	10	0	142	7	12	31	0	50	361
10:30 AM	17	140	0	0	157	2	5	12	0	19	13	123	7	0	143	11	8	44	0	63	382
10:45 AM	22	120	3	0	145	7	4	14	0	25	8	128	5	0	141	10	3	39	0	52	363
Hourly Total	62	516	6	0	584	17	21	45	0	83	51	500	28	0	579	35	29	145	0	209	1455
11:00 AM	15	137	4	0	156	5	7	18	0	30	9	123	6	0	138	5	3	43	0	51	375
11:15 AM	16	133	8	0	157	8	9	11	0	28	15	130	2	0	147	8	0	39	0	47	379
11:30 AM	17	146	6	0	169	7	5	12	0	24	12	140	8	0	160	10	9	46	0	65	418
11:45 AM	15	132	2	0	149	3	4	11	0	18	9	157	11	0	177	13	5	46	0	64	408
Hourly Total	63	548	20	0	631	23	25	52	0	100	45	550	27	0	622	36	17	174	0	227	1580
12:00 PM	20	150	3	0	173	3	7	21	0	31	6	142	3	0	151	8	4	44	0	56	411
12:15 PM	27	146	2	0	175	1	10	20	0	31	9	139	11	0	159	4	4	47	0	55	420
12:30 PM	22	160	1	0	183	3	7	15	0	25	15	137	7	0	159	8	2	42	0	52	419
12:45 PM	15	170	5	0	190	0	3	18	0	21	8	134	8	0	150	11	3	46	0	60	421
Hourly Total	84	626	11	0	721	7	27	74	0	108	38	552	29	0	619	31	13	179	0	223	1671
1:00 PM	15	145	2	0	162	2	9	13	0	24	12	155	8	0	175	8	9	51	0	68	429

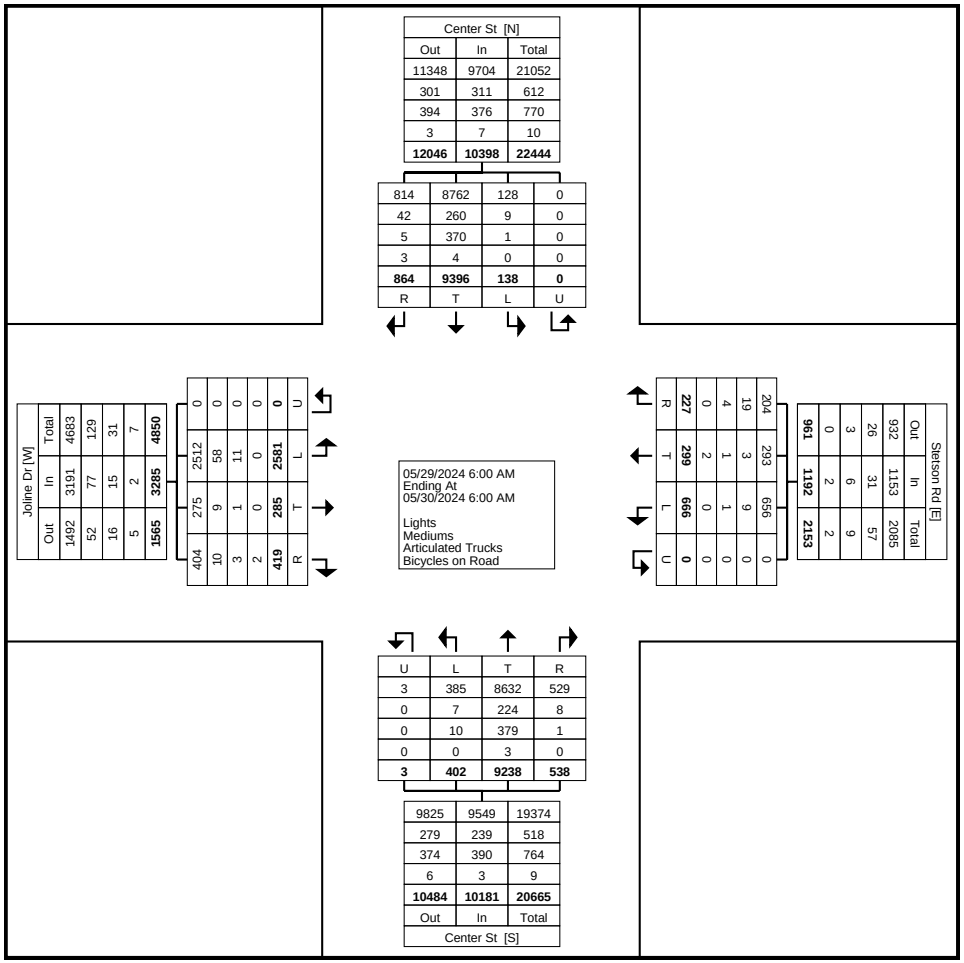
1:15 PM	15	143	1	0	159	3	7	10	0	20	9	163	12	0	184	9	3	53	0	65	428
1:30 PM	21	157	2	0	180	9	3	14	0	26	9	141	6	0	156	9	6	53	0	68	430
1:45 PM	17	139	2	0	158	4	4	11	0	19	13	169	7	0	189	12	4	39	0	55	421
Hourly Total	68	584	7	0	659	18	23	48	0	89	43	628	33	0	704	38	22	196	0	256	1708
2:00 PM	12	159	1	0	172	5	6	11	0	22	5	159	9	0	173	11	2	54	0	67	434
2:15 PM	10	144	3	0	157	7	5	15	0	27	13	179	3	0	195	12	3	62	0	77	456
2:30 PM	21	146	2	0	169	6	11	12	0	29	7	189	6	0	202	11	3	72	0	86	486
2:45 PM	19	163	4	0	186	3	2	16	0	21	12	200	9	0	221	9	6	61	0	76	504
Hourly Total	62	612	10	0	684	21	24	54	0	99	37	727	27	0	791	43	14	249	0	306	1880
3:00 PM	19	141	1	0	161	6	3	14	0	23	12	212	11	0	235	14	3	58	0	75	494
3:15 PM	9	153	1	0	163	5	7	17	0	29	7	223	9	0	239	5	6	59	0	70	501
3:30 PM	20	140	1	0	161	6	3	15	0	24	8	213	10	0	231	5	6	58	0	69	485
3:45 PM	25	166	1	0	192	7	10	14	0	31	10	209	11	0	230	11	2	46	0	59	512
Hourly Total	73	600	4	0	677	24	23	60	0	107	37	857	41	0	935	35	17	221	0	273	1992
4:00 PM	28	151	4	0	183	9	9	20	0	38	8	244	9	1	262	10	4	70	0	84	567
4:15 PM	18	137	3	0	158	12	7	17	0	36	6	231	2	0	239	10	9	84	0	103	536
4:30 PM	21	148	2	0	171	1	21	17	0	39	10	253	9	0	272	13	8	85	0	106	588
4:45 PM	17	150	1	0	168	11	9	14	0	34	14	253	4	0	271	5	4	59	0	68	541
Hourly Total	84	586	10	0	680	33	46	68	0	147	38	981	24	1	1044	38	25	298	0	361	2232
5:00 PM	40	149	2	0	191	2	14	18	0	34	4	267	15	0	286	10	2	65	0	77	588
5:15 PM	19	158	3	0	180	4	9	8	0	21	4	240	5	0	249	8	4	56	0	68	518
5:30 PM	14	150	2	0	166	3	6	11	0	20	4	210	12	1	227	3	1	58	0	62	475
5:45 PM	4	119	2	0	125	6	6	10	0	22	9	179	3	0	191	6	2	40	0	48	386
Hourly Total	77	576	9	0	662	15	35	47	0	97	21	896	35	1	953	27	9	219	0	255	1967
6:00 PM	11	133	0	0	144	4	5	11	0	20	4	175	5	0	184	4	2	36	0	42	390
6:15 PM	13	115	1	0	129	2	3	6	0	11	6	151	8	0	165	8	3	44	0	55	360
6:30 PM	8	86	1	0	95	3	1	5	0	9	4	147	5	0	156	7	0	38	0	45	305
6:45 PM	10	89	3	0	102	1	3	4	0	8	4	136	1	0	141	2	4	28	0	34	285
Hourly Total	42	423	5	0	470	10	12	26	0	48	18	609	19	0	646	21	9	146	0	176	1340
7:00 PM	9	85	0	0	94	2	4	6	0	12	6	101	6	0	113	11	0	24	0	35	254
7:15 PM	11	74	0	0	85	6	2	4	0	12	1	84	6	0	91	3	2	25	0	30	218
7:30 PM	7	62	0	0	69	1	3	6	0	10	3	96	9	0	108	6	1	35	0	42	229
7:45 PM	7	59	0	0	66	1	1	3	0	5	5	109	1	0	115	1	0	28	0	29	215
Hourly Total	34	280	0	0	314	10	10	19	0	39	15	390	22	0	427	21	3	112	0	136	916
8:00 PM	10	65	0	0	75	2	0	3	0	5	0	89	3	0	92	7	2	28	0	37	209
8:15 PM	8	76	0	0	84	2	0	6	0	8	2	79	4	0	85	4	1	24	0	29	206
8:30 PM	2	54	1	0	57	2	0	4	0	6	2	67	4	1	74	3	2	25	0	30	167
8:45 PM	4	40	1	0	45	1	0	5	0	6	3	44	1	0	48	5	1	18	0	24	123
Hourly Total	24	235	2	0	261	7	0	18	0	25	7	279	12	1	299	19	6	95	0	120	705
9:00 PM	4	44	0	0	48	0	2	3	0	5	2	52	1	0	55	1	1	10	0	12	120
9:15 PM	4	59	0	0	63	1	1	3	0	5	0	60	4	0	64	4	0	11	0	15	147
9:30 PM	1	35	0	0	36	1	1	4	0	6	2	45	1	0	48	5	1	11	0	17	107
9:45 PM	4	27	0	0	31	1	0	0	0	1	2	42	0	0	44	2	0	7	0	9	85
Hourly Total	13	165	0	0	178	3	4	10	0	17	6	199	6	0	211	12	2	39	0	53	459
10:00 PM	1	19	1	0	21	1	0	4	0	5	1	39	2	0	42	1	0	12	0	13	81
10:15 PM	1	12	0	0	13	2	1	0	0	3	2	28	1	0	31	1	1	7	0	9	56
10:30 PM	1	11	0	0	12	0	1	2	0	3	1	28	0	0	29	2	0	4	0	6	50
10:45 PM	0	20	0	0	20	3	0	4	0	7	3	23	1	0	27	0	1	4	0	5	59
Hourly Total	3	62	1	0	66	6	2	10	0	18	7	118	4	0	129	4	2	27	0	33	246
11:00 PM	2	13	0	0	15	0	0	3	0	3	2	23	2	0	27	1	0	3	0	4	49
11:15 PM	1	6	0	0	7	0	0	4	0	4	1	10	4	0	15	0	0	4	0	4	30
11:30 PM	0	4	0	0	4	0	0	1	0	1	0	15	0	0	15	0	0	1	0	1	21

11:45 PM	0	6	0	0	6	0	0	0	0	0	0	10	1	0	11	0	0	0	0	0	17
Hourly Total	3	29	0	0	32	0	0	8	0	8	3	58	7	0	68	1	0	8	0	9	117
12:00 AM	0	9	0	0	9	0	0	0	0	0	0	11	0	0	11	0	0	1	0	1	21
12:15 AM	0	12	0	0	12	0	0	0	0	0	0	15	1	0	16	0	0	0	0	0	28
12:30 AM	1	3	0	0	4	0	0	0	0	0	0	19	0	0	19	0	0	1	0	1	24
12:45 AM	1	6	0	0	7	0	0	1	0	1	0	10	0	0	10	0	0	0	0	0	18
Hourly Total	2	30	0	0	32	0	0	1	0	1	0	55	1	0	56	0	0	2	0	2	91
1:00 AM	0	9	0	0	9	0	0	0	0	0	0	10	0	0	10	0	0	1	0	1	20
1:15 AM	0	3	0	0	3	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	14
1:30 AM	0	7	0	0	7	0	0	0	0	0	0	5	0	0	5	0	0	2	0	2	14
1:45 AM	0	3	0	0	3	0	0	0	0	0	0	7	2	0	9	1	0	1	0	2	14
Hourly Total	0	22	0	0	22	0	0	0	0	0	0	33	2	0	35	1	0	4	0	5	62
2:00 AM	0	7	0	0	7	0	0	0	0	0	0	10	2	0	12	0	1	0	0	1	20
2:15 AM	0	9	0	0	9	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	11
2:30 AM	0	8	0	0	8	1	0	0	0	1	0	3	0	0	3	0	1	0	0	1	13
2:45 AM	0	10	0	0	10	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	15
Hourly Total	0	34	0	0	34	1	1	0	0	2	0	19	2	0	21	0	2	0	0	2	59
3:00 AM	0	10	0	0	10	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	17
3:15 AM	0	16	0	0	16	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	26
3:30 AM	0	14	0	0	14	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	22
3:45 AM	0	25	0	0	25	0	0	0	0	0	0	10	0	0	10	0	0	1	0	1	36
Hourly Total	0	65	0	0	65	0	0	0	0	0	0	33	0	0	33	1	0	2	0	3	101
4:00 AM	0	28	0	0	28	0	0	0	0	0	0	15	0	0	15	0	0	1	0	1	44
4:15 AM	1	34	0	0	35	0	0	0	0	0	1	15	0	0	16	0	0	1	0	1	52
4:30 AM	2	48	0	0	50	0	1	1	0	2	1	12	0	0	13	0	0	0	0	0	65
4:45 AM	0	72	0	0	72	0	0	0	0	0	1	17	0	0	18	0	0	0	0	0	90
Hourly Total	3	182	0	0	185	0	1	1	0	2	3	59	0	0	62	0	0	2	0	2	251
5:00 AM	0	86	0	0	86	1	0	1	0	2	2	31	0	0	33	1	2	5	0	8	129
5:15 AM	2	88	1	0	91	1	0	2	0	3	0	26	0	0	26	0	1	5	0	6	126
5:30 AM	1	122	2	0	125	0	0	0	0	0	3	33	1	0	37	0	0	6	0	6	168
5:45 AM	3	120	3	0	126	0	1	1	0	2	5	43	2	0	50	2	3	9	0	14	192
Hourly Total	6	416	6	0	428	2	1	4	0	7	10	133	3	0	146	3	6	25	0	34	615
Grand Total	864	9396	138	0	10398	227	299	666	0	1192	538	9238	402	3	10181	419	285	2581	0	3285	25056
Approach %	8.3	90.4	1.3	0.0	-	19.0	25.1	55.9	0.0	-	5.3	90.7	3.9	0.0	-	12.8	8.7	78.6	0.0	-	-
Total %	3.4	37.5	0.6	0.0	41.5	0.9	1.2	2.7	0.0	4.8	2.1	36.9	1.6	0.0	40.6	1.7	1.1	10.3	0.0	13.1	-
Lights	814	8762	128	0	9704	204	293	656	0	1153	529	8632	385	3	9549	404	275	2512	0	3191	23597
% Lights	94.2	93.3	92.8	-	93.3	89.9	98.0	98.5	-	96.7	98.3	93.4	95.8	100.0	93.8	96.4	96.5	97.3	-	97.1	94.2
Mediums	42	260	9	0	311	19	3	9	0	31	8	224	7	0	239	10	9	58	0	77	658
% Mediums	4.9	2.8	6.5	-	3.0	8.4	1.0	1.4	-	2.6	1.5	2.4	1.7	0.0	2.3	2.4	3.2	2.2	-	2.3	2.6
Articulated Trucks	5	370	1	0	376	4	1	1	0	6	1	379	10	0	390	3	1	11	0	15	787
% Articulated Trucks	0.6	3.9	0.7	-	3.6	1.8	0.3	0.2	-	0.5	0.2	4.1	2.5	0.0	3.8	0.7	0.4	0.4	-	0.5	3.1
Bicycles on Road	3	4	0	0	7	0	2	0	0	2	0	3	0	0	3	2	0	0	0	2	14
% Bicycles on Road	0.3	0.0	0.0	-	0.1	0.0	0.7	0.0	-	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	-	0.1	0.1

AVCOG
125 Manley Road

Auburn, Maine, United States 04210
(207) 783-9186 bpineau@avcog.org

Count Name: Auburn_Center/Stetson/Joline
Site Code:
Start Date: 05/29/2024



Turning Movement Data Plot

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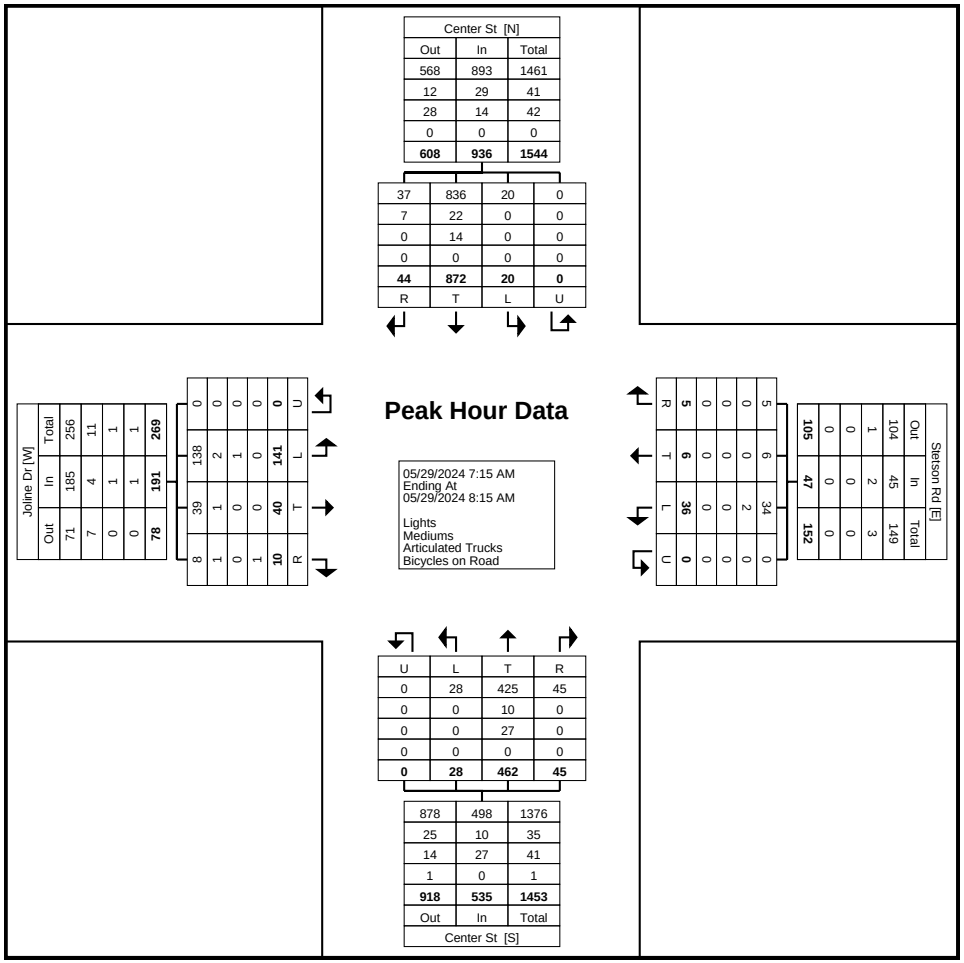
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Center St Southbound					Stetson Rd Westbound					Center St Northbound					Joline Dr Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
7:15 AM	9	215	1	0	225	0	1	9	0	10	22	116	6	0	144	2	10	32	0	44	423
7:30 AM	9	208	5	0	222	1	0	7	0	8	10	97	9	0	116	1	9	40	0	50	396
7:45 AM	17	259	8	0	284	1	2	6	0	9	6	113	9	0	128	4	16	31	0	51	472
8:00 AM	9	190	6	0	205	3	3	14	0	20	7	136	4	0	147	3	5	38	0	46	418
Total	44	872	20	0	936	5	6	36	0	47	45	462	28	0	535	10	40	141	0	191	1709
Approach %	4.7	93.2	2.1	0.0	-	10.6	12.8	76.6	0.0	-	8.4	86.4	5.2	0.0	-	5.2	20.9	73.8	0.0	-	-
Total %	2.6	51.0	1.2	0.0	54.8	0.3	0.4	2.1	0.0	2.8	2.6	27.0	1.6	0.0	31.3	0.6	2.3	8.3	0.0	11.2	-
PHF	0.647	0.842	0.625	0.000	0.824	0.417	0.500	0.643	0.000	0.588	0.511	0.849	0.778	0.000	0.910	0.625	0.625	0.881	0.000	0.936	0.905
Lights	37	836	20	0	893	5	6	34	0	45	45	425	28	0	498	8	39	138	0	185	1621
% Lights	84.1	95.9	100.0	-	95.4	100.0	100.0	94.4	-	95.7	100.0	92.0	100.0	-	93.1	80.0	97.5	97.9	-	96.9	94.9
Mediums	7	22	0	0	29	0	0	2	0	2	0	10	0	0	10	1	1	2	0	4	45
% Mediums	15.9	2.5	0.0	-	3.1	0.0	0.0	5.6	-	4.3	0.0	2.2	0.0	-	1.9	10.0	2.5	1.4	-	2.1	2.6
Articulated Trucks	0	14	0	0	14	0	0	0	0	0	0	27	0	0	27	0	0	1	0	1	42
% Articulated Trucks	0.0	1.6	0.0	-	1.5	0.0	0.0	0.0	-	0.0	0.0	5.8	0.0	-	5.0	0.0	0.0	0.7	-	0.5	2.5
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	10.0	0.0	0.0	-	0.5	0.1

AVCOG
125 Manley Road

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Turning Movement Peak Hour Data Plot (7:15 AM)

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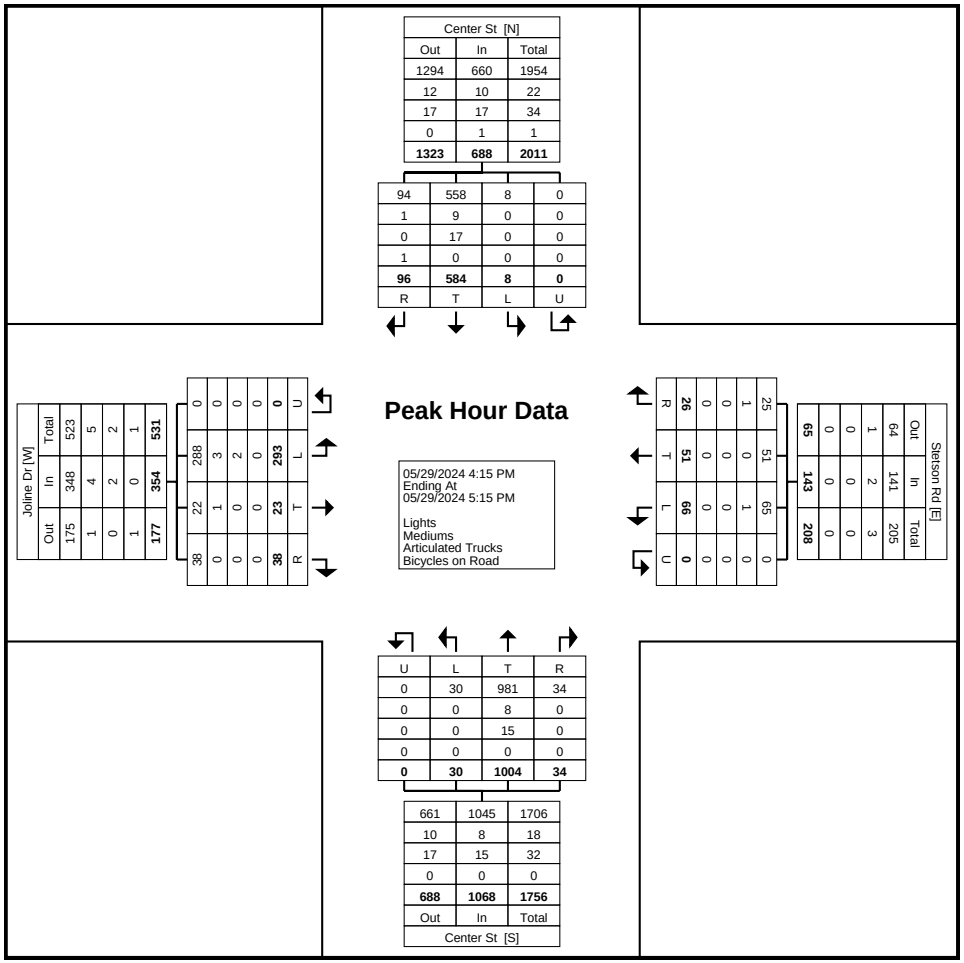
Turning Movement Peak Hour Data (4:15 PM)

Start Time	Center St Southbound					Stetson Rd Westbound					Center St Northbound					Joline Dr Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
4:15 PM	18	137	3	0	158	12	7	17	0	36	6	231	2	0	239	10	9	84	0	103	536
4:30 PM	21	148	2	0	171	1	21	17	0	39	10	253	9	0	272	13	8	85	0	106	588
4:45 PM	17	150	1	0	168	11	9	14	0	34	14	253	4	0	271	5	4	59	0	68	541
5:00 PM	40	149	2	0	191	2	14	18	0	34	4	267	15	0	286	10	2	65	0	77	588
Total	96	584	8	0	688	26	51	66	0	143	34	1004	30	0	1068	38	23	293	0	354	2253
Approach %	14.0	84.9	1.2	0.0	-	18.2	35.7	46.2	0.0	-	3.2	94.0	2.8	0.0	-	10.7	6.5	82.8	0.0	-	-
Total %	4.3	25.9	0.4	0.0	30.5	1.2	2.3	2.9	0.0	6.3	1.5	44.6	1.3	0.0	47.4	1.7	1.0	13.0	0.0	15.7	-
PHF	0.600	0.973	0.667	0.000	0.901	0.542	0.607	0.917	0.000	0.917	0.607	0.940	0.500	0.000	0.934	0.731	0.639	0.862	0.000	0.835	0.958
Lights	94	558	8	0	660	25	51	65	0	141	34	981	30	0	1045	38	22	288	0	348	2194
% Lights	97.9	95.5	100.0	-	95.9	96.2	100.0	98.5	-	98.6	100.0	97.7	100.0	-	97.8	100.0	95.7	98.3	-	98.3	97.4
Mediums	1	9	0	0	10	1	0	1	0	2	0	8	0	0	8	0	1	3	0	4	24
% Mediums	1.0	1.5	0.0	-	1.5	3.8	0.0	1.5	-	1.4	0.0	0.8	0.0	-	0.7	0.0	4.3	1.0	-	1.1	1.1
Articulated Trucks	0	17	0	0	17	0	0	0	0	0	0	15	0	0	15	0	0	2	0	2	34
% Articulated Trucks	0.0	2.9	0.0	-	2.5	0.0	0.0	0.0	-	0.0	0.0	1.5	0.0	-	1.4	0.0	0.0	0.7	-	0.6	1.5
Bicycles on Road	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bicycles on Road	1.0	0.0	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0

AVCOG
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Turning Movement Peak Hour Data Plot (4:15 PM)

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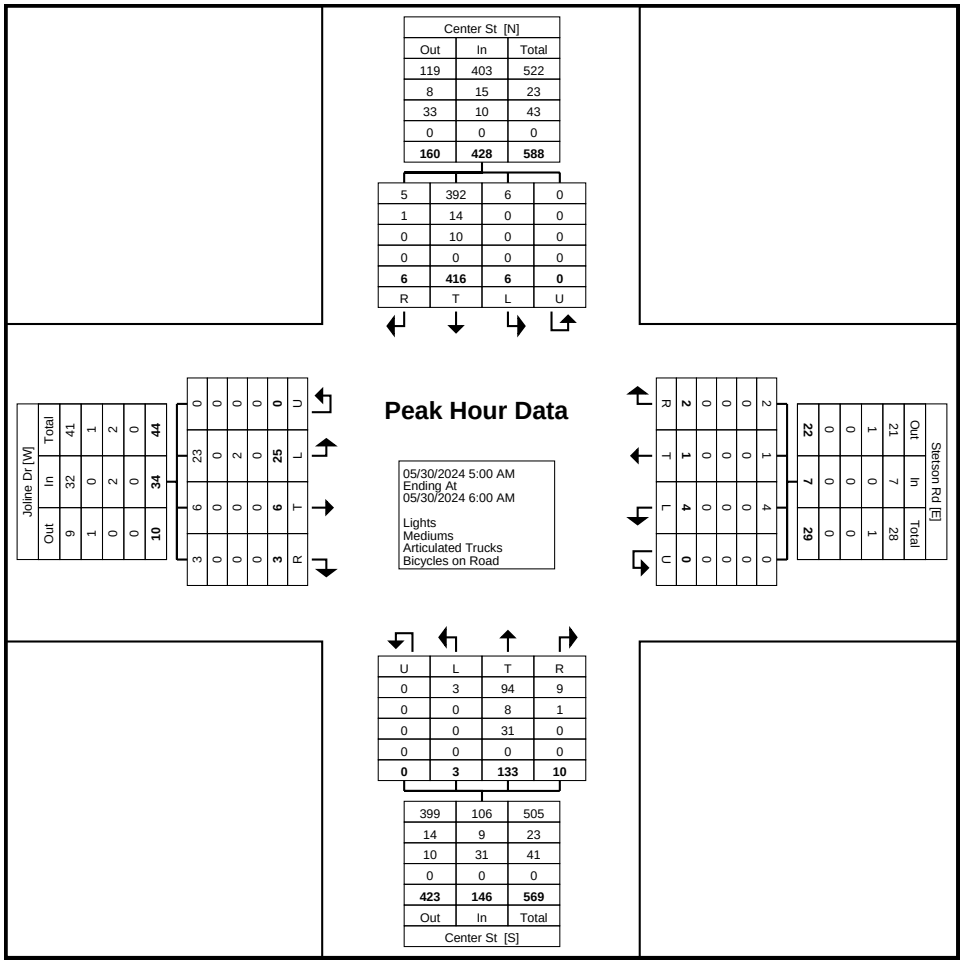
Turning Movement Peak Hour Data (5:00 AM)

Start Time	Center St Southbound					Stetson Rd Westbound					Center St Northbound					Joline Dr Eastbound					
	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
5:00 AM	0	86	0	0	86	1	0	1	0	2	2	31	0	0	33	1	2	5	0	8	129
5:15 AM	2	88	1	0	91	1	0	2	0	3	0	26	0	0	26	0	1	5	0	6	126
5:30 AM	1	122	2	0	125	0	0	0	0	0	3	33	1	0	37	0	0	6	0	6	168
5:45 AM	3	120	3	0	126	0	1	1	0	2	5	43	2	0	50	2	3	9	0	14	192
Total	6	416	6	0	428	2	1	4	0	7	10	133	3	0	146	3	6	25	0	34	615
Approach %	1.4	97.2	1.4	0.0	-	28.6	14.3	57.1	0.0	-	6.8	91.1	2.1	0.0	-	8.8	17.6	73.5	0.0	-	-
Total %	1.0	67.6	1.0	0.0	69.6	0.3	0.2	0.7	0.0	1.1	1.6	21.6	0.5	0.0	23.7	0.5	1.0	4.1	0.0	5.5	-
PHF	0.500	0.852	0.500	0.000	0.849	0.500	0.250	0.500	0.000	0.583	0.500	0.773	0.375	0.000	0.730	0.375	0.500	0.694	0.000	0.607	0.801
Lights	5	392	6	0	403	2	1	4	0	7	9	94	3	0	106	3	6	23	0	32	548
% Lights	83.3	94.2	100.0	-	94.2	100.0	100.0	100.0	-	100.0	90.0	70.7	100.0	-	72.6	100.0	100.0	92.0	-	94.1	89.1
Mediums	1	14	0	0	15	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	24
% Mediums	16.7	3.4	0.0	-	3.5	0.0	0.0	0.0	-	0.0	10.0	6.0	0.0	-	6.2	0.0	0.0	0.0	-	0.0	3.9
Articulated Trucks	0	10	0	0	10	0	0	0	0	0	0	31	0	0	31	0	0	2	0	2	43
% Articulated Trucks	0.0	2.4	0.0	-	2.3	0.0	0.0	0.0	-	0.0	0.0	23.3	0.0	-	21.2	0.0	0.0	8.0	-	5.9	7.0
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0

AVCOG
125 Manley Road

Auburn, Maine, United States 04210
(207) 783-9186 bpineau@avcog.org

Count Name: Auburn_Center/Stetson/Joline
Site Code:
Start Date: 05/29/2024



Turning Movement Peak Hour Data Plot (5:00 AM)

B. MaineDOT Crash Data

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Auburn
Stetson Rd from Center St (Rte 4) (3690) to N River Rd (3978)

REPORT PARAMETERS

Year 2021, Start Month 1 through Year 2023 End Month: 12

Route: 3202008	Start Node: 65489	Start Offset: 0	☑ Exclude First Node
	End Node: 3690	End Offset: 0	☐ Exclude Last Node
Route: 0110375	Start Node: 3978	Start Offset: 0	☐ Exclude First Node
	End Node: 3690	End Offset: 0	☑ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
3690	3202008 - 0.02	Int of CENTER ST JOLINE DR STETSON RD	9	21	0	1	2	2	16	23.8	8.105	0.86	1.13	0.76
												Statewide Crash Rate:	0.71	
3978	0110375 - 0	Int of N RIVER RD STETSON RD	2	0	0	0	0	0	0	0.0	0.287	0.00	0.55	0.00
												Statewide Crash Rate:	0.13	
65489	0110375 - 0.61	Non Int STETSON RD	2	0	0	0	0	0	0	0.0	0.407	0.00	0.56	0.00
												Statewide Crash Rate:	0.13	
Study Years:	3.00	NODE TOTALS:		21	0	1	2	2	16	23.8	8.799	0.80	1.05	0.75

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
65489	3690	5090385	0 - 0.02	3202008 - 0	0.02	2	0	0	0	0	0	0	0.0	0.00004	0.00	744.35	0.00
Non Int STETSON RD				RD INV 3202008											Statewide Crash Rate: 369.57		
65489	3978	5086816	0 - 0.61	0110375 - 0	0.61	2	1	0	0	0	0	1	0.0	0.00249	133.67	875.28	0.15
Non Int STETSON RD				RD INV 01 10375											Statewide Crash Rate: 369.57		
3690	65489	5090387	0 - 0.02	0110375 - 0.61	0.02	2	0	0	0	0	0	0	0.0	0.00004	0.00	783.81	0.00
Int of CENTER ST JOLINE DR STETSON RD				RD INV 01 10375											Statewide Crash Rate: 369.57		
Study Years: 3.00				Section Totals:	0.65		1	0	0	0	0	1	0.0	0.00258	129.43	868.25	0.15
				Grand Totals:	0.65		22	0	1	2	2	17	22.7	0.00258	2847.41	1028.95	2.77

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
65489	3690	5090385	0 - 0.02	3202008 - 0	0	0	0	0	0	0				
65489	3978	5086816	0 - 0.61	0110375 - 0	1	0	0	0	0	1	2023-27568	09/23/2023	0.27	PD
3690	65489	5090387	0 - 0.02	0110375 - 0.61	0	0	0	0	0	0				
				Totals:	1	0	0	0	0	1				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
MONDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3
TUESDAY	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	5
WEDNESDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
THURSDAY	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	5
FRIDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
SATURDAY	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	1	0	0	0	1	0	0	6
Totals	0	0	0	0	0	0	1	0	1	2	1	3	0	0	2	3	3	1	1	1	1	0	2	0	0	22

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	18
2-(Sport) Utility Vehicle	14
3-Passenger Van	1
4-Cargo Van (10K lbs or Less)	2
5-Pickup	8
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	2
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	0

Unit Type	Total
23-Bicyclist	0
24-Witness	9
25-Other	0
26-Construction	0
27-Farm Vehicle	0
28-Horse and Buggy	0
Total	54

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	0	19	1	0	0	0	20
Ran Off Roadway	0	0	0	0	0	0	0
Failed to Yield Right-of-Way	5	0	0	0	0	0	5
Ran Red Light	5	0	0	0	0	0	5
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	0	0	0	0	0	0	0
Improper Turn	1	0	0	0	0	0	1
Improper Backing	0	0	0	0	0	0	0
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	6	0	0	0	0	0	6
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	1	0	0	0	0	0	1
Other Contributing Action	1	0	0	0	0	0	1
Unknown	1	0	0	0	0	0	1
Total	20	19	1	0	0	0	40

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	20	19	1	0	0	0	40
Physically Impaired	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	20	19	1	0	0	0	40

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	5	0	0	0	0	5
20-24	5	0	0	0	0	5
25-29	0	0	0	0	0	0
30-39	9	0	0	0	0	9
40-49	4	0	0	0	0	4
50-59	3	0	0	0	0	3
60-69	8	0	0	0	0	8
70-79	2	0	0	0	0	2
80-Over	3	0	0	0	0	3
Unknown	6	0	0	0	0	6
Total	45	0	0	0	0	45

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	0
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	43
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	43		
14-Parked Motor Vehicle	0		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post, Pole, or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	1	1
B	2	2
C	2	6
PD	17	0
Total	22	9

Road Character

Road Grade	Total
1-Level	19
2-On Grade	3
3-Top of Hill	0
4-Bottom of Hill	0
5-Other	0
Total	22

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	21
2-Traffic Signals (Flashing)	0
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	0
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	1
14-Other	0
Total	22

Light

Light Condition	Total
1-Daylight	17
2-Dawn	0
3-Dusk	0
4-Dark - Lighted	5
5-Dark - Not Lighted	0
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	22

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2021	2022	2023	Total
JANUARY	0	0	0	0
FEBRUARY	1	1	0	2
MARCH	1	1	0	2
APRIL	0	1	0	1
MAY	0	0	2	2
JUNE	0	2	1	3
JULY	1	1	1	3
AUGUST	0	1	0	1
SEPTEMBER	0	0	1	1
OCTOBER	1	2	1	4
NOVEMBER	1	0	0	1
DECEMBER	2	0	0	2
Total	7	9	6	22

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	0	0	1	9	0	0	0	0	0	0	0	0	0	0	10
Head-on - Sideswipe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Movement	0	0	0	11	0	1	0	0	0	0	0	0	0	0	12
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	20	0	1	0	0	0	0	0	0	0	0	22

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	4	0	0	0	0	0	0	0	0	0	0	4
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	13	0	0	0	0	0	0	0	0	0	0	13
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	2	0	0	0	0	0	0	0	0	0	1	3
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather / Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	1	1
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	1	1
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

C. SimTraffic Reports

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	7:00	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	1950	1887	1903	1910	1825	1851	1989
Vehs Exited	1950	1895	1898	1915	1829	1867	1988
Starting Vehs	25	32	29	22	30	40	26
Ending Vehs	25	24	34	17	26	24	27
Travel Distance (mi)	825	795	815	809	771	784	840
Travel Time (hr)	29.9	28.8	30.2	29.3	27.9	29.2	30.3
Total Delay (hr)	8.8	8.3	9.2	8.5	8.1	9.2	8.7
Total Stops	862	853	916	863	802	909	869
Fuel Used (gal)	30.3	29.4	30.1	29.5	28.5	29.4	30.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	1872	1922	1926	1904
Vehs Exited	1870	1922	1927	1905
Starting Vehs	22	25	27	27
Ending Vehs	24	25	26	24
Travel Distance (mi)	788	810	818	806
Travel Time (hr)	28.4	30.6	29.9	29.5
Total Delay (hr)	8.3	9.8	9.0	8.8
Total Stops	831	961	870	874
Fuel Used (gal)	28.7	30.2	30.1	29.7

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	418	450	448	437	417	426	452
Vehs Exited	417	453	448	432	419	441	451
Starting Vehs	25	32	29	22	30	40	26
Ending Vehs	26	29	29	27	28	25	27
Travel Distance (mi)	178	190	190	182	173	185	190
Travel Time (hr)	6.4	6.4	6.9	6.1	5.7	7.0	6.3
Total Delay (hr)	1.7	1.6	2.1	1.4	1.4	2.2	1.6
Total Stops	193	168	209	152	133	224	156
Fuel Used (gal)	6.6	6.8	7.0	6.4	6.1	7.1	6.8

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	416	419	440	430
Vehs Exited	413	427	436	434
Starting Vehs	22	25	27	27
Ending Vehs	25	17	31	26
Travel Distance (mi)	173	178	186	183
Travel Time (hr)	6.2	6.2	6.6	6.4
Total Delay (hr)	1.8	1.7	1.8	1.7
Total Stops	173	178	178	176
Fuel Used (gal)	6.4	6.5	6.6	6.6

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	620	568	575	567	569	553	620
Vehs Exited	599	563	558	564	562	545	620
Starting Vehs	26	29	29	27	28	25	27
Ending Vehs	47	34	46	30	35	33	27
Travel Distance (mi)	259	240	247	241	241	229	266
Travel Time (hr)	10.1	9.5	10.0	9.5	9.3	9.3	10.5
Total Delay (hr)	3.4	3.2	3.5	3.1	2.9	3.3	3.5
Total Stops	308	311	333	302	301	329	343
Fuel Used (gal)	9.8	9.3	9.4	9.3	9.3	9.0	10.2

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	591	609	595	585
Vehs Exited	577	571	587	573
Starting Vehs	25	17	31	26
Ending Vehs	39	55	39	37
Travel Distance (mi)	248	247	254	247
Travel Time (hr)	9.7	10.3	10.0	9.8
Total Delay (hr)	3.3	3.8	3.3	3.3
Total Stops	329	351	309	321
Fuel Used (gal)	9.5	9.6	9.8	9.5

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	454	416	414	445	433	439	458
Vehs Exited	482	421	439	450	442	450	467
Starting Vehs	47	34	46	30	35	33	27
Ending Vehs	19	29	21	25	26	22	18
Travel Distance (mi)	195	172	183	189	186	189	194
Travel Time (hr)	6.9	6.0	6.2	6.5	6.6	6.6	6.6
Total Delay (hr)	2.0	1.5	1.6	1.7	1.9	1.9	1.7
Total Stops	202	158	170	184	185	183	173
Fuel Used (gal)	7.3	6.2	6.5	6.8	6.8	6.7	6.8

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	430	451	442	437
Vehs Exited	451	480	456	454
Starting Vehs	39	55	39	37
Ending Vehs	18	26	25	22
Travel Distance (mi)	186	199	189	188
Travel Time (hr)	6.6	7.3	6.8	6.6
Total Delay (hr)	1.9	2.1	2.1	1.8
Total Stops	191	226	214	188
Fuel Used (gal)	6.7	7.2	6.9	6.8

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	458	453	466	461	406	433	459
Vehs Exited	452	458	453	469	406	431	450
Starting Vehs	19	29	21	25	26	22	18
Ending Vehs	25	24	34	17	26	24	27
Travel Distance (mi)	194	193	194	197	171	181	191
Travel Time (hr)	6.5	7.0	7.0	7.3	6.2	6.3	6.9
Total Delay (hr)	1.6	2.0	2.0	2.3	1.9	1.7	1.9
Total Stops	159	216	204	225	183	173	197
Fuel Used (gal)	6.7	7.1	7.3	7.1	6.3	6.6	7.0

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	435	443	449	445
Vehs Exited	429	444	448	444
Starting Vehs	18	26	25	22
Ending Vehs	24	25	26	24
Travel Distance (mi)	180	186	189	188
Travel Time (hr)	5.9	6.8	6.5	6.7
Total Delay (hr)	1.4	2.1	1.8	1.9
Total Stops	138	206	169	185
Fuel Used (gal)	6.1	6.9	6.8	6.8

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.8	0.5	0.4	0.8	0.0	0.0	0.2	0.0	0.0	2.8	0.2	0.2
Total Del/Veh (s)	32.3	28.0	14.8	32.4	9.5	5.0	37.6	6.2	2.0	43.4	9.0	4.7

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	11.6

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	131	115	86	26	51	171	136	74	198	179
Average Queue (ft)	72	23	23	5	15	62	37	11	96	74
95th Queue (ft)	122	68	57	18	41	128	94	39	171	155
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	3	0	0			1			6	
Queuing Penalty (veh)	2	0	0			0			1	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	7:00	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	1962	1881	1961	1816	1930	1858	1942
Vehs Exited	1974	1884	1960	1813	1931	1851	1944
Starting Vehs	34	26	33	30	32	17	24
Ending Vehs	22	23	34	33	31	24	22
Travel Distance (mi)	835	796	833	765	817	787	820
Travel Time (hr)	28.9	27.5	29.1	26.6	28.5	26.9	28.0
Total Delay (hr)	7.6	6.9	7.8	7.0	7.5	6.8	7.1
Total Stops	797	749	811	744	793	685	724
Fuel Used (gal)	30.3	28.6	30.0	27.6	29.4	28.3	29.3

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	1844	1887	1904	1899
Vehs Exited	1849	1887	1899	1898
Starting Vehs	18	19	23	23
Ending Vehs	13	19	28	20
Travel Distance (mi)	780	800	807	804
Travel Time (hr)	26.7	28.0	28.2	27.8
Total Delay (hr)	7.0	7.4	7.4	7.2
Total Stops	742	746	809	759
Fuel Used (gal)	28.2	28.6	29.0	28.9

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	433	429	478	412	428	411	468
Vehs Exited	444	432	484	423	439	407	467
Starting Vehs	34	26	33	30	32	17	24
Ending Vehs	23	23	27	19	21	21	25
Travel Distance (mi)	183	182	204	168	180	174	200
Travel Time (hr)	6.3	6.0	7.1	5.7	5.8	5.6	6.7
Total Delay (hr)	1.7	1.3	1.9	1.4	1.3	1.3	1.6
Total Stops	187	145	198	152	138	128	164
Fuel Used (gal)	6.8	6.3	7.3	6.1	6.3	6.1	7.0

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	441	429	451	437
Vehs Exited	437	431	442	440
Starting Vehs	18	19	23	23
Ending Vehs	22	17	32	21
Travel Distance (mi)	185	180	188	184
Travel Time (hr)	6.3	6.0	6.2	6.2
Total Delay (hr)	1.6	1.3	1.4	1.5
Total Stops	188	139	162	162
Fuel Used (gal)	6.7	6.2	6.5	6.5

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	597	558	570	557	627	550	579
Vehs Exited	575	550	562	543	617	536	570
Starting Vehs	23	23	27	19	21	21	25
Ending Vehs	45	31	35	33	31	35	34
Travel Distance (mi)	253	234	244	235	265	232	243
Travel Time (hr)	9.3	8.5	9.1	8.9	10.3	8.6	8.8
Total Delay (hr)	2.7	2.4	2.7	2.8	3.3	2.5	2.5
Total Stops	281	253	292	286	330	241	252
Fuel Used (gal)	9.4	8.8	9.1	8.9	10.2	8.6	9.0

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	575	583	568	574
Vehs Exited	554	556	570	563
Starting Vehs	22	17	32	21
Ending Vehs	43	44	30	36
Travel Distance (mi)	241	236	246	243
Travel Time (hr)	8.8	8.8	9.3	9.1
Total Delay (hr)	2.6	2.7	2.9	2.7
Total Stops	263	257	309	275
Fuel Used (gal)	9.1	8.6	9.2	9.1

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	454	431	439	401	457	469	434
Vehs Exited	480	438	449	411	469	479	447
Starting Vehs	45	31	35	33	31	35	34
Ending Vehs	19	24	25	23	19	25	21
Travel Distance (mi)	197	185	187	173	198	203	183
Travel Time (hr)	6.6	6.5	6.0	5.7	6.7	6.8	5.8
Total Delay (hr)	1.7	1.7	1.4	1.3	1.6	1.7	1.3
Total Stops	163	184	143	141	175	164	136
Fuel Used (gal)	7.1	6.6	6.5	6.0	6.9	7.4	6.4

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	390	441	423	435
Vehs Exited	418	454	431	447
Starting Vehs	43	44	30	36
Ending Vehs	15	31	22	19
Travel Distance (mi)	169	198	178	187
Travel Time (hr)	5.4	7.2	6.1	6.3
Total Delay (hr)	1.2	2.0	1.5	1.5
Total Stops	123	196	169	158
Fuel Used (gal)	5.9	7.2	6.4	6.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	478	463	474	446	418	428	461
Vehs Exited	475	464	465	436	406	429	460
Starting Vehs	19	24	25	23	19	25	21
Ending Vehs	22	23	34	33	31	24	22
Travel Distance (mi)	202	196	199	188	174	178	193
Travel Time (hr)	6.7	6.5	6.8	6.4	5.8	5.8	6.7
Total Delay (hr)	1.6	1.5	1.8	1.6	1.3	1.4	1.7
Total Stops	166	167	178	165	150	152	172
Fuel Used (gal)	7.1	6.9	7.2	6.7	6.1	6.3	6.9

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	438	434	462	450
Vehs Exited	440	446	456	447
Starting Vehs	15	31	22	19
Ending Vehs	13	19	28	20
Travel Distance (mi)	184	186	196	190
Travel Time (hr)	6.2	6.1	6.6	6.3
Total Delay (hr)	1.6	1.4	1.5	1.5
Total Stops	168	154	169	162
Fuel Used (gal)	6.5	6.5	6.8	6.7

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.9	0.5	0.5	0.6	0.0	0.0	0.1	0.0	0.0	2.7	0.2	0.3
Total Del/Veh (s)	33.2	28.9	11.6	32.6	8.5	6.1	23.3	4.1	1.7	12.3	6.0	3.0

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	9.0

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	132	158	78	28	52	113	89	33	160	141
Average Queue (ft)	72	26	23	4	13	45	26	6	72	53
95th Queue (ft)	123	80	57	18	36	95	67	21	132	112
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	4	0	0			0			2	
Queuing Penalty (veh)	2	0	0			0			0	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	7:00	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	1965	2020	2014	1959	1951	2022	1967
Vehs Exited	1985	2026	2013	1958	1946	2029	1966
Starting Vehs	40	28	39	35	25	27	26
Ending Vehs	20	22	40	36	30	20	27
Travel Distance (mi)	848	872	868	846	843	867	845
Travel Time (hr)	31.5	32.9	32.9	32.2	32.2	31.9	32.0
Total Delay (hr)	9.2	9.9	10.1	10.0	9.8	9.4	9.9
Total Stops	966	1058	1066	1022	1044	942	1006
Fuel Used (gal)	31.8	32.6	32.9	31.8	32.0	32.1	31.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	1999	1937	1935	1977
Vehs Exited	1997	1932	1939	1979
Starting Vehs	29	33	30	30
Ending Vehs	31	38	26	27
Travel Distance (mi)	845	820	827	848
Travel Time (hr)	32.5	31.2	31.1	32.0
Total Delay (hr)	10.3	9.8	9.3	9.8
Total Stops	1079	1022	1003	1021
Fuel Used (gal)	32.4	31.1	31.0	31.9

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	439	500	431	443	425	461	468
Vehs Exited	453	488	442	454	427	449	457
Starting Vehs	40	28	39	35	25	27	26
Ending Vehs	26	40	28	24	23	39	37
Travel Distance (mi)	188	214	189	192	180	191	198
Travel Time (hr)	6.8	8.2	7.0	6.7	6.7	6.6	7.2
Total Delay (hr)	1.9	2.5	2.1	1.8	1.9	1.7	2.0
Total Stops	212	271	222	184	213	191	226
Fuel Used (gal)	7.1	8.1	7.0	6.9	6.7	6.7	7.3

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	469	428	436	452
Vehs Exited	472	431	436	452
Starting Vehs	29	33	30	30
Ending Vehs	26	30	30	26
Travel Distance (mi)	199	180	186	192
Travel Time (hr)	7.4	6.6	6.7	7.0
Total Delay (hr)	2.1	1.9	1.8	2.0
Total Stops	227	193	195	215
Fuel Used (gal)	7.4	6.8	6.7	7.1

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	634	616	591	568	619	631	598
Vehs Exited	616	611	567	557	584	624	590
Starting Vehs	26	40	28	24	23	39	37
Ending Vehs	44	45	52	35	58	46	45
Travel Distance (mi)	271	265	251	250	262	270	257
Travel Time (hr)	11.1	10.7	10.1	10.3	10.3	10.9	10.9
Total Delay (hr)	3.8	3.7	3.4	3.5	3.3	3.7	4.0
Total Stops	384	382	357	356	344	339	383
Fuel Used (gal)	10.5	10.2	9.8	9.7	10.0	10.5	10.1

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	625	609	583	604
Vehs Exited	603	598	560	590
Starting Vehs	26	30	30	26
Ending Vehs	48	41	53	42
Travel Distance (mi)	259	255	245	258
Travel Time (hr)	11.1	10.9	10.1	10.6
Total Delay (hr)	4.3	4.1	3.5	3.7
Total Stops	425	394	377	375
Fuel Used (gal)	10.4	10.1	9.6	10.1

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	447	418	486	478	478	479	417
Vehs Exited	458	434	515	480	497	493	436
Starting Vehs	44	45	52	35	58	46	45
Ending Vehs	33	29	23	33	39	32	26
Travel Distance (mi)	193	183	214	205	213	210	185
Travel Time (hr)	6.8	6.4	7.9	7.7	7.8	7.4	6.8
Total Delay (hr)	1.8	1.6	2.3	2.4	2.2	1.9	2.0
Total Stops	188	187	233	254	231	203	201
Fuel Used (gal)	7.0	6.6	8.1	7.8	8.0	7.6	7.0

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	454	463	446	457
Vehs Exited	468	475	472	473
Starting Vehs	48	41	53	42
Ending Vehs	34	29	27	29
Travel Distance (mi)	201	203	197	200
Travel Time (hr)	7.2	7.3	7.4	7.3
Total Delay (hr)	2.0	2.1	2.2	2.1
Total Stops	208	224	233	218
Fuel Used (gal)	7.6	7.5	7.5	7.5

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	445	486	506	470	429	451	484
Vehs Exited	458	493	489	467	438	463	483
Starting Vehs	33	29	23	33	39	32	26
Ending Vehs	20	22	40	36	30	20	27
Travel Distance (mi)	197	210	215	199	189	196	205
Travel Time (hr)	6.9	7.5	7.9	7.5	7.5	7.1	7.1
Total Delay (hr)	1.7	2.1	2.3	2.2	2.4	2.0	1.9
Total Stops	182	218	254	228	256	209	196
Fuel Used (gal)	7.1	7.6	8.0	7.4	7.2	7.3	7.4

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	451	437	470	462
Vehs Exited	454	428	471	463
Starting Vehs	34	29	27	29
Ending Vehs	31	38	26	27
Travel Distance (mi)	186	182	199	198
Travel Time (hr)	6.8	6.4	7.0	7.2
Total Delay (hr)	1.9	1.7	1.9	2.0
Total Stops	219	211	198	216
Fuel Used (gal)	7.0	6.7	7.2	7.3

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.8	0.6	0.6	0.6	0.0	0.1	0.2	0.0	0.0	2.7	0.2	0.3
Total Del/Veh (s)	35.2	29.1	13.2	34.6	9.4	7.0	39.9	6.9	3.2	40.6	9.3	4.6

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	12.7

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	132	191	115	91	50	166	132	49	229	212
Average Queue (ft)	75	32	43	13	12	65	41	11	99	74
95th Queue (ft)	127	107	93	49	36	131	95	34	180	160
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	5	0	1	0		2			6	
Queuing Penalty (veh)	3	0	1	0		1			2	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	7:00	7:00	7:00	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	1967	2103	2016	1999	1898	2017	1992
Vehs Exited	1972	2114	2011	2005	1911	2020	1990
Starting Vehs	20	33	34	29	39	23	26
Ending Vehs	15	22	39	23	26	20	28
Travel Distance (mi)	842	904	862	856	826	860	850
Travel Time (hr)	30.5	33.3	32.2	30.6	29.3	32.0	30.0
Total Delay (hr)	8.4	9.6	9.6	8.2	7.5	9.5	7.7
Total Stops	919	1021	1076	925	836	1032	856
Fuel Used (gal)	30.9	33.9	32.5	31.4	30.0	32.2	30.8

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	7:00	7:00	7:00	7:00
End Time	8:15	8:15	8:15	8:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2048	1957	1927	1993
Vehs Exited	2039	1959	1935	1996
Starting Vehs	23	33	30	27
Ending Vehs	32	31	22	22
Travel Distance (mi)	870	833	823	853
Travel Time (hr)	30.8	30.3	29.9	30.9
Total Delay (hr)	8.3	8.5	8.3	8.6
Total Stops	899	934	924	941
Fuel Used (gal)	31.7	31.0	30.6	31.5

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

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

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	445	499	447	471	422	460	481
Vehs Exited	449	500	460	471	441	447	477
Starting Vehs	20	33	34	29	39	23	26
Ending Vehs	16	32	21	29	20	36	30
Travel Distance (mi)	186	217	188	204	183	191	205
Travel Time (hr)	6.5	8.0	6.8	6.9	6.2	6.4	7.2
Total Delay (hr)	1.7	2.3	1.9	1.7	1.4	1.5	1.8
Total Stops	182	255	222	188	172	186	214
Fuel Used (gal)	6.7	8.1	7.0	7.1	6.6	6.7	7.3

Interval #1 Information Recording

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	471	437	449	458
Vehs Exited	474	442	461	463
Starting Vehs	23	33	30	27
Ending Vehs	20	28	18	22
Travel Distance (mi)	200	189	195	196
Travel Time (hr)	7.0	6.4	6.8	6.8
Total Delay (hr)	1.8	1.6	1.7	1.7
Total Stops	210	180	189	197
Fuel Used (gal)	7.1	6.8	7.0	7.0

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	611	661	585	585	627	642	600
Vehs Exited	589	650	563	574	589	636	587
Starting Vehs	16	32	21	29	20	36	30
Ending Vehs	38	43	43	40	58	42	43
Travel Distance (mi)	259	284	248	247	265	276	255
Travel Time (hr)	10.4	11.1	9.7	9.5	10.1	11.6	9.4
Total Delay (hr)	3.4	3.5	3.1	2.9	3.0	4.2	2.6
Total Stops	356	355	334	336	319	412	279
Fuel Used (gal)	10.0	10.8	9.5	9.6	9.9	10.9	9.4

Interval #2 Information Recording

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	646	616	572	615
Vehs Exited	634	604	539	598
Starting Vehs	20	28	18	22
Ending Vehs	32	40	51	39
Travel Distance (mi)	277	260	239	261
Travel Time (hr)	10.3	10.2	9.1	10.1
Total Delay (hr)	3.1	3.2	2.8	3.2
Total Stops	304	336	295	333
Fuel Used (gal)	10.4	10.0	9.1	10.0

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	476	459	484	490	433	473	439
Vehs Exited	486	473	500	494	466	479	454
Starting Vehs	38	43	43	40	58	42	43
Ending Vehs	28	29	27	36	25	36	28
Travel Distance (mi)	202	198	213	211	195	203	189
Travel Time (hr)	7.1	7.0	7.7	7.4	6.7	7.4	6.4
Total Delay (hr)	1.9	1.9	2.1	2.0	1.7	2.0	1.6
Total Stops	207	201	237	208	187	244	165
Fuel Used (gal)	7.3	7.3	7.9	7.8	7.0	7.4	6.8

Interval #3 Information Recording

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	456	438	454	459
Vehs Exited	463	445	477	474
Starting Vehs	32	40	51	39
Ending Vehs	25	33	28	28
Travel Distance (mi)	196	187	197	199
Travel Time (hr)	6.7	6.8	7.1	7.0
Total Delay (hr)	1.8	2.0	2.0	1.9
Total Stops	195	223	226	210
Fuel Used (gal)	7.2	7.1	7.4	7.3

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	435	484	500	453	416	442	472
Vehs Exited	448	491	488	466	415	458	472
Starting Vehs	28	29	27	36	25	36	28
Ending Vehs	15	22	39	23	26	20	28
Travel Distance (mi)	195	205	214	194	183	190	201
Travel Time (hr)	6.6	7.2	8.1	6.7	6.3	6.6	6.9
Total Delay (hr)	1.5	1.9	2.5	1.6	1.4	1.7	1.7
Total Stops	174	210	283	193	158	190	198
Fuel Used (gal)	6.9	7.6	8.1	7.0	6.4	7.2	7.2

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	475	466	452	458
Vehs Exited	468	468	458	462
Starting Vehs	25	33	28	28
Ending Vehs	32	31	22	22
Travel Distance (mi)	197	197	193	197
Travel Time (hr)	6.8	6.7	6.9	6.9
Total Delay (hr)	1.6	1.6	1.8	1.8
Total Stops	190	195	214	200
Fuel Used (gal)	7.0	7.2	7.2	7.2

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.8	0.5	0.5	0.7	0.0	0.1	0.2	0.0	0.0	2.6	0.2	0.3
Total Del/Veh (s)	33.1	27.0	14.7	35.6	9.4	7.6	26.8	4.7	2.0	14.7	6.9	4.0

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	10.2

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	128	139	119	81	56	127	101	53	176	162
Average Queue (ft)	70	27	47	12	12	51	29	8	78	59
95th Queue (ft)	120	82	95	44	37	104	75	32	147	129
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	3	0	1			1			3	
Queuing Penalty (veh)	2	0	1			0			1	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:00	4:00	4:00	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2739	2721	2625	2562	2616	2699	2547
Vehs Exited	2743	2710	2636	2563	2607	2707	2551
Starting Vehs	34	32	41	34	33	43	38
Ending Vehs	30	43	30	33	42	35	34
Travel Distance (mi)	1101	1108	1068	1047	1079	1091	1030
Travel Time (hr)	46.5	44.7	43.1	42.4	44.0	44.9	42.4
Total Delay (hr)	16.7	15.0	14.6	14.2	15.1	15.7	14.6
Total Stops	1597	1440	1475	1417	1450	1537	1445
Fuel Used (gal)	44.6	43.6	42.3	41.2	42.7	43.5	41.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2624	2641	2647	2644
Vehs Exited	2630	2645	2646	2644
Starting Vehs	42	47	31	34
Ending Vehs	36	43	32	36
Travel Distance (mi)	1074	1072	1079	1075
Travel Time (hr)	44.0	44.7	44.1	44.1
Total Delay (hr)	15.1	15.6	15.0	15.2
Total Stops	1490	1507	1471	1484
Fuel Used (gal)	43.0	42.9	42.8	42.8

Interval #0 Information Seeding

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	660	612	620	595	608	632	608
Vehs Exited	655	603	623	601	600	633	594
Starting Vehs	34	32	41	34	33	43	38
Ending Vehs	39	41	38	28	41	42	52
Travel Distance (mi)	262	253	249	247	252	260	244
Travel Time (hr)	10.7	9.8	10.2	9.6	9.6	10.1	9.8
Total Delay (hr)	3.7	3.1	3.6	3.0	3.0	3.2	3.4
Total Stops	354	319	365	287	316	335	333
Fuel Used (gal)	10.7	9.8	10.0	9.6	9.6	10.1	9.6

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	605	596	636	616
Vehs Exited	604	607	631	615
Starting Vehs	42	47	31	34
Ending Vehs	43	36	36	37
Travel Distance (mi)	253	240	258	252
Travel Time (hr)	10.4	9.6	10.1	10.0
Total Delay (hr)	3.5	3.2	3.2	3.3
Total Stops	342	337	319	331
Fuel Used (gal)	10.0	9.5	9.9	9.9

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	810	778	740	740	794	780	730
Vehs Exited	776	748	727	711	762	755	724
Starting Vehs	39	41	38	28	41	42	52
Ending Vehs	73	71	51	57	73	67	58
Travel Distance (mi)	317	305	296	298	316	308	290
Travel Time (hr)	14.8	13.2	12.9	12.9	14.8	13.8	13.3
Total Delay (hr)	6.0	4.9	4.8	4.7	6.0	5.4	5.2
Total Stops	550	449	469	443	534	518	487
Fuel Used (gal)	13.3	12.2	12.2	12.1	13.3	12.8	12.3

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	766	749	719	761
Vehs Exited	747	719	700	739
Starting Vehs	43	36	36	37
Ending Vehs	62	66	55	61
Travel Distance (mi)	305	301	289	302
Travel Time (hr)	13.0	13.7	12.7	13.5
Total Delay (hr)	4.7	5.2	4.6	5.2
Total Stops	470	482	469	487
Fuel Used (gal)	12.5	12.2	11.9	12.5

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	650	643	646	623	599	642	584
Vehs Exited	679	681	655	637	652	658	614
Starting Vehs	73	71	51	57	73	67	58
Ending Vehs	44	33	42	43	20	51	28
Travel Distance (mi)	270	272	267	259	258	261	245
Travel Time (hr)	11.1	10.9	10.3	10.4	9.7	10.6	9.5
Total Delay (hr)	3.9	3.7	3.2	3.5	2.9	3.7	3.0
Total Stops	367	345	345	361	286	350	311
Fuel Used (gal)	10.9	10.9	10.3	10.2	10.0	10.3	9.6

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	647	645	655	632
Vehs Exited	664	663	667	656
Starting Vehs	62	66	55	61
Ending Vehs	45	48	43	38
Travel Distance (mi)	269	274	267	264
Travel Time (hr)	10.7	11.2	10.6	10.5
Total Delay (hr)	3.6	3.8	3.5	3.5
Total Stops	347	362	331	340
Fuel Used (gal)	10.8	10.9	10.6	10.4

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	619	688	619	604	615	645	625
Vehs Exited	633	678	631	614	593	661	619
Starting Vehs	44	33	42	43	20	51	28
Ending Vehs	30	43	30	33	42	35	34
Travel Distance (mi)	252	278	255	243	253	262	252
Travel Time (hr)	9.8	10.8	9.6	9.5	9.9	10.3	9.8
Total Delay (hr)	3.1	3.4	2.9	3.1	3.2	3.4	3.1
Total Stops	326	327	296	326	314	334	314
Fuel Used (gal)	9.8	10.7	9.8	9.3	9.8	10.3	9.7

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	606	651	637	631
Vehs Exited	615	656	648	635
Starting Vehs	45	48	43	38
Ending Vehs	36	43	32	36
Travel Distance (mi)	247	258	265	257
Travel Time (hr)	9.8	10.2	10.8	10.1
Total Delay (hr)	3.2	3.4	3.6	3.2
Total Stops	331	326	352	326
Fuel Used (gal)	9.6	10.2	10.4	10.0

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	0.8	0.9	0.3	0.0	0.0	0.1	0.0	0.0	3.0	0.1	0.2
Total Del/Veh (s)	30.5	20.2	11.5	23.9	16.8	14.1	31.0	11.6	7.8	35.1	11.3	6.6

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	14.6

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	135	292	89	97	99	254	230	39	189	169
Average Queue (ft)	112	83	31	29	17	132	112	5	88	67
95th Queue (ft)	152	245	68	72	59	217	197	25	156	141
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	18	0	0	0	0	11			4	
Queuing Penalty (veh)	12	0	0	0	0	4			0	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:00	4:00	4:00	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2724	2661	2592	2572	2689	2704	2517
Vehs Exited	2726	2653	2593	2573	2680	2707	2520
Starting Vehs	33	33	34	33	30	48	38
Ending Vehs	31	41	33	32	39	45	35
Travel Distance (mi)	1102	1073	1061	1049	1091	1087	1006
Travel Time (hr)	47.7	47.1	43.9	43.2	45.2	46.3	42.5
Total Delay (hr)	18.0	18.3	15.5	15.1	16.1	17.2	15.4
Total Stops	1690	1591	1482	1451	1519	1660	1472
Fuel Used (gal)	44.6	43.7	42.0	41.6	43.7	44.3	40.7

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2693	2709	2580	2644
Vehs Exited	2672	2706	2577	2640
Starting Vehs	33	46	30	35
Ending Vehs	54	49	33	37
Travel Distance (mi)	1100	1099	1039	1071
Travel Time (hr)	48.3	47.0	43.5	45.5
Total Delay (hr)	18.7	17.4	15.6	16.7
Total Stops	1691	1629	1508	1571
Fuel Used (gal)	44.9	44.4	41.8	43.2

Interval #0 Information Seeding

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	662	603	621	630	615	622	588
Vehs Exited	650	601	597	634	608	625	581
Starting Vehs	33	33	34	33	30	48	38
Ending Vehs	45	35	58	29	37	45	45
Travel Distance (mi)	267	248	246	253	251	251	237
Travel Time (hr)	11.2	9.8	10.4	10.2	9.7	10.2	9.3
Total Delay (hr)	4.1	3.2	3.8	3.6	3.1	3.6	3.0
Total Stops	397	307	371	332	295	376	309
Fuel Used (gal)	10.8	9.7	9.8	10.1	9.7	10.0	9.4

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	621	637	603	621
Vehs Exited	604	636	597	611
Starting Vehs	33	46	30	35
Ending Vehs	50	47	36	43
Travel Distance (mi)	253	256	242	250
Travel Time (hr)	10.2	10.5	9.4	10.1
Total Delay (hr)	3.4	3.7	3.1	3.5
Total Stops	335	361	318	340
Fuel Used (gal)	9.9	10.2	9.5	9.9

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	797	738	725	744	830	756	716
Vehs Exited	771	699	739	716	787	726	694
Starting Vehs	45	35	58	29	37	45	45
Ending Vehs	71	74	44	57	80	75	67
Travel Distance (mi)	313	282	295	297	321	294	276
Travel Time (hr)	15.0	14.4	13.6	13.0	15.0	13.9	13.1
Total Delay (hr)	6.4	6.6	5.5	4.8	6.2	5.8	5.4
Total Stops	578	519	497	461	557	537	491
Fuel Used (gal)	13.2	12.0	12.4	12.0	13.4	12.5	11.6

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	805	740	717	757
Vehs Exited	783	728	698	733
Starting Vehs	50	47	36	43
Ending Vehs	72	59	55	62
Travel Distance (mi)	320	297	277	297
Travel Time (hr)	15.7	13.8	12.8	14.0
Total Delay (hr)	7.0	5.6	5.1	5.8
Total Stops	608	491	480	522
Fuel Used (gal)	13.6	12.3	11.7	12.5

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	644	610	636	600	618	654	628
Vehs Exited	671	651	643	616	666	677	665
Starting Vehs	71	74	44	57	80	75	67
Ending Vehs	44	33	37	41	32	52	30
Travel Distance (mi)	271	258	264	254	267	272	262
Travel Time (hr)	11.3	10.8	10.2	10.5	10.5	11.3	10.7
Total Delay (hr)	4.1	4.0	3.2	3.6	3.5	4.0	3.8
Total Stops	374	347	314	349	328	383	351
Fuel Used (gal)	10.7	10.5	10.2	10.1	10.7	10.9	10.6

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	621	665	614	629
Vehs Exited	658	677	629	656
Starting Vehs	72	59	55	62
Ending Vehs	35	47	40	36
Travel Distance (mi)	263	276	257	265
Travel Time (hr)	11.6	11.8	10.5	10.9
Total Delay (hr)	4.5	4.4	3.8	3.9
Total Stops	389	411	355	364
Fuel Used (gal)	11.0	11.2	10.3	10.6

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	621	710	610	598	626	672	585
Vehs Exited	634	702	614	607	619	679	580
Starting Vehs	44	33	37	41	32	52	30
Ending Vehs	31	41	33	32	39	45	35
Travel Distance (mi)	250	285	255	245	252	270	232
Travel Time (hr)	10.1	12.1	9.8	9.6	10.0	10.9	9.3
Total Delay (hr)	3.5	4.5	3.1	3.1	3.4	3.8	3.1
Total Stops	341	418	300	309	339	364	321
Fuel Used (gal)	9.8	11.5	9.7	9.3	9.9	10.9	9.2

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	646	667	646	640
Vehs Exited	627	665	653	638
Starting Vehs	35	47	40	36
Ending Vehs	54	49	33	37
Travel Distance (mi)	264	270	263	259
Travel Time (hr)	10.8	10.8	10.7	10.4
Total Delay (hr)	3.7	3.7	3.7	3.6
Total Stops	359	366	355	348
Fuel Used (gal)	10.4	10.7	10.4	10.2

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	1.0	1.0	0.3	0.0	0.0	0.2	0.0	0.1	3.0	0.1	0.2
Total Del/Veh (s)	37.2	25.6	12.6	23.8	17.6	15.7	43.9	12.6	7.8	41.7	13.9	8.2

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	17.0

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	135	366	82	93	134	260	236	68	222	213
Average Queue (ft)	117	108	30	29	20	140	118	6	97	76
95th Queue (ft)	155	308	66	70	73	223	201	37	175	162
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	25	0	0	0	0	13			7	
Queuing Penalty (veh)	17	0	0	0	0	5			1	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:00	4:00	4:00	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2813	2792	2837	2800	2735	2834	2802
Vehs Exited	2819	2799	2834	2794	2741	2824	2808
Starting Vehs	39	44	41	58	36	35	45
Ending Vehs	33	37	44	64	30	45	39
Travel Distance (mi)	1156	1157	1173	1154	1125	1168	1147
Travel Time (hr)	49.6	48.4	50.0	48.0	49.3	49.1	48.1
Total Delay (hr)	17.8	16.8	18.2	16.5	18.5	17.2	16.8
Total Stops	1728	1640	1746	1630	1724	1677	1684
Fuel Used (gal)	46.8	46.1	47.5	46.1	46.1	46.7	45.9

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2818	2809	2729	2795
Vehs Exited	2820	2814	2723	2798
Starting Vehs	40	42	39	40
Ending Vehs	38	37	45	40
Travel Distance (mi)	1154	1152	1112	1150
Travel Time (hr)	48.9	48.9	46.6	48.7
Total Delay (hr)	17.4	17.4	16.4	17.3
Total Stops	1637	1709	1610	1678
Fuel Used (gal)	46.5	46.6	44.8	46.3

Interval #0 Information Seeding

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	643	701	667	666	660	668	672
Vehs Exited	652	683	660	688	654	648	674
Starting Vehs	39	44	41	58	36	35	45
Ending Vehs	30	62	48	36	42	55	43
Travel Distance (mi)	262	283	276	280	267	272	275
Travel Time (hr)	10.6	11.5	11.6	11.2	10.9	11.0	11.3
Total Delay (hr)	3.5	3.8	4.1	3.7	3.7	3.7	3.9
Total Stops	351	399	412	364	366	378	412
Fuel Used (gal)	10.5	11.2	11.2	11.0	10.6	10.8	10.9

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	699	647	648	666
Vehs Exited	692	645	652	665
Starting Vehs	40	42	39	40
Ending Vehs	47	44	35	44
Travel Distance (mi)	289	266	266	273
Travel Time (hr)	12.3	10.6	10.6	11.2
Total Delay (hr)	4.5	3.5	3.5	3.8
Total Stops	422	357	353	381
Fuel Used (gal)	11.7	10.3	10.4	10.9

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	819	755	775	762	832	828	797
Vehs Exited	791	767	743	764	777	804	773
Starting Vehs	30	62	48	36	42	55	43
Ending Vehs	58	50	80	34	97	79	67
Travel Distance (mi)	326	316	306	314	330	339	315
Travel Time (hr)	15.4	14.6	13.8	13.9	16.2	15.6	14.6
Total Delay (hr)	6.2	5.7	5.3	5.1	6.8	5.9	5.7
Total Stops	564	531	512	489	604	568	542
Fuel Used (gal)	13.7	13.1	12.5	12.9	13.9	13.8	13.1

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	800	790	792	797
Vehs Exited	778	766	756	772
Starting Vehs	47	44	35	44
Ending Vehs	69	68	71	64
Travel Distance (mi)	316	317	313	319
Travel Time (hr)	14.8	14.8	14.0	14.8
Total Delay (hr)	5.9	5.8	5.3	5.8
Total Stops	550	549	526	545
Fuel Used (gal)	13.3	13.2	13.0	13.3

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	682	671	696	644	631	648	692
Vehs Exited	700	661	730	631	694	698	719
Starting Vehs	58	50	80	34	97	79	67
Ending Vehs	40	60	46	47	34	29	40
Travel Distance (mi)	290	276	304	259	274	277	291
Travel Time (hr)	12.2	10.6	12.9	10.3	12.1	11.4	11.6
Total Delay (hr)	4.3	3.3	4.8	3.4	4.7	3.9	3.7
Total Stops	423	323	429	347	414	355	369
Fuel Used (gal)	11.6	10.7	12.2	10.3	11.5	11.1	11.5

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	631	702	650	661
Vehs Exited	658	721	674	688
Starting Vehs	69	68	71	64
Ending Vehs	42	49	47	42
Travel Distance (mi)	266	296	269	280
Travel Time (hr)	10.1	12.5	11.2	11.5
Total Delay (hr)	3.1	4.5	3.8	4.0
Total Stops	295	442	379	376
Fuel Used (gal)	10.3	12.1	11.0	11.2

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	669	665	699	728	612	690	641
Vehs Exited	676	688	701	711	616	674	642
Starting Vehs	40	60	46	47	34	29	40
Ending Vehs	33	37	44	64	30	45	39
Travel Distance (mi)	278	283	288	302	255	279	267
Travel Time (hr)	11.5	11.6	11.7	12.6	10.1	11.1	10.6
Total Delay (hr)	3.9	4.0	3.9	4.3	3.3	3.6	3.5
Total Stops	390	387	393	430	340	376	361
Fuel Used (gal)	11.0	11.1	11.5	11.9	10.2	11.0	10.4

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	688	670	639	669
Vehs Exited	692	682	641	674
Starting Vehs	42	49	47	42
Ending Vehs	38	37	45	40
Travel Distance (mi)	283	274	265	277
Travel Time (hr)	11.6	11.1	10.8	11.3
Total Delay (hr)	3.9	3.6	3.7	3.8
Total Stops	370	361	352	378
Fuel Used (gal)	11.1	11.0	10.3	11.0

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	0.9	0.9	0.3	0.0	0.0	0.2	0.0	0.0	2.9	0.1	0.2
Total Del/Veh (s)	33.2	23.6	12.8	24.1	17.8	15.0	33.1	12.9	8.9	42.8	12.1	6.8

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	16.1

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	135	315	108	126	112	260	254	58	192	173
Average Queue (ft)	116	100	42	32	19	145	125	11	91	71
95th Queue (ft)	152	282	86	83	70	230	214	37	160	144
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)						0	0			
Queuing Penalty (veh)						0	0			
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	23	0	0	0	0	13			6	
Queuing Penalty (veh)	16	0	0	0	1	5			1	

Summary of All Intervals

Run Number	1	2	3	4	5	6	7
Start Time	4:00	4:00	4:00	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded Intervals	4	4	4	4	4	4	4
Vehs Entered	2800	2851	2811	2709	2729	2765	2779
Vehs Exited	2813	2862	2809	2732	2724	2754	2793
Starting Vehs	44	46	49	68	39	32	49
Ending Vehs	31	35	51	45	44	43	35
Travel Distance (mi)	1165	1167	1155	1128	1119	1147	1138
Travel Time (hr)	54.1	52.5	51.0	50.1	51.6	50.5	50.8
Total Delay (hr)	22.2	20.5	19.6	19.0	21.1	19.1	19.9
Total Stops	1921	1908	1801	1772	1841	1798	1866
Fuel Used (gal)	48.6	48.1	47.3	46.2	46.9	46.6	47.1

Summary of All Intervals

Run Number	8	9	10	Avg
Start Time	4:00	4:00	4:00	4:00
End Time	5:15	5:15	5:15	5:15
Total Time (min)	75	75	75	75
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded Intervals	4	4	4	4
Vehs Entered	2827	2787	2696	2774
Vehs Exited	2830	2800	2717	2782
Starting Vehs	31	53	59	48
Ending Vehs	28	40	38	36
Travel Distance (mi)	1160	1155	1105	1144
Travel Time (hr)	51.6	51.0	48.6	51.2
Total Delay (hr)	20.1	19.3	18.6	19.9
Total Stops	1838	1797	1737	1828
Fuel Used (gal)	47.8	47.3	45.4	47.1

Interval #0 Information Seeding

Start Time	4:00
End Time	4:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	645	709	649	653	644	635	665
Vehs Exited	643	693	641	683	635	622	665
Starting Vehs	44	46	49	68	39	32	49
Ending Vehs	46	62	57	38	48	45	49
Travel Distance (mi)	264	280	264	281	259	263	276
Travel Time (hr)	11.0	11.7	11.0	12.0	10.7	10.7	11.8
Total Delay (hr)	4.0	4.2	3.8	4.3	3.8	3.7	4.4
Total Stops	383	437	386	406	378	359	422
Fuel Used (gal)	10.6	11.4	10.7	11.4	10.3	10.4	11.2

Interval #1 Information Recording

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	685	682	640	659
Vehs Exited	659	688	664	658
Starting Vehs	31	53	59	48
Ending Vehs	57	47	35	46
Travel Distance (mi)	274	289	266	272
Travel Time (hr)	11.9	12.4	11.1	11.4
Total Delay (hr)	4.6	4.6	4.1	4.1
Total Stops	436	438	385	404
Fuel Used (gal)	11.2	11.7	11.0	11.0

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	6	7
Vehs Entered	827	795	766	767	821	799	789
Vehs Exited	781	776	752	765	780	768	772
Starting Vehs	46	62	57	38	48	45	49
Ending Vehs	92	81	71	40	89	76	66
Travel Distance (mi)	330	318	310	316	330	320	312
Travel Time (hr)	17.5	16.0	15.0	15.6	17.8	15.8	15.8
Total Delay (hr)	8.2	7.0	6.3	6.6	8.3	6.8	7.2
Total Stops	666	604	553	578	649	611	633
Fuel Used (gal)	14.3	13.6	13.2	13.5	14.6	13.4	13.7

Interval #2 Information Recording

Start Time	4:30
End Time	4:45
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	8	9	10	Avg
Vehs Entered	813	790	796	796
Vehs Exited	806	773	750	772
Starting Vehs	57	47	35	46
Ending Vehs	64	64	81	71
Travel Distance (mi)	332	322	319	321
Travel Time (hr)	16.9	15.5	15.5	16.1
Total Delay (hr)	7.5	6.4	6.5	7.1
Total Stops	661	568	590	612
Fuel Used (gal)	14.4	13.5	13.3	13.7

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	652	656	684	648	650	645	671
Vehs Exited	704	688	722	650	684	685	694
Starting Vehs	92	81	71	40	89	76	66
Ending Vehs	40	49	33	38	55	36	43
Travel Distance (mi)	288	281	293	268	275	283	283
Travel Time (hr)	13.8	12.3	12.8	11.2	12.5	12.3	12.1
Total Delay (hr)	6.0	4.7	5.0	4.0	5.1	4.6	4.4
Total Stops	470	429	438	389	428	435	407
Fuel Used (gal)	12.4	11.5	12.0	10.7	11.8	11.5	11.5

Interval #3 Information Recording

Start Time	4:45
End Time	5:00
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	653	641	637	653
Vehs Exited	680	656	662	680
Starting Vehs	64	64	81	71
Ending Vehs	37	49	56	40
Travel Distance (mi)	274	267	265	278
Travel Time (hr)	11.0	11.4	11.8	12.1
Total Delay (hr)	3.7	4.1	4.5	4.6
Total Stops	344	399	423	419
Fuel Used (gal)	11.1	10.9	11.1	11.4

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	6	7
Vehs Entered	676	691	712	641	614	686	654
Vehs Exited	685	705	694	634	625	679	662
Starting Vehs	40	49	33	38	55	36	43
Ending Vehs	31	35	51	45	44	43	35
Travel Distance (mi)	283	288	288	264	254	280	267
Travel Time (hr)	11.8	12.4	12.2	11.3	10.6	11.6	11.1
Total Delay (hr)	4.1	4.5	4.5	4.1	3.9	4.1	3.9
Total Stops	402	438	424	399	386	393	404
Fuel Used (gal)	11.3	11.6	11.5	10.7	10.3	11.2	10.8

Interval #4 Information Recording

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	8	9	10	Avg
Vehs Entered	676	674	623	664
Vehs Exited	685	683	641	670
Starting Vehs	37	49	56	40
Ending Vehs	28	40	38	36
Travel Distance (mi)	280	276	255	273
Travel Time (hr)	11.9	11.7	10.2	11.5
Total Delay (hr)	4.3	4.2	3.5	4.1
Total Stops	397	392	339	396
Fuel Used (gal)	11.2	11.2	9.9	11.0

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	3.6	0.9	0.9	0.2	0.0	0.0	0.2	0.0	0.1	2.8	0.2	0.2
Total Del/Veh (s)	41.1	31.0	19.2	25.2	16.5	14.5	43.9	16.4	12.3	44.5	14.8	8.4

3: Center St & Joline Dr/Stetson Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	19.8

Intersection: 3: Center St & Joline Dr/Stetson Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	135	438	106	113	128	316	288	65	208	193
Average Queue (ft)	119	125	42	32	24	167	151	11	106	83
95th Queue (ft)	155	354	87	81	90	271	254	40	179	162
Link Distance (ft)		652		1903		350	350		1166	1166
Upstream Blk Time (%)		0				0	0			
Queuing Penalty (veh)		0				1	0			
Storage Bay Dist (ft)	110		110		110			100		
Storage Blk Time (%)	29	0	0	0	0	19		0	9	
Queuing Penalty (veh)	21	1	0	0	1	7		0	2	

D. Center Street at Auburn Plaza Concept Plan and Estimate

GENERAL NOTES:

1. THIS CONCEPTUAL PLAN IS FOR THE INSTALLATION OF A NEW SIGNALIZED PEDESTRIAN CROSSING AT THE INTERSECTION OF CENTER STREET AND AUBURN PLAZA.
2. SCOPE OF WORK WOULD INCLUDE INSTALLATION OF TWO PEDESTRIAN CURB RAMPS AND ADJACENT PEDESTRIAN SIGNALS WITH APS PUSH BUTTONS.
3. REQUIRED CHANGES TO THE EXISTING SIGNAL SYSTEM WOULD INCLUDE NEW/MODIFIED WIRING, INSTALLATION OF NEW ANCILLARY CABINET EQUIPMENT, AND UPDATED CONTROLLER PROGRAMMING.

IMPLEMENT PEDESTRIAN PHASE AT EXISTING SIGNAL CABINET

FURNISH AND INSTALL 8-FOOT PEDESTAL POLE AND FOUNDATION WITH PEDESTRIAN SIGNAL AND APS PUSH BUTTON

INTERCEPT CONDUIT AT EXISTING STRAIN POLE FOR PROPOSED PEDESTRIAN SIGNAL

SIDEWALK CONNECTION TO AUBURN PLAZA TO BE DETERMINED

INSTALL NEW ADA COMPLIANT PEDESTRIAN CURB RAMP

AUBURN PLAZA ENTRANCE

TO STETSON ROAD

EXISTING SIDEWALK

INSTALL NEW ADA COMPLIANT PEDESTRIAN CURB RAMP. MATCH EXISTING SIDEWALK

FURNISH AND INSTALL 8-FOOT PEDESTAL POLE AND FOUNDATION WITH PEDESTRIAN SIGNAL AND APS PUSH BUTTON

PB

INSTALL NEW CROSSWALK

INSTALL CONDUIT FROM EXISTING STRAIN POLE TO PROPOSED PEDESTRIAN SIGNAL

PB

EXISTING TRAFFIC SIGNAL STRAIN POLE

CENTER STREET (ROUTE 4)

PLAN

10 0 10 20

Scale of Feet

CONCEPTUAL PLAN - NEW PEDESTRIAN CROSSING

CENTER STREET AT AUBURN PLAZA
AUBURN, MAINE

PLS OR PE

PLS OR PE

PROGRESS PRINT

NOT FOR CONSTRUCTION

DESIGNED	CHECKED
MSF	DHC

REV:	BY:	DATE:	STATUS:
A	MSF	2-25-25	PEDESTRIAN CROSSING CONCEPT PLAN

THIS PLAN, DRAWING AND/OR DESIGN IS THE PROPERTY OF SEBAGO TECHNICS, INC. AND SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, REVISIONS OR OTHERWISE, SHALL BE AT THE USERS RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.

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AUBURN PLAZA INTERSECTION PLAN
OF:
STETSON ROAD
STETSON ROAD
AUBURN, MAINE
FOR:
AR BUILDING COMPANY
SEVEN FIELDS, PENNSYLVANIA

PROJECT NO.	SCALE
240337	1" = 10'

SHEET 1 OF 1

...\Signal\Signal_Concept Plan.dgn

240337
By: AJR
Checked: DHC
2/21/2025

CONCEPTUAL PLAN ESTIMATE
CENTER ST AT AUBURN PLAZA -SIGNALIZED PEDESTRIAN CROSSING

ITEM DESCRIPTION	UNIT	AVERAGE UNIT COST	QUANTITY	COST
COMMON EXCAVATION (PLAN QUANTITY)	CY	$ 100.00	13	$ 1,300.00
AGGREGATE SUBBASE COURSE - GRAVEL	CY	$ 100.00	11	$ 1,111.11
HMA 9.5 MM	TONS	$ 300.00	5	$ 1,500.00
CURB RAMP DETECTABLE WARNING FIELD	SF	$ 60.00	22	$ 1,320.00
CURB TYPE 3	LF	$ 60.00	40	$ 2,400.00
20" FOUNDATION	EA	$ 2,000.00	2	$ 4,000.00
W OR Y PAVEMENT & CURB MARKING	LF	$ 5.00	320	$ 1,600.00
PEDESTAL POLE (8 FOOT)	EA	$ 1,500.00	2	$ 3,000.00
PEDESTRIAN SIGNAL	EA	$ 1,250.00	2	$ 2,500.00
APS PUSHBUTTON	EA	$ 1,250.00	2	$ 2,500.00
TRAFFIC SIGNAL MODIFICATION	LS	$ 2,500.00	1	$ 2,500.00
MOBILIZATION AND GENERAL CONDITIONS (7%)	LS	$ 1,661.18	1	$ 1,661.18
CONSTRUCTION SUBTOTAL				$ 25,392.29
CONTINGENCY (~25%)				$ 6,348.07
2025 ESTIMATED CONSTRUCTION COST				**$ 31,740.36**

Manufacturer
F. R. Mahony & Associates, Inc.
273 Weymouth Street
Rockland, MA 02370
781-982-9300

EQUIPMENT/MODEL – FRMA-QUADRIPLEX-EONE-STATION

INSTALLTION & O&M MANUAL

FOR

STETSON RD
DIPERETE ENGINEERING

TABLE OF CONTENTS

1. **INSTALLATION & OPERATING OVERVIEW**

   INSTALLATION AND OPERATING INSTRUCTION DETAILS

2. **FRMA QUADRIPLEX STATION COMPONENTS AND DETAILS**

   - **QUADRIPLEX SYSTEM GA DRAWINGS**
   - **E/ONE PUMP CURVE AND DETAILS**
   - **E/ONE SPECIFICATION**

3. **ENVIRONMENT ONE PUMP MAINTENANCE MANUAL**

   - **EXTREME GRINDER PUMP SERVICE MANUAL**

4. **CONTROL PANEL AND INSTRUMENTATION DETAILS**

   - **FRMA MULTI-PUMP CONTROL SYSTEM OPERATION**
   - **CONTROL PANEL DETAILS**

5. **MAINTENANCE SCHEDULE**

   - **FRMA-E/One Quadriplex Maintenance Schedule**

INSTALLATION & OPERATING OVERVIEW

INSTALLATION & OPERATING INSTRUCTIONS
FRMA MULTI-PUMP STATION

FEATURES

F. R. Mahony & Associates, Inc. in collaboration with **Environment One Corporation** has developed a unique and effective mid-sized package lift station offering. This offering is built on the benefits of the semi-positive displacement pressure sewer concept that has been proven to be successful in over 50 years of worldwide installations. Pressure sewer systems have evolved from the early days of Low-Pressure Sewers in many ways. This technology is no longer limited to single family households with limited access to public sewers. Entire communities have found pressure sewers to be a solution to costly gravity sewers, costly lift station systems as well as for replacement of failing "conventional" gravity or pump station systems.

Small diameter pressure sewers utilizing a true high torque grinder pump provide options that allow designers to solve wastewater collection problems that do not fit the "conventional" solutions of the past. The semi-positive displacement pumps utilized in these stations allow for successful operation over a wide range of head and flow conditions. The Multi-Pump offering allows for operation of smaller horsepower pumps that operate as the demand changes. This makes for greater energy efficiency with lower cost electrical demands.

In the past, pump selection for these older systems has been based on a peak flow condition to allow for capacity to handle these sometimes-rare conditions that require systems to transfer wastewater away from the lift station. This can result in selection of oversized pumps that may not perform as well during low flow or normal flow periods. Larger centrifugal pumps are more appropriately used when the flow range is within relatively consistent operating ranges. Small and mid-sized pumping stations make this more challenging and usually sacrifice efficiency or require oversizing the lift station to permit the pump to operate within acceptable conditions.

FRMA has developed the Multi-Pump station to meet the variable conditions of the smaller and mid-sized demands. Low flow, high torque grinder pumps allow for small discharge lines with improved line scour and reduced retention times. Costs of installation and maintenance are therefore greatly reduced.

Incorporated in these stations are smart control systems linked to SCADA monitoring to allow for reductions in labor otherwise required for routine inspection of the lift stations. These systems allow for continuous monitoring of pump cycles, runtimes, amperage draw, wet well level as well as reporting of alarm conditions. The SCADA monitoring can be through cellular or satellite connection avoiding the cost of dedicated phone lines. Reporting is to any web capable system, such as smart phone, laptop, tablet or desk top computer. The reporting can link to larger SCADA systems as well.
Alarms are monitored and sent to personnel through text, pager, and voice and uploaded to web enabled devices. Reports are easily accessed through web enabled devices and are downloadable in Excel format for use in reporting documentation. Or simply view the status online at any time.

GENERAL

The following instruction guide is intended to supplement approved engineering plans and approved shop submittals. For specific details for your application please refer to the approved design plans and approved submittals.

The Multipump package is designed to accommodate 3 pumps in a single basin or wetwell. The system requires field installation (by others) of inlets and discharge lines, field wiring and installation of pumps. The Multipump system is designed to meet specific flow needs. These

stations allow for operation of as few as one (1) pump or as many as four (4) pumps depending on the station loads. These stations are suited for low to intermediate flow ranges with fluctuating flow cycles. Pumps are rated to operate at head conditions from negative head to 185 feet TDH.

The Multipump can be configured with as few as one to two pumps and up to four (4) pumps in total. *(Consideration must be given to flow rate and basin size for proper wet well mixing).* The station discharge header allows for connection of as many pumps as may be needed in present conditions; and allows for expansion by addition of one (1) or more pumps as conditions change. The Multipump alarm/control panel is also configured to operate from one (1) to four (4) pump(s). Pumps are auto sequenced by the panel controller, allowing for even wear on all pumps in the basin. (*see controls section for more details*)

The basin is typically made from high quality reinforced fiberglass materials. The tank, top lid, internal safety grate, fillet bottom, reinforced anti-floatation collar are fully assembled prior to delivery. Discharge pipe flange generally will be installed prior to shipment unless called out differently in the approved submittal documents. Inlet penetrations for gravity inlet(s), conduit inlet(s), and vent inlets may be pre-mounted as shown in the approved submittal documents or they may be shipped loose for field installation when greater flexibility is required.

All field installed inlets are by the installing contractor unless otherwise pre-arranged.
Inlet connections may be made with several options meeting the pipe material and application. Consult the approved design plans and approved submittals for specific materials.

CONTRACTOR SCOPE

Shall include all construction related activity including permits, excavation and installation and final connection of wet well inlet and discharge piping, field wiring including electrical supply, final connection of pump discharge lines to the discharge header; assembly of pumps and discharge hose and installation in wet well, vent piping, conduits, electrical backer boards, panel mounts, float brackets, additional H-20 supporting, bollards or other site work as may be required in the approved plans and submittals. Work shall include conformance to all safety requirements for trench and confined space requirements.

MANUFACTURER SCOPE

All items listed are in general supplied with each assembly. The contractor must verify actual items with the shipping BOM and scope of supply for each project.

General Configuration:

1. Wet well basin. Precast Concrete Tank Provided by Others.

2. Pumps. 1,2,3,4 Environment One W-Series 1-Hp Grinder pump assemblies with ring stands, 1-1/4-inch SCHEDULE 80 PVC Union Ball Valves, 1-1/4-inch discharge hoses (variable lengths) with slide face connector for discharge header

3. Control Panel. Triplex/Quadriplex control panel with built-in monitoring package (when specified), 4-Pump Disconnect Junction Box, level transducer (shipped loose), SPEED-E-

CONNECT™ control duty back up floats (shipped loose), SPEED-E-CONNECT™ float header with cable, header bracket, SS pump cable hanger bracket (shipped loose).

4. Float Tethering System. 3/16 Stainless-steel cable or chain with anchor, shackles to attach redundant floats as shown in **Figure-1,** page 26.

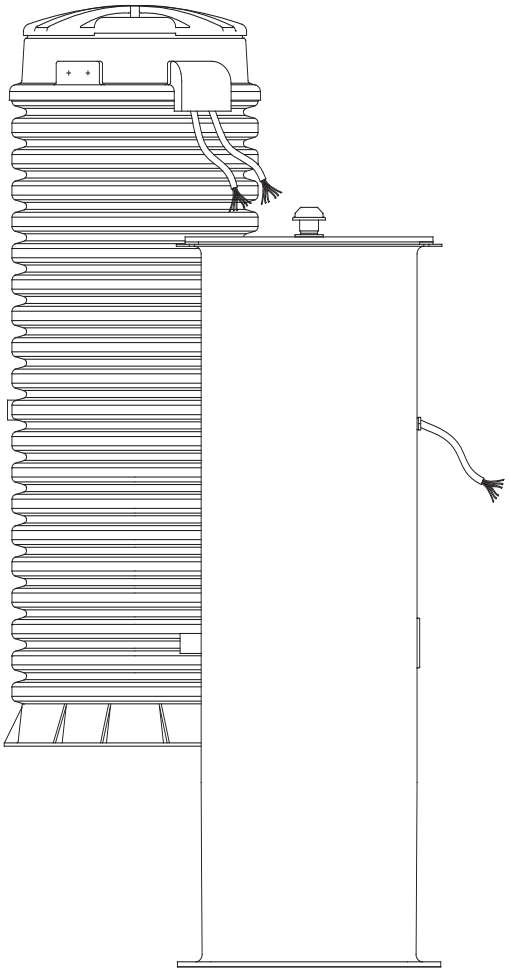
5. Discharge Lateral Assembly. (1) 1-1/2 inch Discharge whip (1-1/2 inch SS MIPT by plain end SDR 11 HDPE, 1-1/2 inch pipe), (1) Stainless Steel Uni-lateral curb stop/check valve assembly with (2) MIPT by compression adapters, (1) valve box with cast iron cover marked "SEWER".
(Assembly to be located outside of the wet well in line with the discharge force main.)

6. Startup assistance. Includes onsite training and installer assistance, station startup, monitoring website set up (when specified).

7. Installation instructions and operation and maintenance manuals.

FRMA QUADRIPLEX STATION COMPONENTS AND DETAILS

E/ONE EXTREME SERIES



W-Series Wetwell Grinder Pumps

Typical Specifications

Semi-Positive Displacement Type Grinder Pumps

SECTION: GRINDER PUMPS

1.0 General

1.01 GENERAL DESCRIPTION: The **MANUFACTURER** shall furnish complete factory-built and tested grinder pump unit(s), each consisting of a grinder pump core suitably mounted on an integral stand of stainless steel, tank, electrical quick disconnect (NEMA 6P), pump removal harness, discharge assembly/shut-off valve, anti-siphon valve/check valve assembly, electrical alarm assembly and all necessary internal wiring and controls. For ease of serviceability, all pump motor/grinder units shall be of like type and horsepower throughout the system.

1.02 MANUFACTURER: Grinder pump stations, complete with all appurtenances, form an integral system, and as such, shall be supplied by one grinder pump station manufacturer. The **CONTRACTOR** shall be responsible for the satisfactory operation of the entire system. The equipment specified shall be a product of a company experienced in the design and manufacture of grinder pumps for specific use in low pressure sewage systems. The company shall submit detailed installation and user instructions for its product, submit evidence of an established service program including complete parts and service manuals, and be responsible for maintaining a continuing inventory of grinder pump replacement parts. The **MANUFACTURER** shall provide, upon request, a reference and contact list from ten of its largest contiguous grinder pump installations of the type of grinder pumps described within this specification.

The **MANUFACTURER** of the grinder pump station shall be Environment One Corporation (or Proposed Alternate).

Attention is directed to the fact that the drawings and overall system design are based on a particular piece of equipment from a particular manufacturer. These specifications are intended to provide guidelines for standard equipment of a recognized manufacturer who already meets all the requirements of this specification.

1.03 OPERATING CONDITIONS: The pumps shall be capable of delivering 15 GPM against a rated total dynamic head of 0 feet (0 PSIG), 11 GPM against a rated total dynamic head of 92 feet (40 PSIG), and 7.8 GPM against a rated total dynamic head of 185 feet (80 PSIG). The pump(s) must also be capable of operating at negative total dynamic head without overloading the motor(s). Under no conditions shall in-line piping or valving be allowed to create a false apparent head.

2.0 PRODUCT

2.01 PUMP: The pump shall be a custom designed, integral, vertical rotor, motor driven, solids handling pump of the **progressing cavity type** with a single mechanical seal. Double radial O-ring seals are required at all casting joints to minimize corrosion and create a protective barrier. All pump castings shall be cast iron, fully epoxy coated to 8-10 mil Nominal dry thickness, wet applied. The rotor shall be through-hardened, highly polished, precipitation hardened stainless steel. The stator shall be of a specifically compounded ethylene propylene synthetic elastomer. This material shall be suitable for domestic wastewater service. Its physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, excellent aging properties, and outstanding wear resistance. Buna-N is not acceptable as a stator material because it does not exhibit the properties as outlined above and required for wastewater service.

2.02 GRINDER: The grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece motor shaft. The grinder impeller (cutter wheel) assembly shall be securely fastened to the pump motor shaft by means of a threaded connection attaching the grinder impeller to the motor shaft. Attachment by means of pins or keys will not be acceptable. The grinder impeller shall be a one-piece, 4140 cutter wheel of the rotating type with inductively hardened cutter teeth. The cutter teeth shall be inductively hardened to Rockwell 50 – 60c for abrasion resistance. The

shredder ring shall be of the stationary type and the material shall be white cast iron. The teeth shall be ground into the material to achieve effective grinding. The shredder ring shall have a staggered tooth pattern with only one edge engaged at a time, maximizing the cutting torque. These materials have been chosen for their capacity to perform in the intended environment as they are materials with wear and corrosive resistant properties.

This assembly shall be dynamically balanced and operate without objectionable noise or vibration over the entire range of recommended operating pressures. The grinder shall be constructed so as to minimize clogging and jamming under all normal operating conditions including starting. Sufficient vortex action shall be created to scour the tank free of deposits or sludge banks which would impair the operation of the pump. These requirements shall be accomplished by the following, in conjunction with the pump:

1. The grinder shall be positioned in such a way that solids are fed in an upward flow direction.

2. The maximum flow rate through the cutting mechanism must not exceed 4 feet per second. This is a critical design element to minimize jamming and as such must be adhered to.

3. The inlet shroud shall have a diameter of no less than 5 inches. Inlet shrouds that are less than 5 inches in diameter will not be accepted due to their inability to maintain the specified 4 feet per second maximum inlet velocity which by design prevents unnecessary jamming of the cutter mechanism and minimizes blinding of the pump by large objects that block the inlet shroud.

4. The impeller mechanism must rotate at a nominal speed of no greater than 1800 rpm.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of “foreign objects,” such as paper, wood, plastic, glass, wipes, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1-1/4" diameter stainless steel discharge piping.

2.03 ELECTRIC MOTOR: As a maximum, the motor shall be a 1 HP, 1725 RPM, 240 Volt 60 Hertz, 1 Phase, capacitor start, ball bearing, air-cooled induction type with Class F installation, low starting current not to exceed 30 amperes and high starting torque of 8.4 foot pounds. The motor shall be press-fit into the casting for better heat transfer and longer winding life. Inherent protection against running overloads or locked rotor conditions for the pump motor shall be provided by the use of an automatic-reset, integral thermal overload protector incorporated into the motor. This motor protector combination shall have been specifically investigated and listed by Underwriters Laboratories, Inc., for the application. Non-capacitor start motors or permanent split capacitor motors will not be accepted because of their reduced starting torque and consequent diminished grinding capability. The wet portion of the motor armature must be 300 Series stainless. To reduce the potential of environmental concerns, the expense of handling and disposing of oil, and the associated maintenance costs, oil-filled motors will not be accepted.

2.04 MECHANICAL SEAL: The pump/core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.

2.05 DISCHARGE HOSE AND DISCONNECT/VALVE: All discharge fittings and piping shall be constructed of polypropylene, EPDM or PVC. The discharge hose assembly shall include a shut-off valve rated for 200 psi WOG and a quick disconnect feature to simplify installation and pump removal. The bulkhead penetration shall be factory installed and warranted by the manufacturer to be watertight.

2.06 ELECTRICAL QUICK DISCONNECT: The grinder pump core shall include a factory-installed NEMA 6P electrical quick disconnect (EQD) for all power and control functions. The EQD will be supplied with 32’, 25’ of useable, electrical supply cable (ESC) to connect to the alarm panel. The EQD shall require no tools for assembly, seal against water before the electrical connection is made, and include radial seals to assure a watertight seal regardless of tightening torque. Plug-type connections of the power

cable onto the pump housing will not be acceptable due to the potential for leaks and electrical shorts. Junction boxes are not acceptable due to the large number of potential leak points. The EQD shall be so designed to be conducive to field wiring as required.

2.07 CHECK VALVE: The pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve built into the discharge piping. The check valve will provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow. Moving parts will be made of a 300 Series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly providing a maximum degree of freedom to assure seating even at a very low back-pressure. The valve body shall be an injection molded part made of an engineered thermoplastic resin. The valve shall be rated for continuous operating pressure of 235 psi. Ball-type check valves are unacceptable due to their limited sealing capacity in slurry applications.

2.08 ANTI-SIPHON VALVE: The pump discharge shall be equipped with a factory-installed, gravity-operated, flapper-type integral anti-siphon valve built into the discharge piping. Moving parts will be made of 300 Series stainless steel and fabric-reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly, providing a maximum degree of freedom to ensure proper operation even at a very low pressure. The valve body shall be injection-molded from an engineered thermoplastic resin. Holes or ports in the discharge piping are not acceptable anti-siphon devices due to their tendency to clog from the solids in the slurry being pumped. The anti-siphon port diameter shall be no less than 60% of the inside diameter of the pump discharge piping.

2.09 CORE UNIT: The grinder pump station shall have an easily removable core assembly containing pump, motor, grinder, all motor controls, check valve, anti-siphon valve, electrical quick disconnect and wiring. The watertight integrity of the core unit shall be established by a 100% factory test at a minimum of 5 PSIG.

2.10 SERVICEABILITY: The grinder pump core, shall have two lifting hooks complete with lift-out harness connected to its top housing to facilitate easy core removal when necessary. All mechanical and electrical connections must provide easy disconnect capability for core unit removal and installation. Each EQD half must include a water-tight cover to protect the internal electrical pins while the EQD is unplugged. A pump push-to-run feature will be provided for field trouble shooting. The push-to-run feature must operate the pump even if the level sensor assembly has been removed from the pump assembly. All motor control components shall be mounted on a readily replaceable bracket for ease of field service.

2.11 OSHA CONFINED SPACE: All maintenance tasks for the grinder pump station must be possible without entry into the grinder pump station (as per OSHA 1910.146 Permit-required confined spaces). *“Entry means the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant’s body breaks the plane of an opening into the space.”*

2.12 SAFETY: The grinder pump shall be free from electrical and fire hazards as required in a residential environment. As evidence of compliance with this requirement, the completely assembled and wired grinder pump station shall be listed by Underwriters Laboratories, Inc., to be safe and appropriate for the intended use. UL listing of components of the station, or third-party testing to UL standard are not acceptable.

The grinder pump shall meet accepted standards for plumbing equipment for use in or near residences, shall be free from noise, odor, or health hazards, and shall have been tested by an independent laboratory to certify its capability to perform as specified in either individual or low pressure sewer system applications. As evidence of compliance with this requirement, the grinder pump shall bear the seal of NSF International. Third-party testing to NSF standard is not acceptable.

3.0 EXECUTION

3.01 FACTORY TEST: Each grinder pump shall be submerged and operated for 1.5 minutes (minimum). Included in this procedure will be the testing of all ancillary components such as, the anti-siphon valve, check valve, discharge assembly and each unit's dedicated level controls and motor controls. All factory tests shall incorporate each of the above listed items. Actual appurtenances and controls which will be installed in the field shall be particular to the tested pump only. A common set of appurtenances and controls for all pumps is not acceptable. Certified test results shall be available upon request showing the operation of each grinder pump at two different points on its curve. Additional validation tests include: integral level control performance, continuity to ground and acoustic tests of the rotating components.

The **ENGINEER** reserves the right to inspect such testing procedures with representatives of the **OWNER,** at the **GRINDER PUMP MANUFACTURER'S** facility.

3.02 CERTIFIED SERVICE PROGRAM: The grinder pump **MANUFACTURER** shall provide a program implemented by the **MANUFACTURER'S** personnel as described in this specification to certify the service company as an authorized serviced center. As evidence of this, the **MANUFACTURER** shall provide, when requested, sufficient evidence that they have maintained their own service department for a minimum of 30 years and currently employ a minimum of five employees specifically in the service department.

As part of this program, the **MANUFACTURER** shall evaluate the service technicians as well as the service organization annually. The service company will be authorized by the **MANUFACTURER** to make independent warranty judgments. The areas covered by the program shall include, as a minimum:

1. Pump Population Information — The service company will maintain a detailed database for the grinder pumps in the territory that tracks serial numbers by address.

2. Inventory Management — The service company must maintain an appropriate level of inventory (pumps, tanks, panels, service parts, etc.) including regular inventory review and proper inventory labeling. Service technicians will also maintain appropriate parts inventory and spare core(s) on service vehicles.

3. Service Personnel Certification — Service technicians will maintain their level-specific certification annually. The certifications are given in field troubleshooting, repair, and training.

4. Service Documentation and Records — Start up sheets, service call records, and customer feedback will be recorded by the service company.

5. Shop Organization — The service company will keep its service shop organized and pumps will be tagged with site information at all times. The shop will have all required equipment, a test tank, and cleaning tools necessary to service pumps properly.

3.03 START-UP AND FIELD TESTING: The **MANUFACTURER** shall provide the services of qualified factory trained technician(s) who shall inspect the placement and wiring of each station, perform field tests as specified herein, and instruct the **OWNER'S** personnel in the operation and maintenance of the equipment before the stations are accepted by the **OWNER**.

All equipment and materials necessary to perform testing shall be the responsibility of the **INSTALLING CONTRACTOR.** This includes, as a minimum, a portable generator and power cable (if temporary power is required), water in each basin (filled to a depth sufficient to verify the high level alarm is

operating), and opening of all valves in the system. These steps shall be completed prior to the qualified factory trained technician(s) arrival on site.

The services of a trained, factory-authorized technician shall be provided at a rate of 40 hours for every 100 grinder pump stations supplied.

Upon completion of the installation, the authorized factory technician(s) will perform the following test on each station:

1. Make certain the discharge shut-off valve in the station is fully open.

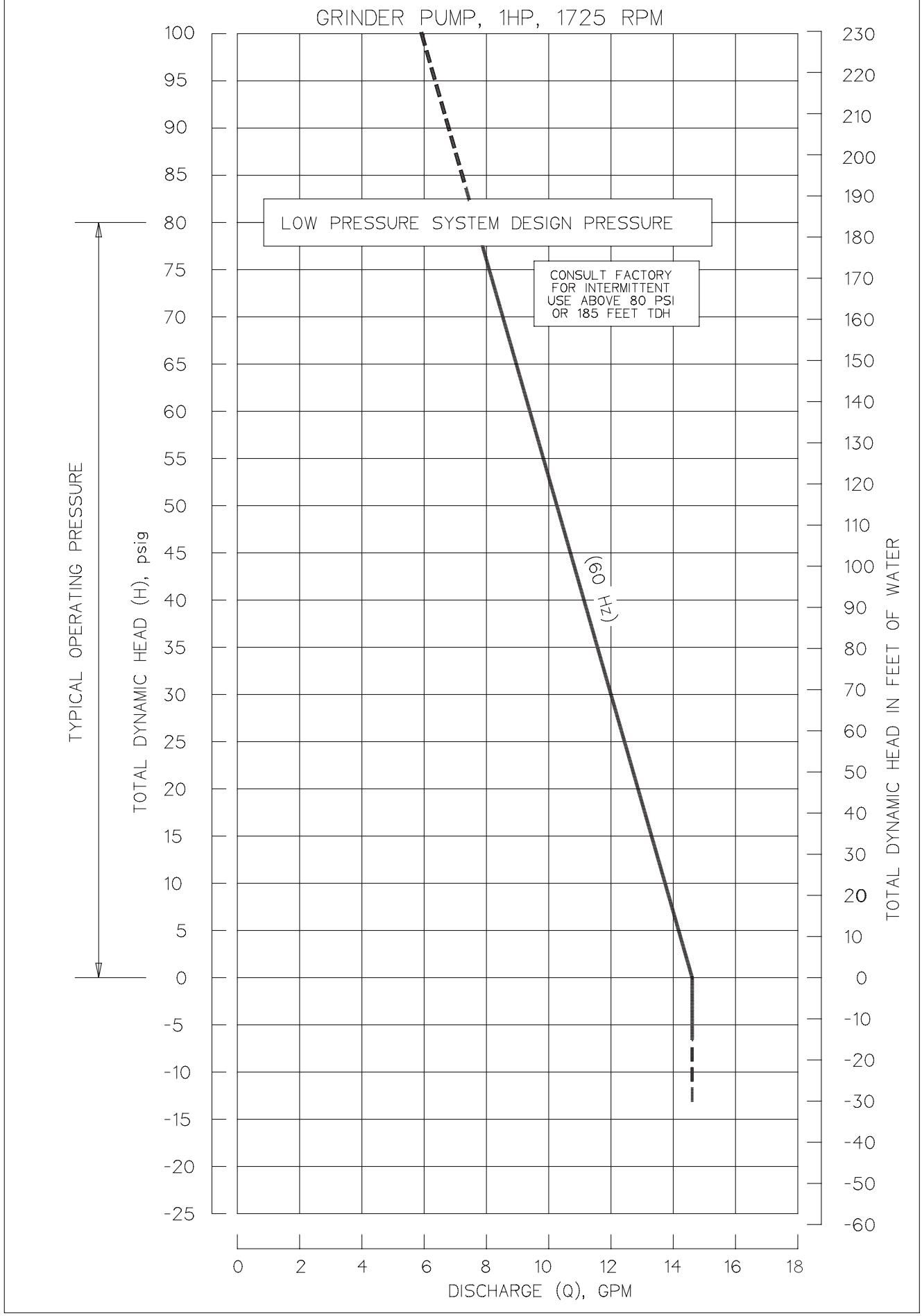
2. Turn ON the alarm power circuit and verify the alarm is functioning properly.

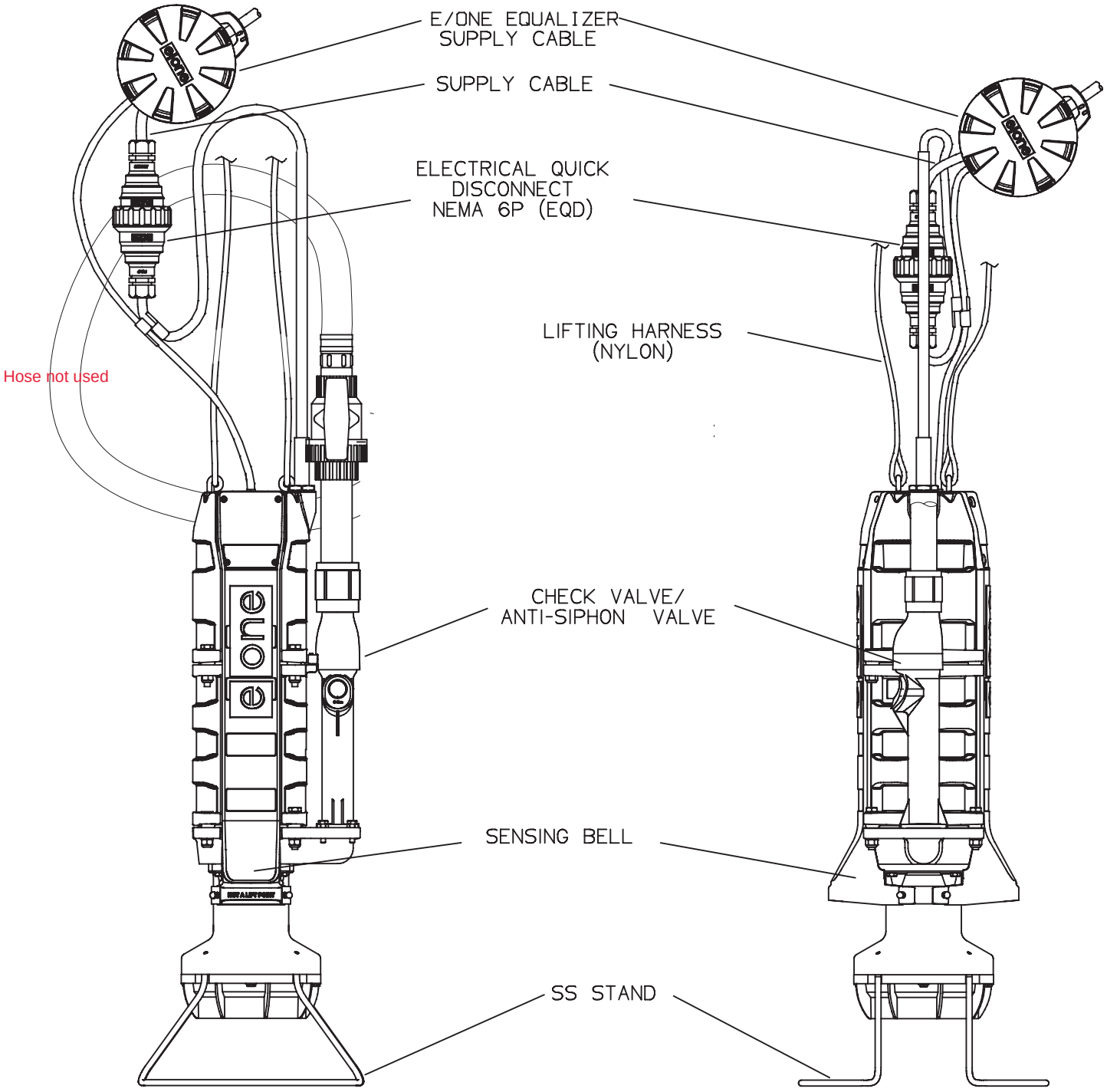
3. Turn ON the pump power circuit. Initiate the pump operation to verify automatic “on/off” controls are operative. The pump should immediately turn ON.

4. Consult the Manufacturer’s Service Manual for detailed start-up procedures.

Upon completion of the start-up and testing, the **MANUFACTURER** shall submit to the **ENGINEER** the start-up authorization form describing the results of the tests performed for each grinder pump station. Final acceptance of the system will not occur until authorization forms have been received for each pump station installed and any installation deficiencies corrected.

E|ONE SPD PUMP PERFORMANCE CURVE





W SERIES PUMP
W/OPTIONAL BALL VALVE

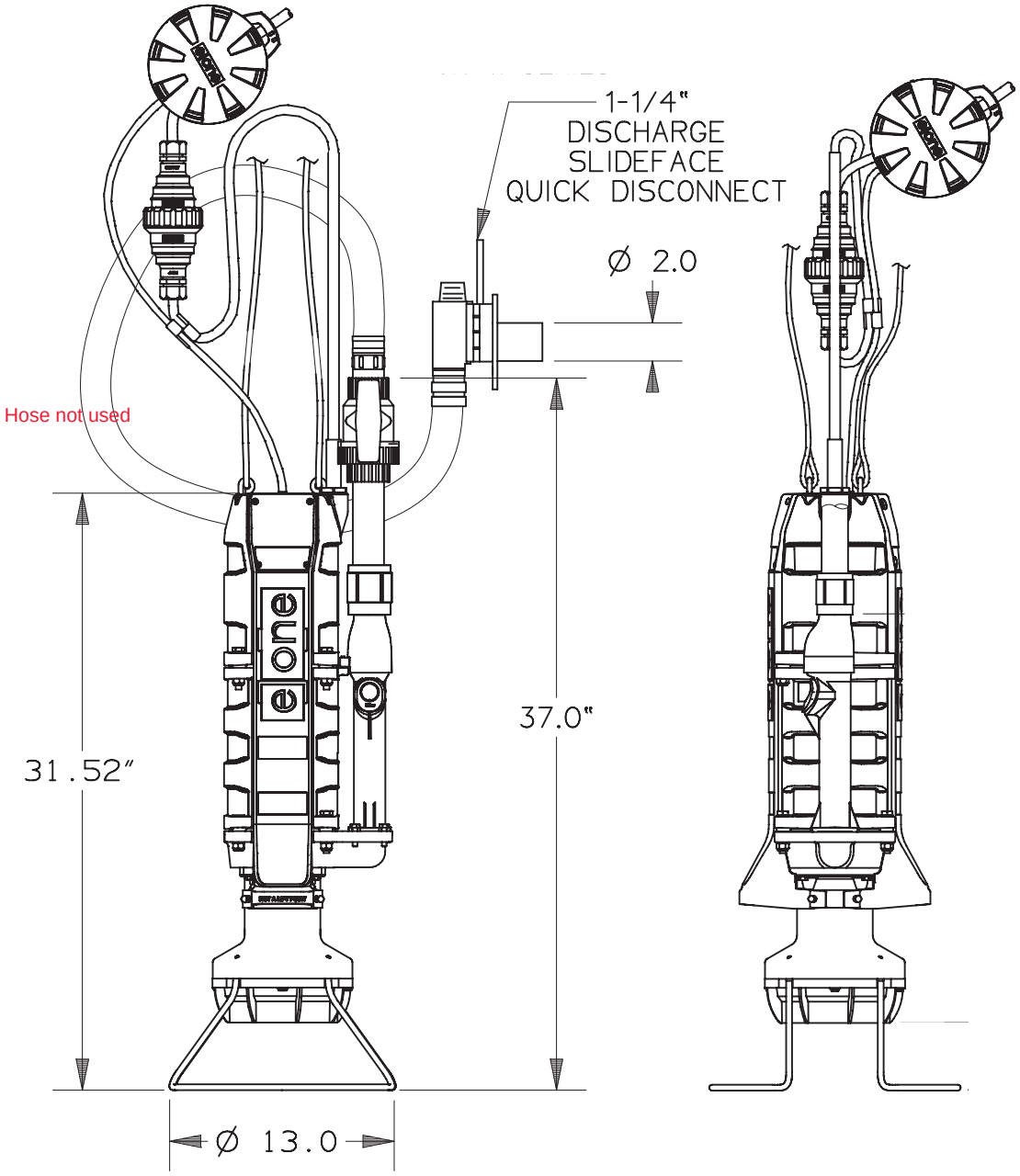
Operational Information
Motor: 1hp, 1725 rpm, high torque, capacitor start,
thermally protected, 240v, 60hz, 1 phase
Discharge: 15 gpm at 0 psig
11 gpm at 40 psig
7.8 gpm at 80 psig

SGS		06/02/08	2	1/16
DR BY	CHK'D	DATE	ISSUE	SCALE

environment one
CORPORATION

U & W SERIES PUMP
BALL VALVE AT THE PUMP

ESD 07-0157



DIMENSIONS ARE FOR REFERENCE ONLY

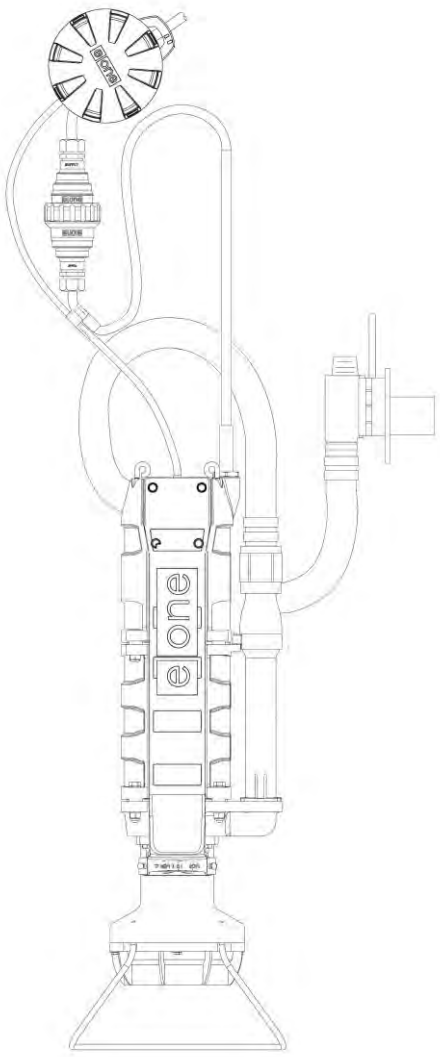
SGS		06/22/11	1	NOT TO SCALE
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

DIMENSION SHEET,
W SERIES, BALL VALVE AT PUMP

W SERIES
GRINDER PUMP

ESD 11-0100



Grinder Pump with Wired Level Sensor

Typical Specifications

Semi-Positive Displacement Type Grinder Pump

SECTION: GRINDER PUMP STATIONS

1.0 PRODUCT

1.01 PUMP: The pump shall be a custom designed, integral, vertical rotor, motor driven, solids handling pump of the **progressing cavity type** with a single mechanical seal. Double radial O-ring seals are required at all casting joints to minimize corrosion and create a protective barrier. All pump castings shall be cast iron, fully epoxy coated to 8-10 mil Nominal dry thickness, wet applied. The rotor shall be through-hardened, highly polished, precipitation hardened stainless steel. The stator shall be of a specifically compounded ethylene propylene synthetic elastomer. This material shall be suitable for domestic wastewater service. Its physical properties shall include high tear and abrasion resistance, grease resistance, water and detergent resistance, temperature stability, excellent aging properties, and outstanding wear resistance. Buna-N is not acceptable as a stator material because it does not exhibit the properties as outlined above and required for wastewater service.

1.02 GRINDER: The grinder shall be placed immediately below the pumping elements and shall be direct-driven by a single, one-piece motor shaft. The grinder impeller (cutter wheel) assembly shall be securely fastened to the pump motor shaft by means of a threaded connection attaching the grinder impeller to the motor shaft. Attachment by means of pins or keys will not be acceptable. The grinder impeller shall be a one-piece, 4140 cutter wheel of the rotating type with inductively hardened cutter teeth. The cutter teeth shall be inductively hardened to Rockwell 50 – 60c for abrasion resistance. The shredder ring shall be of the stationary type and the material shall be white cast iron. The teeth shall be ground into the material to achieve effective grinding. The shredder ring shall have a staggered tooth pattern with only one edge engaged at a time, maximizing the cutting torque. These materials have been chosen for their capacity to perform in the intended environment as they are materials with wear and corrosive resistant properties.

This assembly shall be dynamically balanced and operate without objectionable noise or vibration over the entire range of recommended operating pressures. The grinder shall be constructed so as to minimize clogging and jamming under all normal operating conditions including starting. Sufficient vortex action shall be created to scour the tank free of deposits or sludge banks which would impair the operation of the pump. These requirements shall be accomplished by the following, in conjunction with the pump:

1. The grinder shall be positioned in such a way that solids are fed in an upward flow direction.

2. The maximum flow rate through the cutting mechanism must not exceed 4 feet per second. This is a critical design element to minimize jamming and as such must be adhered to.

3. The inlet shroud shall have a diameter of no less than 5 inches. Inlet shrouds that are less than 5 inches in diameter will not be accepted due to their inability to maintain the specified 4 feet per second maximum inlet velocity which by design prevents unnecessary jamming of the cutter mechanism and minimizes blinding of the pump by large objects that block the inlet shroud.

4. The impeller mechanism must rotate at a nominal speed of no greater than 1800 rpm.

The grinder shall be capable of reducing all components in normal domestic sewage, including a reasonable amount of “foreign objects,” such as paper, wood, plastic, glass, wipes, rubber and the like, to finely-divided particles which will pass freely through the passages of the pump and the 1-1/4" diameter stainless steel discharge piping.

1.03 ELECTRIC MOTOR: As a maximum, the motor shall be a 1 HP, 1725 RPM, 240 Volt 60 Hertz, 1 Phase, capacitor start, ball bearing, air-cooled induction type with Class F insulation, low starting current not to exceed 30 amperes and high starting torque of 8.4 foot pounds. The motor shall be press-fit into the casting for better heat transfer and longer winding life. Inherent protection against running overloads or locked rotor conditions for the pump motor shall be provided by the use of an

automatic-reset, integral thermal overload protector incorporated into the motor. The motor protector shall be specifically investigated and listed by Underwriters Laboratories Inc. for the application. Non-capacitor start motors or permanent split capacitor motors will not be accepted because of their reduced starting torque and consequent diminished grinding capability. The wet portion of the motor armature must be 300 Series stainless steel. To reduce the potential of environmental concerns, the expense of handling and disposing of oil, and the associated maintenance costs, oil-filled motors will not be accepted. Pump operation during instances of potentially damaging high current or low voltage conditions shall be inhibited by an in-pump electrical monitoring system that has been investigated and listed by Underwriters Laboratories Inc. for the application. Motor start shall be controlled by a DC driven electromechanical relay integrated within the control compartment of the pump. Electrical monitoring shall ensure the relay operates reliably. AC Mechanical contactors for motor start are susceptible to damage from short cycling and will not be accepted.

1.04 MECHANICAL SEAL: The pump/core shall be provided with a mechanical shaft seal to prevent leakage between the motor and pump. The seal shall have a stationary ceramic seat and carbon rotating surface with faces precision lapped and held in position by a stainless steel spring.

1.05 ELECTRICAL QUICK DISCONNECT: The grinder pump core shall include a factory-installed NEMA 6P electrical quick disconnect (EQD) for all power and control functions. The EQD will be supplied with 32', 25' of useable, electrical supply cable (ESC) to connect to the alarm panel. The EQD shall require no tools for assembly, seal against water before the electrical connection is made, and include radial seals to assure a watertight seal regardless of tightening torque. Plug-type connections of the power cable onto the pump housing will not be acceptable due to the potential for leaks and electrical shorts. Junction boxes are not acceptable due to the large number of potential leak points. The EQD shall be so designed to be conducive to field wiring as required.

1.06 CHECK VALVE: The pump discharge shall be equipped with a factory installed, gravity operated, flapper-type integral check valve built into the discharge piping. The check valve will provide a full-ported passageway when open, and shall introduce a friction loss of less than 6 inches of water at maximum rated flow. Moving parts will be made of a 300 Series stainless steel and fabric reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly providing a maximum degree of freedom to assure seating even at a very low back-pressure. The valve body shall be an injection molded part made of an engineered thermoplastic resin. The valve shall be rated for continuous operating pressure of 235 psi. Ball-type check valves are unacceptable due to their limited sealing capacity in slurry applications.

1.07 ANTI-SIPHON VALVE: The pump discharge shall be equipped with a factory-installed, gravity-operated, flapper-type integral anti-siphon valve built into the discharge piping. Moving parts will be made of 300 Series stainless steel and fabric-reinforced synthetic elastomer to ensure corrosion resistance, dimensional stability, and fatigue strength. A nonmetallic hinge shall be an integral part of the flapper assembly, providing a maximum degree of freedom to ensure proper operation even at a very low pressure. The valve body shall be injection-molded from an engineered thermoplastic resin. Holes or ports in the discharge piping are not acceptable anti-siphon devices due to their tendency to clog from the solids in the slurry being pumped. The anti-siphon port diameter shall be no less than 60% of the inside diameter of the pump discharge piping.

1.08 CORE UNIT: The grinder pump station shall have an easily removable core assembly containing pump, motor, grinder, all motor controls, check valve, anti-siphon valve, electrical quick disconnect and wiring. The watertight integrity of the core unit shall be established by a 100% factory test at a minimum of 5 PSIG.

2.0 EXECUTION

2.01 FACTORY TEST: Each grinder pump shall be submerged and operated for 1.5 minutes (minimum). Included in this procedure will be the testing of all ancillary components such as, the anti-siphon valve, check valve, discharge assembly and each unit’s dedicated level controls and motor controls. All factory tests shall incorporate each of the above listed items. Actual appurtenances and controls which will be installed in the field shall be particular to the tested pump only. A common set of appurtenances and controls for all pumps is not acceptable. Certified test results shall be available upon request showing the operation of each grinder pump at two different points on its curve. Additional validation tests include: integral level control performance, continuity to ground and acoustic tests of the rotating components.

The **ENGINEER** reserves the right to inspect such testing procedures with representatives of the **OWNER,** at the **GRINDER PUMP MANUFACTURER’S** facility.

2.02 DELIVERY: All grinder pump core units shall be delivered to the job site with the level controls completely assembled/attached and integrated with the pump core including wiring and factory testing. Level controls not assembled/factory wired to the pump core will not be accepted due to the potential workmanship issues that are associated with field assembly and associated wire connections. Grinder pump cores must also be boxed for ease of handling.

2.03 START-UP AND FIELD TESTING: The **MANUFACTURER** shall provide the services of qualified factory trained technician(s) who shall inspect the placement and wiring of each station, perform field tests as specified herein, and instruct the **OWNER’S** personnel in the operation and maintenance of the equipment before the stations are accepted by the **OWNER**.

All equipment and materials necessary to perform testing shall be the responsibility of the **INSTALLING CONTRACTOR.** This includes, as a minimum, a portable generator and power cable (if temporary power is required), water in each basin (filled to a depth sufficient to verify the high level alarm is operating), and opening of all valves in the system. These steps shall be completed prior to the qualified factory trained technician(s) arrival on site.

The services of a trained, factory-authorized technician shall be provided at a rate of 40 hours for every 100 grinder pump stations supplied.

Upon completion of the installation, the authorized factory technician(s) will perform the following test on each station:

1. Make certain the discharge shut-off valve in the station is fully open.

2. Turn ON the alarm power circuit and verify the alarm is functioning properly.

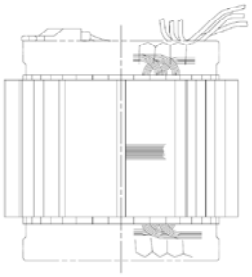
3. Turn ON the pump power circuit. Initiate the pump operation to verify automatic “on/off” controls are operative. The pump should immediately turn ON.

4. Consult the manufacturer’s service manual for detailed start-up procedures.

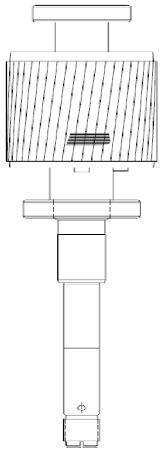
Upon completion of the start-up and testing, the **MANUFACTURER** shall submit to the **ENGINEER** the start-up authorization form describing the results of the tests performed for each grinder pump station. Final acceptance of the system will not occur until authorization forms have been received for each pump station installed and any installation deficiencies corrected.

Motor Data 120V/240V

(as it perfoms in an E/One Grinder Pump)

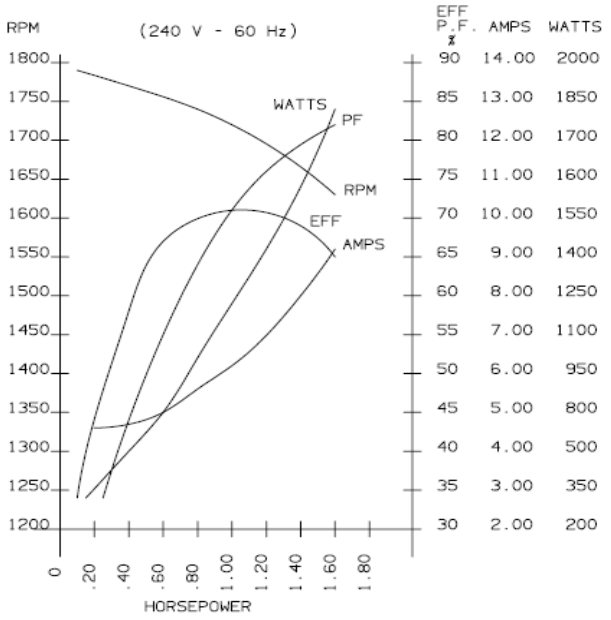


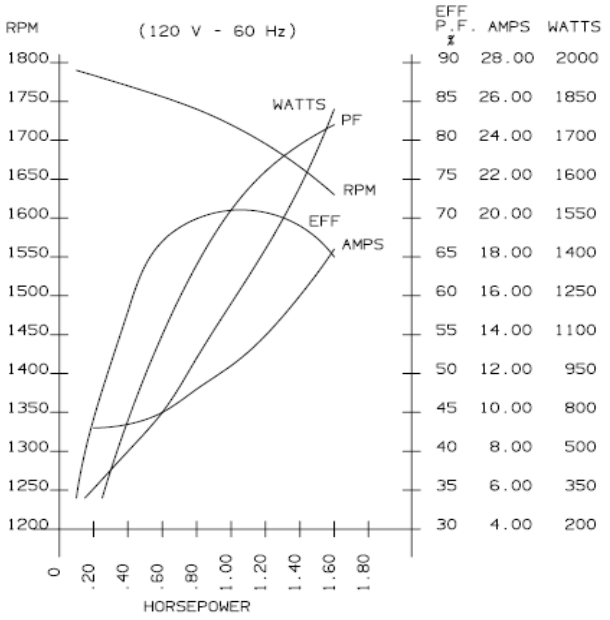
Volts	120/240
Hertz	60
RPM	1725
FL Amps	16/8
Service Factor	1
Phase	1
KVA Code	H
Insulation Class	F
Frame	48
Duty	Continuous
Rotation (LE)	CW
Start Capacitor	475 MFD
MAX Ambient	40°C
NEMA Design Type	L



TYPICAL MOTOR PERFORMANCE

	NO LOAD (0 PSI)		FULL LOAD (80 PSI)		LOCKED ROTOR (CLOSED VALVE)	
	120V	240V	120V	240V	120V	240V
Volts	120	240	120	240	120	240
Watts	720	720	1520	1520	6662	6662
Amps	11.4	5.7	16	8	45	30
RPM	1795	1795	1720	1720	0	0
Torque	-	-	36.6	36.6	109.9	109.9
Efficiency	-	-	0.71	0.71	-	-
Power Factor	0.19	0.19	0.71	0.71	0.95	0.95

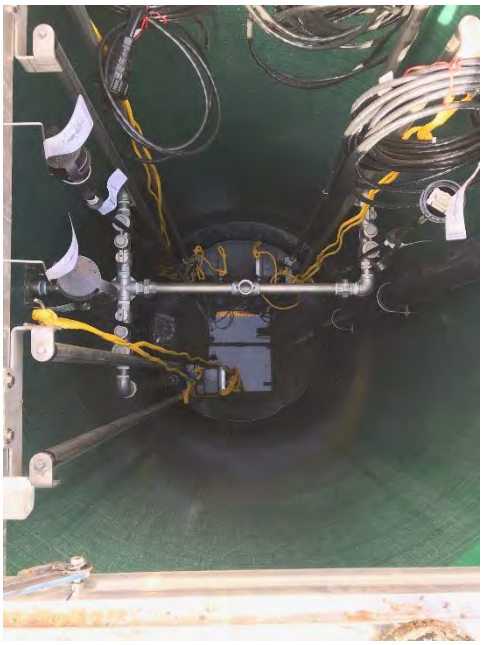


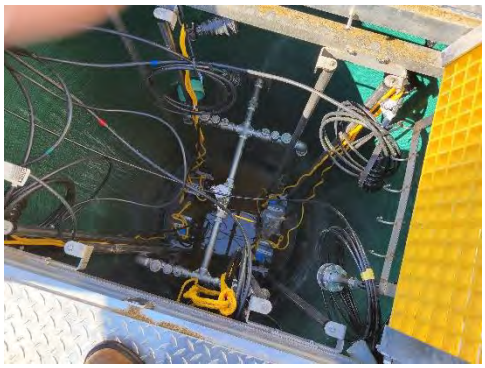


PUMP DISCHARGE HEADER

The pump discharge header connects to the stainless-steel full coupling mounted in the tank (as described above). The header is pre-assembled and installed within the basin along with hard-plumbed stainless steel discharge piping.
Headers may be configured as Triplex or as a full Quadruplex header.

HEADER CONFIGURATIONS





<u>Altering or reconnecting fittings:</u>

All pipe thread connections are to be clean and dry. Use three wraps of Teflon tape and Teflon paste on all threaded connections. Use caution when tightening PVC fittings

FINAL GRADING – WET WELL



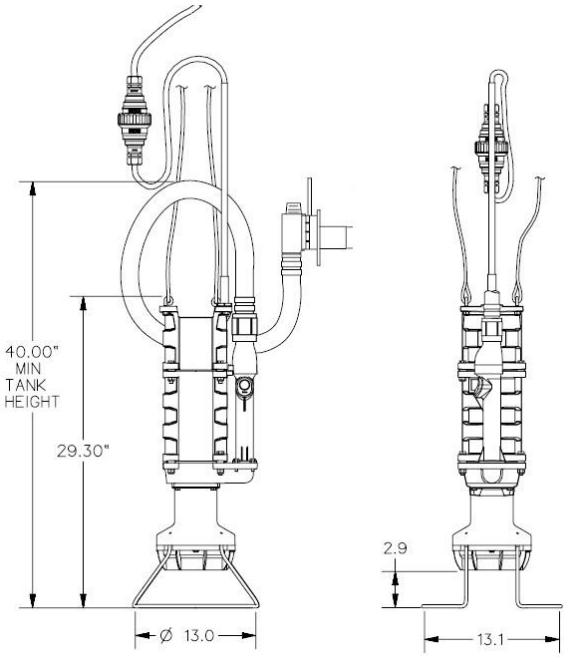
Final grading of the pump chamber requires that the top be above final grade to avoid inflow into the accessway.

Covers must be protected from traffic loads. Locate tanks out of travelled ways, protect with bollards, curbing or other suitable devices.

The station view (left) shows the station vent and disconnect junction box in the rear.

PUMP ASSEMBLY INSTALLATION

Pump cores include the motor, pump end as a full assembly. Pump cores are furnished as E/One W-Series wired to a manual pump mode. Control of pumps and the sequencing of the pump operation will be discussed in the Multi-Pump Control/Alarm Panel section.



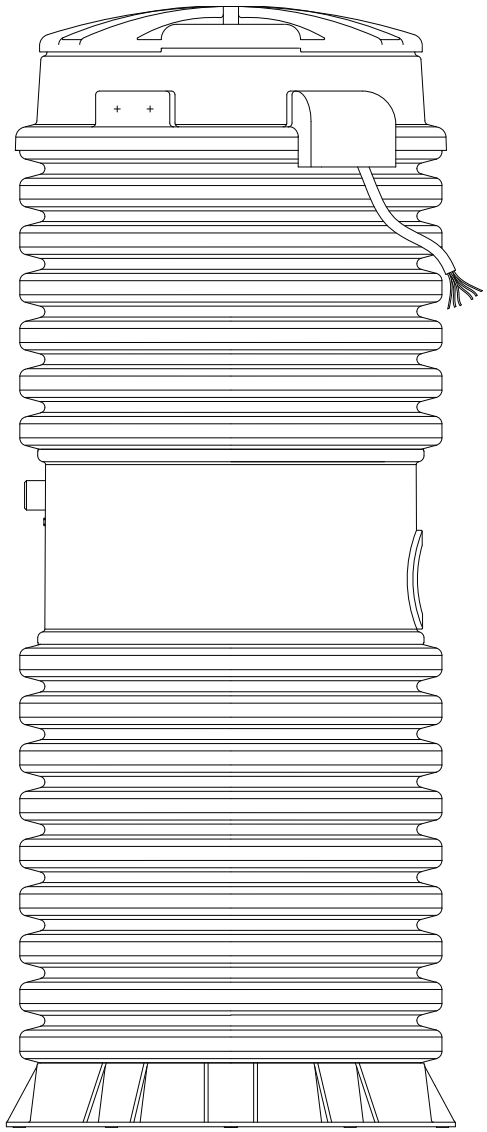
Included in the scope of supply:
(3) E/One® Grinder Pump Cores - Manual Run Configuration. (See Panel Wiring)
(3) Conery base adapter.

Note: Power supply assembly provided for field wiring by installing contractor's electrician. Cable to be fed from wet well to disconnect junction box panel via electrician furnished and installed conduit.

*Flexible hoses are not used in this application. Pump discharges are hard-piped

ENVIRONMENT ONE SERVICE MANUAL

E/ONE EXTREME SERIES



Service Manual

E/One Extreme Grinder Pumps

240V, 60 Hz • Hardwired Controls

Contents

Chapter 1 — Introduction **1-1**
About E/One Model Names 1-1
Basic Operation 1-2
Safety Warnings 1-2

Chapter 2 — Troubleshooting **2-1**
Site Survey — Alarm Panel 2-1
Supply Voltage Checks 2-2
Buck Boost Transformer — 240V Application 2-4
Continuity Test 2-4
Megohmmeter/Cable Insulation Integrity Check 2-4
Amperage Checks 2-7
Site Survey — Tank 2-8
Troubleshooting 2-9

Chapter 3 — Pump Removal and Replacement **3-1**
D-Series Stations 3-1
W-Series and Upgrade Stations 3-2
IH Station (Indoor Unit) 3-2

Chapter 4 — Start-Up Procedure **4-1**
Station Inspection 4-1
Alarm Panel Inspection 4-1
Voltage, Continuity and Cable Insulation Integrity Tests 4-1
Run Test 4-2

Chapter 5 — Pump End **5-1**
Removing the Pump Stator 5-1
Pump Stator Inspection 5-3
Swollen Pump Stator 5-4
Inspecting a Pump Rotor 5-5
Removing the Pump Rotor 5-6
Assembling the Pump/Grinder Mechanism 5-6

Chapter 6 — Electrical Quick Disconnect (EQD) **6-1**
Disassembling the EQD 6-1
Reassembling the EQD 6-2
EQD Retrofit: 2000 Series to Extreme Series 6-3
EQD Retrofit: 200 Series to Extreme Series 6-4

Chapter 7 — Top Housing **7-1**
D-Series Top Housing Removal 7-1
Discharge (Candy Cane) Removal 7-2
D-Series Top Housing Reassembly and Installation 7-3
IH Station Top Housing Removal 7-4
IH Station Top Housing Replacement 7-5
IH Station Top Housing Reassembly and Installation 7-5
Cable Replacement 7-6

Chapter 8 — Level Sensor **8-1**
Level Sensor Removal 8-1
Level Sensor Test Procedure 8-1

Level Sensor Leak Troubleshooting & Repair 8-2
Level Sensor Disassembly 8-2
Column Leak Test 8-4
Level Sensor Reassembly 8-4
Equalizer Field Reset — Original Style (May 2012 & Earlier) 8-6
Equalizer Field Reset — New Style (May 2012 to Present) 8-8

Chapter 9 — Control Cavity 9-1
Removing the Control Housing 9-1
Motor Contactor and Controls 9-2
Motor Cavity Water Test 9-4
Motor Windings Test 9-5
Control Housing Installation 9-6

Chapter 10 — Motor Cavity 10-1
Core and Motor Disassembly 10-1
Motor Drying Techniques 10-2

Chapter 11 — Mechanical Seal Assembly 11-1
Installing the Mechanical Seal 11-1

Chapter 12 — Final Test Procedures 12-1
Leak Tests 12-1
Test Run 12-3
Amperage Draw Test 12-3

Chapter 1 — Introduction

This manual contains information about servicing, rebuilding and troubleshooting E/One Extreme Series grinder pumps. A thorough understanding of these products will save valuable time when troubleshooting and repairing E/One grinder pumps.

About E/One Model Names

This manual contains information specific to the hardwired model. The flag tag on the pump cable will include “H” for hardwired pumps or “R” for wireless pumps. For manuals for wireless (DR and WR) pumps or explosionproof (DX and WX) pumps, contact your local distributor or E/One Field Service at 518.346.6161 or ssbfieldservice@eone.com.

Each station name is made up several identifiers. For example, the model DH272:

D: D-Series (stations that feature a drywell, or dry accessway)

H: Hardwired level control connection

27: Refers to the number of gallons of capacity; the first two numbers are used

2: Number of pumps installed

Extreme Series Grinder Pump Stations

						
Hardwired	IH091	DH071	DH151	DH152	DH272	DH502
Wireless	N/A	DR071	DR151	DR152	DR272	DR502
						
Hardwired	WH101	WH231	WH471, WH472	WH482, WH483, WH484	Gatorgrinder or W-Series Fiberglass (WH)	
Wireless	WR101	WR231	WR471, WR472	WR482, WH483, WH484	WR; Gatorgrinder is GH only	

Table 1-1

Basic Operation

The grinder pump is designed to grind and pump domestic sewage. The pump is a semi-positive displacement, progressing cavity pump. The grinder pump consists of a pump assembly with an integral sewage grinder and shredder device. The pump traps a column of air in the sensing bell for the on-off pressure switch. When water in the tank reaches the normal turn-on level, the pressure in the sensing line closes the electrical contact points. The relay coil is energized and the relay contact points close, providing electrical power to the pump motor. When the motor starts and runs, the grinder pulverizes any solids. The slurry is then pumped until the liquid in the tank is lowered to the shut-off level. This reduces pressure on the diaphragm of the on-off switch, which opens the electrical contacts and removes power from the motor.

In the event of a pump failure, the liquid in the basin rises and activates an alarm pressure switch. The electrical contacts close, activating the alarm indicator (light and/or buzzer). The alarm alerts the homeowner about a pump problem.

Safety Warnings

A **Caution** statement in this manual designates a situation that could cause equipment failure or damage. Follow the proper safety procedures as described in the instructions.

A **Warning** statement in this manual designates a situation that can cause bodily harm and/or equipment damage. Follow the proper safety procedures as described in the instructions.

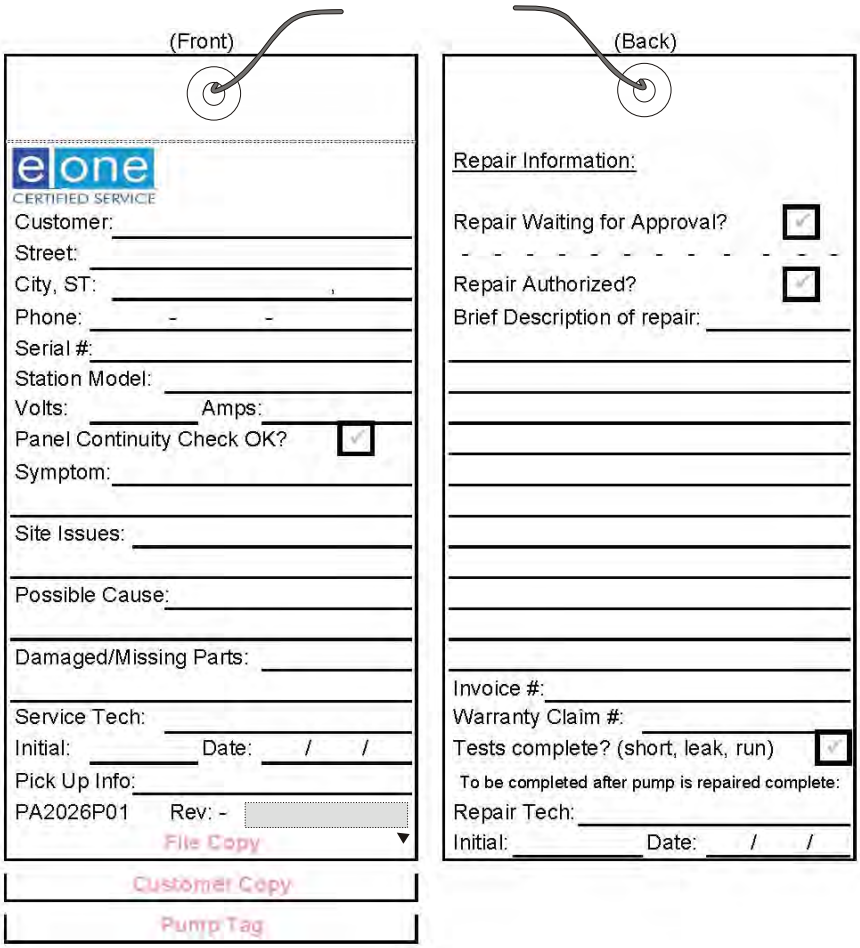
Chapter 2 — Troubleshooting

Site information is vital to proper diagnosis of a pump failure and returning the station to operation. When a pump requires service, perform an inspection of the site first.

Site Survey — Alarm Panel

1. Observe the site. Record the following on the service tag:
   - Customer information
   - Date and time
   - Alarm status
   - Is the pump running (without opening the station)?
2. Open the alarm panel enclosure. Record the following on the service tag:
   - Is the inside of the alarm panel dry and free from moisture?
   - Are any breakers tripped?
   - Was the panel installed correctly (penetrations on bottom, sealed conduits, etc.)?
   - Is service needed to the panel?

Figure 2-1, Service Tag



Supply Voltage Checks

The Environment One grinder pump is equipped with a 1725 rpm, 1 hp, multi-tap 120V/240V motor. The operating voltage parameters of the motor are plus or minus 10 percent of the specific application, equating to 108V to 132V in the 120V application and 216V to 264V in the 240V application.

Supply Voltage and Breakers, 240V

Color/Pin #	Color/Pin #	Normal Reading	Operation	If Reading is Wrong, Check:
L1	L2	216V – 264V	Incoming voltage to breaker OK	Breaker tripped or off in main panel; lost leg of power
Red 2	Black 3	216V – 264V	DBL pole breaker OK	Bad breaker; lost leg of power
Neutral	Alarm breaker (incoming)	108V – 132V	Incoming voltage to breaker OK	Breaker tripped or off in main panel; lost leg of power; jumper wire not connected
Neutral	Alarm breaker (pump side)	108V – 132V	Alarm breaker OK	Bad breaker
Neutral	Yellow 5	108V – 132V	Voltage to alarm switch OK	Loose wire between alarm board and single pole breaker; bad alarm board

Table 2–1

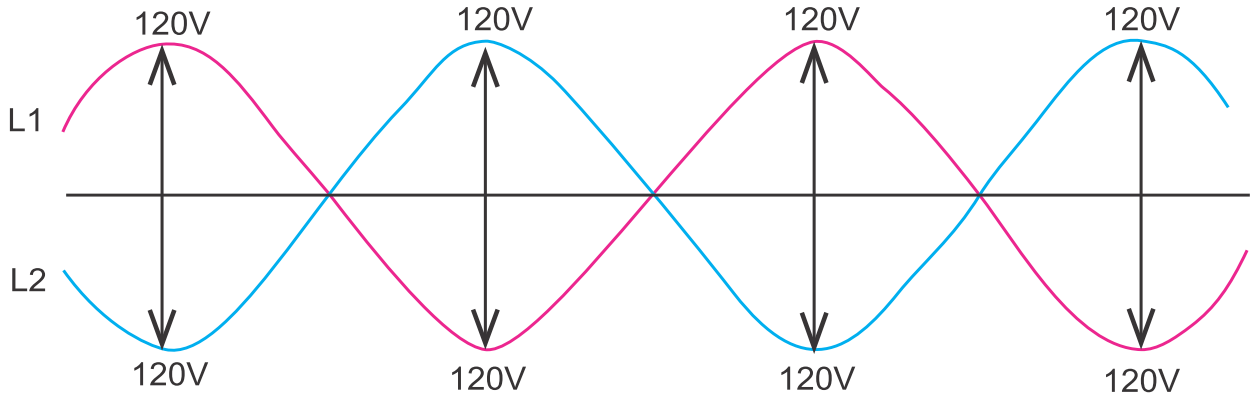
Supply Voltage and Breakers, 120V

Color/Pin #	Color/Pin #	Normal Reading	Operation	If Reading is Wrong, Check:
Neutral	L1	108V – 132V	Incoming voltage to breaker OK	Breaker tripped or off in main panel; lost leg of power
Neutral	Red 2	108V – 132V	Breaker OK	Bad breaker; lost leg of power
Neutral	Alarm breaker (incoming)	108V – 132V	Voltage to alarm OK	Breaker tripped or off in main panel; lost leg of power; jumper wire not connected
Neutral	Alarm breaker (pump side)	108V – 132V	Alarm breaker OK	Loose wire between alarm board and alarm breaker; bad alarm board
Neutral	Yellow 5	108V – 132V	Voltage to alarm switch OK	Loose wire between alarm board and single pole breaker; bad alarm board

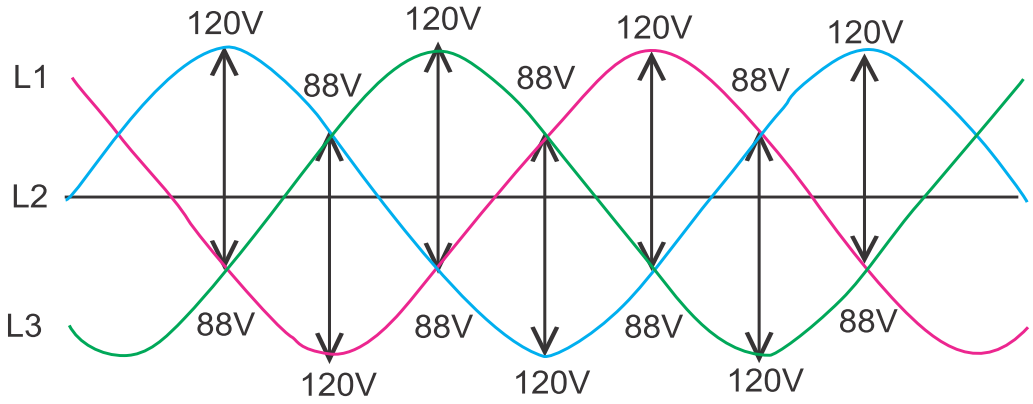
Table 2–2

Figure 2-2, Phase Charts

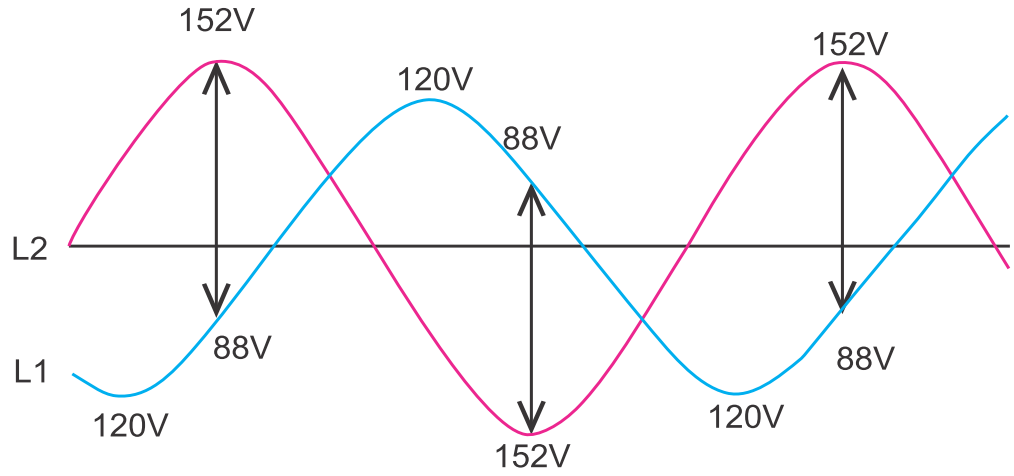
1 Phase, 240V
180 Degrees out of Phase



3 Phase, 208V
120 Degrees out of Phase



3 Phase, 240V Buck Boost Transformer



Buck Boost Transformer — 240V Application

If the supply voltage on a 240V application is 208V 3 phase, a buck boost transformer must be installed. Not installing the transformer will shorten the life of the motor significantly.

A buck boost transformer manipulates one leg of the supply voltage. It will raise the one leg approximately 32V (240V – 208V = 32V), which would give approximately 152V on one leg and 120V on the other to equal 240V. This is important to know because one leg of the main supply voltage is shared with the alarm circuit, which is a 120V circuit with an operating range of 108V to 132V.

Connect the higher of the two legs to the pole of the double pole breaker that has the pump L2 (Black) wire tied to it. The pole with the pump L1 (Red) wire is the pole shared with the alarm breaker. Failure to connect the wires in this configuration will result in a high voltage condition on the alarm circuit board, subsequently resulting in failure of the circuits.

Continuity Test

All continuity readings should be taken after the power is turned off and verified with a voltmeter. With the pump power off, set an ohmmeter (Wavetek #5XP or equivalent) to the 2–meg or 2000K ohm scale. All readings for 120V pumps are performed in the 2000K or 2M scale unless indicated otherwise. The meter must be in the 200K scale to read the coil and alarm circuits. Auto-ranging meters must be set manually.

Identify the wires that come from the pump and go to the panel. The test points on Tables 2-3 through 2-6 refer to pump wires only and can be tested at the panel or EQD. Allow at least 5 seconds for the meter to obtain a stable reading. Note any incorrect readings on the service tag.

Note: *Ground to Blue and Ground to Yellow checks are true for two-relay configuration simplex and duplex alarm panels. Four-relay configuration simplex boards, E/One Sentry Protect and E/One Sentry Protect Plus panels will show “open” on these checks in or out of water.*

Megohmmeter/Cable Insulation Integrity Check

1. Separate the EQD at the station and remove all but the ground wire inside the panel.
2. Using a 500V Megohm meter, check for shorts between all wires:

   Good: 500M or higher

   Marginal: Between 200M and 500M

   Bad: Below 200M
3. If a bad reading is detected, isolate the cable by removing the EQD insert and retesting the cable.
4. If the bad reading goes away, replace the insert and retest the wires to ensure that the new EQD insert resolved the problem.

Always retest after repairs. If the readings don’t change, replace the cable.

Note: *If moisture is present in the EQD, replace the inserts and clean and dry the housings before reassembly. If housings are flooded, water may have wicked into the wires and trimming back the cable may be necessary. If bad readings persist, replace the cable.*

240V Continuity Checks

This table assumes the pump has shut off on its own or is not installed in a tank.

Color/Pin #	Color/Pin #	Normal Reading	Operation	If Reading is Wrong, Check:
Brown 1	Red 2	OL or Open	On/off switch off	Bad switch; wet EQD; miswired; plugged sensing line; obstructed vent; restricted breather tube
Brown 1	Black 3	0.001	Contactor coil	Bad coil; wet controls
Brown 1	Yellow 5 Blue 6	OL or Open	No short to push-to-run	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate the shorts.
Green 4	Blue 6	0.00 — Short or closed circuit	Ground to Neutral feedback across alarm circuits	Verify Neutral is good on alarm board; possible bad bulb or relay on board. Jump Yellow to Blue to check relay (pump, buzzer and light should come on).
Green 4	Brown 1 Red 2 Yellow 5	OL or Open	No shorts to Ground	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate shorts.
Green 4	Black 3	OL or Open	Motor	Water in EQD, controls or motor; motor field shorted to ground
Yellow 5	Blue 6	OL or Open	Alarm switch off	Bad switch; wet EQD; miswired; plugged sensing line; obstructed vent; restricted breather tube

Table 2–3

This table assumes enough water is in the tank to turn on the alarm.

Color/Pin #	Color/Pin #	Normal Reading	Operation	If Reading is Wrong, Check:
Brown 1	Red 2	0.00 — Closed circuit	On/off switch on	Bad switch; wet EQD; miswired; plugged sensing line; obstructed vent; restricted breather tube
Brown 1	Black 3	0.001	Contactor coil	Bad coil; wet controls
Brown 1	Yellow 5 Blue 6	OL or Open	No short to push-to-run	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate the shorts.
Green 4	Yellow 5 Blue 6	0.00 — Short or closed circuit	Ground to neutral feedback across alarm circuits	Verify Neutral is good on alarm board; possible bad bulb or relay on board. Jump Yellow to Blue to check relay (pump, buzzer and light should come on).
Green 4	Brown 1 Red 2	OL or Open	No shorts to ground	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate shorts.
Green 4	Black 3	OL or Open	Motor	Water in EQD, controls or motor; motor field shorted to ground
Yellow 5	Blue 6	0.00 — Closed circuit	Alarm switch on	Bad switch; wet EQD; miswired; plugged sensing line; obstructed vent; restricted breather tube

Table 2–4

120V Continuity Checks

This table assumes the pump has shut off on its own or is not installed in a tank.

Color/Pin #	Color/Pin #	Normal Reading	Operation	If Reading is Wrong, Check:
Brown 1	Red 2	OL or Open	On/off switch off	Bad switch; wet EQD; miswired; plugged sensing line; obstructed vent; restricted breather tube
Yellow 5	Blue 6	OL or Open	Alarm switch off	Bad switch; wet EQD; miswired; plugged sensing line; obstructed vent; restricted breather tube
Green 4	Black 3	0.00 — Short	Neutral	Neutral not connected
Green 4	Red 2 Yellow 5	OL or Open	No shorts to ground	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate shorts.
Green 4	Blue 6	0.1 (200K scale)	Ground to Neutral feedback across alarm relay coil	Verify Neutral is good on alarm board; possible bad bulb or relay on board. Jump Yellow to Blue to check relay (pump, buzzer and light should come on).
Brown 1	Blue 6	0.5 (200K scale)	Redundant run to alarm return	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate the shorts.
Brown 1	Yellow 5	OL or Open (200K scale)	Redundant run to alarm send	Cut cable; wet EQD or controls; stuck manual run switch
Brown 1	Black 3 Green 4	.400 (200K scale)	Contactor coil	Bad coil; wet controls

Table 2–5

This table assumes enough water is in the tank to turn on the alarm.

Color/Pin #	Color/Pin #	Normal Reading	Operation	If Reading is Wrong, Check:
Brown 1	Red 2	0.00 — Short or closed circuit	On/off switch on	Low water level; wet EQD; EQD unplugged; broken wire; miswired; bad switch; sensing line leak or blockage; blocked vent; restricted breather tube
Yellow 5	Blue 6	0.00 — Short or closed circuit	Alarm switch on	Bad switch; wet EQD; miswired; plugged sensing line; obstructed vent; restricted breather tube
Green 4	Black 3	0.00 — Short	Neutral	Neutral not connected
Green 4	Red 2	OL or Open	No shorts to ground	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate the shorts.
Green 4	Yellow 5 Blue 6	0.1 (200K scale)	Ground to Neutral feedback across alarm relay coil	Verify neutral is good on alarm board; bad bulb; possible bad relay on board. Jump Yellow to Blue to check relay (buzzer and light should come on).
Brown 1	Yellow 5 Blue 6	0.5 (200K scale)	Redundant run to alarm	Supply cable cut; water in EQD or pump controls. Unplug EQD and retest to isolate the shorts.
Brown 1	Black 3 Green 4	.400 (200K scale)	Contactor coil	Bad coil; wet controls

Table 2–6

Amperage Checks

Using a clamp-on amp meter can be helpful for identifying problems such as a restricted or blocked discharge line, blown stator, or faulty check valve/anti-siphon.

1. Set the clamp-on amp meter to the appropriate scale.
2. Hook the probe around the black power lead in the alarm panel.
3. With the power on, fill the tank until the pump operates, or press the push-to-run switch in the alarm panel.
4. Read the current directly. Refer to the following table for troubleshooting.

The figures shown are averages and should be used for approximation because motors, voltages and amp meters vary. The table displays a comparison of back pressure (psi), flow (gpm), current draw (amperes) and head (feet of water pressure).

Amps @ 240V (120V)	PSI	Head (ft)	GPM	Comments
4.9 (9.8) or less	0	0	0	Worn stator
5.6 (11.2)	10	24	14	Normal
5.8 (11.6)	20	46	13	Normal
6 (12)	30	70	12	Normal
6.2 (12.4)	40	92	11	Normal
6.5 (13)	50	115	10	Normal
6.8 (13.6)	60	138	9	Normal
7.1 (14.2)	70	161	8	Normal
7.4 (14.8)	80	184	7.5	Normal
8+ (16+)	90+	207+	Varies	Plugged discharge line or bad bearings
>15 (>30)	0	0	0	Jammed grinder or shorted motor

Table 2–7

A jammed grinder may trip the circuit breaker or cause the overload protector to cycle. This causes the pump to cycle on and off and eventually results in an alarm condition. A torn or worn out pump stator results in a “runs but does not pump” condition and eventually, as the water rises, causes an alarm. Replace the stator and, if necessary, the rotor.

Site Survey — Tank

1. Open the tank and inspect. Record the following on the service tag:
   - Is the station lid above grade?
   - Is the tank/accessway flooded? If yes, where did the water enter?
   - Was the EQD below water?
   - Is the Equalizer hung properly, as high in the tank as possible?
   - Are other signs of infiltration present?
2. Disconnect and inspect the EQD. Record the following on the service tag:
   - Is the EQD dry?
   - Is the EQD assembled correctly?
3. Repeat the power-off continuity checks at the EQD.

Alarm On — Pump Running but not Pumping

Possible Causes	Troubleshooting Steps
Blocked discharge line, worn stator or leak in pump discharge assembly	Check the amperage. If the amperage is high (8 amps or higher), turn off the pump and check the discharge line for blockage. Confirm that the pump has not been damaged by disconnecting the discharge piping and recycling the fluid in the tank. Turn the pump power on and check the amperage. If the amperage remains high, replace the pump and return the failed pump to shop for possible repair. If amperage returns to normal, clear blockage in discharge line and re-check amperage. If the amperage is low (4.9 amps or less), the pump must be pulled and the stator (and possibly the rotor) replaced, or the leaking discharge line repaired. The cause of the stator and/or rotor failure must be determined and corrected before reinstallation or the pump will fail prematurely again. *Chapter 5 – Pump End* describes how to identify and correct causes of stator and rotor wear.

Table 2–8

Alarm On — Pump not Operating

Possible Causes	Troubleshooting Steps
Incorrect voltage	Check the voltage at a location nearest the pump, such as the junction box or EQD. The correct voltage is listed on the pump nameplate. ***Note:*** *Voltage must be within 10 percent of nameplate voltage (240V: 216V to 264V; 120V: 108V to 132V). 208V requires a buck boost transformer.*
Plugged Equalizer	Check the Equalizer tube and ensure it is not crimped or pinched.
Low fluid level	Check the tank for sufficient fluid to operate the pump. Insufficient fluid may indicate a problem with the alarm wiring, alarm sensing line, or alarm switch. *Chapter 8 – Level Sensor* and *Chapter 9 – Control Cavity* describe the steps for checking the alarm wiring and controls.
Wet or corroded controls	Inspect the electrical controls and replace any wet or corroded controls. See *Chapter 9 – Control Cavity.*
Inoperative control	Test the controls as described in *Chapter 9 – Control Cavity.*

Table 2–9

Alarm Activates Frequently

Possible Causes	Troubleshooting Steps
High flow	The incoming flow is greater than the pump can handle. Infiltration, a sump pump, a hot tub or any other appliance that produces excessive water flow can cause a high flow alarm.
Plugged vent or Equalizer tube	Check the vent and the Equalizer tube. A plugged or partially plugged vent or Equalizer tube will cause the alarm to activate frequently. Replace the Equalizer tube if kinked or damaged.
Level sensor leak	Remove the pump from the tank. Inspect the level sensors for cracks and debris; use level sensor test to check for leaks.
Line blockage or worn stator	Check the amperage. If amperage is high, look for a line blockage. If amperage is low, inspect the stator for excessive wear.
Underground wire damage	Check the tray cable wiring for cuts, breaks and shorts. Use a megohmmeter to check for shorts between each pair of leads. Replace the tray cable if a short is found.

Table 2–10

Noisy Pump

Possible Causes	Troubleshooting Steps
Normal Operation	The pump may be grinding material. Wait a few minutes. If the pump does not quiet down, remove the pump and clean the basin.
Low Voltage	Check the voltage level. The voltage is listed on the pump nameplate. ***Note:*** *Voltage must be within 10 percent of nameplate voltage (240V: 216V to 264V; 120V: 108V to 132V). 208V requires a buck boost transformer.*
Blocked Discharge	Check the amperage. If amperage is high (8 amps or higher on 240V; 16 amps or higher on 120V), turn off the pump and check the discharge line for a blockage. Confirm that the pump has not been damaged by disconnecting the discharge piping and recycling the fluid in the tank. Turn on the pump power and check the amperage. If amperage remains high, replace the pump and return the failed pump to shop for possible motor repair. If amperage returns to normal, clear discharge and recheck.
Damaged Stator	Check the stator for holes or tears. *Chapter 5 – Pump End* describes the pump stator inspection procedure.
Worn Motor Bearing	Remove the pump stator and hand-rotate the shaft. If the shaft turns roughly, replace the pump. Return the failed pump to the shop and replace the motor bearings as described in *Chapter 10 – Motor Cavity.*

Table 2–11

Figure 2-3a, Wiring Schematic, 240V, May 2015 & Later (Serial Number 531884)

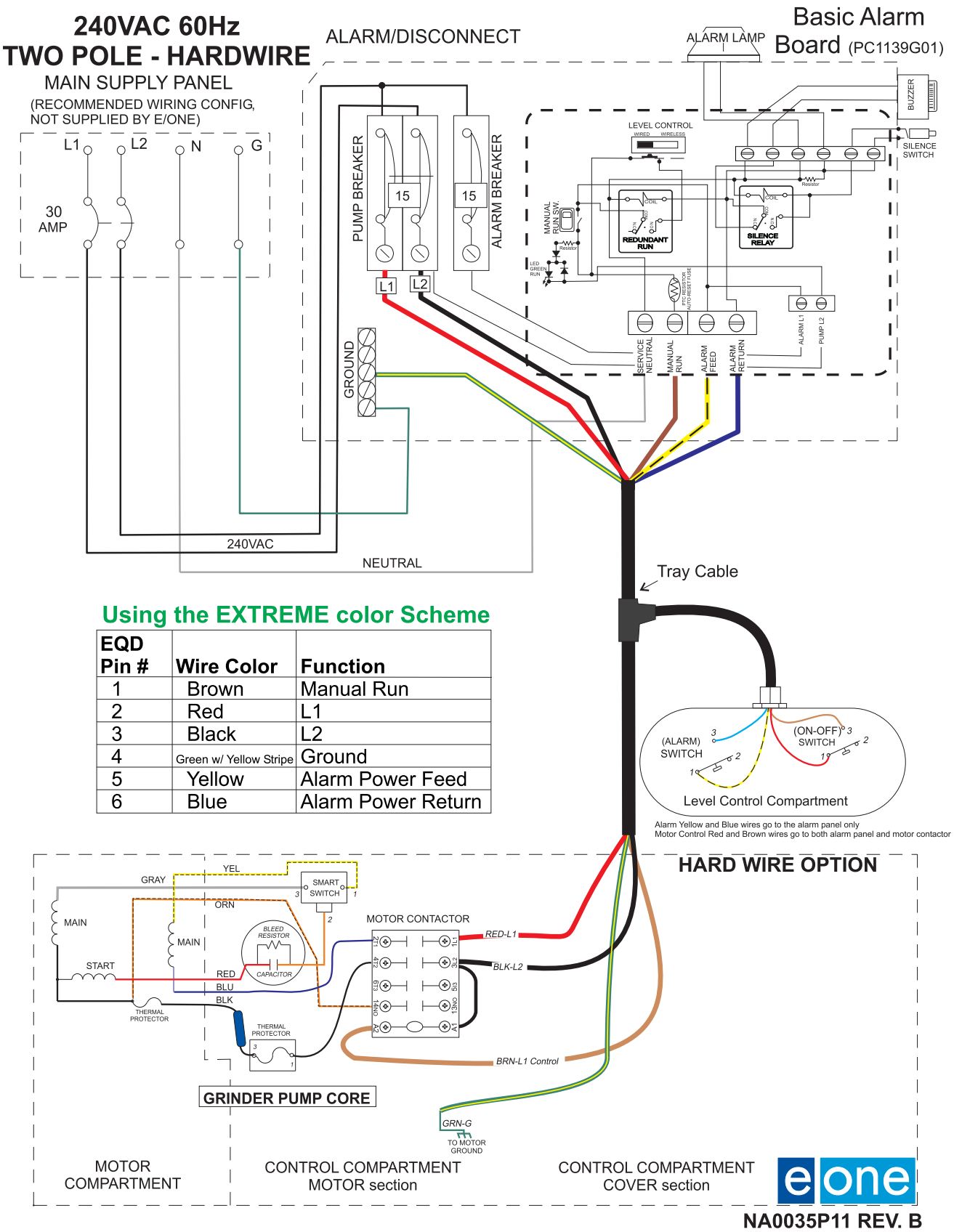


Figure 2-3b, Wiring Schematic, 120V, May 2015 & Later (Serial Number 531884)

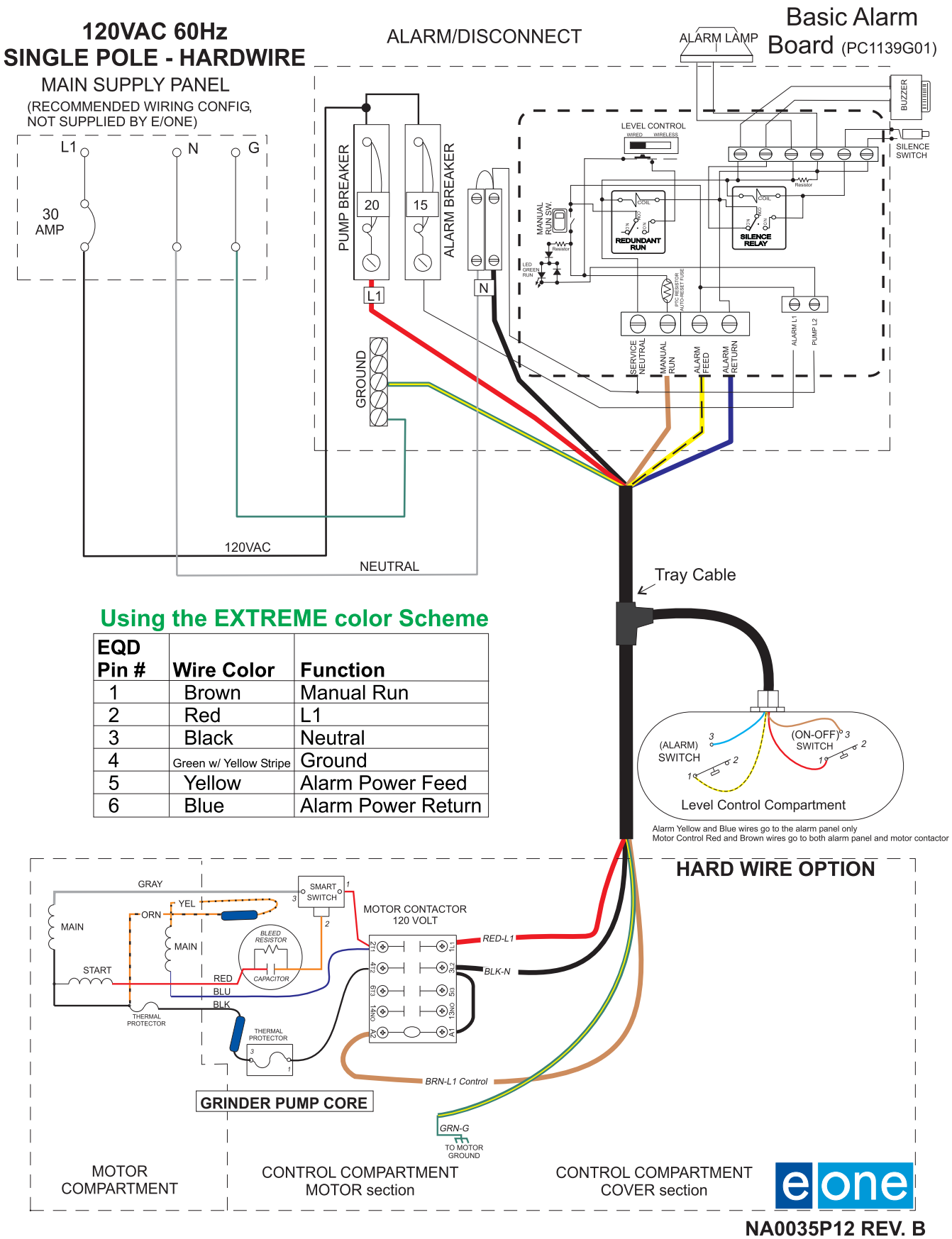


Figure 2-4a, Wiring Schematic, 240V, May 2015 & Earlier (Serial Number 531883)

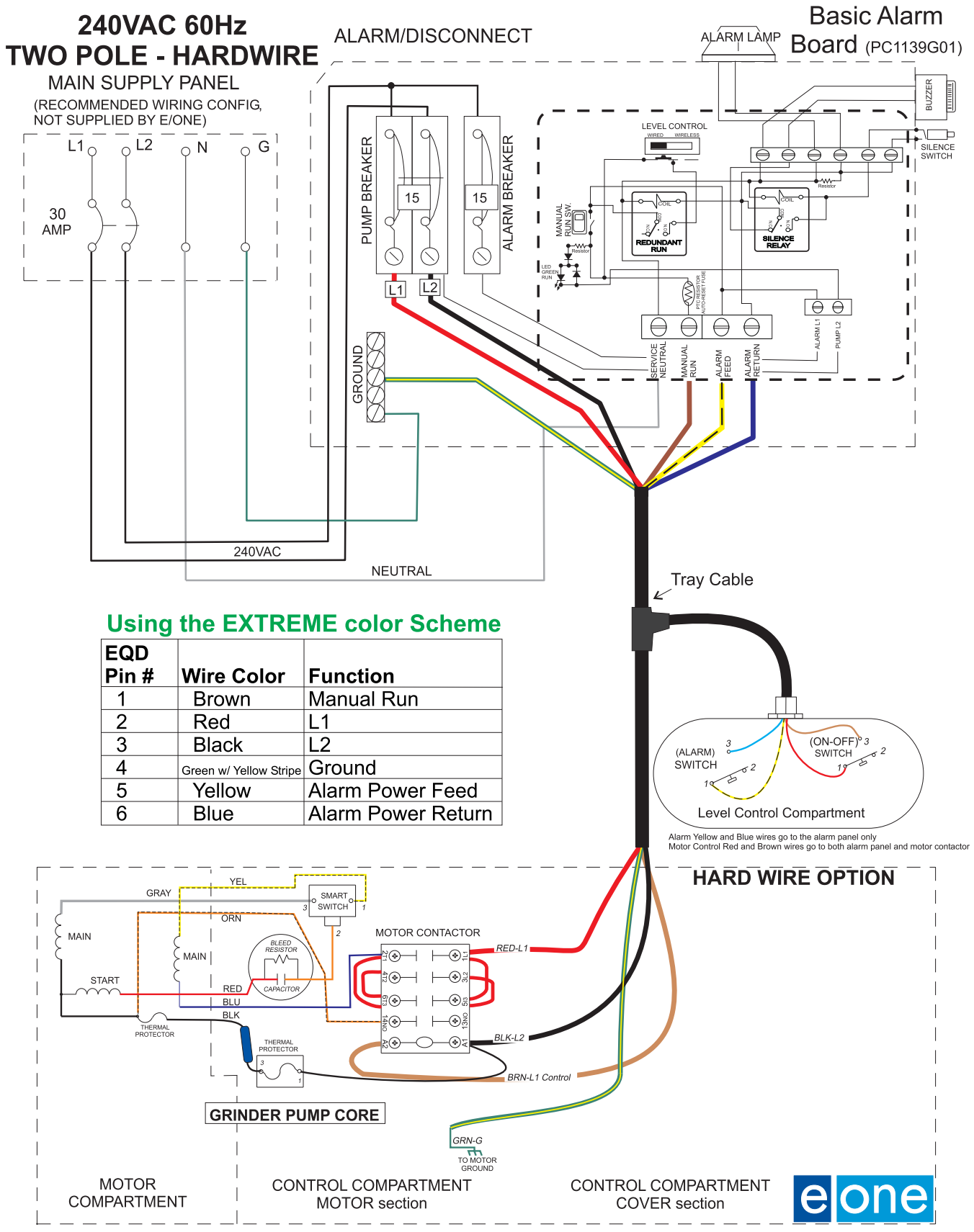
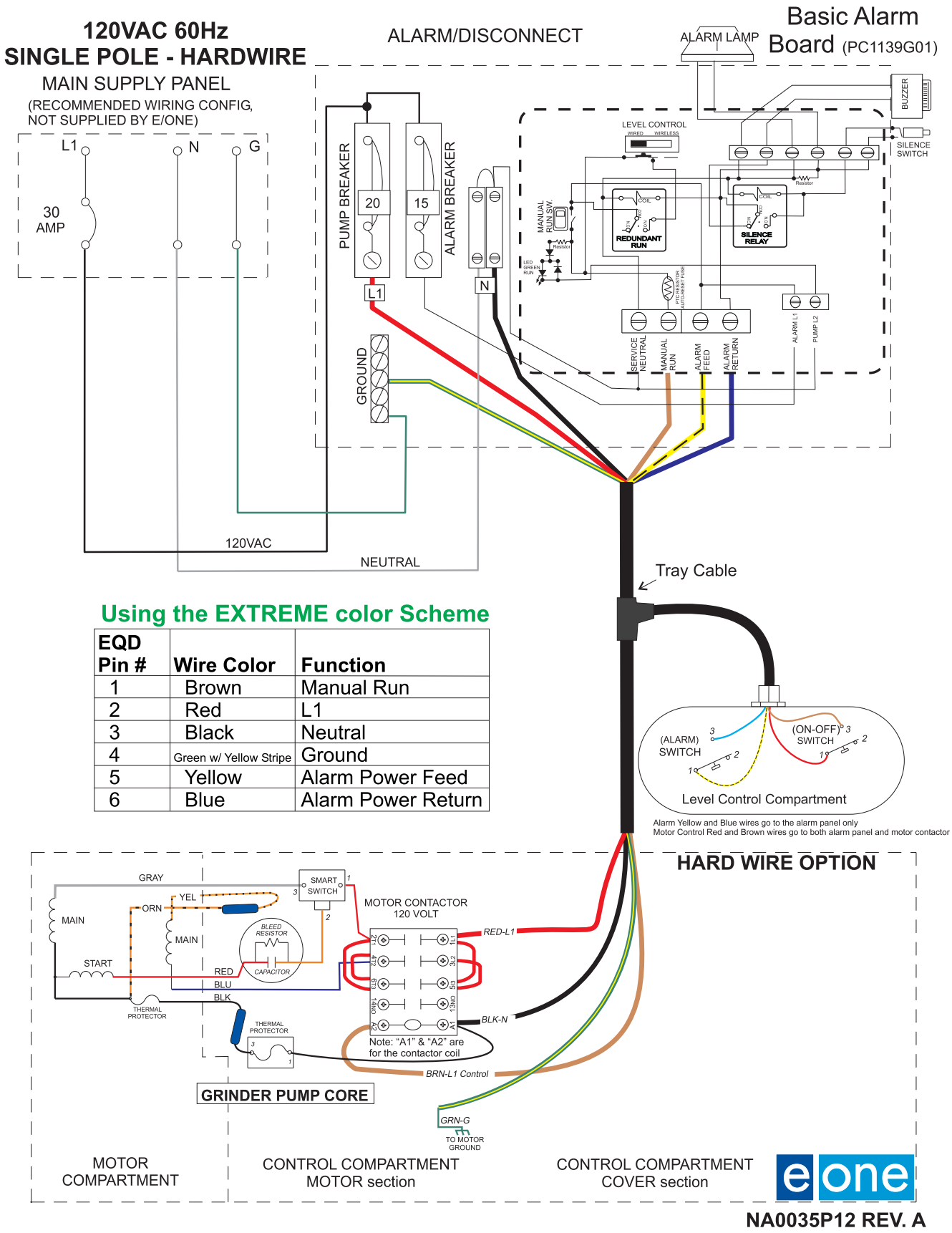


Figure 2-4b, Wiring Schematic, 120V, May 2015 & Earlier (Serial Number 531883)



Chapter 3 — Pump Removal and Replacement

The procedure for removing and replacing the pump is different for D-Series, W-Series and IH stations. Refer to the following instructions for each model.

D-Series Stations

1. Open the alarm panel and shut off all power to the pump and the alarm system.
2. Remove the station lid.
3. Disconnect the EQD. If the tray cable side of the EQD is wet or shows evidence of moisture, the EQD insert must be replaced. Determine the source of the moisture and correct the problem before connecting a new pump to the EQD.
4. Use the core wrench to close the stainless steel ball valve. Insert the bent end of the core wrench into the hole on the handle of the valve and push down until the handle is horizontal.
5. Use the core wrench to turn the bolt in the middle of the top housing 1/3 turn counterclockwise to release the holding tabs.



Figure 3-1

6. Use the yellow ropes attached to the pump to pull the pump out of the station; the pump weighs approximately 120 lbs. ***Note:*** *DO NOT pull the pump out of the station by the discharge tube, Equalizer tube or power cable.*
7. Lower the new pump into the tank.
8. Use the core wrench to turn the bolt in the middle of the top housing 1/3 clockwise to engage the holding tabs.
9. Use the core wrench to open the valve.
10. Perform start-up procedures as described in *Chapter 4 — Start-Up Procedure*.

W-Series and Upgrade Stations

1. Open the alarm panel and shut off all power going to the pump and alarm system.
2. Remove the station lid.
3. Disconnect the EQD. If the tray cable side of the EQD is wet or shows evidence of moisture, the EQD insert must be replaced. Determine the source of the moisture and correct the problem before connecting a new pump to the EQD.
4. If the unit is equipped with a slide face valve, close the discharge by lifting up on the handle. Pull the slide face with the discharge hose connected to the pump out of the discharge assembly; use a long piece of PVC pipe with a 1-inch female threaded coupling on the end.

   If the unit is equipped with a ball valve, close the valve and loosen the compression nut on the discharge hose.
5. Use the yellow ropes attached to the pump to pull the pump out of the station; the pump weighs approximately 120 lbs. ***Note:*** *DO NOT pull the pump out of the station by the discharge tube, Equalizer tube or power cable.*
6. Lower the new pump into the tank.
7. Connect the discharge hose to the valve and open the valve.
8. Perform start-up procedures as described in *Chapter 4 — Start-Up Procedure.*

IH Station (Indoor Unit)

1. Open the alarm panel and shut off all power going to the pump and the alarm system.
2. Push the handle down on the inlet pipe gate valve and close the valve.
3. Close the discharge ball valve.
4. Loosen the compression nut on the single union ball valve. Take care not to lose the O-ring; otherwise, the ball valve will hold the pump in place.
5. Remove the eight bolts that secure the pump to the tank.
6. Lift the pump out of the tank; the pump weighs approximately 120 lbs. ***Note:*** *DO NOT pull the pump out of the station by the discharge tube, Equalizer tube or power cable.*
7. Install the new pump into the tank; use a new gasket.
8. Secure the pump with the eight bolts.
9. Connect the single union ball valve. Ensure that the O-ring is in place before securing the compression nut. **Take care not to over tighten the compression nut!**
10. Open all valves and perform start-up procedures as described in *Chapter 4 — Start-Up Procedure.*

Chapter 4 — Start-Up Procedure

Station Inspection

Inspect the following:

1. Proper burial depth (1 to 4 inches below the hinged cover/transition joint).
2. The ground must be graded to prevent water from pooling around the station.
3. Free from damage and leaks.
4. The Equalizer tube/power cable must be hung at the top of the station and not lay on the pump or in wastewater.
5. Electrical shroud must be attached.
6. The tray cable must not be exposed outside the tank.
7. Ensure the discharge valve in the station is open.
8. Ensure that the supply cable connector beneath the cover shroud is tightened securely.

Alarm Panel Inspection

Inspect the following:

1. Proper wiring. Refer to the wiring diagram inside the panel door.
2. Free from damage.
3. Unshielded wires must not be exposed outside of panel.
4. Conduits must be sealed.
5. Test incoming line voltage. If the voltage varies more than 10 percent of the nameplate voltage, do not continue. Rectify the voltage problem.

Voltage, Continuity and Cable Insulation Integrity Tests

Refer to *Chapter 2 – Troubleshooting* to perform these tests. Read all meter instructions for safety information, scale setting, and proper operational procedures.

WARNING!

Always perform continuity checks with the power off!
Use your volt meter to ensure no power is applied
to the pump circuits.

Take test points in the alarm panel. The colors listed in Tables 2-3 through 2-6 are the leads coming from the station and connect in the panel. Using the tables, perform the checks to ensure appropriate readings.

The values listed are average numbers. Allow the meter at least 5 seconds to obtain a correct reading. The meter may give a false reading while bleeding off to an open circuit. This is the impedance of the wire bleeding off and is expected.

If the tests do not pass, unplug the EQD in tank. Repeat the test at the alarm panel, then at the pump EQD. The EQD pin numbers are listed with the corresponding wire colors in the tables. This will help pinpoint where a problem is located.

Note: *Green 4 to Yellow 5 and Blue 6 must show Infinity or open line when testing at the pins in the pump EQD.*

Run Test

This test assumes that the station has enough water to operate the alarm and that all discharge lines and valves are open. Note any problems found during start-up on the start-up sheet. This includes problems that are repaired during start-up. When a problem is repaired, note the date, type of repair and technician.

1. Test the voltage going to the pump at the alarm panel; voltage must be within 10 percent of the nameplate voltage (240V = 216V to 264V and 120V = 108V to 132V). If it is not, do not continue. Rectify the voltage problem.
2. Turn on the alarm breaker and verify that the alarm is activated.
3. Silence the horn.
4. Clip the amp meter onto the black wire of the tray cable.
5. Turn on the pump breaker.
6. Amperage should be between 5 and 8 amps at 240V (10 and 16 amps for 120V pumps). Higher amperage indicates higher pressure. Greater than 8 amps at 240V (or 16 amps at 120V) could indicate a plugged or closed line. If you experience a high amperage reading, shut off the pump immediately and rectify the problem.
7. Once the alarm turns off, the pump will run for about 1 minute depending upon the size of the tank.
8. After the pump turns off, turn off the power to pump and the alarm.
9. Perform the out of water or pumped down continuity checks.

Chapter 5 — Pump End

Removing the Pump Stator

1. Remove the retaining clips from the bottom of the level sensor.
2. Lay the pump core on its side. Support the motor head on a 4x4 wooden block.
3. On W-Series, Gatorgrinder and Upgrade pumps, remove the wire stand from the pump. There is a hole in the suction housing where a 1/8-inch punch can be used in to aid the removal of the wire stand.

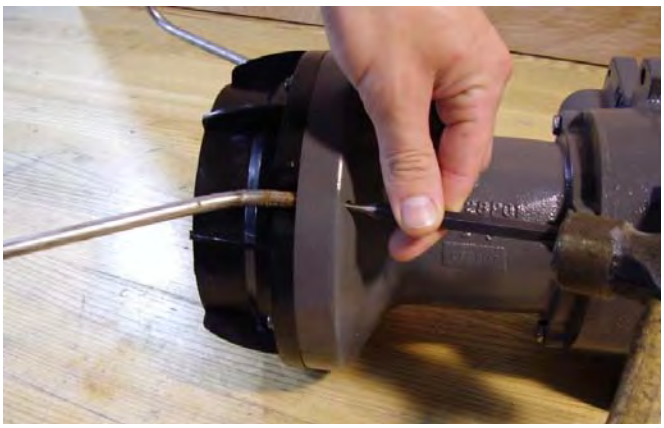


Figure 5-1

4. Use a 5/16” nut driver to remove the four inlet shroud retaining screws and pull the inlet shroud off of the shredder ring.

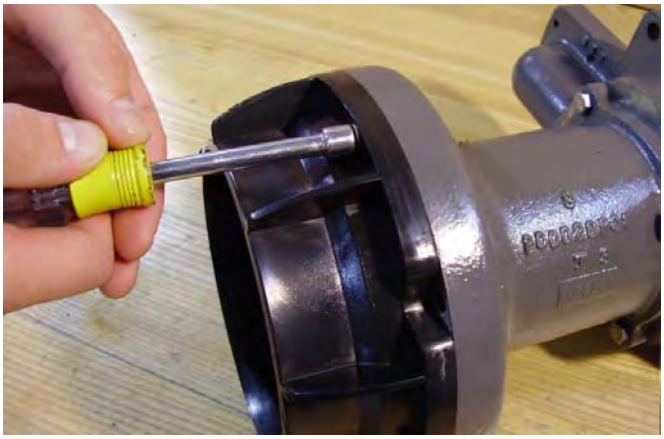


Figure 5-2

5. Remove the shredder ring by gripping it with a pair of vice grips. Strike the vice grips with a hammer while pulling straight out from the pump. Replace the shredder ring if it is cracked, broken or worn.

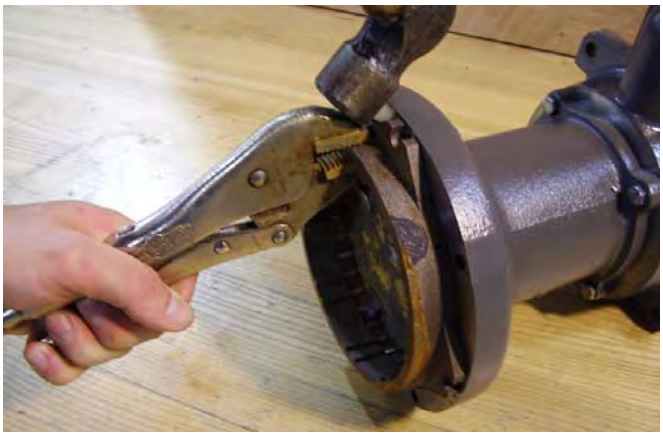


Figure 5-3

6. Remove the cutter wheel by placing a plastic mallet, punch or drift on one of the paddles and striking the mallet, punch or drift with another hammer. Repeat until the cutter wheel spins free. The cutter wheel is threaded onto the armature shaft with a conventional right hand thread. If the cutter wheel is difficult to loosen, apply penetrating oil and let it soak for a few minutes. Never strike the cutter bars with a metal hammer or punch. Replace the cutter wheel if it is worn out of round. If more than 1/32-inch is rounded off of the edge of the cutter bars, replace the cutter wheel.



Figure 5-4

7. Remove the four bolts (7/16-inch wrench or socket) that secure the suction housing to the motor head and remove the suction housing.



Figure 5-5



Figure 5-6

8. Slide the stator and liner off of the rotor. The liner may be inside of the suction housing. The liner must be removed and replaced when the stator is replaced. The liner protects the stator from wearing against the suction housing.

9. Inspect the stator for wear. The next section describes types and causes of wear. Determining the cause of wear is important or the pump will fail again. The average life of a stator is eight to 10 years.

Pump Stator Inspection

Three types of stator wear can cause pump failure: a tear or hole in the stator, worn lobes or a swollen stator. Each type of stator wear is described below.

Tear/Hole in the Pump Stator

A hole or tear in the stator is caused by a blockage in the discharge line. If the pump runs for a long period of time against a blocked line, the high pressure (approximately 150 psi) in the pump cavity will rupture or tear the stator.

The blockage must be cleared before the pump is put back into service. Check the discharge line for a plugged line, closed valve, frozen valve or bad check valve/anti-siphon.

Worn Lobes

Examine the lobed area in the center of the stator. Normally, the rubber lobes are rounded at the high points; worn lobes are flattened at the high points. On flattened lobes, the texture of the worn rubber is either smooth or rough.

Stator lobes that have worn rough display one or more of the following characteristics:

- Wear looks rough and loose pieces of rubber hang from the lobes
- Rubber is stuck in the lower valley between the lobes
- Rubber is soft or has hard spots on it
- Worn lobes display surface cracks that resemble weather-checking on an old tire
- Rotor has rubber stuck to it

Lobes Worn Smooth. Old age is the most common reason for smooth wear. The average life of a stator operating in a single-family home (300 gpd) is about 10 years. Higher incoming flows will shorten the life of the stator. If two homes are on the same station, the stator will last about five years. However, if the stator has worn prematurely (less than six years for a single-family home), abrasives cause the wear.

Look into the void between the inner skirt and the outer bore of stator. Check for an accumulation of more than 1/8 inch of any of these types of materials: sand, goldfish stones, gravel, kitty litter, glass, etc.

Determine and eliminate the source of the abrasives or the stator will fail prematurely. Check for infiltration from a broken line, a sump or even a roof drain. Additionally, ensure that the homeowner is not introducing the abrasive materials through a toilet or sink.

Lobes Worn Rough. A pump that has run dry is the most common reason for lobes that have worn rough. To determine the cause of a pump running dry:

1. Check to see if the Equalizer tube is plugged.
2. Check the tank vent. Ensure the vent is clear and installed properly.
3. Check the sensing line to ensure it is clear. Visually inspect the sensing line for blockage.
4. Check for an obstruction at the suction end of the pump (inlet shroud). An obstruction will restrict the flow. Check for objects such as a board, junction box cover, heavy glove or plate.
5. Inspect and troubleshoot the electrical controls. Refer to *Chapter 9 – Control Cavity*.
6. Check the push-to-run/redundant run circuit. Check the push-to-run circuit for all units with this feature.
7. Check for shorts in the panel, tray cable, EQD and control compartment. Two wires touching, corrosion or water can cause shorts. Refer to *Chapter 2 – Troubleshooting*.

Swollen Pump Stator

Petroleum-based products such as paint thinner, photo-developing chemicals, gas, oil, brake fluid, transmission fluid, etc. will cause a swollen pump stator; introduction of these types of products into the system must be eliminated or the problem will reoccur. The pump stator is made of EPDM material, which absorbs petroleum the way a sponge absorbs water. If the pump stator appears to have no wear but will not pump liquid, compare it to a new stator. Slide the old stator over the pump rotor and remove it. Slide the new stator over the rotor and remove it. If the new stator fits tighter or if the old stator appears larger than the new one, the pump stator needs to be replaced.

Note: *Never intentionally introduce petroleum based-products to a public sewer system. If they are present, contact your local distributor and ask for an oil-resistant stator, service PT# 8005. This stator is not recommended for normal residential conditions because of reduce life expectancy (average of 2 to 3 years).*

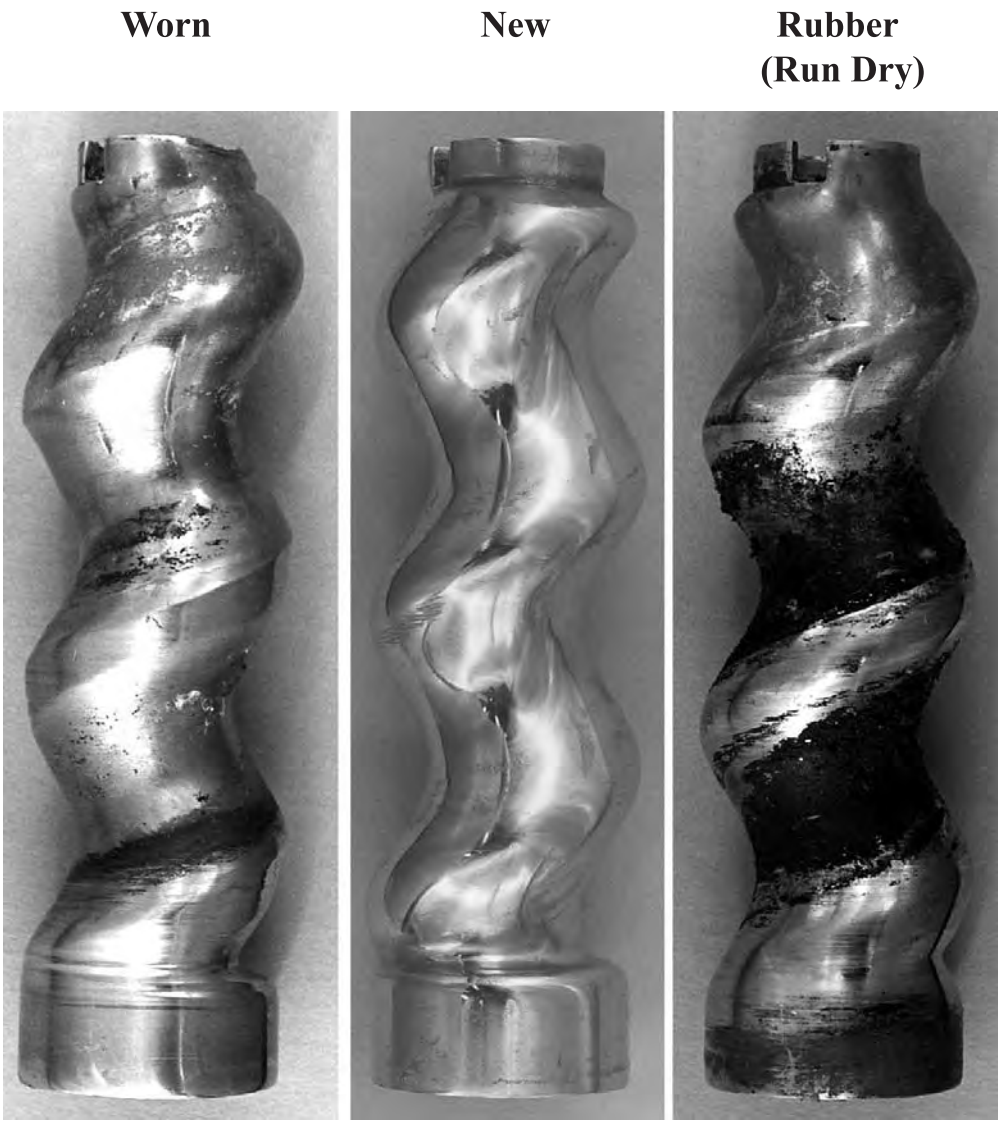
Inspecting a Pump Rotor

The pump rotor has a life expectancy of about 15 years. Besides age, the following can cause rotor wear:

- High flow (business, industry or infiltration)
- Abrasives
- Pump running dry

The rotor does not have to be removed from the motor shaft for inspection. When inspecting the rotor, do not worry about scratches, lines, casting marks or pit marks. Check the high, rounded lobes that spiral the length of the rotor. If the lobes have been worn flat into a 1/4-inch or wider band, the rotor is worn and must be replaced.

Rubber found on the rotor indicates that the pump has run dry. Rubber can be cleaned with acetone, paint thinner or other petroleum cleaner. Inspect the rotor for excessive wear and replace it if necessary. If unsure, replace the stator and liner and perform a flow check. Flow should read about 14 gpm at 15 psi. Run the pump allowing the discharge to flow into a 5 gallon bucket. Filling the bucket at 15 psi should take about 23 seconds.



Removing the Pump Rotor

1. Support the end of the motor shaft with a wooden block.
2. Use a hammer and a 1/8-inch punch to remove the groove pin that retains the pump rotor.



Figure 5-8

3. Slide the rotor off of the shaft. If the rotor sticks, use a plastic mallet to tap the end of the rotor until it comes off. Take care not to bend the armature shaft.

Note: *Do not disturb the mechanical seal. String-like fibers and other debris around the seal are normal. If the seal bellows is moved on the shaft, it will create a leak path and flood the motor cavity. The mechanical seal should only be replaced at a repair shop and only during a total overhaul of the pump motor.*

Assembling the Pump/Grinder Mechanism

1. If the rotor was removed, slide the rotor over the armature shaft, compressing the seal spring. The spring washer may need to be aligned with the shoulder of the armature shaft. Press the groove pin into place with channel lock pliers. Lubricating the groove pin will help to ease the installation. Do not use a hammer to beat in groove pin; doing so may bend the armature shaft.
2. Install the new pump stator and liner over the rotor. The rotor or internal bore of the stator should be lubricated with a small amount of silicone grease; most new stators are lubricated at the factory. Ensure the lip of the stator is uniformly seated in the motor head groove.
3. If not already done, remove the old pump liner from suction housing.
4. Install the suction housing. Tighten the bolts diagonally to maintain housing alignment with the armature shaft. Failure to align properly will cause the cutter wheel to hit the shredder ring.
5. Apply a small amount of Anti-Seize to the threads of the armature shaft and hand-tighten the cutter wheel onto the shaft. Do not overtighten the cutter wheel; it will be difficult to remove the next time the unit is serviced.
6. Seat the shredder ring in the suction housing, ensuring that the four notched ears are properly aligned with the four threaded holes. Set with a rubber mallet or hammer and a block of wood. Do not strike the shredder ring with a steel hammer. Start with

one side, maintain pressure, and drive the opposite side into place. Ensure the shredder ring is seated all the way around.

7. Rotate the cutter wheel to ensure it does not interfere with the shredder ring.
8. Install the inlet shroud. Tighten the four screws diagonally
9. Reinstall the core. Open all the valves on the discharge plumbing before turning on the power. Verify that the voltage and amperage readings are correct.

CAUTION

Be sure to open all valves on the discharge plumbing before turning on the power.

Figure 5-9a, D-Series Pump, Exploded View

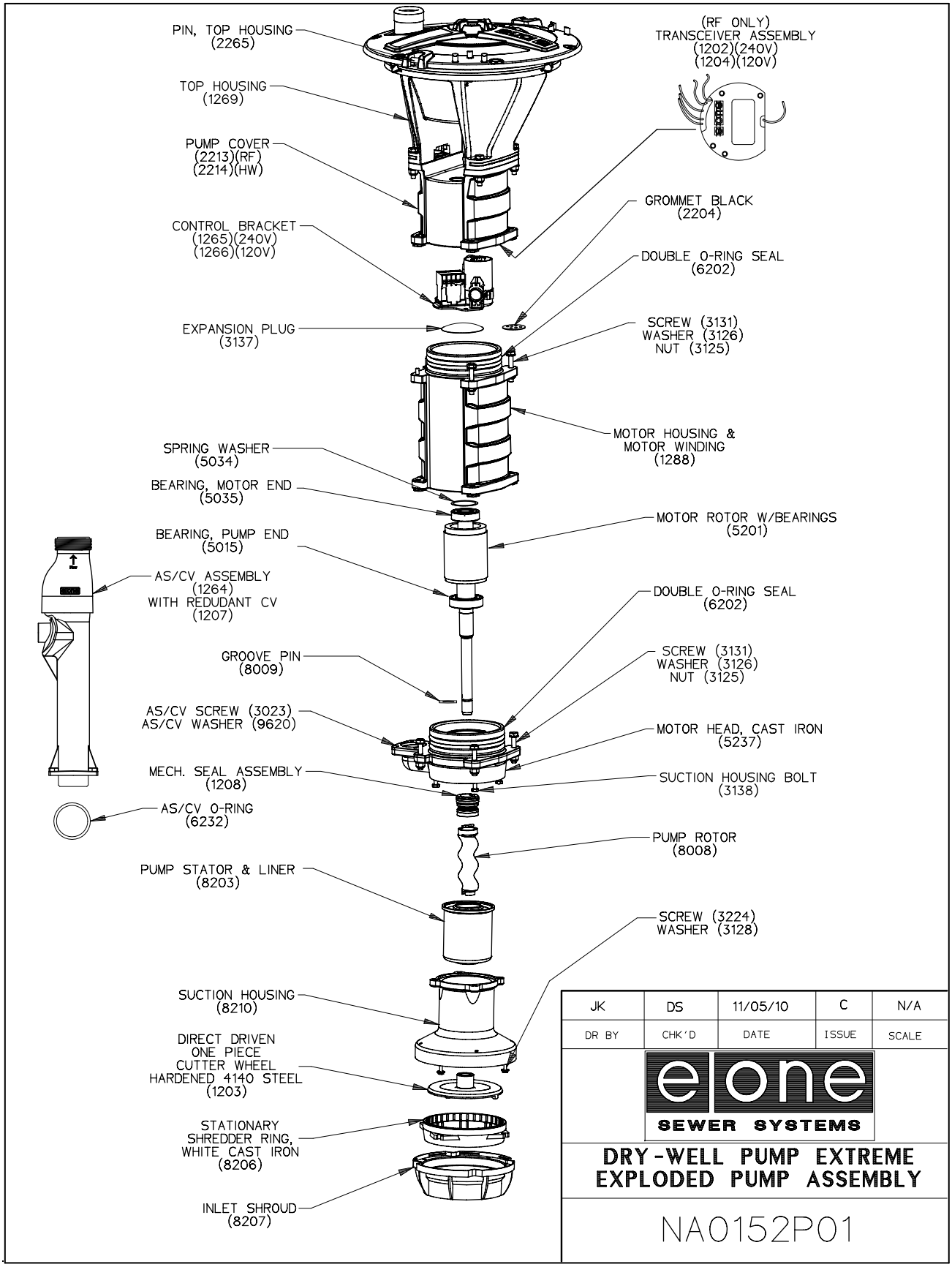


Figure 5-9b, W-Series Pump, Exploded View

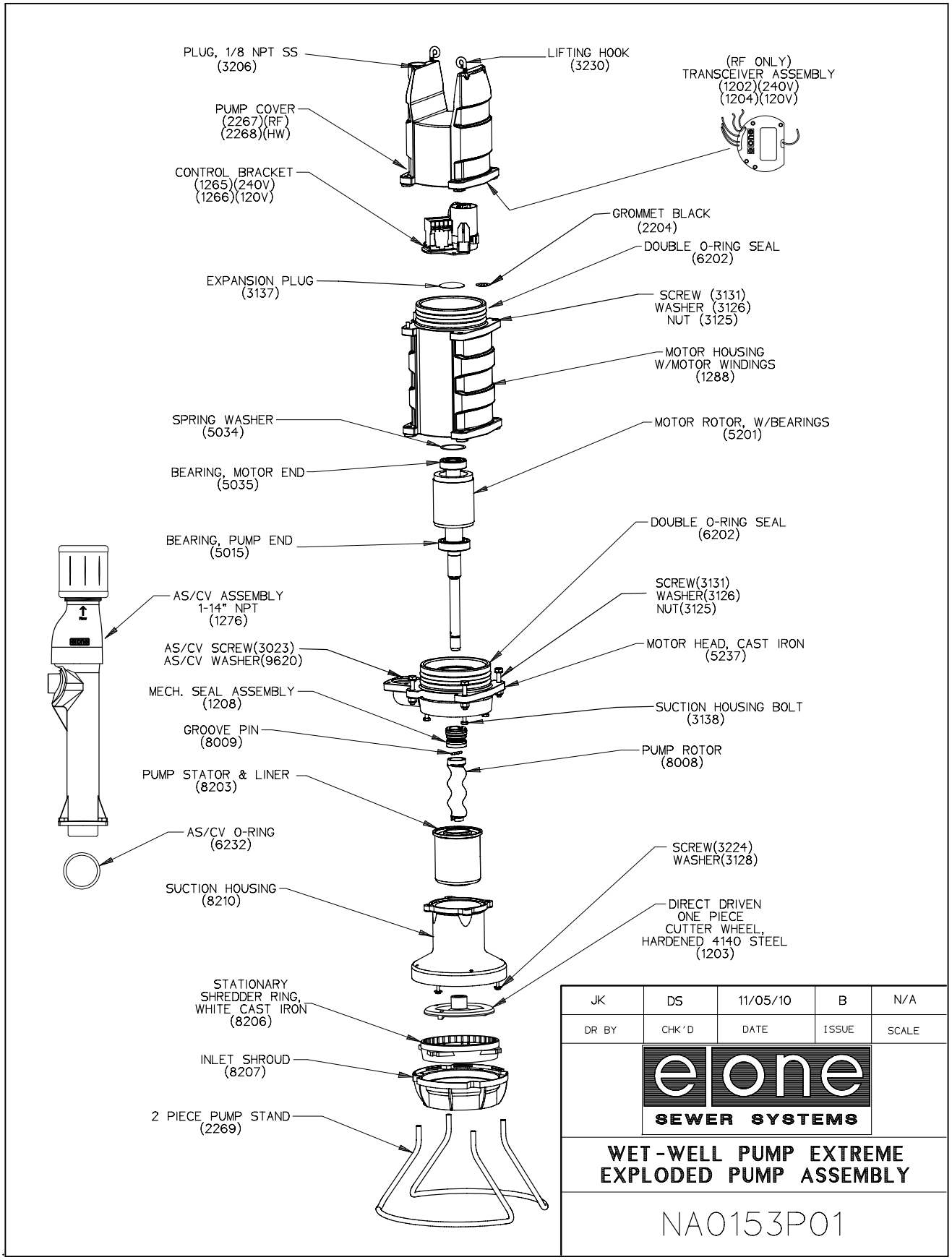


Figure 5-9c, Gatorgrinder (GH Series) Pump, Exploded View

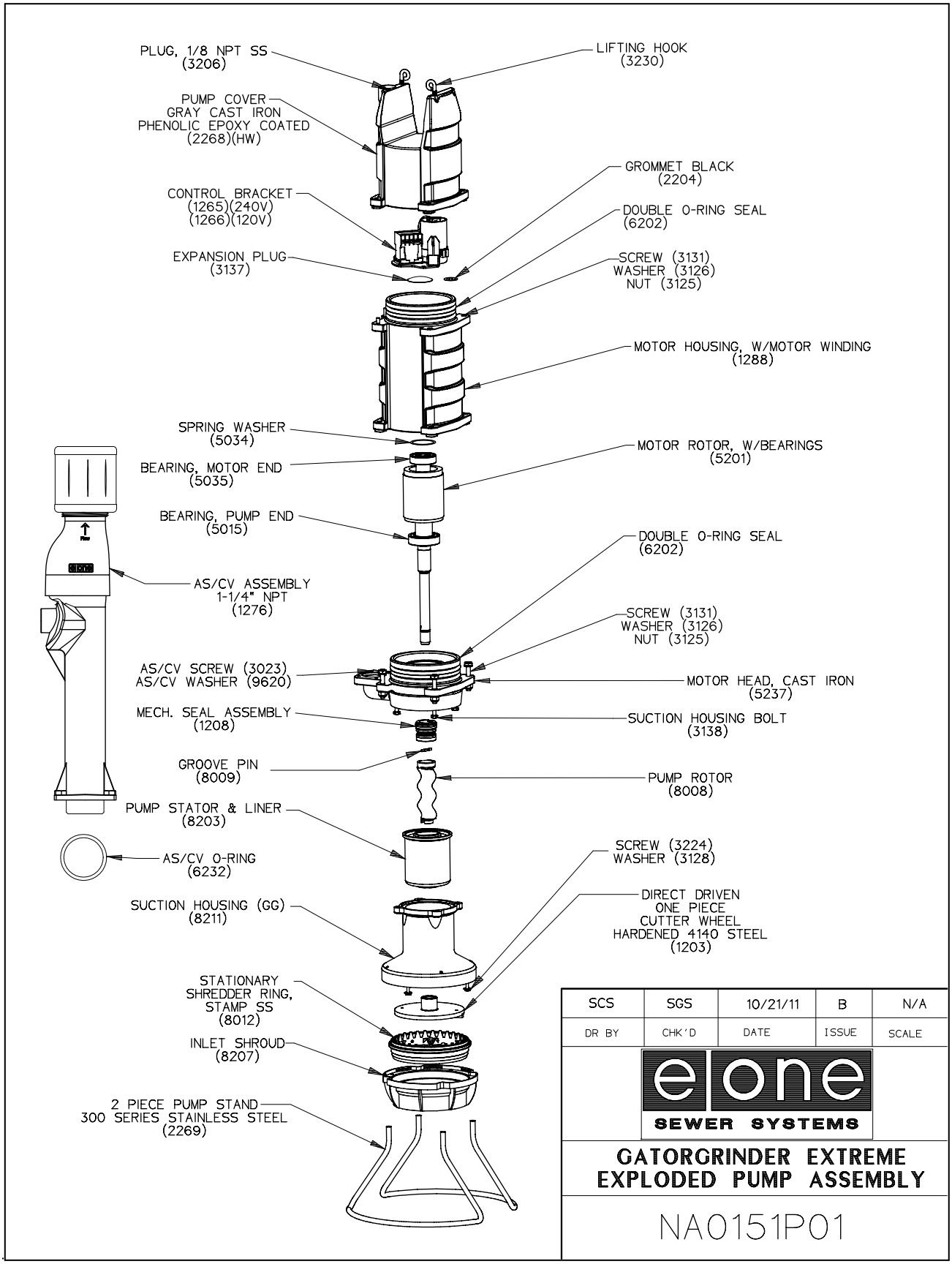
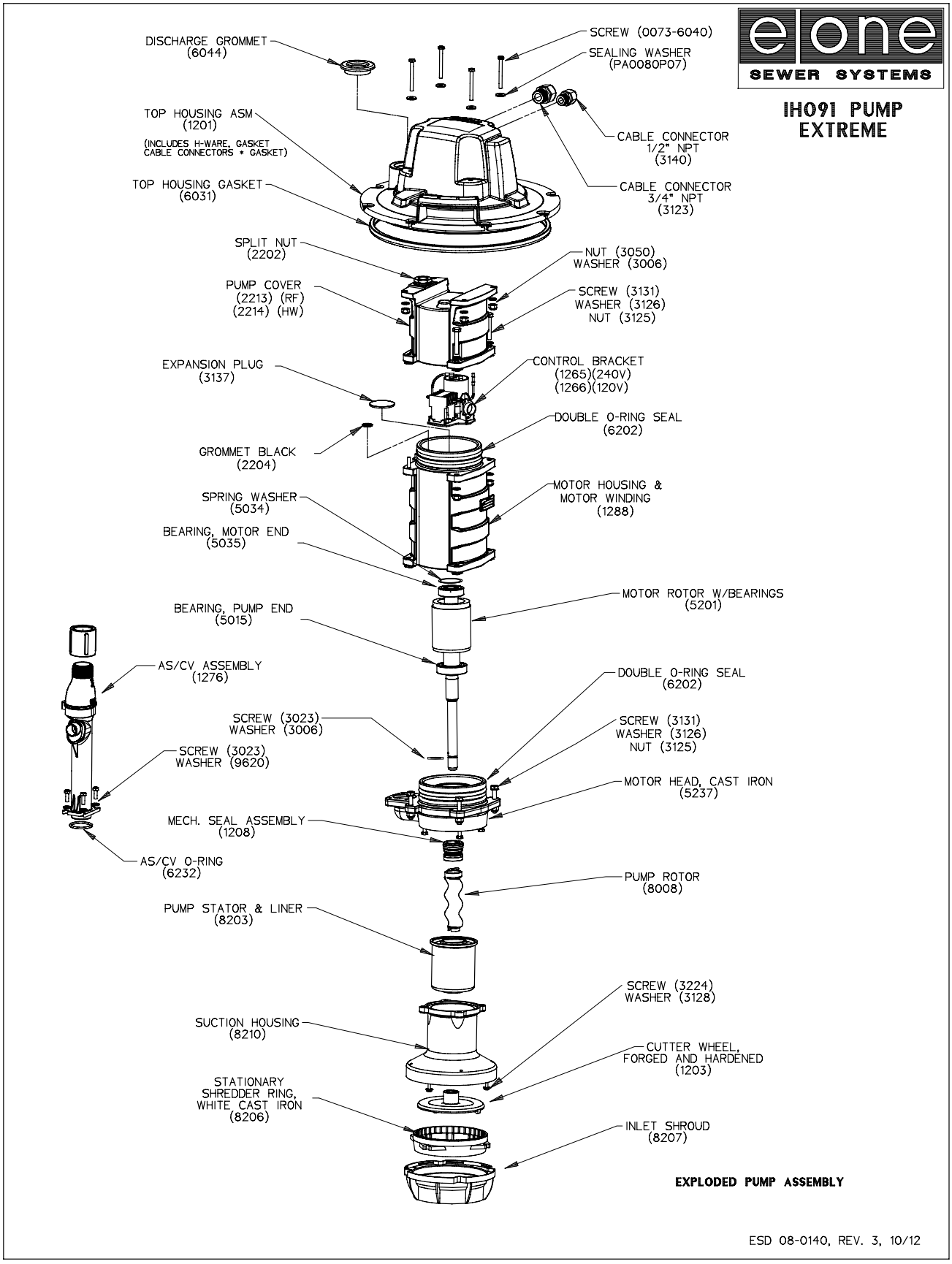


Figure 5-9d, IH091 Pump, Exploded View



Chapter 6 — Electrical Quick Disconnect (EQD)

Note: *Do not use Teflon paste on the cord grip threads that screw into the EQD housing.*

Disassembling the EQD

1. Loosen the compression nut on the cable fitting.



Figure 6-1

2. Loosen the four screws that hold the insert in the EQD housing.

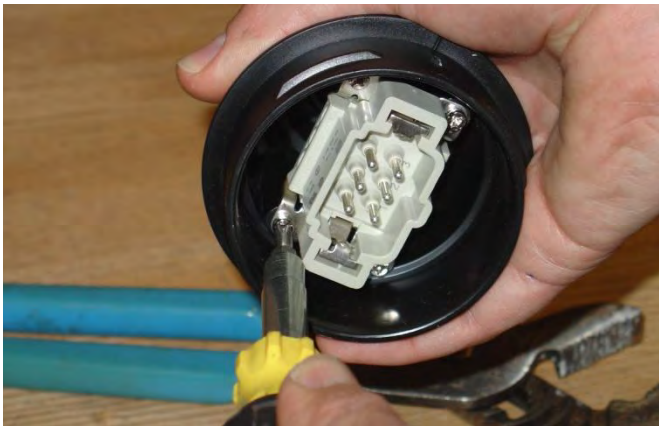


Figure 6-2

3. Slide the EQD housing down the power cable.

4. Loosen the six retaining screws and remove the wires from the EQD insert.

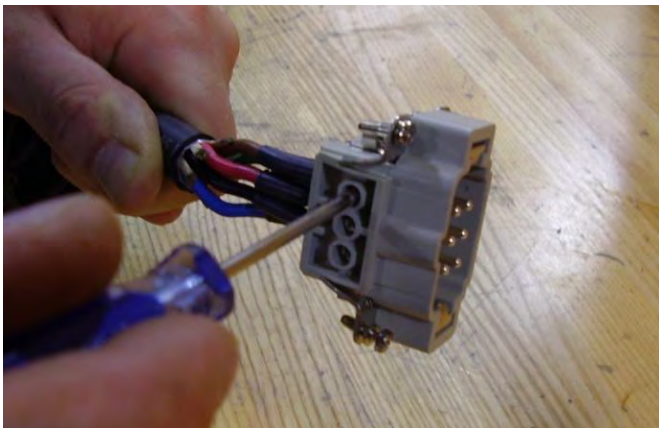


Figure 6-3

Reassembling the EQD

1. Slide the EQD housing (with cable fitting installed and compression nut loose) over the power cable.
2. Tray cable side: install the watertight grommet onto the wires. Keep the tapered side toward the cable jacket, not the cable end.

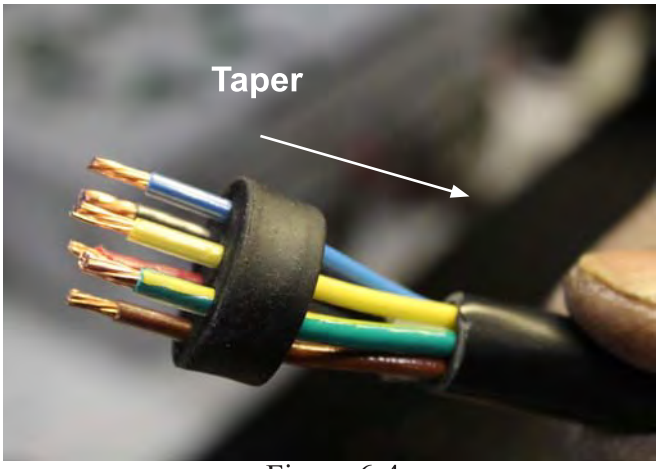


Figure 6-4

3. Insert the wire ends of the power cable into the EQD insert, ensuring proper pin number and wire color alignment:

EQD Pin #	Wire Color	Function
1	Brown	Manual run
2	Red	L1
3	Black	L2 (240V) or Neutral (120V)
4	Green w/ yellow stripe	Ground
5	Yellow	Alarm power feed
6	Blue	Alarm power return

Table 6–1

4. Tighten the six setscrews. Ensure the wires have been stripped back 1/4” to 3/8” for proper installation.
5. Tighten the four connector screws into the EQD housing.

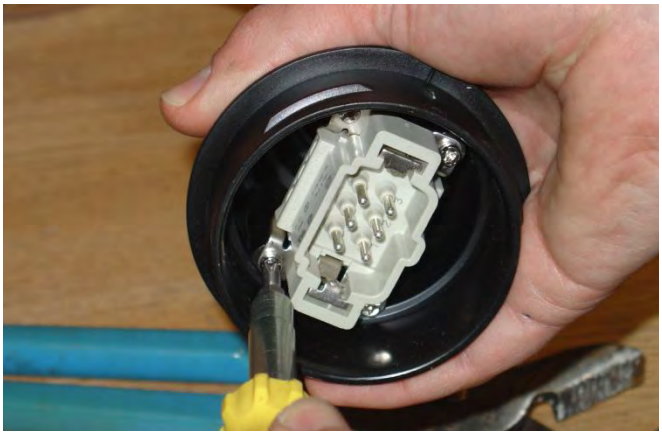


Figure 6-5

6. Tighten the compression nut on the cord grip.



Figure 6-6

EQD Retrofit: 2000 Series to Extreme Series

1. To seal the core bolt inserts in the tank transition, install the six foam pads onto the underside of the new top housing. Flats on the underside will guide you.
2. With the power off, loosen the screws on both sides of the 2000 Series EQD. Unplug the EQD.
3. Remove the four screws at each corner of the insert. Loosen the packing nut and push the cable through the housing.
4. Disconnect the six leads from the insert by loosening the set screws.
5. Cut off the old, stripped portion of the cable.
6. Slip off the old EQD housing and compression fitting from the cable.

7. Slip the Extreme Series EQD housing with new compression fitting installed over the cable. **Do not use pipe sealant on the compression fitting threads — damage will result!**
8. Trim the outer jacket back by 2 1/4 inches. Strip the six individual wire leads 1/4 inch to 3/8 inch. These stripped lengths must be followed closely to ensure the proper installation.
9. Install the water block grommet over the six conductors, inserting the wires into the numbered side (Fig. 6-4).
10. Connect the individual wires to the electrical insert as indicated:

EQD Pin #	2000 Series Wire Color	Extreme Series Wire Color	Function
1	Red	Brown	Manual run
2	Black	Red	L1
3	White	Black	L2 (240V) or Neutral (120V)
4	Green	Green w/ yellow stripe	Ground
5	Orange	Yellow	Alarm power feed
6	Blue	Blue	Alarm power return

Table 6–2

11. Tighten the set screws.
12. Slip the EQD housing down to the electrical insert.
13. Tighten the four corner screws, compressing the water block grommet into housing (Fig. 6-5). Be sure to start each screw before tightening completely.
14. Tighten the compression fitting packing nut (Fig. 6-6).

EQD Retrofit: 200 Series to Extreme Series

Order the permanent conversion kit (ND0059G01) and follow the enclosed instructions.

Chapter 7 — Top Housing

D-Series Top Housing Removal

1. Loosen the candy cane compression nut and slide the candy cane away from the check valve/anti-siphon.



Figure 7-1

2. Loosen and remove the four top housing bolts.



Figure 7-2

3. Spray the power cable and Equalizer tube with soapy water and lift off the top housing from the top of the control compartment. Simultaneously slide the power cable and Equalizer tube through the grommets.
4. Continue to the next section if the top housing will be replaced.

Discharge (Candy Cane) Removal

1. Remove the O-rings from the discharge tube.



Figure 7-3

2. Bend and remove the split washer.



Figure 7-4

3. Remove the compression nut by positioning it at an angle and knocking it off using a plastic or rubber mallet.



Figure 7-5

4. Remove the discharge tube from the top housing.
5. Remove the cable clips that hold the Equalizer tube and power cable together and separate the two.
6. Remove the EQD assembly as described in *Chapter 6 – EQD* and pull the Equalizer tube and power cable through the top housing.

D-Series Top Housing Reassembly and Installation

1. Remove the power cable and Equalizer tube grommets from the top housing. Push a fish tape, rope or solid wire through the hole.

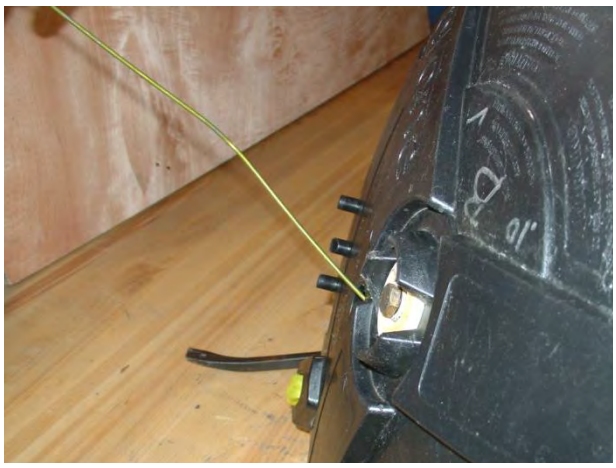


Figure 7-6

2. Attach the power cable (EQD end) to the guide wire with tape. Pull the cable through the top housing. Repeat for the Equalizer tube.

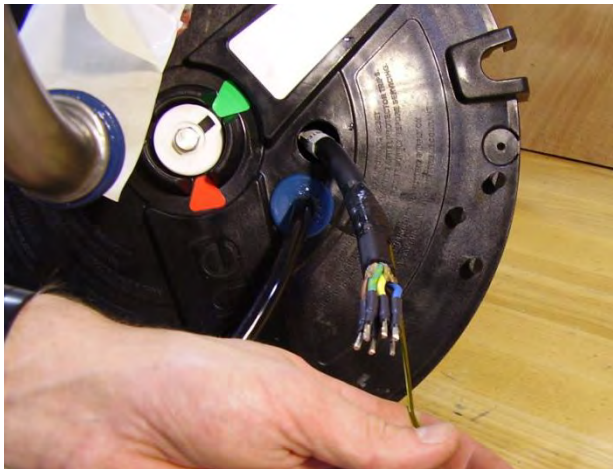


Figure 7-7

3. Using soapy water as a lubricant, slide the grommets back onto the power cable and Equalizer tube.

4. Use a small, flat head screwdriver to seat the power cable and Equalizer tube grommets into the top housing. Take care not to tear the grommet.



Figure 7-8

5. Secure the top housing onto the control compartment casting with the four bolts and four new Nyloc nuts. Tighten in an X pattern to 120 inlb.

IH Station Top Housing Removal

1. Remove the four bolts that attach the check valve/anti-siphon to the discharge elbow.



Figure 7-9

2. Loosen and remove the four top housing bolts.



Figure 7-10

3. Remove power cable/Equalizer tube restraint and separate the two.



Figure 7-11

4. Lift the top housing and anti-siphon/check valve off the top of control compartment as one assembly.
5. Simultaneously slide the cable and Equalizer hose through the cord grips to loosen the compression nuts.

IH Station Top Housing Replacement

1. Unthread the check valve/anti-siphon from the PVC discharge elbow.
2. Disconnect the power cable from the alarm panel.
3. Unplug the Equalizer tube from the Equalizer.
4. Remove the retaining clips from the Equalizer tube and power cable and separate the two.
5. Slide the remaining Equalizer tube and power cable through the top housing.
6. Remove the cord grips and grommet from top housing (discharge, Equalizer tube and power cable).

IH Station Top Housing Reassembly and Installation

1. Install the discharge grommet into top housing.
2. Install the discharge elbow into discharge grommet.
3. Thread the discharge elbow onto check valve/anti-siphon and tighten, making sure to align with the guide slots toward the inside of the top housing.
4. Reattach the Equalizer tube to the barbed fitting on the level sensor.
5. Install the cord grips for power cable and Equalizer tube.
6. Push the power cable and Equalizer tube through their respective cord grips, starting from the bottom of the top housing.
7. Pull the Equalizer tube and power cable through the cord grips while installing the top housing and aligning the check valve/anti-siphon onto the two retaining pins.
8. Tighten the cord grip compression nuts.

9. Install and secure the four top housing bolts with four new Nyloc nuts and tighten in an X pattern.
10. Install the four bolts and secure the check valve/anti-siphon to the discharge elbow.
11. Reconnect the power cable to the alarm panel.
12. Re-install the Equalizer.
13. Secure the Equalizer tube to the power cable with the retaining clips.

Cable Replacement

Cable Removal

1. Remove top housing, following the appropriate instructions for top housing removal and replacement above.
2. Remove the level sensor as described in *Chapter 8 – Level Sensor*.
3. Remove the split ring compression nut from the control housing.



Figure 7-12

4. Remove the control housing as described in *Chapter 9 – Control Cavity*.
5. Disassemble the level sensor as described in *Chapter 8 – Level Sensor*.

Cable Installation

1. Ensure the threads in the control housing are clean and free of debris. Using a M32 x 1.5 bottom tap (PT# 4209) will ensure that the threads are clean.

2. Apply Loctite 598 generously to the bottom of the strain relief over-mold and insert the wires through the cable entry.



Figure 7-13



Figure 7-14

3. While inserting the cable into the control housing, spread Loctite 598 onto the threads of the cable entry until they are coated completely. Install a new split nut onto the cable.



Figure 7-15



Figure 7-16

4. Tighten the split nut while ensuring that the level sensor portion of the cable is pointed toward the opposite side of the cable entry area. Wipe off any excess Loctite 598 that may have squeezed out.

5. To wire the controls, refer to *Chapter 9 – Control Cavity*.
6. Reassemble the control housing back on the motor housing as described in *Chapter 9 – Control Cavity*.
7. Air test the control compartment as described in *Chapter 12 – Final Test Procedures*.
8. Connect the wires to the level sensor and reassemble as described in *Chapter 8 – Level Sensor*.
9. Perform the level sensor pressure test as described in *Chapter 8 – Level Sensor*.
10. Connect the EQD to the cable as described in *Chapter 6 – EQD*.

Chapter 8 — Level Sensor

Note: *NEVER use Teflon paste on the threads of the cord grip (power cable) or the threads of the barbed fitting (Equalizer tube) that are connected to the top of the level sensor (or any plastic part on the pump) because damage could occur! Use only Loctite 598 on the threaded portions!*

Level Sensor Removal

1. Refer to *Chapter 7 – Top Housing* to remove the top housing from D-Series and IH pumps.
2. For W-Series, Gatorgrinder and Upgrade pumps, loosen the two rope hooks and move them out of the way of the level sensor.
3. Disconnect one side of each of the level sensor retaining clips. Separate the columns and push upward to remove the level sensor.



Figure 8-1



Figure 8-2

Level Sensor Test Procedure

The level sensor assembly must be leak tested before disassembly and after reassembly.

The following tools are needed to perform the level sensor test: 1) digital Monometer; 2) isolation valve with a T or Y fitting; 3) hand pump or regulated air source; 4) stop watch; and 5) three pieces of tubing. These items are available in E/One kit #NB0158G01.



Figure 8-3

1. The configuration above is a field or shop configuration. You can also use a regulated air source into tube #1 for a shop configuration.
2. Connect the three pieces of tubing to the pump or regulated air source, the monometer and the level sensor assembly in the configuration shown above.
3. Pressurize the level sensor assembly to 82 inches to 90 inches of water column in air (approximately 3 psi).
4. Close the isolation valve.
5. After 40 seconds, record the monometer reading.
6. After another 30 seconds, record the monometer reading again.
7. Subtract the last reading from the first reading.

The results must be no more than 0.5 inch of loss for hardwired assemblies manufactured before 8/25/2009 or serial number 353742 and no more than .01 inch for units manufactured after 8/25/2009 or serial number 353742.

Level Sensor Leak Troubleshooting & Repair

If a substandard result occurs, perform the following procedure to determine where the leak is occurring and where to repair the level sensor assembly.

1. While the assembly is under pressure (82 inches to 90 inches of water in air), spray soapy water or leak detector around the liquid tight cord grip, the Equalizer tube, the barbed fitting, the joint between the two assembly halves, the cable and T portion of the over-mold, and the test assembly.
2. Lay the assembly on its side and spray around the column holes in the bell area.
3. Make any necessary repairs and retest the level sensor assembly.
4. Snip off 1/2 inch of the tubing to ensure a good seal. Reinstall the Equalizer tube onto the barbed fitting.

Level Sensor Disassembly

1. Loosen the four Phillips head screws that hold the level sensor assembly together (Fig. 8-4). Separate the two columns (Fig. 8-5).



Figure 8-4

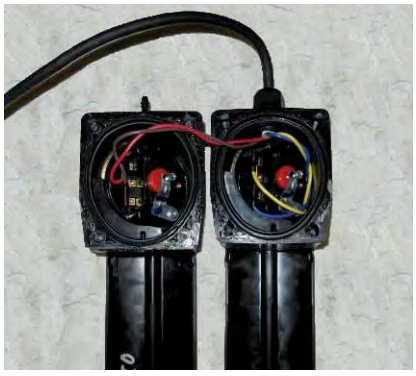


Figure 8-5

2. Using needlenose pliers, remove the pressure switch retainers from both sides of level sensor (Fig. 8-6). Remove the flag terminals from the switches (Fig. 8-7).



Figure 8-6

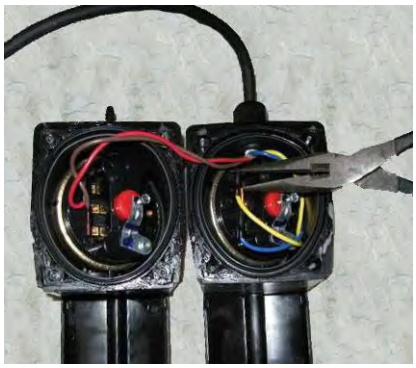


Figure 8-7

3. Remove the on/off switch (Fig. 8-8) and the molded radial seal (Fig. 8-9). ***Note:*** *The seal will also stick in the alarm side.*



Figure 8-8



Figure 8-9

4. Clip the flag terminals from the wires, loosen the cord grip compression nut and pull out the cable (Fig. 8-10). Remove the alarm switch (Fig. 8-11).



Figure 8-10



Figure 8-11

Column Leak Test

1. Cover the column hole in the switch compartment with your thumb.



Figure 8-12

2. Submerge the side of the level sensor assembly that you are testing into a container of water that is deep enough (at least 19 inches) to submerge it up to the top of the column at the switch compartment.
3. Look for bubbles coming out of the column.



Figure 8-13

Level Sensor Reassembly

Ensure that the inside of the two level sensor halves and the seal rim are clean and dry before reassembly.

Note: *If you are using a cordless drill or screwdriver, use one of the lowest torque settings or damage may occur.*

1. If the barbed fitting or liquid tight cord grip is being replaced, put a fine bead of Loctite 598 on the threads before installing them into the assembly.



Figure 8-14



Figure 8-15

2. Using Dow 111 grease, lubricate the O-rings on the new switches (Fig. 8-16) and install them (On/Off switch in the Equalizer barbed fitting side and the Alarm switch in the cable entry side). Install a new molded radial seal on the On/Off side and lubricate the exposed surface (Fig. 8-17).



Figure 8-16



Figure 8-17

3. Feed the cable through the cord grip (Fig. 8-18), reinstall the compression nut and tighten (Fig. 8-19).



Figure 8-18



Figure 8-19

4. Install new flag terminals (PT# 7115) and reconnect the wires: (On/Off) Red to Pin 1 and Brown to Pin 3; (Alarm) Yellow to Pin 1 and Blue to Pin 3. ***Note:*** *Flag terminals must be crimped using a flag terminal crimper (PT# NA0237P01 or equivalent).* Reinstall the switch retainers.

5. Mate the two halves together, ensuring that wires are not in the way. Install the four screws, taking care not to overtighten (Fig. 8-21). Perform the level sensor test procedure.



Figure 8-20



Figure 8-21

Equalizer Field Reset — Original Style (May 2012 & Earlier)

Note: *Environment One does not recommend opening the original-style Equalizer. This Equalizer design was used until May 2012, pump serial number 439086.*

If the Equalizer diaphragm appears to have collapsed, disconnect the Equalizer tube from the Equalizer. If the problem goes away, inspect the Equalizer diaphragm. If the problem persists, the Equalizer diaphragm likely has not collapsed. If the Equalizer diaphragm has collapsed, perform the following procedure to reset the diaphragm.

1. Using your fingers, carefully pry apart the Equalizer at the snaps. Do not use a screwdriver or any other tool. If the Equalizer will not pry apart, install a new Equalizer.



Figure 8-22

2. Remove the collapsed diaphragm, clean and dry it, and reshape it to the neutral position.



Figure 8-23



Figure 8-24

3. Align the mold number on the diaphragm to the hanger on the base. Install the diaphragm onto the base shell and ensure that it is seated completely.



Figure 8-25



Figure 8-26

4. With the logo upright, set the cover on the base evenly and center the cover snap to the base hanger. Press the cover only until the snaps engage or damage may occur. Inspect all four snaps to ensure that they are fully engaged.

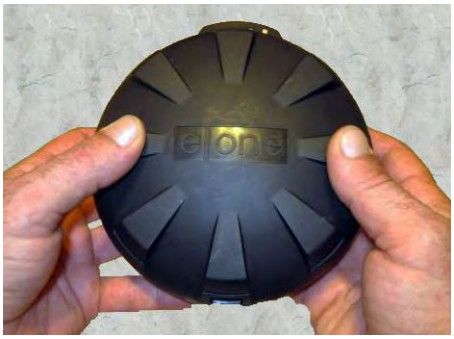


Figure 8-27

Equalizer Field Reset — New Style (May 2012 to Present)

Note: *This Equalizer design changed in May 2012, pump serial number 439086.*

If the Equalizer diaphragm appears to have collapsed, disconnect the Equalizer tube from the Equalizer. If the problem goes away, inspect the Equalizer diaphragm. If the problem persists, the Equalizer diaphragm likely has not collapsed. If the Equalizer diaphragm has collapsed, perform the following procedure to reset the diaphragm.

1. Use a medium-sized screwdriver to gently pry the inspection cover from the front of the Equalizer.



Figure 8-28



Figure 8-29

2. Remove the Equalizer tube. Grab the diaphragm of the Equalizer and withdraw it slowly.



Figure 8-30



Figure 8-31

3. Push the diaphragm back into its neutral position and look for signs of water coming out of the nipple attached to the Equalizer tube. If water is present, inspect the level sensor assembly switch compartment.



Figure 8-32



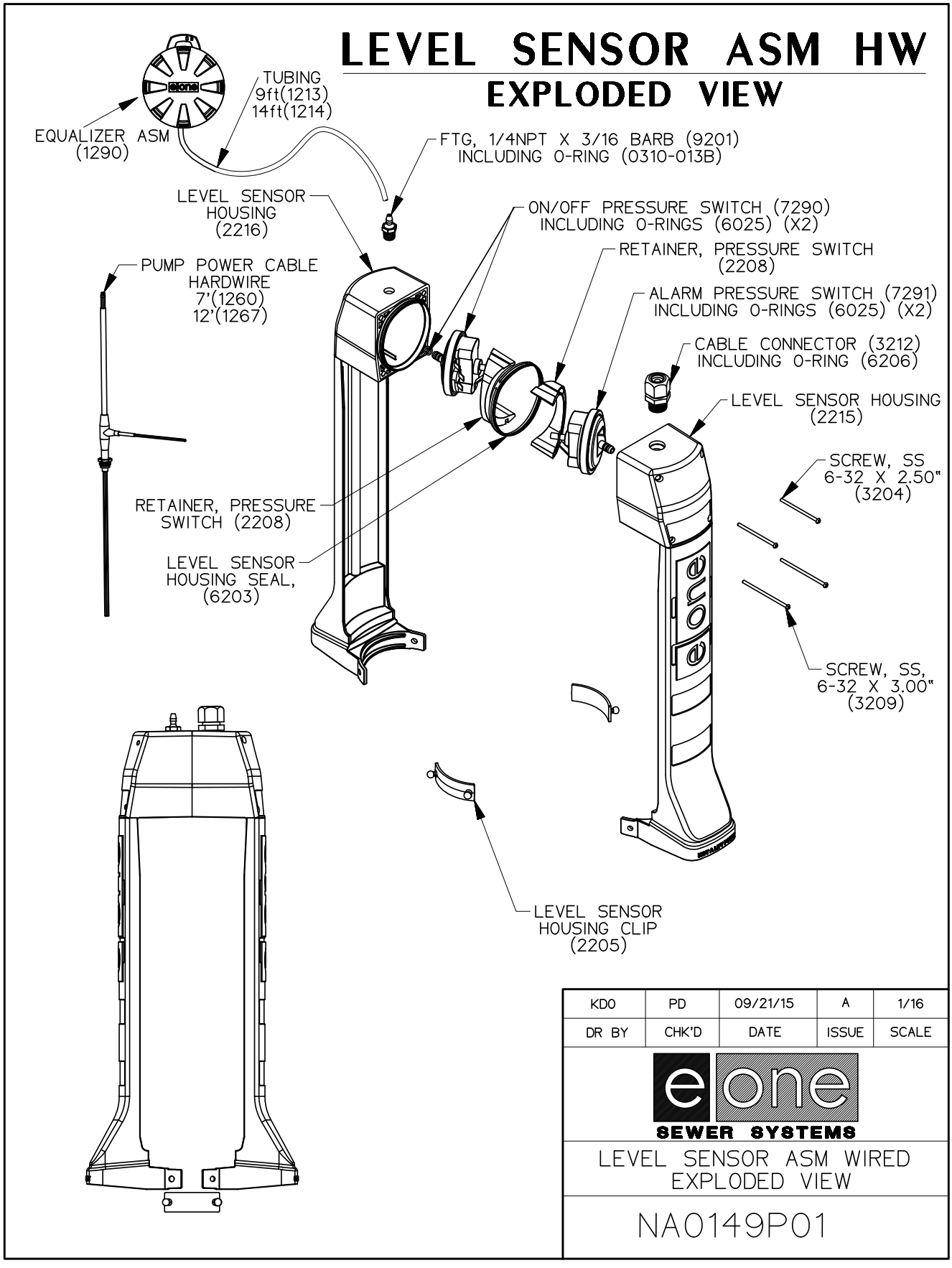
Figure 8-33

4. Snap the inspection cover back into place on the front of the Equalizer assembly and reattach the Equalizer tube.



Figure 8-34

Figure 8-35, Level Sensor Assembly Exploded View (all hardwired pumps)



Chapter 9 — Control Cavity

Removing the Control Housing

1. Remove the top housing and level sensors as described in *Chapter 7 – Top Housing* and *Chapter 8 – Level Sensor*, respectively.
2. Loosen and remove the air release plug using a 3/16-inch hex key.



Figure 9-1

3. Install the control cavity air test fitting and use a regulated low pressure line or hand pump to pressurize the control cavity to 5 psi.
4. Use soapy water to test for leaks around the O-ring joint and compression nut. Submerging the assembly may aid with finding leaks. Clearing trapped air may take several minutes.
5. Use a 1/2-inch deep-well socket and a 1/2-inch wrench to remove the three retaining bolts from the control housing.



Figure 9-2

6. Break the seal and lift the control housing using two pry bars. Pry upward until the control housing is free, taking caution not to pull the wires apart from the control bracket assembly.



Figure 9-3

7. Hang the control housing on the motor housing by inverting it and hanging it on the guide pin.



Figure 9-4

Motor Contactor and Controls

Inspect the internal components for signs of corrosion, moisture and/or damage. The motor contactor has 10 screw-type terminals that hold leads:

- Terminals A1 and A2 are the coil
- Terminals 1/L1, 3/L2, and 5/L3 are the line side of the contacts
- Terminals 2/T1, 4/T2 and 6/T3 are the load side of the contacts

When the on/off switch or manual run energizes the coil, the contacts close and run the pump.

To test motor contactor operation:

1. With the power off, verify that the control bracket is wired correctly and is seated properly into the motor housing.
2. Check the continuity across 1/L1 and 2/T1; across 3/L2 and 4/T2; and 5/L3 and 6/T3. If they read “closed” (000 or short), replace the contactor. If they read “open” (1 or OL), proceed.
3. Connect a jumper wire from A2 (coil) to 1/L1 (contact).
4. Plug the pump into a power source. Check nameplate for proper voltage.
5. Turn the power on. The contactor should engage and transfer L1 power to the motor. If the pump does not run, check the voltage across the contacts, the start components and the motor windings.

Motor Start Switch

The control bracket must be removed in order to access the start switch. The motor start switch is mounted to the control bracket and has three spade terminals.

Terminals 1 and 3 are attached to a coil; a reed switch runs inside the coil. When the pump motor is energized, a magnetic field is created that engages and disengages the start winding. Terminal 2 energizes the start winding through the capacitor.

Note: *The control bracket must be removed to access the start switch.*

Removing the Control Bracket

1. Remove the red wire from 1/L1.
2. For pumps with serial numbers prior to 531884 (May 2015), remove the black wires from A1. For pumps with serial numbers after 531884, remove the black wires from 3L2.
3. Remove the brown wire from A2.
4. Use a hex wrench to remove the two retaining screws.
5. Remove the red wire from the capacitor.
6. Remove the yellow and grey wires from the start switch.
7. Remove the blue motor winding wire from 2/T1.
8. Cut the black wire between the motor and thermal at the butt splice.

To test the switch:

1. Remove the orange wire from the capacitor before testing.
2. Connect a continuity tester between Terminals 1 and 3. It should read a short or closed circuit; if not, replace the switch.
3. Connect the tester between Terminals 1 and 2 or Terminals 3 and 2. It should read an open circuit; if not, replace the switch.

Motor Capacitor

The motor capacitor is located in the center of the control bracket and has two terminals. Located across the two terminals is a bleeding resistor that bleeds off any unused, stored current. One terminal runs to the start switch; the other connects to the motor start winding. The capacitor gives the motor a voltage boost while starting.

To test the capacitor:

1. Hold the insulated handle of a screwdriver and short the two terminals to bleed off any remaining current.
2. Use a continuity tester to check between the two terminals. It should show a short and slowly bleed off. If not, reverse the leads. If there is still no reading or the reading does not bleed off, replace the capacitor.

Note: *The motor capacitor may also be tested by checking for proper Microfarad reading.*

Thermal Protector

The thermal protector keeps the motor from running too long above its rated amperage, preventing possible motor or pump damage. This is an auto-reset switch; two wires are permanently attached to the protector on the normally closed contacts.

A second thermal is wound into the windings of the motor and protects the motor from overheating. If the motor goes above the preset limits, the thermal protector will cut the power to the pump until it cools down. Both thermal switches will reset themselves automatically.

The motor thermal switch is not replaceable.

Pump Cable Meg Check

- Good: 500M or higher
- Marginal: Between 200M & 500M
- Bad: Below 200M

1. With the control bracket removed and no wires touching the chassis or each other, meg test at the EQD between each pin.
2. If you get bad readings, remove the EQD plug insert and retest at the wires.
3. If bad readings go away, replace the insert and retest at the pins.
4. If bad readings persist, replace the cable.

Note: *This test is performed with the switches still connected, assuming that they are good. If the level sensor assembly has not been entered and you get bad readings, see* Chapter 8 – Level Sensor*.*

Motor Cavity Water Test

1. With the controls removed, remove the ground screw and install the air test fitting.
2. Pressurize the compartment to 5 psi.
3. Turn the assembly upside down and remove the hose from the test fitting. Look for water escaping from the motor cavity. If water is noted, the motor will need new bearings and the windings will need to be cleaned, dried and tested.

Motor Windings Test

Perform motor winding resistance checks per the following charts to verify motor condition.

Note: *While all of the wires are disconnected between the control bracket and the power cable, replace the two O-rings on the motor casting before rewiring the controls. Use Molycote 55 grease on the motor housing and the motor head O-rings. Use silicone grease on all other O-rings.*

Motor Field Winding Resistance

Meter Setting	Wire Combination	Good Motor Resistance	Bad Motor Resistance
200	Black/Red	1.5 – 2.5 ohms	Infinity
200	Black/Gray	1.5 – 2.5 ohms	Infinity
200	Yellow/Blue	1.5 – 2.5 ohms	Infinity
200	Yellow/Black	Infinity	Any reading
2000K or 2M	Ground/All motor leads	Infinity	Any reading; possibly water in motor. Dry windings and retest.
Megger	Ground/All motor leads	500M or higher	Below 500M

Table 9–1

Motor Wire Functions

Wire Color	Function
Black	Run/Start windings and internal thermal protector
Blue	Run windings
Gray	Run windings
Yellow	Run windings
Red	Run windings
Orange	Jumper lead (120V only)

Table 9–2

Control Bracket Installation — 240V

1. Connect the cable ground wire to the chassis and connect the proper wires to the start switch before installing the bracket.
2. Refer to the wiring road map in *Chapter 2 – Troubleshooting* for the correct wiring configuration.

Control Bracket Installation — 120V

1. Connect the cable ground wire to the chassis and connect the proper wires to the start switch before installing the bracket.
2. Refer to the wiring road map in *Chapter 2 – Troubleshooting* for the correct wiring configuration.

Control Housing Installation

1. Unhook the control housing from the motor housing.
2. Slide the control housing back onto the motor housing, making sure not to pinch or crimp any of the wires. The air release plug must be removed in order to install the control housing onto the motor housing.
3. Reinstall the three bolts and use three new Nyloc nuts to secure the control housing.
4. Perform the control cavity leak test as described in *Chapter 12 – Final Test Procedures*.
5. Apply Loctite 598 generously to the threads of the air release plug and install it. Apply Loctite 598 over the plug after it is installed; apply more Loctite 598 if necessary to cover the plug.
6. Reinstall the top housing as described in *Chapter 7 – Top Housing*.



Figure 9-5



Figure 9-6

Chapter 10 — Motor Cavity

A defective or shorted motor; worn seal or bearings; or flooded motor require major repair. Major repairs must be performed in a shop that is equipped with the correct tools and clean facilities for proper repair and testing. Any time a pump is rebuilt, all seals, O-rings, gaskets, bearings, pump stator and pump liner should be replaced. Clean the core thoroughly before performing any major repair.

Core and Motor Disassembly

1. Remove the top housing, level sensors and controls as described in *Chapter 7 – Top Housing; Chapter 8 – Level Sensor*; and *Chapter 9 – Control Cavity*, respectively.
2. Remove the anti-siphon valve by removing the four bolts and lifting it off the discharge elbow.
3. Disassemble the pump end as described in *Chapter 5 – Pump End*. Leave the rotor installed.
4. Use a 1/2-inch deep-well socket and a 1/2-inch wrench to remove the four bolts that hold the motor housing to the motor head.
5. Turn the pump assembly upside down on a bench. Take care not to pinch the motor wires between the motor casting and the work surface.
6. Use two pry bars to remove the motor head from the motor housing.



Figure 10-1

7. After the two castings separate, lift the motor head assembly out of the motor by the shaft.



Figure 10-2



Figure 10-3

Note: *If the upper bearing remains in the motor bearing bore, the freeze plug will have to be removed and the bearing punched out. A new freeze plug will need to be installed.*

8. Remove the pump rotor. Support both ends with wooden blocks to avoid bending the armature shaft. Use a hammer and a 1/8-inch punch to remove the grooved pin that retains the pump rotor.



Figure 10-4

9. Remove the armature shaft from the motor head. Hold the armature assembly from the upper bearing and tap the cutter wheel end of the shaft on a piece of 4x4 block. The motor head will drop off the lower bearing and land on the 4x4 block.

Note: *If the lower bearing remains in the motor head bearing bore, it will need to be punched out.*

10. Remove and discard the old bearings.

11. Remove and discard the old mechanical seal from the motor head.



Figure 10-5

Motor Drying Techniques

Note: *If the motor was wet or flooded, clean and dry the motor before reassembling the unit. Use a mild detergent, such as household dishwashing liquid, to clean the motor. Soft brushes can be used with caution; take care not to damage the insulation on the windings. Inspect the windings for varnish flaking off as a result of overheating. Look for burn marks in the windings and in the plastic insulators inside the motor field.*

Several methods can be used to dry the motor. Optimally, bring the temperature of the motor above water boiling temperature (212 F or 100 C) for about two hours. Dry the motor in an oven at 250 F for 2 hours. Alternately, bring the motor above room temperature for a longer period of time (4 hours or more) so the moisture evaporates.

Note: *Do not get any of the devices described below too close to the opening of the motor castings or damage could occur. Temperatures above 311 F will damage the windings insulation.*

- Hang a heat lamp with a 300 watt bulb 1 foot from the opening of the motor casting and dry for at least 4 hours.
- Lay the casting down and put a space heater that has a fan about 1 foot from the opening of the motor casting and dry for at least 4 hours.
- Use a heat gun with a stand and place it no closer than 1 foot from the opening of the motor casting and dry for at least 4 hours.
- Use a hair dryer on a stand and place it no closer than 1 foot from the opening of the motor casting and dry for at least 4 hours.
- If it is a warm, sunny day, place it directly in the sun on the pavement for a day.

1. After the motor is clean, dry and cooled, test the motor windings resistance. Refer to Table 9-1, Motor Field Winding Resistance, in *Chapter 9 – Control Cavity*.
2. Meg the windings to Ground. Readings should be 500M to 1000M at 500 volts.

Note: *If the motor winding has failed, it does not need to be removed. The new assembly (PT# 1288) contains a winding installed into a motor housing.*

Assembling the Core and Motor

1. Clean all machined surfaces including the motor head, motor housing, bearing bores, and seal bore. Surfaces must be clean and free of rust.
2. Press the new upper and lower bearings onto the armature shaft.
3. Set the motor head on the suction housing or place on a bench with a hole for the armature shaft to penetrate. Install new radial seals and lubricate with Molycote 55.



Figure 10-6

4. Apply Loctite 641 to **either** the upper and lower bearings **or** to the bearing bores. Use a sponge tip or nozzle tip applicator to apply a thin, even coat around the entire surface (Figure 10-7).



Figure 10-7



Figure 10-8

Note: *If you are applying Loctite 641 to the bearing race, apply it to the portion of the race that will enter the bearing bore first. If you are applying Loctite 641 to the bearing bore, apply it to the area of the bore that will come into contact with the bearing race first when it is being installed (Figure 10-8).*

5. Install the armature assembly into the motor head.



Figure 10-9

6. With the motor housing upside down on the bench, place the spring washer into the top bearing bore. Lift the motor head/armature assembly by the motor head. Grasp the armature shaft below the motor head and turn it upside down. Carefully slide the assembly into the motor housing, ensuring that the discharge elbow is aligned on the appropriate side. Tighten the bolts and four new locknuts evenly in a cross pattern to 140 inlb.



Figure 10-10

7. Assemble the mechanical seal as described in *Chapter 11 – Mechanical Seal Assembly*.

8. Perform motor cavity air tests as described in *Chapter 12 – Final Tests Procedures*.

Chapter 11 — Mechanical Seal Assembly

The mechanical seal is a carbon/ceramic type with spring bellows. The seal kit (PT# 1208) consists of the ceramic portion, carbon portion/spring bellows, Pac–Ease, instruction sheet, seven lock nuts and four main sealing O-rings. The seal is easily installed with the motor turned upside down or lying on its side with the pump end facing the installer.

Replace the mechanical seal only during a motor overhaul. Do not replace the mechanical seal in the field or as routine maintenance. Be sure to install the new motor head and control compartment O-rings when reassembling.

Installing the Mechanical Seal

1. Ensure the pump cavity, seal bore and armature shaft are clean and grit-free. Wash the seal installation tool (PT# 4028) and hands before proceeding. Proceed quickly to prevent the lubrication from drying out; otherwise, a failure may occur.
2. Carefully remove the ceramic portion of the seal from the package. Lubricate the O-ring with Pac-Ease or clean, soapy water, handling the seal by the edges. Do not contaminate the smooth face of the seal.
3. Slide the seal over the armature shaft with the grooved side facing the motor head. Use the seal installation tool to press the ceramic portion of the seal into the seal bore. Do not twist or turn the tool; doing so may cut the O-ring.
4. Lubricate the bellows on the carbon portion/spring bellows portion with Pac-Ease or clean, soapy water. Slide over the armature shaft (carbon face first) and press on with the seal installation tool. Use a steady push and take care not to “slam” the two faces of the seal together.
5. Install the pump rotor immediately. Use channel lock pliers to install the groove pin.
6. Rotate the motor shaft to help seat the seal.
7. Proceed to *Chapter 12 — Final Test Procedures*.

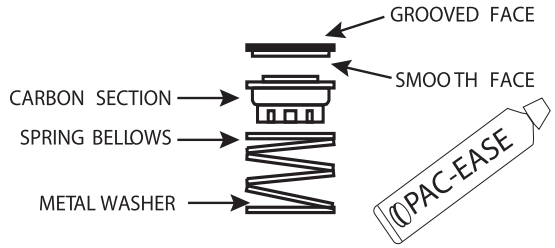


Figure 11-1

Chapter 12 — Final Test Procedures

Leak Tests

Leaks must be repaired before performing other tests or installing the unit for use. Failure to test the unit can result in core flooding or a damaged unit. After leak testing is complete, perform the remaining test procedures.

Motor Cavity & Seal Assembly Leak Test

Perform this test whenever the motor housing or mechanical seal assembly has been disturbed or the controls have flooded. This test will ensure no leaks exist between the motor head and motor housing and between the mechanical seal assembly and the motor cavity.

1. Use a 1/2-inch socket or wrench to remove the check valve/anti-siphon.



Figure 12-1

2. Install the air test fitting into the ground screw hole and the two control bracket screws into their holes.

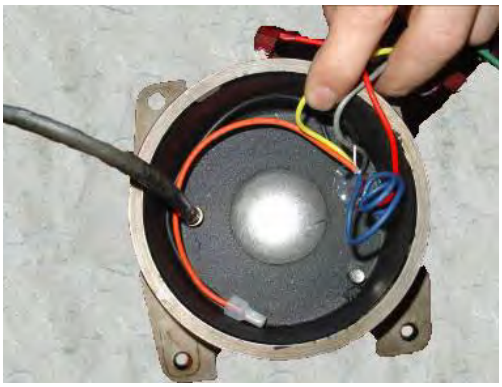


Figure 12-2

3. Place the pump into a 5 gallon bucket. Add enough water to submerge the motor head and discharge elbow.



Figure 12-3

4. Use a regulated low pressure line or hand pump to pressurize the motor cavity to 5 psi and look for bubbles. Bubbles from the discharge elbow indicate a seal leak and bubbles from around the motor head/motor housing joint indicate a motor housing O-ring leak.

5. If this test is being performed on a unit during disassembly, turn the assembly upside down and remove the hose from the test fitting. Look for water escaping from the motor cavity. If water is noted, the motor will need new bearings and the windings will need to be cleaned, dried and tested.

6. Bleed off the air pressure before reassembly.

Control Cavity Leak Test

The pump must be assembled completely in order to perform this test. This test is also performed before disassembly to check for leaks.

1. Use a regulated low pressure line or hand pump to pressurize the motor cavity to 5 psi. Spray soapy water on fittings and joint. Look for bubbles where the control housing and the motor housing join together, and the power cable entry point. Failure to repair leaks will result in premature failure of the unit.



Figure 12-4

2. Remove the test fitting. Apply Loctite 598 generously to the threads of the air release plug and install it. Apply Loctite 598 over the plug after it is installed; apply more, if necessary, to cover the plug.

Test Run

A test tank and panel (available from E/One) are recommended for run-testing the pump. The test tank has a discharge assembly for D-Series pumps, or slide face the W-Series pumps. A pressure gauge and ball valve should be added to operate the pump under pressure. A two-tank setup with sump pump to pump water back to the test tank is ideal. Contact the E/One field service department for assistance. Testing the pump is crucial.

1. Set the pump in the test tank and fill with water to the alarm level. Connect the EQD.
2. Open the discharge valve.
3. Hook the Amp probe around the black power lead to the pump (see Amperage Draw Test).
4. Turn on the alarm power circuit breaker and verify the alarm is functioning.
5. Turn on the pump power circuit breaker. The pump should turn on immediately. At 0 psi, the alarm should turn off in one to two minutes; the pump within 30 to 45 seconds after the alarm.
6. Leave the circuit breakers on. Fill the tank until the pump turns on. Close the ball valve until the pressure gauge reads 40 psi. The pump should shut off in approximately 45 seconds (in a 24-inch diameter tank).
7. Fill the tank again until the pump turns on. Carefully close the ball valve until the gauge reads 35 to 40 psi. The pump should shut off in approximately one minute. The unit must be tested to pump against discharge pressure; note the amperage draw at each pressure.

Note: *The unit pumps approximately 15 gpm at 0 psi discharge pressure; 11 gpm at 40 psi; and approximately 9 gpm 60 psi. Flow can be checked with a 5 gal pail and a stop watch (15 gpm = 20 seconds; 11 gpm = 28 seconds; 9 gpm = 34 seconds)*

WARNING!

Do not “dead head” the pump by closing the valve completely. Damage and personal injury could occur.

Amperage Draw Test

1. Set the clamp on amp meter to the desired scale.
2. Hook the probe around the black power lead in the control panel.
3. With the power on, fill the tank until the pump operates.
4. Read the current directly. Refer to the following table for troubleshooting information.

The figures shown are averages and meant to be used for approximation since motors, voltages and amp meters vary. For a 120-volt pump, double the amperage shown in table.

The table displays a comparison of back pressure (psi), flow (gpm), current draw (amperes) and head (feet of water pressure). By knowing the current draw, you may discover a restricted or blocked discharge line, blown pump stator, high head operation, etc.

A jammed grinder may trip the circuit breaker or cause the overload protector to cycle and this will cause the pump to cycle on and off and finally result in an alarm condition. A torn or worn out pump stator results in a “runs but does not pump” condition and causes an alarm. Current readings with a clamp-on amp meter will show 4.0 to 4.5 amps when the motor is running without a load. Replace the stator and, if necessary, the rotor.

Amperage Draw Readings

Amps @ 240V (120V)	PSI	Head (ft)	GPM	Comments
4.9 (9.8) or less	0	0	0	Worn stator
5.6 (11.2)	10	24	14	Normal
5.8 (11.6)	20	46	13	Normal
6 (12)	30	70	12	Normal
6.2 (12.4)	40	92	11	Normal
6.5 (13)	50	115	10	Normal
6.8 (13.6)	60	138	9	Normal
7.1 (14.2)	70	161	8	Normal
7.4 (14.8)	80	184	7.5	Normal
8+ (16+)	90+	207+	Varies	Plugged discharge line or bad bearings
>15 (>30)	0	0	0	Jammed grinder or shorted motor

Table 12–1

For more information, please contact your local distributor:

A Precision Castparts Company

Environment One Corporation
2773 Balltown Road
Niskayuna, New York USA 12309–1090

Tel: (01) 518.346.6161
Fax: 518.346.6188

www.eone.com

NA0401P01 Rev C
06/16

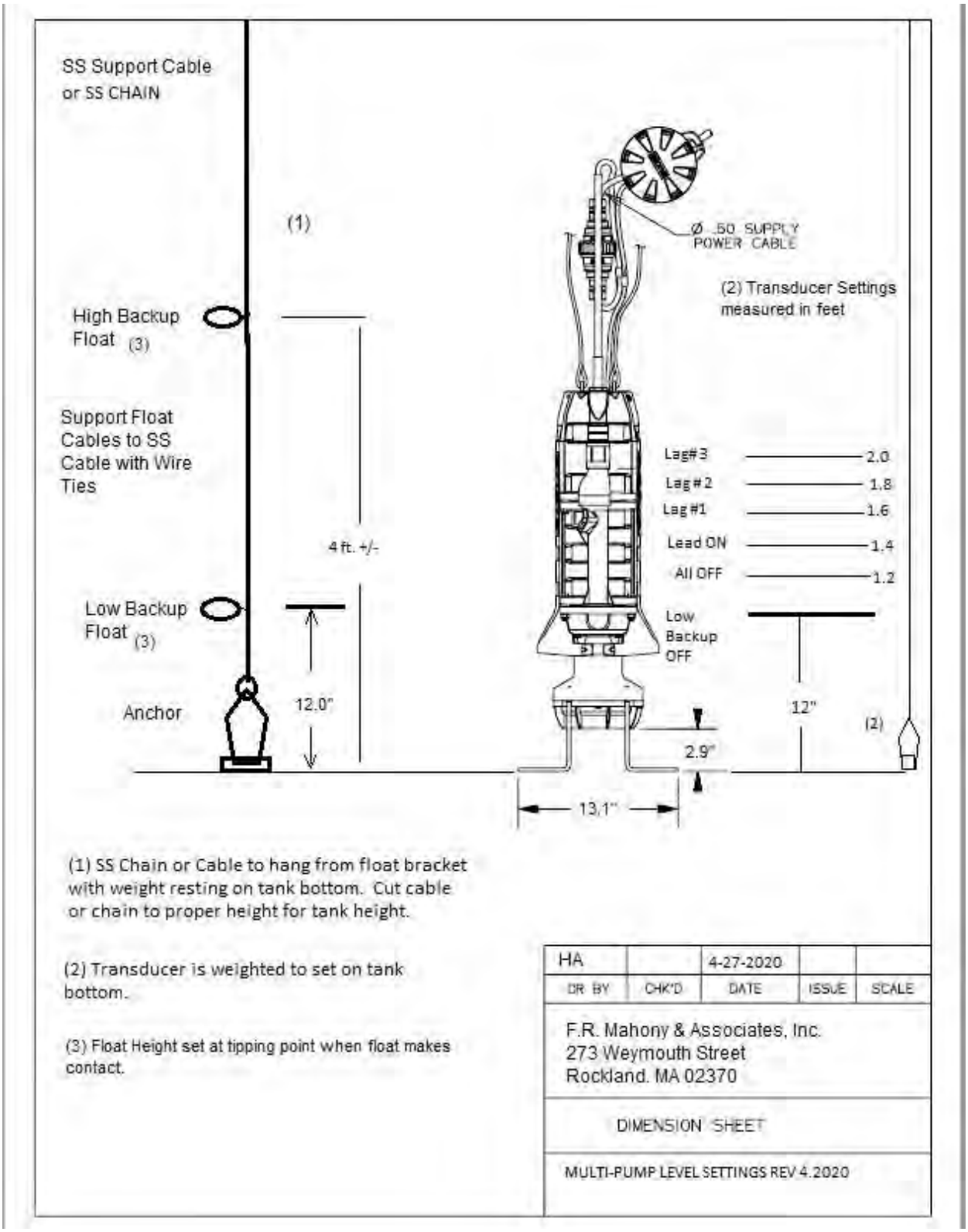
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CONTROL PANEL AND INSTRUMENTATION DETAILS

ELECTRICAL

FIGURE-1 FLOATS & TRANSDUCER SETTINGS



The level controls including the ***Transducer*** and ***Redundant Floats*** are secured on a stainless-steel chain or cable with an anchor (*provided*) which is made to hang from the top of the wet well by the stainless-steel float bracket. The assembly consists of an anchor, plastic coated, 3/16-inch Stainless steel cable and Stainless-steel shackles.

The assembly is designed to maintain the ***Redundant Floats*** at pre-set levels secured away from pumper truck suction hose that may otherwise damage floats during cleaning operations. The chain/cable assembly shall be set to allow easy retrieval in the event a float must be changed. The floats are SPEED-E-CONNECT™ Control Duty Extra Large Floats. The assembly should be located away from the tank inlet and away from pump inlet(s).

This assembly is supplied with cable to match the station depth. The assembly is sent with loose parts of Cable clamp and cable shield. These parts are furnished for final field adjustment of the level cable length. The installer is to measure and adjust the end loop in the top portion of the cable such that the assembly can hang freely in the wet well without excessive slack or excessive tension on the upper support hook.

Transducer

The pump operation is controlled by level transducer suspended in the wet well. The transducer should be located away from inlet splash area and away from pump suction. The transducer is weighted Blue Ribbon Bird Cage Style designed to rest on the tank floor. The cable should be hung as nearly vertical as possible without excess cable remaining in the tank.

Transducer wire is a heavy duty shielded 3-conductor, 18 AWG Hytrel™ jacketed cable with breather tube imbedded. **This cable may not be cut or spliced in any way prior to termination in the Disconnect Junction Box (shown below).**

Redundant Floats

The system operates with redundant high and low level internally weighted floats. The floats are SPEED-E-CONNECT™ Control Duty Extra Large Floats. Floats are intrinsically safe mechanical floats and do not contain mercury. For general settings See the "Floats & Transducer Settings, Figure-1 Drawing above. These switches are NO or normally open.

Control Cable Conduits – Splices, Junction Boxes

Wiring of power cords and controls should be performed by licensed electrician. Conduits for power cords should not be shared by level control conductors. **Separate 2-inch diameter (minimum) conduits should run from the wet well to the disconnect junction box provided in the scope of supply**. **Internal or below grade junction boxes or cable splices are not recommended and will void warranty.**

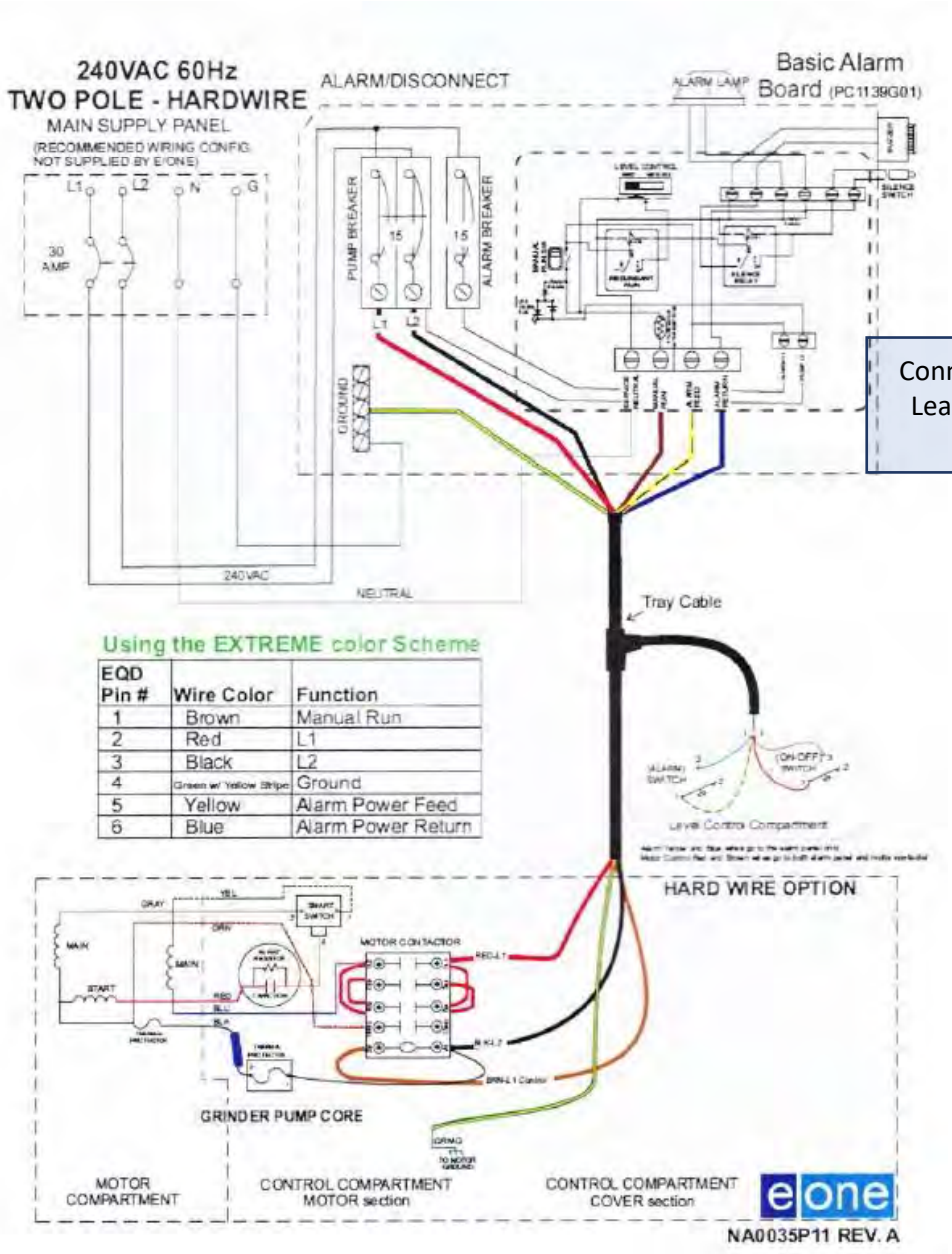
Float cables should also allow for minor changes or adjustments by leaving enough slack for height adjustments. All cables are to be securely supported to float brackets or hangers provided. The use of UV resistant cable ties may be required to additional secure cable slack.

Float testing

NO (normally open) floats can be tested by use of an ohmmeter connected to the two float leads and tipping the float to simulate switch closure. **Be careful to never perform this test while power is connected.**

Pump Connections

The E/One W-Series pumps are used in a modified operation controlled externally by the level transducer and back up float system. The W-Series pump also has internal pressure switches that are not used in this configuration. Each pump comes with individual 6 conductor 14 gauge, SJOW cable. Cable lengths are as prescribed for each installation. The image blow shows the standard panel for use by the E/ONE W- Series pumps. **THIS PANEL IS NOT USED IN THIS APPLICATION**



Connect Red and Black Leads and Ground to DJB

FIGURE-2 PUMP MOTOR LEADS



DISCONNECT JUNCTION BOX (DJB)

The FRMA Multi-Pump station is provided with 4-pump, 2-float external disconnect junction box - DJB. This Junction box is intended to be mounted above grade in a convenient location to the wet well. The junction box shall be mounted and supported on solid post(s) or on building per NEC and at a minimum height of 3 feet to allow for ease of access for service.

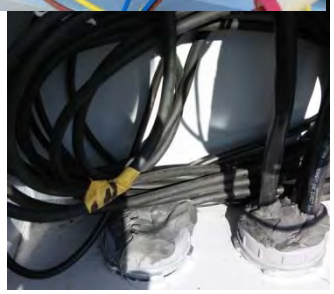
The DJB is a two compartment NEMA 4X enclosure using a separation between the lower and upper compartments. Cables are to enter the lower section through conduits installed by the licensed electrician and then may pass through grip tight connectors to the upper disconnect junction section.

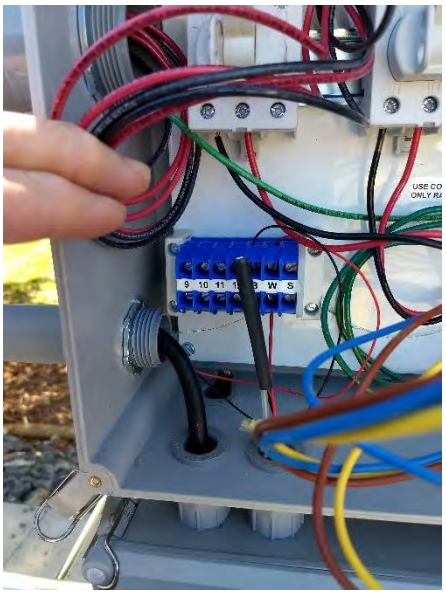
Disconnect switches are shown here in a horizontal row. Pump power conductors are to terminate at these switches and wiring from the switches to the Alarm/Control panel are to be continued by the installing electrician.

The blue terminal strip in the bottom left is to be used to connect level control wires to be continued by the installing electrician to the Alarm/Control panel.

The transducer is furnished with desiccant filter (*below*) to be connected to the transducer breather tube imbedded in the transducer wire.







(*Brown, Yellow and Blue motor leads capped off.)*

CAUTION! TRANSDUCER CABLE

Do not kink, bend or otherwise restrict the tubing air flow as this device is used to control pump operation.
Seal all lower conduit cable penetrations with electrical duct sealant. Do not use silicone caulking as the release of acetic acid will cause corrosion and damage connections.

- **Tank Penetrations – Electrical**

Standard stations will be provided with conduit penetrations allowing for separate conduit for power supply cords and separate conduit for float and transducer cords. Tank penetrations and connectors are shown in the Wet Well Field Installation Instructions. Each pump comes with individual 6 conductor 14 gauge, SJOW cable. Cable lengths are as prescribed for each installation.

All conduits to be sealed entering the disconnect junction box to NEMA 4X standards. Pump supply cables will be provided with NEMA 6P Electrical Quick Disconnect plug. Float and transducer cables shall be continuous from wet well to the DJB connections. **Splices shall not be permitted in any below ground cable**.

The Disconnect Junction Box contains Liquid Tight Cord Grips and transition to conduits to allow full passage of all power, float and transducer cables to the

disconnect switches in the upper housing. Field wiring from the DJB to alarm/control panel terminations to be provided by the installing electrician.

All Tank penetrations shall be made watertight to prevent any source of surface or groundwater.

- **Field Wiring**

A full set of wiring diagrams are supplied for each station. These drawings are customized for each site. The electrician should familiarize his or herself with these drawings prior to planning or laying out panel location and conduit routes.

ALARM/CONTROL PANEL

Power Requirements:

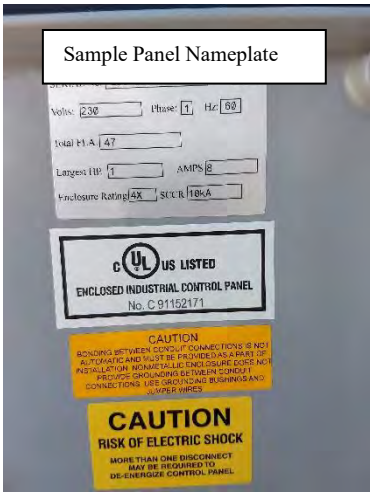
The pumps and panel require 240-volt, single phase power. Panel is rate for 60 Amps. Some locations with 208-voltage may require a Buck and Boost transformer to step up power to the pumps.

FRMA Multi-Pump Control Panels are specifically engineered to maximize the efficiency of up to four pump lift station applications. Multi-Pump panel is rated to operate up to four, 230v, 1-Hp pumps. The panel shall include a NEMA 4X enclosure for wall or pole mounting by the CONTRACTOR. The NEMA enclosure shall be manufactured of fiberglass to assure corrosion resistance. The enclosure shall include a hinged lockable cover with padlock, preventing access to electrical components, and creating a secured safety front to allow access only to authorized personnel. All HOA switches and indicator lights shall be mounted on inner door.

The panel shall contain 15-amp single pole circuit breakers for the alarm circuit and control circuit. The panel shall also contain one, 15-amp double pole circuit breaker per pump core for the power circuit. The panel shall contain an HOA feature, an internal run indicator for each pump, and a complete alarm circuit.

The control/alarm panel(s) shall include the following features:

- Corrosion-proof enclosure
- NEMA 4X rated enclosure
- Lockable latch with padlock
- Circuit breakers
- Terminal blocks
- Alarm Dry Contacts
- Lead/Lag indicator lights
- Alarm indicator lights
- Run indicator lights
- Hand/Off / Auto Switch mounted on the inner door for each pump.
- IEC Rated Motor starters w/adjustable overloads
- Alarm Horn w/ silence circuitry
- Aux. dry contacts for (High Level, Backup Active, Low Level
- Unitronics V570 Programmable logic controller (PLC)
- Required analog I/O Modules
- Required digital I/O Modules
- 24-Volt DC power supply to (PLC)
- 4-20 Ma Level transducer with built in surge protection.
- UL 508A Listing



The audible alarm shall be externally mounted on the enclosure. The audible alarm shall be capable of being deactivated by depressing a push-type switch that is in a weatherproof push-to-silence button. The entire alarm panel, as manufactured, shall be listed by Underwriters Laboratories, Inc.
Each pump shall cycle and alternate sequentially at the end of its cycle to equalize run times. Operating levels can be adjusted individually utilizing the Unitronics V570 touch pad. Example; 1st On, Lag 1, Lag 2, Lag 3 etc.

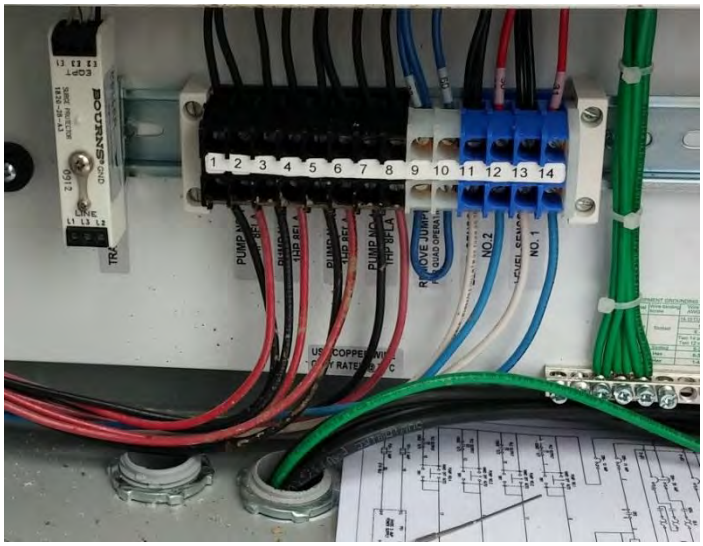
The wet well shall be monitored by the 4-20 mA level transducer and displayed in feet on the color display mounted on the inner door.

The multi-pump control panel is designed to auto sequence up to 4 pumps automatically. The panel is generally rated for outdoor installations in NEMA 4 enclosures. Verify the panel enclosure in the approved submittals for your project. The alarm/control panel shown to the right has the disconnect junction box mounted on the same panel support. Note the panel is equipped with visual alarm light on the top and has an audible alarm horn on the upper, left side of the panel shown here. This station is also equipped with an optional wet well vent odor scrubber located behind the alarm/control panel.



Contrary to the image shown, the panel and disconnect junction box should be mounted a minimum of 3 feet off the ground for greater access and ease of service.

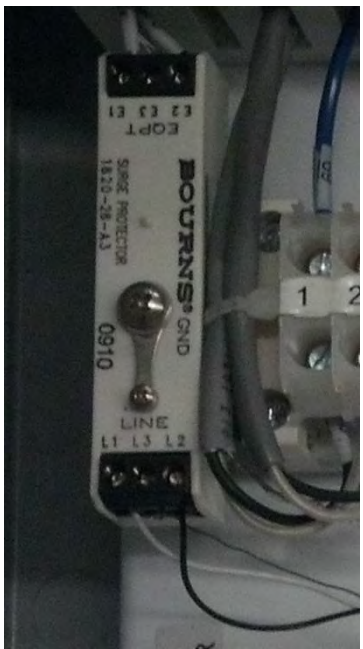
The alarm/control panel is provided with a lockable panel latch.



Panel Wiring – Example (See Submittal & final approved electrical drawings)

The panel is furnished with complete wiring diagrams and all connections are labeled. The image right shows the following wiring example from left to right:

- Transducer surge protector terminal (white block shown)
- Pump connections (terminals 1-8) (Black & Red motor leads for intrinsically safe application. (Brown, Yellow and Blue motor wires to be capped off in DJB and labeled “Not for use”)
- Float connections (terminals 11-14) (blue and white wires shown in this example)
- The blue jumper (terminals 9-10) wire shown is when the controller is used for Triplex pump operation only. Jumper to be removed if the panel is to operate 4 pumps as a full Quadriplex Station.



Transducer wiring

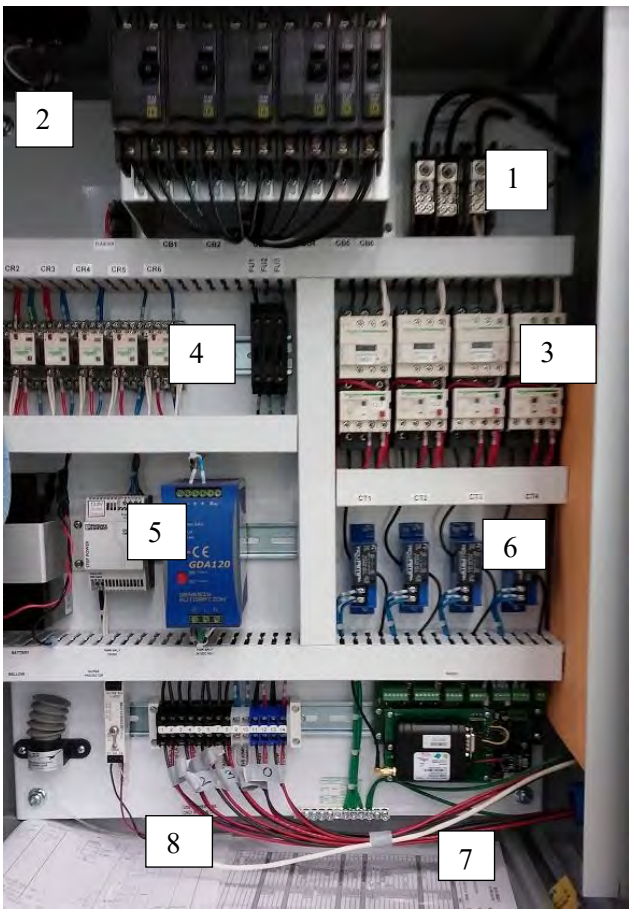
The transducer is a low voltage signal that is polarity sensitive. The installer may find that the signal output reads negative feet of water in

the wet well. Changing polarity may be required to properly calibrate the level transducer.
The image to the right shows the typical final connection of the level transducer with L1 (Red or White), L3 (Cable Shield), L2 (Black).

Alarm/Control Panel Components (240 volts required)

The pump controller uses internal motor starters and overload protection with adjustable motor overloads. These settings are performed at the factor and should not require adjustment. Each pump also has power circuit breakers for additional protection and for service isolation.

1. **240-volt power supply**
2. **Main Breaker and Pump & Alarm Breakers**
3. **Motor Starters and Overloads**
4. **Control Relays**
5. **Low Voltage power supplies & Fuses & High Tide Battery Back Up**
6. **Current Sensors** (Optional with monitoring package)
7. **High Tide Remote Monitor & Modem** (Optional)
8. **Terminal Strip**



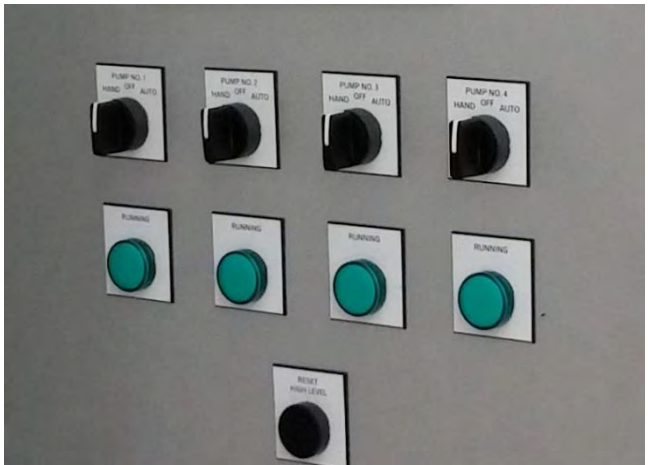
Current Sensors
The current sensors are used to monitor pump run and amperage and are connected to the High Tide Remote Monitoring system.[7]

The current sensor [6] range is set by removal or placement of jumpers depending on motor amperage. The range setting for these systems are 0-10 amps with the jumper removed.



Pump Sequence

The pump sequence is set to rotate at the end of each pump cycle. A single pump or pumps may be taken out of rotation by changing the selector switch on the front of the panel from "Auto" to "Off"
The pump sequence will be displayed on the Unitronics display screen.



Alarms

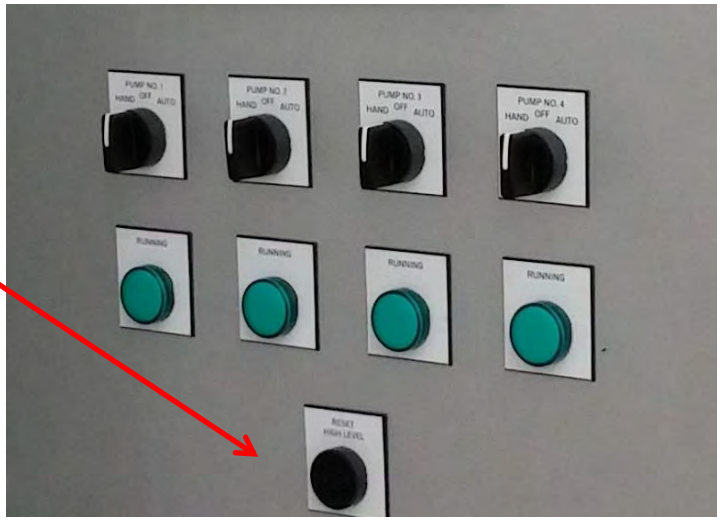
The alarm system will signal a local High Level either from the “High” level setting on the Unitronics display or from the redundant high float. The local alarm silence is located on the outer left side of the panel. The alarm light will remain on until the alarm condition is resolved. The Alarm reset is located on the panel front seen here.

Pump Operation and Alarms

The pump operation will continue normally when the settings are in the “Auto” position. Pumps will operate at the pre-set level intervals discussed in the controls section.

System monitoring is covered in the O & M section to follow as well as in the attached manufacturer’s installation instructions.

A two-float backup redundant circuit shall be provided which will be activated if the preset high-level float is reached. This system will operate all the pumps in the event of a transducer failure or in the event of extreme high flow causing the level to reach the preset high-level float. In the event of pump operation under the backup/redundant float system, the circuit will require a manual alarm reset to reactivate the Level transducer to resume normal operation. This is done by pressing the alarm reset button on the inner front panel face. This is done purposely to require a site visit to verify there are no other issues with the station.



Pump fail to run alert is available with High Tide monitoring system to alert the operator if a pump should fail to run during the auto sequence command.

FRMA Multi Pump Control System Operation

Unitronics PLC-

The FRMA Multi Pump control panel has many advanced features that provide added security and reliability. It is ideal for intermittent high flow periods and low flow times as well.

The PLC display provides the operator with a clear picture of the station status. When coupled with the FRMA-SCADA monitoring through High Tide Technologies, this system provides complete access to the station status and reporting features.

The panel dead front has one HOA (hand, off, auto) switch and a green run light for each pump. The HOA switch can be used at any time to manually test each pump. The HOA switch should be set to OFF in the event of a pump requiring service. Additionally, the circuit breaker must be set to off.

Caution should be used when servicing this equipment. Pumps should be powered OFF by the breakers prior to servicing! Pumps can operate out of the liquid automatically by this controller!

This panel is also equipped with an audible and visual alarm and silence button. The silence button is located on the exterior left side of the cabinet. Once the silence button is pushed the light will remain on until the wet well returns to a normal level. This may occur if the level transducer fails and the high-level, aka backup float is reached.

Under normal operation, if the wet well level continues to rise above the OFF level, the level will eventually reach the next setpoint. The Lead On setpoint energizes the Lead pump to automatedly start. If the level continues to rise the sequence will enable the Lag # 1 pump to come on. Once a complete rotation of pump run cycles occurs, the PLC will automatically shuffle the run sequence to provide even pump run times and to prevent any one pump from remaining dormant for an extended time.

In the event of a pump failure, the controller will automatically alternate from the failed pump to then turn ON the next pump in line. The monitoring system will alert of a pump fail to run. The operator can log in to the system to determine which pump failed.

The control panel has two individual back up float connections. One (1) Low-level back-up mechanical ball float and one (1) High-Level mechanical backup-float. The Back-up High-Level float must be set higher that the High-Level alarm setting shown on the Unitronics® display screen. (**See Table-1**). If the water level reaches the High-Level mechanical ball float, it will perform two tasks. First; it will activate the Back-Up High-Level alarm; secondly, it will begin turning on up all three/four pumps based on Triplex or Quadriplex configuration.

The Unitronics® controller is programmed to turn on each pump, one at a time with a 15 second time delay in between each pump start. This prevents an unnecessary electrical load and is also beneficial during a power loss to reduce the load to an emergency generator. In Back-Up mode all three or four pumps will run until the low-level float is

reached. The low-level mechanical ball float must be set below the transducer-controlled pumps OFF level set on the Unitronics® display.

Pump operations and level settings are managed locally through the Unitronics PLC provided with our multi pump panels. The PLC has many features that offer the owner great flexibility with easily adjustable operating levels. The Unitronics PLC is factory programmed to allow the owner the ability to easily adjust the Pump ON, Pump OFF levels and High-level alarm level by using the color, touch screen display.



Pumps must be powered from the control breakers in the top portion of the main panel inner door.

Pumps must also be in the AUTO mode from the HAND, OFF, AUTO selectors on the front face of the inner panel door.



The control circuit breaker must be powered to boot the PLC. Once the PLC display opens you may continue to the next steps. From the “Home” Screen first select the “Settings” Screen to go to pump settings and to calibrate the transducer wet well range.

The transducer is typically calibrated for 0-10 feet based on a 4-20 mA signal output. The Transducer comes with paperwork to confirm the calibration range as well as calibration sticker on the transducer body. For deeper stations, the range may be set up to allow for full monitoring over the full height. Verify the range of the transducer before setting the range in the Unitronics PLC.

Once in the settings screen, you can touch on the item you wish to change. A new screen will open to allow you to set the value desired and then accept by pressing “Enter” to set the new value. Set the wet well range to match the Transducer calibration. The image below shows a setting of 0 to 10 feet.

Once the Transducer settings are set you can proceed to the pump level settings.

(*See **Table 1,** next page for recommend settings)*



Touch the "Pumps Off" Setting. This will allow you to adjust the level in feet down to tenths of a foot. The screen does not display inches.

The upper right box displays a real-time wet well level measured in feet. The wet well level is monitored by a level transducer that measures the water column above the sensor that is submerged and supported by the cable and float hanger bracket located at the top hatch of the wet well.

TROUBLESHHOOTING TIP:

Should you experience a (-2.5') value in the wet well reading. Verify that there are no loose connections in the wiring. If connections are sound, then the next step is to change polarity in the transducer wiring by switching the black and red wire in the alarm panel located at the surge protector. Be sure to power OFF all panel power before doing this work.

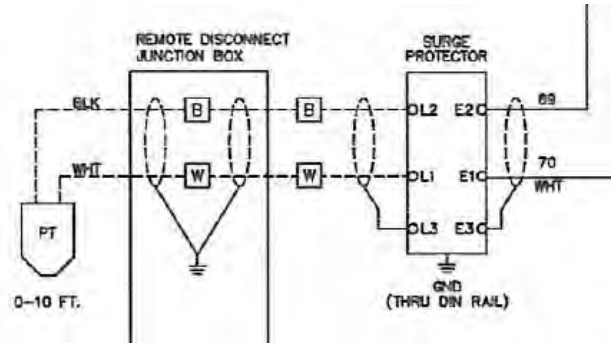


FIGURE- 6 General Wiring Schematic-

See wiring diagram below

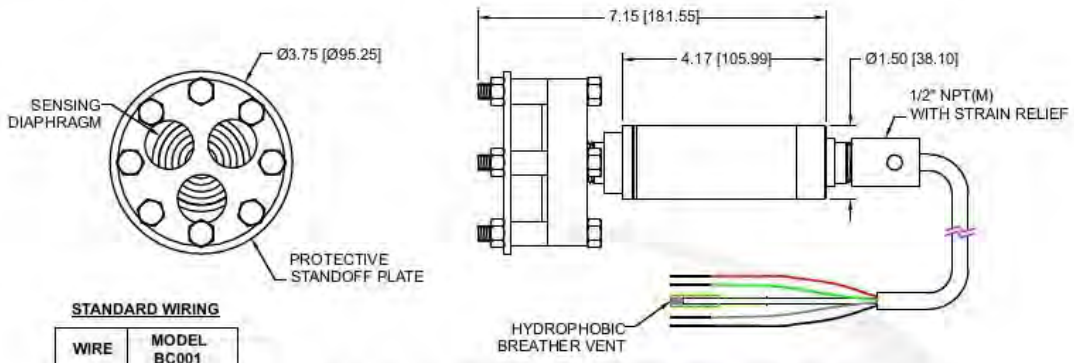


The Transducer reading can be verified by lifting the transducer out of water to verify a 0.0 reading. The transducer can be submerged in a known depth of water to again verify the reading. A measurement of water in the wet well or submergence in a bucket of known water height works well for this.

The Blue Ribbon, Birdcage® transducer (shown left) with calibration sticker

DIMENSIONAL DRAWING

All dimensions are in inches (mm)



STANDARD WIRING

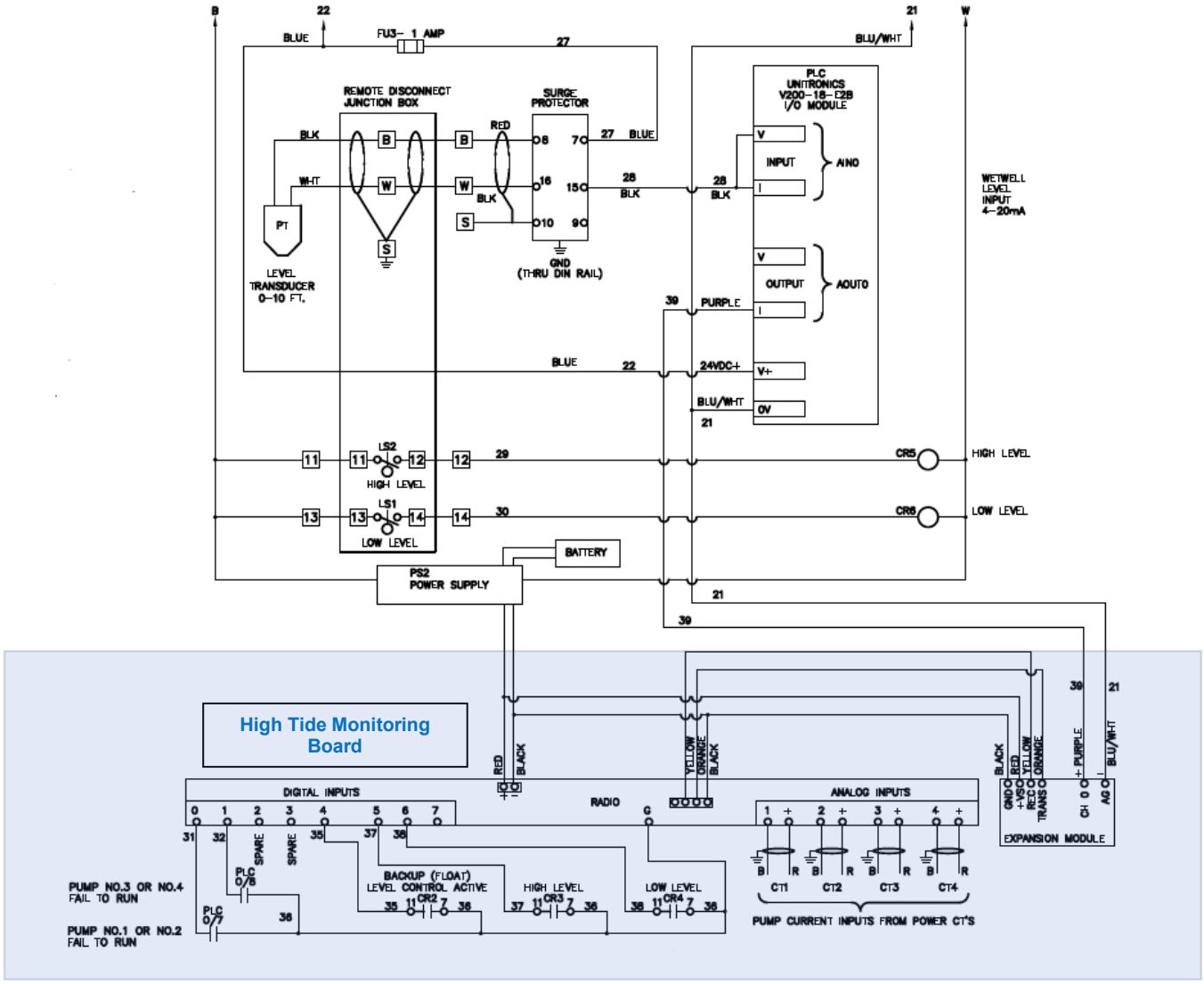
WIRE	MODEL BC001
1/RED	+EXC/SIG
2/GRN	N/C
3/WHT	N/C
4/BLK	-EXC/SIG
5/BLU	N/C
6/BRN	N/C
SHIELD	OPEN

FIGURE- 7 TRANSDUCER WIRING



The surge protector is internally wired in the main control panel and provides lifetime warranty against lightening and voltage surges for BC001 Birdcage®

FIGURE-8 CONTROLS AND MONITORING SCHEMATIC



Pump alarm and monitoring connections shown above.

Spare Digital inputs 2 & 3 are available for emergency generator run signal (by others) or additional HIGH-HIGH float above the Backup float (requires additional float page 48), as an option.

See Monitoring section below for more information.

Programming Level Settings-

Pressing the Settings button on the lower right of the display screen will open the level setting screen. Once this screen is displayed, you can easily adjust the operating levels. We suggest starting with the OFF level and then work your way through the OFF and ON settings.

Table 1 - Recommended Transducer & Float Settings

Back Up Float Back Up System Alarm	4.0 feet
Alarm	3.0 feet
Lag Pump # 3 ON *Quadriplex Configuration*	2.0 feet
Lag Pump # 2 ON *Triplex Configuration*	1.8 feet
Lag Pump # 1 ON	1.6 Feet
Lead Pump ON	1.4 feet
All Pumps OFF	1.2 feet
Back Up Low Float Alarm	1.0 feet

The level transducer is a Blue Ribbon® "Bird Cage" style that is designed to rest on the bottom of the tank. (See Transducer Section Below) There is no offset required when setting transducer-controlled levels for Lead and lag pumps. All settings are measured from the tank bottom.

Under normal operation and following final startup; with the transducer in place and as the wet well level rises, the Unitronics controller will turn ON one pump at a time. Each pump will operate between the programmed turn ON level setting and the Pump's OFF level setting. After each cycle the controller will automatically alternate to the next pump, then that pump will operate between the Lead Pump ON level and the Pumps OFF level.

WARNING: If the low-level mechanical ball float is set too low, the pump could break suction and run dry. The control panel will remain in back-up float mode until it is manually reset by pushing the alarm resent button mounted on the center of the inner dead front door. **NOTE:** The alarm silence button does not reset this alarm.

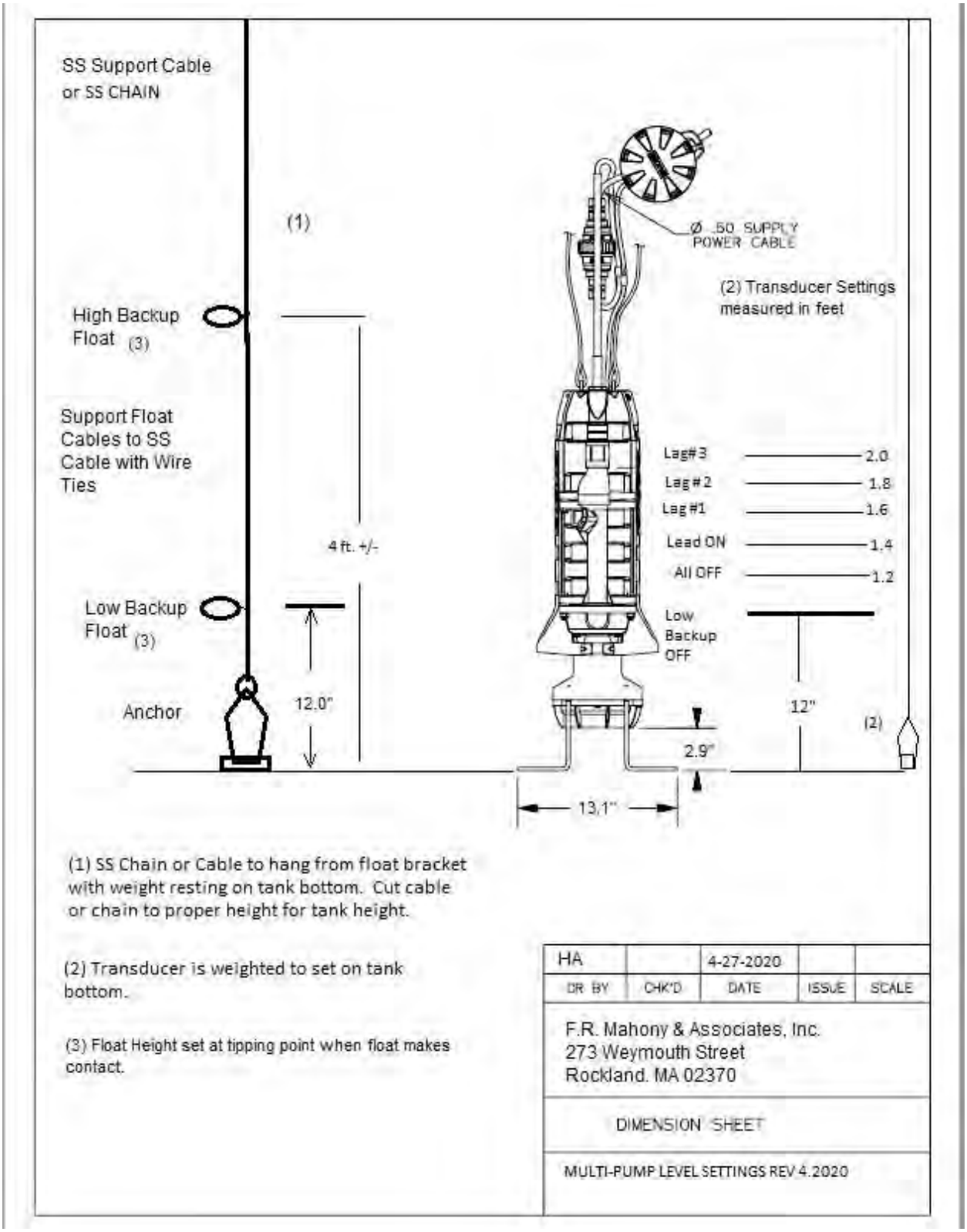
The objective is to require an operator to visit the site and inspect the system. This will likely occur in the event of a long-term power outage or mechanical failure with the level transducer requiring service.

Basic Start Up Checklist

Electrical	Site Work
Final Inspections Complete	Final inspections Complete
Main Power 'ON'- Verify Supply Voltage	Pipelines Installed and Tested and ready for use
Service Disconnects, 'ON' – Verify Voltage	Pumps, Transducer and Floats Installed Correctly
Main Panel breaker, 'ON'- Verify Voltage	Valves Open – Pump Ball-Valve, Header & Lateral
Junction Disconnect switches, 'ON'—Verify	Access hatch and inner safety hatch operable

Voltage	
Control Circuit Breaker, 'ON' – Verify Voltage	All cables hung and secure
Allow PLC Display to boot up	Wet well chamber is clear of sand, gravel, debris
Silence High Alarm – Light will remain on	Add Clean water in tank above alarm level
Turn on Pump Breakers – Verify Voltage	
Set Transducer Levels to **Table -1** Levels	
Verify Transducer Reading against measured level in wet well to PLC Display	
If Transducer levels are correct, proceed to startup	
If Transducer levels are incorrect, make corrective changes	
Startup by turning pumps to "AUTO"	
Green Run Lights Should Light with Pump Start	
Measure amperage on each pump leg - Record	
Allow pumps to operate to full OFF level	
Verify low float 'OFF' below Transducer 'OFF'	Refill station with clean water to Lead 'ON'
Rest Alarm and put pumps in 'AUTO'	Continue to add water to Lag pump settings
Test pump start sequence through Lead and Lag pump cycles until Transducer Level sounds	Stop Water flow and allow station to recover
Draw-down with one pump at a time for each test interval. Keep all other pumps in 'OFF' position to prevent 'AUTO' starting	Draw-down testing may be performed by filling to a fixed level and stopping additional flow into chamber. Measure time to pump to new point. Use **Tables 3 & 4** to determine gallons pumped during each test to calculate flow in GPM.
Return all Breakers and Switches to 'ON' and 'AUTO' when testing is complete, and the system is ready for use.	
Close and lock all panel doors	**Close and lock access hatch grate and hatch**

FIGURE-9 FLOAT CABLE & TRANDUCER SETTINGS



(1) SS Chain or Cable to hang from float bracket with weight resting on tank bottom. Cut cable or chain to proper height for tank height.

(2) Transducer is weighted to set on tank bottom.

(3) Float Height set at tipping point when float makes contact.

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DR BY	CHK'D	DATE	ISSUE	SCALE

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273 Weymouth Street
Rockland. MA 02370

DIMENSION SHEET

MULTI-PUMP LEVEL SETTINGS REV 4.2020

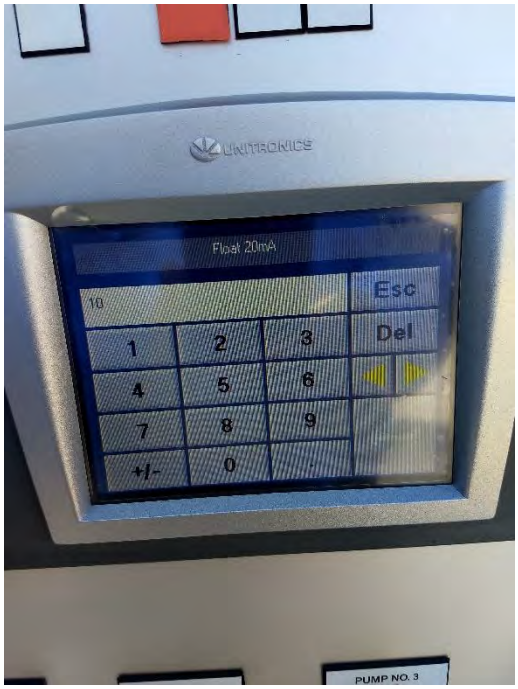
Backup Floats-

This system is supplied with a set of redundant backup floats to operate the system if the transducer should fail. The operating sequence is described below in the FRMA Multi Pump Control panel operation section. The float settings are shown in **Table 1** above.

The standard system uses two (2) backup floats. Additional floats can be added as an option that would require additional programming of the control sequence.

Level Setting Detail Screens-





To Set the wet well range (typically 0-10 feet) touch the setting on the level screen you wish to change. This will open the touchscreen show to the left. Enter the value desired (Example 10) and press return button to accept.

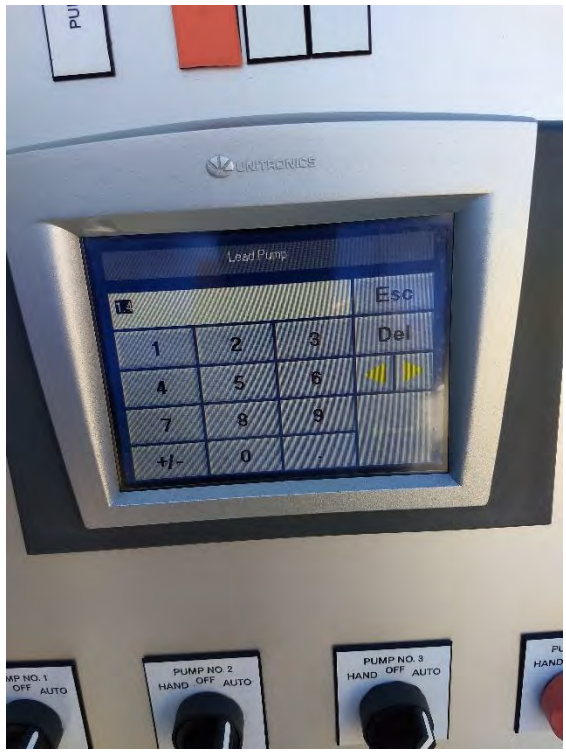
Repeat this step to enter the '0' value

The levels will remain locked in unless physically changed by the operator. During power failures the values will be held in the PLC by the backup battery power and should not need to be reset.

Pump-OFF, Lead-ON, Lag #1-ON, Lag #2-ON, Lag #3-ON, ALARM

These settings all follow the same sequence as above. Each value in the Setting screen opens the keypad to allow the operator to set the desired levels as listed in **Table 1**.

The sample image to the right shows the setting of 1.4 feet for the Lead Pump. Once the setting is entered press return button to accept.



Repeat the sequence for each additional operation.

Triplex stations will not have a LAG # 3 pump. The panel may be set up to accept a future fourth pump at some point. In this case the Lag #3 value should be set above the ALARM level.

Pump Volumes for Each Setting-

TABLE-2 Wet Well Volumes

	Level Feet	Diam. 5	Accum. Gallons	Diam. 6	Accum. Gallons	Diam. 8	Accum. Gallons
Additional Foot	5	146.87	734.35	211.49	1057.46	375.99	1879.93
Alarm	4	293.74	587.48	422.99	845.97	751.97	1503.95
Lag # 3	2	29.37	293.74	42.30	422.99	75.20	751.97
Lag# 2	1.8	29.37	264.37	42.30	380.69	75.20	676.78
Lag # 1	1.6	29.37	234.99	42.30	338.39	75.20	601.58
Lead ON	1.4	29.37	205.62	42.30	296.09	75.20	526.38
OFF	1.2	176.24	176.24	253.79	253.79	451.18	451.18
Bottom	0		0.00		0.00		0.00

Table-2 demonstrates the approximate volumes of various basins used for the Multi-Pump products. The alarm level can be adjusted to match the inlet invert depth. It is recommended to maintain the high-level alarm at least 6-inches below the inlet.

These values may be used for drawdown testing to determine flow rates that may be used in the SCADA monitoring reports discussed elsewhere in this manual. Pump flow rates may be calculated based on established service tables used by Environment One ® Corporation. These values should be confirmed for each location by drawdown testing.

The example below is taken from the E/ONE® Extreme Service Manual, **Table 3-7.**
This diagnostic table is used for troubleshooting pump performance. A clamp-on style amp meter can be used on each pump motor lead to measure the operating amp draw. The initial values for flow in a new pump can be estimated from this table.

Amps @ 240V (@ 120V)	PSI	Head (ft)	GPM	Comments
4.9 (9.8) or less	0	0	0	Worn Stator
5.6 (11.2)	10	24	14	Normal
5.8 (11.6)	20	46	13	Normal
6 (12)	30	70	12	Normal
6.2 (12.4)	40	92	11	Normal
6.5 (13)	50	115	10	Normal
6.8 (13.6)	60	138	9	Normal
7.1 (14.2)	70	161	8	Normal
7.4 (14.8)	80	184	7.5	Normal
8 (16) or higher	90+	207+	varies	Plugged Discharge Line or bad bearings
over 15 (30)	0	0	0	Jammed Grinder or Shorted Motor

Wetwell Drawdown Charts-

TABLE-3 Estimated Pump Run Times to OFF Quadriplex

13 GPM	Level Feet	Diam. 5	Accum. Gallons	Time Minutes	Diam. 6	Accum. Gallons	Time Minutes	Diam. 8	Accum. Gallons	Time Minutes
Additional Foot	5	146.87	734.35	13.18	211.49	1057.46	18.98	375.99	1879.93	33.74
Alarm	4	293.74	587.48	10.36	422.99	845.97	14.91	751.97	1503.95	26.51
Lag # 3	2	29.37	293.74	4.71	42.30	422.99	6.78	75.20	751.97	12.05
Lag# 2	1.8	29.37	264.37	4.14	42.30	380.69	5.97	75.20	676.78	10.60
Lag # 1	1.6	29.37	234.99	3.39	42.30	338.39	4.88	75.20	601.58	8.68
Lead ON	1.4	29.37	205.62	2.26	42.30	296.09	3.25	75.20	526.38	5.78
OFF	1.2	176.24	176.24		253.79	253.79		451.18	451.18	
Bottom	0									

11 GPM	Level Feet	Diam. 5	Accum. Gallons	Time Minutes	Diam. 6	Accum. Gallons	Time Minutes	Diam. 8	Accum. Gallons	Time Minutes
Additional Foot	5	146.87	734.35	14.55	211.49	1057.46	20.95	375.99	1879.93	37.25
Alarm	4	293.74	587.48	11.21	422.99	845.97	16.15	751.97	1503.95	28.70
Lag # 3	2	29.37	293.74	5.56	42.30	422.99	8.01	75.20	751.97	14.24
Lag# 2	1.8	29.37	264.37	4.90	42.30	380.69	7.05	75.20	676.78	12.53
Lag # 1	1.6	29.37	234.99	4.01	42.30	338.39	5.77	75.20	601.58	10.25
Lead ON	1.4	29.37	205.62	2.67	42.30	296.09	3.85	75.20	526.38	6.84
OFF	1.2	176.24	176.24		253.79	253.79		451.18	451.18	
Bottom	0									

9 GPM	Level Feet	Diam. 5	Accum. Gallons	Time Minutes	Diam. 6	Accum. Gallons	Time Minutes	Diam. 8	Accum. Gallons	Time Minutes
Additional Foot	5	146.87	734.35	19.04	211.49	1057.46	27.42	375.99	1879.93	48.74
Alarm	4	293.74	587.48	14.96	422.99	845.97	21.54	751.97	1503.95	38.29
Lag # 3	2	29.37	293.74	6.80	42.30	422.99	9.79	75.20	751.97	17.41
Lag# 2	1.8	29.37	264.37	5.98	42.30	380.69	8.62	75.20	676.78	15.32
Lag # 1	1.6	29.37	234.99	4.90	42.30	338.39	7.05	75.20	601.58	12.53
Lead ON	1.4	29.37	205.62	3.26	42.30	296.09	4.70	75.20	526.38	8.36
OFF	1.2	176.24	176.24		253.79	253.79		451.18	451.18	
Bottom	0									

The above table can be used to determine pump flow rates as part of a drawdown analyses. The tank level can be measured and run times measured to lower the level change over time. It is important that inflow be stopped during this test to assure accuracy.

TABLE-4 Estimated Pump Run Times to OFF Triplex

13 GPM	Level Feet	Diam. 5	Accum. Gallons	Time Minutes	Diam. 6	Accum. Gallons	Time Minutes	Diam. 8	Accum. Gallons	Time Minutes
Additional Foot	5	146.87	734.35	16.19	211.49	1057.46	23.32	375.99	1879.93	41.45
Alarm	4	293.74	587.48	12.43	422.99	845.97	17.90	751.97	1503.95	31.81
Lag # 3	2	29.37	293.74	4.90	42.30	422.99	7.05	75.20	751.97	12.53
Lag# 2	1.8	29.37	264.37	4.14	42.30	380.69	5.97	75.20	676.78	10.60
Lag # 1	1.6	29.37	234.99	3.39	42.30	338.39	4.88	75.20	601.58	8.68
Lead ON	1.4	29.37	205.62	2.26	42.30	296.09	3.25	75.20	526.38	5.78
OFF	1.2	176.24	176.24		253.79	253.79		451.18	451.18	
Bottom	0									

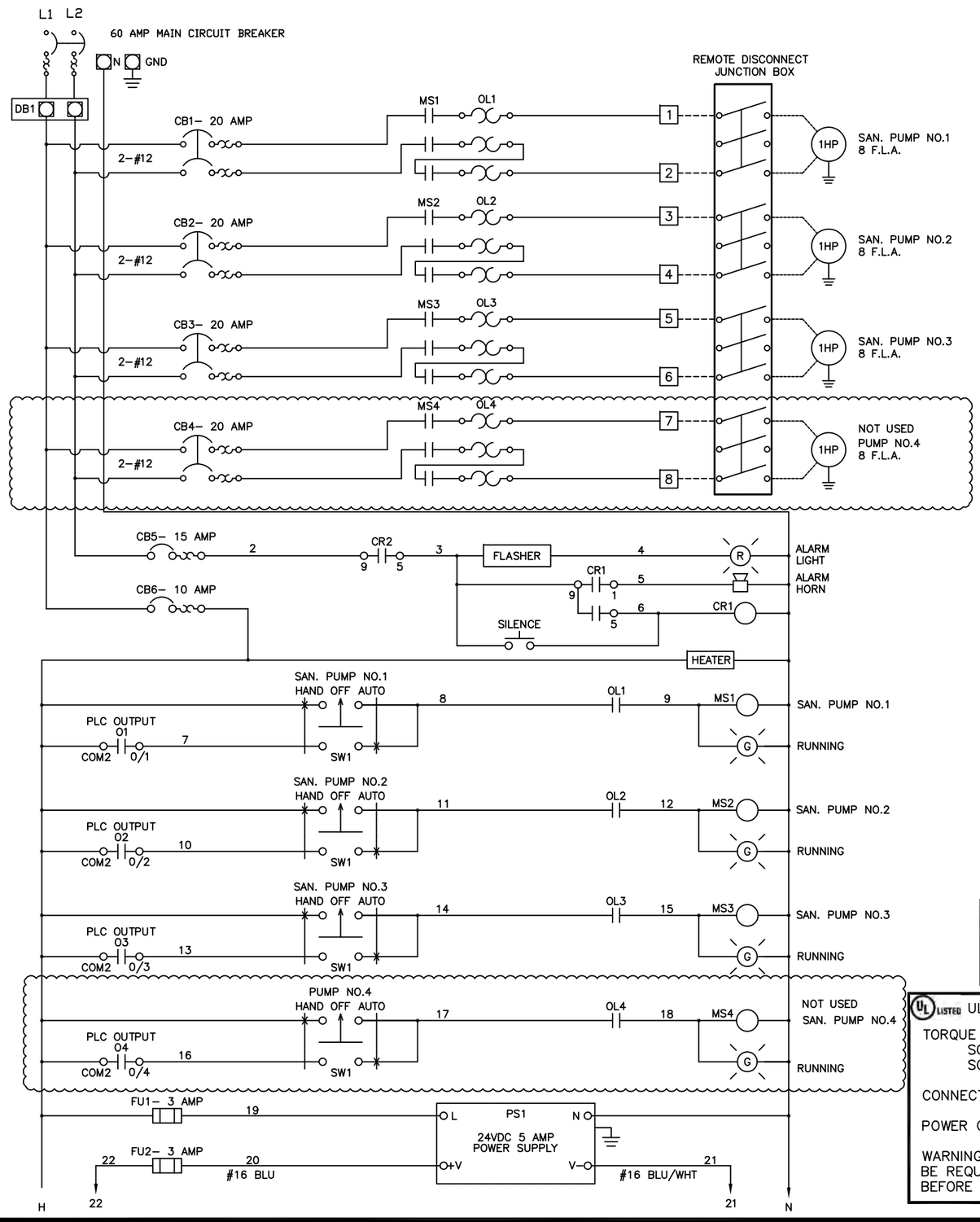
11 GPM	Level Feet	Diam. 5	Accum. Gallons	Time Minutes	Diam. 6	Accum. Gallons	Time Minutes	Diam. 8	Accum. Gallons	Time Minutes
Additional Foot	5	146.87	734.35	17.77	211.49	1057.46	25.59	375.99	1879.93	45.49
Alarm	4	293.74	587.48	13.32	422.99	845.97	19.18	751.97	1503.95	34.09
Lag # 3	2	29.37	293.74	5.79	42.30	422.99	8.33	75.20	751.97	14.81
Lag# 2	1.8	29.37	264.37	4.90	42.30	380.69	7.05	75.20	676.78	12.53
Lag # 1	1.6	29.37	234.99	4.01	42.30	338.39	5.77	75.20	601.58	10.25
Lead ON	1.4	29.37	205.62	2.67	42.30	296.09	3.85	75.20	526.38	6.84
OFF	1.2	176.24	176.24		253.79	253.79		451.18	451.18	
Bottom	0									

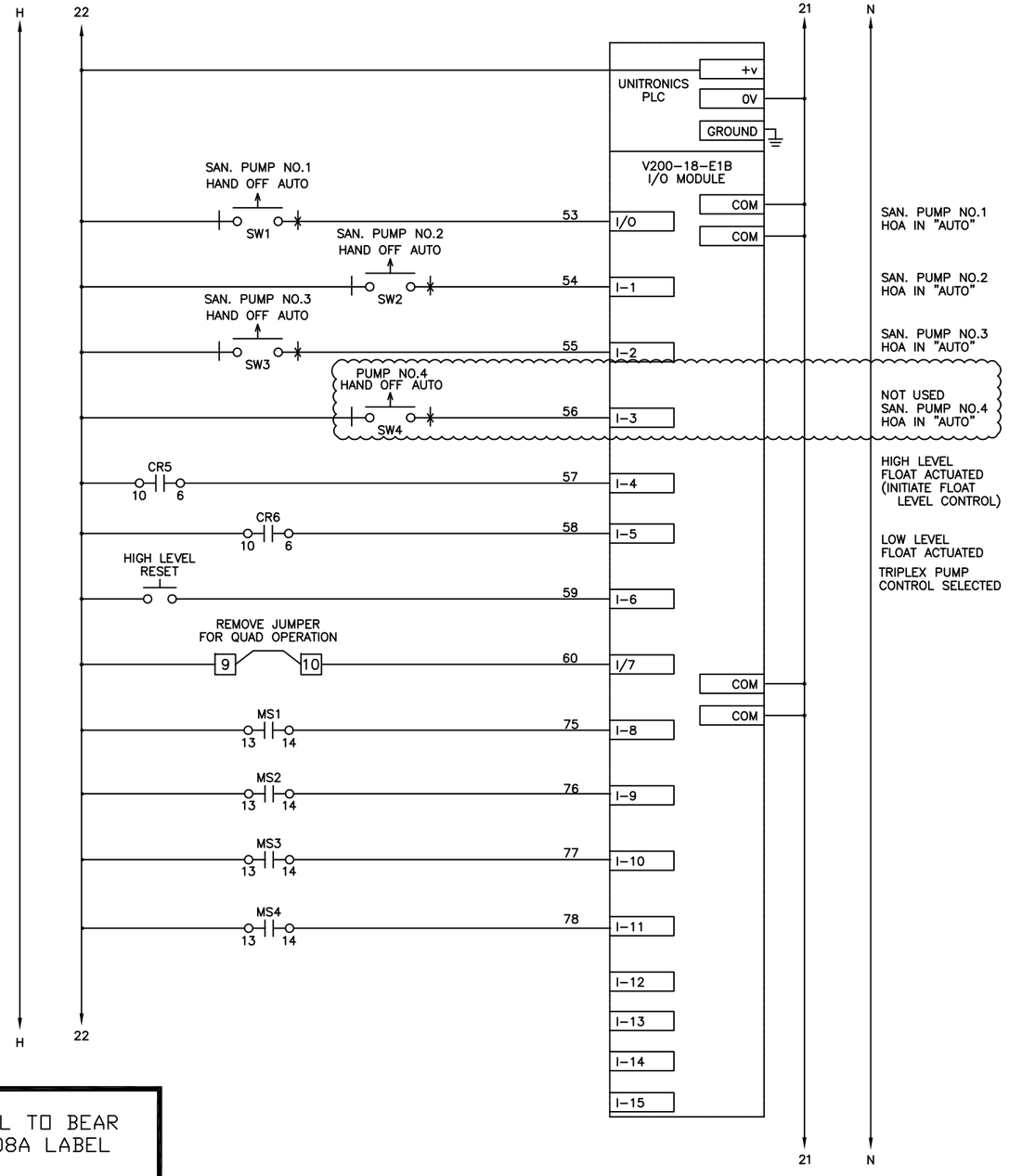
9 GPM	Level Feet	Diam. 5	Accum. Gallons	Time Minutes	Diam. 6	Accum. Gallons	Time Minutes	Diam. 8	Accum. Gallons	Time Minutes
Additional Foot	5	146.87	734.35	23.39	211.49	1057.46	33.68	375.99	1879.93	59.88
Alarm	4	293.74	587.48	17.95	422.99	845.97	25.85	751.97	1503.95	45.95
Lag # 3	2	29.37	293.74	7.07	42.30	422.99	10.18	75.20	751.97	18.10
Lag# 2	1.8	29.37	264.37	5.98	42.30	380.69	8.62	75.20	676.78	15.32
Lag # 1	1.6	29.37	234.99	4.90	42.30	338.39	7.05	75.20	601.58	12.53
Lead ON	1.4	29.37	205.62	3.26	42.30	296.09	4.70	75.20	526.38	8.36
OFF	1.2	176.24	176.24		253.79	253.79		451.18	451.18	
Bottom	0									

The above table can be used to determine pump flow rates as part of a drawdown analyses. The tank level can be measured and run times measured to lower the level change over time. It is important that inflow be stopped during this test to assure accuracy.

CONTROL PANEL DETAILS

115/230 /1/60





PANEL TO BEAR
UL508A LABEL

UL LISTED UL LISTED CONTROL PANEL

TORQUE FIELD CONNECTIONS TO 20 IN–LBS
SQUARE D 9080GR6 TO 18–20 IN–LBS
SQUARE D 9080GM6 TO 7–8 IN–LBS

CONNECTIONS MUST BE 600VAC 75°C CU WIRE

POWER CIRCUITS & GROUNDS 14 AWG MIN

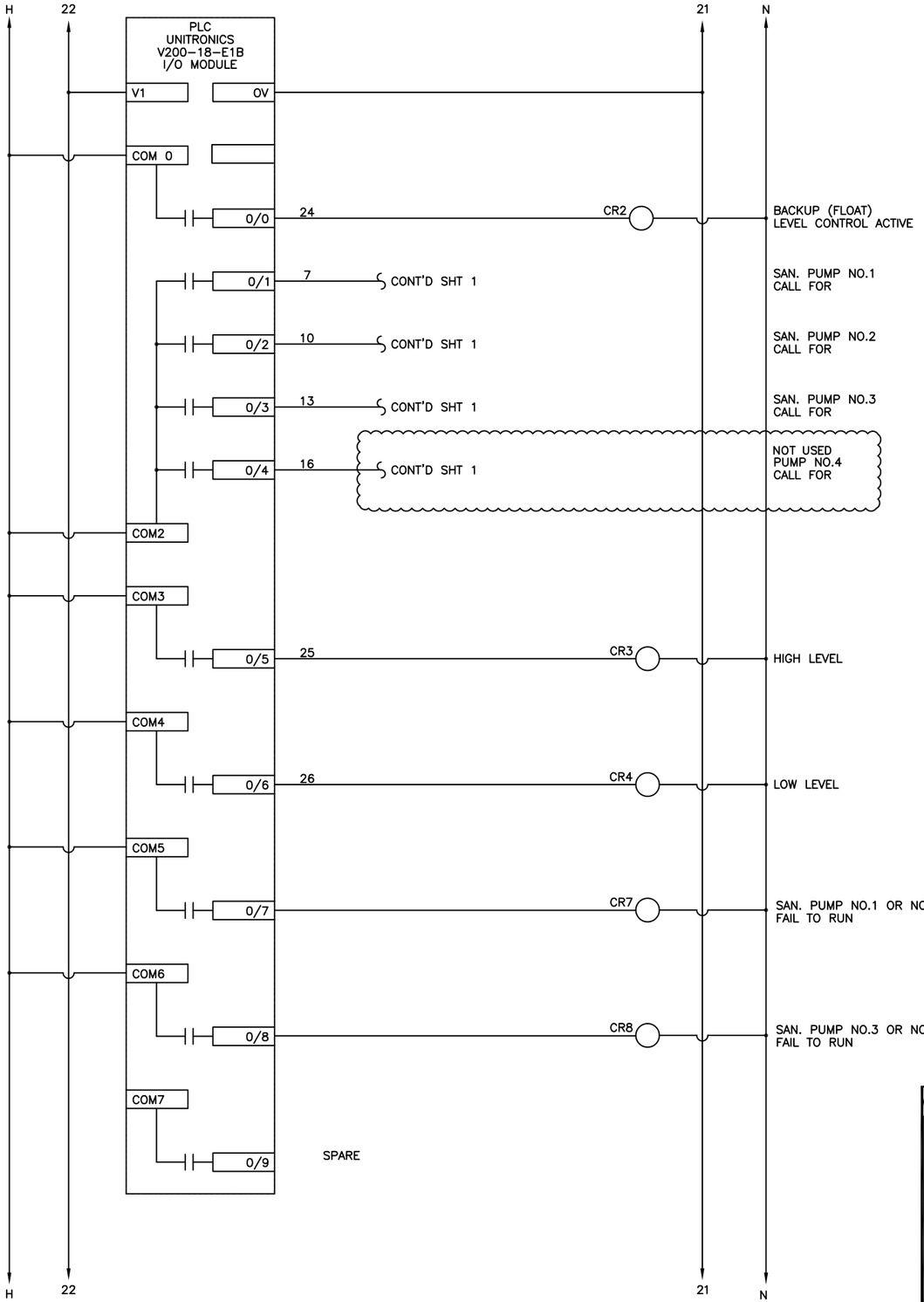
WARNING MORE THAN ONE DISCONNECT MAY BE REQUIRED TO DE–ENERGIZE EQUIPMENT BEFORE SERVICING

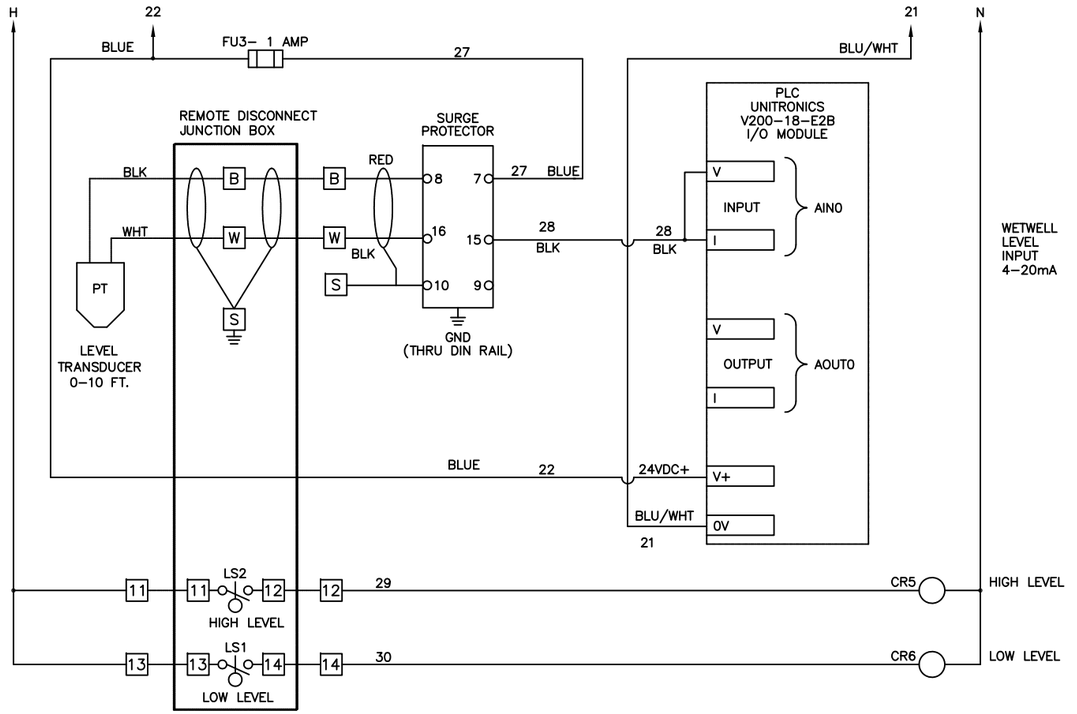
REVISION DATES	
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F.R.MAHONY & ASSOCIATES, INC.
WATER TREATMENT AND POLLUTION CONTROL EQUIPMENT
273 WEYMOUTH STREET, ROCKLAND, MA 02370

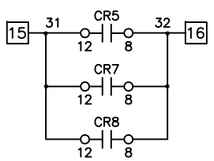
ORLEANS
MULTI–PUMP_CONTROL_PANEL

HP: 1	FLA: 8	VOLT:240	PHASE: 1	HERTZ:60	DATE: 8-31-21
DWG.BY: TMP		APPROVED BY:		JOB #:	
DWG.NO: Q21877-1		CUSTOMER:			





COMMON FAULT



PANEL TO BEAR
UL508A LABEL

UL LISTED CONTROL PANEL

TORQUE FIELD CONNECTIONS TO 20 IN-LBS
SQUARE D 9080GR6 TO 18-20 IN-LBS
SQUARE D 9080GM6 TO 7-8 IN-LBS

CONNECTIONS MUST BE 600VAC 75°C CU WIRE

POWER CIRCUITS & GROUNDS 14 AWG MIN

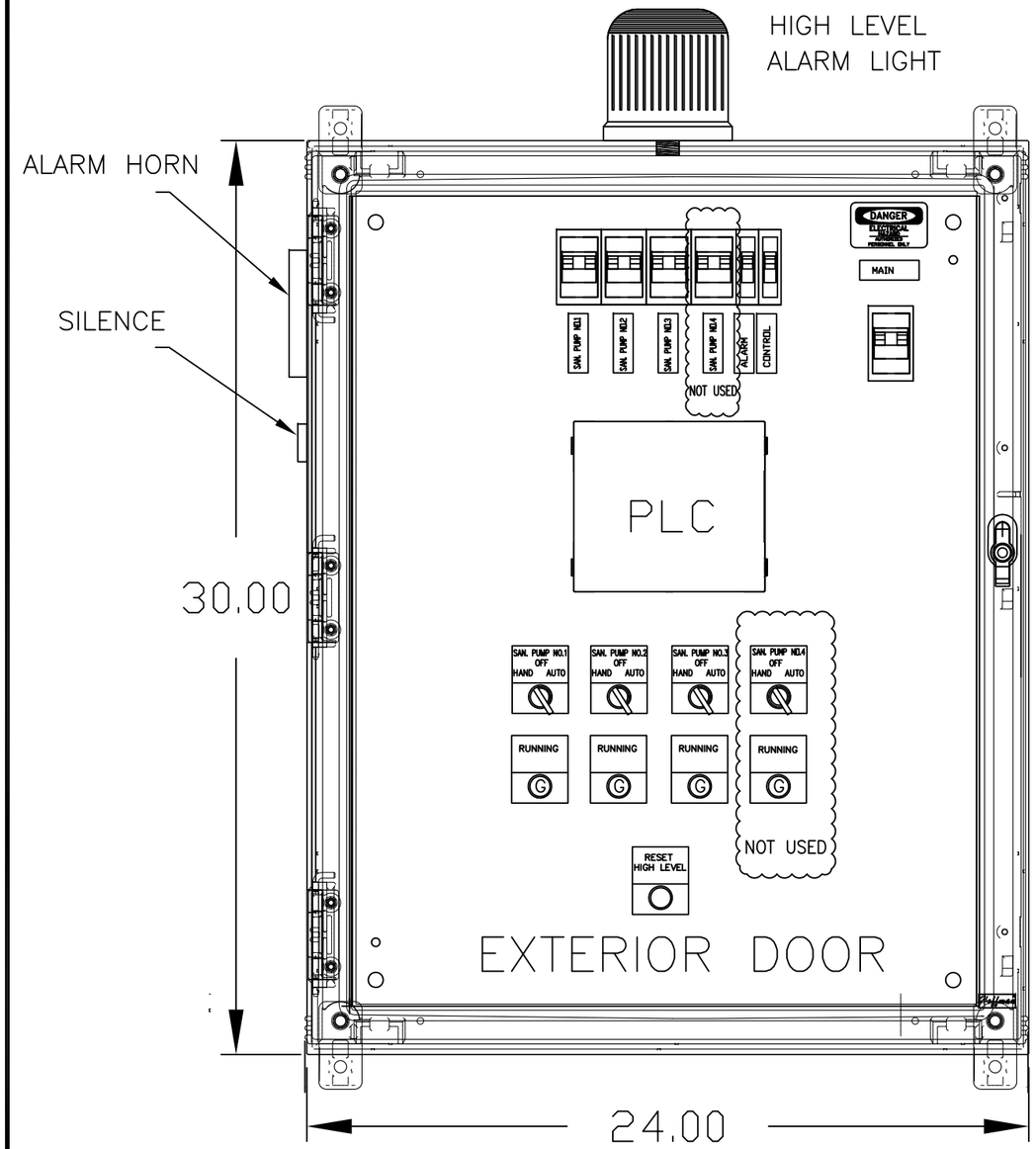
WARNING MORE THAN ONE DISCONNECT MAY BE REQUIRED TO DE-ENERGIZE EQUIPMENT BEFORE SERVICING

REVISION DATES	
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F	-
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H	-

F.R.MAHONY & ASSOCIATES, INC.
WATER TREATMENT AND POLLUTION CONTROL EQUIPMENT
273 WEYMOUTH STREET, ROCKLAND, MA 02370

ORLEANS
MULTI-PUMP_CONTROL_PANEL

HP: 1	FLA: 8	VOLT: 240	PHASE: 1	HERTZ: 60	DATE: 8-21-31
DWG.BY: MTP		APPROVED BY:		JOB #:	
DWG.NO: Q21877-2		CUSTOMER:			

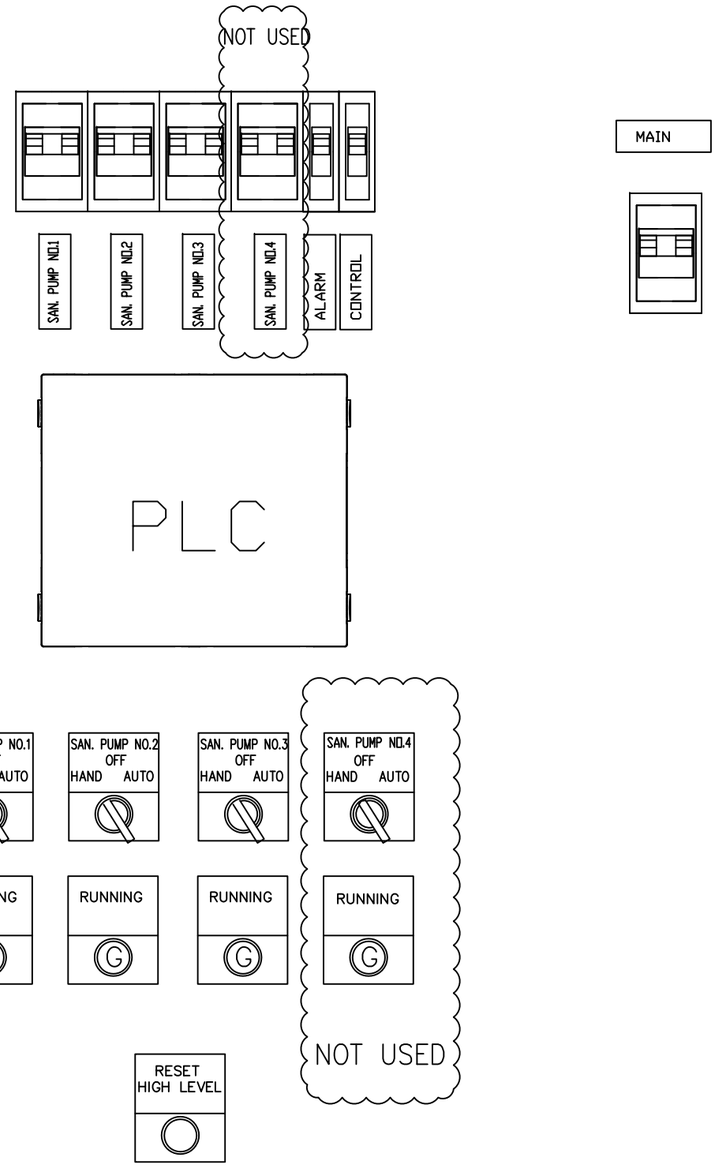


TYPE 4X FIBERGLASS

FLOAT BACK UP SEQUENCE

ACTIVATED BY HIGH FLOAT (LS2)
LEAD PUMP ON 10 SECONDS
LAG PUMP 1 ON 20 SECONDS
LAG PUMP 2 ON 30 SECONDS
LAG PUMP 3 ON 40 SECONDS
ALL OFF WHEN LS1 CLEARS

DOOR DETAIL



PANEL TO BEAR
UL508A LABEL

UL LISTED CONTROL PANEL

TORQUE FIELD CONNECTIONS TO 20 IN-LBS
SQUARE D 9080GR6 TO 18-20 IN-LBS
SQUARE D 9080GM6 TO 7-8 IN-LBS

CONNECTIONS MUST BE 600VAC 75°C CU WIRE

POWER CIRCUITS & GROUNDS 14 AWG MIN

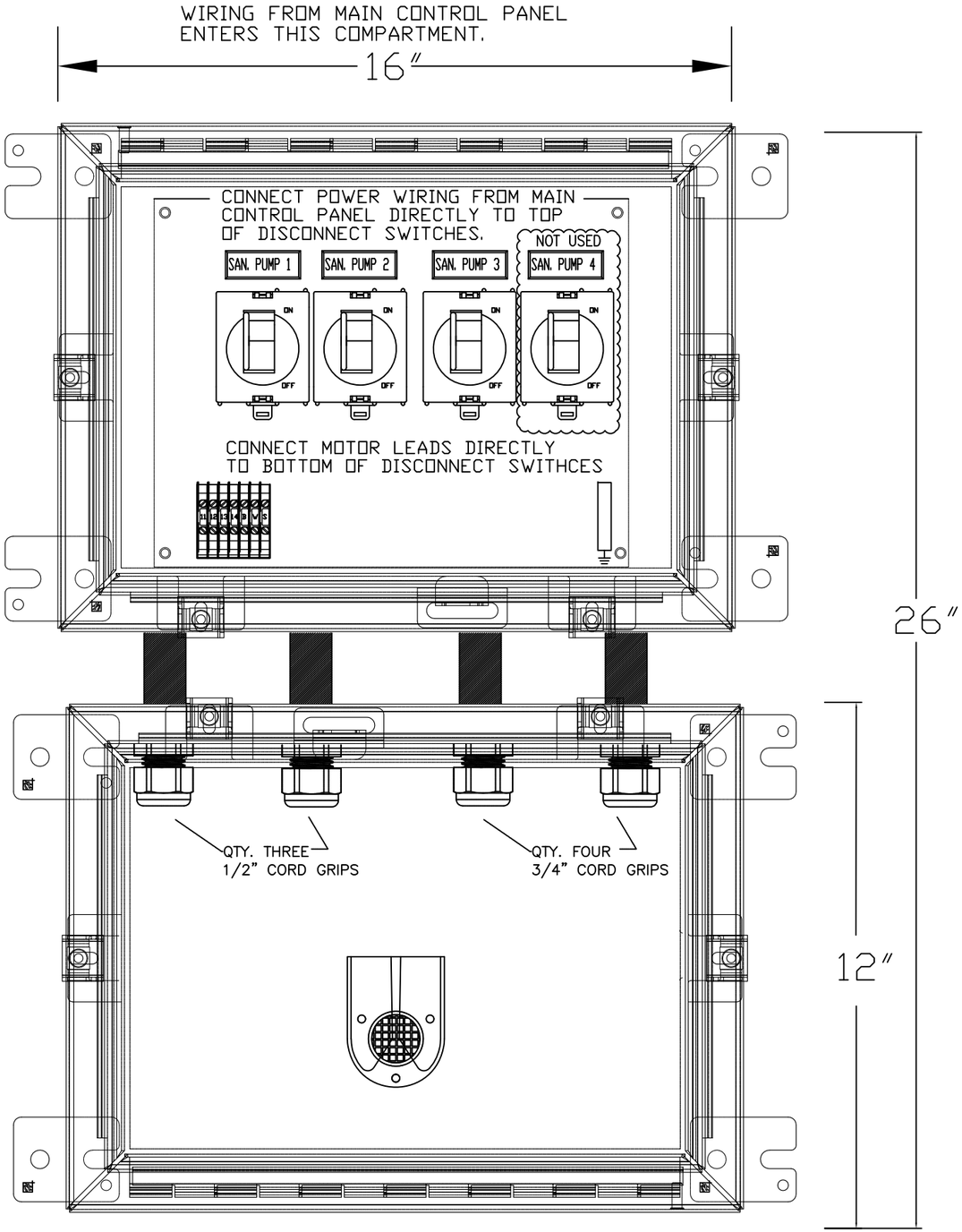
WARNING MORE THAN ONE DISCONNECT MAY BE REQUIRED TO DE-ENERGIZE EQUIPMENT BEFORE SERVICING

REVISION DATES	
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G	–
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F.R.MAHONY & ASSOCIATES, INC.
WATER TREATMENT AND POLLUTION CONTROL EQUIPMENT
273 WEYMOUTH STREET, ROCKLAND, MA 02370

AMEREN
MULTI-PUMP_CONTROL_PANEL

HP: 1	FLA: 8	VOLT:240	PHASE: 1	HERTZ:60	DATE: 8-31-21
DWG.BY: TMP	APPROVED BY:			JOB #:	
DWG.NO: Q21877-3	CUSTOMER:				



BILL OF MATERIALS

QTY	ITEM	MFG	MODEL #
	ENCLOSURE & ACCESSORIES		
2	ENCLOSURES	HOFFMAN	A-16H1206SSLP
1	SUB PANEL	HOFFMAN	A-16P12
1	VENT	HOFFMAN	A-NMV6
	MAIN POWER COMPONENTS		
4	DISCONNECT SWITCHES	ALTECH	KUE325
	MISC COMPONENTS		
4	CORD GRIPS	ALTECH	¾"
4	FEMALE ADAPTERS ¾"	CARLON	034FA
4	BOX ADAPTERS ¾"	CARLON	E996E
3	CORD GRIPS	ALTECH	½"
3	FEMALE ADAPTERS ½"	CARLON	012FA
3	BOX ADAPTERS ½"	ALTECH	E996D
7	TERMINAL BLOCKS	SQUARE D	9080-GR6
1	GROUND BAR	SQUARE D	PK9GTA
	LABELS		
1	TYPE 1	QCI	SAN. PUMP NO.1
1	TYPE 1	QCI	SAN. PUMP NO.2
1	TYPE 1	QCI	SAN. PUMP NO.3
1	TYPE 1	QCI	SAN. PUMP NO.4

THE PURPOSE OF THE DISCONNECT JUNCTION BOX IS TO ISOLATE WIRING TO THE PUMPS AND FLOAT SWITCHES FROM THE DISCONNECT ENCLOSURE IN ORDER TO PREVENT CORROSIVE GASES FROM GETTING BACK TO THE MAIN CONTROL PANEL THROUGH THE ELECTRICAL CONDUIT SYSTEM. THIS ISOLATION IS ACCOMPLISHED THROUGH THE USE OF A WIRING TROUGH CONNECTED TO THE BOTTOM OF THE DISCONNECT ENCLOSURE. PUMP AND FLOAT SWITCH CABLES ARE BROUGHT INTO THE BOTTOM OF THE WIRING TROUGH AND PASS UNSPLICED THROUGH SEALED CORD GRIPS INTO THE DISCONNECT COMPARTMENT.

PLANT WIRING FROM THE MAIN CONTROL PANEL MUST ENTER DIRECTLY INTO THE DISCONNECT ENCLOSURE AND BE TERMINATED ON THE FIELD WIRING TERMINALS PROVIDED.

THE DISCONNECT ENCLOSURE MUST BE SEALED AGAINST THE ENTRANCE OF CORROSIVE GASES BY PLACING A SHORT PIECE OF CABLE IN ALL UNUSED STRAIN RELIEF CORD CONNECTORS LOCATED BETWEEN THE WIRING TROUGH AND THE DISCONNECT ENCLOSURE.

REVISION DATES	
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H	–

F.R.MAHONY & ASSOCIATES, INC.
WATER TREATMENT AND POLLUTION CONTROL EQUIPMENT
273 WEYMOUTH STREET, ROCKLAND, MA 02370

ORLEANS
DISCONNECT_JUNCTION_BOX

HP: 1	FLA: 8	VOLT:240	PHASE: 1	HERTZ:60	DATE: 8-31-21
DWG.BY: MTP		APPROVED BY:		JOB #:	
DWG.NO: Q21877-4		CUSTOMER:			

ULTRX® Type 4X Fiberglass Enclosures



Application

This stylized world-class enclosure is a highly effective corrosion-resistant housing for electrical and electronic controls. It provides outstanding protection against atmospheric and marine corrosion in indoor or outdoor settings, including petrochemical plants, water treatment facilities, pulp and paper processing, and electroplating plants. A window cover enclosure is also available, providing easy visual inspection of interior components.

Construction

- Molded fiberglass-reinforced material has excellent temperature and chemical resistance qualities and exhibits outstanding physical properties, including high-impact resistance
- Fiberglass is easily punched, drilled, filed, or sawed
- Seamless foam-in-place gasket assures watertight and dust-tight seal
- Enclosure may be rotated 180 degrees for left and right hinging
- Molded-in drip shields are standard with each enclosure
- Impact-resistant polycarbonate window is permanently bonded in place
- Fiberglass mounting brackets and stainless steel attachment screws are provided with each enclosure
- Unique hinge design allows for standard 180 degree door opening with a maximum opening of 270 degrees
- Door hinges are replaceable
- Patented Type 316 stainless steel quarter-turn latch. Optional keylocking or padlocking handle available
- Molded-in DIN bosses
- Molded bosses on door provide additional mounting provisions
- Integral mounting rails provide infinite panel adjustment front to back
- Optional data pocket is high-impact thermoplastic

Finish

Exterior surface painted light gray acrylic enamel for enhanced UV protection. Optional steel panels are painted white. Optional stainless steel, aluminum, conductive, and composite panels are unpainted.

Industry Standards

UL 508A, File No. E61997: Type 3, 3R, 4, 4X, 12, and 13
NEMA/EEMAC Type 3, 3R, 4, 4X, 12, and 13
Enclosure flammability rating per UL 508A
CSA File No. 42186: Type 3, 3R, 4, 4X, 12, and 13
IEC 60529, IP66
Meets Type 3RX requirements

Patents

This product is covered by the following patent:
US 5,481,889

Accessories

Data Pocket
DIN Type Rails
Electric Heaters
Lighting Packages
Panels
Rack Angles
Terminal Block Kit Assemblies
Touch-Up Paint (ATPFG)
Window Kits
Wiring Duct
ULTRX Accessories

Modification Services Program

You can customize this product to your unique requirements by specifying from these options:

- Colors
- Subpanels
- Holes and cutouts in body, doors, subpanels
- Environmental control (louvers, fans, filters)
- Standard accessories

To order, contact your local Hoffman sales representative.

NOTE: For information about modifications outside the scope of the Modification Services program, contact your Hoffman sales representative.

Standard Sizes ULTRX Type 4X Fiberglass Enclosures

Catalog Number[a]	External Dimensions L x W mm (in.)	Internal Dimensions A x B x C mm (in.)	Panel Catalog Number	Conductive Panel Catalog Number	Panel Size D x E mm (in.)	Mounting G x H mm (in.)	Window Size M x N mm (in.)	F mm (in.)	J mm (in.)	K mm (in.)	P mm (in.)	Q mm (in.)	R mm (in.)	S mm (in.)	T mm (in.)
UU504020	513 x 413 (20.20 x 16.26)	496 x 396 x 220 (19.53 x 15.59 x 8.66)	**A20P16**	**A20P16G**	432 x 330 (17.00 x 12.99)	359 x 459 (14.13 x 18.07)	—	186 (7.32)	297 (11.69)	19 (0.75)	64 (2.52)	63 (2.48)	58 (2.28)	286 (11.26)	387 (15.24)
UU504020W	513 x 413 (20.20 x 16.26)	496 x 396 x 220 (19.53 x 15.59 x 8.66)	**A20P16**	**A20P16G**	439 x 330 (17.00 x 12.99)	359 x 459 (14.13 x 18.07)	386 x 286 (15.20 x 11.26)	186 (7.32)	297 (11.69)	19 (0.75)	64 (2.52)	63 (2.48)	58 (2.28)	286 (11.26)	387 (15.24)
UU606020	625 x 612 (24.61 x 24.09)	608 x 595 x 220 (23.94 x 23.43 x 8.66)	**A24P24**	**A24P24G**	533 x 533 (20.98 x 20.98)	559 x 572 (22.01 x 22.52)	—	186 (7.32)	500 (19.68)	21 (0.83)	62 (2.44)	68 (2.68)	56 (2.20)	489 (19.25)	489 (19.25)
UU606020W	625 x 612 (24.61 x 24.09)	608 x 595 x 220 (23.94 x 23.43 x 8.66)	**A24P24**	**A24P24G**	533 x 533 (20.98 x 20.98)	559 x 572 (22.01 x 22.52)	498 x 486 (19.61 x 19.13)	186 (7.32)	500 (19.68)	21 (0.83)	62 (2.44)	68 (2.68)	56 (2.20)	489 (19.25)	489 (19.25)
UU605025	625 x 513 (24.61 x 20.20)	608 x 496 x 270 (23.94 x 19.53 x 10.63)	**A24P20**	**A24P20G**	533 x 432 (20.98 x 17.00)	457 x 570 (17.99 x 22.44)	—	239 (9.41)	400 (15.75)	21 (0.83)	63 (2.48)	68 (2.68)	56 (2.20)	387 (15.24)	489 (19.25)
UU605025W	625 x 513 (24.61 x 20.20)	608 x 496 x 270 (23.94 x 19.53 x 10.63)	**A24P20**	**A24P20G**	533 x 432 (20.98 x 17.00)	457 x 570 (17.99 x 22.44)	498 x 386 (19.61 x 15.20)	239 (9.41)	400 (15.75)	21 (0.83)	63 (2.48)	68 (2.68)	56 (2.20)	387 (15.24)	489 (19.25)

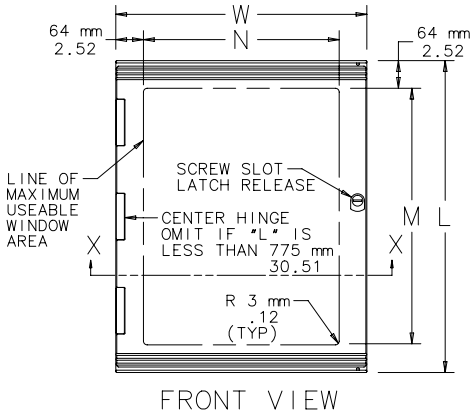
 © 2007 Hoffman Enclosures Inc.

ULTRX® Type 4X Fiberglass Enclosures

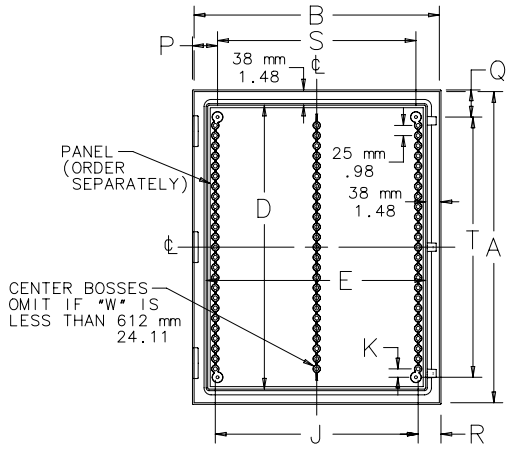
Standard Sizes ULTRX Type 4X Fiberglass Enclosures (Cont.)

Catalog Number[a]	External Dimensions L x W mm (in.)	Internal Dimensions A x B x C mm (in.)	Panel Catalog Number	Conduc-tive Panel Catalog Number	Panel Size D x E mm (in.)	Mounting G x H mm (in.)	Window Size M x N mm (in.)	F mm (in.)	J mm (in.)	K mm (in.)	P mm (in.)	Q mm (in.)	R mm (in.)	S mm (in.)	T mm (in.)
UU504030	513 x 412 (20.20 x 16.22)	496 x 395 x 321 (19.53 x 15.55 x 12.64)	**A20P16**	**A20P16G**	432 x 330 (17.00 x 12.99)	355 x 455 (13.98 x 17.91)	—	287 (11.30)	300 (11.81)	19 (0.75)	64 (2.52)	63 (2.48)	56 (2.20)	286 (11.26)	387 (15.24)
UU504030W	513 x 412 (20.20 x 16.22)	496 x 395 x 321 (19.53 x 15.55 x 12.64)	**A20P16**	**A20P16G**	432 x 330 (17.00 x 12.99)	355 x 455 (13.98 x 17.91)	386 x 286 (15.20 x 11.26)	287 (11.30)	300 (11.81)	19 (0.75)	64 (2.52)	63 (2.48)	56 (2.20)	286 (11.26)	387 (15.24)
UU606030	625 x 612 (24.61 x 24.09)	608 x 595 x 321 (23.94 x 23.43 x 12.64)	**A24P24**	**A24P24G**	533 x 533 (20.98 x 20.98)	555 x 568 (21.85 x 22.36)	—	287 (11.30)	500 (19.68)	21 (0.83)	62 (2.44)	68 (2.68)	56 (2.20)	489 (19.25)	489 (19.25)
UU606030W	625 x 612 (24.61 x 24.09)	608 x 595 x 321 (23.94 x 23.43 x 12.64)	**A24P24**	**A24P24G**	533 x 533 (20.98 x 20.98)	555 x 568 (21.85 x 22.36)	498 x 486 (19.61 x 19.13)	287 (11.30)	500 (19.68)	21 (0.83)	62 (2.44)	68 (2.68)	56 (2.20)	489 (19.25)	489 (19.25)
UU756030	775 x 612 (30.51 x 24.09)	758 x 595 x 321 (29.84 x 23.43 x 12.64)	**A30P24**	~~**A30P24G**~~	686 x 533 (27.01 x 20.98)	555 x 718 (21.85 x 28.27)	—	287 (11.30)	500 (19.68)	21 (0.83)	62 (2.44)	67 (2.64)	56 (2.20)	489 (19.25)	641 (25.24)
UU756030W	775 x 612 (30.51 x 24.09)	758 x 595 x 321 (29.84 x 23.43 x 12.64)	**A30P24**	**A30P24G**	686 x 533 (27.01 x 20.98)	555 x 718 (21.85 x 28.27)	648 x 486 (25.51 x 19.13)	287 (11.30)	500 (19.68)	21 (0.83)	62 (2.44)	67 (2.64)	56 (2.20)	489 (19.25)	641 (25.24)
UU1008030	1025 x 825 (40.35 x 32.48)	1008 x 808 x 321 (39.68 x 31.81 x 12.64)	**A40P30**	**A40P30G**	940 x 737 (37.01 x 29.02)	768 x 968 (30.24 x 38.11)	—	287 (11.30)	700 (27.56)	23 (0.91)	67 (2.64)	65 (2.56)	62 (2.44)	692 (27.24)	895 (35.24)
UU1008030W	1025 x 825 (40.35 x 32.48)	1008 x 808 x 321 (39.68 x 31.81 x 12.64)	**A40P30**	**A40P30G**	940 x 737 (37.01 x 29.02)	768 x 968 (30.24 x 38.11)	898 x 698 (35.35 x 27.48)	287 (11.30)	700 (27.56)	23 (0.91)	67 (2.64)	65 (2.56)	62 (2.44)	692 (27.24)	895 (35.24)
UU606040	625 x 612 (24.61 x 24.09)	608 x 595 x 421 (23.94 x 23.43 x 16.57)	**A24P24**	**A24P24G**	533 x 533 (20.98 x 20.98)	555 x 568 (21.85 x 22.36)	—	387 (15.24)	500 (19.68)	21 (0.83)	62 (2.44)	68 (2.68)	56 (2.20)	489 (19.25)	489 (19.25)
UU606040W	625 x 612 (24.61 x 24.09)	608 x 595 x 421 (23.94 x 23.43 x 16.57)	**A24P24**	**A24P24G**	533 x 533 (20.98 x 20.98)	555 x 568 (21.85 x 22.36)	498 x 486 (19.61 x 19.13)	387 (15.24)	500 (19.68)	21 (0.83)	62 (2.44)	68 (2.68)	56 (2.20)	489 (19.25)	489 (19.25)
UU756040	775 x 612 (30.51 x 24.09)	758 x 595 x 421 (29.84 x 23.43 x 16.57)	**A30P24**	**A30P24G**	686 x 533 (27.01 x 20.98)	555 x 718 (21.85 x 28.27)	—	387 (15.24)	500 (19.68)	21 (0.83)	62 (2.44)	67 (2.64)	56 (2.20)	489 (19.25)	641 (25.24)
UU756040W	775 x 612 (30.51 x 24.09)	758 x 595 x 421 (29.84 x 23.43 x 16.57)	**A30P24**	**A30P24G**	686 x 533 (27.01 x 20.98)	555 x 718 (21.85 x 28.27)	648 x 486 (25.51 x 19.13)	387 (15.24)	500 (19.68)	21 (0.83)	62 (2.44)	67 (2.64)	56 (2.20)	489 (19.25)	641 (25.24)

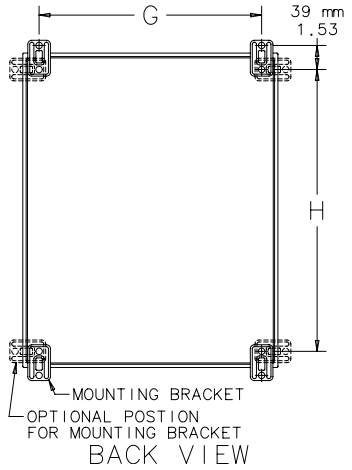
[a]Catalog numbers ending in W have windows in the door.



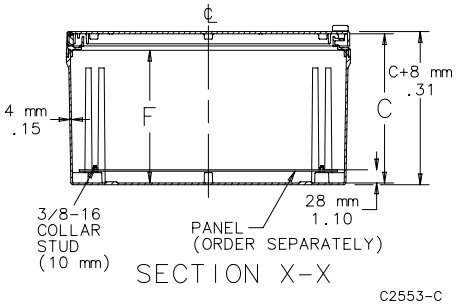
FRONT VIEW



FRONT VIEW WITH DOOR REMOVED



BACK VIEW



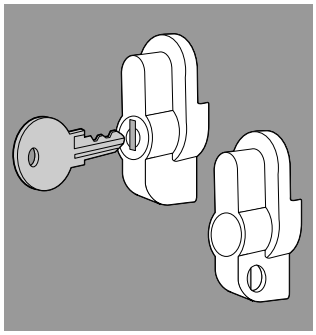
SECTION X-X

C2553-C

 © 2007 Hoffman Enclosures Inc.

ULTRX® Enclosure Accessories

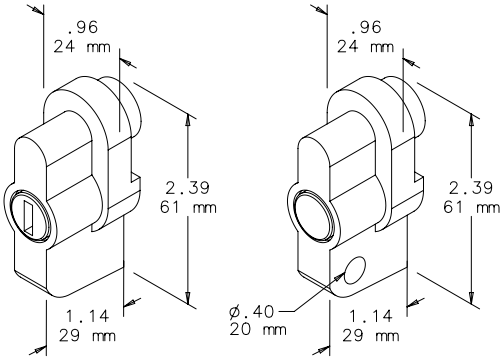
ULTRX Keylock Kit and Padlock Kit



Keylock Kit or pushbutton style Padlock Kit is easily inserted in latch hole to prevent unauthorized personnel from gaining access to enclosure contents. Each kit is fully assembled for easy installation in the field. Type 316 stainless steel construction.

Catalog Number	Description
UUHKL	Keylock Kit
UUHPL	Padlock Kit

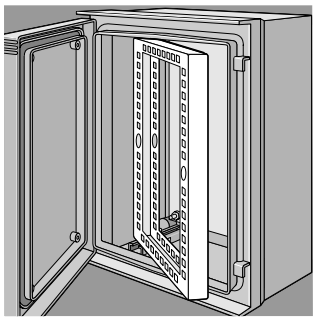
UUHKL: Internal key components are not stainless steel.
UUHPL: Handles maintain UL 508A, 508 Type 3, 4, 4X, and 12 when properly installed on a Hoffman enclosure. Set up for 1/4-inch or 3/8-inch padlock.



Keylock Kit **Padlock Kit**

87792346

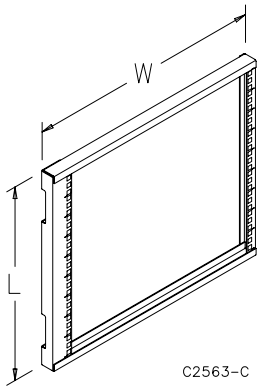
ULTRX Swing Frame



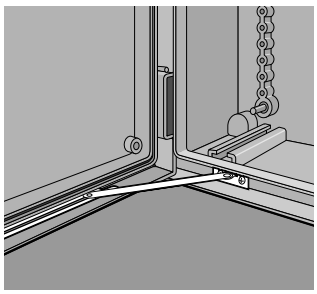
Swing Frame provides 19-inch rack-mounting capabilities with U-Style (Type RA) mounting hole pattern. Quarter-turn latch has 100° swing. Adjustable mounting provision. 14 gauge plated steel. Mounting hardware included. Swing frame maintains enclosure rating if properly installed in a Hoffman enclosure.

NOTE: Swing Frame will not slide all the way forward in 400mm-deep enclosures. Consult factory for more information.

Catalog Number	Fits A x B (mm)	Fits A x B (in.)	L (mm)	L (in.)	W (mm)	W (in.)	Units
UU6060SF	610 x 610	24.00 x 24.00	540	21.25	535	21.08	11
UU7560SF	762 x 610	30.00 x 24.00	687	27.05	535	21.08	14



ULTRX Door Stop Kit



Door Stop Kit limits door to 120-degree opening. Field installable on all sizes of ULTRX enclosures. Type 304 stainless steel construction.

Catalog Number
UUDS

Product Data Sheet

QOU260

Miniature Circuit Breaker (QOU) Standard, 60A, 2-Pole, 120/240VAC, HACR Rated



Technical Characteristics

Ampere Rating	60A
Approvals	UL489 Listed - CSA 22.2 #5.1 Certified - IEC Rated 60947-2
Circuit Breaker Type	Standard
For Use With	OEM Panels and Enclosures
HACR Rated	Yes
Marketing Trade Name	QOU
Voltage Rating	120/240VAC
Mounting Type	Flush, Surface or DIN Rail (35mm)
Number of Poles	2-Pole
Short Circuit Current Rating	10kA@120/240VAC
Terminal Type	Line: Box Lug - Load: Box Lug
Type	QOU
Wire Size	#14-2 AWG(Al/Cu)
Depth	2.98 Inches
Height	4.05 Inches
Width	1.50 Inches

Shipping and Ordering

Category	00900 - Circuit Breakers, 1 Pole: 10 - 100 Amp, 2 Pole: 10 - 125 Amp, 3 Pole: 10 -125 Amp, Type QOU
Discount Schedule	DE2
GTIN	00785901418801
Package Quantity	1
Weight	0.77 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	MX

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Product Data Sheet

9080LBA162104

POWER DISTRIBUTION BLOCK 600V 175A



List Price	$30.50 USD
Availability	**Stock Item: This item is normally stocked in our distribution facility.**

Technical Characteristics

Cover	9080LB21
UL File Number	E60616 XCFR2
CSA File Number	70361 6228-01
RoHS Compliant	Yes
CE Marked	Yes
Flammability Rating	UL94V-0
Service Class	C
Block Style	Standard
Block Material	General Purpose Phenolic
Ampere Rating (Cu)	175A
Ampere Rating (Al)	135A
Maximum Voltage Rating	600 Vac
Number of Poles	1-Pole
Terminals per Pole (Main)	1
Terminal Type	Lugs
Lug Material	Tin Plated Aluminum
For Use With	Copper or Aluminum Wire
Terminals per Pole (Branch)	4
Wire Size (Main)	(1)#14 to #2/0 AWG
Wire Size (Branch)	(4)#14 to #4 AWG
Maximum Short Circuit Current Rating (with Circuit Breaker)	65kA
Maximum Short Circuit Current Rating (with Fuse)	100kA
Type	LB

Shipping and Ordering

Category	21711 - Blocks, Distribution, Power, Type LB
Discount Schedule	CP1
GTIN	00785901097303
Package Quantity	1
Weight	0.22 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

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Product data sheet
Characteristics

9080LBA362104
POWER DISTRIBUTION BLOCK 600V 175A

Main

Commercial Status	Commercialised
Range of product	9080LB
Product or component type	Power Distribution Block
[In] rated current	135 A aluminium 175 A copper
Product certifications	CE CSA RoHS UL listed
Material	Phenolic block
[Ue] rated operational voltage	600 V AC
Number of poles	3
Number of terminals	4 branch 1 main
Electrical connection	Lugs tin plated aluminium
Number of cables	2 14...2/0 AWG copper or aluminium main 4 14...4 AWG copper or aluminium branch
Short-circuit current	65 kA
Product compatibility	9080LB23

Ordering and shipping details

Category	21711 - 9080 LB
Discount Schedule	CP1
GTIN	00785901097457
Nbr. of units in pkg.	1
Package weight(Lbs)	0.49
Product availability	Stock - Normally stocked in distribution facility
Returnability	Y
Country of origin	US

Offer Sustainability

Sustainable offer status	Not Green Premium product
RoHS	Compliant - since 0620 - Schneider Electric declaration of conformity

Contractual warranty

Period	18 months

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This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof.
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Product Data Sheet

QOU220

Miniature Circuit Breaker (QOU) Standard, 20A, 2-Pole, 120/240VAC, HACR Rated



Technical Characteristics

Ampere Rating	20A
Approvals	UL489 Listed - CSA 22.2 #5.1 Certified - IEC Rated 60947-2
Circuit Breaker Type	Standard
For Use With	OEM Panels and Enclosures
HACR Rated	Yes
Marketing Trade Name	QOU
Voltage Rating	120/240VAC
Mounting Type	Flush, Surface or DIN Rail (35mm)
Number of Poles	2-Pole
Short Circuit Current Rating	10kA@120/240VAC
Terminal Type	Line: Box Lug - Load: Box Lug
Type	QOU
Wire Size	#14-2 AWG(Al/Cu)
Depth	2.98 Inches
Height	4.05 Inches
Width	1.50 Inches

Shipping and Ordering

Category	00900 - Circuit Breakers, 1 Pole: 10 - 100 Amp, 2 Pole: 10 - 125 Amp, 3 Pole: 10 -125 Amp, Type QOU
Discount Schedule	DE2
GTIN	00785901418689
Package Quantity	24
Weight	0.75 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	MX

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Product Data Sheet

LC1D09G7

Contactor (TeSys D) Non-Reversing, 9A(AC3) 20A(AC1), 3-Pole (3 NO)



Technical Characteristics

Certifications	UL Listed (E164862 / NLDX) - CSA Certified (LR43364 3211 04) - IEC Rated (60647-4) - CE Marked - RoHS Compliant
Inductive Amperes (AC3)	˘ˆ
Contactor Type	Non-Reversing
Resistive Amperes (AC1)	˝¸ˆ
Horsepower Rating (1-Phase)	0.5HP@115Vac - 1HP@230Vac
Horsepower Rating (3-Phase)	2HP@200/230Vac - 5HP@460Vac - 7.5HP@575Vac
Marketing Trade Name	TeSys
Maximum Voltage Rating	600 Vac
Mounting Style	35mm DIN Rail
Number of Poles	3-Pole (3 NO)
Coil Voltage Code	=0
Coil Consumption Sealed	7.5 VA
Coil Voltage	120Vac@50/60Hz
Coil Consumption Inrush	70 VA
Weight	0.71 lbs (0.32 kg)
Power Wire Size	#10 to #18 AWG
Control Terminal Torque	15 lb-in (1.7 Nm)
Power Terminal Torque	15 lb-in (1.7 Nm)
Terminal Type	Screw Clamp
Type	TeSys D
Control Wire Size	#10 to #18 AWG

Shipping and Ordering

Category	22345 -
Discount Schedule	/°˝
GTIN	,‚0,9˘¸°˝¸+˘9,
Package Quantity	°
Weight	0.8 lbs.
Availability Code	Stock Item: This item is normal y stocked in our distribution facility.
Returnability	D
Country of Origin	ID

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Product Data Sheet

LRD14

Overload Relay (TeSys D) Class 10 with Single Phase Sens., Trip: 7A to 10A



Technical Characteristics

For Use With	LC1D09 thru LC1D32
Marketing Trade Name	TeSys
Mounting Style	Direct
Overload Type	Thermal - Ambient Compensated Bi-Metallic/Differential
Trip Class	Class 10 with Single Phase Sensitivity
Weight	0.27 Pounds
Thermal Trip Setting	7A to 10A
Terminal Type	Screw Clamp
Type	TeSys D

Ship ing and Ordering

Category	22347 - Contactors, IEC, Overloads, TeSys
Discount Schedule	I12
GTIN	00785901206774
Package Quantity	1
Weight	0.32 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	>
Country of Origin	FR

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Product Data Sheet

QOU115

Miniature Circuit Breaker (QOU) Standard, 15A, 1-Pole, 120/240VAC, HACR Rated



SQUARE D by Schneider Electric

Technical Characteristics

Ampere Rating	15A
Approvals	UL489 Listed - CSA 22.2 #5.1 Certified - IEC Rated 60947-2
Circuit Breaker Type	Standard
For Use With	OEM Panels and Enclosures
HACR Rated	Yes
Marketing Trade Name	QOU
Voltage Rating	120/240VAC
Mounting Type	Flush, Surface or DIN Rail (35mm)
Number of Poles	1-Pole
Short Circuit Current Rating	5kA@277VAC - 10kA@120/240VAC
Switching Duty Rated	Yes
Terminal Type	Line: Box Lug - Load: Box Lug
Type	QOU
Wire Size	#14-2 AWG(Al/Cu)
Depth	2.98 Inches
Height	4.05 Inches
Width	0.75 Inches

Shipping and Ordering

Category	00900 - Circuit Breakers, 1 Pole: 10 - 100 Amp, 2 Pole: 10 - 125 Amp, 3 Pole: 10 -125 Amp, Type QOU
Discount Schedule	DE2
GTIN	00785901418504
Package Quantity	40
Weight	0.36 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	MX

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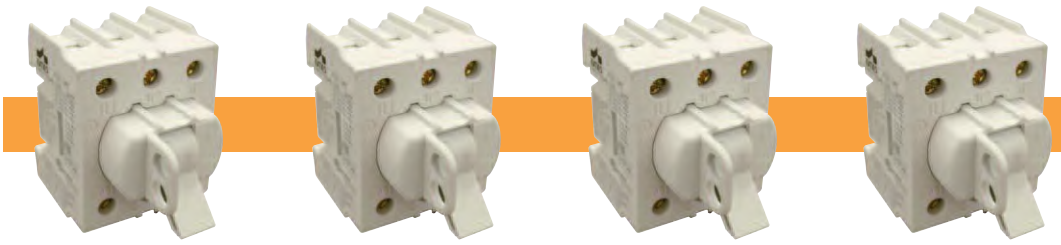
Schneider Electric

Toggle Handle Motor Disconnect Switch

Disconntect Junction Box Disconnect Switches

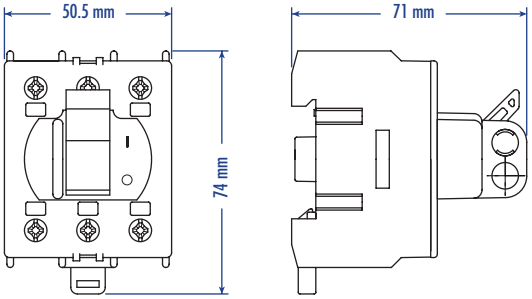
The KUE series only requires an additional cover plate (see below) which makes the switch IP20 touch proof.

E185115



Catalog Number	KUE316		KUE325		KUE340		KUE363	
No. of Poles	3		3		3		3	
General Purpose Current	16A		25A		40A		60A	
Maximum Voltage	600V AC		600V AC		600V AC		600V AC	
Motor FLA @ 480V AC	14A		17.5A		28A		34A	
Motor FLA @ 600V AC	9A		11A		18A		27A	
Horsepower Rating /HP	1 Phase	3 Phase	1 Phase	3 Phase	1 Phase	3 Phase	1 Phase	3 Phase
110-120V AC	3/4	1 1/2	1	2	2	3	3	5
200V AC	2	3	2	5	3	7.5	5	10
208V AC	2	3	2	5	3	7.5	5	10
220-240V AC	2	3	3	7.5	5	10	5	10
265V AC	2	3	3	7.5	5	10	5	10
277V AC	2	3	3	7.5	5	10	7.5	10
380-415V AC	3	7.5	5	10	7.5	15	10	20
440-480V AC	5	10	7.5	15	10	20	15	25
550-600V AC	3	7.5	5	10	7.5	15	15	25
Short Circuit Withstand Rating at 600 V with Max. Fuse Size/Class:	10kA		10kA		10kA		10kA	
K5	50A		50A		50A		60A	
RK5	50A		50A		50A		60A (80A@480V AC)	
RK1	80A		80A		80A		100A	
J	80A		80A		80A		100A	
Terminal Size Acceptability (Cu Conductors only, 75°C)	14-8AWG		14-8AWG		14-8AWG		12-4AWG	
Terminal Torque	16 lb. in.		16 lb. in.		16 lb. in.		16 lb. in.	

Dimensions
(to convert to inches multiply by 0.03937)



Weight	0.19Kg (0.419lb.)	0.172Kg (0.379lb.)	0.172Kg (0.379lb.)	0.200Kg (0.441lb.)

Suitable Accessories
Cover Plate



Cat. No.	K/KUE	K/KUEY	R/KUE	R/KUEY
Color	Grey	Yellow	Grey	Yellow
Shape	Rectangular	Rectangular	Circular	Circular

Dimensions *(to convert to inches multiply by 0.03937)*

GENESIS AUTOMATION
WWW.GENESISAUTOMATIONONLINE.COM

Single Phase DIN Rail Power Supplies
5, 10, 18, 30, 60, 120, 240 & 480 Watts



Ordering Information

GDA30-24 (A)

Wattage
5
10
18
30
60

Voltage
5
12
15 (on 5-18W)
24
48 (on 30,60W)

GDA240-24 A

Wattage
120
240
480

Voltage
12 (120W only)
24
48

A: screw terminal
B: connector plug

CE

UL 508

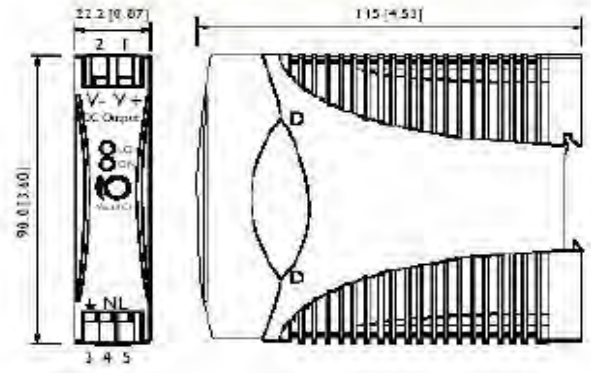
Features

- DIN rail mounting
- Wide input range 100-240 VAC, 47-63Hz
- Finger safe terminals – spring clamp on 5-60 watt, screw type on 5-60, 120-480 watt
- LED DC ON indication (green)
- LED DC Low indication (red) on 5, 10, 18, 120, 240, 480
- Relay output for 24 V DC signal on 30-60, 120-480 watt
- Output Overload, Over voltage, short circuit & no load protection
- Input line fuse, filter, & inrush current limiter
- UL 508 (E222875), UL 1310 Class 2 for 5-60 watt except GDA30-05, GDA60-05-12; CE
- Transformer isolation: 3kV
- Power factor correction option on 120-480 watt
- Parallel operation switch selectable on 120-480 watt
- Plastic body 5-60 watt, Metal body 120-480 watt

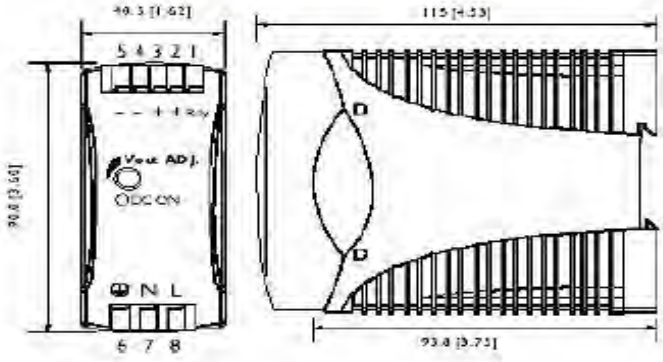
Output Voltage	Output Vdc Adjustable Range		
	5-18W	30-60W	120-480W
5 Volts	4.5-5.7	5-5.5	N/A
12 Volts	10.8-13.8	12-14	11.4-14.5
15 Volts	13.5-17.2	15-16.5	N/A
24 Volts	21.6-28.8	24-28	22.5-28.5
48 Volts	N/A	48-55	47-56

GDA Series DIN Rail Power Supplies
5, 10, 18, 30, 60, 120, 240 & 480 Watts

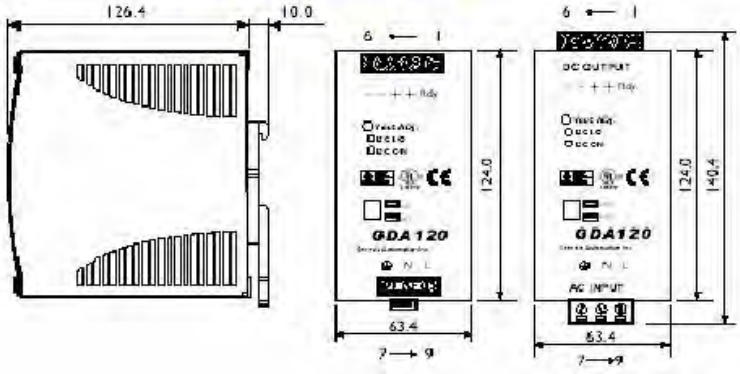
GDA 5, 10, 18 Watt



GDA 30, 60 Watt

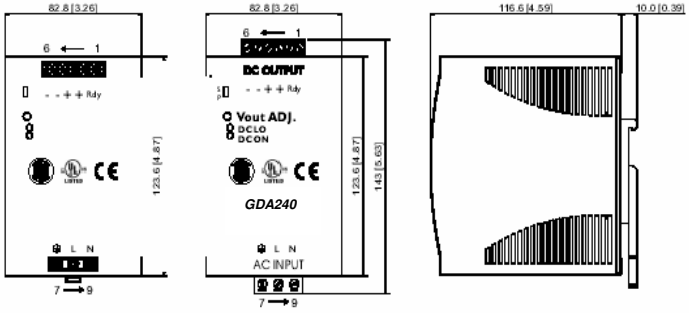


GDA 120 Watt



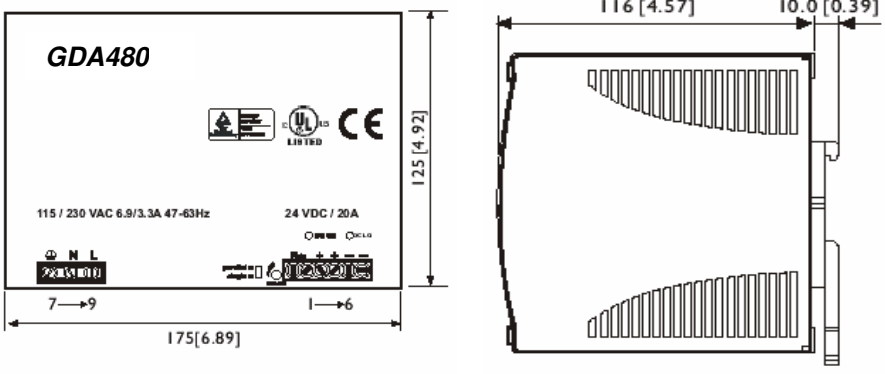
GDA 240 Watt

mm [inch]



GDA 480 Watt

mm [inch]



Model	Efficiency at 24V
GDA05	72%
GDA10	76%
GDA18	77%
GDA30	84%
GDA60	86%
GDA120	86%
GDA240	89%
GDA480	89%

UL 508

Product Data Sheet

XB5AD33

SELECTOR SWITCH 230VAC 2AMP XB5 +OPTIONS



Technical Characteristics

Ampere Rating	10A
Approvals	UL Listed File Number E164353 CCN NKCR - CSA Certified File Number LR44087 Class 321103 - CE Marked
Bezel Material	Black Plastic
Enclosure Type	Water tight, Dust tight and Corrosion Resistant (Indoor/Outdoor)
Enclosure Rating	NEMA 4/4X/13
Maximum Voltage Rating	600VAC
Mounting Type	Panel
Number of Positions	3
Operator Action	Maintained
Operator Type	Non-Illuminated
Size	22mm
Terminal Type	Screw Clamp
Type	XB5
Utilization Category	AC15 - DC13
Contact Configuration	2 NO
Knob Color	Black
Knob Type	Standard Lever
Head Type	Round

Shipping and Ordering

Category	22467 - Push Buttons, Plastic, 22mm, ZB5, XB5
Discount Schedule	CS2
GTIN	00785901383666
Package Quantity	1
Weight	0.09 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	FR

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Product Data Sheet

XB5AVG3

PILOT LIGHT LED 120VAC 22MM XB5 +OPTIONS



Technical Characteristics

Approvals	UL Listed File Number E164353 CCN NKCR - CSA Certified File Number LR44087 Class 321103 - CE Marked
Bezel Material	Black Plastic
Light Module Type	LED (Green)
Enclosure Rating	NEMA 4/4X/13
Head Type	Round
Mounting Type	Panel
Size	22mm
Terminal Type	Screw Clamp
Type	XB5
Utilization Category	AC15 - DC13
Enclosure Type	Water tight, Dust tight and Corrosion Resistant (Indoor/Outdoor)
Lens Color	Green
Light Module Supply Voltage	48/120V

Shipping and Ordering

Category	22467 - Push Buttons, Plastic, 22mm, ZB5, XB5
Discount Schedule	CS2
GTIN	00785901384045
Package Quantity	1
Weight	0.06 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	FR

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Product Data Sheet

XB5AA21

PUSHBUTTON 230VAC 2AMP XB5 +OPTIONS



Technical Characteristics

Ampere Rating	10A
Approvals	UL Listed File Number E164353 CCN NKCR - CSA Certified File Number LR44087 Class 321103 - CE Marked
Bezel Material	Black Plastic
Style	Standard: Flush
Enclosure Type	Water tight, Dust tight and Corrosion Resistant (Indoor/Outdoor)
Markings	None
Enclosure Rating	NEMA 4/4X/13
Maximum Voltage Rating	600V
Mounting Type	Panel
Operator Action	Momentary
Operator Type	Non-Illuminated
Size	22mm
Terminal Type	Screw Clamp
Type	XB5
Utilization Category	AC15 - DC13
Button/Cap Color	Black
Head Type	Round
Contact Configuration	1 NO

Shipping and Ordering

Category	22467 - Push Buttons, Plastic, 22mm, ZB5, XB5
Discount Schedule	CS2
GTIN	00785901383475
Package Quantity	1
Weight	0.06 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	FR

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Product Data Sheet

PK9GTA

LOAD CENTER EQUIPMENT GROUND BAR ASSY



SQUARE D by Schneider Electric

List Price $13.40 USD

Availability **Stock Item: This item is normally stocked in our distribution facility.**

Technical Characteristics

Application	Load Centers
Marketing Trade Name	QO and Homeline
Circuit Breaker Type	PK
Height	12.57 Inches
Width	8.88 Inches

Shipping and Ordering

Category	00102 - Load Centers, Accessories, Type QO
Discount Schedule	DE3A
GTIN	00785901026396
Package Quantity	10
Weight	0.11 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

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Schneider Electric

Product Data Sheet

9080GR6

TERMINAL BLOCK 600V 60AMP NEMA +OPTIONS



Technical Characteristics

Ampere Rating	60A
Approvals	UL Listed File: E60616 CCN XCFR2 - CSA Certified File: LR62144 Class 6228 01 - CE Marked
Fingersafe	Yes
Block Material	Nylon
Color	Natural
Width	0.35 Inches
Standard Package Size	50
Lug Material	Copper
Maximum Voltage Rating	600VAC
Mounting Type	Track (9080GH/35mm DIN 3)
Recommended End Barrier	GM6B
Terminal Type	Box Lug
Block Type	Standard
Type	GR6
Wire Size	#22 to #8 AWG (Cu)
Density	34 Sections
Depth	1.72 Inches
Height	1.82 Inches

Shipping and Ordering

Category	21702 - Blocks, Terminal, NEMA, Channel Mount, Type G
Discount Schedule	CP5
GTIN	00785901000716
Package Quantity	50
Weight	0.03 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	MX

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this document.

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Product data sheet
Characteristics

RXM4AB2F7
miniature plug-in relay - Zelio RXM - 4 C/O - 120 V AC - 6 A - with LED



Main

Range of product	Zelio Relay
Series name	Miniature
Product or component type	Plug-in relay
Device short name	RXM
Contacts type and composition	4 C/O
Contacts operation	Standard
Control circuit voltage	120 V AC
[Ithe] conventional enclosed thermal current	6 A at <= 55 °C
Status LED	With
Control type	Pushbutton
Coil interference suppression	Without
Utilisation coefficient	20 %
Sale per indivisible quantity	10

Complementary

[Ui] rated insulation voltage	250 V conforming to IEC 300 V conforming to CSA 300 V conforming to UL
[Uimp] rated impulse withstand voltage	4 kV conforming to IEC 61000-4-5
Contacts material	Silver alloy (Ag/Ni)
[Ie] rated operational current	3 A (AC-1/DC-1) NC conforming to IEC 6 A (AC-1/DC-1) NO conforming to IEC 8 A (AC-1/DC-1) conforming to UL
Minimum switching current	10 mA
Maximum switching voltage	250 V AC/DC
Minimum switching voltage	17 V
Resistive rated load	6 A at 250 V AC 6 A at 28 V DC
Maximum switching capacity	1500 VA, AC circuit 168 W, DC circuit
Minimum switching capacity	170 mW
Operating rate	<= 20 cyc/mn (under load) <= 300 cyc/mn (no-load)
Mechanical durability	10000000 cycles
Electrical durability	100000 cycles for resistive load
Average consumption in W	0.9 W, DC circuit
Average consumption in VA	1.2, AC circuit
Drop-out voltage threshold	>= 0.1 Uc (DC >= 0.15 Uc (AC
Operating time	20 ms between coil de-energisation and making of the Off-delay contact (AC/DC) 20 ms between coil energisation and making of the On-delay contact (AC/DC)
Average resistance	4430 Ohm, AC circuit at 20 °C +/- 15 %
Rated operational voltage limits	96...132 V AC
Protection category	RT I
Operating position	Any position
CAD overall width	21 mm

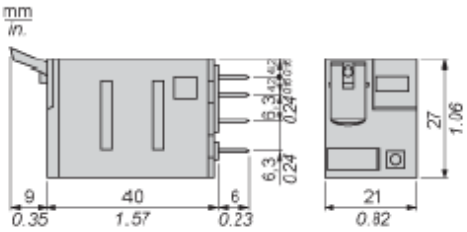
The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein.
This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof.
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CAD overall height	27 mm
CAD overall depth	55 mm
Product weight	0.037 kg

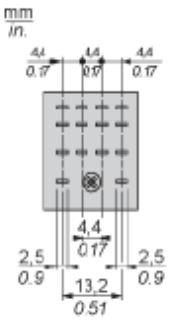
Environment

Dielectric strength	1500 V AC (between contacts) 1550 V AC (between coil and contact) 1550 V AC (between poles)
Product certifications	CSA UL
Standards	CSA C22-2 No 14 EN/IEC 61810-1 (iss. 2) UL 508
Ambient air temperature for storage	-40...85 °C
Ambient air temperature for operation	-40...55 °C
Vibration resistance	3 gn (f = 10...150 Hz), amplitude +/- 1 mm (on opening) conforming to EN/IEC 60068-2-27 5 gn (f = 10...150 Hz), amplitude +/- 1 mm (on closing) conforming to EN/IEC 60068-2-27
IP degree of protection	IP40 conforming to EN/IEC 60529
Shock resistance	15 gn on closing conforming to EN/IEC 60068-2-27 15 gn on opening conforming to EN/IEC 60068-2-27
RoHS EUR status	Compliant
RoHS EUR conformity date	0801

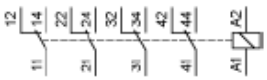
Dimensions

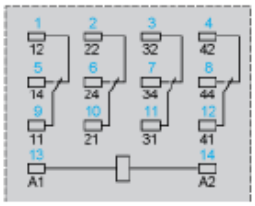


Pin Side View



Wiring Diagram





Symbols shown in blue correspond to Nema marking.

Relay and Timer Socket Selection Guide

Relay and Timer Sockets

Mounting	Series	Page	Part No.	No. of Poles	Receptacle	Terminal	Compatible IDEC Relay and Timer
DIN Rail Snap-Mount 	SR	F-6	SR2P-05 SR2P-05C SR2P-06	2	8-Pin	M3.5 Screw	RR2P, GT5P, RTE-P1, GT3 (8-pin)
			SR3P-05 SR3P-05C SR3P-06	3	11-Pin		RR3PA, RR2KP, RTE-P2 GT3 (11-pin)
			SR3B-05	3	11-Blade		RR1BA, RR2BA, RR3B, RTE-B
	SH	F-9	SH1B-05 SH1B-05C	1	5-Blade	M3.5 Screw Coil Terminal: M3	RH1B
			SH2B-05 SH2B-05C	2	8-Blade	M3.5 Screw	RH2B
			SH3B-05 SH3B-05C	3	11-Blade		RH3B, RH2LB
			SH4B-05 SH4B-05C	4	14-Blade		RH4B
	SY	F-13	SY2S-05 SY2S-05C	2	8-Blade	M3 Screw	RY2S, RY22S
			SY4S-05 SY4S-05C	4	14-Blade		RU4S, RY4S, RY42S, RY2KS, RY2LS, RM2S, GT5Y
	SM	F-15	SM2S-05 SM2S-05C				RU2S
Panel Mount 	SR	F-16	SR2P-51	2	8-Pin	Solder	RR2P, RAPP, RBPP, GT5P, RTE-P1, GT3 (8-pin)
			SR3P-51	3	11-Pin		RR3PA, RR2KP, RTE-P2, GT3 (11-pin)
			SR3B-51	3	11-Blade		RR1BA, RR2BA, RR3B
	SH	F-17	SH1B-51	1	5-Blade		RH1B, RAHB, RBHB
			SH2B-51	2	8-Blade		RH2B, RAMB, RBMB
			SH3B-51	3	11-Blade		RH3B, RH2LB
			SH4B-51	4	14-Blade		RH4B
	SY	F-19	SY2S-51	2	8-Blade		RY2S, RY22S
			SY4S-51	4	14-Blade		RY4S, RY42S, RY2KS, RY2LS, RM2S, GT5Y
PCB Mount 	SH	F3-20	SH1B-62	1	5-Blade	PC Board	RH1B, RAHB, RBHB
			SH2B-62	2	8-Blade		RH2B, RAMB, RBMB
			SH3B-62	3	11-Blade		RH3B, RH2LB
			SH4B-62	4	14-Blade		RH4B
	SY	F3-21	SY2S-61	2	8-Blade		RY2S, RY22S
			SY4S-61	4	14-Blade		RY4S, RY42S, RY2KS, RY2LS, RM2S, GT5Y
			SY4S-62	4	14-Blade		RY4S, RY42S, RY2KS, RY2LS, RM2S, GT5Y
Surface Mount 	SH	F-23	SH2B-02	2	8-Blade	M3.5 Screw	RH2B, RAMB, RBMB
For Panel Mounted Timers							
	SR	F-23	SR6P-M08G	2	8-pin	M3.5 Screw	GE1A; RTE-P1; GT3A-1,-2,-3; GT3D-1,-2,-3; GT3W (8-pin); GT3S; GT3F
			SR6P-M11G		11-pin		RTE-P2; GT3A-4,-5,-6; GT3D-4,-8; GT3W (11-pin)

For relay mounting accessories, see page F-24.

Vision™ OPLC™

Technical Specifications
Models V570-57-T20B, V570-57-T40B

This guide provides specifications for Unitronics' color touchscreen controllers V570-57-T20B and V570-57-T40B. You can find additional documentation on the Unitronics' Setup CD and in the Technical Library at www.unitronics.com.

Technical Specifications

Power Supply

	V570-57-T20B	V570-57-T40B
Input voltage	12 or 24VDC	24VDC
Permissible range	10.2-28.8VDC	20.4-28.8VDC
Max. current consumption	540mA@12V 270mA@24V	320mA@24V

Battery

Back-up	7 years typical at 25°C, battery back-up for RTC and system data, including variable data.
Replaceable	Yes, without opening the controller.

Graphic Display Screen

	V570-57-T20B	V570-57-T40B
LCD Type	TFT	TFT
Illumination backlight	White LED	CCFL fluorescent lamp
Display resolution, pixels	320x240 (QVGA)	
Viewing area	5.7"	
Colors	256	
Touchscreen	Resistive, analog	
'Touch' indication	Via buzzer	
Screen brightness	Via software (Store value to SI 9).	
Keypad	Displays virtual keyboard when the application requires data entry.	

Program

Memory size: Application Logic – 2MB, Images – 6MB, Fonts – 1MB

Operand type	Quantity	Symbol	Value
Memory Bits	8192	MB	Bit (coil)
Memory Integers	4096	MI	16-bit
Long Integers	512	ML	32-bit
Double Word	256	DW	32-bit unsigned
Memory Floats	64	MF	32-bit
Timers	384	T	32-bit
Counters	32	C	16-bit

Data Tables	120K dynamic data (recipe parameters, datalogs, etc.) 192K fixed data (read-only data, ingredient names, etc)
HMI displays	Up to 1024
Program scan time	9 µsec per 1K of typical application

Removable Memory

SD card	Compatible with fast SD cards; store datalogs, Alarms, Trends, Data Tables, backup Ladder, HMI, and OS. See Note 1

Notes:

1. User must format via Unitronics SD tools utility.

Communication

Serial ports	2. See Note 2	
RS232		
Galvanic isolation	Yes	
Voltage limits	±20VDC absolute maximum	
Baud rate range	300 to 115200 bps	
Cable length	Up to 15m (50')	
RS485		
Galvanic isolation	Yes	
Voltage limits	−7 to +12VDC differential maximum	
Baud rate range	300 to 115200 bps	
Nodes	Up to 32	
Cable type	Shielded twisted pair, in compliance with EIA RS485	
Cable length	1200m maximum (4000')	
CANbus port	1	
Nodes	CANopen: 127	Unitronics' CANbus protocols: 60
Power requirements	24VDC (±4%), 40mA max. per unit	
Galvanic isolation	Yes, between CANbus and controller	
Cable length/baud rate See Note 3	25 m 100 m 250 m 500 m 500 m 1000 m* 1000 m*	1 Mbit/s 500 Kbit/s 250 Kbit/s 125 Kbit/s 100 Kbit/s 50 Kbit/s 20 Kbit/s
		* If you require cable lengths over 500 meters, contact technical support.
Optional port	User may install a single Ethernet port, or an RS232/RS485 port. Available by separate order.	

Notes:

2. The standard for each port is set to either RS232/RS485 according to DIP switch settings. Refer to the Installation Guide.
3. V570-57-T20B supports both 12 and 24VDC CANbus power supply, (±4%), 40mA maximum per unit. Note that if 12 VDC is used, the maximum cable length is 150 meters.

I/Os

	Number of I/Os and types vary according to module. Supports up to 512 digital, high-speed, and analog I/Os.
Snap-in I/O modules	Plugs into rear port to create self-contained PLC with up to 43 I/Os.
Expansion modules	Local adapter (P.N. EX-A1), via I/O Expansion Port. Integrate up to 8 I/O Expansion Modules comprising up to 128 additional I/Os. Remote adapter (P.N. EX-RC1), via CANbus port. Connect up to 60 adapters; connect up to 8 I/O expansion modules to each adapter.
Exp. port isolation	Galvanic

Dimensions

Size	197X146.6X68.5mm (7.75" X 5.77" X2.7"). See Note 3
Weight	750 gm (26.4 oz)

Notes:

4. For exact dimensions, refer to the product's Installation Guide.

Mounting

Panel-mounting	Via brackets

Environment

Inside cabinet	IP20 / NEMA1 (case)
Panel mounted	IP65 / NEMA4X (front panel)
Operational temperature	0 to 50ºC (32 to 122ºF)
Storage temperature	-20 to 60ºC (-4 to 140ºF)
Relative Humidity (RH)	5% to 95% (non-condensing)

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DTS-V570-TX0B 04/09

V200-18-E2B Snap-in I/O Module

The V200-18-E2B plugs directly into the back of compatible Unitronics OPLCs, creating a self-contained PLC unit with a local I/O configuration.

Features

- 16 isolated digital inputs, including 2 high-speed counter inputs, type pnp/npn (source/sink)
- 10 isolated relay outputs
- 4 isolated pnp/npn (source/sink) transistor outputs, including 2 high-speed outputs
- 2 analog inputs
- 2 analog outputs

- Before using this product, it is the responsibility of the user to read and understand this document and any accompanying documentation.
- All examples and diagrams shown herein are intended to aid understanding, and do not guarantee operation. Unitronics accepts no responsibility for actual use of this product based on these examples.
- Please dispose of this product in accordance with local and national standards and regulations.
- Only qualified service personnel should open this device or carry out repairs.

User safety and equipment protection guidelines

This document is intended to aid trained and competent personnel in the installation of this equipment as defined by the European directives for machinery, low voltage, and EMC. Only a technician or engineer trained in the local and national electrical standards should perform tasks associated with the device's electrical wiring.

Symbols are used to highlight information relating to the user's personal safety and equipment protection throughout this document. When these symbols appear, the associated information must be read carefully and understood fully.

Symbol	Meaning	Description
	Danger	The identified danger causes physical and property damage.
	Warning	The identified danger can cause physical and property damage.
Caution	Caution	Use caution.



- Failure to comply with appropriate safety guidelines can result in severe personal injury or property damage. Always exercise proper caution when working with electrical equipment.



- Check the user program before running it.
- Do not attempt to use this device with parameters that exceed permissible levels.
- Install an external circuit breaker and take appropriate safety measures against short-circuiting in external wiring.
- To avoid damaging the system, do not connect / disconnect the device when the power is on.

Caution

- Ascertain that terminal blocks are properly secured in place.

Environmental Considerations



- Do not install in areas with: excessive or conductive dust, corrosive or flammable gas, moisture or rain, excessive heat, regular impact shocks or excessive vibration.



- Provide proper ventilation by leaving at least 10mm of space between the top and bottom edges of the device and the enclosure walls.
- Do not place in water or let water leak onto the unit.
- Do not allow debris to fall inside the unit during installation.

Installing / Removing the Snap-in I/O Module

These instructions are given in the controller's user guide, in the chapter 'I/Os', under the section 'Installing Snap-in I/O Modules'.

Wiring



- Do not touch live wires.



- Unused pins should not be connected. Ignoring this directive may damage the device.
- Do not connect the 'Neutral' or 'Line' signal of the 110/220VAC to the device's 0V pin.
- Double-check all wiring before turning on the power supply.

Wiring Procedures

Use crimp terminals for wiring; use 26-12 AWG wire (0.13 mm ^{2}–3.31 mm^2) for all wiring purposes.

1. Strip the wire to a length of 7±0.5mm (0.250–0.300 inches).
2. Unscrew the terminal to its widest position before inserting a wire.
3. Insert the wire completely into the terminal to ensure that a proper connection can be made.
4. Tighten enough to keep the wire from pulling free.

- To avoid damaging the wire, do not exceed a maximum torque of 0.5 N·m (5 kgf·m).
- Do not use tin, solder, or any other substance on stripped wire that might cause the wire strand to break.
- Install at maximum distance from high-voltage cables and power equipment.

I/O Wiring—General

- Input or output cables should not be run through the same multi-core cable or share the same wire.
- Allow for voltage drop and noise interference with input lines used over an extended distance. Use wire that is properly sized for the load.

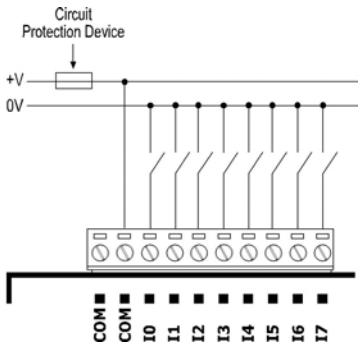
Digital Inputs

Each group of 8 inputs has two common signals. Each group can be used as either pnp (source) or npn (sink), when appropriately wired as shown in the following figures.

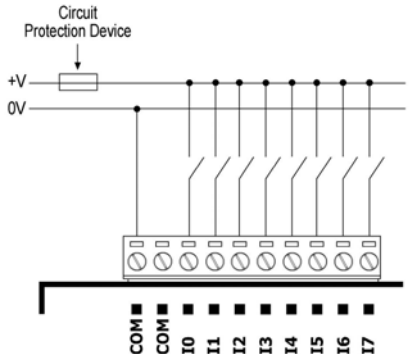
Inputs I0 and I2 can be used as normal digital inputs, as high-speed counters, or as part of a shaft encoder. Inputs I1 and I3 can be used as normal digital inputs, as high-speed counter resets, or as part of a shaft encoder.

- The common signals of each group are internally shorted on each connector.

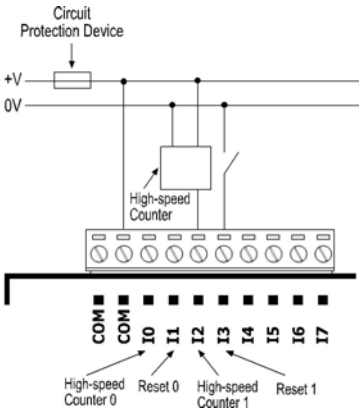
npn (sink) digital input wiring



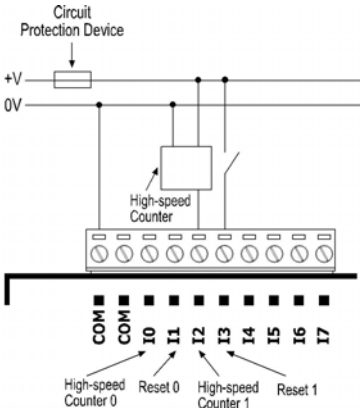
pnp (source) digital input wiring



npn (sink) high-speed counter

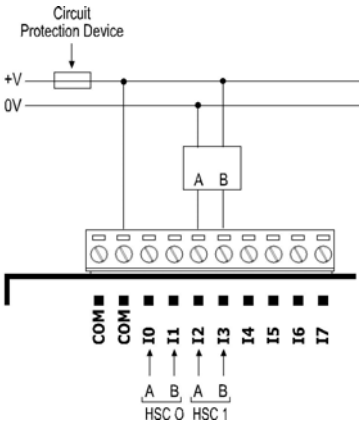


pnp (source) high-speed counter

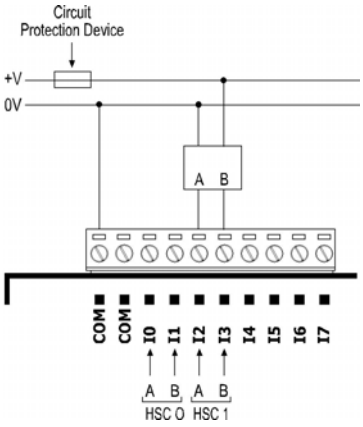


Inputs I0, I1, and I2, I3 can be used as shaft encoders as shown below.

npn (sink) shaft encoder wiring



pnp (source) shaft encoder wiring



Digital Outputs

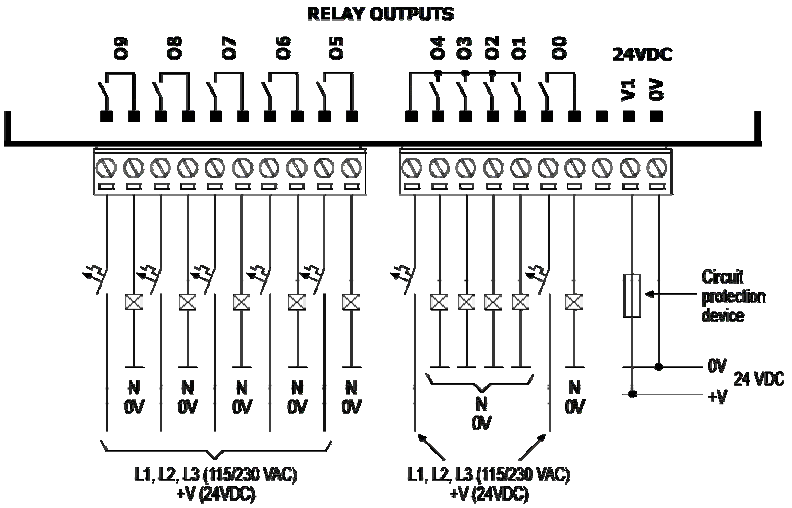
Wiring Power Supplies

1. Connect the "positive" lead to the “V1” terminal for the relay outputs, to the “V2” terminal for the transistor outputs.
2. In both cases, connect the “negative” lead to the “0V” terminal of each output group.

- In the event of voltage fluctuations or non-conformity to voltage power supply specifications, connect the device to a regulated power supply.
- Do not connect the ‘Neutral’ or ‘Line’ signal of the 110/220VAC to the device’s 0V pin.

Relay Outputs

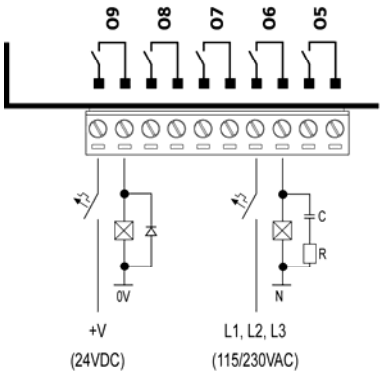
- The 0V signal of the relay outputs is isolated from the controller’s 0V signal.



Increasing Contact Life Span

To increase the life span of the relay output contacts and protect the device from potential damage by reverse EMF, connect:

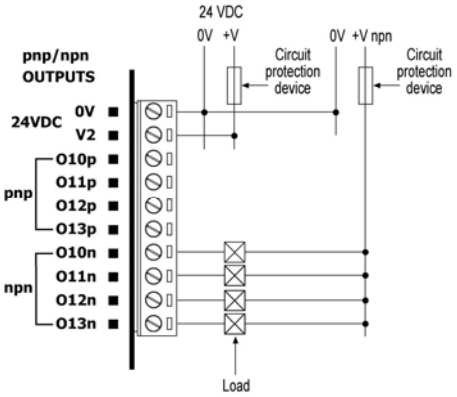
- a clamping diode in parallel with each inductive DC load,
- an RC snubber circuit in parallel with each inductive AC load.



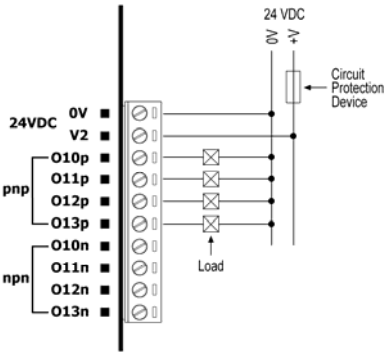
Transistor Outputs

- Each output can be wired separately as either npn or pnp.
- The 0V signal of the transistor outputs is isolated from the controller's 0V signal.

npn (sink)



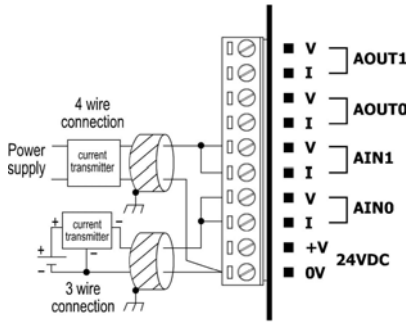
pnp (source)



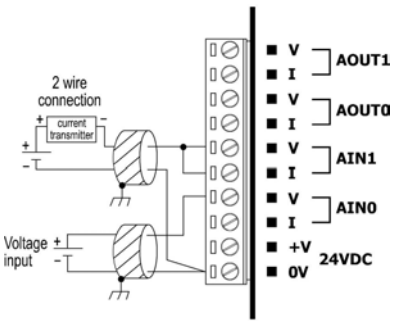
Analog Inputs

- Shields should be connected at the signal source.
- Inputs may be wired to work with either current or voltage.
- Note that the analog input's 0V signal must be the same 0V used by the controller's power supply.

current



current/voltage



Analog Outputs

Wiring the Analog Outputs' Power Supply

1. Connect the "positive" cable to the "+V" terminal, and the "negative" to the "0V" terminal.

- The analog 0V signal must be the same 0V used by the controller's power supply.
- A non-isolated power supply can be used provided that a 0V signal is connected to the chassis.
- Do not connect the 'Neutral' or 'Line' signal of the 110/220VAC to the device's 0V pin.
- In the event of voltage fluctuations or non-conformity to voltage power supply specifications, connect the device to a regulated power supply.

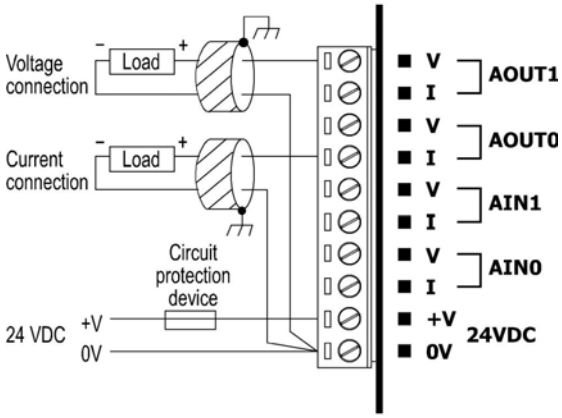


The 24VDC power supply must be turned on and off simultaneously with the controller's power supply.

Output Wiring

- Shields should be earthed, connected to the earth of the cabinet.
- An output can be wired to either current or voltage.
- Do not use current and voltage from the same source channel.

current/voltage



V200-18-E2B Technical Specifications

Digital Inputs

Number of inputs	16 (in two groups)
Input type	pnp (source) or npn (sink), set by wiring.
Galvanic isolation	Yes
Nominal input voltage	24VDC
Input voltage	
pnp (source)	0-5VDC for Logic '0' 17-28.8VDC for Logic '1'
npn (sink)	17-28.8VDC for Logic '0' 0-5VDC for Logic '1'
Input current	6mA@24VDC for inputs #4 to #15 8.8mA@24VDC for inputs #0 to #3
Response time	10mSec typical
High speed inputs	Specifications below apply when these inputs are wired for use as a high-speed counter input/shaft encoder. See Notes 1 and 2.
Resolution	32-bit
Frequency	10kHz maximum
Minimum pulse width	40µs

Notes:

1. Inputs #0 and #2 can each function as either high-speed counter or as part of a shaft encoder. In each case, high-speed input specifications apply. When used as a normal digital input, normal input specifications apply.
2. Inputs #1 and #3 can each function as either counter reset, or as a normal digital input; in either case, its specifications are those of a normal digital input. These inputs may also be used as part of a shaft encoder. In this case, high-speed input specifications apply.

Relay Outputs

Number of outputs	10. See Note 3.
Output type	SPST-NO relay; 230VAC / 24VDC
Type of relay	Takamisawa (Fujitsu) JY-24H-K or NAIS (Matsushita) JQ1AP-24V or OMRON G6B-1114P-24VDC
Galvanic isolation	Yes
Output current	Resistive Load 5A maximum per output 8A maximum total for common. See Note 3. Inductive Load 1A maximum per output 4A maximum total for common. See Note 3
Maximum frequency	10Hz
Contact protection	External precautions required (see Increasing Contact Life Span)
Outputs' power supply	
Nominal operating voltage	24VDC
Operating voltage	20.4 to 28.8VDC
Max. current consumption	90mA@24VDC

Notes:

3. Outputs #1, #2, #3, and #4 share a common signal. All other outputs have individual contacts.

Transistor Outputs

Number of outputs	4. Each can be individually wired as pnp (source) or npn (sink).
Output type	pnp: P-MOSFET (open drain) npn: open collector
Galvanic isolation	Yes
Output current	pnp: 0.5A maximum (per output) Total current: 2A maximum (per group) npn: 50mA maximum (per output) Total current: 150mA maximum (per group)
Maximum frequency	Resistive load 20Hz Inductive load 0.5Hz
High speed output maximum frequency (resistive load). See Note 4	pnp: 2kHz npn: 50kHz
ON voltage drop	pnp: 0.5VDC maximum npn: 0.85VDC maximum
Short circuit protection	Yes (pnp only)
Power supply	
operating voltage	20.4 to 28.8VDC
nominal operating voltage	24VDC
npn (sink) power supply	
operating voltage	3.5V to 28.8VDC, unrelated to the voltage of either the I/O module or the controller

Notes:

4. Outputs #12 and Output #13 may be used as high-speed outputs

Analog Inputs

Number of inputs	2 (single-ended)
Input range	0-10V, 0-20mA , 4-20mA. See Note 5.
Conversion method	Successive approximation
Resolution (except at 4-20mA)	10-bit (1024 units)
Resolution at 4-20mA	204 to 1023 (820 units)
Conversion time	Synchronized to scan time
Input impedance	>100KΩ—voltage 500Ω—current
Galvanic isolation	None
Absolute maximum rating	±15V—voltage ±30mA—current
Full-scale error	±2 LSB (0.2%)
Linearity error	±2 LSB (0.2%)

Analog Outputs	
Number of outputs	2 (single-ended)
Output range	0-10V, 0-20mA, 4-20mA. See Note 5.
Resolution (except at 4-20mA)	12-bit (4096 units)
Resolution at 4-20mA	819 to 4095 (3277 units)
Conversion time	Synchronized to scan time.
Load impedance	1kΩ minimum—voltage 500Ω maximum—current
Galvanic isolation	None
Linearity error	±0.1%
Operational error limits	±0.2%

Notes:

5. Note that the range of each I/O is defined both by wiring and within the controller's software.

Environmental	IP20 / NEMA1
Operating temperature	0° to 50°C (32° to 122°F)
Storage temperature	-20° to 60° C (-4° to 140°F)
Relative Humidity (RH)	5% to 95% (non-condensing)
Dimensions (WxHxD)	138x23x123mm (5.43x0.9x4.84")
Weight	231g (8.13 oz)

About Unitronics

Unitronics has been producing PLCs, automation software and accessory devices since 1989.

Unitronics' OPLC controllers combine full-function PLCs and HMI operating panels into single, compact units. These HMI + PLC devices are programmed in a single, user-friendly environment. Our clients save I/O points, wiring, space, and programming time; elements that translate directly into cost-efficiency.

Unitronics supports a global network of distributors and sales representatives, as well as a U.S. subsidiary.

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5410-1041-0

Alarm Light Lenses

Panel Mount Style



R10-S-10 A10-S-10 G10-S-10 B10-S-10

- 2" diameter x 2" height
- 10 watt appliance bulb
- Light socket with 12" pre-wired leads & mounting hardware as shown

(available in red, amber, green and blue)



R15-M-15 A15-M-15 G15-M-15 B15-M-15

2.25" diameter x 3" height
15 watt appliance bulb
Light socket with 36" pre-wired leads & mounting hardware as shown

(available in red, amber, green and blue)



R25-L-15 A25-L-15 G25-L-15 B25-L-15

3" diameter x 3" height
15 watt appliance bulb
Light socket with 36" pre-wired leads & mounting hardware as shown

(available in red, amber, green and blue)



R40-XL-25 A40-XL-25 G40-XL-25 B40-XL-25

4.25" diameter x 3.5" height
25 watt appliance bulb
Light socket with 36" pre-wired leads & mounting hardware as shown

R40-XL-40 A40-XL-40 G40-XL-40 B40-XL-40

Same as above except supplied with 40-watt bulb and 120 Vac flasher unit

(available in red, amber, green and blue)





SPECIFICATIONS (all lenses)

Flame resistant, unstabilized GE Lexan material

NEMA Type 3R, 4, 4X, 12 & 13

UL508 recognized component

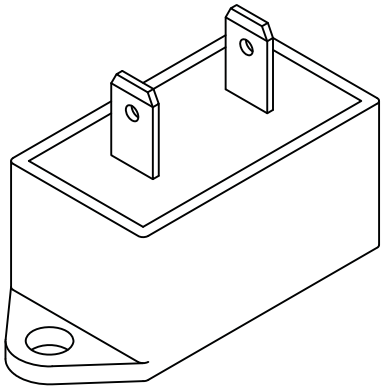
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FL-120

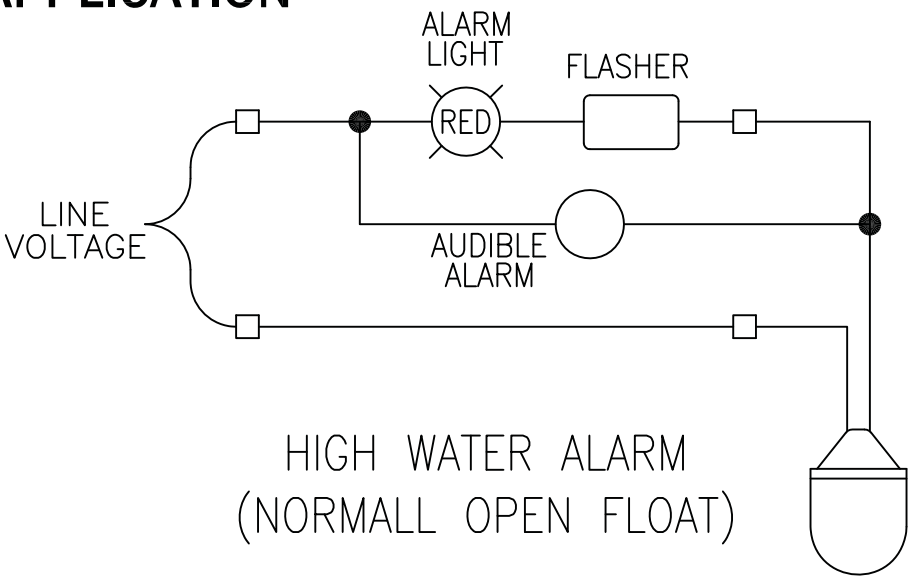
FLASHER

SPECIFICATIONS:

FLASH SPEED: 75 PER MINUTE
INPUT VOLTAGE: 120 VAC
UL RECOGNIZED COMPONENT
$\frac{1}{4}$" QUICK CONNECT TERMINALS
DIMENSIONS: LENGTH $1\frac{3}{4}$"
WIDTH: $\frac{13}{16}$"
HIEGHT: $1\frac{5}{32}$"
MAX. SCREW SIZE: #8



TYPICAL APPLICATION



SPECIFICATION SHEET
DIMENSIONAL DATA

SCALE: FULL

PART NO. SOLID STATE

TECHNICAL DATA

INPUT VOLTAGE	120 VAC, ±10%; 50/60Hz
FLASH RATE	Factory Fixed 75 FPM, ±15%
OUTPUT RATINGS	1 Amp Resistive (Full wave)
	10A Maximum (Inrush)
OPERATING TEMP.	−20° C TO +60° C
STORAGE TEMP.	−40° C TO + 85° C
TERMINATION TYPE	0.250" Quick Connect Tabs
MOUNTING	#8 Screw Maximum
DIMENSIONS	$1\frac{3}{4}$" L x $\frac{13}{16}$" W X $1\frac{5}{32}$" H
CONSTRUCTION	Thermoplastic Housing
	Completely Encapsulated

SUPPLY

LOAD T1 T2 T1 T2 T1 T2 T1

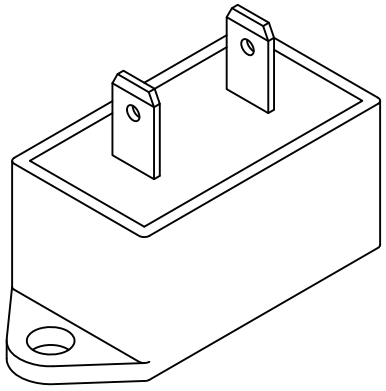
T1 = "OFF" TIME; T2 = "ON" TIME

FLASHER

PAGE 1

c UL us

UL Recognized #E226322



SPECIFICATION SHEET
DIMENSIONAL DATA

SCALE:	PART NO.
FULL	SOLID STATE

MAINTENANCE SCHEDULE

FRMA_Eone TRIPLEX Maintenance Schedule

Daily	
Observe if the station has any active alarms	
Weekly	
Open Station Cover and Check for formation of any Fats, Oils and Grease	
Quarterly	
Test and Log Pumps Amps while in operation	

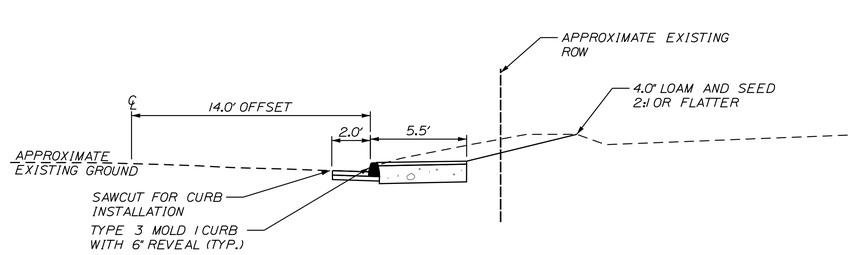
The City of Auburn is responsible for any required utility relocation and coordination including temporary construction easements and relocation of private property features such as mailboxes, signs and lighting fixtures.

PLAN NOTES:

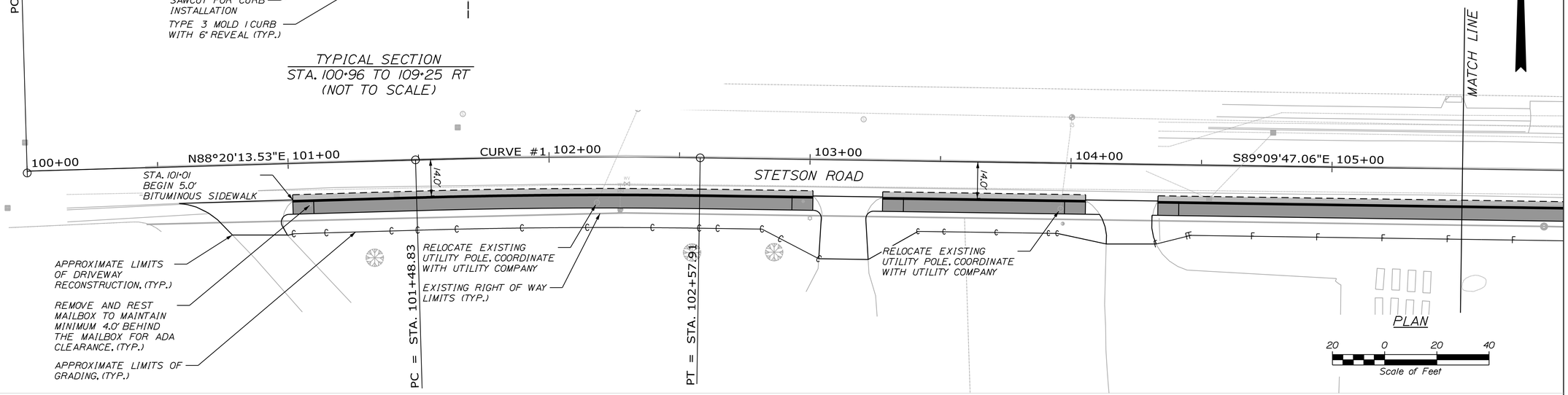
1. THIS CONCEPT PLAN WAS DEVELOPED IN CONJUNCTION WITH THE TMP APPLICATION FOR THE STETSON ROAD MULTI-FAMILY HOUSING EVELOPMENT ON STETSON ROAD IN AUBURN.
2. STETSON ROAD IS A PRIORITY 5 CORRIDOR WITH A SPEED LIMIT OF 30 MPH.
3. BASE PLANS WERE COMPLETED USING EXISTING CONDITIONS DATA BASED ON SURVEYED INFORMATION DATED 09/04/24 BY DIPRETE ENGINEERING. LIMITS OF WORK ARE APPROXIMATE AND ARE CONCEPTUAL ONLY.
4. RIGHT-OF-WAY INFORMATION SHOWN IS BASED ON THE EXISTING CONDITIONS PLAN, DATED 09/04/24 BY DIPRETE ENGINEERING.

CONSTRUCTION LEGEND:

- FULL DEPTH PAVEMENT STRUCTURE REPLACEMENT (MATCH EXISTING PAVEMENT BUILDUP, ASSUMED 4.0" 12.5MM)
- BITUMINOUS SIDEWALK CONSTRUCTION (2" 9.5 MM HMA, 12" ASCG TYPE "D")
- SAWCUT LINE

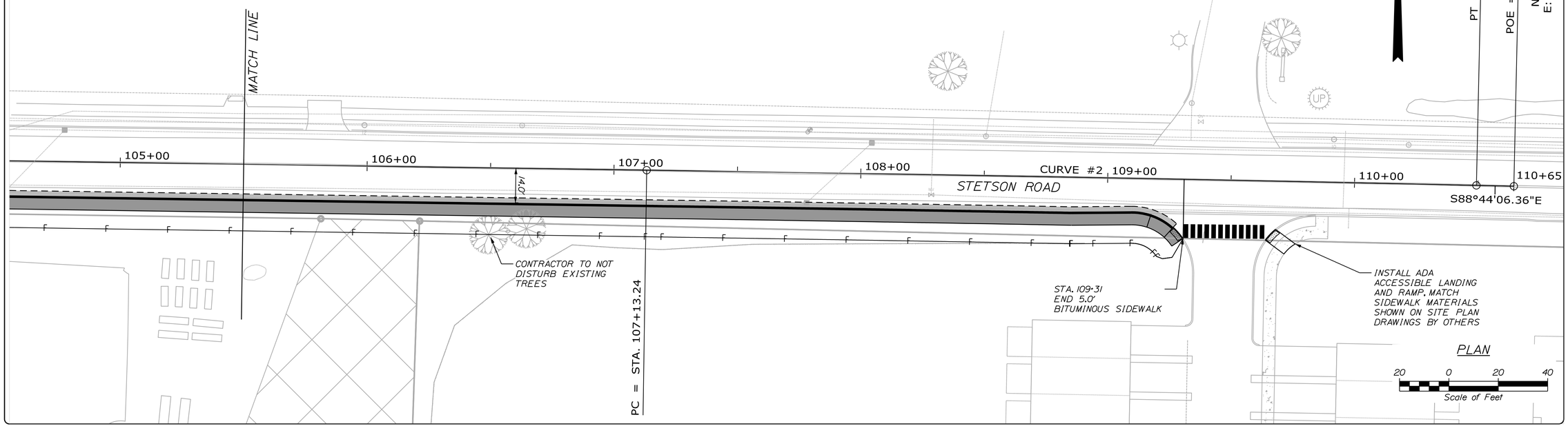


TYPICAL SECTION
STA. 100+96 TO 109+25 RT
(NOT TO SCALE)



CURVE DATA #1
PI = 102+03.38
D = 2°17'30.6"
Δ = 2°29'59.4" Rt.
R = 2500.00'
L = 109.08'
T = 54.55'
E = 0.59'

CURVE DATA #2
PI = 108+81.31
D = 0°07'38.4"
Δ = 0°25'40.7" Rt.
R = 45000.00'
L = 336.13'
T = 168.06'
E = 0.31'



PLS OR PE

PROGRESS PRINT

PLS OR PE

NOT FOR CONSTRUCTION

DESIGNED	CHECKED
AJR	DHC

REV:	BY:	DATE:	STATUS:
A	AJR	02-21-25	SUBMITTED FOR REVIEW

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WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

STETSON RD. SIDEWALK PLANS
OF:
STETSON ROAD SIDEWALK
STETSON ROAD
AUBURN, MAINE
FOR:
AR BUILDING COMPANY
SEVEN FIELDS, PENNSYLVANIA

PROJECT NO.	SCALE
240337	1" = 20'

SHEET 1 OF 1

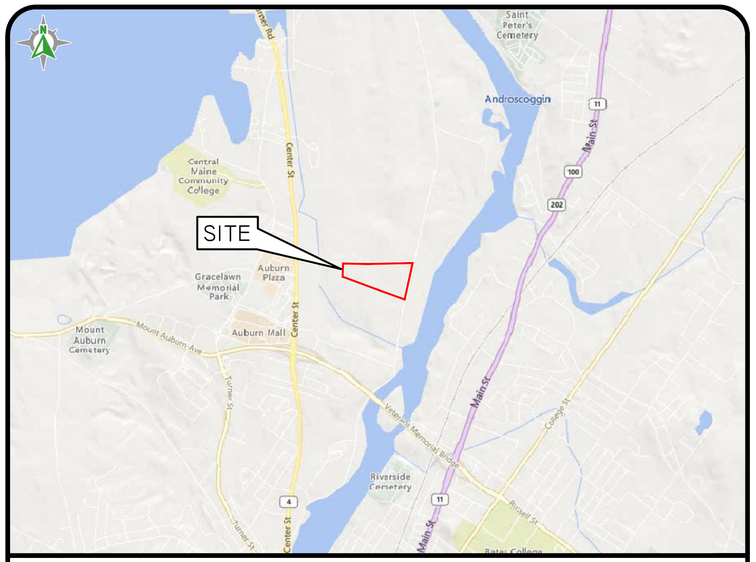
...\Concept Plan 1.dgn

Site Development Plans

Stetson Road

Located in
Auburn, Maine

Parcel ID 291-011



LOCATION MAP SCALE: 1" = 2000'

Sheet Index

1 Cover Sheet
2 Aerial Half-Mile Radius & USGS Map
3 Notes & Legend
4 Existing Conditions Plan
5 Soil Erosion & Sediment Control Plan
6 Conceptual Phasing Plan
7 Site Layout Plan
8 Grading & Surface Drainage Plan - 1
9 Grading & Surface Drainage Plan - 2
10 Drainage Plan - 1
11 Drainage Plan - 2
12 Plan & Profile - 1
13 Plan & Profile - 2
14 Plan & Profile - 3
15 Stormwater Pond Complex A
16 Gravel Wetland Details
17 Detail Sheet - 1
18 Detail Sheet - 2
19 Detail Sheet - 3
20 Detail Sheet - 4
21 Landscape Plan
22 Landscape Notes & Details

SESC / O&M
THE SOIL EROSION AND SEDIMENT CONTROL PLAN (SHEET 5) WITH ASSOCIATED NOTES ON DETAIL SHEET-1 (SHEET 17) AND STORMWATER OPERATION AND MAINTENANCE PLAN (O&M) ARE REQUIRED DOCUMENTS WITH THIS PLAN SET AND MUST BE MAINTAINED BY THE CONTRACTOR AND OWNER ON SITE.

DiPrete Engineering
Engineers · Planners · Surveyors
www.diprete-eng.com
Two Stafford Court, Cranston, RI 02920 · Tel 401-943-1000

STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

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NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

Cover Sheet

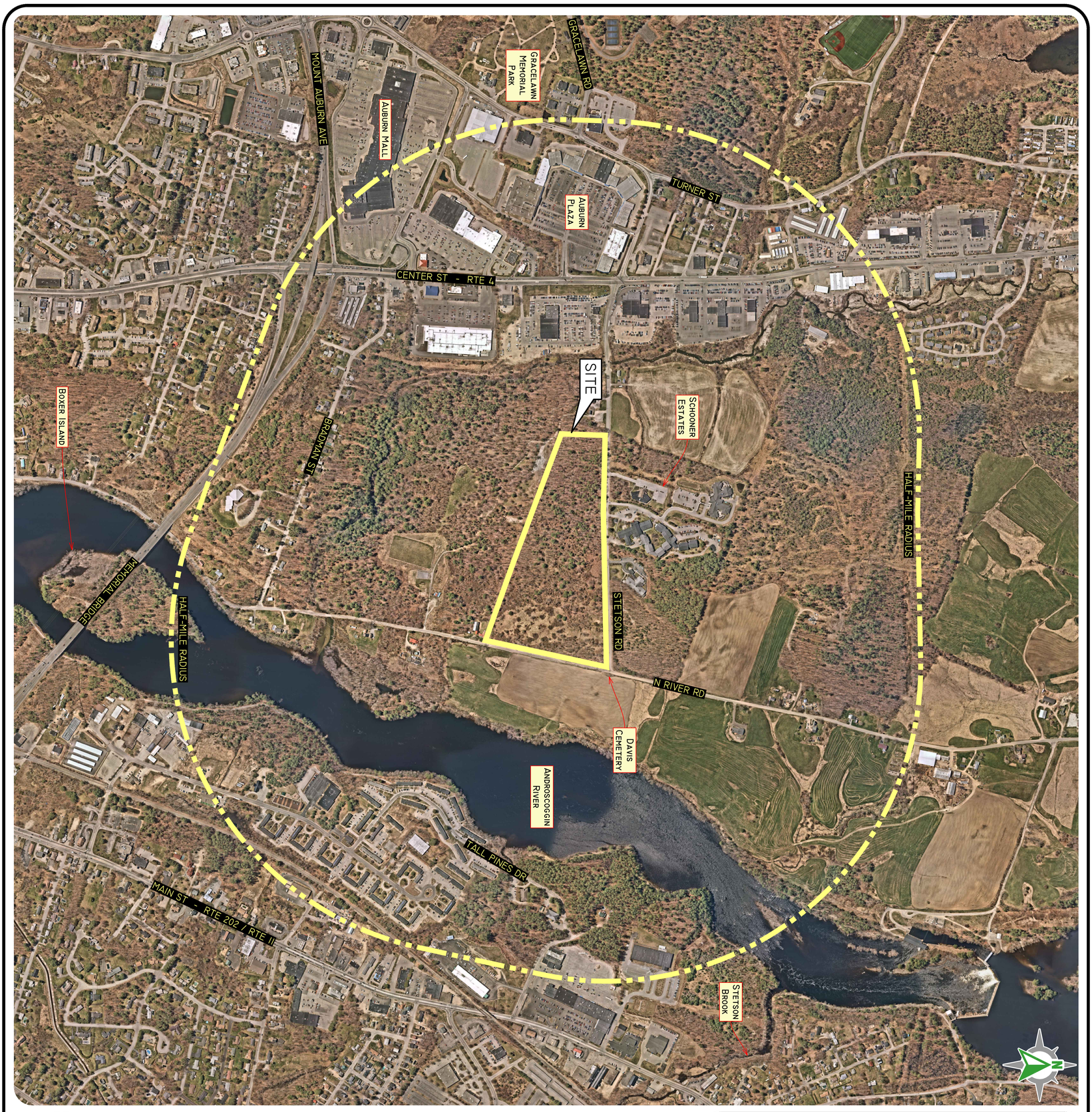
Stetson Road
Parcel ID 291-011
Auburn, Maine

PREPARED FOR:
A.R. Building Company, Inc.
310 Seven Fields Boulevard, Suite 350,
Seven Fields, Pennsylvania, 16046

SHEET 1 OF 22

DE JOB No. 2025-032 COPYRIGHT 2025 BY DIPRETE ENGINEERING ASSOCIATES, INC.

Z:\DEPMAN\PROJECTS\2025-032 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2025-032-CVAR.DWG Plotted: 2/25/2025



0 200' 400' 800'

SCALE: 1"=400'

PHOTO OBTAINED FROM NEARMAP
DATE OF PHOTOGRAPHY 04-27-2024

USGS MAP SCALE: 1"=2000'



AERIAL HALF-MILE RADIUS & USGS MAP

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 2 OF 22

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

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JAMES A. RUSSELL CARR No. 16851 REGISTERED PROFESSIONAL ENGINEER STATE OF MAINE

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GENERAL NOTES:

1. THE SITE IS LOCATED ON THE CITY OF AUBURN, MAINE, PARCEL ID 291-011.
2. THE SITE IS APPROXIMATELY 29.8 ACRES AND IS ZONED GB - GENERAL BUSINESS.
3. THE OWNER OF PARCEL ID 291-011 IS:
   CONCORD GENERAL MUTUAL INSURANCE CO.
   P.O. BOX 1350
   AUBURN, ME 04211-1350
4. THIS SITE IS LOCATED IN FEMA FLOOD ZONE X (UNSHADED). REFERENCE FEMA FLOOD INSURANCE RATE MAP 23001C0214E, MAP REVISED JULY 8, 2013. (FLOOD PLAIN DESCRIPTIONS SHOWN BELOW)
   - ZONE X (UNSHADED) - THIS SITE IS LOCATED IN FEMA FLOOD ZONE X, WHICH ARE AREAS WHERE THERE IS MINIMAL FLOODING.
5. THE SITE IS WITHIN A:
   MANUFACTURED HOUSING OVERLAY (TOWN)
   FIREARMS RESTRICTED ZONE (TOWN)
   GAS ZONE (TOWN)
6. THE BOUNDARY LINE AS SHOWN ON THE ENGINEERING PLAN SET DEPICTS THE RESULTS OF A BOUNDARY RETRACEMENT SURVEY AS PERFORMED BY DIPRETE ENGINEERING. THIS PLAN IS NOT TO BE CONSTRUED AS A BOUNDARY RETRACEMENT SURVEY PLAN AND IS NOT SUITABLE FOR RECORDING AS A SURVEY PLAN IN CONFORMANCE WITH APPLICABLE RULES AND REGULATIONS.
7. ALL WORK PERFORMED HEREIN IS TO BE GOVERNED BY CURRENT EDITIONS OF THE MAINE DOT STANDARD DETAILS & SPECIFICATIONS, MUNICIPAL STANDARD SPECIFICATIONS AND DETAILS AND SPECIFICATIONS INCLUDED AS PART OF THE DRAWINGS. IN AREAS OF CONFLICT BETWEEN THE DIFFERENT SPECIFICATIONS, THE DESIGN PLANS AND PROJECT SPECIFICATIONS WILL TAKE PRECEDENCE OVER THE GENERAL SPECIFICATIONS AND THE DESIGN ENGINEER WILL INTERPRET THE CONSTRUCTION REQUIREMENT. THE CONTRACTOR IS ADVISED TO SUBMIT A REQUEST FOR INFORMATION (RFI) FOR ANY AREAS OF CONFLICT BEFORE COMMITTING TO CONSTRUCTION.
8. THE FOLLOWING DOCUMENTS ARE CONSIDERED PART OF THE PROJECT PLANS AND THE CONTRACTOR/OWNER MUST MAINTAIN THESE DOCUMENTS AS PART OF A FULL PLAN SET:
   - STORMWATER OPERATION AND MAINTENANCE PLAN (O&M). THE O&M CONTAINS:
     - LONG TERM MAINTENANCE
     - LONG TERM POLLUTION PREVENTION
9. THIS PLAN SET INCLUDES EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENT CONTROL BMPS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION. SEE SOIL EROSION & SEDIMENT CONTROL PLAN (SHEET 5) AND ASSOCIATED NOTES ON DETAIL SHEET - I (SHEET I7).
10. THIS PLAN SET REFERENCES MAINE DEPARTMENT OF TRANSPORTATION (MAINEDOT) STANDARD DETAILS (DESIGNATED AS MAINEDOT DETAIL XXX). MAINEDOT STANDARD DETAILS ARE AVAILABLE FROM MAINEDOT.
11. THE SITE IS TO BE SERVICED BY PUBLIC WATER AND PUBLIC SEWER.
12. THE DRAINAGE SYSTEM IS DESIGNED TO MEDEP CHAPTER 500 STORMWATER MANAGEMENT REGULATIONS. THE STORMWATER MANAGEMENT SYSTEMS MEET THE MAINE DEP BEST MANAGEMENT PRACTICES.
13. THE SITE IS PROPOSED TO BE BUILT IN 1 PHASE.
14. BORINGS AND BORING LOGS, TEST PITS, SOIL EVALUATIONS, WERE COMPLETED BY SW COLE ON SEPTEMBER 17 2024.
15. WETLAND EDGE DELINEATED BY MARK HAMPTON ASSOCIATES IN JANUARY OF 2023.
16. ANY PROPRIETARY PRODUCTS REFERENCED IN THIS PLAN SET ARE REPRESENTATIVE OF THE MINIMUM DESIGN REQUIREMENTS FOR THE PURPOSE THEY PROPOSE TO SERVE. ALTERNATIVES TO ANY PROPRIETARY PRODUCT MAY BE SUBMITTED TO THE ENGINEER OF RECORD FOR CONSIDERATION, WHICH MUST BE ACCOMPANIED BY APPROPRIATE SPECIFICATION SHEETS/DESIGN CALCULATIONS THAT DEMONSTRATE THE ALTERNATIVE(S) MEET THE MINIMUM DESIGN PARAMETERS OF THE PRODUCT SHOWN ON THE PLANS. NO ALTERNATIVES MAY BE USED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER OF RECORD.
17. THIS PLAN SET MAY REFERENCE AND/OR INCLUDE REPRODUCTIONS OF PROPRIETARY PRODUCTS/ DETAILS BY OTHERS, AND/OR THEIR ASSOCIATED SPECIFICATIONS. ANY REFERENCED OR REPRODUCED PROPRIETARY PRODUCT OR DETAIL BY OTHERS THAT IS SHOWN ON DIPRETE PLANS IS STRICTLY FOR INFORMATION/SPECIFICATION PURPOSES ONLY. DIPRETE ENGINEERING DOES NOT WARRANT ANY PROPRIETARY PRODUCTS, DETAILS BY OTHERS OR THEIR RESPECTIVE DESIGNS. IF A DIPRETE ENGINEERING PLAN INCLUDES A PROPRIETARY PRODUCT/DETAIL BY OTHERS (EITHER EXPLICITLY OR IMPLIED) AND IS STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND/OR REGISTERED LANDSCAPE ARCHITECT OF DIPRETE ENGINEERING, SAID STAMP DOES NOT EXTEND TO ANY PORTION OF THE PROPRIETARY PRODUCT/DETAIL BY OTHERS OR ITS DESIGN.

SOIL INFORMATION:

(REFERENCE: USDA NATURAL RESOURCES CONSERVATION SERVICE)
SOIL NAME DESCRIPTION

AaB	AGAWAM FINE SANDY LOAM, 2 TO 8 PERCENT SLOPES
BaB	NICHOLVILLE VERY FINE SANDY LOAM, 0 TO 8 PERCENT SLOPES
BaC	NICHOLVILLE VERY FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES
BuC2	BUXTON SILT LOAM, 8 TO 15 PERCENT SLOPES
HrB	HARTLAND VERY FINE SANDY LOAM, 2 TO 8 PERCENT SLOPES
HrC2	HARTLAND VERY FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES, ERODED
HrD2	HARTLAND VERY FINE SANDY LOAM, 15 TO 25 PERCENT SLOPES, ERODED
HrB	LYMAN-TUNBRIDGE COMPLEX, 0 TO 8 PERCENT SLOPES, ROCKY
HrC	LYMAN-TUNBRIDGE COMPLEX, 8 TO 15 PERCENT SLOPES, ROCKY

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

1. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENT CONTROL BMPS" MANUAL PUBLISHED BY BUREAU OF LAND AND WATER QUALITY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION.
2. ALL AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE LOAM AND SEED PER DETAIL.
3. SEE GRADING AND UTILITY DRAWINGS FOR PIPE AND STRUCTURE DATA TABLES.
4. NOTE THE SOIL EROSION AND SEDIMENT CONTROL SHOWN ON THESE PLANS ARE THE MINIMUM QUANTITY/TYPE OF EROSION CONTROL DEVICES AND MATERIALS DEEMED REQUIRED BY DIPRETE ENGINEERING TO MEET THE APPLICABLE REGULATIONS.
5. TEMPORARY SWALES MUST BE USED TO CONTROL RUNOFF DURING CONSTRUCTION OF THE PROPOSED SITE WORK. TEMPORARY SWALES MUST BE VEGETATED AFTER CONSTRUCTION. EROSION CONTROL MATS MUST BE INSTALLED, IF NECESSARY, TO PREVENT EROSION AND SUPPORT VEGETATION. AFTER CONSTRUCTION IS COMPLETE AND TRIBUTARY AREAS TO THE SWALES HAVE BEEN STABILIZED, THE TEMPORARY SWALES MUST BE CLEARED AND FINAL DESIGN, INCLUDING INSTALLATION OF THE GRASS SWALES, TO BE PER THE DESIGN PLANS.
6. ONCE THE SEDIMENT MANAGEMENT MEASURES ARE NO LONGER REQUIRED AND ALL TRIBUTARY AREAS HAVE BEEN STABILIZED, THE TEMPORARY SEDIMENT MEASURES MUST BE CLEANED AND BROUGHT TO FINAL DESIGN GRADES.
7. INLET PROTECTION MUST BE INSTALLED ON ALL CATCH BASINS ONCE CONSTRUCTED.
8. CONTRACTOR MAY MODIFY SEQUENCE OF CONSTRUCTION WITH APPROVAL FROM DESIGN ENGINEER AND OWNER.

DEMOLITION NOTES:

1. CONTRACTOR MUST OBTAIN ALL FEDERAL, STATE, AND MUNICIPAL APPROVALS PRIOR TO THE START OF CONSTRUCTION.
2. CONTRACTOR MUST PERFORM DAILY SWEEPING AT CONSTRUCTION ENTRANCE DURING DEMOLITION AND CONSTRUCTION TO MINIMIZE SEDIMENTS ON EXTERNAL STREETS.
3. ANY EXISTING BUILDING(S) AND PROPERTY PROPOSED TO REMAIN THAT ARE DAMAGED BY THE CONTRACTOR MUST BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
4. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND LEGALLY DISPOSING (R&D) ALL MATERIALS INDICATED ON THE PLANS UNLESS SPECIFIED OTHERWISE HERE IN. R&D MATERIALS MUST INCLUDE BUT ARE NOT LIMITED TO PAVEMENT, GRAVEL, CATCH BASINS, MANHOLES, GRATES/FRAMES/COVERS, AND ANY EXCESS SOIL THAT IS NOT INCORPORATED INTO THE WORK.
5. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, ALL DISTURBED AREAS, INCLUDING THE CONTRACTOR'S STOCKPILE AND STAGING AREAS WITHIN THE LIMIT OF WORK, MUST BE RESTORED TO MATCH THE DESIGN PLANS.
6. CONTRACTOR MUST DOCUMENT LOCATION OF ALL SUBSURFACE UTILITIES REMAINING IN PLACE AFTER DEMOLITION (ACTIVE AND INACTIVE/ABANDONED). LOCATION MUST BE DOCUMENTED BY FIELD SURVEY OR SWING TIES. COPIES OF LOCATION DOCUMENTATION MUST BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF DEMOLITION AND PRIOR TO START OF NEW CONSTRUCTION. A MARKER MUST BE INSTALLED TO FINISH GROUND AT ALL INSTALLED CAPS/PLUGS. THE MARKER CAN BE A POST IN CONSTRUCTION AREAS OR PAINTED ON A PERMANENT SURFACE.
7. ACTIVE UTILITY LINES AND STRUCTURES NOT SPECIFICALLY NOTED ON PLANS, BUT WHICH ARE ENCOUNTERED TO BE IN CONFLICT WITH THE PROPOSED WORK, MUST BE EXTENDED, PROTECTED, OR REWORKED BY THE CONTRACTOR AS DIRECTED OR REQUIRED BY THE UTILITY ENTITY OR OWNER UNLESS OTHERWISE NOTED.
8. CONTRACTOR MUST COORDINATE THE CUTTING AND CAPPING OF ALL UTILITIES WITH THE OWNER, THE MUNICIPALITY, AND ALL APPLICABLE UTILITY ENTITIES HAVING JURISDICTION.
9. INACTIVE SUBSURFACE UTILITIES NOT IN CONFLICT WITH THE PROPOSED WORK AREA MAY BE ABANDONED IN PLACE WITH WRITTEN PERMISSION FROM THE OWNER.

TRAFFIC NOTES:

1. ALL TRAFFIC CONTROL MUST CONFORM TO THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) CURRENT EDITION.
2. DURING CONSTRUCTION, TRAFFIC CONES MUST BE USED FOR SEPARATION OF ACTIVE TRAFFIC FROM WORK ZONE PER MUTCD REQUIREMENTS.
3. DURING CONSTRUCTION FLAGGERS MUST BE EMPLOYED TO ENSURE SAFETY FOR INTERACTION OF CONSTRUCTION VEHICLES AND ACTIVE TRAFFIC.
4. ALL SIGNS, FLAGGERS, TRAFFIC CONTROL DEVICES, AND TEMPORARY TRAFFIC ZONE ACTIVITIES MUST MEET THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC (MUTCD) LATEST EDITION AND SUBSEQUENT ADDENDA.
5. TEMPORARY CONSTRUCTION SIGNS MUST BE MOUNTED ON MAINE DOT APPROVED SUPPORTS AND MUST BE REMOVED OR COVERED WHEN NOT APPLICABLE.

AS-BUILT NOTES:

ALL COMPONENTS OF THE DRAINAGE, SEWER, AND WATER SYSTEMS MUST BE MUST BE FIELD LOCATED PRIOR TO COVERING. NOTIFY SURVEYOR A MINIMUM OF SEVENTY-TWO (72) HOURS IN ADVANCE OF NEED FOR FIELD LOCATION OF IMPROVEMENTS. SURVEYOR MUST PROVIDE OWNER AND CONTRACTOR WITH WRITTEN NOTICE OF COMPLETION OF FIELD WORK PRIOR TO CONTRACTOR COVERING IMPROVEMENTS. OWNER/DIPRETE WILL NOT ACCEPT FIELD MEASUREMENTS FROM THE SITE CONTRACTOR.

LAYOUT AND MATERIALS:

1. DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.
2. CURBING MUST BE PRECAST CONCRETE OR AS LABELED ON THE PLANS.
3. SIDEWALK MUST BE CONCRETE OR AS LABELED ON THE PLANS.
4. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR MUST REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.
5. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS PERTAINING TO THE BUILDING, INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
6. PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION MUST BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.
7. CONTRACTOR MUST NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS. CONTRACTOR MUST VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE STAMPED PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.
8. ALL GUARDRAIL ONSITE MUST BE STEEL BACKED TIMBER GUARDRAIL WITH STEEL POSTS, IN CONFORMANCE WITH SECTION 5.4.1.7 OF THE AASHTO ROADSIDE DESIGN GUIDE. ALTERNATIVE GUARDRAILS WILL BE CONSIDERED BY THE DESIGN ENGINEER IF THEY ARE DOT APPROVED EQUAL AND ACCEPTABLE TO THE OWNER. ALTERNATIVES MUST BE APPROVED IN WRITING BY THE OWNER AND DESIGN ENGINEER PRIOR TO CONSTRUCTION.
9. INFRARED TREATMENT OF PAVEMENT IS REQUIRED AT ALL CURB CUTS, ANY DISTURBED PAVEMENT ON ROADWAYS AND WHERE ANY NEW PAVEMENT MEETS EXISTING PAVEMENT.
10. ALL EXISTING PAVEMENT MARKING REMOVED AS INCIDENTAL DURING CONSTRUCTION MUST BE REPLACED IN-KIND FOLLOWING COMPLETION OF CONSTRUCTION UNLESS OTHERWISE NOTED.
11. NEW PAVEMENT MARKING MUST BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248 TYPE F. PAINT MUST BE APPLIED AS SPECIFIED BY THE MANUFACTURER.

AMERICANS WITH DISABILITIES ACT (ADA) NOTES:

1. ALL IMPROVEMENTS MUST COMPLY WITH THE "AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES" (ADAAG) BY THE US DEPARTMENT OF JUSTICE (CURRENT EDITION).
2. MAXIMUM RUNNING SLOPE ALONG ALL ACCESSIBLE PATHS OF TRAVEL MUST BE 4.5% (0.045 FT/FT), AND MAXIMUM CROSS SLOPE ACROSS ALL ACCESSIBLE PATHS OF TRAVEL MUST BE 1.5% (0.015 FT/FT).
3. ADA PARKING SPACES AND LOADING AREAS: THE STEEPEST SLOPE OF THE SPACE, MEASURED IN ANY DIRECTION (INCLUDING DIAGONALLY), MUST BE LESS THAN OR EQUAL TO 2% (0.02 FT/FT). DIPRETE ENGINEERING GENERALLY RECOMMENDS A MAXIMUM OF 1.4% (0.014 FT/FT) BE USED FOR BOTH RUNNING AND CROSS SLOPES IN ORDER TO COMPLY.
4. A MINIMUM 5'X5' LANDING MUST BE PROVIDED IN FRONT OF ALL PUBLICLY ACCESSIBLE BUILDING ENTRANCES/ EGRESSES. THE STEEPEST SLOPE OF THE LANDING, MEASURED IN ANY DIRECTION (INCLUDING DIAGONALLY), MUST BE LESS THAN OR EQUAL TO 2% (0.02 FT/FT). DIPRETE ENGINEERING GENERALLY RECOMMENDS A MAXIMUM OF 1.4% (0.014 FT/FT) BE USED FOR BOTH RUNNING AND CROSS SLOPES IN ORDER TO COMPLY.
5. FOR EVERY 6 (OR FRACTION OF 6) ADA PARKING SPACES, AT LEAST ONE MUST BE A VAN PARKING SPACE. FOR EXAMPLE, IF 7 ADA PARKING SPACES ARE REQUIRED, A MINIMUM OF 2 MUST BE VAN SPACES.
6. NOTWITHSTANDING THE NOTES LISTED ABOVE, TOWN OR STATE-SPECIFIC STANDARDS MAY BE MORE STRINGENT AND OVERRULE. IT IS THE RESPONSIBILITY OF THE USER OF THIS PLAN SET TO MAINTAIN COMPLIANCE WITH THE CONTROLLING STANDARD.
7. NOTE THAT THE GRADING/PLAN VIEWS AND DETAILS CONTAINED WITHIN THIS PLAN SET MAY NOT SHOW THE DETAIL NECESSARY TO CONSTRUCT WALKWAYS, RAMPS AND SPACES TO COMPLY WITH THE ABOVE REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE THE LEVEL OF CARE NECESSARY TO BE CERTAIN THAT THE CONSTRUCTED PRODUCT MEETS ADA/CONTROLLING STANDARDS. IN THE EVENT OF ANY NON COMPLIANCE THE CONTRACTOR MUST NOTIFY THE DESIGNER BEFORE CONSTRUCTION FOR ADVICE IN FINDING A RESOLUTION.

GRADING AND UTILITY NOTES:

1. CONSTRUCTION TO COMMENCE FALL 2025 OR UPON RECEIPT OF ALL NECESSARY APPROVALS.
2. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION. PROTECT EXISTING ONSITE SEWER PIPE AND ADJUST MANHOLE RIMS TO GRADE WHERE APPLICABLE.
3. THE CONTRACTOR MUST COORDINATE WITH ALL OF THE APPROPRIATE UTILITY COMPANIES FOR AGREEMENTS TO SERVICE THE PROPOSED BUILDING. THIS MUST BE DONE PRIOR TO CONSTRUCTION. NO REPRESENTATIONS ARE MADE BY DIPRETE ENGINEERING THAT UTILITY SERVICE IS AVAILABLE.
4. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING FINISH GRADING AND DRAINAGE AROUND THE BUILDING TO ENSURE SURFACE WATER AND/OR GROUNDWATER ARE DIRECTED AWAY FROM THE STRUCTURE.
5. PRIOR TO START OF CONSTRUCTION, CONTRACTOR MUST VERIFY EXISTING PAVEMENT ELEVATIONS AT INTERFACE WITH PROPOSED PAVEMENTS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES. CONTRACTOR MUST NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
6. ALL PROPOSED UNDERGROUND UTILITIES SERVING THE SITE AND BUILDINGS MUST BE COORDINATED WITH OWNER, ARCHITECT, AND ENGINEER PRIOR TO INSTALLATION.
7. ALL RETAINING WALLS AND STEEP SLOPES ARE SUBJECT TO FINAL STRUCTURAL DESIGN. DIPRETE ENGINEERING IS NOT PROVIDING THE STRUCTURAL DESIGN OF THESE ITEMS. ALL WALLS AND STEEP SLOPES MUST BE DESIGNED AND BUILT UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER SUITABLY QUALIFIED IN GEOTECHNICAL ENGINEERING AND CERTIFIED TO THE OWNER PRIOR TO THE COMPLETION OF THE PROJECT. SHOP DRAWINGS MUST BE SUBMITTED PRIOR TO CONSTRUCTION. FINAL STRUCTURAL DESIGN MUST INCORPORATE THE INTENT OF THE GRADING SHOWN ON THESE PLANS AND ALL WORK MUST BE WITHIN THE LIMIT OF DISTURBANCE SHOWN ON THE PLANS.
8. ALL CUT AND FILL WORK MUST BE DONE UNDER THE DIRECTION OF A PROFESSIONAL GEOTECHNICAL ENGINEER, WITH TESTING AND CERTIFICATION PROVIDED TO THE APPLICANT AT THE COMPLETION OF THE PROJECT. DIPRETE ENGINEERING IS NOT PROVIDING THE FILL SPECIFICATION. GEOTECHNICAL ENGINEERING, STRUCTURAL ENGINEERING SERVICES, OR SUPERVISION AS PART OF THESE DRAWINGS.
9. MATERIAL STOCKPILES MUST NOT BE LOCATED IN THE RIGHT-OF-WAY, AND TRENCHES MUST NOT BE LEFT OPEN OVERNIGHT.
10. ALL LOAM IN DISTURBED AREAS MUST BE STOCKPILED FOR FUTURE USE.
11. ALL EXCESS SOIL, TREES, ROCKS, BOULDERS, AND OTHER REFUSE, MUST BE DISCARDED OFF SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. STUMPS MUST BE GROUND ON SITE OR REMOVED.
12. THE SITE WILL HAVE 6" CONCRETE CURBING. SITE GRADING/CONTOURS SHOWN ON THE PLANS DO NOT NECESSARILY REFLECT THE APPROPRIATE BERM/CURBING REVEAL. CONTRACTOR MUST INSTALL CURBING WITH APPROPRIATE REVEAL UNLESS OTHERWISE NOTED.
13. NO STUMP DUMPS ARE PROPOSED ON SITE.
14. ALL DRAINAGE OUTFALLS ARE DESIGNED TO BE INSTALLED AT EXISTING GROUND ELEVATION. CONTRACTOR MUST IMMEDIATELY NOTIFY DIPRETE ENGINEERING OF ANY DISCREPANCIES WHERE EXISTING GROUND IS HIGHER THAN OUTFALL DESIGN ELEVATION. ANY RESOLUTION OF DISCREPANCIES BY THE CONTRACTOR, UNLESS AUTHORIZED IN WRITING IN ADVANCE BY THE OWNER AND DIPRETE ENGINEERING, IS DONE AT THE CONTRACTOR'S RISK.
15. CONTRACTOR MUST PROVIDE SAW CUTTING AND FULL DEPTH PAVEMENT RESTORATION IN AREAS WHERE PAVEMENT AND/OR SIDEWALK IS REMOVED FOR UTILITY INSTALLATION.
16. IF ROADWAY SURFACE PAVEMENT COURSE IS NOT TO BE INSTALLED FOR 12 MONTHS OR MORE AFTER INSTALLATION OF DRAINAGE STRUCTURES, ALL CATCH BASIN RIMS MUST BE SET AT BINDER GRADE AND RAISED TO FINAL PAVEMENT GRADE PRIOR TO PLACEMENT OF SURFACE COURSE.
17. ALL INFRASTRUCTURE MUST MEET THE DISTRICT'S MATERIAL SPECIFICATIONS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE MATERIAL SUBMITTALS PRIOR TO INSTALLATION, PROVIDE AS-BUILTS FOR ALL MAINS AND SERVICES AND COMPLETE REQUIRED ACCEPTANCE TESTING PRIOR TO ACTIVATION OF THE MAINS. THIS INCLUDES VIDEO INSPECTION OF ALL SEWER MAINS, PRESSURE TESTING AND DISINFECTION CONSISTENT WITH AWWA STANDARDS OF ALL WATER MAINS PRIOR TO ACTIVATION.

DRAINAGE
ALL DRAINAGE PIPING MUST BE ADS N-12 DUAL WALL HIGH-DENSITY POLYETHYLENE (HDPE) WITH WATERTIGHT JOINTS WHERE INSTALLED WITHIN THE SEASONAL HIGH GROUNDWATER, UNLESS NOTED OTHERWISE ON THE PLANS OR IN THE SPECIFICATIONS.

DRAINAGE STRUCTURES MUST BE FURNISHED AND INSTALLED IN ACCORDANCE WITH ALL APLICABLE REGULATIONS. ALL DRAINAGE STRUCTURES AND PIPES MUST BE WATERTIGHT.

DRAINAGE CONNECTIONS FROM ALL YARD DRAINS (YD), AREA DRAINS (AD), TRENCH DRAINS (TD), FRENCH DRAINS (FD), WALL DRAINS (WD), AND DOWNSPOUTS (DS) ARE SHOWN FOR SCHEMATIC PURPOSES ONLY. THE LEVEL OF DETAIL SHOWN DOES NOT INCLUDE ALL JOINTS THAT MAY BE REQUIRED FOR CONSTRUCTION. ALL FITTINGS AND PIPE SLOPES TO TIE INTO MAIN TRUNK LINE MUST BE FIELD FIT BY CONTRACTOR.

SANITARY SEWER
ALL SANITARY SEWER PIPING TO BE SDR 35 UNLESS NOTED OTHERWISE ON THE PLANS OR IN THE SPECIFICATIONS. ALL SEWER IMPROVEMENTS MUST COMPLY WITH THE MUNICIPAL WATER & SEWER AUTHORITY AND ANY APPLICABLE AUTHORITY HAVING JURISDICTION, INCLUDING (BUT NOT LIMITED TO) MATERIALS, DIMENSIONS AND ACCESS COVERS. CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR APPROVAL BY ENGINEER OF RECORD PRIOR TO CONSTRUCTION. ALL FITTINGS, STRUCTURE SEALS AND CONNECTIONS AT OR BELOW ELEVATION SPECIFIED IN APPLICABLE REGULATIONS MUST BE WATERTIGHT. ALL ACCESS OPENINGS AT OR BELOW ELEVATION SPECIFIED IN APPLICABLE REGULATIONS MUST BE BOLT DOWN.
ALL PIPES FROM BUILDING TO GREASE TRAP/INTERCEPTOR AND FROM GREASE TRAP/INTERCEPTOR TO THE NEXT STRUCTURE MUST BE CAST IRON AND IN ACCORDANCE WITH APPLICABLE REGULATIONS. FORCEMAIN PIPE SHALL BE DR-11 HDPE OR APPROVED EQUAL.
VIDEO TESTING OF ALL SANITARY SEWER LINES AND PRESSURE TESTING FOR ALL SEWER MANHOLES MUST BE PERFORMED AFTER SEWER NETWORK INSTALLATION IS COMPLETE TO ENSURE COMPLIANCE IN ACCORDANCE WITH AUBURN WATER & SEWERAGE DISTRICT RULES AND REGULATIONS.

WATER
ALL WATER LINES MUST CONFORM TO APPLICABLE REGULATIONS. ALL WATER LINES MUST BE BIOMAX C909. ALL WATER MAIN IMPROVEMENTS MUST COMPLY WITH THE LOCAL MUNICIPALITY WATER & SEWER AUTHORITY AND ANY APPLICABLE AUTHORITY HAVING JURISDICTION, INCLUDING (BUT NOT LIMITED TO) MATERIALS, DIMENSIONS AND ACCESS COVERS. CONTRACTOR TO PROVIDE SHOP DRAWINGS AND SUBMITTALS TO THE ENGINEER OF RECORD FOR APPROVAL FOR ALL WATER IMPROVEMENTS AND APPURTENANCES INCLUDING BUT NOT LIMITED TO PIPES, VALVES, FITTINGS, HEAT ENCLOSURES, AND BACKFLOWS. ALL ACCESS OPENINGS AT OR BELOW ELEVATION SPECIFIED IN APPLICABLE REGULATIONS ARE TO BE BOLT DOWN.

IN THE CASE OF ANY NEW HYDRANT INSTALLED IN OR NEXT TO AN EXISTING SIDEWALK, THE CONTRACTOR MUST INCREASE THE WIDTH OF THE SIDEWALK, AS NECESSARY, TO MAINTAIN A MINIMUM OF 3'-0" CLEAR WIDTH FROM THE OUTERMOST COMPONENTS OF THE HYDRANT TO THE EDGE OF THE SIDEWALK. THE 3'-0" SIDEWALK WIDTH IS REQUIRED ONLY ON ONE SIDE OF THE HYDRANT TO PROVIDE A CLEAR PATH ON THE SIDEWALK.

ELECTRIC/TELECOM/GAS
PROPOSED GAS, ELECTRIC, CABLE AND DATA UTILITIES ARE SHOWN SCHEMATICALLY AND ARE PROPOSED TO BE UNDERGROUND. OWNER AND CONTRACTOR MUST COORDINATE FINAL DESIGN WITH APPROPRIATE UTILITY COMPANIES. ALL WORK MUST BE IN ACCORDANCE WITH EACH UTILITY COMPANY'S STANDARDS AND DETAILS, AS WELL AS LOCAL AND FEDERAL REGULATIONS. THIS INCLUDES BUT IS NOT LIMITED TO POLES, TRANSFORMERS, PULL BOXES, CONCRETE PADS, CONCRETE ENCASEMENTS AND CONDUITS. CONNECTION POINTS FOR ELECTRIC AND TELECOM UTILITIES, AT THE EXISTING INFRASTRUCTURE, ARE CURRENTLY SHOWN AS UNDERGROUND UTILITIES. THESE UTILITIES MAY BE UNDERGROUND OR OVERHEAD AND MUST BE COORDINATED WITH NATIONAL GRID/APPROPRIATE UTILITY AUTHORITY PRIOR TO CONSTRUCTION. ALL ACCESS OPENINGS AT OR BELOW ELEVATION SPECIFIED IN APPLICABLE REGULATIONS MUST BE BOLT DOWN WHERE APPLICABLE.

SITE LIGHTING
SITE LIGHTING (TEMPORARY AND PERMANENT) MUST BE DIRECTED AWAY FROM AND SHIELDED FROM ENVIRONMENTALLY SENSITIVE AREAS AND ABUTTING LANDS. EXACT LOCATIONS OF LIGHT POLE MUST BE COORDINATED WITH OTHER UTILITIES AND MUST BE LOCATED WITHIN THE STREET RIGHTS OF WAY. FINAL LIGHTING AND CONDUIT LOCATIONS BY OTHERS.

ABBREVIATIONS LEGEND

ADA	AMERICANS WITH DISABILITY ACT
AHJ	AUTHORITY HAVING JURISDICTION
AP	ASSESSOR'S
ARCH	ARCHITECT
BC	BOTTOM OF CURB
BT	BOTTOM OF TESTHOLE
BIT	BITUMINOUS (BERM)
BIO	BIORETENTION
BS	BASEMENT SLAB ELEVATION
BW	FINISHED GRADE AT BOTTOM OF WALL
CB	CATCH BASIN
(C)	CALCULATED
℄	CENTERLINE
(CA)	CHORD ANGLE
CLDIP	CONCRETE LINED DUCTILE IRON PIPE
CO	CLEAN OUT
CONC	CONCRETE
(D)	DEED
DCB	DOUBLE CATCH BASIN
DI	DROP INLET
DMH	DRAINAGE MANHOLE
DP	DETENTION POND
ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
ESC	EROSION AND SEDIMENT CONTROL
EX	EXISTING
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
GS	GARAGE SLAB ELEVATION
GWT	GROUND WATER TABLE
HW	HEADWALL
HC	HIGH CAPACITY CATCH BASIN GRATE
HDPE	HIGH DENSITY POLYETHYLENE
ID	INLINE DRAIN
INV	INVERT
IP	INFILTRATION POND
LARCH	LANDSCAPE ARCHITECT
LF	LINEAR FEET
LOD	LIMIT OF DISTURBANCE
LP	LIGHT POLE
(M)	MEASURED
MEP	MECHANICAL/ELECTRICAL/ PLUMBING ENGINEER
N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRE
PE	POLYETHYLENE
℄	PROPERTY LINE
PR	PROPOSED
PVC	POLYVINYL CHLORIDE
R	RADIUS
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RL	ROOF LEADER
ROW	RIGHT-OF-WAY
S	SLOPE
SD	SUBDRAIN
SED	SEDIMENT FOREBAY
SF	SQUARE FOOT
SFL	STATE FREEWAY LINE
SFM	SEWER FORCE MAIN
SG	SLAB ON GRADE ELEVATION
SHL	STATE HIGHWAY LINE
SMH	SEWER MANHOLE
SNDF	SAND FILTER
SS	SIDE SLOPE
STA

GENERAL NOTES

1. THE PARCEL IS FOUND ON PARCEL ID 291-011 IN THE CITY OF AUBURN, ANDROSCOGGIN COUNTY, MAINE.
2. THE OWNER PER DEED 1796, PAGE 269 IS CONCORD GENERAL MUTUAL INSURANCE COMPANY.
3. THIS SITE IS LOCATED IN FEMA FLOOD ZONE X. REFERENCE FEMA FLOOD INSURANCE RATE MAP 23001C0214E, MAP REVISED JULY 8, 2013. THIS DESIGNATION MAY CHANGE BASED UPON REVIEW BY A FLOOD ZONE SPECIALIST OR BY THE RESULTS OF A COMPREHENSIVE FLOOD STUDY.
4. THE PARCEL IS ZONED GB BASED ON THE CITY OF AUBURN ONLINE GIS. ANY OVERLAY DISTRICTS, SPECIAL PERMITS OR VARIANCES SPECIFIC TO THIS SITE ARE NOT TAKEN INTO CONSIDERATION. PLEASE CONTACT THE ZONING DEPARTMENT FOR ANY ADDITIONAL INFORMATION OR FOR A CERTIFICATE OF ZONING.
5. THERE WERE NO CEMETERIES, GRAVE SITES AND OR BURIAL GROUNDS OBSERVED WITHIN THE LIMITS OF THE SURVEY.
6. FIELD SURVEY PERFORMED BY DIPRETE ENGINEERING ON MAY 31, 2024. THIS PLAN REFLECTS ON THE GROUND CONDITIONS AS OF THAT DATE.
7. ELEVATIONS SHOWN HEREON, IN U.S. SURVEY FEET, ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), AS DETERMINED BY DIPRETE ENGINEERING USING REAL TIME KINEMATIC G.P.S. OBSERVATIONS.
8. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT. DIPRETE ENGINEERING IS NOT RESPONSIBLE FOR ANY UNKNOWN OR UNRECORDED EASEMENTS, DEEDS OR CLAIMS THAT A TITLE REPORT WOULD DISCLOSE.
9. PLANIMETRIC FEATURES, CONTOUR LINES, AND SPOT ELEVATIONS WERE STEREO COMPILED AT A SCALE OF 1"=40' BY BLUE-SKY, NORTH ADAMS, MA. SUB-CONSULTANTS TO THE OWNER/DEVELOPER, FROM BLACK AND WHITE PHOTOGRAPHY TAKEN AT A SCALE OF 1"=500' AND FIT TO GROUND CONTROL POINTS SURVEYED BY DEA GROUND WAS PERFORMED ON THE GROUND BY DEA USING REAL TIME KINEMATIC G.P.S. OBSERVATIONS. THE CONTOUR INTERVAL IS 2 FEET. NINETY PERCENT OF THE TOPOGRAPHY AS DEPICTED IS ACCURATE TO WITHIN HALF THE CONTOUR INTERVAL, AND THE REMAINING TEN PERCENT IS ACCURATE TO WITHIN ONE FULL CONTOUR INTERVAL.
10. WETLAND LOCATIONS ARE SHOWN BASED ON INFORMATION PROVIDED BY MARK HAMPTON ASSOCIATES, INC.

UTILITY NOTES

1. ALL EXISTING UTILITIES DEPICTED ARE SHOWN ACCORDANCE WITH UTILITY QUALITY LEVEL C AS DEFINED IN CI/ASCE STANDARD 38-02 *(STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA)*, LATEST REVISION.
2. ALL EXISTING UNDERGROUND UTILITIES SHOWN WERE PROVIDED BY OTHERS AND ARE APPROXIMATE ONLY. LOCATIONS MUST BE DETERMINED IN THE FIELD BEFORE EXCAVATION, BLASTING, UTILITY INSTALLATION, BACKFILLING, GRADING, PAVEMENT RESTORATION, AND ALL OTHER SITE WORK. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE CONTACTED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THESE DOCUMENTS. CONTACT DIG SAFE A MINIMUM OF 72 WORKING HOURS PRIOR TO ANY CONSTRUCTION AT 811. DIG SAFE IS RESPONSIBLE FOR CONTACTING MEMBER UTILITY COMPANIES. DIG SAFE MEMBER UTILITY COMPANIES ARE RESPONSIBLE TO MARK ONLY THE FACILITIES THAT THEY OWN OR MAINTAIN. NON DIG SAFE MEMBER COMPANIES ARE NOT NOTIFIED BY DIG SAFE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE AND NOTIFY IF ANY PRIVATELY OWNED OR NON DIG SAFE MEMBER UTILITIES ARE IN THE AREA.
3. PER THE CODE OF FEDERAL REGULATIONS - TITLE 29, PART 1926 IT IS THE SITE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ACCURATE UNDERGROUND UTILITY LINE LOCATIONS FROM THE UTILITY COMPANIES, UTILITY OWNERS AND, OR VIA UNDERGROUND UTILITY LOCATION EQUIPMENT AS NEEDED TO ESTABLISH ACCURATE LOCATIONS PRIOR TO ANY EXCAVATION. THE USE OF PROFESSIONAL UTILITY LOCATING COMPANIES PRIOR TO ANY EXCAVATION IS RECOMMENDED.
4. DIPRETE ENGINEERING IS NOT A PROFESSIONAL UTILITY LOCATION COMPANY, AND IS NOT RESPONSIBLE FOR UNDERGROUND UTILITIES, DEPICTED OR NOT, EITHER IN SERVICE OR ABANDONED. ANY SIZES, LOCATIONS, EXISTENCE, OR LACK OF EXISTENCE OF UTILITIES SHOWN ON THESE PLANS SHOULD BE CONSIDERED APPROXIMATE UNTIL VERIFIED BY A PROFESSIONAL UTILITY LOCATION COMPANY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED.
5. UTILITY PLAN REFERENCES
   - 5.1. WATER INFORMATION OBTAINED FROM THE CITY OF AUBURN
   - 5.2. SEWER INFORMATION OBTAINED ON THE GROUND BY DIPRETE ENGINEERING (SEE GENERAL NOTES FOR DATE OF FIELD SURVEY) AND FROM THE CITY OF AUBURN.
   - 5.3. GAS INFORMATION OBTAINED FROM UNITIL.
   - 5.4. DRAINAGE INFORMATION OBTAINED ON THE GROUND BY DIPRETE ENGINEERING. (SEE GENERAL NOTES FOR DATE OF FIELD SURVEY)

PLAN REFERENCES

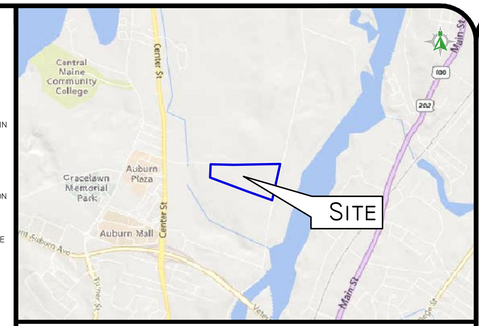
1. SURVEY FOR SUNCREST DEVELOPMENT CORPORATION, 84 BOULDER DRIVE, AUBURN, MAINE ON STETSON ROAD & RIVER ROAD, AUBURN, MAINE, BY MAINE PLANNING & ENGINEERING ASSOCIATES, SCALE 1"=200', DATED MARCH 11, 1985, RECORDED IN PLAN BOOK 31, PAGE 72.
2. BOUNDARY & TOPOGRAPHIC PLAT PREPARED FOR CONCORD GROUP INSURANCE COMPANY, 4 BOUTON STREET, CONCORD, N.H., 03301, PROJECT: STETSON & RIVER ROAD, AUBURN, ME, LOCATION: MAP 5, LOT 7, SCALE 1"=100', DATED MAY 2, 2000, PLAN BY RICHARD D. BARTLETT & ASSOCIATES, INC., RECORDED IN PLAN BOOK 41, PAGE 144.
3. LOT SPLIT PLAN OF: STETSON ROAD PROPERTY, STETSON ROAD, AUBURN, ME. FOR: AUBURN-LEWISTON YMCA, RECORD OWNER: CONCORD GENERAL MUTUAL INSURANCE, SCALE 1"=100', DATED MAY 13, 204 AND LAST REVISED JUNE 12, 2024, PLAN BY SEBAGO TECHNICS, RECORDED IN PLAN BOOK 55, PAGE 48.

STATE OF MAINE
ROBERT G. BABCOCK No. 2611
PROFESSIONAL LAND SURVEYOR

ROBERT G. BABCOCK, PLS #2611 — 9/4/24

LEGEND

W	WATER LINE	123/1234	DEED BOOK/PAGE
S	SEWER LINE	AP	ASSESSOR'S PLAT
SFM	SEWER FORCE MAIN	N/F	NOW OR FORMERLY
G	GAS LINE	(R)	RECORD
E	ELECTRIC LINE	(CA)	CHORD ANGLE
OHW	OVERHEAD WIRES	▲/▲	NAIL/SPIKE FOUND/SET
D	DRAINAGE LINE	○/●	DRILL HOLE FOUND/SET
	MINOR CONTOUR LINE	○/●	IRON ROD/PIPE FOUND/SET
5	MAJOR CONTOUR LINE	■/■	BOUND FOUND/SET
	PROPERTY LINE	HC	HANDICAPPED
	ASSESSORS LINE	LC	LANDSCAPING
	TREELINE	S	SIGN POST
	GUARDRAIL	S	SEWER MANHOLE
X	FENCE		SEWER CLEANOUT
	RETAINING WALL	H	HYDRANT
	STONE WALL	I	IRRIGATION VALVE
		U	UNKNOWN MANHOLE
			BOLLARD
			SOIL EVALUATION
			CATCH BASIN
			DOUBLE CATCH BASIN
		W	WATER VALVE
		G	GAS VALVE
		B-I	WETLAND FLAG
		D	DRAINAGE MANHOLE
			FLARED END SECTION
			GUY POLE
		E	ELECTRIC MANHOLE
		UP	UTILITY/POWER POLE
			LIGHTPOST
		W	WELL
		M	MONITORING WELL
			BENCH MARK
			TREE



LOCUS MAP NOT TO SCALE

ME (WEST) STATE PLANE NAD 83

STETSON ROAD
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)

PARCEL ID 291-011
1,298,612 SF
(29.81 AC)

PARCEL ID 291-012
N/F
THE YOUNG MEN'S CHRISTIAN ASSOCIATION OF AUBURN-LEWISTON

PARCEL ID 292-002
N/F
LAURIE GUAY

NORTH ROAD
(A.K.A. RIVER ROAD)
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)

S88°41'04"E 646.76'
686.76' (DEED)

N88°50'44"E 1298.82'
1298.82' (DEED)

N1°53'30"E 368.56'

S19°35'22"E 336.27'

152.00'

BOUNDARY ALONG STONE WALL
1281.77' (DEED)
1120.43' N69°30'56"W

BOUNDARY ALONG STONE WALL
718.07' N70°16'49"W
717.71' (DEED)

S12°23'00"W
1051.13' (DEED) 1041.48'

BENCHMARK
NAIL IN UP 67
ELEV.=221.01

LIST OF POSSIBLE ENCROACHMENTS

- A — GUY WIRE 17.2' & 7.5' OVER PROPERTY LINE
- B — GUY WIRE 6.7' OVER PROPERTY LINE
- C — GUY WIRE 7.2' OVER PROPERTY LINE
- D — 12" HDPE PIPE 8.9' OVER PROPERTY LINE
- E — MAINTAINED LAWN OVER PROPERTY LINE

SCALE: 1"=80'
0 40' 80' 160'

NO.	DATE	DESCRIPTION	BY:
0	9/4/24	EXISTING CONDITIONS PLAN	A.J.F.

EXISTING CONDITIONS PLAN

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350.
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 4 OF 18

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Boston • Providence • Newport

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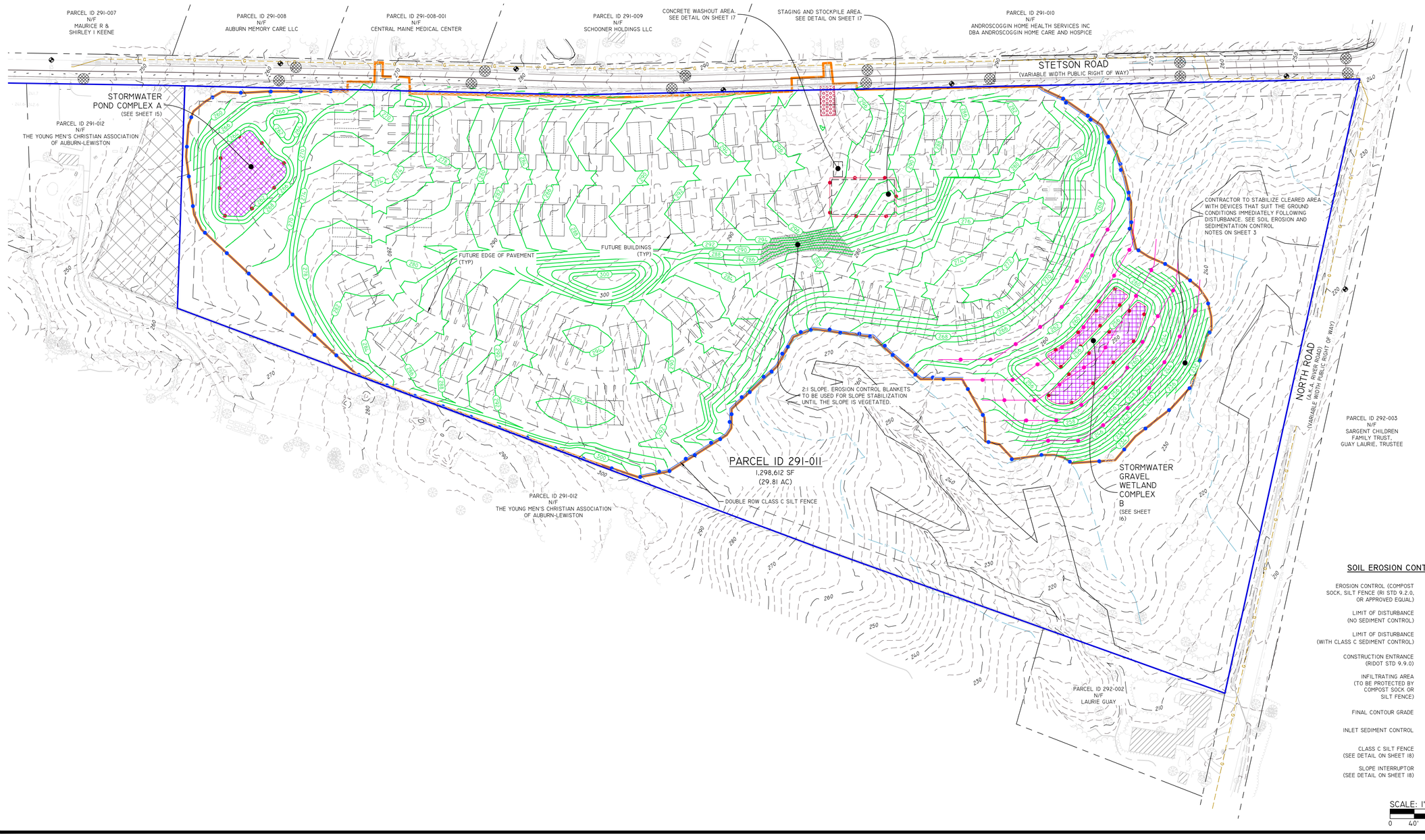
z:\dena\projects\2025-032 stetson road apartments\autocad drawings\2025-032-exco.dwg Plotted: 9/4/2024

GENERAL NOTES:

1. EROSION CONTROL MEASURES MUST BE DOUBLED AT DISTURBANCE ACTIVITIES THAT TAKE PLACE LESS THAN 30' OF ANY PROTECTED NATURAL RESOURCE AND DISTURBANCE MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.

2. WITHIN 7 DAYS OF THE CESSATION OF CONSTRUCTION ACTIVITIES IN AN AREA THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS, STABILIZE ANY EXPOSED SOIL WITH MULCH, OR OTHER NON-ERODIBLE COVER. STABILIZE AREAS WITHIN 75 FEET OF A WETLAND OR WATERBODY WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.

3. ALL AREAS INCLUDING, BUT NOT LIMITED TO, STEEP SLOPE AREAS MAY REQUIRE RIPRAP OR OTHER PERMANENT/LOW MAINTENANCE EROSION CONTROL MEASURES SHOULD THEY NOT BE SATISFACTORILY STABILIZED WITHIN 6 MONTHS FOLLOWING COMPLETION OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL SESC RECTIFICATION/REESTABLISHMENT MEASURES UNTIL THE SITE IS STABILIZED TO THE SATISFACTION OF THE SITE ENGINEER AND/OR GEOTECHNICAL ENGINEER. SEE SOIL EROSION AND SEDIMENTATION CONTROL NOTES ON SHEET 3.



SOIL EROSION CONTROL LEGEND

- EROSION CONTROL (COMPOST SOCK, SILT FENCE (RI STD 9.2.0, OR APPROVED EQUAL)
- LIMIT OF DISTURBANCE (NO SEDIMENT CONTROL)
- LIMIT OF DISTURBANCE (WITH CLASS C SEDIMENT CONTROL)
- CONSTRUCTION ENTRANCE (RIDOT STD 9.9.0)
- INFILTRATING AREA (TO BE PROTECTED BY COMPOST SOCK OR SILT FENCE)
- FINAL CONTOUR GRADE (308)
- INLET SEDIMENT CONTROL
- CLASS C SILT FENCE (SEE DETAIL ON SHEET 18)
- SLOPE INTERRUPTOR (SEE DETAIL ON SHEET 18)

SCALE: 1"=80'
0 40' 80' 160'

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

THIS PLAN SET MAY NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING

DIPRETE ENGINEERING ONLY WARRANTS PLANS ON A DIPRETE ENGINEERING TITLE BLOCK STAMPED BY REGISTERED PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING DOES NOT WARRANT PLANS BY ANY OTHER PARTY.

THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION IN CONFORMANCE WITH OSHA AND THE IMPLEMENTATION OF THIS PLAN AND SEQUENCE.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF LOCATIONS OF EXISTING UTILITIES

SEE UTILITY NOTE ON SHEET 3.

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

SOIL EROSION & SEDIMENT CONTROL PLAN

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

DE JOB NO. 2025-032 COPYRIGHT 2026 BY DIPRETE ENGINEERING ASSOCIATES, INC.

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DEVELOPMENT DATA:

	PHASE 1	PHASE 2	PHASE 3	SITE TOTAL
TOTAL AREA:	6.89 AC	7.62 AC	3.93 AC	18.45 AC
TOTAL NUMBER OF BUILDINGS:	22	14	14	50
TOTAL NUMBER OF UNITS:	54	56	50	160
TOTAL LENGTH OF ROAD:	1,210'	1,674'	0'	2,884'

LEGEND

PHASE 1

PHASE 2

PHASE 3

Z:\DEPMAIN\PROJECTS\2625-432 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2625-432-PLAN.DWG PLOTTED: 2/25/2025

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

THIS PLAN SET IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY A MAINE LICENSED PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING

DIPRETE ENGINEERING ONLY WARRANTS PLANS ON A DIPRETE ENGINEERING TITLE BLOCK STAMPED BY REGISTERED PROFESSIONAL ENGINEER. DIPRETE ENGINEERING DOES NOT WARRANT PLANS BY ANY OTHER PARTY; THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND OSHA COMPLIANCE IN THE IMPLEMENTATION OF THIS PLAN AND ENGINEERING.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR LOCATIONS OF EXISTING UTILITIES. CONTRACTOR TO FIELD VERIFY LOCATIONS OF EXISTING UTILITIES AND SEE UTILITY NOTE ON SHEET 4.

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

CONCEPTUAL PHASING PLAN

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 6 OF 22

DE JOB NO. 2625-332 COPYRIGHT 2024 BY DIPRETE ENGINEERING ASSOCIATES, INC.

GENERAL NOTE:

THE SIDEWALK EXTENSION ALONG STETSON ROAD IS TO BE BUILT IN ACCORDANCE WITH PLANS BY SEBAGO TECHNICS.THE CITY OF AUBURN WILL BE RESPONSIBLE FOR ANY REQUIRED UTILITY RELOCATION AND ASSOCIATED COORDINATION ALONG WITH ANY EASEMENTS NEEDED, INCLUDING CONSTRUCTION EASEMENTS, AS WELL AS THE RELOCATION OF ANY PRIVATE PROPERTY STRUCTURES INCLUDING BUT NOT LIMITED TO: MAILBOXES, SIGNS AND LIGHT FIXTURES.

DEVELOPMENT DATA:

TOTAL SITE AREA:	29.8± ACRES
TOTAL NUMBER OF DUPLEX RESIDENTIAL BUILDINGS:	20
TOTAL NUMBER OF QUADPLEX RESIDENTIAL BUILDINGS:	30
TOTAL NUMBER OF RESIDENTIAL BUILDINGS:	50
TOTAL NUMBER OF MAINTENANCE BUILDINGS:	1
TOTAL NUMBER OF UNITS:	160
LENGTH OF ROAD A:	2110'
LENGTH OF ROAD B:	774'
PAVEMENT WIDTH:	24'

DIMENSIONAL REGULATIONS:

CURRENT ZONING: GB - GENERAL BUSINESS
MFS - MULTIFAMILY SUBURBAN DISTRICT

MFS ZONE REGULATIONS

	REQUIRED	PROVIDED
MINIMUM LOT AREA:	10,000 SF*	1,298,612 SF
MINIMUM FRONTAGE AND LOT WIDTH:	100'	1,946'
MINIMUM FRONT AND CORNER SIDE YARD:	25'**	31.2'
MINIMUM SIDE YARD:	5-15'***	NA
MINIMUM REAR YARD:	25'****	NA
MAXIMUM STRUCTURE HEIGHT:	45'	<45'
MAXIMUM LOT COVERAGE:	50%	9.6%

AUBURN ZONING ORDINANCE - SEC 60-307 - DIMENSIONAL REGULATIONS

* (1)c
MULTIFAMILY BUILDINGS: 10,000 SQUARE FEET MINIMUM LOT AREA FOR THE FIRST DWELLING UNIT AND 2,000 SQUARE FEET MINIMUM LOT AREA FOR EACH ADDITIONAL DWELLING UNIT. NO LOT SHALL BE LESS THAN 100 FEET WIDTH AND 100 FEET IN DEPTH. MORE THAN ONE PRINCIPAL BUILDING PER LOT IS ALLOWED.

(2)
DENSITY. MULTIFAMILY = 17 UNITS PER ACRE.

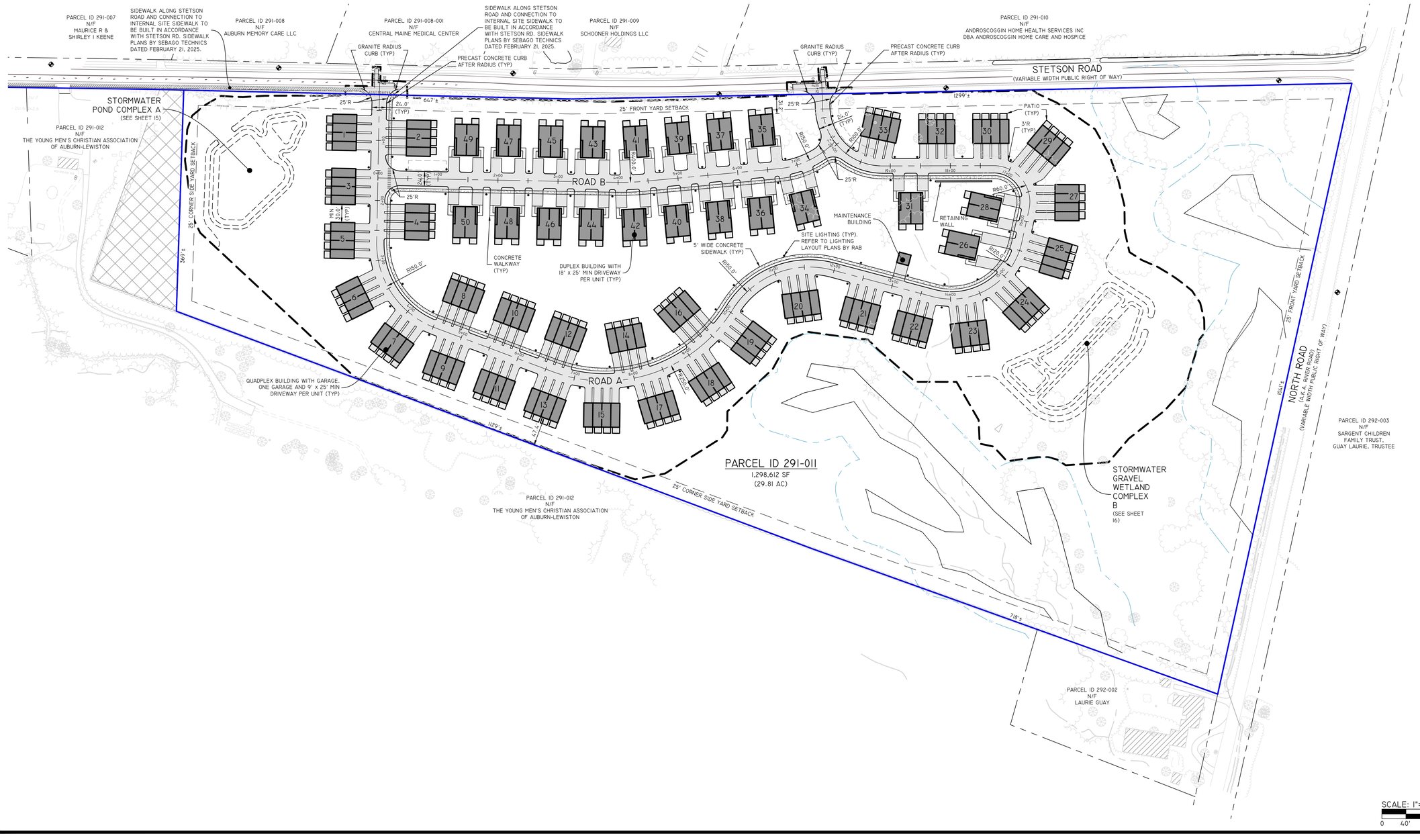
** (3)c
FRONT. THERE SHALL BE IN FRONT OF EVERY BUILDING A FRONT YARD HAVING A MINIMUM DEPTH OF 25 FEET OR 25 PERCENT OF THE AVERAGE DEPTH OF THE LOT WHICHEVER IS LESS.

*** (3)B
SIDE. THERE SHALL BE A MINIMUM DISTANCE OF FIVE FEET BETWEEN ANY BUILDING AND THE SIDE PROPERTY LINE PLUS THE SIDE YARD SETBACK SHALL BE INCREASED ONE FOOT FOR EVERY FIVE FEET OR PART THEREOF INCREASE IN STREET FRONTAGE OVER 50 FEET TO A MAXIMUM OF 15 FEET FOR SIDE YARD SETBACK.

**** (3)A
REAR. THERE SHALL BE BEHIND EVERY BUILDING A REAR YARD HAVING A MINIMUM DEPTH OF 25 FEET OR 25 PERCENT OF THE AVERAGE DEPTH OF LOT, WHICHEVER IS LESS.

PARKING REGULATIONS:

PARKING USE:	MULTIFAMILY: TWO-FAMILY
PARKING REQUIREMENT:	1 SPACE PER UNIT
NUMBER OF UNITS:	160
PARKING CALCULATION:	160 x 1 = 160 SPACES REQUIRED
TOTAL PARKING SPACES PROVIDED:	322 SPACES (120 GARAGE, 202 SURFACE)



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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND SIGNED AND DATED BY A LICENSED PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING

DIPRETE ENGINEERING ONLY WARRANTS PLANS ON A DIPRETE ENGINEERING TITLE BLOCK STAMPED BY REGISTERED PROFESSIONAL ENGINEER DIPRETE ENGINEERING DOES NOT WARRANT PLANS BY ANY OTHER PARTY.

THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND OSHA CONFORMANCE IN THE IMPLEMENTATION OF THIS PLAN AND ENGINEERING.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR ANY AND ALL LOCATIONS, BOTH VERTICAL AND HORIZONTAL, OF EXISTING UTILITIES. SEE "UTILITY NOTE" ON SHEET 3

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.
		DRAWN BY: J.A.R.	J.M.F.

SITE LAYOUT PLAN

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 7 OF 22

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MAURICE R & SHIRLEY I KEENE

N/F AUBURN MEMORY CARE LLC

N/F CENTRAL MAINE MEDICAL CENTER

N/F SCHOONER HOLDINGS LLC

STORMWATER POND COMPLEX A (SEE SHEET 15)

PARCEL ID 291-012 N/F THE YOUNG MEN'S CHRISTIAN ASSOCIATION OF AUBURN-LEWISTON

ROAD B

ROAD A

SEE SHEET 9

PARCEL ID 291-012 N/F THE YOUNG MEN'S CHRISTIAN ASSOCIATION OF AUBURN-LEWISTON

SCALE: 1"=40'

0 20' 40' 80'

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THE STATE OF MAINE BRANDON DAVID CARR No. 16931 LICENSED PROFESSIONAL ENGINEER

THIS PLAN IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY ENGINEER OF RECORD

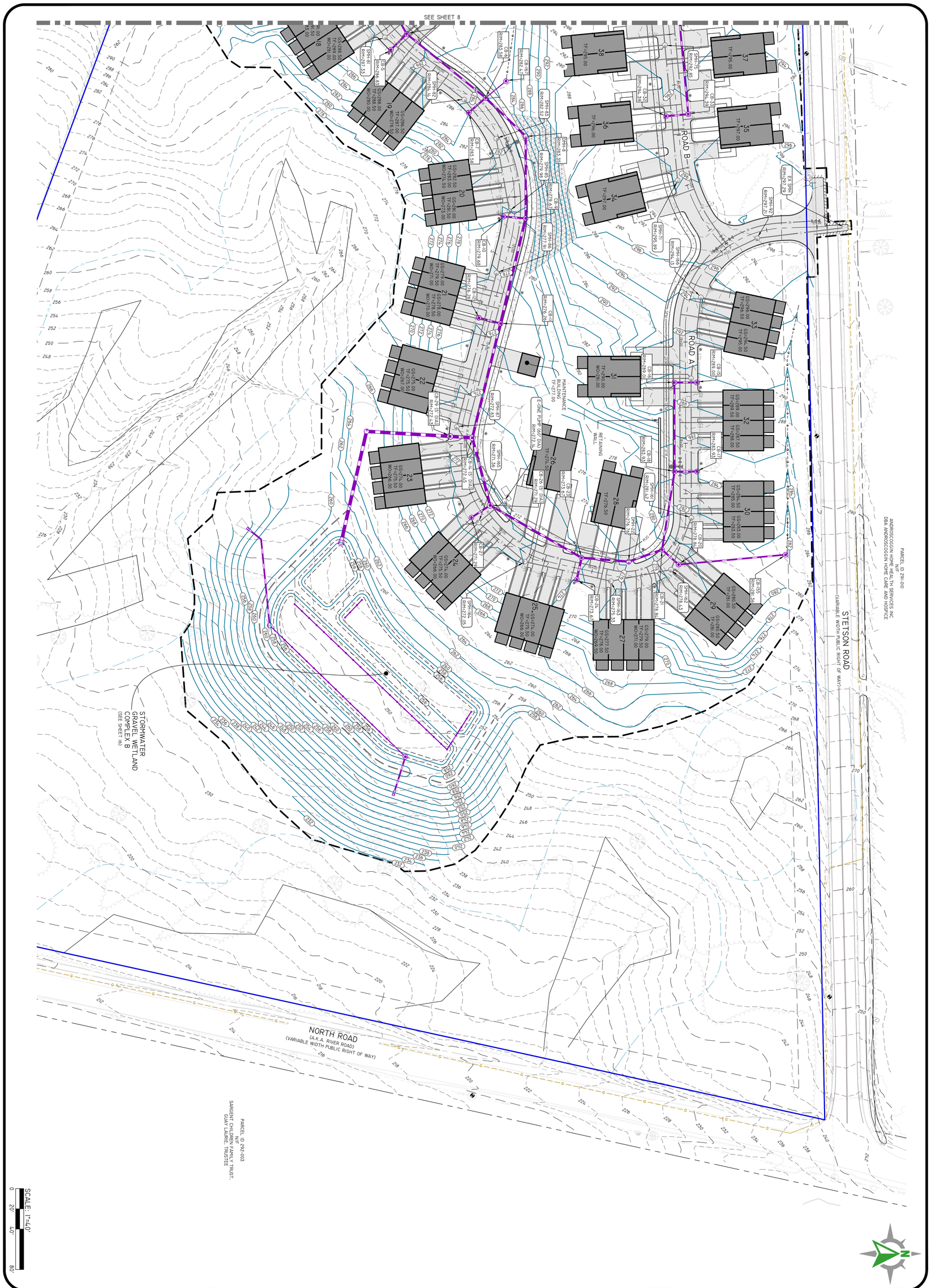
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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND SAFETY CONFORMANCE IN THE IMPLEMENTATION OF THIS PLAN AND OSHA

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF EXISTING UTILITIES OR STRUCTURES. SEE "UTILITY NOTE" ON SHEET 2.

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

Z:\DEMAIN\PROJECTS\2625-032 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2625-032-PLAN.DWG Plotted: 2/25/2025



Grading & Surface Drainage Plan - 2

Stetson Road

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. Building Company, Inc.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 9 OF 22

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

THIS PLAN SET MUST NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING.

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, SAFETY PRECAUTIONS AND REQUIREMENTS, AND OSHA CONFORMANCE IN THE IMPLEMENTATION OF THIS PLAN AND DESIGN.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED DUE TO LOCATIONS OF EXISTING UTILITIES. SEE "UTILITY NOTE" ON SHEET 3

PROFESSIONAL ENGINEER
No. 16851
JOSEPH M. DAVIS
CAIRE
LICENSED
02-25-2025

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PARCEL ID 291-007
N/F
MAURICE R &
SHIRLEY I KEENE

PARCEL ID 291-008
N/F
AUBURN MEMORY CARE LLC

PARCEL ID 291-008-001
N/F
CENTRAL MAINE MEDICAL CENTER

PARCEL ID 291-009
N/F
SCHOONER HOLDINGS LLC

PARCEL ID 291-012
N/F
THE YOUNG MEN'S CHRISTIAN ASSOCIATION
OF AUBURN-LEWISTON

STORMWATER
POND COMPLEX A
(SEE SHEET 15)

30" HDPE
22 LF
S=1.00%

DCB-56 (5' DIA)
STA=0+59 11'R
RIM=269.76
INV IN=265.50(55)
INV OUT=265.00(57)

12" HDPE
38 LF
S=5.53%

DOME GRATE-146
STA=0+46 46'L
RIM=270.00
INV OUT=268.00(55)

DCB-55
STA=0+59 11'L
RIM=269.76
INV IN=265.90(46)
INV IN=265.72(43)
INV OUT=265.72(56)

DCB-54
STA=1+25 11'R
RIM=271.85
INV OUT=267.58(43)

36" HDPE
72 LF
S=2.53%

30" HDPE
66 LF
S=1.75%

DCB-43
STA=1+25 11'L
RIM=271.86
INV IN=267.37(54)
INV IN=267.38(158)
INV OUT=266.88(55)

15" HDPE
21 LF
S=0.95%

DMH-158
STA=1+51 11'L
RIM=272.84
INV IN=268.35(52)
INV IN=268.84(42)
INV OUT=268.35(43)

CB-42
STA=1+51 37'L
RIM=274.05
INV IN=269.63(40)
INV IN=269.63(41)
INV OUT=269.63(158)

24" HDPE
26 LF
S=3.73%

18" HDPE
26 LF
S=3.01%

24" HDPE
48 LF
S=2.71%

18" HDPE
22 LF
S=1.00%

CB-53
STA=1+99 11'R
RIM=274.82
INV OUT=270.62(52)

CB-41
STA=1+73 37'L
RIM=274.05
INV OUT=269.85(42)

15" HDPE
22 LF
S=1.00%

18" HDPE
119 LF
S=4.33%

CB-52
STA=1+99 11'L
RIM=274.82
INV IN=270.15(50)
INV IN=270.40(53)
INV OUT=269.65(158)

DOME GRATE-150
STA=3+36 111'L
RIM=277.50
INV OUT=275.80(50)

CB-49
STA=3+23 11'R
RIM=279.95
INV OUT=275.75(50)

15" HDPE
22 LF
S=1.00%

6" HDPE
100 LF
S=0.52%

CB-47
STA=4+40 11'L
RIM=284.83
INV IN=281.09(45)
INV IN=281.09(46)
INV OUT=280.84(50)

18" HDPE
106 LF
S=5.25%

CB-50
STA=3+23 11'L
RIM=279.95
INV IN=275.28(47)
INV IN=275.53(49)
INV IN=275.28(150)
INV OUT=275.28(52)

15" HDPE
22 LF
S=1.00%

CB-46
STA=4+40 11'R
RIM=284.80
INV IN=281.31(154)
INV OUT=281.31(47)

12" HDPE
102 LF
S=1.06%

DOME GRATE-154
STA=4+41 113'R
RIM=284.58
INV OUT=282.36(46)

15" HDPE
54 LF
S=3.66%

CB-44
STA=5+95 11'R
RIM=291.16
INV OUT=286.94(45)

CB-40
STA=1+51 190'L
RIM=280.89
INV IN=276.51(38)
INV IN=276.76(39)
INV OUT=276.51(42)

18" HDPE
153 LF
S=4.50%

CB-39
STA=1+73 190'L
RIM=280.89
INV OUT=276.98(40)

CB-45
STA=5+95 11'L
RIM=291.14
INV IN=286.72(44)
INV IN=286.90(149)
INV OUT=286.72(47)

6" HDPE
113 LF
S=0.99%

DOME GRATE-149
STA=6+16 122'L
RIM=290.69
INV OUT=288.02(45)

CB-38
STA=5+85 321'L
RIM=287.23
INV IN=283.15(35)
INV IN=283.15(37)
INV OUT=282.90(40)

18" HDPE
140 LF
S=4.55%

CB-37
STA=5+92 300'L
RIM=287.23
INV OUT=283.37(38)

15" HDPE
22 LF
S=1.00%

CB-35
STA=10+57 242'L
RIM=290.75
INV IN=285.79(33)
INV IN=285.79(34)
INV OUT=285.79(38)

15" HDPE
155 LF
S=2.00%

CB-33
STA=20+27 134'L
RIM=294.39
INV IN=288.89(32)
INV OUT=288.90(35)

5" HDPE
143 LF
S=11.84%

CB-36
STA=10+52 224'L
RIM=290.75
INV OUT=286.00(35)

NOTE:
ALL ROOF DRAINS ARE TO
CONNECT TO THE CLOSEST
DRAINAGE STRUCTURE

CB-4
STA=9+50 11'L
RIM=286.83
INV IN=282.63(5)
INV IN=282.63(1)
INV OUT=282.63(6)

15" HDPE
22 LF
S=1.00%

5" HDPE
21 LF
S=1.00%

5" HDPE
22 LF
S=1.00%

CB-32
STA=20+18 142'L
RIM=294.39
INV OUT=289.11(33)

18" HDPE
55 LF
S=3.58%

CB-6
STA=10+50 11'L
RIM=283.58
INV IN=279.38(7)
INV IN=279.13(167)
INV OUT=279.13(8)

5" HDPE
22 LF
S=1.00%

CB-167
STA=10+51 37'L
RIM=282.47
INV OUT=279.30(6)

6" HDPE
26 LF
S=0.65%

15" HDPE
100 LF
S=3.24%

CB-7
STA=10+50 11'R
RIM=283.58
INV OUT=279.60(6)

15" HDPE
22 LF
S=1.00%

CB-1
STA=8+07 11'L
RIM=291.47
INV IN=287.27(2)
INV OUT=287.27(4)

15" HDPE
135 LF
S=3.46%

CB-5
STA=9+50 11'R
RIM=286.83
INV OUT=282.85(4)

CB-8
STA=8+07 11'R
RIM=291.47
INV OUT=287.49(11)

ROAD B

ROAD A

SEE SHEET 11

SCALE: 1"=40'
0 20' 40' 80'

THIS PLAN SET SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING.

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS AND METHODS OF CONSTRUCTION AND FOR ALL SAFETY PRECAUTIONS IN CONFORMANCE WITH THE IMPLEMENTATION OF THIS PLAN AND OSHA REGULATIONS.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR ADDITIONAL UTILITIES OR LOCATIONS OF EXISTING UTILITIES. SEE "UTILITY NOTE" ON SHEET 5.

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

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Two Stafford Court, Cranston, RI 02920 · Tel 401-943-1000

DRAINAGE PLAN - I

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350.
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 10 OF 22

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PARCEL ID 291-010
N/F
ANDROSCOGGIN HOME HEALTH SERVICES INC
DBA ANDROSCOGGIN HOME CARE AND HOSPICE

STETSON ROAD
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)

ROAD A

ROAD B

CB-155
STA=17+14 103'R
RIM=281.36
INV OUT=277.63(20)

12" HDPE
106 LF
S=2.40%

CB-20
STA=16+84 11'R
RIM=278.84
INV IN=275.09(155)
INV OUT=274.84(21)

15" HDPE
22 LF
S=1.00%

CB-21
STA=16+84 11'L
RIM=278.84
INV IN=274.62(18)
INV IN=274.62(20)
INV OUT=274.37(22)

DMH-22
STA=16+38 15'L
RIM=276.76
INV IN=272.10(21)
INV OUT=272.10(23)

CB-23
STA=15+87 11'L
RIM=273.67
INV IN=269.25(22)
INV IN=269.25(24)
INV OUT=269.25(26)

CB-24
STA=15+87 11'R
RIM=273.67
INV OUT=269.47(25)

CB-26 (5' DIA)
STA=14+71 11'L
RIM=271.29
INV IN=266.81(27)
INV IN=265.86(23)
INV OUT=265.36(14)

CB-27
STA=14+71 11'R
RIM=271.29
INV OUT=267.03(26)

CB-33
STA=20+27 136'L
RIM=294.39
INV IN=288.89(32)
INV OUT=288.90(35)

CB-32
STA=20+18 142'L
RIM=294.39
INV OUT=289.11(33)

CB-15
STA=18+60 11'R
RIM=289.00
INV OUT=285.03(16)

CB-16
STA=18+60 11'L
RIM=289.01
INV IN=284.80(15)
INV OUT=284.80(18)

CB-17
STA=17+72 11'R
RIM=283.93
INV OUT=279.95(18)

CB-18
STA=17+72 11'L
RIM=283.93
INV IN=279.73(16)
INV IN=279.73(17)
INV OUT=279.73(21)

CB-11
STA=12+75 11'L
RIM=276.26
INV IN=272.81(12)
INV IN=272.06(9)
INV OUT=272.06(14)

CB-9
STA=11+70 11'L
RIM=279.67
INV IN=275.72(10)
INV IN=275.47(8)
INV OUT=274.97(11)

CB-14 (5' DIA)
STA=13+94 11'L
RIM=272.45
INV IN=263.60(11)
INV IN=263.60(26)
INV OUT=263.10(29)

CB-6
STA=10+50 11'L
RIM=283.58
INV IN=279.38(7)
INV IN=279.38(4)
INV IN=279.13(167)
INV OUT=279.13(8)

CB-167
0+51 37'L
M=282.47
279.30(6)

CB-10
STA=11+70 11'R
RIM=279.68
INV OUT=275.94(9)

CB-7
STA=10+50 11'R
RIM=283.58
INV OUT=279.60(6)

CB-5
STA=9+50 11'R
RIM=286.83
INV OUT=282.85(4)

CB-12
STA=12+75 11'R
RIM=276.26
INV OUT=273.03(11)

CB-29 (5' DIA)
STA=13+94 11'R
RIM=272.43
INV IN=262.00(14)
INV OUT=262.00(30)

DMH-8
STA=10+98 25'L
RIM=283.35
INV IN=277.17(6)
INV OUT=277.17(9)

15" HDPE
79 LF
S=6.54%

18" HDPE
55 LF
S=6.47%

18" HDPE
47 LF
S=6.11%

18" HDPE
104 LF
S=3.26%

18" HDPE
55 LF
S=3.58%

18" HDPE
81 LF
S=2.09%

24" HDPE
107 LF
S=2.72%

24" HDPE
116 LF
S=7.27%

24" HDPE
69 LF
S=2.55%

15" HDPE
88 LF
S=5.77%

15" HDPE
100 LF
S=3.24%

6" HDPE
6 LF
S=65%

NOTE:
ALL ROOF DRAINS ARE TO CONNECT TO THE CLOSEST DRAINAGE STRUCTURE

SEE SHEET 10

STORMWATER GRAVEL WETLAND COMPLEX B
(SEE SHEET 16)

PARCEL ID 292-003
N/F
SARGENT CHILDREN FAMILY TRUST,
GUAY LAURIE, TRUSTEE

NORTH ROAD
(A.K.A. RIVER ROAD)
(VARIABLE WIDTH PUBLIC RIGHT OF WAY)

SCALE: 1"=40'
0 20' 40' 80'

Z:\DEMAIN\PROJECTS\2625-132 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2625-132-PLAN.DWG PLOTTED: 2/25/2025

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

THIS PLAN SET IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY ENGINEERING PROFESSIONAL ENGINEER OF DIPRETE

PLANS ON A DIPRETE ENGINEERING REGISTERED PROFESSIONAL ENGINEER'S SEAL ARE NOT TO BE USED BY ANY OTHER PARTY; ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION IN CONFORMANCE WITH OSHA AND ALL OTHER SAFETY PRECAUTIONS APPLICABLE TO THE WORK OF THIS PLAN AND

DIPRETE ENGINEERING ONLY WARRANTS PLANS ON A DIPRETE ENGINEERING TITLE BLOCK STAMPED BY REGISTERED PROFESSIONAL ENGINEER. ANY OTHER PLANS USED BY DIPRETE ENGINEERING DOES NOT WARRANT PLANS BY ANY OTHER PARTY.

THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION IN CONFORMANCE IN THE IMPLEMENTATION OF THIS PLAN AND

THE UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGE TO OR INTERRUPTIONS OF EXISTING UTILITIES SERVICES. SEE "UTILITY NOTE" ON SHEET 3

NO.	DATE	DESCRIPTION	BY
1	12-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

DRAINAGE PLAN - 2

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 11 OF 22

DE JOB NO. 2625-132

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NOTE:
FOR ALL WATER AND SEWER CONNECTIONS INTO BUILDINGS SEE "UTILITY SERVICE CONNECTION LAYOUT FOR ALL DUPLEXES AND QUADPLEXES" DETAIL ON SHEET 14.

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT, UNLESS SPECIFICALLY NOTED OTHERWISE, AND FOR COMPLIANCE WITH ALL APPLICABLE LAWS, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND SHALL PROVIDE THE NECESSARY PROTECTION TO PREVENT DAMAGE, INJURY OR LOSS TO ALL EMPLOYEES ON THE WORK SITE AND OTHER PERSONS WHO MAY BE AFFECTED THEREBY, ALL THE WORK AND MATERIALS AND OTHER PROPERTY AT THE SITE OR IN THE CARE OF THE CONTRACTOR OR ANY OF HIS SUBCONTRACTORS. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY OR LOSS. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY CONDITIONS AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION, INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS, PROMULGATING SAFETY REGULATIONS AND NOTIFYING OWNERS AND USERS OF ADJACENT SITES AND UTILITIES.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGE TO EXISTING UTILITIES. LOCATIONS OF EXISTING UTILITIES SEE UTILITY NOTE ON SHEET 1.

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

PLAN & PROFILE - I

STETSON ROAD

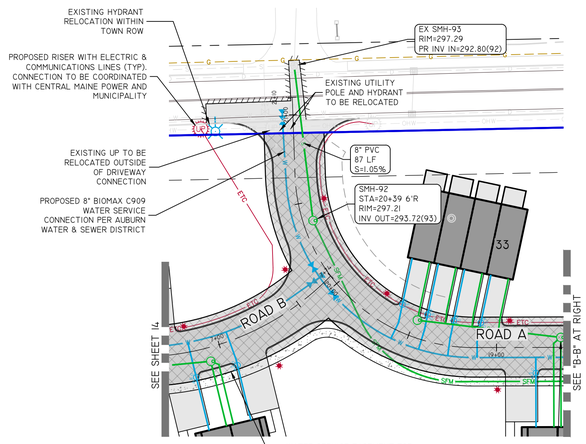
PARCEL ID 29-011
AUBURN, MAINE

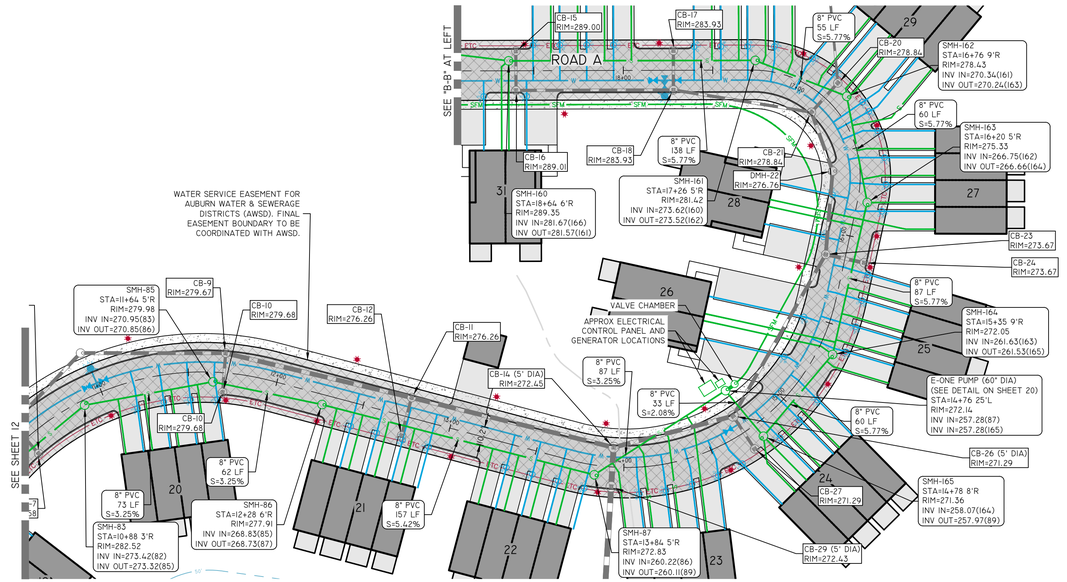
PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350
SEVEN FIELDS, PENNSYLVANIA, 16046

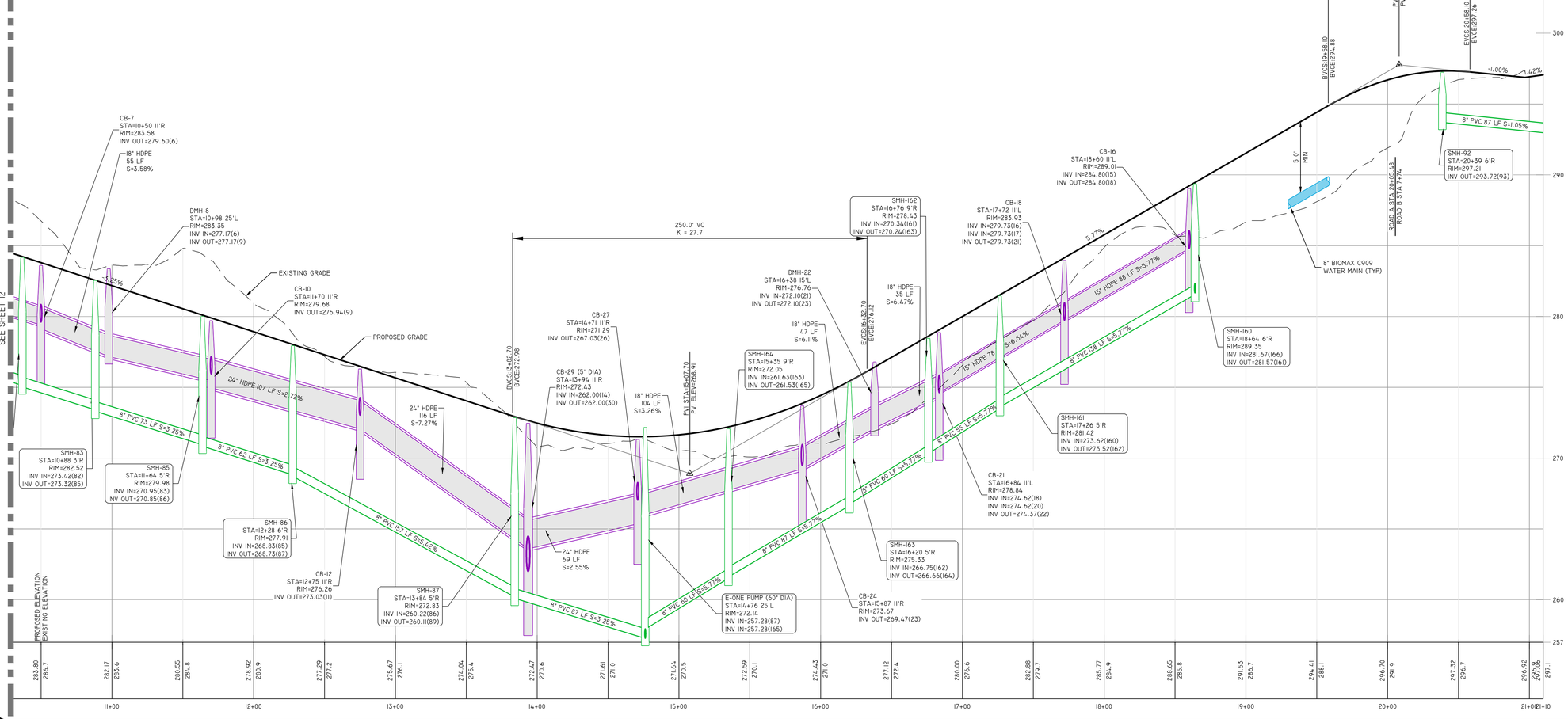
SHEET 12 OF 22

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VERTICAL: 0 2' 4' 8'
HORIZONTAL: 0 20' 40' 80'

NOTE:
FOR ALL WATER AND SEWER CONNECTIONS INTO BUILDINGS SEE "UTILITY SERVICE CONNECTION LAYOUT FOR ALL DUPLEXES AND QUADPLEXES" DETAIL ON SHEET 14.

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS AND METHODS OF CONSTRUCTION AND SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK AND SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC BODY HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY OR LOSS. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION. THE CONTRACTOR SHALL NOTIFY APPROPRIATE UTILITY COMPANIES AND COMPLY WITH THEIR REQUIREMENTS FOR ANY WORK PERFORMED NEAR THEIR FACILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES CAUSED BY HIS OPERATIONS. SEE "UTILITY NOTE" ON SHEET 5.

NO	DATE	DESCRIPTION	BY
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. | J.M.F.

PLAN & PROFILE - 2

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

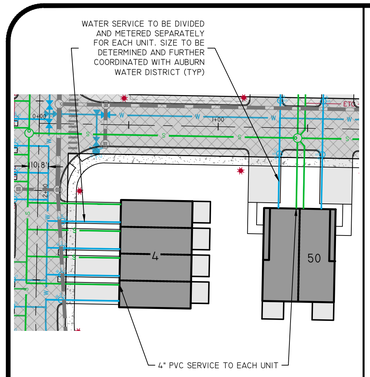
PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

DR. JOB NO. 2625-02

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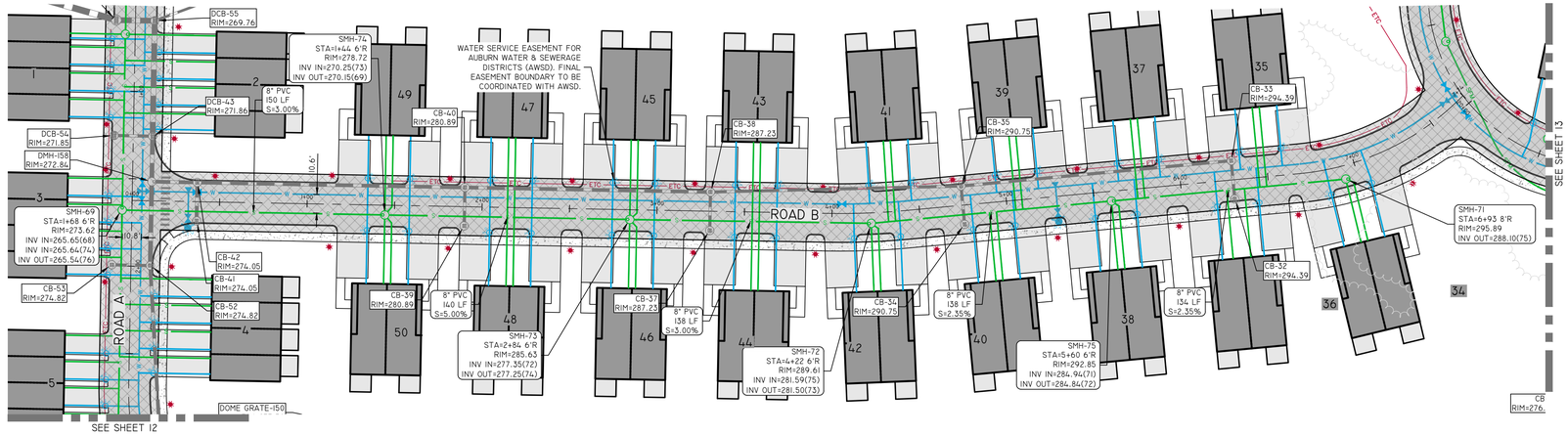
SHEET 13 OF 22

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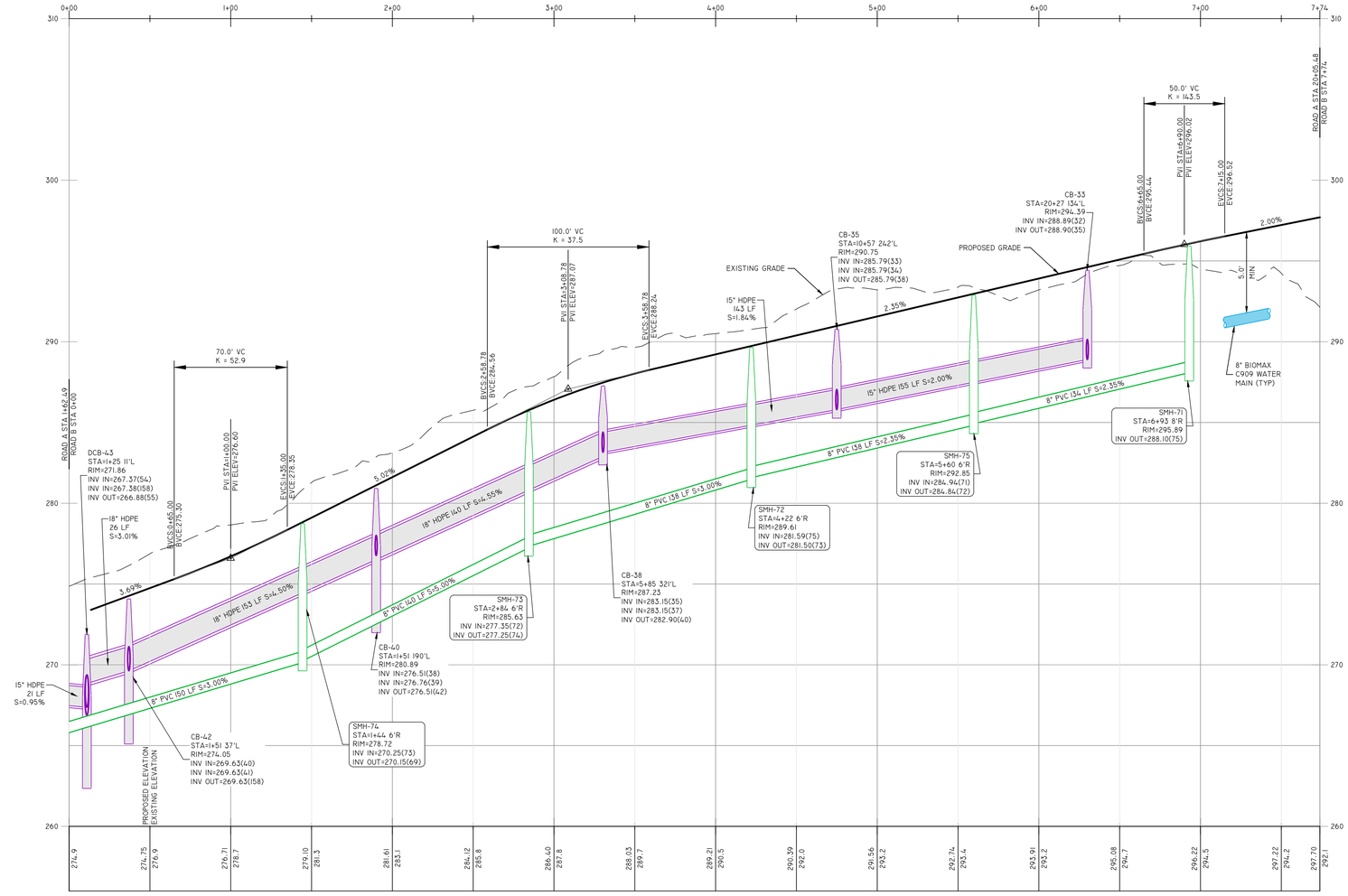


UTILITY SERVICE CONNECTION LAYOUT
FOR ALL DUPLEXES AND QUADPLEXES

SCALE: 1" = 40'



NOTE:
FOR ALL WATER AND SEWER CONNECTIONS INTO BUILDINGS SEE "UTILITY SERVICE CONNECTION LAYOUT FOR ALL DUPLEXES AND QUADPLEXES" DETAIL THIS SHEET.



VERTICAL: 0 2' 4' 8'

HORIZONTAL: 0 20' 40' 80'

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND SAFETY CONFORMANCE IN THE IMPLEMENTATION OF THIS PLAN AND ASSOCIATED WORK.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGE TO, OR INTERRUPTION OF, EXISTING UTILITIES. SEE "UTILITY NOTE" ON SHEET 3.

NO.	DATE	DESCRIPTION	BY
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. | J.M.F.

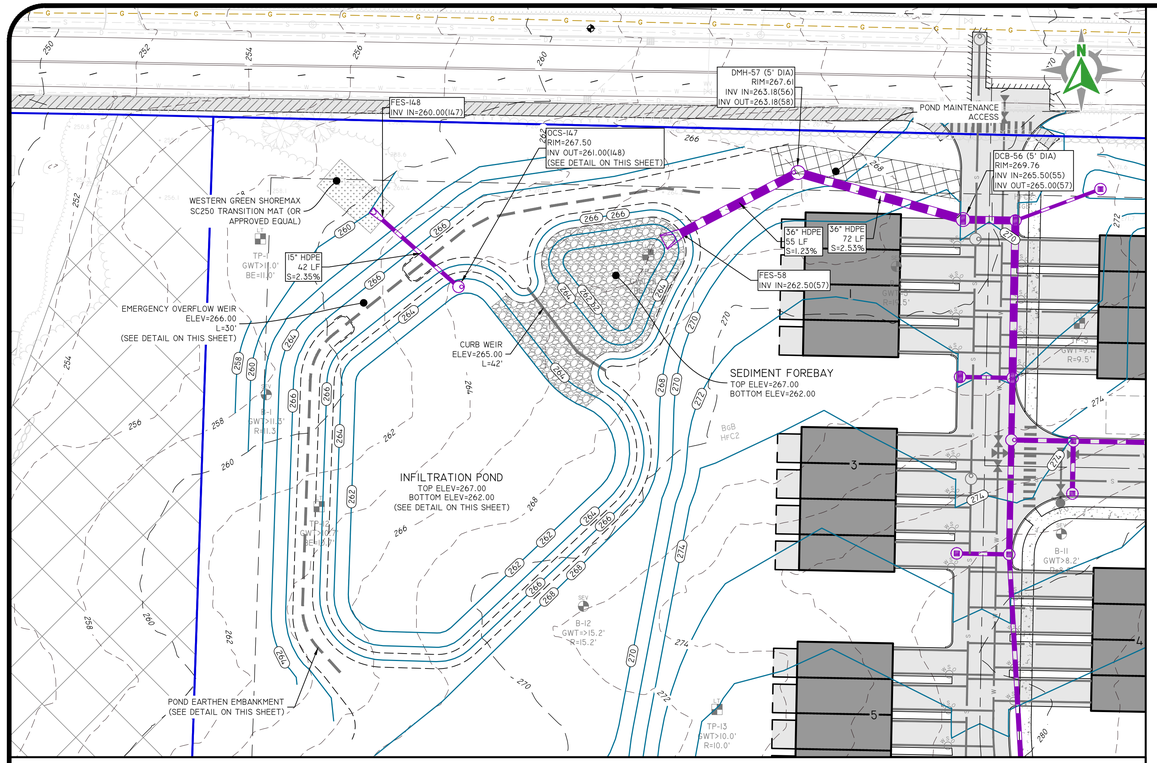
PLAN & PROFILE - 3

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

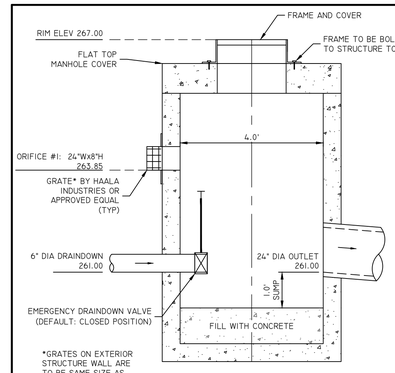
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STORMWATER POND COMPLEX A

SCALE: 1"=30'

0 15' 30' 60'



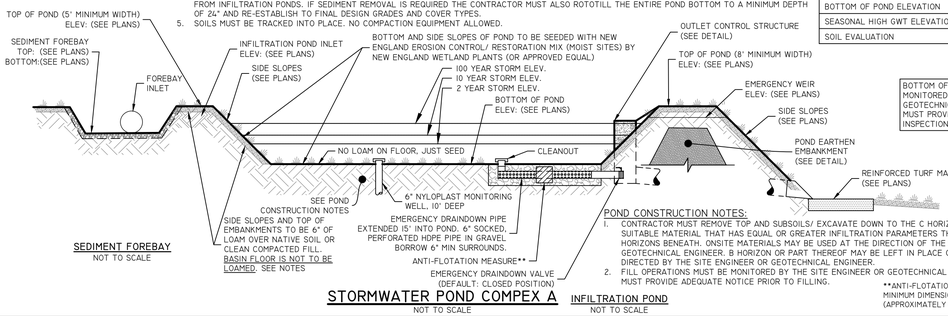
OUTLET CONTROL STRUCTURE (OCS-147)
4' DIAMETER MANHOLE

SCALE: 1"=2'

NOTES:

1. LIMITS OF INFILTRATION POND MUST BE STAKED OUT AND MUST NOT BE USED AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION (NO CONSTRUCTION TRAFFIC ALLOWED WITHIN POND LIMITS).
2. INFILTRATION PONDS MUST NOT BE USED FOR STOCKPILING, VEHICLE PARKING OR ANY OTHER ANCILLARY STORING OF OBJECTS OR MATERIALS, TEMPORARY OR PERMANENT, AT ANY TIME.
3. INFILTRATION PONDS MUST BE ADEQUATELY PROTECTED FROM SEDIMENT LADEN RUNOFF DURING CONSTRUCTION.
4. FOLLOWING CONSTRUCTION AND STABILIZATION OF ALL UPSTREAM AREAS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE ANY AND ALL SEDIMENT FROM INFILTRATION PONDS. IF SEDIMENT REMOVAL IS REQUIRED THE CONTRACTOR MUST ALSO ROTOTILL THE ENTIRE POND BOTTOM TO A MINIMUM DEPTH OF 24" AND RE-ESTABLISH TO FINAL DESIGN GRADES AND COVER TYPES.
5. SOILS MUST BE TRACKED INTO PLACE. NO COMPACTION EQUIPMENT ALLOWED.

DESCRIPTION	IP
TOP OF POND ELEVATION	267.00
100 YEAR STORM ELEVATION	266.44
10 YEAR STORM ELEVATION	264.95
2 YEAR STORM ELEVATION	264.15
BOTTOM OF POND ELEVATION	262.00
SEASONAL HIGH GWT ELEVATION	< 255.00
SOIL EVALUATION	B-12



SEDIMENT FOREBAY
NOT TO SCALE

STORMWATER POND COMPEX A
NOT TO SCALE

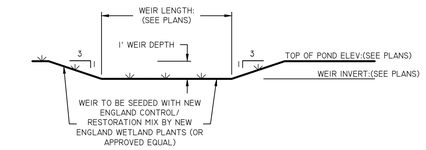
BOTTOM OF POND EXCAVATION MUST BE MONITORED BY SITE ENGINEER OR GEOTECHNICAL ENGINEER. CONTRACTOR MUST PROVIDE ADEQUATE NOTICE FOR INSPECTION.

POND CONSTRUCTION NOTES:

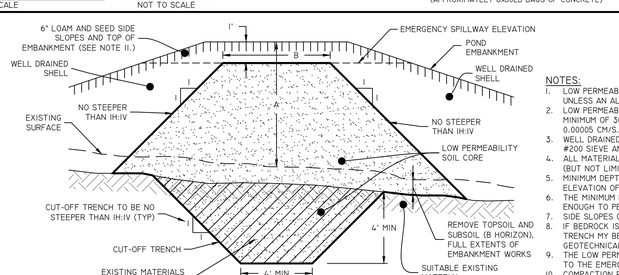
1. CONTRACTOR MUST REMOVE TOP AND SUBSOILS/ EXCAVATE DOWN TO THE C HORIZON AND BACKFILL WITH SUITABLE MATERIAL THAT HAS EQUAL OR GREATER INFILTRATION PARAMETERS THAN THE EXISTING C SOIL HORIZONS BENEATH. ONSITE MATERIALS MAY BE USED AT THE DIRECTION OF THE SITE ENGINEER OR GEOTECHNICAL ENGINEER. B HORIZON OR PART THEREOF MAY BE LEFT IN PLACE ONLY IF ASSESSED AND DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
2. FILL OPERATIONS MUST BE MONITORED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER. CONTRACTOR MUST PROVIDE ADEQUATE NOTICE PRIOR TO FILLING.

**ANTI-FLOTATION TO BE CONCRETE WITH MINIMUM DIMENSIONS OF 15"WX15"HX5'L. (APPROXIMATELY 6x80LB BAGS OF CONCRETE)

INFILTRATION POND
NOT TO SCALE



EMERGENCY OVERFLOW WEIR
NOT TO SCALE



WELL DRAINED SHELL TO BE GRAVEL BORROW AND MEET THE FOLLOWING GRADATION:

SIEVE SIZE	PERCENT FINER BY WEIGHT
3-INCH	60-100
¼ INCH	50-85
¾ INCH	45-80
NO. 4	40-75
NO. 40	0-45
NO. 200	0-10

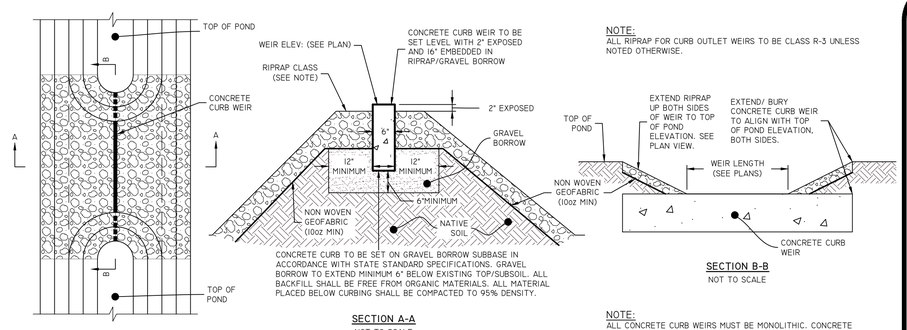
NOTE TO CONTRACTOR: COORDINATE WITH THE OWNER'S GEOTECHNICAL ENGINEER/ INSPECTOR A MINIMUM OF FIVE DAYS PRIOR TO CONSTRUCTION OF THE EMBANKMENT, FOR APPROVAL OF PROPOSED CORE MATERIALS, TESTING COMPANY AND EMBANKMENT INSPECTION SCHEDULE. INTERIM INSPECTION REPORTS TO BE PROVIDED TO THE OWNER AND DESIGN ENGINEER AT INTERVALS AS DETERMINED BY THE GEOTECHNICAL ENGINEER.

POND EMBANKMENT HEIGHT "A" (FT)	TOP WIDTH OF CORE "B" (FT)
0-7.0	6.0
OVER 7.0	PER GEOTECH

NOTES:

1. LOW PERMEABILITY SOIL CORE TO BE PROVIDED FOR ALL POND EMBANKMENTS UNLESS AN ALTERNATIVE METHOD IS SPECIFICALLY NOTED ON THE PLANS.
2. LOW PERMEABILITY SOIL CORE TO BE CONSTRUCTED OF A MATERIAL WITH A MINIMUM OF 30% PASSING THE #200 SIEVE AND A MAXIMUM PERMEABILITY OF 0.00005 CM/S.
3. WELL DRAINED SHELL TO BE GRAVEL BORROW WITH LESS THAN 10% PASSING THE #200 SIEVE AND MEET THE GRADATION AS SHOWN ON THIS DETAIL.
4. ALL MATERIAL MUST BE FREE FROM DELETERIOUS/ ORGANIC MATTER, INCLUDING (BUT NOT LIMITED TO) ROOTS, SOD, RUBBLE, SNOW, ICE, RUBBISH ETC.
5. MINIMUM DEPTH OF CUT-OFF TRENCH SHALL BE 4' MEASURED FROM THE LOWEST ELEVATION OF THE UNDISTURBED EXISTING SURFACE INTERFACE. SEE DETAIL.
6. THE MINIMUM BOTTOM WIDTH OF THE CUT-OFF TRENCH SHALL BE 4', AND WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT.
7. SIDE SLOPES OF THE CUT-OFF TRENCH SHALL BE NO STEEPER THAN IH:IV.
8. IF BEDROCK IS ENCOUNTERED BELOW THE POND EMBANKMENT THE CUT OFF TRENCH MY BE MODIFIED AT THE DIRECTION OF A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER.
9. THE LOW PERMEABILITY CORE AT A MINIMUM SHALL EXTEND UP BOTH ABUTMENTS TO THE EMERGENCY SPILLWAY ELEVATION.
10. COMPACTION REQUIREMENTS FOR THE SHELL AND LOW PERMEABILITY CORE TO BE 95% OF THE MODIFIED PROCTOR PER ASTM D1557. ALL FILL TO BE PLACED IN LIFTS NOT EXCEEDING 12".
11. SIDE SLOPE OF POND EMBANKMENT TO BE NO STEEPER THAN THE SLOPES SHOWN ON THE POND-SPECIFIC DESIGN PLANS WITHOUT WRITTEN DIRECTION FROM THE DESIGN ENGINEER. IF ANY POND SIDE SLOPE IS STEEPER THAN 3H:1V, SLOPE PROTECTION MUST BE UTILIZED ON POND EMBANKMENT, WHICH MAY INCLUDE (BUT NOT BE LIMITED TO) RIPRAP AND/ OR EROSION CONTROL MATS.
12. THE LOW PERMEABILITY CORE MUST BE KEPT FREE FROM STANDING WATER DURING THE BACKFILL OPERATION.
13. ALL EMBANKMENT INSTALLATIONS TO BE SUPERVISED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER. SEE 'NOTE TO CONTRACTOR'.
14. ANY PROPOSED DEVIATIONS FROM THIS DETAIL MUST BE DESIGNED BY A SUITABLY QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER AND SUBMITTED TO THE SITE ENGINEER (AND AHJ WHERE REQUIRED) FOR REVIEW PRIOR TO CONSTRUCTION.

POND EARTHEN EMBANKMENT: LOW PERMEABILITY CORE
NOT TO SCALE



PLAN VIEW
NOT TO SCALE

SECTION A-A
NOT TO SCALE

CURB OUTLET WEIR
NOT TO SCALE

SECTION B-B
NOT TO SCALE

NOTE:
ALL RIPRAP FOR CURB OUTLET WEIRS TO BE CLASS R-3 UNLESS NOTED OTHERWISE.

NOTE:
ALL CONCRETE CURB WEIRS MUST BE MONOLITHIC. CONCRETE CURB. WEIRS CANNOT BE MULTIPLE PRECAST CURBS JOINED IN SEQUENCE.

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

THIS PLAN SET MUST NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY ENGINEER OF RECORD PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING.

DIPRETE ENGINEERING ONLY WARRANTS PLANS ON A DIPRETE ENGINEERING TITLE BLOCK STAMPED BY REGISTERED PROFESSIONAL ENGINEER EMPLOYED BY DIPRETE ENGINEERING. DIPRETE ENGINEERING DOES NOT WARRANT PLANS BY ANY OTHER PARTY.

THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION IN CONFORMANCE WITH OSHA REGULATIONS AND FOR THE SAFETY OF ALL PERSONS AND PROPERTY DURING THE IMPLEMENTATION OF THIS PLAN AND NOT LIMITED TO NORMAL WORKING HOURS.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR ADDITIONAL UTILITIES NOT SHOWN OR FOR THE EXACT LOCATIONS OF EXISTING UTILITIES SHOWN. CONTRACTOR SHALL CONTACT DIG SAFE AT 811 OR 1-888-DIG-SAFE AT LEAST 72 HOURS PRIOR TO EXCAVATION. SEE UTILITY NOTE ON SHEET 4.

STORMWATER POND COMPLEX A

STETSON ROAD

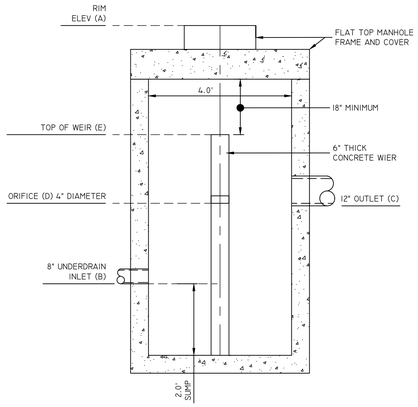
PARCEL ID 29I-1011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 15 OF 22

DE JOB NO. 2429-332 COPYRIGHT 2024 BY DIPRETE ENGINEERING ASSOCIATES, INC.

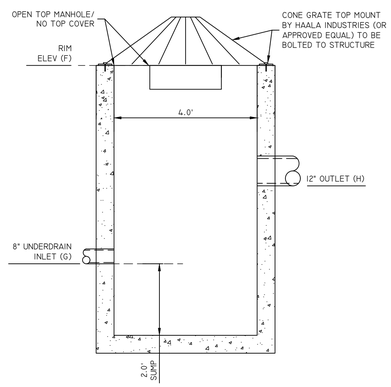
Z:\DEPAIN\PROJECTS\2429-332 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2429-432-PLAN.DWG PLOTTED: 2/20/2025



LOCATION	POINT	ELEV.
OCS RIM	A	261.65
OCS INVERT IN	B	252.08
OCS INVERT OUT	C	254.33
OCS ORIFICE	D	254.33
OCS TOP OF WEIR	E	258.50

OUTLET CONTROL STRUCTURE
4' DIAMETER MANHOLE (OCS-136)

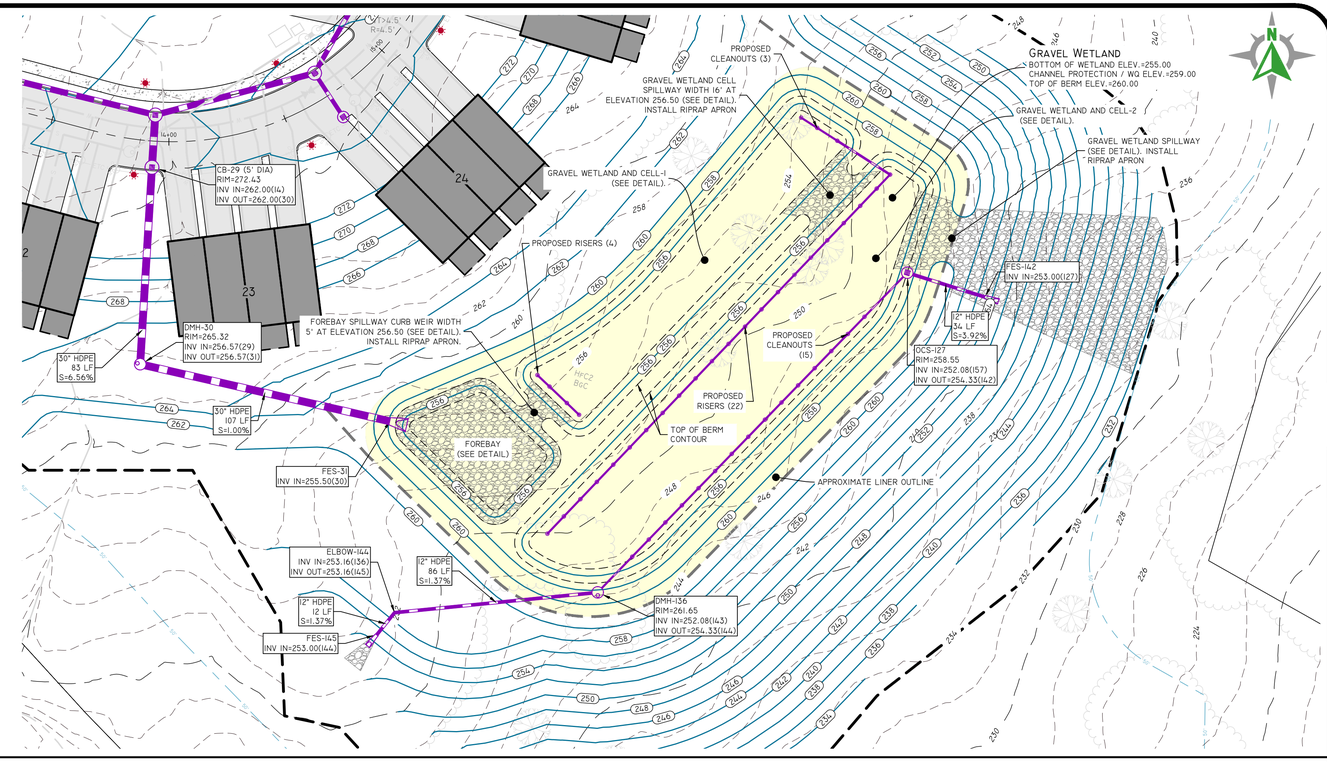
SCALE: 1"=2'



LOCATION	POINT	ELEV.
OCS RIM	F	258.55
OCS INVERT IN	G	252.08
OCS INVERT OUT	H	254.33

OUTLET CONTROL STRUCTURE
4' DIAMETER MANHOLE (OCS-127)

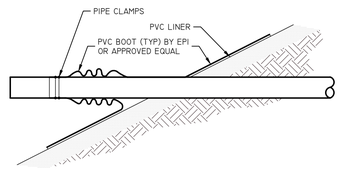
SCALE: 1"=2'



STORMWATER GRAVEL WETLAND COMPLEX B

SCALE: 1"=30'

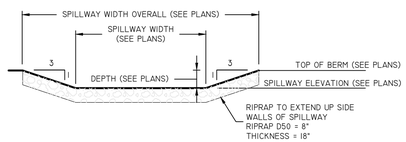
0 15' 30' 60'



NOTES:
1. INSTALL LINER & BOOT IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS.

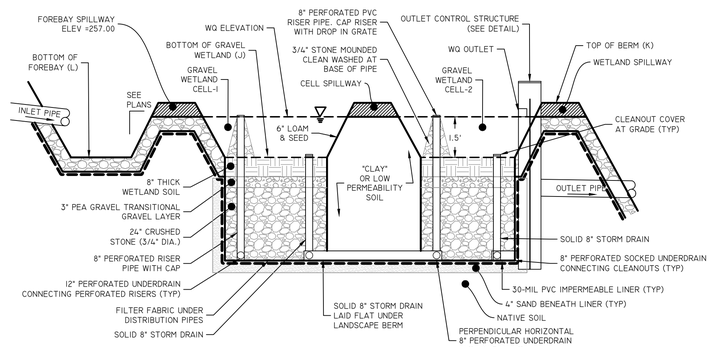
PIPE PENETRATION IN PVC

NOT TO SCALE



SPILLWAY

LOCATION	POINT	ELEV.
BOTTOM OF GRAVEL WETLAND	J	255.0
TOP OF BERM	K	260.0
BOTTOM OF FOREBAY	L	255.0



NOTE:
ALL RIPRAP FOR CURB OUTLET WEIRS AND FOREBAY TO BE CLASS D50 = 6" AND 10" THICKNESS UNLESS NOTED OTHERWISE.

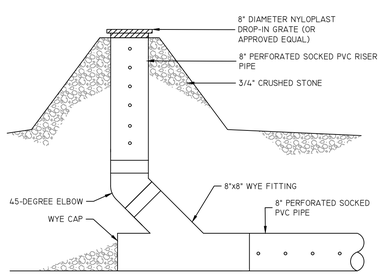
CROSS SECTION

GRAVEL WETLAND NOTES:

1. GRAVEL WETLANDS MUST BE INSTALLED AND CONSTRUCTED PER MAINE DEP STANDARDS (VOLUME III). BMP TECHNICAL DESIGN MANUAL CHAPTER 7.4.
2. THE SUBAREA DRAINING TO A CREATED WETLAND MUST BE COMPLETELY STABLE BEFORE RUNOFF IS DIRECTED TO THE BASIN TO PREVENT SEDIMENTATION OF THE DRAINAGE LAYER; OR ALL RUNOFF SHOULD BE RE-DIRECTED UNTIL CONSTRUCTION IS FINALIZED. THE VEGETATION WITHIN THE STRUCTURE IS EQUALLY IMPORTANT AND MUST BE WELL ESTABLISHED BEFORE IT CAN ACCEPT ANY RUNOFF. CONSTRUCTION SHOULD BE STARTED NO LATER THAN SEPTEMBER 1 OR EARLIER THAN JUNE 1; AND IF VEGETATION CANNOT BE ESTABLISHED BY THE END OF THE GROWING SEASON, CONSTRUCTION SHOULD BE DELAYED TO THE FOLLOWING YEAR. SEEDING OR STABILIZATION MUST OCCUR BY SEPTEMBER 15 IN PREPARATION FOR THE WINTER SEASON.
3. PERFORATED/SLOTTED RISER PIPES SHOULD EXTEND 18-24 INCHES ABOVE THE SURFACE OF THE WETLAND SOIL. A RISER SHOULD BE PROVIDED FOR EVERY 10 FEET OF LINEAR INFLOW SUB-DRAIN.
4. UNDERDRAIN PIPING SHOULD BE 8 INCH DIAMETER WITH SLOTTED, RIGID SCHEDULE 40 PVC OR SDR35 PIPE.
5. CLEANOUT PORT SHOULD BE PROVIDED FOR EACH OF THE HORIZONTAL UNDERDRAIN PIPE STRUCTURE IN BOTH BASINS. CLEANOUTS SHALL BE CAPPED AT GRADE.
6. BERMS AND WEIRS SEPARATING THE FOREBAY AND TREATMENT CELLS SHOULD BE CONSTRUCTED WITH CLAY, OR NON-CONDUCTIVE SOILS, OR A FINE GEOTEXTILE, OR SOME COMBINATION THEREOF TO AVOID WATER SEEPAGE AND SOIL PIPING THROUGH THESE EARTHEN DIVIDERS (I.E. FOUNDATION CUTOFF OR APPROVED EQUAL).
7. OUTLET CONTROL STRUCTURE SHALL BE LOCATED WITHIN THE EMBANKMENT FOR MAINTENANCE ACCESS, SAFETY AND AESTHETICS.
8. CONSTRUCTION ACTIVITIES, OBSERVATION & OVERSIGHT TO BE CONDUCTED IN ACCORDANCE WITH CHAPTER 500 AND MAINE DEP STANDARDS (VOLUME III).

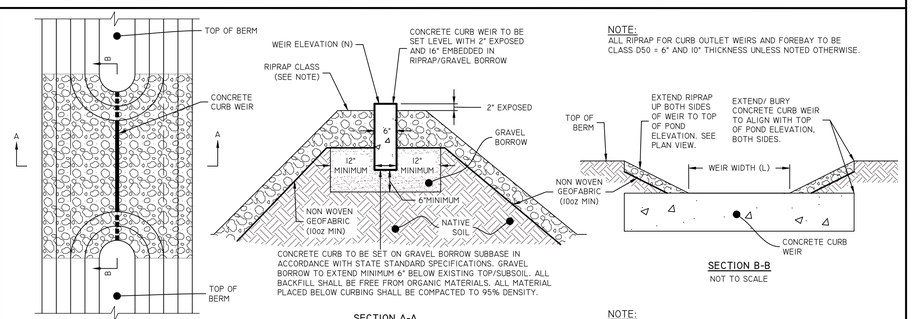
GRAVEL WETLAND DETAIL

NOT TO SCALE



RISER DETAIL

NOT TO SCALE



PLAN VIEW
NOT TO SCALE

SECTION A-A
NOT TO SCALE

SECTION B-B
NOT TO SCALE

NOTE:
ALL CONCRETE CURB WEIRS MUST BE MONOLITHIC. CONCRETE CURB WEIRS CANNOT BE MULTIPLE PRECAST CURBS JOINED IN SEQUENCE.

NOTE:
ALL CONCRETE CURB WEIRS AND FOREBAY TO BE CLASS D50 = 6" AND 10" THICKNESS UNLESS NOTED OTHERWISE.

SPILLWAY DETAIL & CURB OUTLET WEIR

NOT TO SCALE

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND SAFETY CONFORMANCE IN THE IMPLEMENTATION OF THIS PLAN AND PERSONS.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGE TO OR INTERRUPTION OF EXISTING UTILITIES NOT SHOWN OR INCORRECTLY SHOWN ON THIS PLAN AND SEE "UTILITY NOTE" ON SHEET 3.

NO.	DATE	DESCRIPTION	BY
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. | CHECKED BY: J.M.F.

GRAVEL WETLAND DETAILS

STETSON ROAD

PARCEL ID 29I-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

DE JOB NO. 2625-02

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SHEET 16 OF 22

Z:\DEMAIN\PROJECTS\2625-02 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2625-02-PLAN.DWG Plotted: 2/25/2025

EROSION AND SEDIMENTATION CONTROL NOTES:

IN ORDER TO ETFCTIVELY PREVENT AND CONTROL EROSION RELATED TO SOIL DISTURBANCE, THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPS) SHALL BE EMPLOYED:

1. POLLUTION PREVENTION:
MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUTFR AREAS TO THE EXTENT PRACTICABLE. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION. MINIMIZE THE DISTURBANCE OF STEEP SLOPES. CONTROL STORMWATER DISCHARGES, INCLUDING PEAK FLOW RATES AND VOLUME, TO MINIMIZE EROSION AT OUTLETS. THE DISCHARGE MAY NOT RESULT IN EROSION OF ANY OPEN DRAINAGE CHANNELS, SWALES, STREAM CHANNELS OR STREAM BANKS, UPLAND, OR COASTAL OR FRESHWATER WETLANDS OFF THE PROJECT SITE.

WHENEVER PRACTICABLE, NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE PLACE BETWEEN 30 FEET AND 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED. IF DISTURBANCE ACTIVITIES TAKE PLACE LESS THAN 30 FEET FROM ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.

2. TEMPORARY SOIL STABILIZATION BMPS:
TEMPORARY MULCHING SHALL BE APPLIED IMMEDIATELY TO ANY AREAS THAT HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED. ANY DISTURBED SOIL WITHIN 75' OF A STREAM, WATER BODY OR WETLAND MUST RECEIVE TEMPORARY MULCH WITHIN 48 HOURS FOLLOWING DISTURBANCE AND BEFORE ANY STORM EVENT. ALL OTHER AREAS SHALL RECEIVE TEMPORARY MULCH WITHIN 7 DAYS OF DISTURBANCE. AREAS WHICH CANNOT BE SEEDED DURING THE GROWING SEASON SHALL BE MULCHED FOR OVER-WINTER PROTECTION. THE FOLLOWING ARE ACCEPTABLE TEMPORARY MULCHING METHODS:

HAY OR STRAW MULCHES NEED TO BE AIR-DRIED, FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS. APPLICATION RATE MUST BE 2 BALES (70-90 POUNDS) PER 1000 SQ FT OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 85-90% OF THE GROUND SURFACE. HAY OR STRAW CAN BE DRIVEN INTO THE GROUND WITH TRACKED EQUIPMENT IF SLOPES ARE LESS THAN 3%, OR CAN BE ANCHORED WITH JUTE, WOOD FIBER OR PLASTIC NETTING ON STEEPER SLOPES.

EROSION CONTROL MIX MUST CONSIST PRIMARILY OF ORGANIC MATERIAL AND WILL INCLUDE ANY OF THE FOLLOWING: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR OTHER ACCEPTABLE PRODUCTS BASED ON A SIMILAR RAW SOURCE. WOOD OR BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS ARE NOT ACCEPTABLE. EROSION CONTROL MIX CAN BE USED AS A STAND-ALONE REINFORCEMENT ON SLOPES OF 2 HORIZONTAL TO 1 VERTICAL OR LESS AND DRAINING IN SHEET FLOW. IT CAN BE PLACED WITH A HYDRAULIC BUCKET, WITH A PNEUMATIC BLOWER OR BY HAND, AND MUST PROVIDE 100% SOIL COVERAGE.

EROSION CONTROL MIX SHALL MEET THE FOLLOWING SPECIFICATIONS:
- ORGANIC MATTER CONTENT SHALL BE BETWEEN 80-100%, DRY WEIGHT BASIS.
- PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6 IN. SCREEN AND BETWEEN 70-85% PASSING 0.75 IN. SCREEN
- ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
- LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX

WHEN USED AS MULCH, THE THICKNESS OF THE EROSION CONTROL MIX IS BASED UPON THE FOLLOWING:

LENGTH OF SLOPE	3:1 SLOPE OR LESS	BETWEEN 2:1 AND 3:1 SLOPE
LESS THAN 20 FT	2.0 IN.	4.0 IN.
BETWEEN 20 - 60 FT	3.0 IN.	5.0 IN.
BETWEEN 60 - 100 FT	4.0 IN.	6.0 IN.

CHEMICAL MULCHES AND SOIL BINDERS MAY BE USED AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL CONSULT WITH THE MANUFACTURER TO DETERMINE ADEQUATE APPLICATION RATES AND METHODS.

EROSION CONTROL BLANKETS AND MATS SHALL BE USED ON STEEP SLOPES AND IN THE BOTTOM OF GRASSED WATERWAYS, OR AS OTHERWISE DIRECTED BY THE ENGINEER. THE MAT SHALL BE INSTALLED WITH FIRM CONTINUOUS CONTACT WITH THE SOIL AND STAPLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

TEMPORARY MULCH SHALL BE INSPECTED FOLLOWING ANY SIGNIFICANT RAINFALL EVENT. IF LESS THAN 90% OF THE SOIL SURFACE IS COVERED BY MULCH, ADDITIONAL MULCH SHALL BE IMMEDIATELY APPLIED. EROSION CONTROL MATS AND MULCH ANCHORING MUST BE INSPECTED AFTER RAINFALL EVENTS FOR DISLOCATION OR FAILURE, AND REPAIRED IMMEDIATELY. INSPECTIONS SHALL TAKE PLACE UNTIL 95% OF THE SOIL SURFACE IS COVERED WITH PERMANENT VEGETATION. WHERE MULCH IS USED WITH ORNAMENTAL PLANTINGS, INSPECT PERIODICALLY THROUGHOUT THE YEAR TO DETERMINE IF MULCH IS MAINTAINING COVERAGE OF THE SOIL SURFACE, AND REPAIR AS NEEDED.

TEMPORARY VEGETATION SHALL BE ESTABLISHED ON SOILS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A PERIOD OF MORE THAN 30 DAYS. IF TEMPORARY VEGETATION CANNOT BE ESTABLISHED PRIOR TO OCTOBER 15, TEMPORARY MULCH SHALL BE APPLIED THROUGH THE WINTER AND TEMPORARY VEGETATION SHALL BE PLANTED AT THE BEGINNING OF THE GROWING SEASON THE FOLLOWING YEAR. TO PREPARE THE SEEDBED, THE CONTRACTOR SHALL APPLY FERTILIZER AT A RATE OF 600 POUNDS PER ACRE OF 10-10-10 (N-P205-K20) OR EQUIVALENT AND LIMESTONE AT A RATE OF 3 TONS PER ACRE, IF NECESSARY. LOOSEN SOIL TO A DEPTH OF 2 INCHES IN AREAS THAT HAVE BEEN COMPACTED BY CONSTRUCTION ACTIVITIES. GRASS SEED SHALL BE SELECTED BASED UPON THE TIME OF YEAR THE PLANTING WILL TAKE PLACE AS SUMMARIZED IN THE FOLLOWING TABLE:

SEED	LB. PER ACRE	RECOMMENDED SEEDING DATES
WINTER RYE	112	8/15 - 10/1
OATS	80	4/1 - 7/1 8/15 - 9/15
ANNUAL RYEGRASS	40	4/1 - 7/1

TEMPORARY SEEDING SHALL BE PERIODICALLY INSPECTED TO MAINTAIN AT LEAST 95% VEGETATIVE COVER OF SOIL SURFACE. IF ANY EVIDENCE OF EROSION OR SEDIMENTATION IS APPARENT, REPAIRS SHALL BE MADE AND OTHER TEMPORARY MEASURES SHALL BE USED IN THE INTERIM SUCH AS TEMPORARY MULCH, FILTER BARRIERS, ETC.

3. SEDIMENT BARRIER BMPS:
PRIOR TO CONSTRUCTION TEMPORARY SEDIMENT BARRIERS SHALL BE INSTALLED AT THE DOWNGRADIENT EDGE OF ANY AREA TO BE DISTURBED AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE DISTURBED AREA . SEDIMENT BARRIERS INCLUDE ANY OF THE FOLLOWING:

FILTER BARRIER FENCE, ALSO CALLED SILT FENCE, SHALL BE INSTALLED WHERE SHOWN ON THE PLANS AND IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. THE FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHALL PROVIDE A MINIMUM OF 6 MONTHS USABLE CONSTRUCTION LIFE INCLUDING PROTECTION AGAINST ULTRA-VIOLET LIGHT. THE HEIGHT OF THE FENCE SHALL NOT EXCEED 36 INCHES INSTALLED AND POST SPACING SHALL NOT EXCEED 6 FEET. JOINTS IN THE FENCE SHALL BE AVOIDED TO THE EXTENT POSSIBLE, AND IF NECESSARY SHALL BE SPLICED TOGETHER AT A SUPPORT POST WITH A MINIMUM 6 INCH OVERLAP. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP, AND THE BOTTOM 6-8 INCHES OF FABRIC SHALL BE "TOED-IN" TO THE TRENCH AND COMPACTED. THE TRENCH SHOULD BE UPHILL OF THE FABRIC PRIOR TO BURIAL.

STRAY/HAY BALES SHALL BE INSTALLED WHERE SPECIFIED ON THE PLANS IN A SINGLE ROW WITH THE ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER. ALL BALES SHALL BE EITHER WIRE-BOUND OR STRING-TIED. THE BARRIER SHALL BE ENTRENCHED AND BACKFILLED TO A DEPTH OF AT LEAST 4 INCHES, AND THE BALES SHALL BE SECURED WITH AT LEAST TWO WOODEN STAKES OR STEEL REBAR PER BALE STAKES SHALL BE DRIVEN IN A DIRECTION TO PUSH THE BALES TOGETHER. GAPS BETWEEN BALES SHALL BE CHINKED WITH HAY.

EROSION CONTROL MIX BERMS ARE LINEAR BARRIERS COMPOSED OF EROSION CONTROL MIX AS SPECIFIED ABOVE. THE BERM MUST BE A MINIMUM OF 12 INCHES TALL AND 24 INCHES WIDE AT THE BASE IF UPHILL SLOPES ARE LESS THAN 5%. STEEPER SLOPES OR SLOPES GREATER THAN 20 FEET LONG MAY REQUIRE A LARGER WIDTH BERM. EROSION CONTROL MIX BERMS AT THE BASE OF A LONG OR STEEP SLOPE MAY ALSO REQUIRE A FILTER FENCE TO BE INSTALLED ON THE DOWNHILL SIDE OF THE BERM TO PROVIDE ADDITIONAL STABILIZATION AGAINST HIGH RUNOFF FLOWS.

CONTINUOUS CONTAINED BERMS, WHICH ARE ALSO REFERRED TO AS A FILTER SOCK, PROVIDES ADDITIONAL STABILITY TO AN EROSION CONTROL MIX BERM AND SHOULD BE USED IN FROZEN GROUND CONDITIONS OR IN AREAS THAT RECEIVE CONCENTRATED FLOW.

SEDIMENT BARRIERS SHOULD BE INSTALLED DOWNGRADIENT OF SOIL OR SEDIMENT STOCKPILES AND STORMWATER PREVENTED RUNNING ONTO THE STOCKPILE. SEDIMENT BARRIERS SHALL BE INSPECTED AFTER ANY SIGNIFICANT RAINFALL EVENT AND REPAIRED IMMEDIATELY IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE BARRIERS. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR EDGES OF THE BARRIER, OR IF LARGE VOLUMES OF WATER ARE IMPOUNDED BEHIND THE BARRIER, IT MAY BE NECESSARY TO REPLACE THE BARRIER WITH A TEMPORARY STONE CHECK DAM. SEDIMENT SHALL BE REMOVED ONCE IT REACHES HALF THE BARRIER HEIGHT. AFTER THE BARRIER IS REMOVED, ANY REMAINING SILT SHALL EITHER BE REMOVED OR GRADED TO CONFORM WITH THE EXISTING TOPOGRAPHY AND VEGETATED.

4. TEMPORARY CHECK DAMS:
STONE CHECK DAMS SHALL BE INSTALLED IN SWALES OR DRAINAGE DITCHES TO REDUCE STORMWATER VELOCITIES AS SHOWN ON THE PLANS. STONE CHECK DAMS ARE NOT ETFCTIVE IN REMOVING SEDIMENT AND SHOULD BE USED IN CONJUNCTION WITH SEDIMENT BARRIERS IDENTIFIED ABOVE. TEMPORARY CHECK DAMS MAY BE LEFT IN PLACE PERMANENTLY IN MOST CASES. CHECK DAMS SHOULD BE NO HIGHER THAN 24 INCHES, AND THE CENTER OF THE CHECK DAM MUST BE AT LEAST 6 INCHES LOWER THAN THE OUTSIDE EDGES. CHECK DAMS SHOULD BE SPACED SUCH THAT THE CREST OF THE DOWNSTREAM CHECK DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM CHECK DAM. CHECK DAMS IN A DRAINAGE DITCH OR WATERWAY SHOULD BE INSTALLED PRIOR TO DIRECTING RUNOFF TO THEM.

5. STORM DRAIN INLET PROTECTION:
STORM DRAIN INLETS THAT ARE MADE OPERATIONAL BEFORE THEIR DRAINAGE AREA IS STABILIZED SHALL BE PROTECTED WITH A FILTER UNTIL THE DRAINAGE AREA IS EITHER PAVED OR STABILIZED WITH 95% VEGETATIVE GROWTH. THE FOLLOWING ARE ACCEPTABLE BMPS ASSOCIATED WITH STORM DRAIN INLET PROTECTION:

HAY BALE OR SILT FENCE INLET STRUCTURE CONSISTS OF HAY BALES OR SILT FENCE CONFIGURED AROUND A CATCH BASIN INLET FRAME AND INSTALLED ACCORDING TO THE METHODS OUTLINED ABOVE. THIS METHOD IS SUITABLE FOR OPEN PIPE (CULVERT) INLETS, FIELD INLETS OR ROAD INLETS THAT HAVE NOT YET BEEN PAVED.

MANUFACTURED SEDIMENT FILTERS ARE THE PREFERRED METHOD FOR PROTECTING CATCH BASIN INLETS IN PAVED OR GRAVEL ROADWAYS. THE FILTERS TYPICALLY CONSIST OF A FABRIC OR OTHER PERVIOUS MATERIAL THAT IS PLACED ABOVE OR BELOW THE GRATE THAT TRAPS SEDIMENT ON THE SURFACE AND ALLOWS WATER TO FLOW THROUGH THE GRATE. CONSIDERATIONS SUCH AS WEATHER CONDITIONS, SLOPES, TRIBUTARY WATERSHED AREA AND EXPECTED SEDIMENT ACCUMULATION SHOULD BE FACTORED INTO MAKING A DECISION ON ANY PARTICULAR PRODUCT, AND THE MANUFACTURER'S RECOMMENDATIONS ON INSTALLATION AND MAINTENANCE SHALL BE STRICTLY ADHERED TO.

6. STABILIZED CONSTRUCTION ENTRANCE/EXIT:
TO REDUCE THE TRACKING OF SEDIMENT ONTO ROADWAYS, A STABILIZED CONSTRUCTION EXIT SHALL BE INSTALLED AT ALL POINTS OF EGRESS WHERE VEHICLES MAY TRAVEL FROM THE PROJECT SITE TO A PUBLIC ROAD OR OTHER PAVED AREA. THE STONE PAD SHALL CONSIST OF A MINIMUM 6-INCH DEPTH OF 2-3 INCH CRUSHED STONE, AND SHALL BE PLACED ON A GEOTEXTILE FABRIC. THE PAD SHALL EXTEND AT LEAST 50 FEET INTO THE PROJECT SITE AND BE A MINIMUM OF 10 FEET WIDE. THE EXIT SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, AND THE CONTRACTOR SHALL SWEEP OR WASH PAVEMENT AT EXITS THAT HAVE EXPERIENCED ANY MUD-TRACKING. MAINTAIN THE PAD UNTIL ALL DISTURBED AREAS ARE STABILIZED.

7. DUST CONTROL:
THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST ON THE PROJECT SITE AND ON ADJACENT ROADWAYS. EXPOSED SOIL SURFACES SHALL BE MOISTENED PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST. GRAVEL SURFACES SHALL EITHER BE TREATED WITH AN APPLICATION OF CALCIUM CHLORIDE OR COVERED WITH CRUSHED STONE IF DUST CONTROL BECOMES DIFFICULT WITH NORMAL WATER APPLICATIONS.

8. LAND GRADING AND SLOPE PREPARATION:
GRADING SHALL BE PLANNED SO AS TO MINIMIZE THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING. ON LARGE PROJECTS THIS SHOULD BE ACCOMPLISHED BY PHASING THE OPERATION AND COMPLETING THE FIRST PHASE UP TO FINAL GRADING AND SEEDING BEFORE STARTING THE NEXT PHASE. ANY EXPOSED AREA THAT WILL NOT BE FINISH GRADED WITHIN 14 DAYS SHALL BE TREATED WITH MULCH OR PLANTED WITH TEMPORARY VEGETATION. PROVISIONS SHALL BE MADE TO SAFELY CONVEY SURFACE RUNOFF TO STORM DRAINS, PROTECTED OUTLETS OR TO STABLE WATER COURSES TO ENSURE THAT SURFACE RUNOFF WILL NOT DAMAGE SLOPES OR OTHER GRADED AREAS. CUT AND FILL SLOPES THAT ARE TO BE STABILIZED WITH GRASS SHALL NOT BE STEEPER THAN 2:1. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIALS. AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF TOPSOIL. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES. ALL FILLS SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS. FILL MATERIAL SHALL BE FREE OF STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILL SLOPES OR STRUCTURAL FILLS. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED APPROPRIATELY. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

9. TOPSOIL:
IF POSSIBLE, TOPSOIL SHALL BE STOCKPILED ON THE PROJECT SITE AND REUSED. HIGH QUALITY TOPSOIL SHALL BE FRIABLE AND LOAMY (LOAM, SANDY LOAM, SILT LOAM, SANDY CLAY LOAM, CLAY LOAM), AND SHALL BE FREE OF DEBRIS, TRASH, STUMPS, ROCKS, ROOTS AND NOXIOUS WEEKS. AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, AND IMMEDIATELY PRIOR TO SPREADING THE TOPSOIL, THE SUBGRADE SHALL BE LOOSENED BY SCARIFYING TO A DEPTH OF AT LEAST 2 INCHES TO ENSURE BONDING WITH SUBSOIL. THE TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED TO A MINIMUM COMPACTED DEPTH OF 4 INCHES. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS. IT IS NECESSARY TO COMPACT THE TOPSOIL ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL, BUT UNDUE COMPACTION IS TO BE AVOIDED.

10. PERMANENT SOIL STABILIZATION:
IF THE AREA WILL NOT BE WORKED FOR MORE THAN ONE YEAR OR HAS BEEN BROUGHT TO FINAL GRADE, THEN PERMANENTLY STABILIZE THE AREA WITHIN 7 DAYS BY PLANTING VEGETATION, SEEDING, SOD, OR THROUGH THE USE OF PERMANENT MULCH, OR RIPRAP, OR ROAD BASE GRAVEL. IF USING VEGETATION FOR STABILIZATION, SELECT THE PROPER VEGETATION FOR THE LIGHT, MOISTURE, AND SOIL CONDITIONS; AMEND AREAS OF DISTURBED SUBSOILS WITH TOPSOIL, COMPOST, OR FERTILIZERS; PROTECT SEEDED AREAS WITH MULCH OR, IF NECESSARY, EROSION CONTROL BLANKETS; AND SCHEDULE SODDING, PLANTING, AND SEEDING SO TO AVOID DIE-OFF FROM SUMMER DROUGHT AND FALL FROSTS. NEWLY SEEDED OR SODDED AREAS MUST BE PROTECTED FROM VEHICLE TRAFFIC, EXCESSIVE PEDESTRIAN TRAFFIC, AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL-ESTABLISHED WITH 90% COVER BY HEALTHY VEGETATION. IF NECESSARY, AREAS MUST BE REWORKED AND RESTABILIZED IF GERMINATION IS SPARSE, PLANT COVERAGE IS SPOTTY, OR TOPSOIL EROSION IS EVIDENT. ONE OR MORE OF THE FOLLOWING MAY APPLY TO A PARTICULAR SITE.

SEEDED AREAS: TO PREPARE THE SEEDBED, APPLY 10-20-20 FERTILIZER AT A RATE OF 800 POUNDS PER ACRE AND GROUND LIMESTONE AT A RATE OF 3 TONS PER ACRE. WORK THE FERTILIZER AND LIMESTONE INTO THE TOPSOIL TO A DEPTH OF 4 INCHES AND REMOVE ANY STONES, ROOTS OR OTHER VISIBLE DEBRIS. SELECT A SEED MIXTURE THAT IS APPROPRIATE FOR THE SOIL TYPE AND MOISTURE CONTENT AS FOUND AT THE SITE, AND FOR THE AMOUNT OF SUN EXPOSURE THE AREA WILL RECEIVE. REFER TO THE USDA SOIL CONSERVATION SERVICE OR THE LOCAL SOIL AND WATER CONSERVATION DISTRICT FOR APPROPRIATE SEED MIXTURES. APPLY SEED UNIFORMLY IN ACCORDANCE WITH SUPPLIER RECOMMENDATIONS AND IMMEDIATELY COVER WITH MULCH AS DESCRIBED IN THE TEMPORARY MULCHING SECTION OF THIS PLAN.

HYDROSEEDING SHALL BE DONE IN ACCORDANCE WITH SUPPLIERS RECOMMENDATIONS. FOR SEEDED AREAS TO BE PERMANENTLY STABILIZED, 90% OF THE DISTURBED SOIL SHALL BE COVERED WITH MATURE HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OF THE TOPSOIL.

SOD STRIPS SHALL BE LAID AT RIGHT ANGLES TO DIRECTION OF SLOPE OR FLOW OF WATER STARTING AT LOWEST ELEVATION. JOINTS SHALL BE STAGGERED, AND ALL STRIPS SHALL BE ROLLED OR TAMPED INTO PLACE. ON SLOPES, SOD SHALL BE ANCHORED WITH STAPLES, WIRE OR PINS. IRRIGATE SODDED AREA IMMEDIATELY AFTER INSTALLATION. FOR SODDED AREAS TO BE PERMANENTLY STABILIZED, THE ROOTS OF THE SOD MUST BE COMPLETELY BOUND INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.

PERMANENT MULCH IS A LONG TERM COVER THAT PROVIDES A GOOD BUTFR AROUND DISTURBED AREAS. THE EROSION CONTROL MIX SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND MAY INCLUDE SHREDDED BARK, STUMP GRINDINGS OR COMPOSTED BARK. WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSED WOOD PRODUCTS OR BARK CHIPS ARE NOT ACCEPTABLE. THE EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4 INCHES IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS AND MATERIAL TOXIC TO PLANT GROWTH.

RIPRAP STONE SHALL CONSIST OF SUB-ANGULAR FIELD STONE OR ROUGH UNEVEN QUARRY STONE OF APPROXIMATELY RECTANGULAR SHAPE. THE DEPTH OF STONE SHALL BE A MINIMUM OF 2.2 TIMES THE MAXIMUM STONE DIAMETER. A GRAVEL OR GEOTEXTILE FILTER BLANKET SHALL BE PLACED BETWEEN THE RIPRAP AND UNDERLYING SOIL SURFACE. GRAVEL FILTER BLANKETS SHALL MEET MDOT TYPE-C UNDERDRAIN MATERIAL SPECIFICATIONS AND BE AT LEAST 6 INCHES THICK. GEOTEXTILE FILTER BLANKETS SHALL BE SPECIFIED BASED ON SITE CONDITIONS. RIPRAP SLOPES SHALL BE TOED INTO THE BASE OF THE EMBANKMENT BY EXCAVATING A TRENCH AT THE BOTTOM OF THE SLOPE AND INSTALLING A STABLE BASE OF RIPRAP TO GRADE.

DITCHES, CHANNELS AND SWALES ARE CONSIDERED PERMANENTLY STABILIZED WHEN THE CHANNEL HAS 90% COVER OF HEALTHY VEGETATION WITH A WELL GRADED RIPRAP LINING, EROSION CONTROL BLANKET, OR WITH ANOTHER NON-EROSIVE LINING SUCH AS CONCRETE OR ASPHALT PAVEMENT. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE CHANNEL LINING, UNDERCUTTING OF THE BANKS, OR DOWNCUTTING OF THE CHANNEL.

11. STORMWATER CHANNELS:
EACH CHANNEL SHOULD BE CONSTRUCTED IN SECTIONS SO THAT THE SECTION'S GRADING, SHAPING, AND INSTALLATION OF THE PERMANENT LINING CAN BE COMPLETED THE SAME DAY. IF A CHANNEL'S FINAL GRADING OR LINING INSTALLATION MUST BE DELAYED, THEN DIVERSION BERMS MUST BE USED TO DIVERT STORMWATER AWAY FROM THE CHANNEL, PROPERLY-SPACED CHECK DAMS MUST BE INSTALLED IN THE CHANNEL TO SLOW THE WATER VELOCITY, AND A TEMPORARY LINING INSTALLED ALONG THE CHANNEL TO PREVENT SCOURING.

WINTER EROSION AND SEDIMENTATION CONTROL NOTES:

THE WINTER CONSTRUCTION PERIOD TYPICALLY BEGINS IN EARLY NOVEMBER AND ENDS IN MID APRIL. IF A CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE , 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS TO OCCUR DURING THE FOLLOWING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. AN AREA SHALL BE CONSIDERED DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN THE ROADWAY AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. A COVER OF EROSION CONTROL MIX IS THE PREFERRED TEMPORARY MULCH DURING WINTER CONDITIONS.

1. NATURAL RESOURCE PROTECTION:
ANY AREAS WITHIN 75 FEET FROM ANY REGULATED NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION COVER, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH A PLASTIC NETTING OR PROTECTED WITH AN EROSION CONTROL COVER. DURING WINTER CONSTRUCTION, A DOUBLE ROW OF SEDIMENT BARRIERS (FOR EXAMPLE, SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) WILL BE PLACED BETWEEN ANY REGULATED NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE REGULATED NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

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.

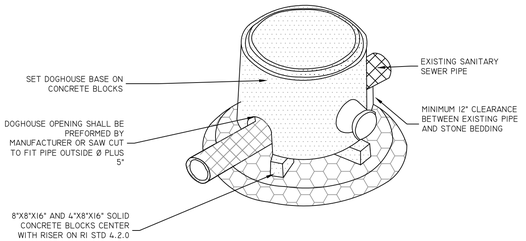
3. MULCHING:
ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 3 TONS PER ACRE (TWICE THE NORMAL ACCEPTED RATE) AND SHALL BE PROPERLY ANCHORED. EROSION CONTROL MIX MUST BE APPLIED WITH A MINIMUM 4 INCHES THICKNESS. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. SNOW MUST BE REMOVED DOWN TO THE ONE-INCH DEPTH PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA WILL BE PROPERTY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED OR ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER MULCH NETTING, ASPHALT EMULSION CHEMICAL, TRACKING OR WOOD CELLULOSE FIBER. THE COVER WILL BE CONSIDERED SUFFICIENT WITH THE GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL EXPOSED SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

4. 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 FOUR-INCH LAYER OF EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STACKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED WITHIN 100 FEET FROM ANY REGULATED NATURAL RESOURCE.

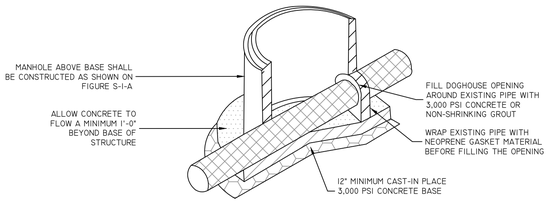
5. SEEDING:
BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1 AND IF THE EXPOSED AREA HAS BEEN LOOSENED, FINE GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. IF DORMANT SEEDING IS USED, ALL DISTURBED AREAS SHALL RECEIVE 4 INCHES OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS PER 1,000 S.F. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75%) IN THE SPRING SHALL BE RE-VEGETATED.

6. OVER-WINTER STABILIZATION OF DITCHES AND CHANNELS:
ALL STONE-LINED DITCHES AND CHANNELS MUST BE CONSTRUCTED BY NOVEMBER 1. ALL GRASS-LINED DITCHES AND CHANNELS MUST BE INSTALLED AND STABILIZED BY SEPTEMBER 1. IF A GRASS-LINED DITCH OR CHANNEL IS STABILIZED BY SEPTEMBER 1, THEN EITHER A SOD LINING SHALL BE INSTALLED PRIOR TO OCTOBER 1 OR THE DITCH MUST BE LINED WITH STONE RIPRAP BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE PRIOR TO NOVEMBER 1.

7. OVER-WINTER STABILIZATION OF DISTURBED SLOPES:
ALL STONE-COVERED SLOPES MUST BE CONSTRUCTED AND STABILIZED BY NOVEMBER 15. ALL SLOPES TO BE VEGETATED MUST BE SEEDED AND MULCHED BY SEPTEMBER 1. ALL AREAS HAVING A GRADE STEEPER THAN 8% SHALL BE CONSIDERED A SLOPE. IF A SLOPE TO BE VEGETATED IS NOT STABILIZED BY SEPTEMBER 1, THEN



DOGHOUSE MANHOLE BASE

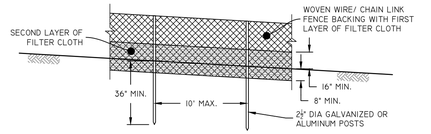


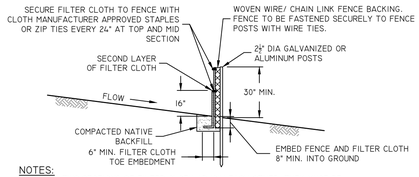
FOUNDATION SECTION VIEW

NOTES:
1. CONSTRUCT A FORMED INVERT FROM NEW SEWER LINE TO ALLOW FLOW TO THE EXISTING PIPE.
2. POUR A SHELF TO THE LOWER HALF OF THE EXISTING PIPE.
3. CUT AND REMOVE THE TOP HALF OF EXISTING PIPE TO WITHIN 6" OF THE MANHOLE WALLS AFTER THE INVERT AND SHELF HAVE BEEN FORMED AND THE MANHOLE HAS BEEN FULLY TESTED IN ACCORDANCE WITH THE SEWER AUTHORITY SPECIFICATIONS.

TYPICAL MANHOLE BASE (DOGHOUSE INSTALLATION)

NOT TO SCALE

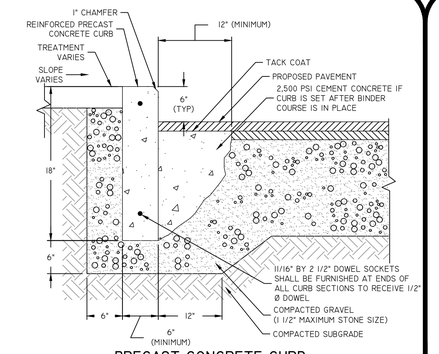




NOTES:
1. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY MUST BE OVERLAPPED BY A MINIMUM OF 6" AND FOLDED.
2. FILTER CLOTH TO BE MIRAFI 100 OR APPROVED EQUAL

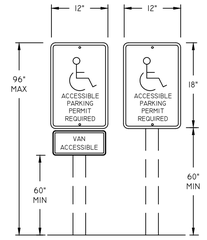
CLASS C SILT FENCE

NOT TO SCALE



PRECAST CONCRETE CURB

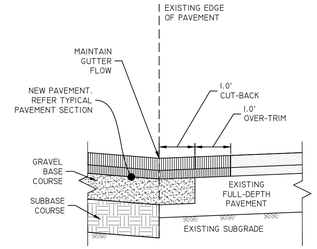
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NOTES:
1. SIGN MUST BE PLACED BEHIND APPLICABLE VAN ACCESSIBLE OR ACCESSIBLE SPACE AS SHOWN ON SITE PLAN.
2. ACCESSIBLE PARKING SPACES AND SIGNAGE MUST COMPLY WITH LATEST VERSION OF THE ADA STANDARDS FOR ACCESSIBLE DESIGN, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) OR THE APPLICABLE STATE/ MUNICIPAL BUILDING CODE, WHICHEVER STANDARD CONTROLS.
3. THE MAXIMUM HEIGHT OF THE TOP OF THE HIGHEST SIGN SHALL BE 96".
4. THE MINIMUM HEIGHT OF THE BOTTOM OF THE LOWEST SIGN SHALL BE 60".
5. THE ABOVE NOTES APPLY REGARDLESS OF ADA SIGN MOUNTING TYPE (I.E. POLE MOUNTED, BOLLARD MOUNTED, WALL MOUNTED ETC)

TYPICAL ACCESSIBLE PARKING SIGN

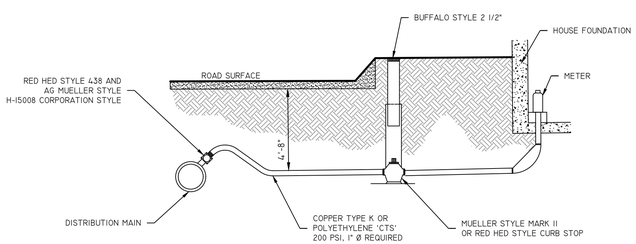
NOT TO SCALE



PRIME COAT VERTICAL FACE OF SAWCUT PRIOR TO INSTALLATION OF NEW PAVEMENT LAYERS.

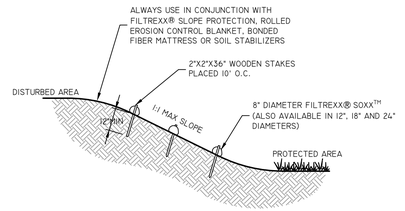
PAVEMENT TIE-IN DETAIL

NOT TO SCALE

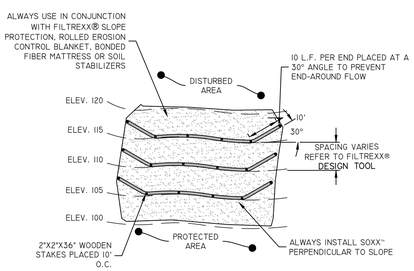


WATER SERVICE INSTALLATION (TYP)

NOT TO SCALE



SECTION



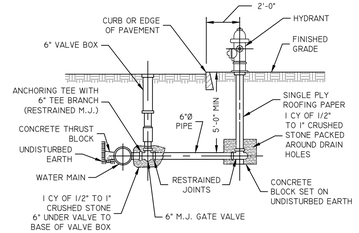
PLAN

NOTES:
1. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF THE SOXX™ WHEN ACCUMULATION HAS REACHED 1/2 OF EFFECTIVE HEIGHT OF SOXX™.
2. LOOSE FILTER MEDIA MAY BE BACKFILLED ON THE UPSLOPE SIDE OF THE SOXX™ TO ENHANCE PERFORMANCE.

FILTREXX SLOPE INTERRUPTION (OR APPROVED EQUAL)

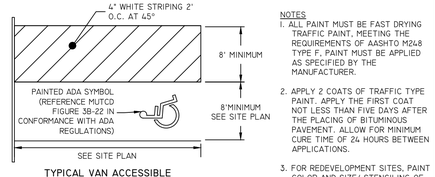
NOT TO SCALE

NOTES:
1. INSTALLATION SHALL NOT OBSTRUCT SIDEWALK TO PEDESTRIAN OR PHYSICALLY IMPAIRED.
2. REMOVAL OF EXISTING HYDRANT MAY REQUIRE ADDITIONAL RESTRAINT DESIGNED BY A PROFESSIONAL ENGINEER.
3. MECHANICAL JOINT PIPE WITH RESTRAINED JOINTS FOR BRANCHES OVER ONE LENGTH OF PIPE.
4. HYDRANT AND HYDRANT INSTALLATION MUST COMPLY WITH THE CITY OF AUBURN FIRE DEPARTMENT, MUNICIPALITY WATER & SEWER AUTHORITY AND ANY APPLICABLE AUTHORITY HAVING JURISDICTION INCLUDING, (BUT NOT LIMITED TO) MATERIALS, DIMENSIONS AND ACCESS COVER.

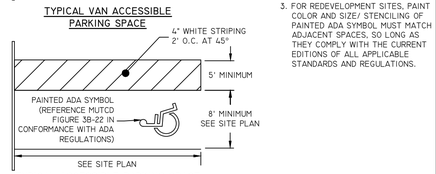


HYDRANT

NOT TO SCALE



TYPICAL VAN ACCESSIBLE PARKING SPACE



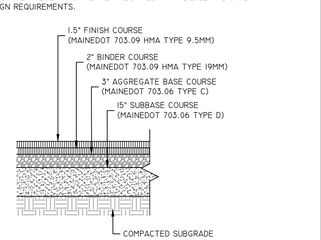
TYPICAL ACCESSIBLE PARKING SPACE

NOTES
1. ALL PAINT MUST BE FAST DRYING TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M248 TYPE F, PAINT MUST BE APPLIED AS SPECIFIED BY THE MANUFACTURER.
2. APPLY 2 COATS OF TRAFFIC TYPE PAINT. APPLY THE FIRST COAT NOT LESS THAN FIVE DAYS AFTER THE PLACING OF BITUMINOUS PAVEMENT. ALLOW FOR MINIMUM CURE TIME OF 24 HOURS BETWEEN APPLICATIONS.
3. FOR REDEVELOPMENT SITES, PAINT COLOR AND SIZE/ STENCILING OF PAINTED ADA SYMBOL MUST MATCH ADJACENT SPACES, SO LONG AS THEY COMPLY WITH THE CURRENT EDITIONS OF ALL APPLICABLE STANDARDS AND REGULATIONS.

TYPICAL ACCESSIBLE PARKING SPACES

NOT TO SCALE

NOTE:
1. THIS PAVEMENT SECTION DETAIL REFLECTS ASSUMED MINIMUM REQUIREMENTS BASED ON FINALIZED GEOTECHNICAL DATA BY GZA GEOENVIRONMENTAL, INC DATED FEBRUARY 3, 2022, GEOTECHNICAL RESPONSE TO RFI'S PROPOSED RESIDENTIAL APARTMENTS BY GZA GEOENVIRONMENTL INC, DATED MAY 9, 2022 AND DAILY TRAFFIC DESIGN REQUIREMENTS.

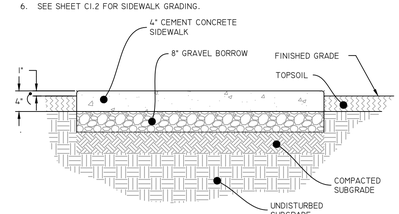


STANDARD PAVING (CAR TRAFFIC)

TYPICAL PAVEMENT SECTION

NOT TO SCALE

NOTES:
1. SURFACE TEXTURE SHALL BE A LIGHT BROOMING, TRANSVERSE TO THE LENGTH OF THE WALK. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE, FREE OF SAGS AND SHORT GRADE CHANGES.
2. CONTRACTION JOINTS SHALL BE SPACED EQUAL TO THE WIDTH BUT SHALL NOT EXCEED 6' WITHOUT REINFORCING.
3. EXPANSION JOINTS SHALL BE SPACED AT A MINIMUM OF 25' OR WHEN ABUTTING A FIXED OBJECT.
4. SUBGRADE MATERIAL IS TO BE FREE OF ALL ORGANICS.
5. MATERIALS USED SHALL BE IN ACCORDANCE WITH THE R.I. STANDARD SPECIFICATION.
6. SEE SHEET C1.2 FOR SIDEWALK GRADING.



TYPICAL SIDEWALK/SLAB CONSTRUCTION (AS SPECIFIED ON PLANS)

NOT TO SCALE

DiPrete Engineering
Engineers · Planners · Surveyors
www.diprete-eng.com
Two Stafford Court, Cranston, RI 02920 · Tel 401-943-1000

STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

THIS PLAN SET IS NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY A MAINE LICENSED PROFESSIONAL ENGINEER (PE).

DIPRETE ENGINEERING ONLY WARRANTS PLANS ON A DIPRETE ENGINEERING TITLE BLOCK STAMPED BY REGISTERED PROFESSIONAL ENGINEER. DIPRETE ENGINEERING DOES NOT WARRANT PLANS BY ANY OTHER PARTY.

THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND SAFETY CONFORMANCE IN THE IMPLEMENTATION OF THIS PLAN AND OSHA REGULATIONS.

DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF EXISTING UTILITIES SHOWN ON THIS PLAN. ONLY DIPRETE ENGINEERING ASSURES NO RESPONSIBILITY FOR EXISTING UTILITIES BLOCK STAMPED BY REGISTERED PROFESSIONAL ENGINEER. SEE UTILITY NOTE ON SHEET 4.

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

DETAIL SHEET - 2

STETSON ROAD

PARCEL ID 29I-011
AUBURN, MAINE

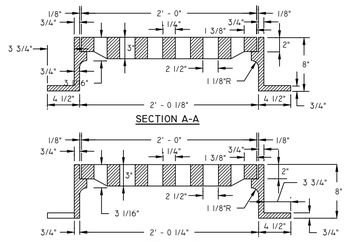
PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 18 OF 22

DE JOB NO. 2425-332 COPYRIGHT 2024 BY DIPRETE ENGINEERING ASSOCIATES, INC.

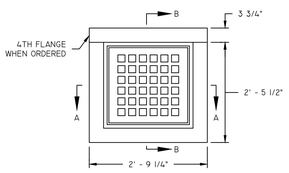
Z:\DEPAIN\PROJECTS\2425-332 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2425-332-PLAN.DWG Plotted: 2/25/2025

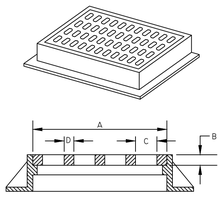
NOTE:
FRAME AND GRATE SHALL CONFORM TO THE APPLICABLE SECTION OF THE MAINE STANDARD SPECIFICATIONS.



SQUARE FRAME AND GRATE

NOT TO SCALE





CAT. NO.	A	B	C	D	WT. (LBS)
R-4853-A	24"x45"	3"	1 1/2"x 6 1/4"	1 1/4"	520

DOUBLE FRAME & GRATE
NEENAH FOUNDRY CORP. (OR EQUAL)

NOT TO SCALE

A. LATERAL PLACEMENT OF SEWERS AND WATER MAINS

SEWERS SHALL BE LAID AT LEAST 10' HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED OUTSIDE EDGE-TO-OUTSIDE EDGE. THERE IS NO MINIMUM VERTICAL SEPARATION REQUIRED PROVIDED THE 10' HORIZONTAL SEPARATION IS MAINTAINED. STRUCTURES, OTHER THAN PIPELINES OR CONDUITS, THROUGH WHICH SANITARY WASTEWATER FLOWS SUCH AS, BUT NOT LIMITED TO, MANHOLES, VALVE VAULTS, METER PITS AND PUMP STATION WET WELLS SHALL ALSO BE CONSTRUCTED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER LINE, MEASURED EDGE-TO-EDGE.

IN CASES WHERE IT IS NOT POSSIBLE TO MAINTAIN A 10' HORIZONTAL SEPARATION, THE AUTHORITY HAVING JURISDICTION, MAY ALLOW DEVIATION ON A CASE BY CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION MAY ALLOW INSTALLATION OF THE SEWER CLOSER TO A WATER MAIN, PROVIDED THAT:

1. THE SEWER AND WATER MAIN ARE LAID IN SEPARATE TRENCHES, OR
2. THE SEWER AND WATER MAIN MAY BE INSTALLED IN THE SAME TRENCH WITH THE WATER MAIN PLACED ON A BENCH OF UNDISTURBED EARTH, AND
3. IN EITHER CASE, THE CROWN OF THE SEWER SHALL BE AT LEAST 18" BELOW THE INVERT OF THE WATER MAIN.

IN SITUATIONS WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, THE FOLLOWING PROTECTION SHALL BE PROVIDED:

1. ENCASEMENT OF THE SEWER PIPE IN CONCRETE (MINIMUM 6" THICKNESS) OR A CARRIER PIPE FOR AT LEAST 10' EITHER SIDE OF THE AREA NOT COMPLYING WITH THE MINIMUM HORIZONTAL AND VERTICAL SEPARATION, OR
2. DESIGN AND CONSTRUCTION OF THE SEWER EQUAL TO WATER MAIN PIPE (CEMENT-LINED DUCTILE IRON OR OTHER AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE), AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS.
3. IN INSTANCES OF CONFLICT WITH SANITARY WASTEWATER STRUCTURES MENTIONED ABOVE, RELOCATE THE WATER LINE TO ACHIEVE EITHER A 10 FOOT HORIZONTAL OR 18 INCH VERTICAL SEPARATION.

B. SEWERS CROSSING WATER MAINS

SEWERS CROSSING OVER WATER MAINS SHOULD BE AVOIDED, BUT IF CONDITIONS WARRANT THIS SITUATION, THEN ADEQUATE STRUCTURAL SUPPORT SHALL BE PROVIDED FOR THE SEWER TO MAINTAIN LINE AND GRADE. SEWERS CROSSING UNDER WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION OF 18" BETWEEN THE INVERT OF THE WATER MAIN AND THE CROWN OF THE SEWER. RELOCATION OF AN EXISTING WATER LINE MAY BE NECESSARY TO ACHIEVE THIS VERTICAL SEPARATION. RELOCATED WATER LINES SHALL BE CONSTRUCTED OF AN AWWA-APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE AND DESIGNED FOR THE REQUIRED WATER SERVICE PRESSURE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE SEWER. THE CROSSING SHALL BE ARRANGED SO THAT SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.

WHERE CONDITIONS PREVENT AN 18" VERTICAL SEPARATION FROM BEING MAINTAINED, THE FOLLOWING METHODS SHALL BE SPECIFIED:

A. THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER MAIN PIPE (CEMENT-LINED DUCTILE IRON PIPE, PVC OR OTHER AWWA APPROVED MATERIAL FOR POTABLE WATER CONVEYANCE) FOR A DISTANCE OF 12' ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN AND PRESSURE TESTED IN ACCORDANCE WITH AWWA SPECIFICATIONS, OR

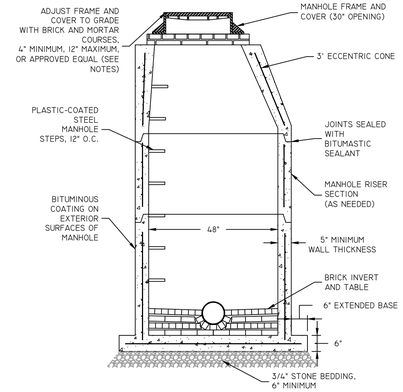
B. EITHER THE WATER MAIN OR THE SEWER MAY BE ENCASED IN CONCRETE (MINIMUM 6" THICKNESS) OR A CARRIER PIPE FOR A DISTANCE OF 12' ON EACH SIDE OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN. THE CARRIER PIPE SHALL BE DESIGNED AND CONSTRUCTED OF MATERIALS WHICH ARE SATISFACTORY TO THE AUTHORITY HAVING JURISDICTION, OR

C. ANY OTHER METHODS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER, WHICH ENSURE ADEQUATE WATER TIGHTNESS AND ARE SATISFACTORY TO THE AUTHORITY HAVING JURISDICTION.

WATER LINES ARE DEFINED AS ANY CONDUITS OR PIPELINES THAT CONVEY POTABLE WATER.

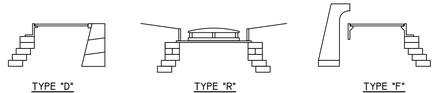
SEWER LINE/WATER MAIN SEPARATION POLICY FOR DESIGN OF SANITARY SEWERS

NOTES:
1. MANHOLE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM-C478.
2. INVERT AND TABLE SHALL CONSIST ENTIRELY OF BRICK AND MORTAR. NO SAND FILLER SHALL BE ALLOWED.
3. MANHOLES SHALL BE VACUUM TESTED PRIOR TO ACCEPTANCE, IN ACCORDANCE WITH THE SEWER AUTHORITY SANITARY RULES AND REGULATIONS. UNDER NO CIRCUMSTANCES WILL EXFILTRATION TESTING BE ACCEPTED.
4. TAPPING OF MANHOLES MUST BE AUTHORIZED AND INSPECTED BY THE SEWER AUTHORITY. THE ONLY APPROVED METHOD FOR TAPPING MANHOLES SHALL BE BY CORE-DRILLING THE MANHOLE AND INSTALLING A "KOR-N-SEAL" BOOT.
5. PRECAST CONCRETE GRADE RINGS, HDPE GRADE RINGS, OR OTHER RIM ADJUSTMENT PRODUCTS MAY BE USED IN LIEU OF BRICK AND MORTAR WITH THE PERMISSION OF THE SEWER AUTHORITY.



SEWER MANHOLE

NOT TO SCALE



TYPE "D" TYPE "R" TYPE "F"

TYPE CATCH BASIN AS REQUIRED

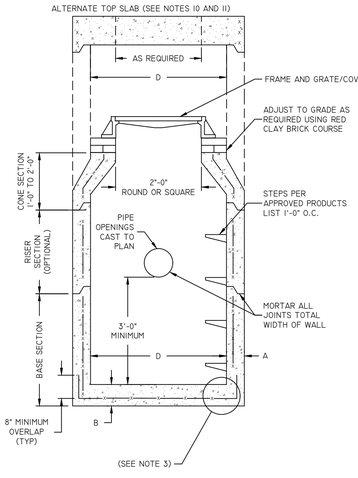


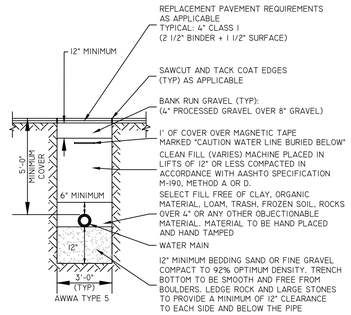
TABLE I			
CATCH BASIN DIAMETER (D)	A	B	CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED*
4'-0"	5"	6"	0.12 SQ. IN./LIN. FT.
5'-0"	6"	7"	0.15 SQ. IN./LIN. FT.
6'-0"	7"	8"	0.18 SQ. IN./LIN. FT.

* FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2

NOTES:
1. SHALL BE IN ACCORDANCE WITH THE APPLICABLE SECTION OF THE MAINE STANDARD SPECIFICATIONS.
2. SEE TABLE I FOR STEEL REINFORCEMENT REQUIREMENTS.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQUARE INCH/LIN. FOOT (BOTH WAYS).
4. STEPS SHALL CONFORM TO MAINE STANDARDS AND SHALL BE INSTALLED AT THE CASTING PLANT.
5. ONE POUR MONOLITHIC BASE SECTION.
6. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAWCUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
7. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE 4'-0" CATCH BASIN ONLY.
8. FOR CATCH BASIN TYPES "D" AND "F" STEPS MUST BE INSTALLED ON THE CURB SIDE OF THE STRUCTURE.
9. THE CENTERLINE OF THE OPENING MUST BE WITHIN 2'-0" FROM THE STEPS.
10. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING.
11. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.

PRECAST ROUND CATCH BASIN

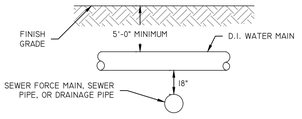
NOT TO SCALE



WATER TRENCH DETAIL

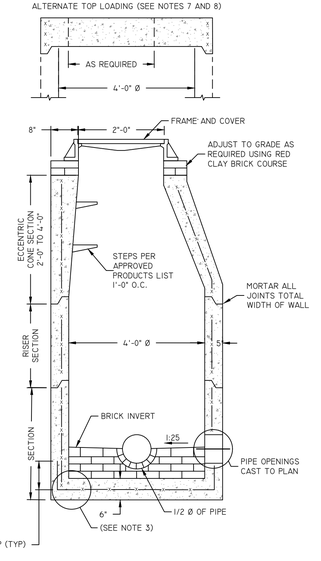
NOT TO SCALE

NOTES:
1. THE VERTICAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHOULD BE A MINIMUM OF 18".
2. THE HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND THE PROPOSED UTILITY SHALL BE A MINIMUM OF 10'.
3. IF 1 OR 2 CAN NOT BE MAINTAINED THE PROPOSED UTILITY IS TO BE ENCASED IN CONCRETE 12' ON EITHER SIDE OF THE CROSSING.



UTILITY SEPARATION

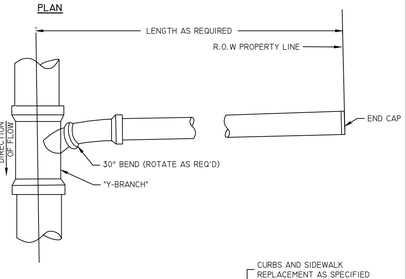
NOT TO SCALE

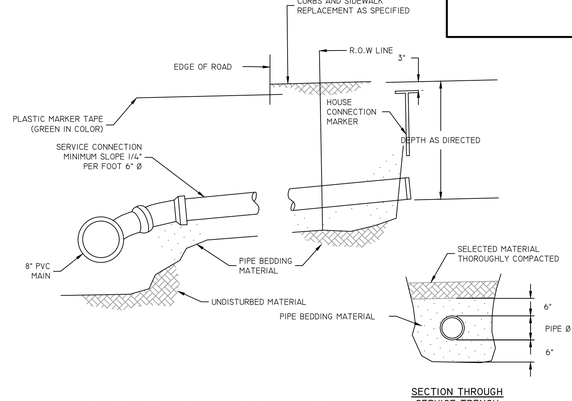


NOTES:
1. SHALL BE IN ACCORDANCE WITH APPLICABLE SECTION OF MAINE STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT REQUIRED = 0.12 SQUARE INCH/LIN. FOOT MINIMUM.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQUARE INCH/LIN. FOOT (BOTH WAYS).
4. ONE POUR MONOLITHIC BASE SECTION.
5. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAWCUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
6. STEPS SHALL CONFORM TO MAINE STANDARDS AND SHALL BE INSTALLED AT THE CASTING PLANT.
7. ALTERNATE TOP SLAB IS STEEL REINFORCED TO MEET OR EXCEED H-25 LOADING.
8. ALTERNATE TOP SLAB IS ONLY FOR USE WHEN REDUCING SECTION DOES NOT FIT BECAUSE OF STRUCTURE DEPTH.

PRECAST 4'-0" ROUND MANHOLE

NOT TO SCALE

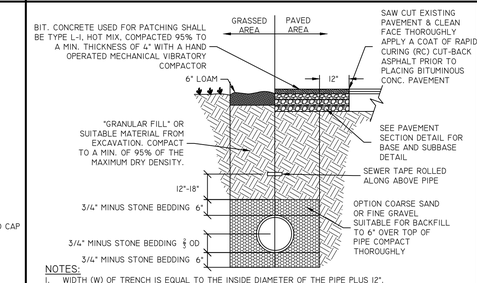




SEWER SERVICE CONNECTION DETAIL

NOT TO SCALE

SECTION THROUGH SERVICE TRENCH



NOTES:
1. WIDTH (W) OF TRENCH IS EQUAL TO THE INSIDE DIAMETER OF THE PIPE PLUS 12".
2. SOIL UNDER CRUSHED STONE FOUNDATION SHALL BE UNDISTURBED AND COMPACTED MATERIAL WITH SEVERAL PASSES OF A VIBRATORY PLATE COMPACTOR.
3. STONE FOUNDATION ¾" MINUS SHALL BE PLACED 6" UNDER THE PIPE AND UP TO THE PIPE LAID THEREON. STONE PULLED AGAINST THE PIPE SIDES TO FIRMLY HOLD THE PIPE IN PLACE.
4. ¾" MINUS SHALL BE BROUGHT LEVEL TO THE TOP OF THE PIPE AND OUT TO THE TRENCH WALL AT THIS ELEVATION FOR ALL PIPE.
5. IF ¾" CRUSHED OR WASHED STONE IS USED IN LIEU OF ¾" MINUS, STONE BEDDING MUST BE WRAPPED IN NON WOVEN FILTER FABRIC.

SEWER TRENCH DETAIL

NOT TO SCALE

INSTALLATION NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS, LATEST ADDITION.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100MM) FOR 4"-24" (100MM-600MM); 6" (150MM) FOR 30"-60" (750MM-900MM).
5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" Ø PIPE AND 24" OF COVER FOR 60" Ø PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. FOR TRAFFIC APPLICATIONS WITH LESS THAN FOUR FEET OF COVER, EMBEDMENT OF THE PIPE SHALL BE USING ONLY A CLASS I OR CLASS II BACKFILL.

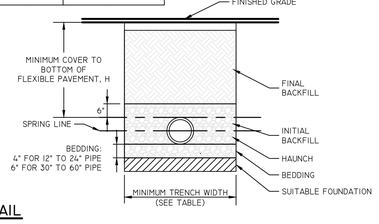
MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS**

	SURFACE LIVE LOADING CONDITION	
PIPE Ø	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD)
12" - 48"	12"	48"
60"	24"	60"

*VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER.
**SEE BACKFILL REQUIREMENTS IN NOTE 6.

PIPE Ø	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"

PIPE Ø	MIN. TRENCH WIDTH
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
60"	96"



HDPE TRENCH DETAIL

NOT TO SCALE

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THE STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

THIS PLAN SET PROVIDED "AS IS" FOR CONSTRUCTION PURPOSES ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY A MAINE REGISTERED PROFESSIONAL ENGINEER OF DIPRETE ENGINEERING.

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NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

DETAIL SHEET - 3

STETSON ROAD

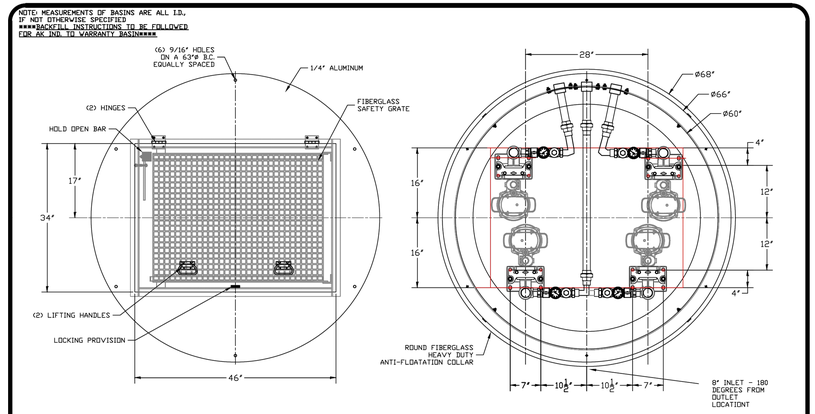
PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350.
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 19 OF 22

Z:\DEPAIN\PROJECTS\2625-032 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2625-032-PLAN.DWG PLOTTED: 2/25/2025

DP JOB NO. 2625-032 COPYRIGHT 2024 BY DIPRETE ENGINEERING ASSOCIATES, INC.



DRAWN FOR: F.R. MAHONY & ASSOCIATES, INC.	PO# –––	DISCONNECTS: 1 1/4" AK125CB	SHEET 2 OF 2 — Revision 0
	QUOTE # –––	PUMPS: E-ONE	*"THE BEST AROUND UNDERGROUND"*
JOB REFERENCE / Notes: QUAD – DIPRETE ME	BASIN DESCRIPTION: 60 X 144–300	DRAWN BY: A.HARTUNG — DATE: 11/23/20	PH: (574)-936-6022 FX: (574)-936-5811 WWW.AKINDUSTRIES.COM
	COVER DESCRIPTION: 1/4" ALUMINUM HDC W/ SAFETY GRATE	CHECKED BY: — DATE CHECKED:	

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

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EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGE TO EXISTING UTILITIES NOT SHOWN OR IN LOCATIONS OF EXISTING UTILITIES DIFFERENT FROM THOSE SHOWN. SEE "UTILITY NOTE" ON SHEET 3.

NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. — J.M.F.

DETAIL SHEET - 4

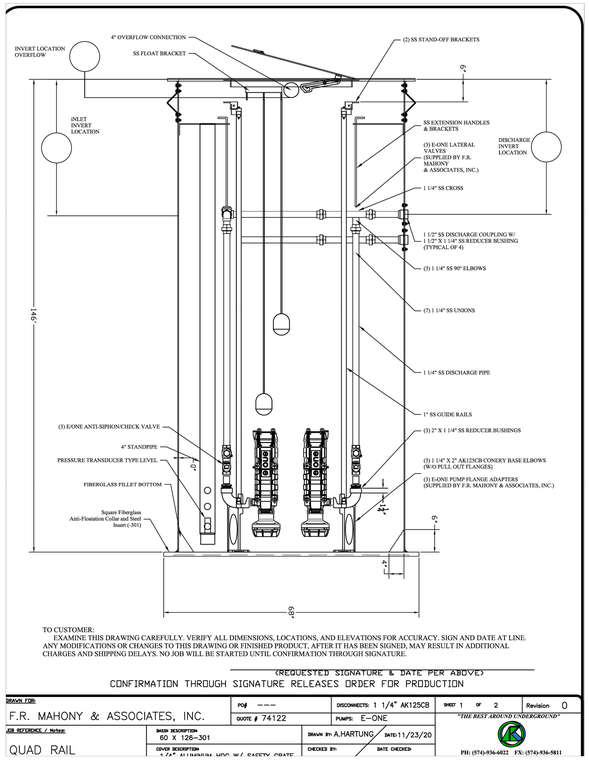
STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 20 OF 22

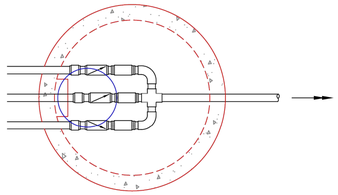
DR. JOB NO. 2425-032 COPYRIGHT 2004 BY DIPRETE ENGINEERING ASSOCIATES, INC.



TO CUSTOMER:
EXAMINE THIS DRAWING CAREFULLY. VERIFY ALL DIMENSIONS, LOCATIONS, AND ELEVATIONS FOR ACCURACY. SIGN AND DATE AT LINE. ANY MODIFICATIONS OR CHANGES TO THIS DRAWING OR FINISHED PRODUCT, AFTER IT HAS BEEN SIGNED, MAY RESULT IN ADDITIONAL CHARGES AND SHIPPING DELAYS. NO JOB WILL BE STARTED UNTIL CONFIRMATION THROUGH SIGNATURE.

(REQUESTED SIGNATURE & DATE PER ABOVE)
CONFIRMATION THROUGH SIGNATURE RELEASES ORDER FOR PRODUCTION

DRAWN FOR: F.R. MAHONY & ASSOCIATES, INC.	PO# –––	DISCONNECTS: 1 1/4" AK125CB	SHEET 1 OF 2 — Revision 0
	QUOTE # 74122	PUMPS: E-ONE	*"THE BEST AROUND UNDERGROUND"*
JOB REFERENCE / Notes: QUAD RAIL	BASIN DESCRIPTION: 60 X 126–301	DRAWN BY: A.HARTUNG — DATE: 11/23/20	PH: (574)-936-6022 FX: (574)-936-5811
	COVER DESCRIPTION: 1/4" ALUMINUM HDC W/ SAFETY GRATE	CHECKED BY: — DATE CHECKED:	



Plan View

FRMA EOne QUAD/TRI
Pump Chamber and
Valve Pit

Scale: NTS	Drawn By: MTS	Job No.
Date: 2/23/25	App'd By: PBP	Plan No. ConcretePmp_wvPlan

FRMAHONY & associates, Inc.
Water Supply & Pollution Control Equipment
273 Weymouth Street, Rockland, Massachusetts 02370

Z:\DEPAIN\PROJECTS\2425-032 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2425-032-PLAN.DWG Plotted: 2/25/2025

PLANTING NOTES:

1. CONTRACTOR TO VERIFY ALL UTILITY LOCATIONS BY NOTIFYING DIG-SAFE (811) AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION OR SITE PREPARATION AND ANY/OR ALL LOCAL UTILITY COMPANIES AS REQUIRED.
2. ALL WORK MUST BE PERFORMED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS BY THE CONTRACTOR. CONTRACTOR MUST OBTAIN ALL NECESSARY PERMITS FOR THIS PROJECT.
3. CONTRACTOR TO PROVIDE A ONE (1) YEAR GUARANTEE FOR ALL MATERIALS. CONTRACTOR GUARANTEES THAT PLANTS WILL REMAIN HEALTHY FOR ONE (1) GROWING SEASON. CONTRACTOR TO MAINTAIN ALL PLANTING AND LAWNS UNTIL FINAL PROJECT ACCEPTANCE. GUARANTEE PERIOD TO COMMENCE AT FINAL ACCEPTANCE. ANY REPLACEMENT PLANTS SHALL BE OF THE SAME SIZE AND SPECIES AS SPECIFIED WITH NEW GUARANTEE COMMENCING ON THE DATE OF REPLACEMENT.
4. ALL PLANT MATERIAL MUST CONFORM, IN ALL RESPECTS, TO THE GUIDELINES OF "THE AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION, INC. ALL PLANTS SHALL BE NURSERY GROWN AND SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR AT LEAST TWO (2) YEARS.
5. COMPATIBLE PLANT SUBSTITUTIONS ARE PERMITTED TO ACCOMMODATE AVAILABILITY AND SEASONAL VARIATIONS. PLANT SUBSTITUTION SELECTION MUST BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
6. ALL PLANTS TO BE PLANTED SO THAT AFTER SETTLEMENT THEY BEAR THE SAME RELATION TO THE SURROUNDING GROUND AS TO THEIR ORIGINAL GRADE BEFORE DIGGING.
7. CREATE SAUCER AROUND INDIVIDUAL PLANTS CAPABLE OF HOLDING WATER. ALL PLANTS TO BE FLOODED WITH CLEAN WATER TWICE WITHIN THE FIRST 24 HOURS OF PLANTING. ADDITIONAL WATERING MUST BE MADE AS REQUIRED TO KEEP PLANTS FROM WILTING AND DRYING OUT UNTIL FINAL ACCEPTANCE.
8. ALL PLANTS TO RECEIVE MULCH AS SPECIFIED IN THE LANDSCAPE PLANTING DETAILS AND MUST COVER PLANTING BEDS AS SHOWN ON DRAWINGS WITHIN 72 HOURS AFTER PLANTING.
9. TRIM BROKEN AND DEAD BRANCHES FROM TREES AND SHRUBS AFTER PLANTING. NEVER CUT A LEADER.
10. ALL LANDSCAPED AREAS MUST BE KEPT FREE OF WEEDS AND DEBRIS. ALL VEGETATION WITHIN SAID AREAS MUST BE MAINTAINED FREE OF PHYSICAL DAMAGE CAUSED BY CHEMICALS, INSECTS, DISEASES, LACK OF WATER OR OTHER CAUSES. DAMAGED PLANTS SHALL BE REPLACED WITH THE SAME OR SIMILAR VEGETATION ON AN ANNUAL BASIS.
11. LOAM MOVED ON SITE TO BE STOCKPILED AND RETAINED AND TO BE USED AS REQUIRED FOR THE LANDSCAPE DESIGN. LOAM MUST NOT BE MIXED WITH ANY UNSUITABLE MATERIALS OR SUBSOIL. EXCESS LOAM TO REMAIN ON THE OWNER'S PROPERTY AND ONLY REMOVED WITH THE OWNERS PERMISSION. NEW LOAM SHALL BE FRIABLE, FERTILE, MEDIUM TEXTURED SANDY LOAM THAT IS FREE OF TOXIC MATERIALS TO HEALTHY PLANT GROWTH AND SURVIVAL. LOAM SHALL BE FREE OF MATTER 1" OR GREATER IN DIAMETER AND WHEN TESTED SHALL HAVE A PH BETWEEN 5.5 AND 7.5. CONTRACTOR TO PROVIDE 6 INCHES OF GOOD QUALITY, LOAM AND/OR REUSE EXISTING LOAM TO PROVIDE A MINIMUM 6 INCH DEPTH OR AS STATE AND LOCAL REGULATIONS REQUIRE.
12. NY ADDITIONAL DISTURBED AREA DURING CONSTRUCTION MUST BE LOAM AND SEEDED BY THE CONTRACTOR BEFORE COMPLETION OF THE PROJECT.
13. IRRIGATION DESIGN, INSTALLATION AND MAINTENANCE BY OTHERS OR AS DIRECTED BY OWNER.
14. LIGHTING PHOTOMETRICS/DESIGN BY OTHERS.
15. THESE PLANS ARE FOR LANDSCAPE PLANTING ONLY.
16. THESE PLANS ARE NOT FOR CONSTRUCTION AND ARE FOR PERMITTING PURPOSES ONLY.

AUBURN, ME ZONING

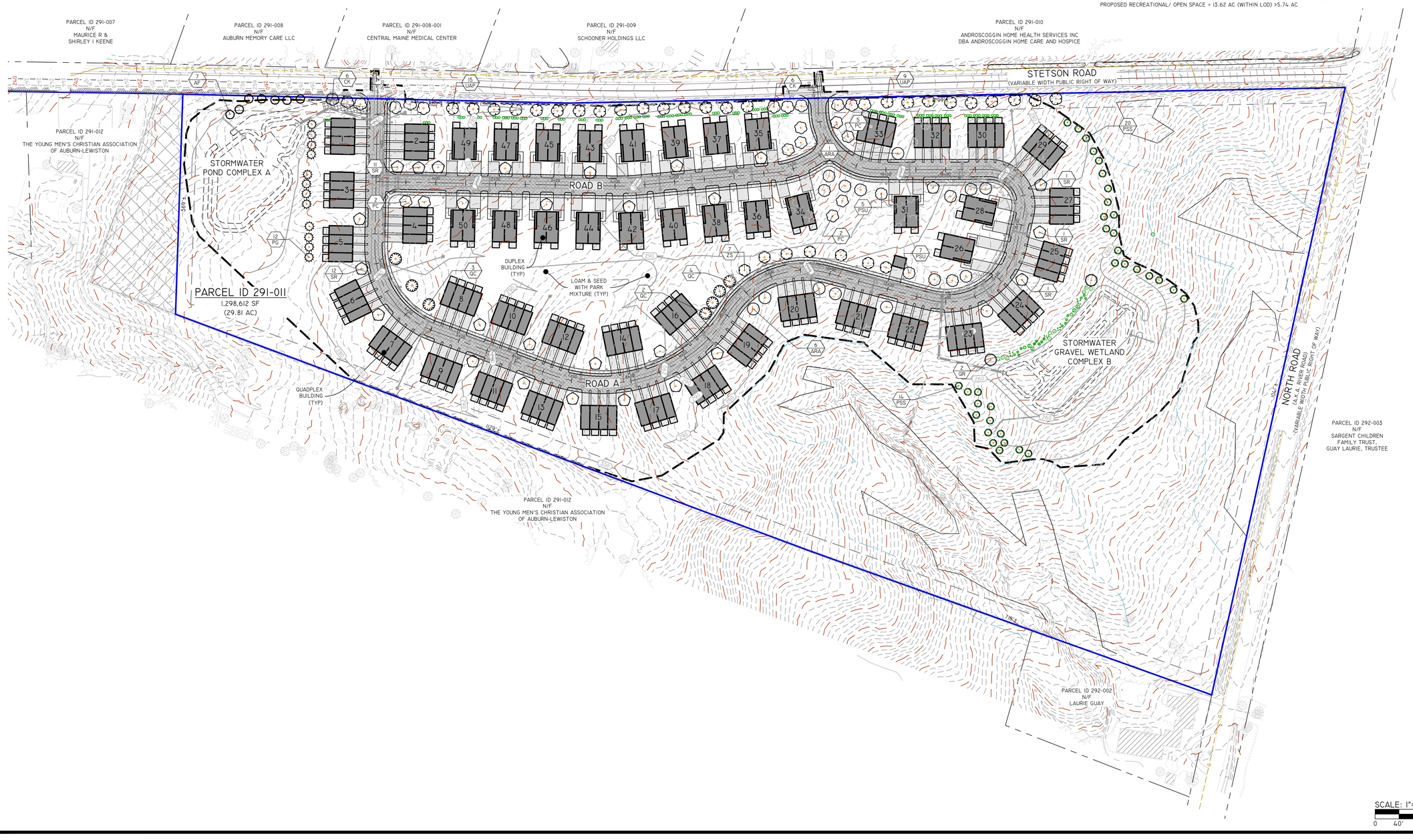
3.44 MULTI-FAMILY SUBURBAN (MFS)
A. PURPOSE – THIS DISTRICT IS INTENDED TO STABILIZE AND PROTECT MEDIUM TO HIGH DENSITY RESIDENTIAL AREAS BY PROVIDING FOR A VARIED DENSER URBAN PATTERN MADE SUITABLE TO THE NEEDS OF THE POPULATION BY ENCOURAGING A RANGE OF DWELLING TYPES. THIS MULTI-FAMILY ZONE HAS A MAXIMUM DENSITY OF 17 DWELLING UNITS PER ACRE, YET RETAINS THE OPEN CHARACTER OF RESIDENTIAL AREAS BY REQUIRING 50 PERCENT GREEN SPACE. IT IS INTENDED THAT THIS DISTRICT WILL PROVIDE THE MAXIMUM POSSIBLE FREEDOM IN THE DESIGN OF STRUCTURES AND THEIR GROUPING AND WILL ENCOURAGE FLEXIBLE AND IMAGINATIVE LAYOUTS AND DESIGNS.

GREEN SPACE CALCULATION
TOTAL SITE AREA = 29.81 ACRES (OVERALL PROPERTY LINE)
TOTAL IMPERVIOUS AREA = 6.38 ACRES
29.81 - 6.38 = 23.43 ACRES GREEN SPACE
23.43/ 29.81 = 78.6% GREEN SPACE >50%

TOTAL LOD AREA = 20.00 ACRES
TOTAL IMPERVIOUS AREA = 6.38 ACRES
20.00 - 6.38 = 13.62 ACRES GREEN SPACE
13.62/ 20.00 = 68.1% GREEN SPACE >50%

7.3 SUBDIVISION
I. RECREATION AREA/OPEN SPACE STANDARDS
1. EVERY DEVELOPER OF A RESIDENTIAL SUBDIVISION SHALL INCLUDE AS PART OF A SUBDIVISION PROPOSAL A PROVISION FOR RECREATIONAL AND OPEN SPACE WHICH IS ADEQUATE TO MEET THE REASONABLY FORESEEABLE NEEDS OF THE RESIDENTS OF THE SUBDIVISION.
THE STANDARD ESTABLISHED BY THE CITY TO SATISFY THIS PURPOSE IS AN AREA OF NOT LESS THAN 43,560 CONTIGUOUS SQUARE FEET OR ONE (1) ACRE OF LAND FOR THE FIRST TEN (10) LOTS OR UNITS. THE AMOUNT OF LAND REQUIRED IS INCREASED AT A RATE OF 5,000 SQUARE FEET PER UNIT FOR EACH UNIT OVER TEN (10) UNITS.

RECREATIONAL/ OPEN SPACE CALCULATION
PROPOSED BUILDINGS = 50
REQUIRED RECREATIONAL/ OPEN SPACE = 5,000 SF/UNIT x 50 = 250,000 SF (5.74 AC)
PROPOSED RECREATIONAL/ OPEN SPACE = 13.62 AC (WITHIN LOD) >5.74 AC



SCALE: 1"=80'
0 40' 80' 160'

Z:\DEPARMNT\PROJECTS\2025-032 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2025-032-LARC.DWG Plotted: 2/25/2025

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LICENSED LANDSCAPE ARCHITECT
ALEXANDRA AVERY
No. 5206
STATE OF MAINE
2025

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NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

LANDSCAPE PLAN

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

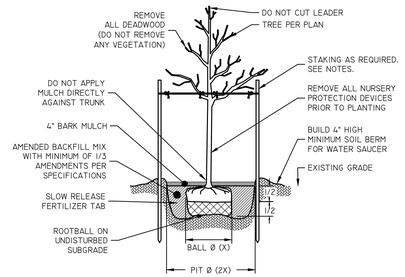
SHEET 21 OF 22

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PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT
TREES					
	ARA	7	Acer rubrum 'Autumn Flame'	Autumn Flame Red Maple	2.5/3" Cal B&B
	CK	12	Cornus kousa	Kousa Dogwood	2.5/3" Cal B&B
	PSU	12	Prunus subhirtella	Higan Cherry	2.5/3" Cal B&B
	PC	9	Pyrus calleryana 'Cleveland Select'	Chanticleer Callery Pear	2.5/3" Cal B&B
	QC	7	Quercus coccinea	Scarlet Oak	2.5/3" Cal B&B
	QR	2	Quercus rubra	Red Oak	2.5/3" Cal B&B
	SR	28	Syringa reticulata `Ivory Silk`	Japanese Tree Lilac	2.5/3" Cal B&B
	UAP	24	Ulmus americana 'Princeton'	Princeton American Elm	2.5/3" Cal B&B
	ZS	7	Zelkova serrata 'Village Green'	Village Green Sawleaf Zelkova	2.5/3" Cal B&B
EVERGREEN TREES					
	AF	7	Abies fraseri	Fraser Fir	6/7` HT
	PG	12	Picea glauca	White Spruce	5/6` HT
	PSS	34	Pinus strobus	White Pine	6/7` HT
SYMBOL	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
SHRUBS					
	IG	114	Ilex glabra `Shamrock`	Inkberry	3-4` HT
WET POND PLANTING					
	AMC	10	Amelanchier canadensis	Canadian Serviceberry	24-30" HT
	HF	15	Hemerocallis fulva	Orange Daylily	1 gal
	ILV	11	Ilex verticillata	Winterberry	18-24" HT
	IRV	5	Iris versicolor	Blue Flag	1 gal
	JUV	4	Juniperus virginiana	Eastern Redcedar	24-30" HT
	RP	5	Rosa palustris	Swamp Rose	18-24" HT
	SCA	2	Sambucus canadensis	American Elderberry	24-30" HT

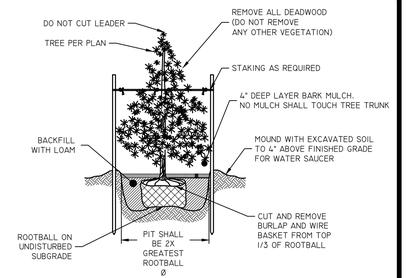
NOTES:
1. STAKING MAY BE REQUIRED TO ASSURE STRAIGHT TRUNK. STAKING MUST FOLLOW INDUSTRY STANDARDS.
2. REMOVE TOP 1/3 OFBURLAP AND WIRE BASKET. EXISTING BALL SHALL BE EVEN OR SLIGHTLY ABOVE EXISITNG GRADE.
3. ALL PLANTINGS SHALL COMPLY WITH CURRENT STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.



BALL & BURLAP TREE PLANTING DETAIL

NOT TO SCALE

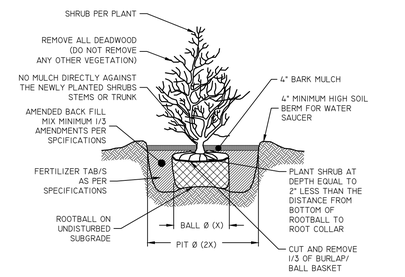
NOTES:
1. ALL PLANTINGS SHALL COMPLY WITH CURRENT STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.



EVERGREEN TREE PLANTING DETAIL (4'-0" HIGH AND GREATER)

NOT TO SCALE

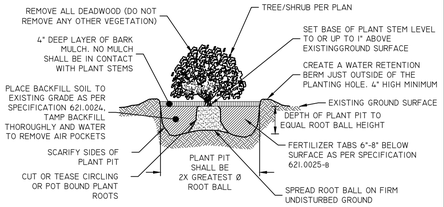
NOTES:
1. ALL PLANTINGS SHALL COMPLY WITH CURRENT STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.



BALL AND BURLAP SHRUB PLANTING DETAIL

NOT TO SCALE

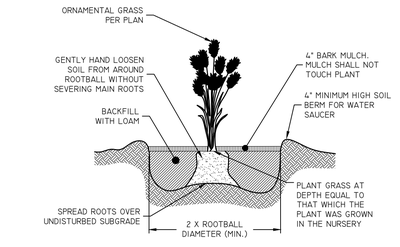
NOTES:
1. ALL PLANTINGS SHALL COMPLY WITH CURRENT STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
2. REMOVE AND PROPERLY DISPOSE OF CONTAINERS, TAGS, LABELS, AND FLAGGING TAP, UNLESS OTHERWISE DIRECTED BY AN AUTHORIZED MAINEDOT EMPLOYEE.
3. PRUNE BROKEN AND DEAD BRANCHES AT TIME OF PLANTING. NEVER CUT A LEADER.



CONTAINER TREE/SHRUB PLANTING DETAIL

NOT TO SCALE

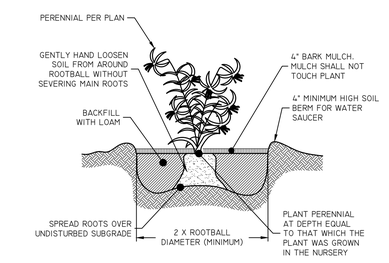
NOTES:
1. ALL PLANTINGS SHALL COMPLY WITH CURRENT STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.



ORNAMENTAL GRASS PLANTING DETAIL

NOT TO SCALE

NOTES:
1. ALL PLANTINGS SHALL COMPLY WITH CURRENT STATE OF MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.



PERENNIAL PLANTING DETAIL

NOT TO SCALE

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NO.	DATE	DESCRIPTION	BY:
1	02-25-2025	RESPONSE TO COMMENTS	J.M.F.
0	12-06-2024	SITE DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R. J.M.F.

LANDSCAPE NOTES & DETAILS

STETSON ROAD

PARCEL ID 29H-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

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NOTE:
FOR ALL WATER AND SEWER CONNECTIONS INTO BUILDINGS SEE "UTILITY SERVICE CONNECTION LAYOUT FOR ALL DUPLEXES AND QUADPLEXES" DETAIL ON SHEET 14.

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STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION IN CONFORMANCE WITH THE CONTRACT DOCUMENTS AND ALL APPLICABLE SAFETY REGULATIONS INCLUDING OSHA AND MSHA.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGE TO EXISTING UTILITIES. LOCATIONS OF EXISTING UTILITIES SEE UTILITY NOTE ON SHEET 3.

NO.	DATE	DESCRIPTION	BY:
0	12-06-2024	SITE DEVELOPMENT PLANS	J.M.F.
1	02-25-2025	RESPONSE TO COMMENTS	J.A.R.
2	04-14-2025	REVISED UTILITY EASEMENT	J.M.F.

DRAWN BY: J.A.R.

PLAN & PROFILE - 1

STETSON ROAD

PARCEL ID 29-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 12 OF 22

DE JOB NO. 2025-032 COPYRIGHT 2025 BY DIPRETE ENGINEERING ASSOCIATES, INC.

Z:\DEMAIN\PROJECTS\2025-032 STETSON ROAD APARTMENTS\AUTOCAD DRAWINGS\2025-032-PLAN.DWG Plotted: 3/4/2025

NOTE:
FOR ALL WATER AND SEWER CONNECTIONS INTO BUILDINGS SEE "UTILITY SERVICE CONNECTION LAYOUT FOR ALL DUPLEXES AND QUADPLEXES" DETAIL ON SHEET 14.

VERTICAL: 0 2' 4' 8'
HORIZONTAL: 0 20' 40' 80'

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Engineers · Planners · Surveyors
www.diprete-eng.com
Two Stafford Court, Cranston, RI 02920 · Tel 401-943-1000

STATE OF MAINE
BRANDON DAVID CARR
No. 16931
LICENSED PROFESSIONAL ENGINEER

THIS PLAN SET MUST NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS STAMPED "ISSUED FOR CONSTRUCTION" AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER OF DIPRETE

DIPRETE ENGINEERING ONLY WARRANTS PLANS ON A DIPRETE ENGINEERING TITLE BLOCK STAMPED BY REGISTERED ENGINEER. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR PLANS NOT SEALED BY DIPRETE ENGINEERING. DIPRETE ENGINEERING DOES NOT WARRANT PLANS BY ANY OTHER PARTY.

THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION IN THE IMPLEMENTATION OF THIS PLAN AND ASSOCIATED DOCUMENTS.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR ANY INACCURACIES IN THE LOCATIONS OF EXISTING UTILITIES. SEE "UTILITY NOTE" ON SHEET 5

NO.	DATE	DESCRIPTION	BY
			J.M.F.
1	11-26-2025	PLANNING BOARD SUBMITTAL	J.M.F.
2	02-25-2026	RESPONSE TO COMMENTS	J.A.R.
3	12-06-2024	SITE PLAN DEVELOPMENT PLANS	J.A.R.

DRAWN BY: J.A.R.

PLAN & PROFILE - 2

STETSON ROAD

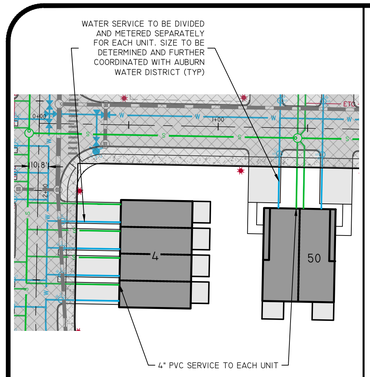
PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

SHEET 13 OF 22

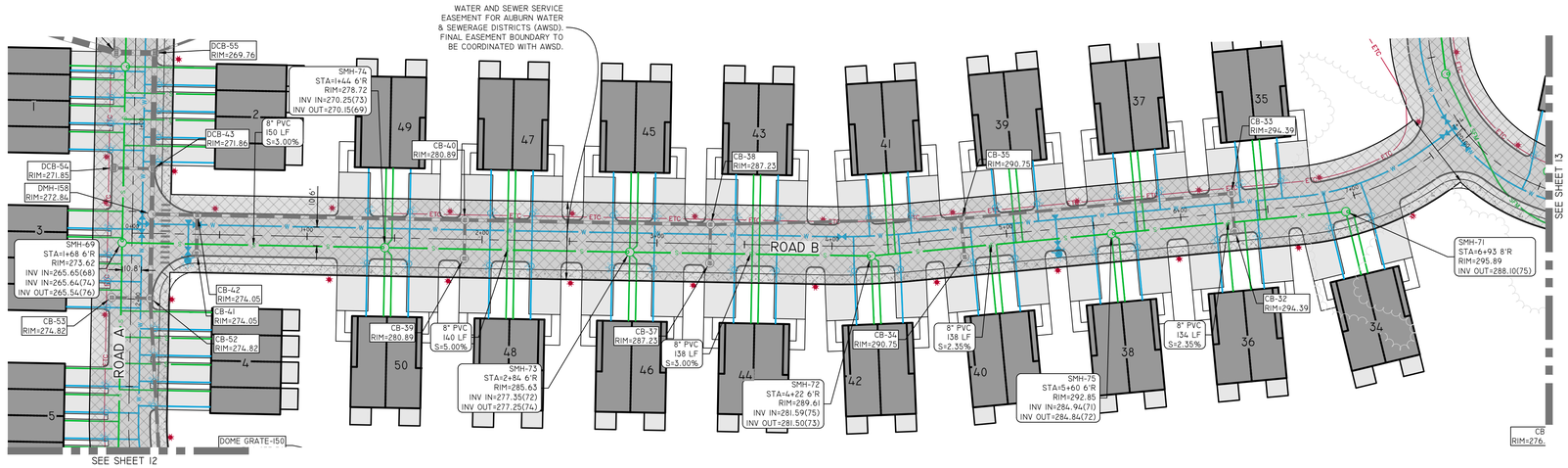
DP JOB NO. 2025-032 COPYRIGHT 2026 BY DIPRETE ENGINEERING ASSOCIATES, INC.

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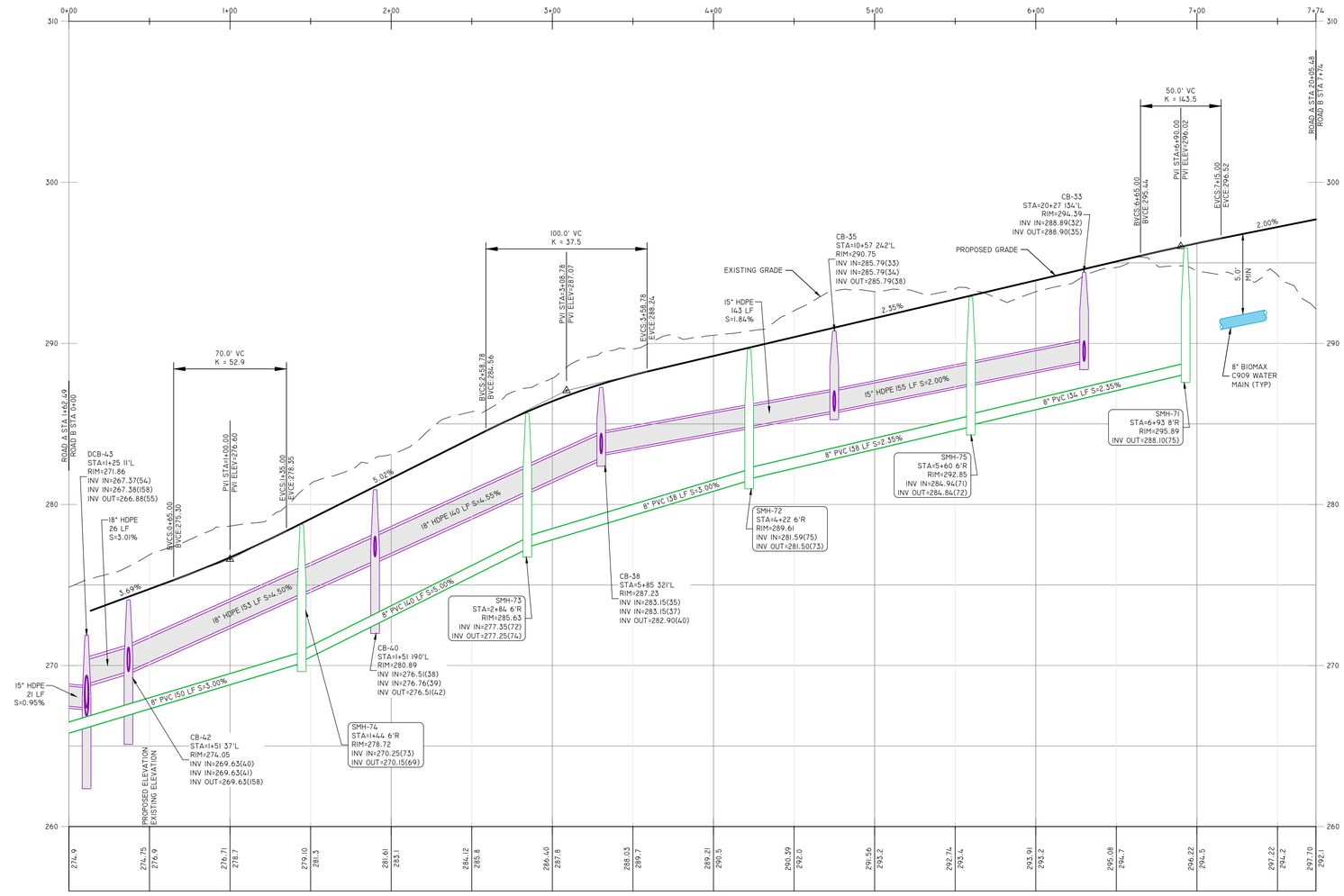


UTILITY SERVICE CONNECTION LAYOUT
FOR ALL DUPLEXES AND QUADPLEXES

SCALE: 1" = 40'



NOTE:
FOR ALL WATER AND SEWER CONNECTIONS INTO BUILDINGS SEE "UTILITY SERVICE CONNECTION LAYOUT FOR ALL DUPLEXES AND QUADPLEXES" DETAIL THIS SHEET.



VERTICAL: 0 2' 4' 8'
HORIZONTAL: 0 20' 40' 80'

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THE CONTRACTOR IS RESPONSIBLE FOR ALL OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION IN CONFORMANCE WITH THE CONTRACT DOCUMENTS AND FOR THE SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. DIPRETE ENGINEERING DOES NOT HAVE CONTROL OVER AND IS NOT RESPONSIBLE FOR THE CONTRACTOR'S OR ANY SUBCONTRACTOR'S SCHEDULES OR FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. DIPRETE ENGINEERING DOES NOT HAVE CONTROL OVER OR CHARGE OF AND IS NOT RESPONSIBLE FOR ANY ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.

EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. DIPRETE ENGINEERING ASSUMES NO RESPONSIBILITY FOR DAMAGE TO ANY EXISTING UTILITIES OR STRUCTURES. SEE "UTILITY NOTE" ON SHEET 3.

NO.	DATE	DESCRIPTION	BY:
0	12-06-2024	SITE DEVELOPMENT PLANS	J.M.F.
1	02-25-2025	RESPONSE TO COMMENTS	J.A.R.
2	04-04-2025	REVISIONS	J.M.F.

DRAWN BY: J.A.R. | CHECKED BY: J.M.F.

PLAN & PROFILE - 3

STETSON ROAD

PARCEL ID 291-011
AUBURN, MAINE

PREPARED FOR:
A.R. BUILDING COMPANY, INC.
310 SEVEN FIELDS BOULEVARD, SUITE 350,
SEVEN FIELDS, PENNSYLVANIA, 16046

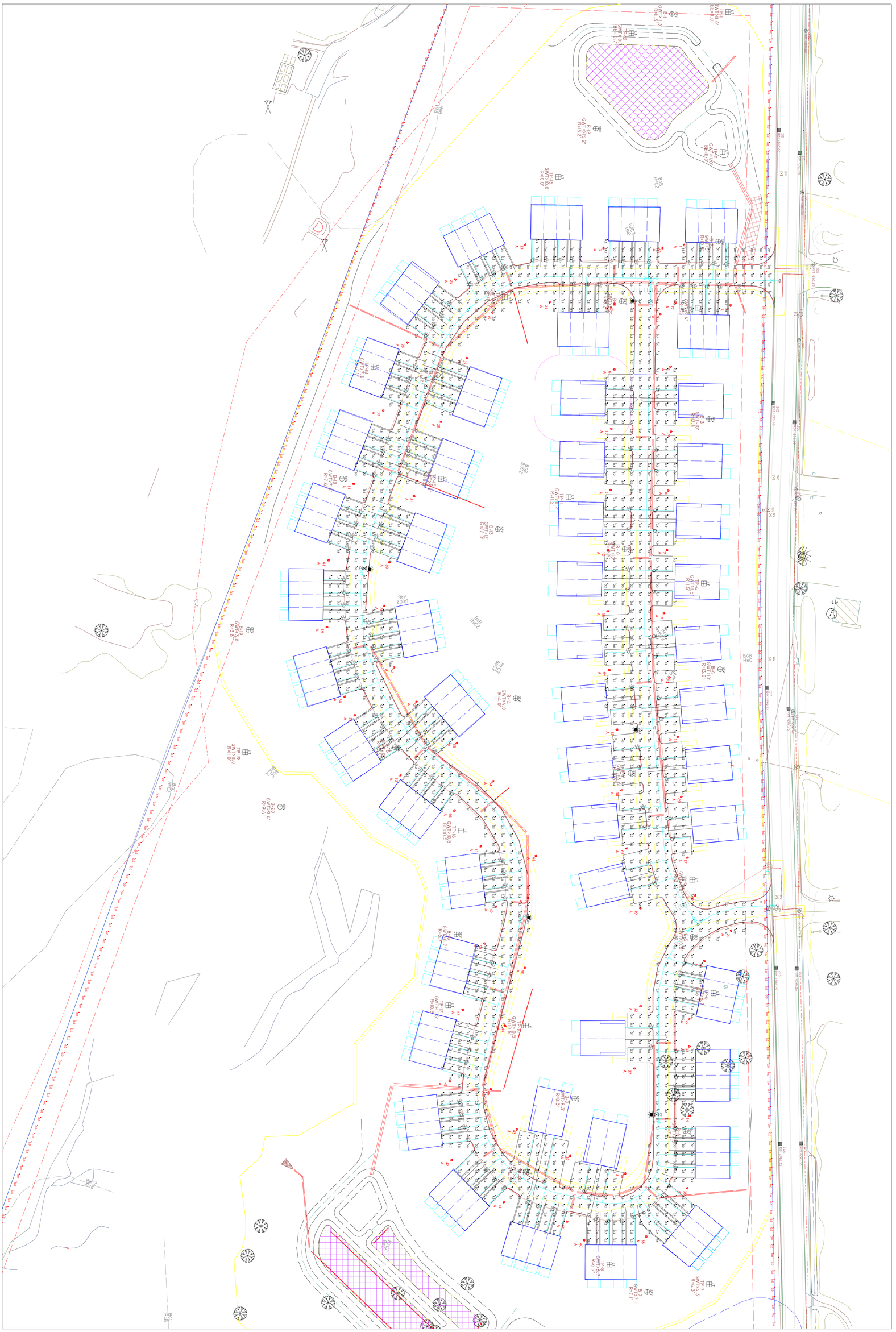
DE JOB NO. 2625-02

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SHEET 14 OF 22

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Scale: 1 inch= 50 Ft.



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Prepared For:
Holbrook Associated Warehouse
PO Box 401
35 Reservoir Park Dr
Rockland, MA 02370

Job Name:
Stetson Road
Lighting Layout
Version B

Scale: as noted	PROJECT # 242051
Date:2/21/2025	CASE # 01545591
Filename: Stetson Road.AGI	
Drawn By: S Elliott	

Filename: C:\Users\sharon.elliott\Desktop\Stetson Road.AGI

The Lighting Analysis, EZLayout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by RAB Lighting Inc. ("RAB") represents an anticipated prediction of lighting system performance based upon design parameters and information supplied by others.
These design parameters and information provided by others have not been field verified by RAB and therefore actual measured results may vary from the actual field conditions. RAB recommends that design parameters and other information be field verified to reduce variation.

RAB does not warranty, either implied or stated, actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design.

RAB does not warranty, either implied or stated, nor represents the appropriateness, completeness or suitability of the Lighting Design as compliant with any applicable regulatory code requirements with the exception of those expressly stated on drawings created and submitted by RAB. The Lighting Design is issued, in whole or in part, as advisory documents for informational and convenience purposes only, is not intended for construction nor as a part of a project's construction documentation package and should not be relied upon for any purpose.

Immediately prior to any party ordering RAB products used in the Lighting Design, the ordering party must verify that the lumen output of the fixtures being ordered (as shown on RAB's website) match the lumen output shown in the Lighting Design. Occasionally, Lighting Designs previously provided use fixtures that are then updated prior to an order and such updates could change the lumen output of the fixture. This in turn, could impact the installed lighting performance that differs from the Lighting Design.

PLOT TO 22"X34" PAGE

PLOT TO 22"X34"PAGE

Scale: 1 inch= 30 Ft.

The Lighting Analysis, EZ Layout, Energy Analysis and/or Visual Simulation ("Lighting Designs") provided by RAB Lighting Inc. ("RAB") represents an anticipated prediction of lighting system performance based upon design parameters and information supplied by others. The Lighting Designs are based upon theoretical calculations and therefore, actual measured results may vary from the actual field conditions. RAB recommends that design parameters and other information be field verified to reduce variation.

RAB does not warranty, either implied or stated, actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Designs.

RAB does not warranty, either implied or stated, that it represents the appropriateness, completeness or suitability of the Lighting Designs as compliant with any applicable regulatory code requirements with the exception of those expressly stated on drawings created and submitted by RAB. The Lighting Designs is issued in whole or in part as advisory documents for informational and convenience purposes only, is not intended for construction nor as a part of a project's construction documentation package, and should not be relied upon for any purpose.

The Lighting Designs are provided to you subject to the understanding that you will verify the performance of the fixtures being ordered immediately prior to any party ordering RAB products used in the Lighting Designs. Occasionally, third party manufacturers modify their fixtures' performance without notice. RAB shall not be responsible for any Lighting Designs produced using performance data that is not updated prior to an order and such updates could change the lumens output of the fixture. This in turn, could impact the installed lighting performance that differs from the Lighting Designs.

PROJECT # 2420051

CASE # 01545591

Scale: as noted

Date: 2/21/2025

Filename: Stetson Road.AGI

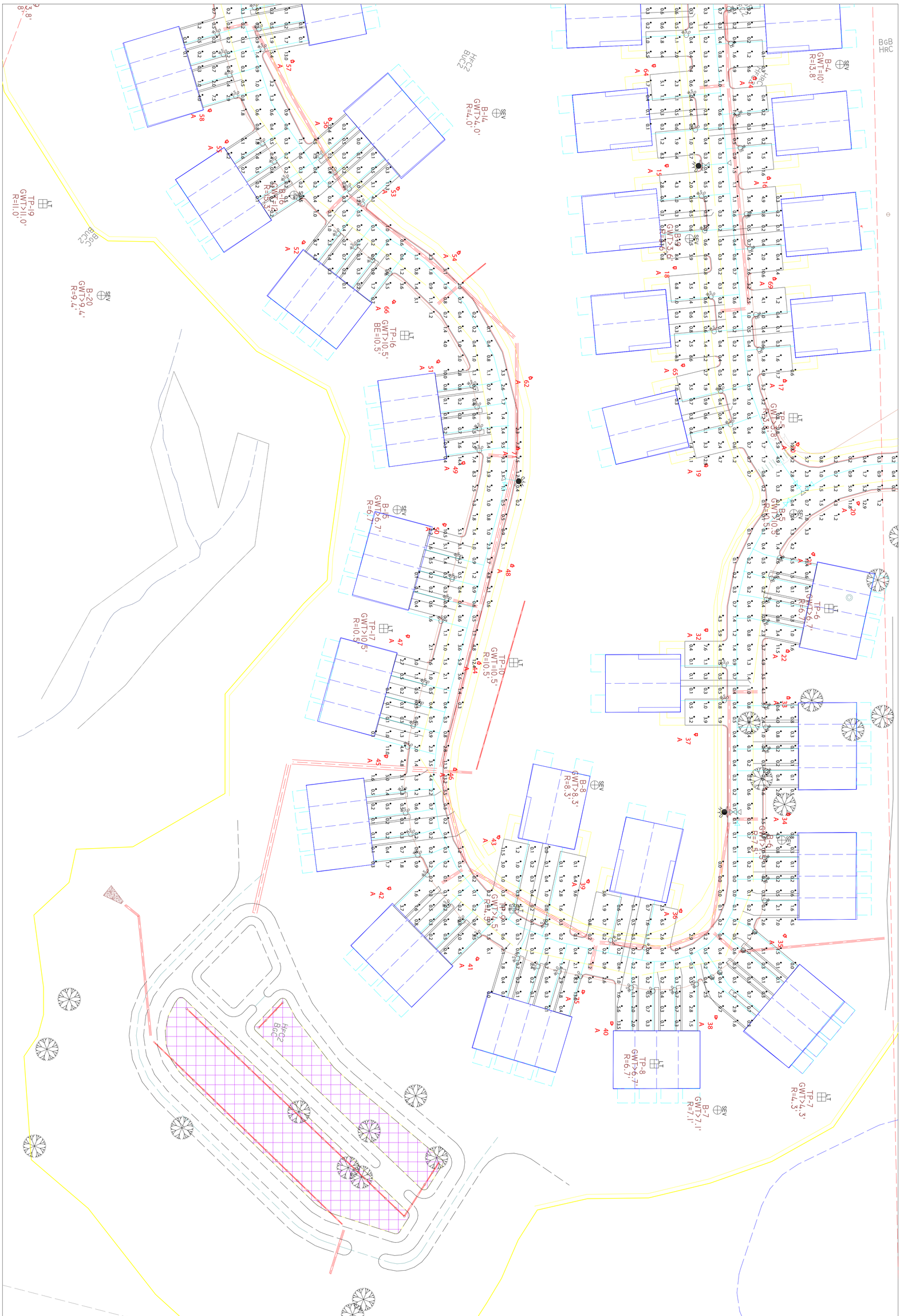
Drawn By: S Elliott

Job Name:
Stetson Road
Lighting Layout
Version B

Prepared For:
Holbrook Associated Warehouse
PO Box 401
35 Reservoir Park Dr
Rockland, MA 02370

Filename: C:\Users\sharon.elliott\Desktop\Stetson Road.AGI

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Job Name:
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Scale: as noted	PROJECT # 242051
Date:2/21/2025	CASE # 01545591
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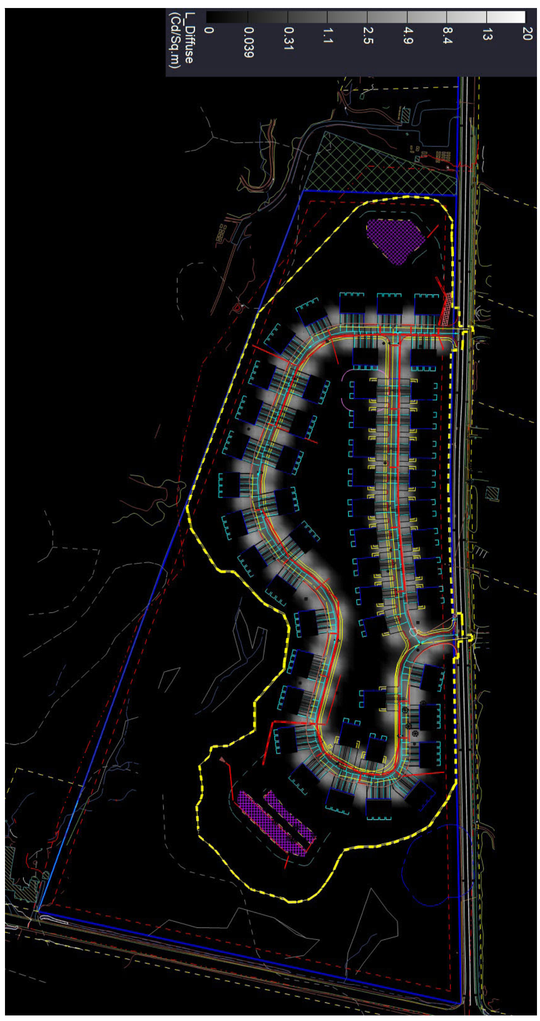
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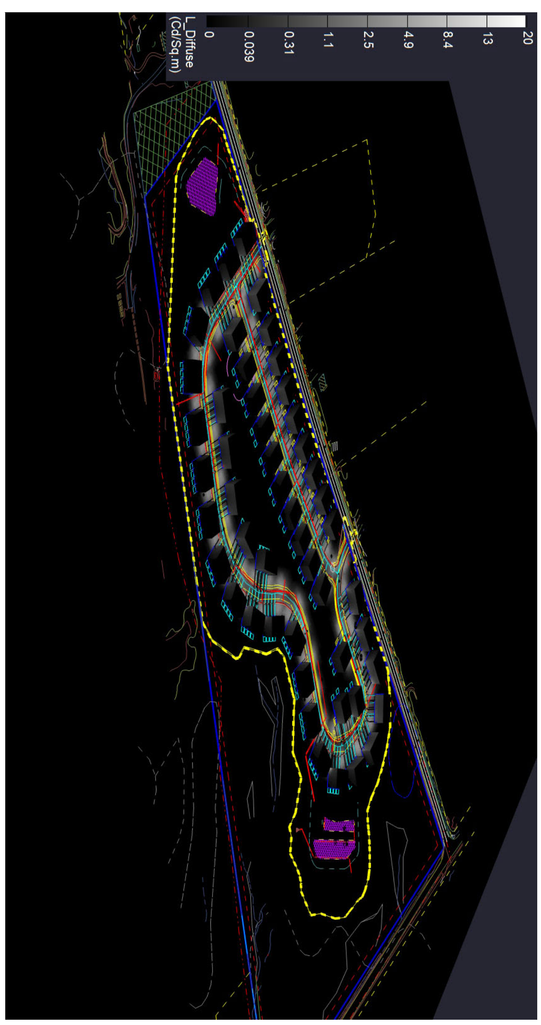
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PLOT TO 22"X34" PAGE

Plan View



Iso View



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PLOT TO 22"X34" PAGE

PLOT TO 22"X34"PAGE

Calculation Summary											
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**	**Description**	**PtSpcLr**	**PtSpcTb**	**Meter Type**
CalcPts Parking and Driving	Illuminance	Fc	1.39	15.1	0.0	N.A.	N.A.	Readings Taken at 0'-0"AFG	10	10	Horizontal
CalcPts Property Line	Illuminance	Fc	0.00	0.1	0.0	N.A.	N.A.	Readings Taken at 0'-0"AFG	10	N.A.	Horizontal

Luminaire Tag Summary	
Tag	**Qty**
A	75

Luminaire Schedule			All quotes/orders generated from this layout must be forwarded to the Local Rep Agency									
Symbol	**Qty**	**Tag**	**Label**	**Arrangement**	**Lum. Lumens**	**Arr. Lum. Lumens**	**LLF**	**Description**	**Lum. Watts**	**Arr. Watts**	**Total Watts**	**BUG Rating**
	75	A	ALEDS3TN	Single	5650	5650	1.000	40w 4k 3T	40.5	40.5	3037.5	B1-U0-G1

Expanded Luminaire Location Summary

LumNo	Tag	X	Y	MTG HT	Orient	Tilt
1	A	2939054.945	471543.628	10	0	0
2	A	2939126.167	471597.487	10	180	0
3	A	2939058.498	471449.978	10	0	0
4	A	2939135.704	471516.647	10	270	0
5	A	2939196.691	471528.451	10	270	0
6	A	2939199.919	471461.926	10	90	0
7	A	2939339.761	471457.739	10	90	0
8	A	2939340.541	471525.625	10	270	0
9	A	2939409.539	471524.623	10	270	0
10	A	2939268.807	471458.473	10	90	0
11	A	2939482.864	471520.875	10	270	0
12	A	2939409.752	471454.713	10	90	0
13	A	2939480.556	471454.402	10	90	0
14	A	2939557.432	471527.002	10	275.194	0
15	A	2939618.01	471465.065	10	96.204	0
16	A	2939626.483	471536.811	10	274.4	0
17	A	2939766.617	471547.87	10	273.366	0
18	A	2939688.538	471470.584	10	91.734	0
19	A	2939825.552	471492.373	10	117.699	0
20	A	2939851.972	471598.261	10	195.517	0
21	A	2939886.996	471567.46	10	224.091	0
22	A	2939953.669	471549.906	10	263.155	0
23	A	2939054.604	471359.196	10	0	0
24	A	2939122.519	471387.541	10	180	0
25	A	2939094.877	471277.848	10	28.909	0
26	A	2939134.431	471321.478	10	208.01	0
27	A	2939187.059	471292.307	10	240.255	0
28	A	2939168.452	471221.846	10	57.599	0
29	A	2939260.928	471261.881	10	249.676	0
30	A	2939247.432	471193.76	10	65.854	0
31	A	2939346.986	471230.728	10	250.908	0
32	A	2939939.074	471492.393	10	90	0
33	A	2939985.856	471550.416	10	270	0
34	A	2940066.409	471550.45	10	270	0
35	A	2940150.896	471547.806	10	224.028	0
36	A	2940132.582	471475.391	10	350.69	0
37	A	2940011.301	471485.324	10	90	0
38	A	2940207.278	471499.719	10	180	0
39	A	2940112.157	471411.439	10	343.495	0
40	A	2940211.537	471427.659	10	180.222	0
41	A	2940166.874	471334.311	10	148.241	0
42	A	2940117.766	471273.148	10	99.462	0
43	A	2940081.711	471349.677	10	328.531	0
44	A	2939962.029	471336.435	10	253.612	0
45	A	2940026.074	471271.013	10	71.565	0
46	A	2940035.458	471319.853	10	259.694	0
47	A	2939943.172	471286.045	10	75.256	0
48	A	2939894.612	471359.356	10	258.111	0
49	A	2939823.647	471324.345	10	103.241	0
50	A	2939866.012	471311.385	10	69.706	0
51	A	2939753.744	471307.099	10	126.869	0
52	A	2939671.406	471214.044	10	136.637	0
53	A	2939633.174	471280.184	10	323.879	0
54	A	2939677.578	471322.286	10	315.745	0
55	A	2939601.632	471160.807	10	124.506	0
Total Quantity: 75 (55 shown, 1 through 55)						

Expanded Luminaire Location Summary

LumNo	Tag	X	Y	MTG HT	Orient	Tilt
56	A	2939585.533	471233.374	10	295.018	0
57	A	2939545.723	471207.444	10	277.125	0
58	A	2939579.924	471149.058	10	109.983	0
59	A	2939499.048	471128.546	10	92.729	0
60	A	2939424.051	471201.838	10	261.467	0
61	A	2939332.627	471159.364	10	81.118	0
62	A	2939764.451	471372.067	10	289.468	0
63	A	2939421.55	471130.246	10	92.384	0
64	A	2939548.862	471456.156	10	97.016	0
65	A	2939756.038	471476.346	10	98.007	0
66	A	2939712.57	471276.551	10	140.71	0
67	A	2939124.403	471462.811	10	180	0
68	A	2939058.451	471518.577	10	0	0
69	A	2939696.029	471540.761	10	274.397	0
70	A	2939810.043	471556.559	10	330.564	0
71	A	2939813.415	471363.317	10	270	0
72	A	2939122.988	471533.561	10	177.878	0
73	A	2939474.048	471195.738	10	281.805	0
74	A	2939272.015	471529.03	10	270	0
75	A	2940189.768	471407.698	10	165.952	0
Total Quantity: 75 (20 shown, 56 through 75)						

NOTES:
* The light loss factor (LLF) is a product of many variables. RAB's standard is to use the initial 1.0 LLF in accordance with most municipal lighting ordinance light trespass requirements, unless otherwise noted.

* Illumination values shown (in footcandles) are the predicted results for planes of calculation either horizontal, vertical or inclined as designated in the calculation summary. Meter orientation is normal to the plane of calculation.

* The calculated results of this lighting simulation represent an anticipated prediction of system performance. Actual measured results may vary from the anticipated performance and are subject to means and methods which are beyond the control of RAB Lighting Inc.

* Mounting height determination is job site specific, our lighting simulations assume a mounting height (insertion point of the luminaire symbol) to be taken at the top of the symbol for ceiling mounted luminaires and at the bottom of the symbol for all other luminaire mounting configurations.

* RAB disclaims all responsibility for the suitability of existing or proposed poles and bases to support proposed fixtures. This is the owner's, installer's and/or end-user's responsibility based on the weight and effective projected area ("EPA") of the proposed fixtures and the owner's site and soil conditions, wind zone, and many other factors. A professional engineer licensed to practice in the state the site is located should be engaged to assist in this determination.

* The landscape material shown hereon is conceptual and is not intended to be an accurate representation of any particular plant, shrub, bush, or tree, as these materials are living objects, and subject to constant change. The conceptual objects shown are for illustrative purposes only. The actual illumination values measured in the field will vary.

* Photometric model elements such as buildings, rooms, plants, furnishings or any architectural details which impact the dispersion of light must be detailed by the customer documents for inclusion in the RAB Lighting Design. The owner/contractor/customer/end-user must provide accurate and complete construction drawings that reflect what will be the final construction RAB is not responsible for any inaccuracies caused by incomplete, inaccurate, or outdated information provided by the owner/contractor/customer/end-user.

* RAB Lighting Inc. luminaire and product designs are protected under U.S. and International intellectual property laws. Patents issued or pending may apply. Please see www.rablighting.com/ip.

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* RAB does not warranty, either implied or stated, actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design.

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* Immediately prior to any party ordering RAB products used in the Lighting Design, the ordering party must verify that the lumen output of the fixtures being ordered (as shown on RAB's website) match the lumen output shown in the Lighting Design. Occasionally, Lighting Designs previously provided use fixtures that are then updated prior to an order and such updates could change the lumen output of the fixture. This in turn, could impact the installed lighting performance that differs from the Lighting Design.

The Lighting Analysis, EZLayout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by RAB Lighting Inc. ("RAB") represents an anticipated prediction of lighting system performance based upon design parameters and information supplied by others. These design parameters and information provided by others have not been field verified by RAB and therefore actual measured results may vary from the actual field conditions. RAB recommends that design parameters and other information be field verified to reduce variation.

RAB does not warranty, either implied or stated, actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design.

RAB does not warranty, either implied or stated, nor represents the appropriateness, completeness or suitability of the Lighting Design as compliant with any applicable regulatory code requirements with the exception of those expressly stated on drawings created and submitted by RAB. The Lighting Design is issued, in whole or in part, as advisory documents for informational and convenience purposes only, is not intended for construction nor as a part of a project's construction documentation package, and should not be relied upon for any purpose.

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Scale: as noted
PROJECT # 2420051
Date:2/21/2025
CASE # 01545591
Filename: Stetson Road.AGI
Drawn By: S Elliott

Job Name:
Stetson Road
Lighting Layout
Version B

Prepared For:
Holbrook Associated Warehouse
PO Box 401
35 Reservoir Park Dr
Rockland, MA 02370

Filename: C:\Users\sharon.elliott\Desktop\Stetson Road.AGI

RAB
408 W 14th Street, New York, NY 10014
888 722-1000 • rablighting.com

ALEDS3TN



Color: Bronze

Weight: 13.2 lbs

Project:	**Type:**
Prepared By:	**Date:**

Driver Info

Type	Constant Current
120V	0.67A
208V	0.40A
240V	0.34A
277V	0.30A
Input Watts	40.5/57.5/81.2W

LED Info

Watts	80W
Color Temp	4000K (Neutral)
Color Accuracy	82 CRI
L70 Lifespan	100,000 Hours
Lumens	5650/7778/10458 lm
Efficacy	139.5/135.3/128.8 lm/W

Technical Specifications

Field Adjustability

Field Adjustable (Wattage):
Field adjustable light output in 3 discrete steps:
Small Housing: 80W/60W/40W (factory default 80W)

Compliance

UL Listed:
Suitable for wet locations

IP Rating:
Ingress protection rating of IP66 for dust and water

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

Trade Agreements Act Compliant:
This product is a product of Cambodia and a "designated country" end product that complies with the Trade Agreements Act

DLC Listed:
This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities. Designed to meet DLC 5.1 requirements.
DLC Product Code: S-36E5G8

LED Characteristics

LEDs:
Long-life, high-efficacy, discrete, surface-mount LEDs

Color Consistency:
7-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:
LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Color Uniformity:
RAB's range of Correlated Color Temperature follows the guidelines of the American National Standard for (SSL) Products, ANSI C78.377-2017.

Electrical

Driver:
40W: Constant Current, Class 2, 120-277V, 50/60 Hz, 120V: 0.34A, 208V: 0.20A, 240V: 0.17A, 277V: 0.15A

60W: Constant Current, Class 2, 120-277V, 50/60 Hz, 120V: 0.50A, 208V: 0.30A, 240V: 0.25A, 277V: 0.22A

80W: Constant Current, Class 2, 120-277V, 50/60 Hz, 120V: 0.67A, 208V: 0.40A, 240V: 0.34A, 277V: 0.30A

Dimming Driver:
Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims down to 10%.

THD:
2.02% at 120V, 8.16% at 277V

Power Factor:
99.9% at 120V, 96.5% at 277V

Surge Protection:
Line to Line: 10kV
Line to Ground: 6kV

Performance

Lifespan:
100,000-Hour LED lifespan based on IES LM-80 results and TM-21 calculations

Wattage Equivalency:
Equivalent to 250W Metal Halide

Construction

IES Classification:
The Type III distribution is meant to be located near the side of an area, projecting the light outward to fill the area. Ideal for roadways, general parking areas, lighting applications and where a large pool of light is required.

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Technical Specifications (continued)

Cold Weather Starting:
The minimum starting temperature is -40°C (-40°F)

Ambient Temperature :
Max Power Temp Rating: 40°C (104°F)
Middle Power Temp Rating: 52°C (125°F)
Low Power Temp Rating: 58°C (137°F)

Housing:
Die-cast aluminum

Reflector:
Aluminum reflector with white polycarbonate

Vibration Rating:
3G vibration rating per ANSI C136.31

Effective Projected Area:
1 Fixture: 0.35
2 Fixtures at 90°: 0.54
2 Fixtures at 180°: 0.7
3 Fixtures at 90°: 0.9
4 Fixtures at 90°: 0.9

Gaskets:
High-temperature silicone gaskets

Finish:
Formulated for high durability and long-lasting color

Green Technology:
Mercury and UV free. RoHS-compliant components.

Installation

Mounting:
Universal mounting arm compatible for hole spacing patterns from 1" to 3" center to center. Round Pole Adaptor plate included as a standard. Easy slide and lock to mount fixture with ease.

Optical

Bug Rating:
80W: B1 U0 G2
60W: B1 U0 G2
40W: B1 U0 G1

Other

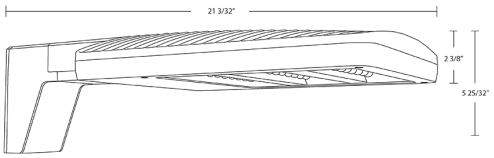
Warranty:
RAB warrants that our LED products will be free from defects in materials and workmanship for a period of ten (10) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Buy American Act Compliance:
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

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ALEDS3TN

Dimensions



Features

- 0-10V dimmable standard
- IP66 Rated
- 100,000-Hour LED lifespan
- 10-Year, No-Compromise Warranty

Ordering Matrix

Family	Housing Size	Distribution	Mounting	Color Temp	Finish	Driver	Options
ALED	S	3T		N			
	M = Medium (150W/90W/78W) **L =** Large (260W/220W/170W) **XL =** Extra Large (385W/345W/300W) **S =** Small (80W/60W/40W)	**2T =** Type II **3T =** Type III **4T =** Type IV **5T =** Type V **AT =** Auto Dealership Optic	**Blank =** Universal Pole Mount **SF =** Slipfitter **WM =** Wall Mount	**Blank =** 5000K Cool **Y =** 3000K Warm [1] **N =** 4000K Neutral	**Blank =** Bronze **W =** White **B =** Black	**Blank =** 120-277V, 0-10V Dimming **/480 =** 480V, 0-10V Dimming	**Blank =** No Option **/7PR =** 7 Pin Twistlock Receptacle **/WS2 =** Wattstopper, 20ft lens **/WS4 =** Wattstopper, 40ft lens [3]

[1] *Dark sky approved in 3000K, available only on Small and Medium fixtures*
[2] *480V available only on Medium, Large & Extra Large fixtures*
[3] *Wattstopper option available only 0n Large & Extra Large fixtures*

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PS4-11-10D2



Square steel poles drilled for 2 Area Lights at 180°. Designed for ground mounting. Poles are stocked nationwide for quick shipment. Protective packaging ensures poles arrive at the job site good as new.

Color: Bronze

Weight: 72.8 lbs

Project:	Type:
Prepared By:	Date:

Technical Specifications

Compliance

CSA Listed:
Suitable for wet locations

Construction

Shaft:
46,000 p.s.i. minimum yield.

Hand Holes:
Reinforced with grounding lug and removable cover

Base Plates:
Slotted base plates 36,000 p.s.i.

Shipping Protection:
All poles are shipped in individual corrugated cartons to prevent finish damage

Color:
Bronze powder coating

Height:
10 ft

Weight:
73 lbs

Gauge:
11

Wall Thickness:
1/8"

Shaft Size:
4"

Hand Hole Dimensions:
3" x 5"

Bolt Circle:
8 1/2"

Base Dimension:
8"

Anchor Bolt:
Galvanized anchor bolts and galvanized hardware and anchor bolt template. All bolts have a 3" hook.

Anchor Bolt Templates:
WARNING Template must be printed on 11" x 17" sheet for actual size. CHECK SCALE BEFORE USING. Templates shipped with anchor bolts and available online.

Pre-Shipped Anchor Bolts:
Bolts can be pre-shipped upon request for additional freight charge

Max EPA's/Max Weights:
70MPH 28.8 ft/800 lb.
80MPH 21.6 ft/510lb.
90MPH 16.5 ft/510 lb.
100MPH 12.9 ft/510 lb.
110MPH 10.3 ft/500 lb.
120MPH 8.3 ft/495lb.
130MPH 6.7 ft/495 lb.
140MPH 5.5 ft/485 lb.
150MPH 4.5 ft/480 lb

Other

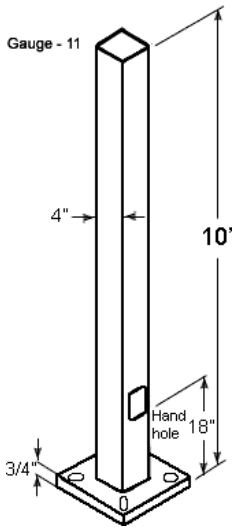
Terms of Sale:
Pole Terms of Sale is available online.

Buy American Act Compliance:
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

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PS4-11-10D2

Dimensions



Features

- Designed for ground mounting
- Heavy duty TGIC polyester coating
- Reinforced hand holes with grounding lug and removable cover for easy wiring access
- Pole caps, base covers & bolts are sold separately
- Custom manufactured for each application

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TO: Auburn Planning Board
FROM: Natalie Thomsen, Planning Coordinator
DATE: March 11, 2025
SUBJECT: Danville Corner Housing Development – Update & Public Hearing Scheduling

Background:

The applicant, Terradyn Consultants LLC, on behalf of Timothy Millet, has revised the Danville Corner Housing Development from 44 single-family homes to 42 duplex units (21 two-unit buildings). The property, located on Danville Corner Road (Tax Map 122-004) within the General Business (GB) District, is owned by Spurwink Services Incorporated.

City Attorney Dan Stockford determined density should follow a **strict interpretation** of **Section 60-307(2)**, which applies a **per-acre formula**:

- Single-family homes: **4 units/acre → 28 units max**
- Duplexes: **6 units/acre → 43 units max**
- Multifamily: **17 units/acre → 122 units max**

The revised **42-unit duplex proposal** aligns with zoning while maximizing site potential.

Planning Board Concept Review:

The applicant seeks Board and public feedback on the revised plan before submitting a final application. This will ensure input on site layout, density, and necessary modifications before the final hearing.

Motion for Postponement & Public Hearing:

The Planning Board is asked to **postpone substantive review** and schedule a **Public Hearing/Site Plan Review** for **April 8, 2025**, allowing for:

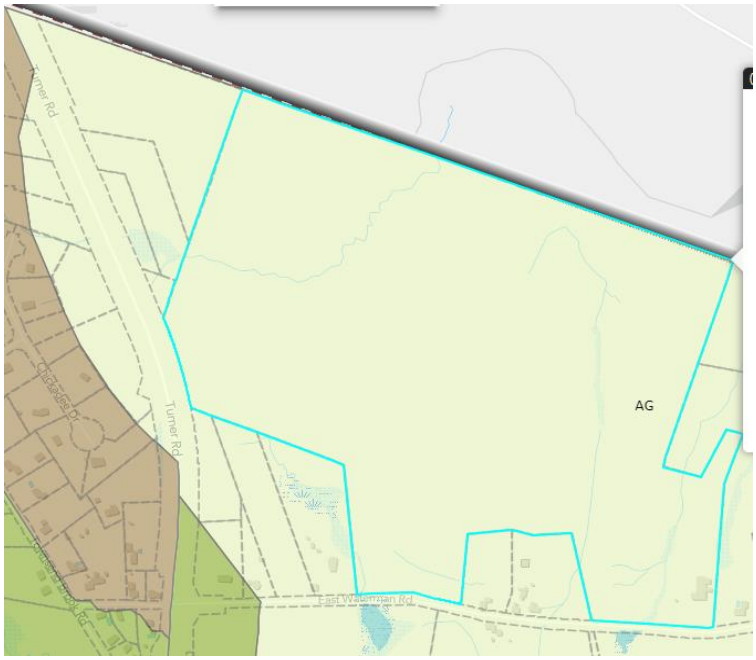
1. Public comment on density and site design.
2. Submission of a finalized site plan.
3. Review of zoning and land use compliance.

A Public Hearing was initially set for February 11, 2025, but was postponed. The Board is asked to **postpone further action until April 8, 2025** for final review.

City of Auburn, Maine
Office of Planning and Permitting
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

To: Auburn Planning Board
From: Natalie Thomsen, Planning Coordinator
Re: BWC Gulf Island Pond, LLC – Auburn Solar Project: The Planning Board will host a public hearing and act on a site plan review application submitted by Sean Murphy of Flycatcher LLC, on behalf of the owner, BWC Gulf Island Pond, LLC, a subsidiary of BlueWave Energy. The applicant is proposing a 1.41 MW DC ground-mounted solar array on approximately 10.12 acres. The subject property is located at 224 East Waterman Road, Tax Map Lot 393-010, and is within the Agriculture and Resource Protection Zoning District.

Date: March 11, 2025



I. PROPOSAL: BWC Gulf Island Pond, LLC, a subsidiary of BlueWave Energy (Applicant), is seeking Site Plan approval for a 1.41 MW-DC ground-mounted solar energy generating system at 224 East Waterman Road, Auburn, ME, within the Agriculture and Resource Protection (AG) District. The project spans approximately 10.12 acres, utilizing single-axis tracking photovoltaic panels and helical ground-screw foundations. The proposal replaces a previously approved 1.83 MW-DC solar project with a slightly reduced footprint, eliminating battery storage and reducing impervious surfaces.

II. ZONING CONSIDERATIONS:

The project falls under the Agriculture and Resource Protection District (AG) and is regulated under **Chapter 60, Article XVIII: Solar Energy Generating Systems** and **Chapter 60, Article IV, Division 2 – Agriculture and Resource Protection District, Sec. 60-145: Use Regulations**.

Chapter 60, Article XVIII: Solar Energy Generating Systems

(1) **Yard Requirements**: Solar energy generating systems in the AG Zone must comply with specific setback requirements. A minimum rear yard setback of 50 feet or 20% of the average lot depth (whichever is less), a minimum side yard setback of 5 feet plus an increase of one foot for every three feet of street frontage over 60 feet (up to a maximum setback of 35 feet), and a

minimum front yard setback of 35 feet or 15% of the average lot depth (whichever is less) are required. The applicant has provided a site plan demonstrating compliance with these setbacks.

(2) **Lot Coverage**: Photovoltaic cells, panels, arrays, and inverters are not considered impervious areas, provided the soil underneath remains vegetated in accordance with Chapter 500 stabilization standards. The AG Zone allows a maximum of 30% impervious lot coverage. The proposed impervious coverage is 0.55 acres within the 10.12-acre project site, well below the limit.

(3) **Height Regulations**: The total height of the solar energy generating system and all appurtenant structures, including equipment shelters, storage facilities, transformers, and substations, shall not exceed 30 feet. The proposed solar arrays will have a maximum height of 8 feet, complying with this requirement.

(4) **Technical and Safety**: A final as-built site plan must be provided to the Fire Prevention Officer, indicating all shut-down mechanisms for emergency response. The applicant has been in contact with the Fire Prevention Officer and will submit the as-built plan upon project completion.

(5) **Maintenance**: The facility must be maintained in good condition, including infrastructure and access ways. The applicant has submitted an Operation and Maintenance Plan as part of the application, which outlines maintenance procedures throughout the project's life. Proper maintenance includes ensuring functionality, site security, and adherence to fire safety regulations.

(6) **Glare**: Solar panels are designed to absorb sunlight rather than reflect it; however, their placement should minimize any glare impact on nearby properties or roadways. The applicant states in their narrative that the majority of the project is set back from the roadway and will not be visible to passing vehicles. The site is not within a two-nautical-mile radius of the Auburn Lewiston Municipal Airport, so additional glare mitigation measures are not required.

(7) **Visual Impact**: The ordinance requires reasonable efforts to minimize visual impact through screening, considering site topography and surrounding developments. The project site is naturally screened due to setbacks from the roadway and existing topography. The applicant proposes a 7-foot fence surrounding the project but no additional landscaping.

(8) **Lighting**: Lighting must be limited to operational and safety requirements and shielded from abutting properties. No exterior lighting is proposed except for a downward-facing light at the equipment area for nighttime maintenance and repairs.

(9) **Unbuilt Areas**: Where possible, in unbuilt areas, solar energy generating system installations must maintain ground permeability. Clearing of natural vegetation should be limited to what is necessary for construction, operation, and maintenance. The applicant has indicated that vegetation removal will be minimal, with no revegetation plan proposed.

(10) **Operation and Maintenance Plan**: An Operation and Maintenance Plan must be submitted, detailing long-term maintenance measures, including safe access to the installation and stormwater controls. The applicant has provided an Operations and Maintenance Plan included in the submission materials.

(11) **Standard Compliance**: All solar energy generating systems must comply with the National Fire Protection Association (NFPA) and National Electrical Code (NEC). The applicant is working to ensure full compliance with fire and electrical safety standards.

Sec. 60-1507: Abandonment & Decommissioning

Solar facilities must provide a financial surety to cover future removal costs and site restoration upon decommissioning. The owner or operator must remove all solar photovoltaic installations, structures, and equipment within six months of the system reaching the end of its useful life. The applicant has submitted a decommissioning plan but has not yet provided a financial surety amount. As a condition of approval, the applicant must submit an acceptable financial surety prior to receiving building permits.

The applicant has provided a Decommissioning Plan, which outlines the removal and proper disposal of all solar infrastructure upon the system's end-of-life. While a financial surety amount has not yet been submitted, the applicant has agreed to provide an acceptable financial surety prior to receiving a building permit, ensuring funds are available for site restoration and infrastructure removal. This financial guarantee will ensure compliance with local decommissioning requirements and prevent long-term environmental impacts.

The applicant has submitted a Solid and Hazardous Waste Disposal Plan, ensuring compliance with Maine's Chapter 850 (Hazardous Waste), Chapter 851 (Waste Generators), and Chapter 400 (Solid Waste Management) regulations. The plan outlines the proper disposal of solid and hazardous materials, including the recycling of solar panels and other recyclable components while ensuring that non-recyclable materials are disposed of at authorized facilities. As part of this plan, all waste generated during decommissioning will be managed in accordance with local, state, and federal environmental guidelines.

Chapter 60, Article IV, Division 2 – Agriculture and Resource Protection District, Sec. 60-145: Use Regulations

(a) Compliance with Article XVIII: The proposed project complies with the provisions set forth in Article XVIII regarding solar energy systems. The project meets all specific design, operational, and environmental impact standards set by the ordinance, ensuring that the solar array's installation and operation align with local land use policies. The site has been designed to minimize soil disturbance, preserve existing vegetation where feasible, and avoid adverse effects on agricultural uses. Additionally, the applicant has demonstrated compliance with stormwater management requirements and emergency access planning.

(b) Setbacks:

1. **Rear Yard Requirement:** The ordinance mandates a minimum rear yard setback of 25 feet behind all structures associated with a solar energy generating system. The applicant's site plan meets this requirement, ensuring compliance.
2. **Side Yard Requirement:** A minimum distance of 15 feet is required between any solar structure and the side property line. The proposed project adheres to this setback, with no encroachments.
3. **Front Yard Requirement:** A minimum front yard setback of 25 feet or 25% of the average lot depth, whichever is less, is required. The applicant's site plan confirms compliance with this requirement.

(c) Lot Coverage: The ordinance states that lot coverage shall not exceed 30% of the total parcel area. The proposed impervious coverage is 0.55 acres within the 10.12-acre project site, well below the limit.

(d) Total Land Area: Once 1% of the AG District has been developed into solar energy generating systems, the Planning Board must determine whether additional projects will

materially alter the district's land use stability. The proposed project is below the 1% threshold, and it is not expected to impact agricultural land use patterns negatively.

(e) Grid Infrastructure: The ordinance encourages projects to limit the need for grid extensions. The applicant has not proposed any major grid extensions, demonstrating compliance with this requirement.

(f) Solar Development on Forestland or Prime Farmland:

1. The ordinance requires that solar projects avoid unnecessary soil erosion or loss. The applicant has designed the site to minimize disturbance and has indicated that soil integrity will be maintained.
2. Upon decommissioning, the Planning Board must review the site for conversion back to farmland or forestland. The applicant's decommissioning plan addresses site restoration requirements.
3. A wildlife habitat survey is required if the project is located in essential habitat. The site is not located in an essential habitat site identified by the IF&W maps.
4. A vegetative cover plan should demonstrate the preservation of prime soils and replanting of disturbed forested areas. The applicant has not proposed replanting, as they are proposing very limited disturbance of forested areas and it will not be required.

(g) Prime Soils: Solar energy generating systems in the AG District require a soil analysis to determine if prime farmland is present. Least productive soils should be prioritized for development unless non-prime farmland is unavailable. 67% of the solar site is located on either prime farmland and statewide significant land.

Difference between Prime Farmland and Soils of Statewide Significance:

Prime Farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses (the land could be in cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

Soils of Statewide Significance: Additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

(h) Siting and Construction Requirements:

1. The overall facility and panels must follow the existing land contours. The site plan indicates that the project design aligns with existing topography.
2. Pile-driven or ballast block footing must be used to minimize soil disturbance. The applicant has confirmed that pile-driven foundations will be used.
3. Infrastructure should avoid steep slopes. The project is sited on relatively flat land, complying with this provision.
4. A topsoil maintenance plan is required. The applicant has not provided this plan, and it must be submitted as a condition of approval.

The applicant has provided a Topsoil Maintenance Plan that addresses erosion control and soil conservation throughout the project's lifespan. The plan includes segregation of stripped topsoil, designated stockpile areas, and reseeding procedures to minimize soil loss and maintain site stability. Additionally, erosion control measures will be implemented during construction to prevent sediment runoff, and disturbed areas will be restored through revegetation efforts following project completion.

The proposed project incorporates a Vegetative Cover Plan that supports pollinator-friendly habitats while maintaining ground permeability in unbuilt areas. The applicant has indicated that the project site will remain vegetated wherever feasible, with limited disturbance beyond necessary construction, operation, and maintenance areas. This plan aligns with environmental best practices to promote soil stabilization and ecological health while minimizing disruption to local wildlife habitats.

(i) Operations and Maintenance Plan:

The applicant has submitted an Operations and Maintenance (O&M) Plan that prioritizes agricultural co-use and long-term site sustainability. The plan outlines provisions for integrating sheep grazing, inter-row crop growth, and pollinator-friendly habitat, ensuring the project aligns with Maine's dual-use solar land management principles. The applicant has also committed to annual reporting on agricultural co-use activities, ensuring ongoing compliance with local land use policies.

III. DEPARTMENT REVIEW:

a. *Police* – No comments received.
b. *Auburn Water and Sewer* – No comments received.
c. *Fire Department* – Application meets NFPA safety requirements and submitted a Vegetation Management Plan to reduce fire risk. The updated road access width meets emergency access standards.
d. *Code Enforcement* – No comments received.
e. *Engineering* – No comments

IV. PLANNING BOARD ACTION

The Planning Board should review this application under **Chapter 60, Article XVI – Site Plan Review** and **Article XVIII – Solar Energy Generating Systems** to determine compliance with city ordinances.

Sec. 60-1277. – Objective. In considering a site plan, the Planning Board shall make findings that the development has made provisions for:

(1) Protection of adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against artificial and reflected light, sight, sound, dust and vibration; and preservation of light and air;
(2) Convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas;
(3) Adequacy of the methods of disposal for wastes; and
(4) Protection of environment features on the site and in adjacent areas.

Sec. 60-1336. – As conditions prerequisite to the granting of any special exceptions, the board shall require evidence of the following:

(1) That the special exception sought fulfills the specific requirements, if any, set forth in the zoning ordinance relative to such exception.
(2) That the special exception sought will neither create nor aggravate a traffic hazard, a fire hazard or any other safety hazard.
(3) That the special exception sought will not block or hamper the master development plan pattern of highway circulation or of planned major public or semipublic land acquisition.
(4) That the exception sought will not alter the essential characteristics of the neighborhood and will not tend to depreciate the value of property adjoining and neighboring the property under application.
(5) That reasonable provisions have been made for adequate land space, lot width, lot area, stormwater management in accordance with section 60-1301(14), green space, driveway layout, road access, off-street parking, landscaping, building separation, sewage disposal, water supply, fire safety, and where applicable, a plan or contract for perpetual maintenance of all the common green space and clustered off-street parking areas to ensure all such areas will be maintained in a satisfactory manner.
(6) That the standards imposed are, in all cases, at least as stringent as those elsewhere imposed by the city building code and by the provisions of this chapter.
(7) That essential city services which will be required for the project are presently available or can be made available without disrupting the city's master development plan.

V. STAFF RECOMMENDATION

Staff recommends **approval** of the BWC Gulf Solar Project with the following conditions:

- No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.
- Prior to any blasting activities, the applicant shall receive a blasting permit from the City of Auburn Planning, Permitting, and Code Department.

- Prior to the final electrical approval, the applicant shall submit a final as-built site plan to the Fire Prevention Officer, indicating all shut-down mechanisms for emergency response.
- Prior to the issuance of a building permit, the applicant shall submit an acceptable financial surety.

Suggested Motions:
I make a motion that the proposal meets the requirements of Sections 60-1277 and 60-1336 and approve the Site Plan by BWC Gulf Island Pond, LLC, a subsidiary of BlueWave Energy, to construct a 1.41 MW-DC ground-mounted solar energy generating system on approximately 10.12 acres at 224 East Waterman Road, Tax Map Lot 137-026, located in the Agriculture and Resource Protection Zoning District. The proposed project has met the standards pursuant to Chapter 60, Article XVI, Division 2 – Site Plan Review and Division 3 – Special Exception, with the following conditions:

A. *No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.*
B. *Prior to any blasting activities, the applicant shall receive a blasting permit from the City of Auburn Planning, Permitting, and Code Department.*
C. *Prior to the final electrical approval, the applicant shall submit a final as-built site plan to the Fire Prevention Officer, indicating all shut-down mechanisms for emergency response.*
D. *Prior to the issuance of a building permit, the applicant shall submit an acceptable financial surety.*

Natalie J Thomsen

Natalie Thomsen
Planning Coordinator

Lower Falls Landing – 106 Lafayette Street, Suite 1C
Yarmouth, Maine 04906
info@flycatcherllc.com - 207-217-0959

January 3rd, 2025

Katherine Cook
Planning Coordinator
City of Auburn
60 Court Street
Auburn, Maine 04210

Subject: BWC Gulf Island Pond, LLC – Auburn Solar Project
Development Review Application – Letter of Intent

Dear Ms. Cook,

On behalf of BWC Gulf Island Pond, LLC, a subsidiary of BlueWave Energy (Applicant), Flycatcher LLC (Flycatcher) is pleased to submit this Development Review application for the proposed Auburn Solar Project (Project) to be located at 224 East Waterman Road in Auburn.

Please find enclosed the required application form and the following attachments:

- Project Description, including requested waivers (Provided as Attachment 1)
- Narrative on Standards (Provided as Attachment 2)
- Location Maps (Provided as Attachment 3)
- Site Plans (Provided as Attachment 4)
- Option Agreement (Provided as Attachment 5)
- Soils Report (Provided as Attachment 6)
- Financial Assurance Letter (Provided as Attachment 7)
- Stormwater Modeling Report generated using HydroCAD (Provided as Attachment 8)
- Decommissioning Plan (Provided as Attachment 9)
- Operations and Maintenance Plan (Provided as Attachment 10)
- Erosion and Sediment Control Inspection and Maintenance Plan (Provided as Attachment 11)
- Geotechnical Report and Recommendation (Provided as Attachment 12)

Project Overview:

In October of 2022, the Applicant submitted a Development Review application for a 1.83 MW-DC ground mounted solar plant and associated battery energy storage system at this same site. The City of Auburn Planning Board approved the submittal for the Project on December 13, 2022 based on the standards required by Site Plan, Solar Energy Generating Systems ordinance, and the Special Exception requirements for solar installation in the Ag-Zone. Interconnection delays, changes in state policy, and increases in project costs resulted in significant delays in advancing to construction.

The proposed Project is a 1.41 MW-DC ground mounted solar plant utilizing single axis-trackers with a proposed helical ground-screw foundation and racking system, and is located roughly in the same portion of the Project parcel as the previously approved project. The current limits of disturbance of 10.12, compared to the 9.4 acres associated with the 2022 proposal, due to advanced engineering. The Project does not include a battery storage system, thereby reducing the impervious area from the previously permitted 0.67 acres to 0.55 acres. The site plans provided in this application address two of the fourteen conditions associated with that approval, specifically condition 4 (Updated detail on entrance pad to include 3' paved apron) and 13 (Updated plan with Permanent and Temporary BMPs). The Project is further described in the attached documents.

Thank you for your timely review of the enclosed materials. Please don't hesitate to contact me at 207-400-6161 or sean@flycatcherllc.com if you have any questions regarding the Project.

Respectfully submitted,



Sean Murphy
Senior Project Manager

Cc: Colin Sexton, Bluewave

Flycatcher
LAND + SCIENCE + PEOPLE

Lower Falls Landing – 106 Lafayette Street, Suite 1C
Yarmouth, Maine 04906
info@flycatcherllc.com - 207-217-0959

February 20, 2025

Natalie Thomsen
Planning Coordinator
City of Auburn
60 Court Street
Auburn, Maine 04210

Subject: BWC Gulf Island Pond, LLC – Auburn Solar Project
Development Review Application – Letter of Intent

Dear Ms. Thomsen,

On behalf of BWC Gulf Island Pond, LLC, a subsidiary of BlueWave Energy (Applicant), Flycatcher LLC (Flycatcher) is pleased to provide this supplemental information to support their Development Review application for the proposed Auburn Solar Project (Project) to be located at 224 East Waterman Road in Auburn. Specifically, we are providing responses to the requests made in your email of 2/3/2025, which were as follows:

Please submit a plan outlining the disposal of solid and hazardous waste and including provisions for site stabilization and revegetation.

Please see Appendix 1 of this submission.

Please submit a topsoil maintenance plan.

Please see Appendix 2 of this submission, which addressed specific measures for preventing the loss of topsoil.

Please submit an Operations and Maintenance Plan prioritizing agricultural co-use, such as grazing or apiaries and incorporate provisions for supporting native habitats and pollinators.

Please see Appendix 1 of this submission.

<u>General Construction Permit</u>

In your email, you also noted that your office would expect the Applicant to obtain a Maine General Construction Permit (MGCP) through the Maine Department of Environmental Protection (DEP) Stormwater Program and submit documentation of approval or indicate the status of the permit application to the City of Auburn Planning and Permitting Office as part of the Building Permit application. As you likely know, the Maine DEP issued a new MCGP on January 14, 2025 and one of the most significant changes is that the permit application must be signed by the operator, which is defined as "any party that has day-to-day operational control of the activities at a project that are necessary to ensure compliance with the permit conditions." In trainings, the Maine DEP has stated that in most cases the Operator will be the contractor completing the work, rather than the owner of the project.

Therefore, it is possible that at the time of the Building Permit submission there will not be an operator / contractor in place. We would suggest language such as:

Prior to the issuance of a building permit, the applicant shall either obtain a General Construction Permit through the Maine DEP Stormwater Program and submit documentation of approval or indicate the status of the permit application to the City of Auburn Planning and Permitting Office. Prior to any construction, the applicant must submit documentation that they have obtained a General Construction Permit to the City of Auburn Planning and Permitting Office.

Please let us know if you would like additional background on this situation.

Other Conditions

In addition to the above, you alerted the Applicant that your office was recommending the following conditions of approval:

- No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.
- Prior to any blasting activities, the applicant shall receive a blasting permit from the City of Auburn Planning, Permitting, and Code Department.
- Prior to the final electrical approval, the applicant shall submit a final as-built site plan to the Fire Prevention Officer, indicating all shut-down mechanisms for emergency response.
- Prior to the issuance of a building permit, the applicant shall submit an acceptable financial surety as described in the submitted Decommissioning Plan.

The Applicant agrees that each of these requirements are consistent with their application as submitted.

Thank you for your continued cooperation. Please don't hesitate to contact me at 207-400-6161 or sean@flycatcherllc.com if you have any questions regarding the Project.

Respectfully submitted,



Sean Murphy
Senior Project Manager

Cc: Colin Sexton, Soper Mill Brook, LLC

APPENDIX 1
SOLID AND HAZARDOUS WASTE DISPOSAL PLAN

SOLID AND HAZARDOUS WASTE DISPOSAL PLAN

The purpose of this Solid and Hazardous Waste Disposal Plan (Plan) is to provide guidance for the management of wastes generated during the construction and end-of-life phases of the proposed solar project. The Plan provides background on the types of wastes that may be encountered and the applicable federal and state regulations. The overall goal will be to ensure that waste management activities are aligned with Project policies, industry standards, and legal responsibilities.

POTENTIAL SOURCES AND TYPES OF WASTES

Construction and Operation

Construction of the proposed solar project will generate solid waste consisting of construction debris, packaging material, wooden pallets, and associated construction wastes. There would also be stump waste from tree cutting. There are no hazardous waste materials that are anticipated to be generated during construction.

It is important to note that solar panels are safe during use. Working solar panels have a strong encapsulant that prevents leaching. Silicon modules are typically sealed with a front sheet of glass with a polymer encapsulant and backsheet. Once the facility is in operation, it is not expected to generate any solid waste other than minor volumes of packaging materials related to maintenance and replacement activities.

End-of-Life

The most common reason that solar panels would be determined to be hazardous waste would be by meeting existing standards for toxicity. Heavy metals like lead and cadmium may be leachable at such concentrations that waste panels would fail the toxicity characteristic leaching procedure (TCLP), a test that determines if materials are hazardous waste. Because of the variation in design and components, testing has shown that some solar panels may pass the TCLP while others fail. Panels may also be assumed to be hazardous waste based on prior TCLP testing on the same models.

Similarly, inverters and other electrical components may contain hazardous wastes. While the components of an inverter may be valuable for their metal content and for rare elements like gallium and indium, some inverters may contain small amounts of heavy metals such as lead or cadmium.

The racking for the solar array is a solid metal and therefore eligible for recycling as solid waste. Similarly electrical cables made of copper may be treated as solid waste.

EXISTING REGULATIONS

End-of-life disposal of solar products in the US is governed by the Federal Resource Conservation and Recovery Act (RCRA) and state policies that govern waste. These are broadly described as follows. This is not intended to be a comprehensive review of these regulations, as it is likely that there will be

modifications to these programs by the time that the Project is undergoing decommissioning.

Federal

Federal solid and hazardous waste regulations (i.e., the RCRA requirements) apply to solar panels when they are discarded. When a solar panel reaches the end of its usable life or is otherwise discarded, it becomes solid waste. Solid waste is regulated federally under RCRA Subtitle D.

The discarded solar panel, which is now considered solid waste, may then also be regulated under RCRA Subtitle C as hazardous waste if it is determined to be hazardous based on the results of the TCLP. If the generator of the solar panels knows from previous experience that the material would fail the TCLP test, they can determine that the waste is hazardous without the need for testing.

Hazardous waste solar panels that are recycled may be able to use regulatory exclusions available under RCRA, including the transfer-based exclusion (Title 40 of the Code of Federal Regulations section 261.4(a)(24)) in states that have adopted the 2015 or 2018 Definition of Solid Waste Rule. The transfer-based exclusion is a regulatory exclusion for hazardous secondary material that is recycled, as long as certain criteria laid out in the regulations are followed. This conditional exclusion is designed to encourage recycling of materials by third parties while still providing a regulatory framework that prevents mismanagement.

State

In 1979, the Maine Legislature enacted the Maine Hazardous Waste, Septage and Solid Waste Management Act. This Act directed the State of Maine Department of Environmental Protection to issue State regulations for the safe management and transportation of waste materials. The identification of hazardous wastes is covered in Chapter 850 while the standards for generators of hazardous waste are set forth in Chapter 851. Solid waste provisions are generally set forth in Chapter 400.

The Maine Solar Decommissioning Law explicitly requires the recycling of the waste components of the solar energy development that are recyclable, including, but not limited to, the solar panels, by a facility authorized to accept such materials for recycling and the disposal of the waste components of the solar energy development that are not recyclable by a facility authorized to accept such materials for disposal. The Project's Decommissioning Plan adheres to this requirement.

DISPOSAL MEASURES

Construction and Operation

There are no hazardous waste materials that are anticipated to be generated during construction and operation. Construction and demolition debris will be disposed of at a licensed handling facility or facilities that are authorized to receive waste and properly handle recycled products as well as Universal Waste and Land Clearing Debris. Given the limited clearing that will occur, it is expected that stump material will be converted on site to erosion control mix (ECM). If there is any remaining material it will

be used as ECM for other projects or disposed of at an appropriate facility. Similarly, any wastes generated by maintenance activities will be limited and disposed of at a licensed facility.

End-of-Life

Prior to decommissioning, the Operator will review applicable federal and state laws related to the disposal of solid and hazardous waste materials. Expected measures to be taken include but are not limited to:

- Conduct appropriate tests (e.g. TCLP) or confirm generator knowledge to determine if solar panels, inverters, and potentially other equipment should be handled as hazardous waste.
- Facility components will be separated and categorized as follows:
    - Materials that could be reused or recycled would be hauled away from the site and sold.
    - Materials that could neither be reused nor recycled would be dismantled and hauled to the nearest approved landfill.
    - Hazardous materials that could not be reused or recycled would be disposed of at approved facilities.
- Contract with a reputable hauler(s) for removal of materials based on their category.

In all cases, the Operator will adhere to existing regulations for the handling of these materials. Records will be maintained for at least one year or as long as required under existing regulations of how facility equipment was handled and disposed of.

APPENDIX 2
TOPSOIL MANAGEMENT PLAN

TOPSOIL MANAGEMENT PLAN

Topsoil is that uppermost layer of soil capable of growing and supporting vegetation. Topsoil contains the essential microorganisms, nutrients, organic matter, and physical characteristics necessary to grow and sustain permanent vegetation.

Due to the flatness of the site, minimal grading will be required. The Inspection and Maintenance Plan provided in Attachment 11 describes the erosion and sediment control measures that will be undertaken during construction and operations. The Operations and Maintenance Plan provided in Attachment 10 requires periodic reviews of erosion control procedures and the identification and repair of erosion areas observed during vegetative management site visits.

In addition to the installation and maintenance of standard erosion and sediment controls, the Operator will take the following measures:

- Any stripped topsoil will be stockpiled away from work areas (e.g. parking areas, electric conductor trenches, along access roads, equipment pads) and kept separate from other excavated material (rock and/or sub-soil) until the completion of the facility for final restoration.
- For proper topsoil segregation, at least 25 feet of additional temporary workspace (ATWS) may be needed along “open-cut” underground utility trenches. All topsoil will be stockpiled as close as is reasonably practical to the area where stripped/removed and shall be used for restoration on that particular area.
- Any topsoil removed from permanently converted agricultural areas (e.g. permanent roads, etc.) will be temporarily stockpiled and eventually spread evenly in adjacent agricultural areas within the project Limits of Disturbance (LOD) in a manner that does not significantly alter the hydrology of the area.
- When open-cut trenching is proposed, topsoil stripping is required from the work area adjacent to the trench (including segregated stockpile areas and equipment access). The Operator proposes to complete this trenching utilizing Horizontal Directional Drilling or equivalent installation methods that minimizes disruption to the soil profile. However, any activities that disturb topsoil will have topsoil stockpiled as close as is reasonably practical to the area where stripped/removed and shall be used for restoration on that particular area.
- The Operator will clearly designate topsoil stockpile areas and topsoil disposal areas in the field and on construction drawings; changes or additions to the designated stockpile areas may be needed based on field conditions in consultation with the Environmental Monitor.
- Topsoil stockpiles on agricultural areas left in place prior to October 31st should be seeded with Aroostook Winter Rye or equivalent at an application rate of three bushels (168 lbs.) per acre and mulched with straw mulch at rate of two to three bales per 1000 Sq. Ft.
- Topsoil stockpiles left in place between October 31st and May 31st should be mulched with straw at a rate of two to three bales per 1000 Sq. Ft. to prevent soil loss.

APPENDIX 3
OPERATIONS AND MAINTENANCE PLAN FOR AGRICULTURAL CO-USE

OPERATIONS AND MANAGEMENT PLAN SUPPLEMENT

The following is supplement to the Operations and Maintenance Plan submitted with Development Review Application (Appendix 10).

15. PRIORITIZATION OF AGRICULTURAL CO-USE

The Operator will prioritize agricultural co-use throughout the life of the project. The Operator will promote a dual-use, sheep grazing operation (or other agrivoltaics operation including but not limited to inter-row crop growth, apiaries, or preservation of a pollinator habitat), in conjunction with this facility to the extent practicable. For the dual-use solar energy system to function as it was designed to, critical attention must be paid to operation and maintenance. The Operator will execute a contract with a reputable Operations and Maintenance provider to support the long-term Operation and Maintenance of the Generating Facility, including the agricultural co-use activities.

As a dual-use solar energy system, the Operator will provide access to the site for one or more farmers to engage in agricultural production. As a condition of agricultural site access, the farmer(s) will be required to annually report information about their agricultural activities as required by local regulation. As referenced above, this agricultural operation may consist of sheep grazing, inter-row crop growth, apiaries, or the preservation of a pollinator habitat, or a combination of these activities. These reports will be publicly available upon request.

The farmer(s) will be required to comply with federal and state law, and to provide the Operator with an annual operations plan with sufficient detail to ensure the safety of the PV system and associated personnel. The content of annual operations plans will be treated as privileged information about the farm(s) and not subject to disclosure except as necessary to comply with state or federal law or to ensure environmental or human safety. As a component of the annual operations plan, the farmer(s) will be required to provide a list of regulated agricultural substances and/or materials approved for use on the site. The Operator will keep a copy of the operations plan, including the list of regulated substances and materials.

The site will remain vegetated except as necessary for agricultural operations. When soil is exposed or disturbed for agricultural purposes, it will be cover-cropped and otherwise managed to conserve soils in accordance with good agricultural practices, and to prevent damage to PV equipment.

City of Auburn, Maine
Planning & Permitting
Eric Cousens, Director
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

Development Review Application

PROJECT NAME: Gulf Island Pond Solar

PROPOSED DEVELOPMENT ADDRESS: 224 E. Waterman Road, Auburn

PARCEL ID #: 393-010

REVIEW TYPE: **Site Plan** ☒ **Site Plan Amendment** ☐
Subdivision ☐ **Subdivision Amendment** ☐

PROJECT DESCRIPTION: 1.41 MW DC solar facility. See application for additional information.

CONTACT INFORMATION:

Applicant

Name: BWC Gulf Island Pond, LLC / Colin Sexton
Address: 116 Huntington Ave, Suite 601
City / State Boston, MA
Zip Code 02116
Work #:
Cell #: 239-203-3944
Fax #:
Home #:
Email: csexton@bluewave.energy

Property Owner

Name: Bertrand Roy
Address: 224 East Waterman Road
City / State Auburn, ME
Zip Code 04210
Work #:
Cell #:
Fax #:
Home #:
Email:

Project Representative

Name: Sean Murphy, Flycatcher
Address: Lower Falls Landing, 106 Lafayette St, Suite 2a
City / State Falmouth, ME
Zip Code 04096
Work #: 207-400-6161
Cell #:
Fax #:
Home #:
Email: Sean@flycatcherllc.com

Other professional representatives for the project (surveyors, engineers, etc.),

Name:
Address:
City / State
Zip Code
Work #:
Cell #:
Fax #:
Home #:
Email:

PROJECT DATA

The following information is required where applicable, in order complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	0	sq. ft.
Proposed Total Paved Area		sq. ft.
Proposed Total Impervious Area	23,770	sq. ft.
Proposed Impervious Net Change	+23,770	sq. ft.
Impervious surface ratio existing	0	% of lot area
Impervious surface ratio proposed	0.5	% of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint	N/A - no buildings	sq. ft.
Proposed Building Footprint		sq. ft.
Proposed Building Footprint Net change		sq. ft.
Existing Total Building Floor Area		sq. ft.
Proposed Total Building Floor Area		sq. ft.
Proposed Building Floor Area Net Change		sq. ft
New Building		(yes or no)
Building Area/Lot coverage existing		% of lot area
Building Area/Lot coverage proposed		% of lot area

ZONING

Existing	Agricultural / Resource Protection
Proposed, if applicable	N/A

LAND USE

Existing	Agriculture / Undeveloped
Proposed	Solar Farm (1.41 MWdc)

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	N/A
Proposed Number of Residential Units	
Subdivision, Proposed Number of Lots	

PARKING SPACES

Existing Number of Parking Spaces	N/A - parking only for temporary construction period
Proposed Number of Parking Spaces	
Number of Handicapped Parking Spaces	
Proposed Total Parking Spaces	

ESTIMATED COST OF PROJECT: $2.7M

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area	0	sq. ft.
Proposed Disturbed Area	440,827	sq. ft.
Proposed Impervious Area	23,770	sq. ft.

1. ***If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.***
2. ***If the proposed impervious area is greater than one acre including any impervious area crated since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.***
3. ***If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.***
4. ***If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.***

TRAFFIC ESTIMATE

Total traffic estimated in the peak hour-existing (Since July 1, 1997) 1 passenger car equivalents (PCE)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997) 1 passenger car equivalents (PCE)

If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the AG zoning district.
2. Parcel Area: 121.57 acres / _____ square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	36 acres	10.12 acres
Street Frontage	250 ft	>400 ft
Min Front Yard	18 ft	50 ft or greater
Min Rear Yard	25 ft	50 ft or greater
Min Side Yard	15 ft	50 ft or greater
Max. Building Height	30 ft	12
Use Designation		
Parking Requirement	1 space/ per square feet of floor area	
Total Parking:	0	0
Overlay zoning districts (if any):		
Urban impaired stream watershed?	YES/NO If yes, watershed name	No

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submissions shall include fifteen (15) complete packets containing the following materials:

1. 5 Full size plans and 10 smaller (no larger than 11" x 17") plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed by the property owner or designated representative. (NOTE: All applications will be reviewed by staff and any incomplete application will not be accepted until all deficiencies are corrected.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

To view the City of Auburn Zoning Ordinance, go to:
www.auburnmaine.gov under Government, select Departments of the City, then Planning, Permitting & Code. On the left menu, choose Subdivisions, Land Use, Zoning Ordinance. Or click HERE.

For additional information on Site Plan Review, please click HERE or scan code:

For additional information on Special Exceptions, please click HERE or scan code:

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review only; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant:	**Date:**
Colin Layton	1/2/2025

BLUEWAVE

October 24th, 2022

To Whom It May Concern:

On behalf of BWC Gulf Island Pond, LLC, a subsidiary of BlueWave Solar, I hereby authorize Flycatcher, LLC, to act as BWC Gulf Island Pond, LLC's agent with respect to all permitting and regulatory matters pertaining to the proposed solar project to be located at 224 East Waterman Road in Auburn, Maine.

Sincerely,

Mark Sylvia
Authorized Signatory

116 HUNTINGTON AVE, BOSTON, MASSACHUSETTS 02116
WWW.BLUEWAVESOLAR.COM **T**: 617.209.3122 **F**: 617.395.2730

ATTACHMENT 1
PROJECT DESCRIPTION AND DEVELOPMENT REVIEW

PROJECT DESCRIPTION AND DEVELOPMENT REVIEW

Project Overview

BWC Gulf Island Pond, LLC (Applicant) is proposing to install and operate a 1.41 MWdc solar array (Project) at 224 East Waterman Road in Auburn, Maine. The limits of disturbance will be 10.12 acres, including an agricultural fence surrounding the solar array. The total impervious area will be 0.55 acres.

Pending approvals, the Project is anticipated to start work in Q3 of 2025 with an anticipated construction period of 6 to 8 months in duration. The Project will be constructed in compliance with applicable municipal, state and federal regulations, guidelines, and standards, and the specific requirements of the necessary permits. Maps and figures related to the Project are provided in Attachment 3, site plans are provided in Attachment 4, and a demonstration of right, title, and interest in the form of a lease option is provided in Attachment 5.

The proposed Project includes solar panels, associated electrical equipment, perimeter fencing and site access. The location of these facilities is provided on the attached site plan. There are no buildings and therefore no floor area. Chain link fencing will be installed around the solar arrays, per the National Electric Safety Code (NESC). No exterior lighting is proposed for the facility, except for lighting immediately over the electrical equipment to allow for nighttime maintenance.

Construction of the Project will begin with establishing base lines and demarcating the Project limit of work. Following installation of temporary erosion and sediment control measures such as silt fence and erosion control mix (ECM), the site will be cleared and grubbed as necessary. The design of erosion and sedimentation control measures will be based on the Maine Erosion & Sediment Control Handbook for Construction: Best Management Practices (BMPs). Gravel access roads or entranceways will then be constructed, along with proposed stormwater management features. The perimeter fence will be installed, followed by installation of solar panels. Posts will first be installed for attachment of the racking system, then installation of solar panels and aboveground and underground conductors will occur. Solar panels will be underlain with herbaceous vegetation. The final number of panels will be based on site conditions as determined during construction and may vary slightly from the permit drawings. Individual foundation excavations will then be made and concrete pads will be installed for the placement of electrical equipment. Any necessary final grading, site stabilization, vegetation management and landscaping will then be conducted.

Disturbance of soils (grading, removal of soil, and importation of gravel materials) will be minimized to the greatest extent practicable. A vegetative buffer will be maintained around the Project area to the extent possible to serve as a natural wind barrier. The Project site is not located in an area that has been identified as having significant habitat or aesthetic value.

A soil report generated by the USDA Natural Resource Conservation Service is provided in Attachment 6. Depth to a restrictive feature (e.g., bedrock) varies across the site. The racking system for the array will be mounted on posts installed into the ground. For deeper soils, the mounting poles will be driven into the ground. Where soils are shallow, a screw anchor will be used to overcome bedrock or large

boulders or, if necessary, a hole will be drilled into the bedrock and grout employed to adhere the post to the substrate.

Landscape Plan

The area under the arrays will be maintained as meadow. There are no parking spaces proposed, as the facility will be unmanned. The Project's fencing is located approximately 1,100 feet (0.21 miles) from East Waterman Road to the south. Existing vegetation provides screening in all other directions. As such, the Applicant is not proposing any plantings.

Lighting Plan

No exterior lighting is proposed for the facility, except for lighting immediately over the electrical equipment to allow for nighttime maintenance.

Stormwater

The Project will disturb one acre or more of area during construction and therefore will be required to demonstrate that is has been developed accordance with the State's Stormwater Management Law. The Project is not located within the direct watershed of a lake most-at-risk from new development, or an urban impaired stream, and will not result in greater than one acre of impervious area, or five or more acres of developed area.

"Impervious area" is defined by DEP as "the total area of a parcel covered with a low-permeability material, such as asphalt, concrete, and gravel roadways." Consistent with this definition, the total impervious area calculated for the Project includes areas covered by concrete equipment pads, gravel access roadways, and the ground-driven post mounts for the solar panels. DEP has previously deemed that the solar panels are not considered impervious area. The total impervious area of the Project is 0.53 acres.

"Developed area" is defined by DEP as "an impervious area, landscaped area, or unrevegetated area; developed area includes all disturbed areas except an area that is returned to a condition that existed prior to the disturbance and is revegetated within one calendar year of being disturbed, provided the area is not mowed more than twice per year." During a DEP Solar Round Table meeting held on February 5, 2020, DEP confirmed that the area under solar panels is not considered developed as long as it is revegetated after construction and does not get mowed more than twice a year. Therefore, the total developed area of the Project is 0.55 acres.

Because the Project will not result in greater than one acre of impervious area, or five or more acres of developed area, the Project will be subject to the basic stormwater standards set forth in DEP's Chapter 500 Stormwater Management Rule ("Chapter 500"). The City of Auburn has delegated authority to determine compliance with the basic standards outlined in Chapter 500. This application provides site plans showing pre- and post-construction drainage and erosion and sediment control measures (Attachment 4). It also provides the output from a HydroCAD model (Attachment 8) which was developed for the previous iteration of the project, which represented a greater impervious area (0.67

acres) than is proposed for this Project (0.55 acres) and therefore should be considered conservative. Erosion and sediment controls will be designed in accordance with the State's Erosion and Sediment Control Law (M.R.S. 420-C), and the Maine Erosion and Sediment Control Best Management Practices (BMPs) manual, published by DEP.

Although the Project will not be subject to the general stormwater standards outlined in Chapter 500, the Project will utilize stormwater management BMPs to control runoff and provide water quality treatment for impervious and developed areas. Such BMPs may include wet ponds, vegetated soil filters, vegetated swales, vegetated buffers, and other low impact development (LID) techniques. Proposed stormwater BMPs will be designed in accordance with the standards set forth in Chapter 500 and the guidance provided in DEP's Stormwater Best Management Practices Manual.

Overall, though the Project has a large footprint, the Project will result in little impervious area. In general, areas disturbed adjacent to the access roads will be permanently stabilized through seeding and the majority of the site will be maintained as meadow. Based on this information, the Applicants request a waiver from providing formal calculations for different flood event scenarios.

Traffic Information

During construction, the Project will temporarily increase traffic on municipal roads, but these effects will be temporary in nature and relatively minor. Standard trucking methods will be used to transport materials and equipment to the Project site. The inverter and transformer stations are anticipated to be delivered assembled on standard-width flatbed tractor-trailers. Other Project equipment (e.g., wire, cable, conduit, and construction materials) will also be transported on standard-width trucks. On-site, heavy construction equipment is anticipated to be limited to a backhoe for foundation-post and conduit excavation, cement trucks for delivery of concrete for the pier foundations under each inverter enclosure and the transformer pads, and a light duty crane to place the enclosures on these concrete piers.

During operations, no full-time staff will be located at the facility. On-site personnel visits are anticipated to be largely limited to managing the property grounds and associated solar facilities in accordance with any permit requirements and maintenance of equipment as recommended by manufacturer specifications. Occasionally small crews may access the site to effect repairs in the event of equipment breakdown. These visits will generally be of short duration and the long-term traffic volume generated by the development will be negligible.

Utility Plan

The Project will be unmanned and therefore no water supply or wastewater disposal systems will be required for this Project. During construction, anticipated water usage will include use of bottled drinking water or water trucked in from municipal sources for construction personnel and dust abatement. Water for dust abatement will be from publicly accessible, off-site water sources, excluding streams, brooks, and groundwater sources. Water for dust abatement will be distributed via a tanker truck. Portable disposal units will be used during construction.

There will be no full-time staff required for operation of the solar energy center. On-site personnel visits will be to manage the property grounds and associated solar facilities in accordance with any permit requirements and maintenance and repair of equipment as recommended by the manufacturer.
There will be no natural gas or cable/phone utilities. Electricity generated by the Project will be transmitted to the grid via wooden utility poles.

Natural Resources

Field studies were completed on the Project's parcel and resources identified are provided on the attached Site Plans. The Project is not expected to have any direct impacts to wetlands or waterbodies and the previous disturbances in this area suggest it does not serve as significant habitat for any sensitive species. The Project is not located within a FEMA-mapped floodplain (see Attachment 3).

The Applicant will need to file a Natural Resources Protection Act (NRPA) Permit-by-Rule due to activities within 75 feet of a stream.

Right, Title or Interest

A copy of the Option Agreement is provided in Attachment 5 of this application.

Technical and Financial Capacity

BlueWave's vision is to protect our planet by transforming access to renewable energy. As a pioneering renewable energy developer, owner, and operator, BlueWave has developed and built more than 150 MW of solar projects to date. As built, these projects collectively generate enough solar energy to avoid more than 144,000 metric tons of carbon emissions annually.

BlueWave is proud to be a certified B Corp, scoring in the top 5% of companies assessed towards certification in Governance, and named Best for the World for Governance. BlueWave has received national recognition for its work to protect the planet from other organizations, including being named a top 100 Impact Company in the United States for each of the last five years as rated by Real Leaders Magazine, a leading growth company by Boston Business Journal, Solar Builder Project of the Year in 2021 and 2020, and Clean Energy Company of the Year in 2018 by the Northeast Energy Council.

KeyBank has provided a letter indicating their confidence that, once all required permits and approvals have been obtained, Bluewave will be able to obtain financing on market terms and conditions sufficient to cover development costs, construction financing, and other financing as necessary for the Project to reach commercial operation. This letter is provided in Attachment 7.

Resumes of key staff are available upon request.

ATTACHMENT 2
NARRATIVE ON
STANDARDS

APPLICABLE STANDARDS REVIEW

The following information is presented to demonstrate that the proposed Project adheres to the performance standards set forth in Chapter 60 of the City's Ordinances, specifically Article XVI Division 2-3, Article IV Division 2, and Article XVIII.

Article XVI Division 2

In considering a site plan, the planning board shall make findings that the development has made provisions for:

(1) Protection of adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against artificial and reflected light, sight, sound, dust and vibration; and preservation of light and air;

The lack of elevation, the modest height of the proposed structures, and the extensive system of trees along the property boundary will limit the impact of the Project on adjoining properties. The majority of the Project is set back from the nearby roadway and will not be visible to vehicles passing by the site. The only visible portion of the Project to vehicular traffic will be an access road and wooden utility poles.

During the Project's construction phase there will be minor and temporary noise from construction equipment and vehicles. Noise associated with the construction phase of the Project will generally occur during daylight hours. If blasting is required for the Project, there will be short-duration blasts and notifications will occur in compliance with a Blasting Plan. During operations, the Project will produce minimal noise. The Project inverters will generate a small hum when producing electricity during daylight hours; no sound will be generated by the Project during nighttime hours as the inverters will not operate at night.

Once construction is complete, there will be no dust or vibration associated with the Project.

(2) Convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas;

The Project will be fenced in as is required by the National Electric Code (NEC) to prevent access by unauthorized personnel. There will be no pedestrian traffic within the Project area.

During construction, the Project will temporarily increase traffic on municipal roads, but these effects will be temporary in nature and relatively minor. Standard trucking methods will be used to transport materials and equipment to the Project site. The inverter and transformer stations are anticipated to be delivered assembled on standard-width flatbed tractor-trailers. Other Project equipment (e.g., wire, cable, conduit, and construction materials) will also be transported on standard-width trucks. On-site, heavy construction equipment is anticipated to be limited to a backhoe for foundation-post and conduit excavation, cement trucks for delivery of concrete for the pier foundations under each inverter enclosure and the transformer pads, and a light duty crane to place the enclosures on these concrete piers.

During operations, no full-time staff will be located at the facility. On-site personnel visits are anticipated to be limited to managing the property grounds and associated solar facilities in accordance with any permit requirements and maintenance of equipment as recommended by the manufacturer. Occasionally, small crews may access the site to effect repairs in the event of equipment breakdown. These visits will generally be of short duration and so the long-term traffic volume generated by the development will be negligible.

(3) Adequacy of the methods of disposal for wastes; and

Construction of the Project is expected to generate cardboard waste (e.g., broken-down solar panel boxes) and clean wood waste (e.g., wood pallets). Recycling and reuse will be the preferred method of disposing of these solar panel delivery materials. A licensed disposal facility will be contracted to accept and recycle or dispose of waste generated from the Project. Solid waste during operation of the facility is expected to be limited to materials associated with the replacement of equipment and a similar contracting arrangement will be made with a licensed disposal facility.

As full-time staff are not required for operation of the solar energy center, no wastewater disposal systems will be required for this Project. During construction, porta-potties will be brought on-site for construction crew use and these will be removed once construction is completed.

(4) Protection of environment features on the site and in adjacent areas.

The Project has been sited to minimize impacts to wetlands and forest resources. There are no impacts to wetlands and no tree removal required for this Project. No other significant environmental features have been identified on the site.

Article XVI Division 3 – Special Exception

As conditions prerequisite to the granting of any special exceptions, the board shall require evidence of the following:

(1) That the special exception sought fulfills the specific requirements, if any, set forth in the zoning ordinance relative to such exception.

As described later in this document, the Project adheres to specific requirements in the applicable zoning ordinances.

(2) That the special exception sought will neither create nor aggravate a traffic hazard, a fire hazard or any other safety hazard.

During construction, the Project will temporarily increase traffic on municipal roads, but these effects will be short in duration and relatively minor. Standard trucking methods will be used to transport materials and equipment to the Project site. The inverter and transformer stations will be delivered assembled on standard-width flatbed tractor-trailers. Other Project equipment (e.g., wire, cable, conduit, and construction materials) will also be transported on standard-width trucks.

During operations, no full-time staff will be located at the facility. On-site personnel visits should be limited to managing the property grounds and associated solar facilities in accordance with any permitting requirements and maintenance of equipment as recommended by the manufacturer. Occasionally small crews may access the site to effect repairs in the event of equipment breakdown. These visits will generally be of short duration and the long-term traffic volume generated by the development will be negligible.

The Project does not pose a fire or any other safety hazard. Fire safety is further discussed below.

(3) That the special exception sought will not block or hamper the master development plan pattern of highway circulation or of planned major public or semipublic land acquisition.

The Applicant is unaware of any planned public or semipublic land acquisitions. The Project will be unmanned and so the expected traffic from the site will be the less than would be expected based on the current use.

(4) That the exception sought will not alter the essential characteristics of the neighborhood and will not tend to depreciate the value of property adjoining and neighboring the property under application.

The Project design and layout has maximized use of existing topography and vegetation to shield proposed facilities from view from public view. The Project is sufficiently separated from public roads and the nearby Gulf Island Pond that any visible components of the Project (e.g., arrays and transmission

poles) will appear small. Poles and wires will be minimally visible and are expected to blend in with adjacent forested areas when viewed from these distances.

During operations, the Project will produce minimal noise. The Project inverters will generate a small hum when producing electricity during daylight hours and will not operate at night. Once the Project is operational, it will not generate any dust, odor, vibration, smoke, litter or other nuisances.

(5) That reasonable provisions have been made for adequate land space, lot width, lot area, stormwater management in accordance with section 60-1301(14), green space, driveway layout, road access, off-street parking, landscaping, building separation, sewage disposal, water supply, fire safety, and where applicable, a plan or contract for perpetual maintenance of all the common green space and clustered off-street parking areas to ensure all such areas will be maintained in a satisfactory manner.

Lot Dimensions

As described below, the Project will meet required land space, lot width and lot area requirements. The Project has been designed to be as compact as possible while still allowing for existing agricultural activities outside of the Project area.

Stormwater Management

As described in Attachment 1, the Project will result in 0.55 acres of impervious area and developed area and therefore will be subject to the basic stormwater standards set forth in DEP's Chapter 500 Stormwater Management Rule ("Chapter 500"). Stormwater modeling was completed for the Project, using the hydrologic program HydroCAD, as developed by HydroCAD Software Solutions, LLC. The analysis relies on three subwatersheds, which are shown on the pre- and post-development drainage plans provided in Attachment 4. The HydroCAD output is provided as Attachment 8. As previously noted, this model was developed for the previously submitted project, which required more impervious area than is proposed for this Project. Therefore the results as described should be considered conservative.

The analysis shows there is no increase in peak runoff rates at all Design Points for the 2-, 10-, and 25-year storm events (see Table 1). Overall, the peak flow of stormwater runoff for the site will not increase in the post-development condition. This finding is consistent with Projects where, although there is a large footprint, the acreage of impervious area is low.

Table 1. Peak Discharge Rates			
Design Point	Peak Discharge Rates for Given Storm (cfs)		
	2-Year	10-Year	25-Year
Design Point 1: OG 1			
Pre-Development	0.19	2.53	7.21
Post-Development	0.24	2.53	6.74
Net Change	*0.06*	*0.0*	*-0.47*
Design Point 3: OG 2			
Pre-Development	0.06	0.89	2.94
Post-Development	0.03	0.46	1.82
Net Change	*-0.03*	*-0.43*	*-1.12*
Design Point 3: OG 3			
Pre-Development	0.41	4.55	11.05
Post-Development	0.39	3.86	9.31
Net Change	*-0.02*	*-0.69*	*-1.74*

Green Space

The Project will be maintained as a meadow underneath the solar array.

Driveway Layout, Road Access, Off-street Parking

The Project will be accessed by a single roadway that is designed to be the shortest practical distance. No off-street parking will be required.

Landscaping

Based on the large distance of the Project from East Waterman Road and the presence a natural forested buffer in all other directions, no landscaping is proposed.

Building Separation

There are no buildings proposed for this Project.

Sewage Disposal and Water Supply

No water supply or wastewater disposal systems will be required for this Project. During construction, anticipated water usage will include use of bottled drinking water or water trucked in from municipal sources for construction personnel and dust abatement. Water for dust abatement and HDDs will be from publicly accessible, off-site water sources, excluding streams, brooks, and groundwater sources. Water for dust abatement will be distributed via a tanker truck. Portable disposal units will handle sewage.

There will be no full-time staff required to be located at the Project site for operation of the solar energy center. On-site personnel visits are anticipated to be largely limited to managing the property grounds and associated solar facilities in accordance with any permitting requirements and maintenance of equipment as recommended by manufacturer specifications. Therefore no water supply or sewage disposal facilities are proposed.

Fire Safety

The Project will be accessed through a single gated entrance road. Once the Project is in operation, there will be limited vehicular use on the site which will consist largely of pick-up trucks and associated trailers. The City Fire Department will have access to Project gate keys through Knox Boxes. A 16-foot buffer will be maintained between arrays and the perimeter fencing to accommodate vehicles, primarily pickup trucks or other passenger vehicles, in the event of an emergency. The Project will be remotely managed and monitored 24 hours a day. In the unlikely event of equipment failure that causes a fire, the operator is notified at once of a malfunction and can remotely shutoff some or all of the Project as necessary for safety access and fire suppression. If electrical equipment catches on fire, it is not repairable (unlike buildings and structures) so the typical course of action is isolate the area from the public, limit the potential for spread, and let the fire burn out.

Perpetual Maintenance of Common Green Space and Clustered Off-street Parking Areas

These provisions are not applicable to this Project.

(6) That the standards imposed are, in all cases, at least as stringent as those elsewhere imposed by the city building code and by the provisions of this chapter.

The Applicant believes that they have adhered the most stringent of applicable codes.

(7) That essential city services which will be required for the project are presently available or can be made available without disrupting the city's master development plan.

All necessary City services are presently available.

Article IV Division 2- Agricultural and Resource Protection District

Ground-mounted and dual-use solar energy generating systems greater than one acre in total land area as defined in section 60-1501, subject to the following conditions:

a. Must comply with the provisions of Article XVIII under this chapter;

As described later in this section, the Project will comply with the provisions of Article XVIII.

b. Setbacks, including appurtenant structures and parking areas, shall be subject to the following yard requirements:

1. Rear. There shall be behind every structure associated with a solar energy generating system a rear yard having a minimum depth of 25 feet.

2. Side. There shall be a minimum distance of 15 feet between any structure associated with a solar energy generating system and the side property line.

3. Front. There shall be in front of every structure associated with a solar energy generating system a front yard having a minimum depth of 25 feet or 25 percent of the average depth of the lot whichever is less.

This Project conforms to these standards by providing at least 50 feet for the rear yard, side yard and front yard setbacks.

c. Lot coverage shall not exceed 30 percent, as defined under subsection 60-1506(a)(2).

The lot area is approximately 121 acres. The Project limits of disturbance is 10.12 acres or approximately 8% of the lot.

d. Total land area. Once one percent of the agriculture and resource protection district has been developed into solar energy generating systems, the planning board must find that any additional proposed solar energy generating systems will not materially alter the stability of the overall land use pattern of the agriculture and resource protection district. In making this determination, the planning board shall consider the overall effect of existing and potential solar energy generating systems and if it will be more difficult for existing farms in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland, acquire water rights, or diminish the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the surrounding area. The planning board shall request an assessment of the proposed project based on subsection 60-145(b)(19)d. by the agriculture committee and, if located in the resource protection district, the conservation commission and carefully consider their recommendations.

It is the Applicant's understanding that this threshold would not be met with this Project.

e. All applications shall consider the location of existing grid infrastructure and plan to limit the need to extend the amenities for optimal efficiency.

The Applicant has sited this facility based on the existing capacity of the grid in consultation with utility representatives.

f. If a solar energy generating system is proposed on forestland in the agriculture and resource protection district, on a parcel adjacent to prime farmland or land currently used for farming, clearing of forestland or the use of prime farmland may be permitted under the following conditions:

1. The presence of the solar energy generating system will not result in unnecessary soil erosion or loss that could limit agricultural productivity on the subject property or abutting properties.

As previously discussed, the run-off associated with the Project will decrease from existing conditions based on HydroCAD modeling provided in Attachment 8.

2. At the time of decommissioning of any solar energy generating system approved by the planning board, the current sitting planning board shall review the site and proposed decommissioning plan for the conversion of the parcel into prime farmland or forestland, as applicable under the current ordinance standards.

The Applicant agrees with this condition. The Project's Decommissioning Plan is provided as Attachment 9 to this application.

3. A survey of critical wildlife habitat is provided at the time of application, if a project is located in an area determined to be essential habitat, as defined by the state department of inland fisheries and wildlife, an IF&W recommendation shall be secured before a planning board ruling.

The Applicant reviewed the Beginning with Habitat database and there are no mapped Essential Habitat areas within the Project area.

4. A vegetative cover plan is provided that demonstrates, where feasible, the replanting of forested areas disturbed during construction and preservation of prime soils throughout the life of the project.

The Project does not require any clearing of forested areas during construction. The Applicant has developed an Operations and Maintenance Plan (Attachment 10) that describes how to maintain vegetative cover, which is essential in preserving prime soils. The Applicant is also providing an erosion and sediment control inspection and maintenance plan (Attachment 11). These measures in tandem will prevent the removal of prime soils from the site.

g. Prime soils. All solar energy generating systems proposed in the agriculture and resource protection district shall include a soil analysis. Such analysis shall demonstrate if the site proposed for development contains prime farmland as defined by the United States Department of Agriculture (USDA). Least productive agricultural soils shall be considered first for development unless it can be demonstrated to the planning board that:

1. Non-prime farmland is not reasonably available on the subject property.

The Applicant utilized the USDA's web-based soil mapper to identify prime farmland and Farmland of statewide importance on the property. This analysis excluded wetland areas due to state and federal requirements that these features be avoided to the extent practicable. The Applicant also did not include forested areas in this analysis in order to minimize the required cutting. The resulting report is provided as Attachment 6 to this application.

Based on this mapping, approximately 67% of the available property are classified by the USDA as either prime farmland and Farmland of statewide importance. Those areas which do not fall into the categories (AaC, AaD, HkC, and MeC) are not sufficiently condensed so as to allow for the installation of the Project solely or even primarily within these areas.

h. All applications for solar energy generating systems in the agriculture and resource protection district shall be subject to the following provisions:

1. **Siting of the overall facility and individual panels shall keep with the existing contours of the land;**
2. **Only pile driven, or ballast block footing shall be used so as to minimize the disturbance of soils during installation;**
3. **To the extent possible, infrastructure shall not be located on steep slopes; and**
4. **A plan for topsoil maintenance shall be provided at the time of application to the planning board.**

The current topography within the Project area is level and the site design will not significantly alter this configuration. There are no steep slopes.

The Applicant anticipates using pile driven footings.

The Operations and Maintenance Plan provided in Attachment 10 describes how to maintain vegetative cover, which is essential in preserving prime soils. The Inspection and Maintenance Plan provided in Attachment 11 describes the erosion and sediment control measures that will be undertaken.

i. All operations and maintenance plans shall also include:

1. A plan prioritizing the ability to co-mingle agricultural and energy generation land uses including but not limited to: apiaries, grazing or handpicked crops.

2. A plan that provides habitat for native plants and animals and native pollinators.

The Applicant is a leader in agrivoltaic projects, where agricultural uses are integrated into a solar project. A discussion of this initiative can be found here: https://bluewave.energy/solar-development-1/dual-use. In the State of Maine, they have integrated blueberry crops with a Rockport solar facility, as described in a July 6, 2021 Portland Press Herald article (https://bluewave.energy/bw-resources/on-rockport-farm-blueberry-grower-solar-power-developer-seek-common-ground). The Applicant has also spearheaded conversations with the Department of Environmental Protection and the Department of Agriculture on how to best introduce grazing onto sites in a manner that will not impact water quality. The proposed Project will also be reviewed to determine how to conduct agricultural activities within the Project area. In addition, the Project has been sited to allow for continued agricultural operations on the remainder of the property.

The Applicant has committed to the use of native plants and native pollinators.

Dimensional regulations.

All structures in this district, except as noted shall be subject to the following dimensional regulations:

(1) Minimum lot area, width and depth. No lot shall be created containing less than ten acres, exclusive of any bodies of water having a surface area of one-fourth of an acre or more and measuring less than 250 feet in width at the street frontage, and 200 feet in depth. No building shall be erected on a lot containing less than ten acres, except as allowed in this section, exclusive of any bodies of water having a surface area of one-fourth of an acre or more, and measuring not less than 250 feet in width at the street frontage, and 200 feet in depth.

a. A building may be erected on a lot containing not less than 50,000 square feet and possessing the required minimum frontage width provided it is contiguous with other lots or parcels of land in the same ownership containing an aggregate of not less than ten acres; notwithstanding the separation of the said other lots or parcels of land by a road, stream, private right-of-way or other natural boundary from the lot on which the building is to be constructed. This section shall not be construed to prevent the construction of nonresidential accessory farm buildings on any such lot.

b. On legally nonconforming undersized lots, the keeping of horses, mules, cows, goats, sheep, hogs, and similar sized animals for domestic use of the residents of the lot is permitted provided that the land area required per animal unit conforms to the definition of farm, livestock contained in section 60-2.

c. A dwelling may be constructed on lots existing as of October 1, 2017 and containing greater than 6.1 acres but less than ten acres, if approved as a special exception pursuant to subsection 60-145(b)(18).

Not applicable.

(2) Density. The density of year-round dwelling units shall not exceed an average of one dwelling per ten acres, unless approved pursuant to subsection (1) above.

No year-round dwelling units are proposed as part of this Project.

(3) Yard requirements.

a. Rear. There shall be behind every building a rear yard having a minimum depth of 25 feet.

b. Side. There shall be a minimum distance of 15 feet between any building and the side property line.

c. Front. There shall be in front of every building a front yard having a minimum depth of 25 feet or 25 percent of the average depth of the lot whichever is less.

(4) Height. The height of all dwelling structures shall be limited to two and one-half stories or 35 feet in height. Accessory buildings and structures may have a maximum height of 65 feet from grade, provided that the front yard, rear yard and each of the side yards shall be increased by one foot for each foot in height in excess of 35 feet.

(5) Off-street parking. Off-street parking spaces shall be provided in accordance with the requirements for specific uses as set forth in article V of this chapter.

The rear yard, side yard and front yard setbacks are all at least 50 feet. The maximum height for structures will be less than 35 feet. No off-street parking is required for this Project.

Article XVIII – Solar Ordinance

In addition to the criteria in sections 60-1277 and 60-1336, the planning board shall consider the following standards:

(1) Yard requirements. The setbacks for solar energy generating system installations in the industrial district, including appurtenant structures and parking areas, shall be subject to the following yard requirements:

a. Rear. There shall be behind every structure associated with a solar energy generating system a rear yard having a minimum depth of 50 feet or 20 percent of the average depth of the lot, whichever is less.

b. Side. There shall be a distance of five feet between any structure associated with a solar energy generating system and the side property line, plus the side yard setback shall be increased one foot for every three feet or part thereof increased in street frontage over 60 feet to a maximum of 35 feet for side yard setback.

c. Front. There shall be in front of every structure associated with a solar energy generating system a front yard having a minimum depth of 35 feet or 15 percent of the average depth of the lot whichever is less. No front yard need be any deeper than the average depth of front yards on the lots next thereto on either side. A vacant lot or a lot occupied by a building with a front yard more than 35 feet shall be considered as having a front yard of 35 feet.

The Project is not located in the Industrial District.

(2) Lot coverage. The paved, mounting block, or otherwise impervious areas of sites on which ground mounted solar energy systems are installed shall comply with the lot coverage standards as defined in section 60-579(2). For the purposes of this section, photovoltaic cells, panels, arrays, and inverters shall not be considered impervious areas provided the soil underneath the collector is not compacted and remains vegetated in accordance with the standards applicable to vegetation established in Chapter 500, Appendix A(6) Permanent Stabilization.

The site is approximately 121 acres in total, with a proposed 0.55 acres of impervious area. This will result in impervious area covering approximately 0.4% of the lot area, conforming to the City's requirement.

(3) Height regulations. The total height of the solar energy generating system and all appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations shall not exceed 30 feet.

The total height of the solar energy generating system and all appurtenant structures, including but not limited to, equipment shelters, storage facilities, and transformers, will be approximately 12 feet. No substation is proposed for this Project.

(4) Technical and safety. A copy of the as-built site plan for the solar energy generating system shall be provided to the local fire prevention officer. All means of shutting down the solar energy generating system shall be clearly marked.

The Applicant confirms that providing means of shutting down the solar energy generating system will be marked on site and on the as-built Site Plan. The as-built site plan will be provided to Auburn's fire prevention officer. There will also be protected access on the site as a gate with a Knox Box will be provided. In case of an emergency, there will by 24-hour contact information for utility and emergency personnel. The Applicant would agree to making these provisions a condition of the permit.

(5) Maintenance. The owner or operator of the solar energy generating system shall maintain the facility in good condition. Proper maintenance of the facility means that it is operating as designed and approved. Maintenance shall include, but not be limited to, painting, structural repairs, repairing damaged panels and integrity of security measures. The solar energy generating system must be properly maintained and kept free from all hazards, including, but not limited to, faulty wiring, loose fastenings, being in an unsafe condition or detrimental to public health, safety or general welfare. Site access shall be maintained to a level acceptable by the local fire prevention officer for emergency response. The owner or operator shall be responsible for the cost of maintaining the solar energy generating system and any access road(s), unless accepted as a public way.

The Applicant has a vested interest in proper maintenance of the facility, as faulty equipment will result in income loss and significant damage will require costly equipment replacement. The site grounds will be low maintenance as native grasses or specific pollinator plantings will be seeded. This approach will result in a highly effective as a filtration system and erosion control, in addition to other proposed erosion and sedimentation control measures. There would be additional site visits for regular maintenance. An Operations and Maintenance Plan is provided as Attachment 10 to this application.

(6) Glare. Solar panels are designed to absorb (not reflect) sunlight and are generally less reflective than other varnished or glass exterior materials. However, solar panel placement should minimize or negate any solar glare impacting nearby properties or roadways, without unduly impacting the functionality or efficiency of the solar energy system. Parcels located within a two-nautical-mile radius of the Auburn Lewiston Municipal Airport, as measured based on the runway centerline closest to the location in question shall comply with subsection 60-1505(a)(6).

The Project is approximately 8 miles from the Auburn Lewiston Municipal Airport, which means it falls outside of the airport area of influence.

(7) Visual impact. An Applicant shall make reasonable efforts, as determined by the planning board, to minimize visual impacts associated with the installation of a solar energy generating system. The board shall consider the size, location and topography of the site, the characteristics of the surrounding property and the amount and type of development on said properties in determining the amount and type of screening and buffering that it deems appropriate.

The Project has been sited in the northeast corner of the parcel, approximately 1,100 feet from the nearest public roadway. Agricultural fencing will be utilized, to further break up the visual impacts associated with the installation. Based on these specifications, the Applicant is not proposing any additional screening.

(8) Lighting. Ground-mounted solar energy generating system lighting shall be consistent with local, state and federal law. Lighting of other parts of the installation, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Where feasible, lighting of the solar energy system shall be directed downward and shall incorporate full cutoff fixtures to reduce light pollution.

No exterior lighting is proposed for the solar facility at this time, other than downward facing lights located on equipment to allow for nighttime maintenance.

(9) Unbuilt areas. Where possible, in unbuilt areas, solar energy generating system installations shall maintain the permeability of the ground. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the solar energy generating system or as otherwise prescribed by applicable laws, regulations and bylaws/ordinances.

The impervious surface for the project has been limited to what is needed for the access road, equipment pads, and installation of utility poles. Clearing of natural vegetation has been limited through the extensive use of open fields.

(10) Operation and maintenance plan. The owner or operator shall submit a plan for the operation and maintenance of ground-mounted and dual-use solar energy systems, which shall include measures for maintaining safe access to the installation, stormwater controls, as well as general procedures for operational maintenance of the installation.

An Operations and Maintenance Plan has been provided in Attachment 10 of this application.

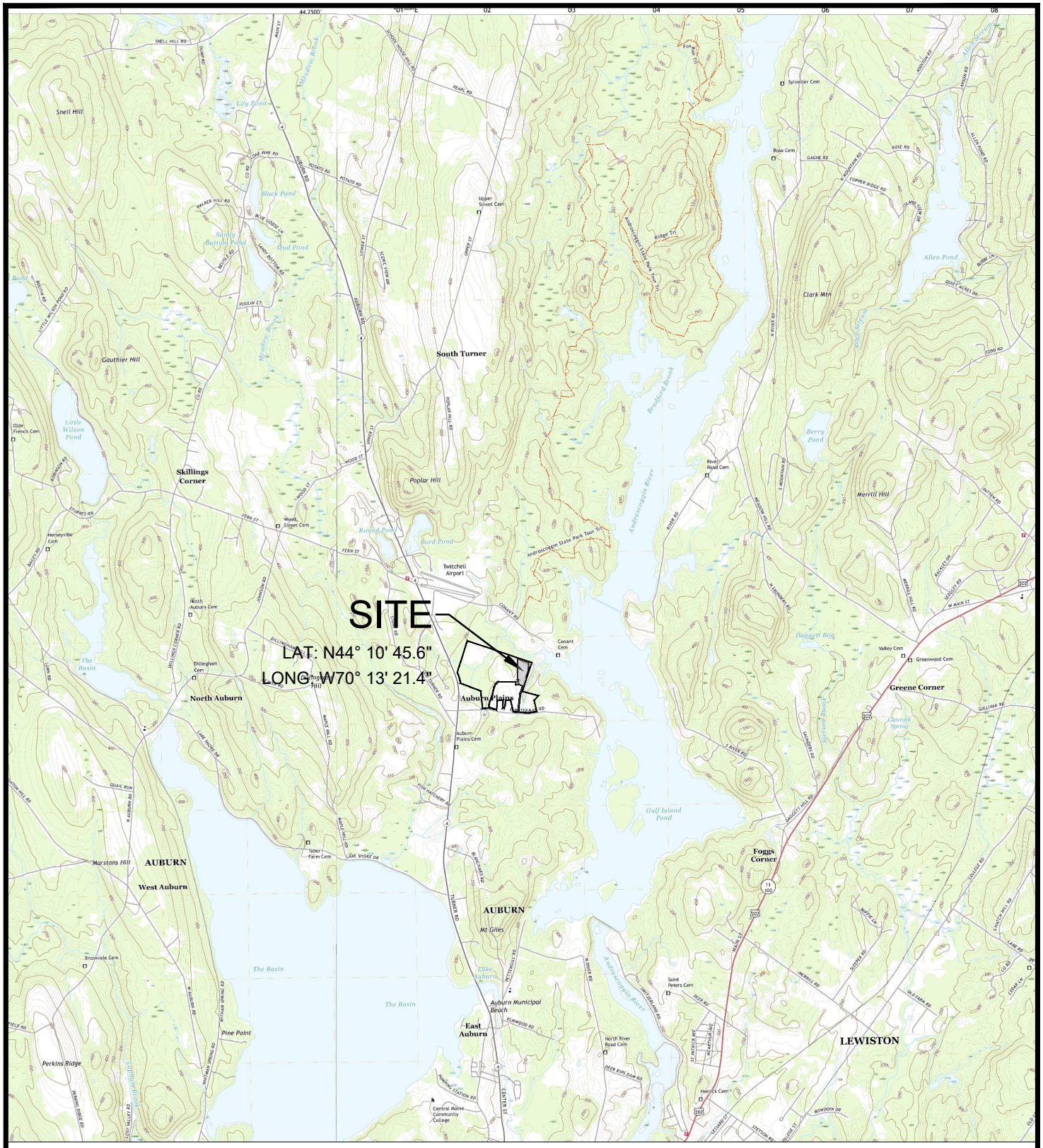
(11) Standard compliance. All solar energy generating system installations shall be installed in compliance with the photovoltaic systems standards of the latest edition of the National Fire Protection Association (NFPA) 1, Fire Prevention Code. All wiring shall be installed in compliance with the photovoltaic systems standards identified in the latest edition of the National Electrical Code (NFPA 70).

The Applicant will commit to adhere to all national codes for fire prevention and all wiring will be installed in compliance with standards identified in the National Electrical Code.

Sec. 60-1507. Abandonment or decommissioning.

A Decommissioning Plan is provided in Attachment 9 of this application. This document adheres to the provision of Section 60-1507 (a).

ATTACHMENT 3
PROJECT MAPS AND FIGURES



LOCATION MAP

SCALE: 1" = 1 MILE

AUBURN SOLAR PROJECT

E Waterman Road
Auburn, Maine

Date: September 27, 2022

BLUEWAVE

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Boston, MA 02116

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KREBS & LANSING CONSULTING ENGINEERS

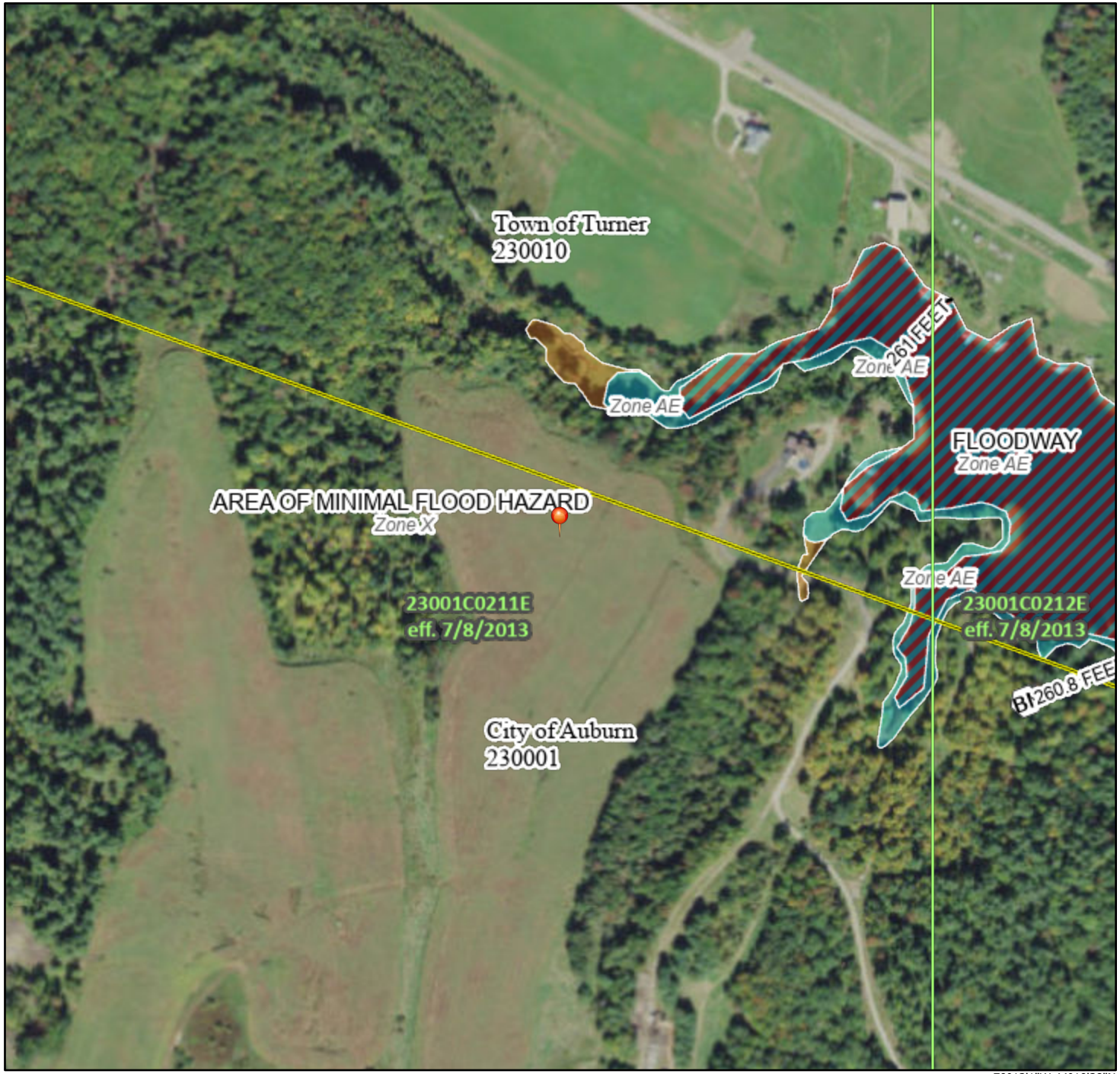
164 Main Street, Suite 201
Colchester, Vermont 05446

P: (802) 878-0375
www.krebsandlansing.com

National Flood Hazard Layer FIRMette

FEMA

70°13'39"W 44°11'4"N



70°13'1"W 44°10'38"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN — Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 — Cross Sections with 1% Annual Chance
- 17.5 — Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/1/2022 at 11:13 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT 4
SITE PLANS

AUBURN SOLAR

CIVIL SITE PLANS

PROPOSED PHOTOVOLTAIC POWER GENERATION FACILITY

EAST WATERMAN ROAD
AUBURN, MAINE



SHEET INDEX

C-1.00 OVERALL SITE PLAN
C-1.01 EROSION & SEDIMENT CONTROL PLAN
C-2.00 PRE-CONSTRUCTION DRAINAGE PLAN
C-2.01 POST-CONSTRUCTION DRAINAGE PLAN
C-3.00 PROJECT NOTES/DETAILS
C-3.01 ESC DETAILS
C-3.02 CIVIL DETAILS
C-3.03 CIVIL DETAILS

AUBURN SOLAR PROJECT

E Waterman Road,
Auburn, Maine

BLUEWAVE

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CIVIL ENGINEER:
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Colchester, Vermont 05446

ENVIRONMENTAL:
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Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:

STATE OF MAINE
IAN A. JAMES
NO. 12165
LICENSED PROFESSIONAL ENGINEER

DECEMBER 17, 2024

REV. NO.	REVISIONS/COMMENTS	DATE

Drawing Title:

AUBURN SOLAR
INDEX SHEET

DATE of Issue: 12/17/2024

Drawn by: EJM | Checked by: IAJ

Project No.: 22258 | Scale: N/A

Drawing No.: INDEX

Rev No.:

50' PROPERTY LINE SETBACK

RESERVED AREA FOR ANTICIPATED STORMWATER FEATURES

DELINEATED STREAM WITH 75' BUFFER

PROPOSED 7 FT. HIGH AGRICULTURAL FENCE

PROPOSED SOLAR ARRAY LOD = 10.12 ACRES

PROPOSED 7 FT. HIGH AGRICULTURAL FENCE

ARRAY SHADING SETBACK, 110' FROM EXISTING VEGETATION

PROJECT EQUIPMENT

PROPOSED PROJECT ACCESS ROAD AND TURNAROUND, 16' WIDE

PERIMETER EROSION CONTROLS TO BE PLACED DOWNSLOPE OF LOD OR AS DETERMINED TO BE NEEDED IN ACCORDANCE WITH TYPICAL TEMPORARY SILT FENCE DETAIL ON SHEET C-3.00

DELINEATED WETLANDS WITH 100' BUFFER

RESERVED AREA FOR ANTICIPATED STORMWATER FEATURES

PROJECT 20' WIDE ACCESS GATE WITH KNOX BOX AND EMERGENCY CONTACT INFO

PROPOSED TEMPORARY CONSTRUCTION STAGING AREA

PROPOSED LIMIT OF DISTURBANCE

SILT FENCE TO BE PLACED DOWNSLOPE OF PROPOSED PROJECT ACCESS DRIVE AS NEEDED

50' PROPERTY LINE SETBACK

RESERVED AREA FOR ANTICIPATED STORMWATER FEATURES

EMERGENCY PULL OFF AREA/ PASSING LANE - 60' X 8'

PROPOSED UNDERGROUND POWER TO POINT OF INTERCONNECTION

PROJECT ACCESS ROAD, 20' WIDE TO LAST EQUIPMENT POLE, DECREASING TO 16' WIDE PAST THIS POINT

PARKING & TURNAROUND AREA, 10' x 20'

EXISTING GRAVEL FARM ROAD

STABILIZED CONSTRUCTION ENTRANCE

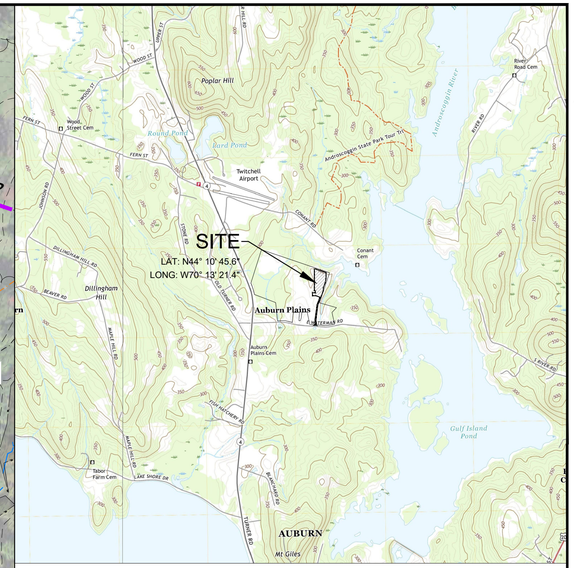
15 FOOT LONG PAVED APRON AT BEGINNING OF ACCESS ROAD

POINT OF INTERCONNECTION AT UTILITY POLE #21 ALONG EAST WATERMAN ROAD

E WATERMAN ROAD

TURNER

AUBURN



LOCATION MAP
SCALE: 1" = 1/2 MILE

LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- SETBACKS TO SOLAR PANEL RACKING
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING OVERHEAD POWER
- EXISTING TREELINE
- DELINEATED WETLAND
- 100' WETLAND BUFFER
- DELINEATED STREAM
- 75' STREAM BUFFER
- PROPOSED PROJECT FENCE
- PROPOSED TREELINE
- PROPOSED OVERHEAD POWER
- PROPOSED UNDERGROUND POWER
- PROPOSED PROJECT EQUIPMENT
- PROPOSED SINGLE AXIS TRACKER SOLAR PANEL RACKING
- STAGING AREA FOR CONSTRUCTION
- LIMIT OF DISTURBANCE (LOD)
- 110' ARRAY SHADING SETBACK

PROJECT SPECIFICATIONS:

NUMBER OF MODULES: 2,352 (@580W PER PANEL)

DC OUTPUT: 1.36 MW

AC OUTPUT: 0.99 MW

DC/AC RATIO: 1.37

DESIGN: SINGLE AXIS TRACKER

GCR: 0.300 (30.0%)

Maine State Plane, West (US Survey Feet) Grid North (NAD83)

NOTES:

1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, WEST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED STATE OF MAINE LiDAR
4. UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
5. THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE FROM TOWN TAX MAPS AND ALTERED BASED ON EVIDENCE FROM AERIAL PHOTOGRAPHY.
6. THIS IS A PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND POSSIBLE PERMIT CONSTRAINTS REVEALED DURING PROJECT'S REVIEW.
7. PRELIMINARY ENVIRONMENTAL SITE REVIEW DATA IS BASED ON INFORMATION DOWNLOADED FROM THE MAINE OFFICE OF GIS WEBSITE AND PRELIMINARY FIELD REVIEWS.
8. EROSION CONTROL MEASURES SHOWN ON THIS PLAN MAY BE MODIFIED BASED ON FUTURE INFORMATION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPS" DOCUMENT, DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION.

AUBURN SOLAR PROJECT

E Waterman Road,
Auburn, Maine

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ENVIRONMENTAL:
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Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:

STATE OF MAINE · IAN A. JAMES · NO. 17165 · LICENSED PROFESSIONAL ENGINEER

DECEMBER 17, 2024

0' 50' 100' 200' 300'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 100')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:

PERMIT LEVEL
CIVIL SITE PLAN

DATE ISSUED: 12/17/2024

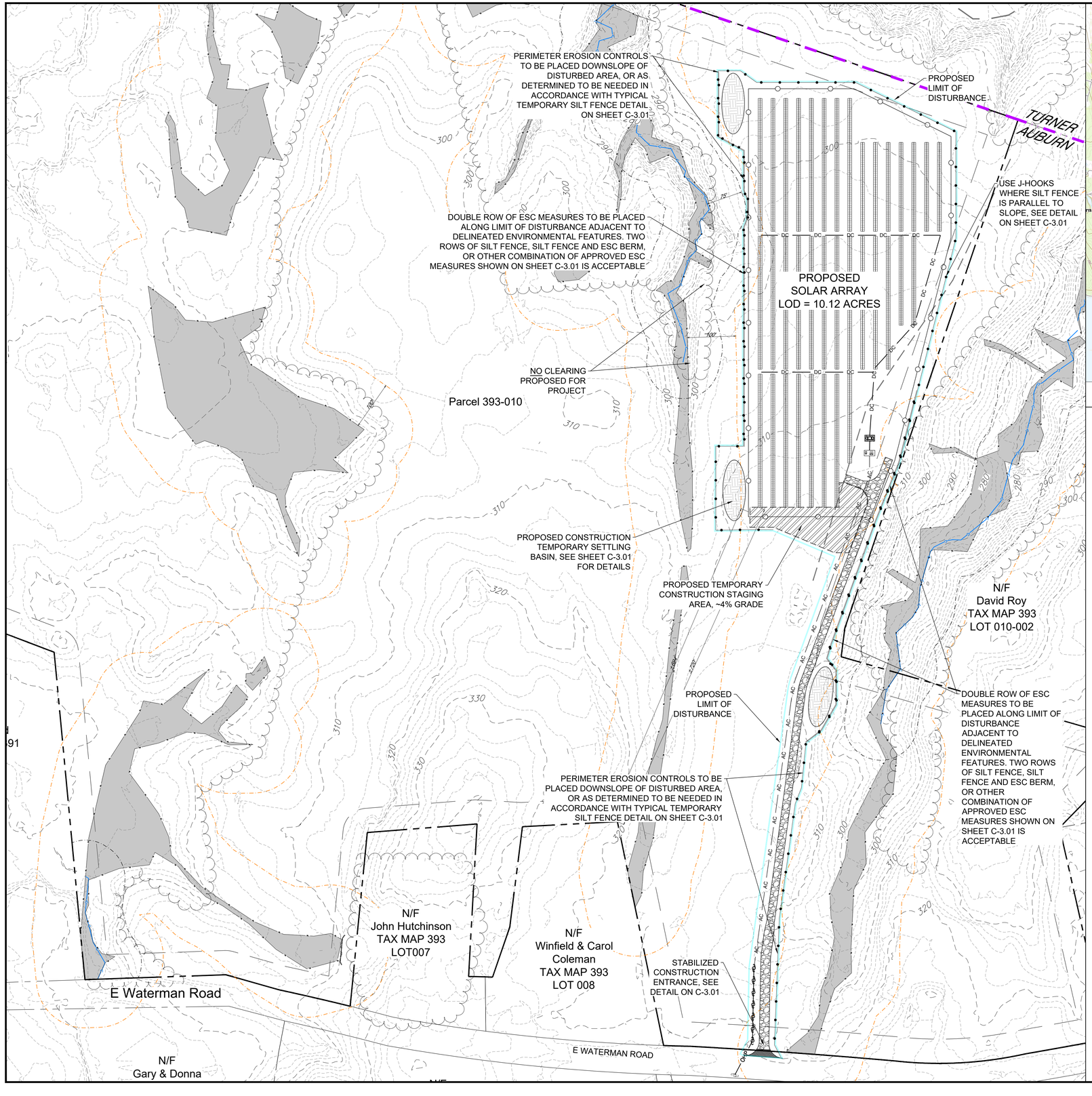
DRAWN BY: EJM CHECKED BY: IAJ

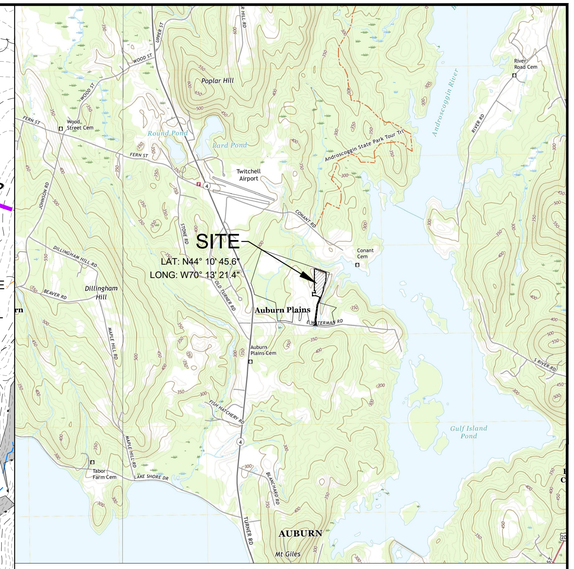
PROJECT NO.: 22258 SCALE: 1" = 100'

DRAWING NO.: C-1.00

REV. NO.:

DWG NAME: Bluewave_Auburn-Solar_Base.dwg





LOCATION MAP
SCALE: 1" = 1/2 MILE

LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- SETBACKS TO SOLAR PANEL RACKING
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- FINISHED GRADE CONTOUR LINES (10 FOOT INTERVALS)
- FINISHED GRADE CONTOUR LINES (2 FOOT INTERVALS)
- DELINEATED WETLAND
- DELINEATED STREAM
- 75' STREAM BUFFER
- PROPOSED TREELINE
- LIMIT OF DISTURBANCE (LOD)
- PROJECT LEASE AREA
- SILT FENCE/ ESC MEASURES
- STAGING AREA FOR CONSTRUCTION

NOTES:

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PITTSTON SOLAR PROJECT

Kelley Road,
Pittston, Maine

BLUEWAVE

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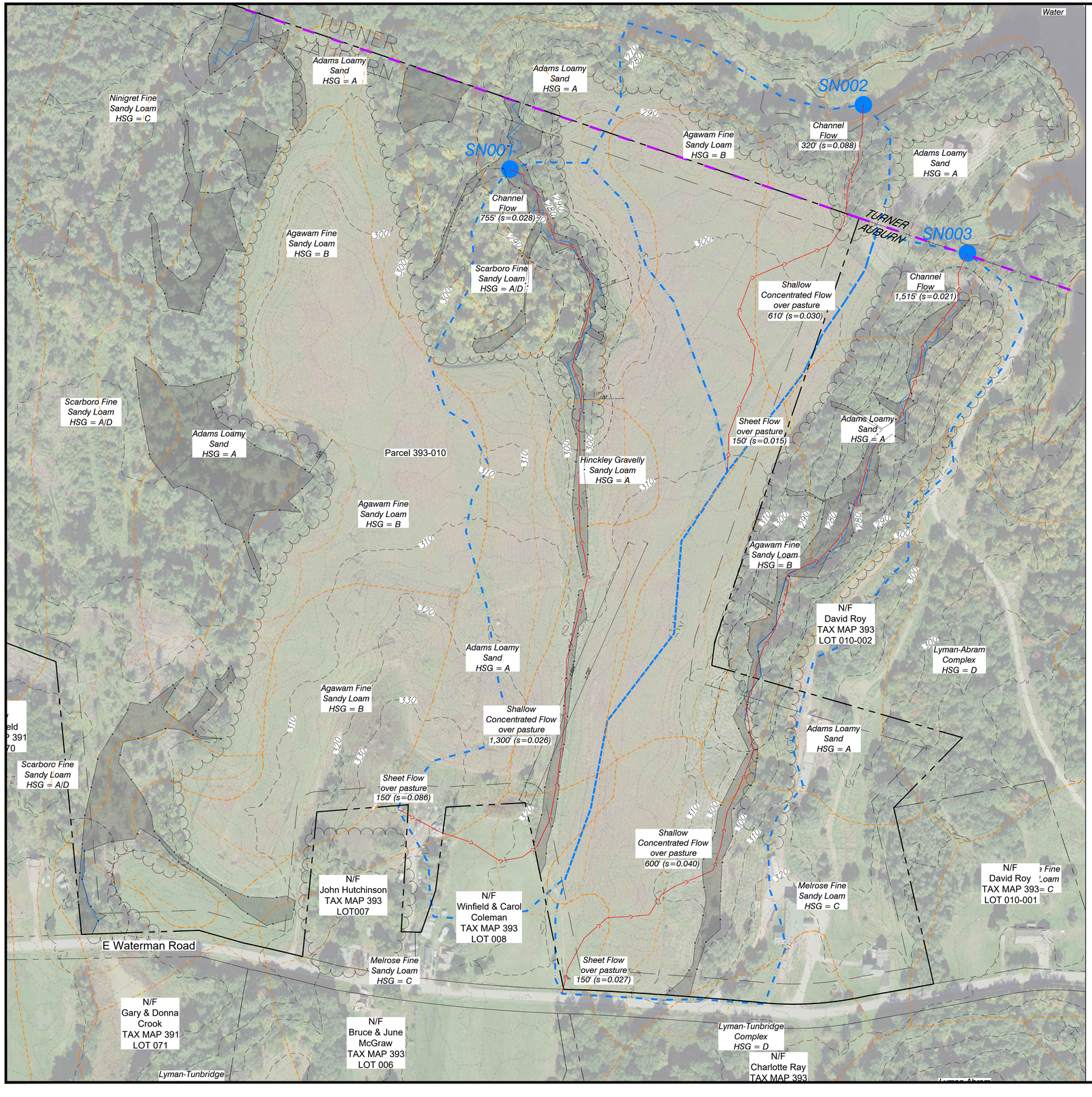
STAMP:
STATE OF MAINE — IAN A. JEMKES — NO. 17165 — LICENSED PROFESSIONAL ENGINEER
DECEMBER 6, 2024

0' 25' 50' 100' 150'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 50')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
EROSION & SEDIMENT CONTROL PLAN

DATE ISSUED: 12/06/2024
DRAWN BY: EJM CHECKED BY: IAJ
PROJECT NO.: 23333 SCALE: 1" = 50'
DRAWING NO.: C-1.01 REV. NO.:
DWG NAME: Bluewave_Pittston-Solar_Base.dwg



LEGEND

- EXISTING POWER POLE
- APPROXIMATE PROPERTY LINES
- PROJECT PROPERTY LINES
- SETBACKS TO SOLAR PANEL RACKING
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING TREELINE
- DELINEATED WETLAND
- DELINEATED STREAM
- RESOURCE PROTECTION DISTRICT
- NRCS SOIL MAPPING
- PRE-CONSTRUCTION WATERSHED BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- SN004 PROJECT ANALYSIS POINT

Maine State Plane, West Zone (NAD 83/86) (Feet)

SEE SHEET C-1.00 FOR NOTES

AUBURN SOLAR PROJECT

E Waterman Road,
Auburn, Maine

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Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:
STATE OF MAINE
IAN A. JAMES
NO. 10165
LICENSED PROFESSIONAL ENGINEER
DECEMBER 17, 2024

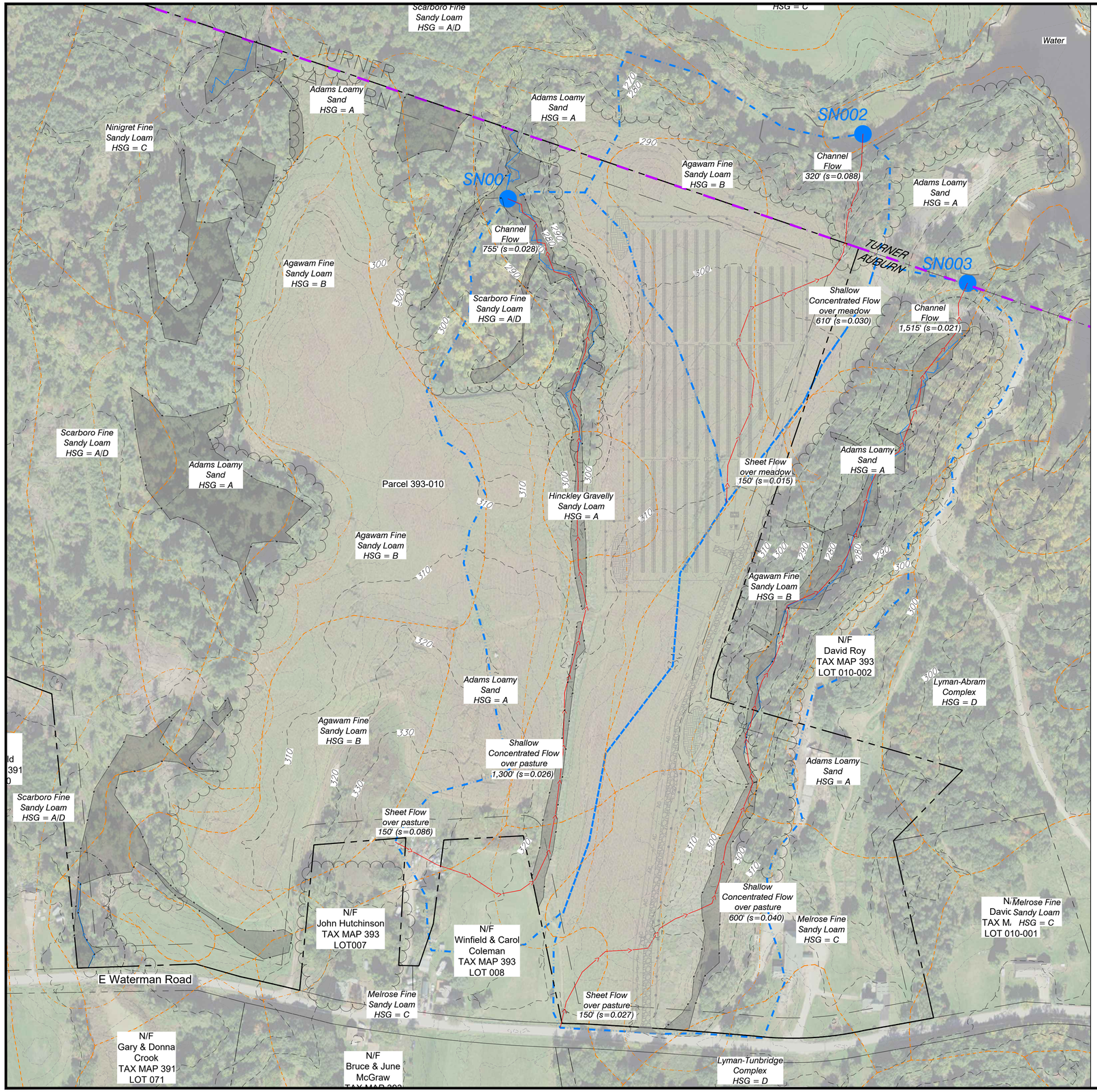
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0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 120')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
PRE-DEVELOPMENT DRAINAGE PLAN

DATE of Issue: 12/17/2024
DRAWN BY: EJM CHECKED BY: IAJ
PROJECT NO.: 22258 SCALE: 1" = 120'
DRAWING NO.: C-2.00 REV. NO.:

DWG NAME: Bluewave_Auburn-Solar_Base.dwg



LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- APPROXIMATE PROPERTY LINES
- PROJECT PROPERTY LINES
- SETBACKS TO SOLAR PANEL RACKING
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING TREELINE
- DELINEATED WETLAND
- DELINEATED STREAM
- PROPOSED PROJECT FENCE
- PROPOSED UNDERGROUND POWER
- PROPOSED OVERHEAD POWER
- PROPOSED 18' GRAVEL ACCESS DRIVE
- PROPOSED TREELINE
- PROPOSED SINGLE AXIS TRACKER SOLAR ARRAY
- PROPOSED CENTRALIZED EQUIPMENT LOCATIONS
- NRCS SOIL MAPPING
- POST-CONSTRUCTION WATERSHED BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- SN004 PROJECT ANALYSIS POINT

Maine State Plane, West Zone Grid North (NAD83)

SEE SHEET C-1.00 FOR NOTES

AUBURN SOLAR PROJECT

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Yarmouth, Maine 04096

STAMP:
STATE OF MAINE — JAY A. JEMKES — NO. 13165 — LICENSED PROFESSIONAL ENGINEER
DECEMBER 17, 2024

0' 60' 120' 240' 360'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 120')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
POST-DEVELOPMENT DRAINAGE PLAN

DATE of Issue: 12/17/2024
DRAWN BY: EJM CHECKED BY: IAJ
PROJECT NO.: 22258 SCALE: 1" = 120'
DRAWING NO.: C-2.01 REV. NO.:

DWG NAME: Bluewave_Auburn-Solar_Base.dwg

CONSTRUCTION NOTES

1. THE METHODS AND MATERIALS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH ALL PERMITS AND APPROVALS ISSUED FOR THE PROJECT. IN CASE OF CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY AS DIRECTED BY ENGINEER. ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER AND COMPLETED IN THE TIME SPECIFIED BY OWNER.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS SHOWN AND REQUIRED TO MAKE THE JOB COMPLETE. THESE DRAWINGS DO NOT SHOW EVERY FITTING OR APPURTENANCE. MATERIALS SHALL BE AS SPECIFIED ON THE DRAWINGS. MANUFACTURER'S PRODUCT SPECIFICATIONS SHALL BE SUBMITTED FOR ALL MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

3. THE LOCATION AND SIZE OF EXISTING UNDERGROUND UTILITIES IS NOT WARRANTED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES AND SHALL CONTACT THE AFFECTED UTILITY COMPANY, THE ENGINEER AND THE TOWN PRIOR TO MAKING ANY HOOK UPS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXISTING UTILITIES AND THEIR UNINTERRUPTED SERVICES. ALL OFF-SITE BACKFILL, SHEETING AND SHORING, DEWATERING, CLEARING AND GRUBBING, EROSION CONTROL, DUST CONTROL, TRAFFIC CONTROL, GRADING, AND ALL INCIDENTALS SHALL BE INCLUDED AS PART OF THE REQUIRED WORK.

4. THE CONTRACTOR SHALL VERIFY ALL TEMPORARY BENCH MARKS BEFORE USE. IN THE EVENT THAT SITE CONDITIONS DO NOT MATCH THOSE REPRESENTED ON THE SITE PLANS, CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD AND OWNER'S REPRESENTATIVE IMMEDIATELY FOR RESOLUTION.

5. THE WORKMEN AND PUBLIC SHALL BE PROTECTED BY THE CONTRACTOR FROM ANY AND ALL HAZARDS CONNECTED WITH THE CONSTRUCTION WORK. OPEN TRENCHES, MATERIALS, OR EQUIPMENT WITHIN THE WORKING LIMITS ARE TO BE GUARDED BY THE USE OF ADEQUATE BARRICADES OR FLAGMEN. ALL BARRICADES LEFT IN POSITION OVERNIGHT ARE TO BE PROPERLY LIGHTED. KEROSENE POTS ARE NOT ACCEPTABLE. WHEN WORK NARROWS THE USABLE PAVEMENT, FLAGMEN SHALL BE EMPLOYED TO AID THE FLOW OF TRAFFIC SO THAT THERE WILL BE NO UNDUE DELAYS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE SAFETY OF ALL WORKMEN AND THE GENERAL PUBLIC AND ALL DAMAGES TO PROPERTY OCCURRING FROM OR UPON THE WORK OCCASIONED BY NEGLIGENCE OR OTHERWISE GROWING OUT OF A FAILURE ON THE PART OF THE CONTRACTOR TO PROTECT PERSONS OR PROPERTY FROM HAZARDS OF OPEN TRENCHES, MATERIALS, OR EQUIPMENT AT ANY TIME OF THE DAY OR NIGHT WITHIN THE WORKING AREA. ALL WORK SHALL BE IN CONFORMANCE TO OSHA REGULATIONS, TITLE 19, PARTS 1926.651 AND 1926.652.

6. THE CONTRACTOR SHALL VERIFY ALL UTILITY INTERSECTIONS AND CONTACT ENGINEER AND OWNER WITH CONFLICTS.

7. THE CONTRACTOR SHALL CALL, DIG SAFE OR OTHER APPROVED EQUAL UNDERGROUND UTILITY IDENTIFIER PRIOR TO ANY EXCAVATION.

8. THE CONTRACTOR SHALL COORDINATE WITH FINAL ELECTRICAL, STRUCTURAL AND LANDSCAPING PLANS.

WINTER EROSION CONTROL PROCEDURES

(FOR ANY EARTH WORK PERFORMED BETWEEN NOVEMBER 1ST AND APRIL 15TH)

WINTER EROSION CONTROL NARRATIVE:
OBJECTIVE - ANY SITE WORK PERFORMED LATER THAN NOVEMBER 1ST WILL RESULT IN EXPOSED SOIL THROUGH THE WINTER. THIS PRESENTS A POTENTIAL FOR EROSION THROUGH THE WINTER. THE WINTER EROSION CONTROL MEASURES ARE INTENDED TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION ZONE DURING THAWS AND RAINSTORMS IN THE SPRING AND DURING MID-WINTER THAWS.

WINTER EROSION CONTROL SEQUENCE:
THE CONTRACTOR SHALL BE SURE ALL EROSION CONTROL MEASURES REQUIRED FOR WINTER CONSTRUCTION ARE INSTALLED BY NOVEMBER 1ST AND PRIOR TO GROUND FREEZING. IF A PERMITTED AREA CAN BE LEFT UNDISTURBED UNTIL THE SPRING THE CONTRACTOR SHALL MAKE EVERY EFFORT TO LIMIT DISTURBANCE OF THESE AREAS.

THE CONTRACTOR SHALL STABILIZE ANY PORTION OF THE SITE THAT IS BEING WORKED AND DISTURBED PRIOR TO BEGINNING CONSTRUCTION AT ANOTHER AREA OF THE SITE. AT NO TIME DURING WINTER CONSTRUCTION SHALL THERE BE MORE THAN 1 ACRE OF EXPOSED SOIL OR WHAT CAN BE STABILIZED IN ONE DAY ON SITE.

ANTICIPATED WINTER CONSTRUCTION ACTIVITIES WILL INCLUDE ALL ASPECTS OF THE PROJECT PROPOSED DURING SUMMER CONSTRUCTION. THIS IS A CONTINUATION OF WORK WHICH WAS NOT COMPLETED DURING THE SUMMER. MAJOR GRADING IS EXPECTED TO BE COMPLETE BEFORE NOVEMBER 1ST.

LIMITS OF DISTURBANCE - LOD WILL BE MOVED AND/OR REPLACED TO REFLECT THE BOUNDARY OF WINTER WORK. CONTRACTOR WILL MAINTAIN A MINIMUM 25' BUFFER FROM PERIMETER CONTROLS TO ALLOW FOR SNOW CLEARING AND MAINTENANCE. DISTURBANCE OUTSIDE OF PERMITTED LOD IS NOT ALLOWED AT ANY TIME OF YEAR.

SNOW STORAGE ON SITE - CONTRACTOR WILL CREATE A SNOW MANAGEMENT PLAN. PLAN WILL IDENTIFY LOCATIONS FOR ADEQUATE SNOW STORAGE AND CONTROL SNOW MELT. SNOW STORAGE WILL BE DOWN GRADIENT OF ALL DISTURBED AREAS AND WILL NOT PROHIBIT THE FUNCTION OF ALL PERMANENT STORMWATER TREATMENT STRUCTURES. CONTRACTOR SHALL KEEP ALL DRAINAGE STRUCTURES OPEN AND FREE OF SNOW AND ICE DAMS. CONTRACTOR SHALL NOT STORE SNOW IN ONE CENTRAL LOCATION WHICH WOULD CREATE A CENTRALIZED POINT IN A MELTING SITUATION, ATTEMPT TO SPREAD SNOW PILES.

INSTALL SILT FENCE - SILT FENCE SHALL BE INSTALLED ON THE DOWNHILL SIDE OF THE WINTER CONSTRUCTION AREAS AND SOIL STOCKPILE AREAS, AS SHOWN ON THE PLAN, BY NOVEMBER 1ST. IF THE GROUND IS UNFROZEN, THE SILT FENCE SHALL BE DUG IN AS NORMAL. IF THE GROUND IS FROZEN CONTACT THE ENGINEER FOR ALTERNATE OPTIONS. STONE BERM, FILTREXX SILT SOXX, STRAW WATTLES, HAY BALES,ETC. ALL MAY BE USED TO KEY IN SILT FENCE AND STRENGTHEN THE BMP.

STABILIZED CONSTRUCTION ENTRANCE - THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL STABILIZED CONSTRUCTION ENTRANCES TO PREVENT SEDIMENT TRACKING OFF SITE. CONTRACTOR SHALL ENLARGE THE WIDTH OF ACCESS TO PROVIDE ADDITIONAL ROOM FOR SNOW STOCKPILING, IF NEEDED. ADDITIONAL STONE SHALL BE ADDED OR THE LENGTH SHALL BE INCREASED, IF ICE AND SNOW LIMITS CONSTRUCTION ENTRANCE'S ABILITY TO HOLD SEDIMENTS ON SITE.

WINTER STABILIZATION – ALL DISTURBED AREAS NOT INVOLVED IN WINTER CONSTRUCTION SHALL BE AT LEAST TEMPORARILY STABILIZED BY NOVEMBER 1ST. AFTER, ALL AREAS DISTURBED DURING WINTER CONSTRUCTION SHALL BE STABILIZED DAILY TO PREVENT EXPOSURE FROM RAIN EVENTS AND ACCUMULATION OF SNOWFALL (SEE EXCEPTIONS BELOW). STABILIZATION RATES IN THE WINTER WILL BE DOUBLED THE RATES LISTED IN THE MULCHING SCHEDULE. CONTRACTOR SHALL ADD ADDITIONAL STONE, AS NECESSARY, TO PROVIDE STABILIZATION THROUGH WINTER CONSTRUCTION ON ALL AREAS WHERE CONSTRUCTION TRAFFIC IS ANTICIPATED.

EXCEPTIONS:

- HYDROSEEDING AFTER NOVEMBER 1ST AND BEFORE APRIL 15TH MUST BE STABILIZED WITH STRAW MULCH OR EROSION CONTROL MATTING.
- SNOW AND/OR ICE MUST BE REMOVED TO, AT MOST, ONE INCH PRIOR TO APPLYING MULCH OR EROSION CONTROL STABILIZATION MATTING.
- IF NO PRECIPITATION, WITHIN 24 HOURS, IS FORECASTED AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
- DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS OPEN UTILITY TRENCHES, REQUIRE STABILIZATION AT THE END OF EACH WORK WEEK.
- NO FROZEN MATERIAL MAY BE USED FOR BACKFILLING PURPOSES, DUE TO DIFFICULT OF COMPACTION AND EXPECTED SETTLEMENT DURING SPRING THAW> BACKFILLING SHALL ONLY BE DONE IN THE SPRING AFTER TEMPERATURES EXCEED FREEZING

MAINTENANCE - ALL DISTURBED AREAS SHALL BE MONITORED BY THE CONTRACTOR AND THE INSPECTOR IN ACCORDANCE WITH THE PERMIT. THE CONTRACTOR AND INSPECTOR SHALL EVALUATE THE SITE AFTER A THAW OR RAINSTORM. THE CONTRACTOR OR INSPECTOR SHALL NOTIFY THE ENGINEER IF ANY EROSION CONTROL MEASURES APPEAR TO BE INADEQUATE. THE CONTRACTOR OR INSPECTOR SHALL IMMEDIATELY (WITHIN THE SAME BUSINESS DAY) IMPLEMENT ANY FURTHER EROSION CONTROL MEASURES SPECIFIED BY THE ENGINEER. THE CONTRACTOR OR INSPECTOR SHALL ADD MULCH, AS NECESSARY, THROUGHOUT THE WINTER AFTER THAWS OR RAINSTORMS. THE MULCH DEPTHS SHALL BE DOUBLED. THE MULCH AND SILT FENCE SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER (90% STABILIZATION) IS ESTABLISHED IN THE SPRING. THE SITE SHALL BE REMULCHED AND RESEEDED, IN THE SPRING, AS REQUIRED TO ESTABLISH A VIGOROUS PERMANENT GROUND COVER.

INSPECTION - THE EROSION AND SEDIMENT INSPECTOR SHALL BE RESPONSIBLE FOR, AT A MINIMUM, DAILY WRITTEN INSPECTIONS WHILE THE SITE IS DISTURBED OR WEEKLY IF EVERYTHING IS STABILIZED BUT CONSTRUCTION IS ON-GOING. IF, DURING WINTER CONSTRUCTION, EARTH DISTURBANCE ACTIVITIES TEMPORARILY CEASE AND THE SITE HAS BEEN FULLY STABILIZED, INSPECTION AND MONITORING REQUIREMENTS FOR THE INSPECTOR MAY BE REDUCED TO ONCE PER MONTH MINIMUM. ALL INSPECTION SHEETS SHALL BE KEPT ON SITE AND BE AVAILABLE UPON REQUEST.

CONSTRUCTION EROSION AND SEDIMENT CONTROL INSPECTOR

1. THE CONTRACTOR SHALL DESIGNATE A EROSION AND SEDIMENT CONTROL INSPECTOR THROUGHOUT THE ENTIRETY OF CONSTRUCTION. THE INSPECTOR OR HIS/HER DESIGNEE SHALL BE ON-SITE ON A DAILY BASIS DURING ACTIVE CONSTRUCTION.

2. THE INSPECTOR SHALL BE KNOWLEDGEABLE IN PRINCIPLES AND PRACTICES OF EROSION PREVENTION AND STORMWATER CONTROL. IMPLEMENTATION AND POSSESS SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY. TO ASSESS EFFECTIVENESS OF CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs) SELECTED TO CONTROL QUALITY OF STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY.

3. THE INSPECTOR SHALL BE RESPONSIBLE FOR ON-SITE IMPLEMENTATION OF THIS EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTIONS, MONITORING AND REPORTING.

4. INSPECTIONS SHALL BE PERFORMED AT MINIMUM ONCE A WEEK BUT ALSO PRIOR TO AND 24 HOURS AFTER A WET WEATHER EVENT. A "WET WEATHER EVENT" IS DEFINED AS 0.5 INCHES OR GREATER IN A 24 HOUR PERIOD.

5. THE SCOPE OF CONSTRUCTION INSPECTIONS SHALL INCLUDE BUT ARE NOT LIMITED TO ALL THE EROSION AND SEDIMENT CONTROL MEASURES ON SITE. DOCUMENTATION OF THE OVERALL DISTURBANCE FOR THE PROJECT SITE. REVIEW OF ALL STOCKPILE AREAS AND VEHICLE EGRESSES FROM THE PROJECT SITE.

6. CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 3 YEARS. THIS DOCUMENTATION SHALL BE MAINTAINED BY THE CONTRACTOR UNLESS OTHERWISE AUTHORIZED BY THE OWNER. CORRECTIVE ACTIONS SHOULD BE STARTED SAME DAY COMPLETED WITHIN 7 DAYS OR BEFORE THE NEXT STORM EVENT, WHICHEVER IS FIRST.

7. THE INSPECTOR SHALL HAVE AUTHORITY TO STOP AND/OR MODIFY CONSTRUCTION ACTIVITIES AS NECESSARY TO COMPLY WITH THESE PLANS AND TERMS AND CONDITIONS OF THE PERMIT.

8. THE INSPECTORS CONTACT INFORMATION SHALL BE PROVIDED TO MAINE DEP (IF DESIRED), PROJECT ENGINEER AND PROJECT OWNER PRIOR TO START OF CONSTRUCTION.

CONSTRUCTION LIMITS FOR EROSION AND SEDIMENT CONTROL

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PERFORMED IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPs" DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION. CONTRACTOR SHALL HAVE A COPY OF THE LATEST REVISION ON SITE AT ALL TIMES.

2. CONTRACTOR SHALL LIMIT EXCAVATION AND EARTHWORK TO NO MORE THAN 10 ACRES NON-CONTIGUOUS OR 10 ACRES PER PROJECT SUBCATCHMENT THROUGHOUT THE CONSTRUCTION SITE AT ONE TIME. TEMPORARY STABILIZE ALL AREAS OF COMPLETED EXCAVATION AND EARTHWORK PRIOR TO MOVING ONTO A NEW AREA.

3. EXPOSED OR OPEN AREA FREE OF VEGETATION FROM CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY.

4. CONTRACTOR SHALL MINIMIZE THE AMOUNT OF TIME AN AREA UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT EXPOSED OR FREE OF VEGETATION. AREAS WHICH ARE INITIALLY DISTURBED BUT FURTHER CONSTRUCT IS PLANNED MUST BE TEMPORARILY STABILIZED WITHIN 7 DAYS, IF THE AREAS ARE BEING LEFT FOR AN EXTENDED PERIOD OF TIME. AREAS WHICH ARE CONSIDERED FINISHED SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF THE FINISH WORK. IF WORK IS WITHIN 75 FEET OF A WETLAND OR WATERBODY, THE ABOVE MENTIONED TIMEFRAME IS REDUCED TO 2 DAYS IN BOTH THE PERMANENT AND TEMPORARY CONDITIONS.

5. ALL EROSION AND SEDIMENT CONTROL BMPs SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE. CONTRACTOR SHALL MAINTAIN THE BMPS THROUGHOUT CONSTRUCTION. REFER TO INDIVIDUAL DETAILS FOR EACH BMP.

6. REPAIR AND/OR REPLACE ANY EROSION AND SEDIMENT CONTROL BMPs WHICH HAVE BEEN DAMAGED OR NEED MAINTENANCE. ONCE A PROBLEM HAS BEEN IDENTIFIED BY THE INSPECTOR OR OTHERS, THE REPAIR SHALL BE UNDERWAY WITHIN THE END OF THE NEXT WORKING DAY AND COMPLETED WITHIN 7 DAYS OR BEFORE THE NEXT STORM EVENT.

7. CONTRACTOR IS RESPONSIBLE TO REMOVE ALL EROSION AND SEDIMENT CONTROL BMPs WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS DEFINED AS 90% GRASS CATCH IN VEGETATED AREAS.

GRADING, SEEDING AND MULCHING

1. NO SLOPES, PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN 1.5:1. SLOPE STABILITY BASED UPON UNSATURATED SOIL CONDITIONS. IF DURING CONSTRUCTION SATURATED SOILS ARE ENCOUNTERED CONTRACTOR , CONTACT THE ENGINEER.

2. ALL AREA DISTURBED AND ALL AREAS WITHIN THE CLEARING LIMITS SHALL BE GRADED AND COVERED WITH A MINIMUM OF 4" OF LOAM TOPSOIL AND SMOOTHED.

3. MULCH ALL AREAS WHICH ARE DISTURBED FROM CONSTRUCTION PER THE TABLE BELOW. IF MULCH IS USED AS TEMPORARY STABILIZATION, REFRESH MULCHING AS NEEDED TO MAINTAIN STABILIZATION.

4. SEEDING SHOULD BE PERFORMED THROUGHOUT CONSTRUCTION AS A PERMANENT AND TEMPORARY STABILIZATION MEASURE. SEE SEED SPECIFICATIONS BELOW, TEMPORARY SEED CAN BE USES FOR BOTH TEMPORARY STABILIZATION OR IN COLDER MONTHS.

SEEDING SPECIFICATIONS

PERMANENT SEED MIX SHALL BE USED AS EARLY AS PRACTICABLE BETWEEN 4/15 AND 8/15 AND SHALL MEET THE FOLLOWING CRITERIA:

SEED	% WEIGHT
RED FESCUE	50%
SHEEP FESCUE	25%
RED TOP	5%
WHITE CLOVER	10%
ANNUAL RYE	10%

TEMPORARY SEED MIX SHALL BE USED BETWEEN 8/15 AND 04/15 AND SHALL MEET THE FOLLOWING CRITERIA:

SEED	% WEIGHT	%GERMINATION
WINTER RYE	80% MIN.	85% MIN.
RED FESCUE (CREEPING)	4% MIN.	80% MIN.
PERENNIAL RYE GRASS	3% MIN.	90% MIN.
RED CLOVER	3% MIN.	90% MIN.
OTHER CROP GRASS	0.5% MAX.	
NOXIOUS WEED SEED	0.5% MAX.	
INERT MATTER	1% MAX.	

POLLINATOR SEED MIX SHALL CONTAIN SOME OF THE SPECIES OF SEED OR APPROVED EQUAL:

EASTERN (RED) COLUMBINE
BLUE FALSE INDIGO
HORSEFLYWEED
TALL WHITE BEARD TONGUE
OHIO SPIDERWORT
COMMON MILKWEED
BUTTERFLY MILKWEED
PARTRIDGE PEA
WILD BERGAMOT
VIRGINIA MOUNTAIN MINT
EARLY GOLDENROD
SMOOTH ASTER
NEW ENGLAND ASTER
HEATH ASTER
GRAY GOLDEN ROD
LITTLE BLUESTEM
BLACK EYED SUSAN
COREOPSIS
FOXGLOVE BEARDTONGUE
INDIAN BLANKET
BEE BALM
CARDINAL FLOWER
GOLDEN ALEXANDERS
SUNDIAL LUPINE

GUIDE TO MULCH MATERIALS, RATES, AND USES

	QUALITY STANDARDS	PER 1000 SQ. FT. (Rates noted shall be doubled during winter construction)	PER ACRE	DEPTH OF APPLICATION	REMARKS
WOOD CHIPS OR SHAVINGS	AIR-DRIED. FREE OF OBJECTIONABLE COARSE MATERIAL	500-900 LBS	10-20 TONS	2 - 7"	USED PRIMARILY AROUND SHRUB AND TREE PLANTINGS AND RECREATION TRAILS TO INHIBIT WEED COMPETITION. RESISTANT TO WIND BLOWING. DECOMPOSES SLOWLY.
WOOD FIBER CELLULOSE (PARTLY DIGESTED WOOD FIBERS)	MADE FROM NATURAL WOOD USUALLY WITH GREEN DYE AND DISPERSING AGENT	50 LBS	2,000 LBS.	-	APPLY WITH HYDROMULCHER. NO TIE DOWN REQUIRED. LESS EROSION CONTROL PROVIDED THAN 2 TONS OF HAY OR STRAW.
GRAVEL, CRUSHED STONE OR SLAG	WASHED; SIZE 2B OR 3A - 1½"	9 CU. YDS.	405 CU. YDS.	3"	EXCELLENT MULCH FOR SHORT SLOPES AND AROUND PLANTS AND ORNAMENTALS. USE 2B WHERE SUBJECT TO TRAFFIC. (APPROXIMATELY 2,000 LBS./CU. YD.). FREQUENTLY USED OVER FILTER FABRIC FOR BETTER WEED CONTROL.
HAY OR STRAW	AIR-DRIED; FREE OF UNDESIRABLE SEEDS & COARSE MATERIALS	90-100 LBS 2-3 BALES	2 TONS (100-120 BALES)	COVER ABOUT 90% SURFACE	USE SMALL GRAIN STRAW WHERE MULCH IS MAINTAINED FOR MORE THAN THREE MONTHS. SUBJECT TO WIND BLOWING UNLESS ANCHORED. MOST COMMONLY USED MULCHING MATERIAL. PROVIDES THE BEST MICRO-ENVIRONMENTAL FOR GERMINATING SEEDS.
COMPOST	UP TO 3" PIECES, MODERATELY TO HIGHLY STABLE	3-9 CU. YDS.	134-402 CU. YDS.	1 - 3"	COARSER TEXTURED MULCHES MAY BE MORE EFFECTIVE IN REDUCING WEED GROWTH AND WIND EROSION.
EROSION CONTROL MIX	WELL-GRADED MIXTURE OF PARTICLE SIZES. ORGANIC CONTENT BETWEEN 80-100%, DRY WEIGHT. PARTICLE SIZE SHALL PASS 6" SCREEN (100%)	* SLOPES 3(HZ.):1(VERT.) OR FLATTER = 2 INCH DEPTH PLUS ADDITIONAL 1/2 INCH DEPTH PER 20 FT. OF SLOPE UP TO 100 FT. ** SLOPES BETWEEN 3(HZ.):1(VERT.) AND 2(HZ.):1(VERT.) = 4 INCH DEPTH PLUS ADDITIONAL 1/2 INCH PER 20 FT. OF SLOPE UP TO 100 FT. *** SLOPES STEEPER THAN 2(HZ.):1(VERT.) USE OF EROSION CONTROL MIX AND MULCH DEPTH TO BE REVIEWED AND APPROVED PRIOR TO USE BY ON SITE PLAN COORDINATOR OR EPSC SPECIALIST			COMPRISED OF SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. MAY CONTAIN ROCK < 4" IN DIAMETER. ORGANICS SHALL BE FIBROUS AND ELONGATED. NO LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS.

HOUSEKEEPING PROCEDURES

1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT : HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

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, OR IN ANY ENVIRONEMENTALLY SENSITIVE AREAS SUCH AAS WETLANDS OR ENVIRONMENTAL BUFFERS. 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. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

SEE APPENDIX D FOR LICENSE BY RULE STANDARDS FOR INFILTRATION OF STORMWATER.

NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

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, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

4. DEBRIS AND OTHER MATERIALS. MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST- CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. EXCAVATION DE-WATERING. EXCAVATION 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 REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, 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.

NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

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 APPENDIX (C)(3)
   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 APPENDIX C(5))
   k. POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS
   l. 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 APPENDIX C (6). 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
   d. TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE

8. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

AUBURN SOLAR PROJECT

E Waterman Road,
Auburn, Maine

BLUEWAVE

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
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ISSUED FOR PERMIT REVIEW
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CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

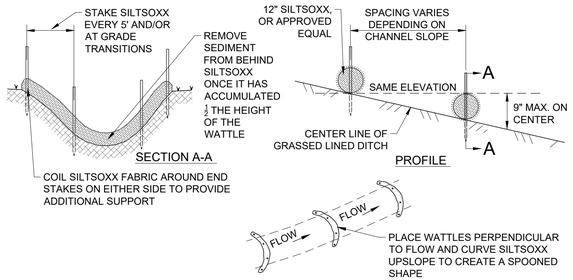
ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:
STATE OF MAINE
IAN A. JAMES
NO. 13165
LICENSED PROFESSIONAL ENGINEER
DECEMBER 17, 2024

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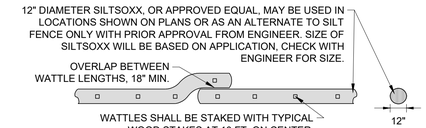
NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF SILTSOXX IN ALL LOCATIONS SHOWN ON THE PLANS. SILTSOXX MAY BE LEFT IN PLACE IF THE CONTRACTOR SEEDS AND MULCHES WATTLE FOR GROWTH POST CONSTRUCTION.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ADDITIONAL SILTSOXX WILL BE ADDED WHEN SEDIMENT REACHES HALF OF PRODUCT HEIGHT.
3. WHEN INSTALLING LENGTHS OF SILTSOXX, LENGTHS WILL OVERLAP BY MINIMUM 2' WHEN TRANSITIONING TO A NEW LENGTH OF WATTLE.
4. CONTRACTOR SHALL REFER TO ALL MANUFACTURES SPECIFICATIONS AND DETAILS.
5. SILTSOXX CAN ONLY BE USED IN A GRASS LINED SWALE, MAY NOT BE USED IN STONE LINED SWALES.
6. SILTSOXX CHECK DAM CAN ONLY BE USED IN CHANNELS WITH SLOPES LESS THAN 5%.
5. SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.



SILTSOXX CHECK DAM

N.T.S.

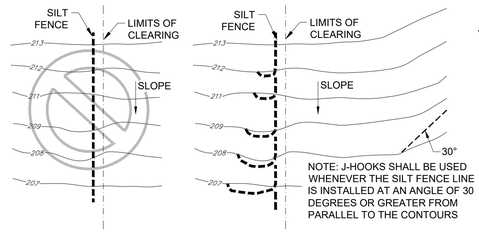


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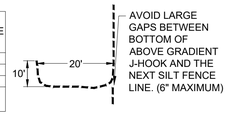
1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF SILTSOXX IN ALL LOCATIONS SHOWN ON THE PLANS. SILTSOXX MAY BE LEFT IN PLACE IF THE CONTRACTOR SEEDS AND MULCHES OVER SILTSOXX FOR GROWTH POST CONSTRUCTION.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ADDITIONAL WATTLES WILL BE ADDED WHEN SEDIMENT REACHES HALF OF PRODUCT HEIGHT.
3. WHEN INSTALLING LENGTHS OF SILTSOXX, LENGTHS WILL OVERLAP BY MINIMUM 18" WHEN TRANSITIONING TO A NEW LENGTH OF SILTSOXX.
4. CONTRACTOR SHALL REFER TO ALL MANUFACTURES SPECIFICATIONS AND DETAILS.
5. SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.
6. SILTSOXX CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER.

TYPICAL SILTSOXX SEDIMENT CONTROL

N.T.S.



SLOPE STEEPNESS	MAXIMUM SPACING BETWEEN SILT FENCE J-HOOKS (FT.)
2:1 SLOPE (50%)	25
3:1 SLOPE (33%)	50
4:1 SLOPE (25%)	75
5:1 SLOPE OR FLATTER (50%)	100



TYPICAL SILT FENCE "J-HOOK" CONSTRUCTION

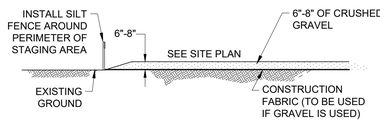
N.T.S.

NOTES

1. PROPER INSTALLATION OF J-HOOKS PROVIDES SILT FENCE THE ABILITY TO TEMPORARILY POND RUNOFF, ALLOWING TIME FOR SEDIMENTS TO SETTLE.
2. LONG RUNS OF SILT FENCE BETWEEN J-HOOKS SHOULD BE AVOIDED REFER TO ADJACENT TABLE FOR PROPER SPACING OF J-HOOKS.
3. J-HOOKS SHOULD BE BUILT ALONG CONTOUR IN A "SMILE" SHAPE WITH A MINIMUM WIDTH OF 20 FEET AND MINIMUM DEPTH OF 10 FEET.
4. ALONG A NARROW RIGHT OF WAY, NARROWER J-HOOKS CAN BE USED WITH A HIGHER SPACING FREQUENCY.

NOTES

1. SILT FENCING TO BE INSTALLED BEFORE CONSTRUCTION OF STAGING AREA IS INSTALLED.
2. INSTALL AND MAINTAIN SURFACE OF STAGING AREA WITH CONSTRUCTION FABRIC OVER EXISTING GROUND. COVER WITH 6"-8" OF CRUSHED GRAVEL, SEE DETAIL. MAINTAIN DEPTH OF GRAVEL THROUGHOUT PROJECT CONSTRUCTION.
3. INSTALL AND MAINTAIN STABILIZED CONSTRUCTION ENTRANCE, SEE DETAIL. INSTALL WOODEN GATE AT ENTRANCE OF OF STAGING AREA.
4. ALL ABUTTERS TO STAGING AREA WILL BE NOTIFIED OF THE PROJECT, DUE TO LIKELY CONSTRUCTION NOISE, ACTIVITIES AT STAGING AREA AND CONSTRUCTION SITE SHALL ABIDE BY LOCAL NOISE ORDINANCES.
5. STAGING AREA IS LIKELY TO BE USED FOR PARKING DURING CONSTRUCTION, STAGING OF CONSTRUCTION MATERIALS, BASE OF PROJECT OPERATIONS AND MISCELLANEOUS PROJECT ACTIVITIES.
6. CLOSE TO PROJECT CONSTRUCTION COMPLETION, STAGING AREA WILL BE REMOVED. GRAVEL AND CONSTRUCTION FABRIC SHALL BE REMOVED AND PROPERLY DISPOSED OF. RESTORE THE PORTION OF EXISTING MEADOW COVERED BY STAGING AREA BY SEEDING, MULCHING, AERATING, ETC AS NECESSARY TO RESTORE AREA TO ITS NATURAL PRECONSTRUCTION STATE.
7. CONTRACTOR IS RESPONSIBLE FOR REFRESHING GRAVEL AS NEEDED TO MAINTAIN STABILITY OF STABILIZED STAGING AREA.



TYPICAL STABILIZED STAGING AREA SURFACE

N.T.S.

AUBURN SOLAR PROJECT

E Waterman Road,
Auburn, Maine

BLUEWAVE

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201 P: (802) 878-0375
Colchester, Vermont 05446 www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN BLANKETS MUST BE SPLICED DOWN, END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (75mm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE: BLANKET SHALL BE USED ON SLOPES 3:1 OR STEEPER

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040 CANADA 1-800-448-2040
www.nagreen.com

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP x 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN BLANKETS MUST BE SPLICED, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE BLANKETS END-OVER-END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
5. FULL-LENGTH EDGES OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 3"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLED CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

CRITICAL POINTS
A. OVERLAPS AND SEAMS.
B. PINNED CENTER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

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EROSION CONTROL BLANKET

NORTH AMERICAN GREEN S150BN

MATERIAL SPECIFICATIONS:

- EROSION CONTROL BLANKET SHALL BE A MACHINE-PRODUCED MAT OF 70% AGRICULTURAL STRAW/ 30% COCONUT FIBER.
- THE BLANKET SHALL BE OF CONSISTENT THICKNESS WITH THE STRAW & COCONUT EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP SIDE WITH 100% BIODEGRADABLE WOVEN NATURAL ORGANIC FIBER NETTING HAVING AN APPROXIMATE 1/2" X 1" MESH AND BE SEWN TOGETHER WITH BIODEGRADABLE THREAD.
- STRAW EROSION CONTROL BLANKET SHALL BE S150BN AS MANUFACTURED BY NORTH AMERICAN GREEN, INC. (812-867-6632) OR EQUIVALENT. EROSION CONTROL BLANKET SHALL HAVE THE FOLLOWING PROPERTIES:

MATERIAL CONTENT:

- STRAW: 70% (0.35 lbs/sq.yd.)(0.19 kg/m^2)
- COCONUT: 30% (0.15 lbs/sq.yd.)(0.08 kg/m^2)
- NETTING: ONE SIDE ONLY, LENO WOVEN 100% BIODEGRADABLE NATURAL ORGANIC FIBER (APPROX. WEIGHT 9.3 lbs./100 sq. ft.)
- THREAD: BIODEGRADABLE

PHYSICAL SPECIFICATIONS (ROLL):

- WIDTH: 6.67 feet (2.03 m)
- LENGTH: 108 feet (32.92 m)
- WEIGHT: 52.2 lbs. ± 10% (23.69 kg)
- AREA: 80 sq. yd. (50 m^2)

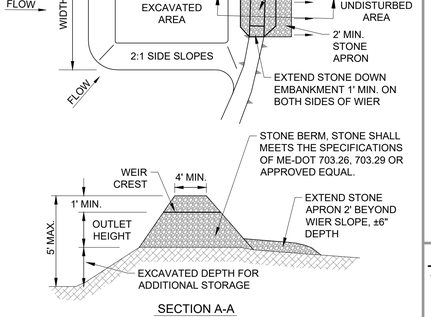
NOTES

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT (VEGETATION DUFF LAYER). THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER. THE USE OF GREATER SLOPES MAYBE PERMITTED WITH OSPC OR EPSC SPECIALIST APPROVAL.
4. THE STONE USED IN THE OUTLET SHALL BE VAOT 706.04 TYPE 1 STONE OR APPROVED ON SITE SHOT ROCK, PLACED ON MIRAFI 140N OR APPROVED EQUAL DRAINAGE FABRIC.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ½ THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND AS REQUIRED BY THE PERMIT.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. IF THE SEDIMENT TRAP IS NOT IN THE LOCATION OF A PERMANENT STORMWATER POND, THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
9. THE MAXIMUM CONTRIBUTING DRAINAGE AREA IS 5 ACRES.
10. GENERAL SIZING REQUIREMENTS FOR ANY SEDIMENT TRAPS NOT IN THE LOCATION OF A PERMANENT STORMWATER POND, SHALL BE 3,600 CUBIC FEET PER ACRE OF DRAINAGE AREA. VOLUME CALCULATION FOR NATURAL SEDIMENT TRAPS MAY BE APPROXIMATED USING THE SURFACE AREA AT OUTLET ELEVATION (A), TRAPS MAXIMUM DEPTH (D) AND THE FOLLOWING EQUATION:
    - TOTAL VOLUME = 0.4 * A (IN SQUARE FEET) * D (FEET)

    FOR CONSTRUCTED/EXCAVATED TEMPORARY SEDIMENT TRAPS THE SIZE SHALL BE ADJUSTED PROPORTIONALLY FOR LARGER DRAINAGE AREAS BASED ON THE BELOW CHART.

APPROX. DRAINAGE AREA	APPROX. STORAGE VOLUME	RECOMMENDED BOTTOM DIMENSIONS	RECOMMENDED DIMENSIONS AT OUTLET	DEPTH AT OUTLET	SIDE SLOPES
0.25 ACRES (±10,900 S.F.)	±900 C.F.	10 FT. WIDE X 13 FT. LONG	22 FT. WIDE X 25 FT. LONG	3 FT.	2:1

11. FOR THOSE TEMPORARY SEDIMENT TRAPS TO BE PERMANENT DRY OR WET PONDS, SEDIMENT SHALL BE REMOVED AND THE ENTIRE AREA SEEDED AND MULCHED OR COVERED WITH EROSION CONTROL MATTING PRIOR TO PUTTING THE STORMWATER POND INTO USE.
12. LOCATIONS FOR TEMPORARY SEDIMENT TRAPS TO BE APPROVED BY THE OSPC OR THE EPSC SPECIALIST.



SECTION A-A

TYPICAL TEMPORARY SEDIMENT TRAP

N.T.S.

COMPOSITION:

EROSION CONTROL MIX BERM SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH *THE MAINE EROSION CONTROL AND BEST MANAGEMENT PRACTICES (BMPS) MANUAL,* SEDIMENT CONTROL BMP, B-1 SEDIMENT BARRIERS. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED WOOD AND BARK CHIPS AND/OR ACCEPTABLE MANUFACTURED PRODUCTS. GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE. ALL MATERIALS USED TO MANUFACTURE THE EROSION CONTROL MIX SHALL BE NATIVE MAINE MATERIALS.

TYPICAL EROSION CONTROL MIX BERM

N.T.S.

NOTES

1. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
2. EXISTING GROUND SHALL BE PREPARED AS NEEDED SUCH THAT THE BARRIER LIES NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
3. ON SLOPES < 5% OR AT THE BOTTOM OF STEEPER SLOPES (<2:1) UP TO 20' LONG, THE BARRIER MUST BE A MINIMUM OF 12" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BARRIER, AND A MINIMUM OF 2 FT. WIDE. ON LONGER OR STEEPER SLOPES, THE BARRIER SHALL BE WIDER TO ACCOMMODATE ADDITIONAL FLOW.
4. EROSION CONTROL MIX MAY BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED AND SCHEDULED ON THE DESIGN PLANS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW STORMWATER END SECTIONS AT OUTFALLS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES (UP TO 2:1 WITH ON SITE PLAN COORDINATOR APPROVAL) THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM. EROSION CONTROL MIX MAY NOT BE USED IN WETLAND AREAS.

NOTES

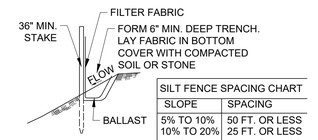
1. CONTRACTOR SHALL STABILIZE CONSTRUCTION ENTRANCE AS REQUIRED TO PREVENT TRACKING OF SEDIMENT OFF-SITE.
2. CONTRACTOR TO USE MIRAFI 500X UNDER STONE FOR TEMPORARY CONSTRUCTION ROADS.
3. CRUSHED STONE SHALL BE ADDED OR REPLACED WHEN 80% OF THE VOIDS ARE FILLED WITH SEDIMENT.
4. STONE SIZE SHALL BE A MAXIMUM OF 4" ROCK OR CRUSHED STONE.
5. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES IS ALLOWED.

STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

NOTES

1. AT A MINIMUM, EROSION AND SEDIMENT CONTROL MEASURES MUST MEET ALL MEDEP STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
2. PERIMETER CONTROLS SHALL BE UTILIZED IN SMALL AREAS < 1 ACRE. IN AREAS > 1 ACRE, TEMPORARY SEDIMENT TRAPS OR TEMPORARY SEDIMENT BASINS ARE TO BE UTILIZED.
3. PERIMETER CONTROLS SHALL BE INSTALLED ON DOWNSLOPE SIDE OF PLANNED EARTH DISTURBANCE.
4. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES WITHIN UPSLOPE CONTRIBUTING AREA.
5. SILTSOXX CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER. SEE DETAIL.
6. IF SILT FENCE IS INSTALLED WHEN GROUND IS FROZEN, A GRAVEL, SHOT ROCK, OR SAND BALLAST MUST BE USED, MINIMUM OF 8".
7. WHEN DISTURBANCE IS WITHIN 75' OF A WATERBODY OR WETLAND CONTRACTOR MUST USE 2 ROWS OF SILT FENCE OR OTHER APPROVED PERIMETER BMP (SUCH AS SILT FENCE WITH FILTER SOCK OR SILT FENCE WITH EROSION CONTROL MIX).
8. INSTALL SILT FENCE AROUND DOWNGRADIENT OF ALL STOCKPILES AND PREVENT STORMWATER FROM RUNNING ONTO STOCKPILE AREAS.

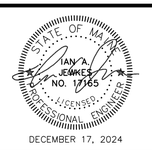


SILT FENCE SPACING CHART	
SLOPE	SPACING
5% TO 10%	50 FT. OR LESS
10% TO 20%	25 FT. OR LESS
> 20%	15 FT. OR LESS

TYPICAL TEMPORARY SILT FENCE

N.T.S.

STAMP:



DECEMBER 17, 2024

0' 60' 120' 240' 360'
0" 1" 2" 3"

STANDARD GRAPHIC SCALE (1" = 120')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:

EROSION & SEDIMENT CONTROL DETAILS

DATE of Issue: 12/17/2024

DRAWN BY: EJM CHECKED BY: IAJ

PROJECT NO.: 22258 SCALE: 1" = 120'

DRAWING NO.: C-3.01 REV. NO.:

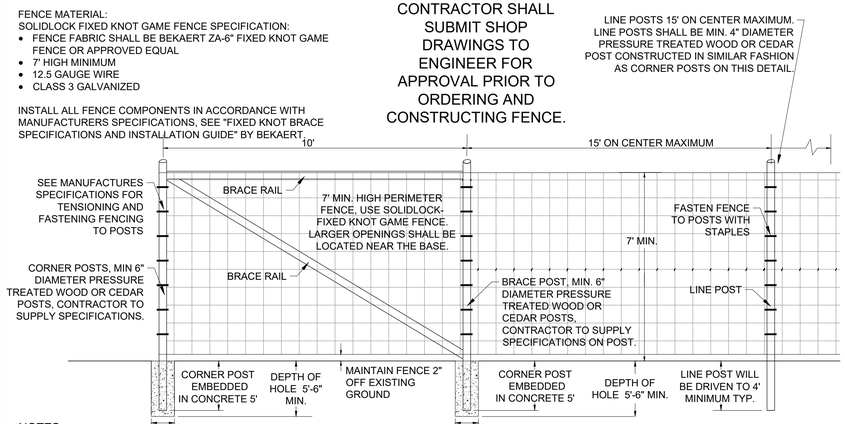
DWG NAME: Bluewave_Auburn-Solar_Base.dwg

FENCE MATERIAL:
SOLIDLOCK FIXED KNOT GAME FENCE SPECIFICATION:

- FENCE FABRIC SHALL BE BEKAERT ZA-6" FIXED KNOT GAME FENCE OR APPROVED EQUAL
- 7' HIGH MINIMUM
- 12.5 GAUGE WIRE
- CLASS 3 GALVANIZED

INSTALL ALL FENCE COMPONENTS IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS, SEE "FIXED KNOT BRACE SPECIFICATIONS AND INSTALLATION GUIDE" BY BEKAERT.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO ORDERING AND CONSTRUCTING FENCE.



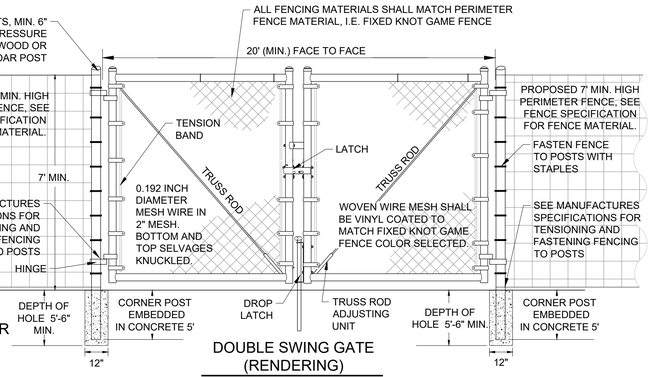
NOTES

1. ADDITIONAL BRACING MAY BE REQUIRED ON LONGER FENCE RUNS. CONTRACTOR TO ADD ADDITIONAL BRACING WHEN CONTRACTOR OBSERVES CORNER POST DEFLECTION DURING FENCE TENSINOING/FASTENING.
2. FABRIC TO BE FASTENED TO POSTS WITH STAPLES APPROVED BY THE ENGINEER.

TYPICAL FIXED KNOT GAME FENCE AROUND ARRAY (RENDERING)
N.T.S.

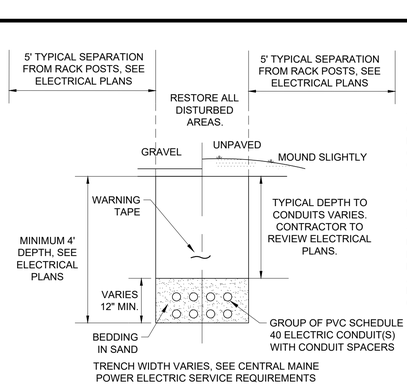
NOTES

1. PAINT ALL GALVANIZED PIPE AND FITTINGS TO MATCH SOLIDLOCK FIXED KNOT GAME FENCE. PAINT SHALL BE SUITABLE FOR USE ON GALVANIZED SURFACES.
2. EMERGENCY CONTACT SIGN SHALL BE PLACED ON THE GATE, WHICH IDENTIFIES THE PROJECT OWNER AND PROVIDES A 24-HOUR EMERGENCY CONTACT PHONE NUMBER.
3. DOUBLE SWING GATE CORNER POSTS TO BE ELECTRICALLY GROUNDED PER ELECTRICAL DRAWINGS.



DOUBLE SWING GATE (RENDERING)
N.T.S.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO ORDERING AND CONSTRUCTING FENCE.



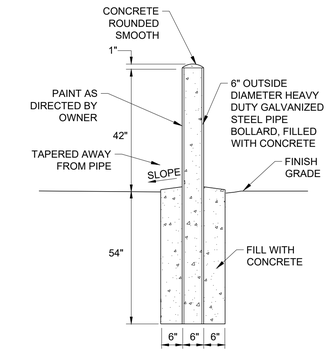
THE EXCAVATION CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH OSHA REGULATIONS. ALL BACKFILL SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR VALUE. SEE ADDITIONAL NOTES.

USE "TRENCH BREAKERS" EVERY 50 FEET ALONG DOWNHILL PORTIONS OF CONDUIT RUNS.

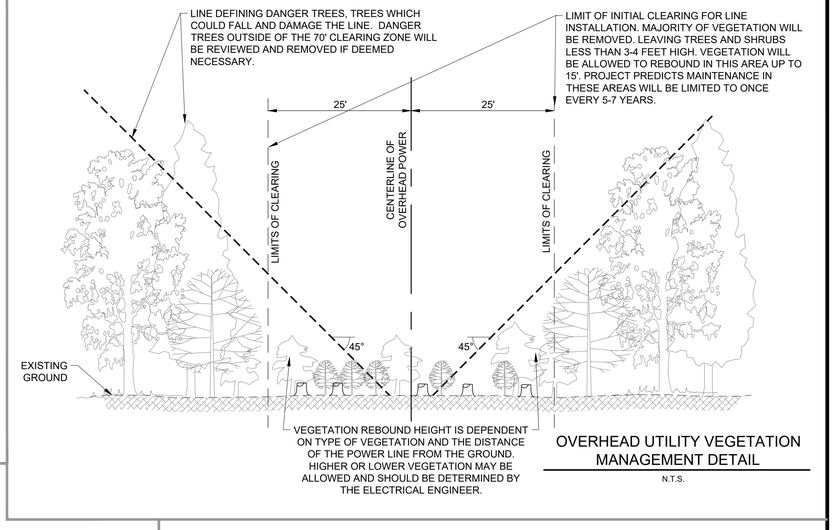
TYPICAL CONDUIT TRENCH
N.T.S.

CONDUIT TRENCHING NOTES

1. THE METHODS AND MATERIALS OF CONSTRUCTION SHALL CONFORM TO THE LATEST STANDARDS OF THE CENTRAL MAINE POWER'S HANDBOOK OF REQUIREMENTS AND THE STATE OF MAINE. ALL WORK SHALL BE IN CONFORMANCE WITH ALL PERMITS AND APPROVALS ISSUED FOR THE PROJECT. IN CASE OF CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY AS DIRECTED BY THE OWNERS REPRESENTATIVE.
2. THE EXCAVATION CONTRACTOR SHALL DIG THE CONDUIT TRENCHING AND ASSIST THE ELECTRICIAN IN PLACING THE CONDUIT. THE CONDUITS SHALL BE PLACED WITH CONDUIT SPACERS WHEN MORE THAN TWO CONDUITS ARE PLACED IN A TRENCH. ALL CONDUIT AND SPACERS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
3. THE EXCAVATION CONTRACTOR SHALL ALLOW SUFFICIENT TIME FOR THE CONDUIT TO BE INSPECTED PRIOR TO BACKFILLING. IF ANY CONDUIT IS BACKFILLED WITHOUT INSPECTION IT WILL BE THE EXCAVATION CONTRACTOR'S RESPONSIBILITY TO UNCOVER THE CONDUIT FOR INSPECTION AND BACKFILL THE TRENCH WITHOUT CHARGE.
4. THE WORKERS AND PUBLIC SHALL BE PROTECTED BY THE EXCAVATION CONTRACTOR FROM ANY AND ALL HAZARDS CONNECTED WITH THE CONSTRUCTION WORK. OPEN TRENCHES, MATERIALS, OR EQUIPMENT WITHIN THE WORKING LIMITS ARE TO BE GUARDED BY THE USE OF ADEQUATE BARRICADES OR FLAGGERS. ALL BARRICADES LEFT IN POSITION OVERNIGHT ARE TO BE PROPERLY LIGHTED. WHEN WORK NARROWS THE USABLE PAVEMENT, FLAGGERS SHALL BE EMPLOYED TO AID THE FLOW OF TRAFFIC SO THAT THERE WILL BE NO UNDUE DELAYS. ALL WORK SHALL BE IN CONFORMANCE TO OSHA REGULATIONS, TITLE 19, PARTS 1926.651 AND 1926.652.
5. ALL CONDUIT CROSSING GRAVEL AREAS OR GRASS PATH AREAS SHALL BE ENCASED IN CONCRETE. CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE WITH CENTRAL MAINE POWER'S HANDBOOK OF REGULATIONS AND THE ELECTRICAL PLANS.
6. THE EXCAVATION CONTRACTOR IS RESPONSIBLE FOR COMPACTING ALL TRENCH BACKFILL TO 95% OF THE STANDARD PROCTOR VALUE.
7. THE EXCAVATION CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT EXCAVATION AND BACKFILL NECESSARY TO COMPLETE THE PROJECT.
8. REFER TO ELECTRICAL ENGINEER PLANS AND DETAILS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.



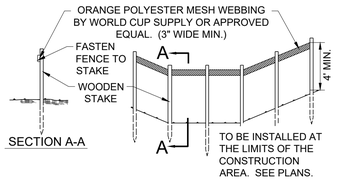
PIPE BOLLARD DETAIL
N.T.S.



OVERHEAD UTILITY VEGETATION MANAGEMENT DETAIL
N.T.S.

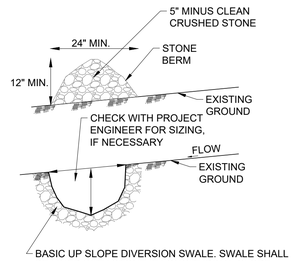
NOTES

1. ACCEPTABLE EPSC MEASURE DETAILS ARE PROVIDED BELOW.
2. AT A MINIMUM, EPSC MEASURES MEET ME DEP STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
3. LIMITS OF DISTURBANCE (OR "CONSTRUCTION DEMARCATION") SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
4. BARRIER TAPE/ROPE: FOR USE WHERE PROPOSED DISTURBANCE BORDERS NON-WOODED, VEGETATED AREAS MORE THAN 100 FT FROM THE NEAREST WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.). BARRIER TAPE IS HIGH VISIBILITY FIBERGLASS TAPE, MINIMUM 3" IN WIDTH COMMONLY USED IN SKI AREAS FOR DEMARCATING CLOSED AREAS. BARRIER TAPE AND ROPE SHOULD BE ATTACHED TO STAKES, AT A MINIMUM HEIGHT OF 4 FT FROM THE GROUND.
5. MINIMUM 1 TO 2 ROWS OF MESH BARRIER TAPE TO BE INSTALLED ALONG CONSTRUCTION PERIMETER.
6. EACH ROW OF BARRIER TAPE TO BE 3" WIDE MINIMUM.
7. BARRIER TAPE TO BE ORANGE.
8. SECURE BARRIER TAPE TO STAKES OR EXISTING TREE TRUNKS WITH BOTTOM ROW AT 4' DISTANCE FROM GROUND SURFACE (MINIMUM).
9. MAINTAIN AND REPLACE AS NEEDED. REMOVE AT COMPLETION OF PROJECT PER ON SITE PLAN COORDINATOR.
10. IN EVENT THE ON SITE PLAN COORDINATOR DETERMINES BARRIER TAPE IS NOT SUFFICIENT, REPLACE WITH ORANGE CONSTRUCTION FENCE OR SNOW FENCE.



TYPICAL CONSTRUCTION LIMIT BARRIER
N.T.S.

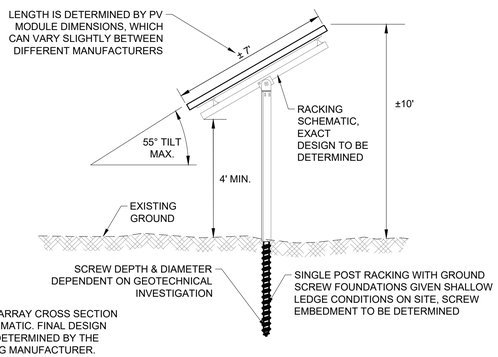
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NOTES

1. UPSLOPE DIVERSION BERM WILL BE USED AS SHOWN ON PLAN AND DETAIL. DIVERSION SWALES ARE NOT PART OF THIS DESIGN, IF NECESSARY DURING CONSTRUCTION, CONTRACTOR SHALL CHECK WITH THE PROJECT ENGINEER FOR SIZING.

TYPICAL UPSLOPE DIVERSION DETAIL
N.T.S.



NOTE:
SOLAR ARRAY CROSS SECTION IS SCHEMATIC. FINAL DESIGN TO BE DETERMINED BY THE RACKING MANUFACTURER.

TYPICAL SOLAR ARRAY CROSS SECTION (RENDERING)
N.T.S.

AUBURN SOLAR PROJECT

E Waterman Road,
Auburn, Maine

BLUEWAVE

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:
STATE OF MAINE
IAN A. JAMES
NO. 17165
LICENSED PROFESSIONAL ENGINEER

DECEMBER 17, 2024

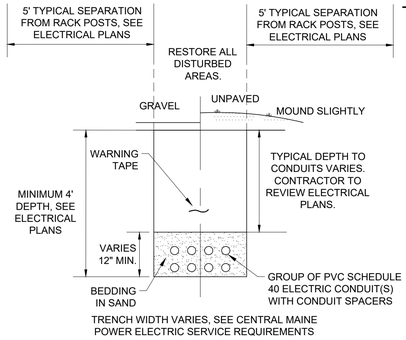
0' 60' 120' 240' 360'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 120')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
DETAILS

DATE of Issue: 12/17/2024
DRAWN BY: EJM CHECKED BY: IAJ
PROJECT NO.: 22258 SCALE: 1" = 120'
DRAWING NO.: C-3.02
REV. NO.:

DWG NAME: Bluewave_Auburn-Solar_Base.dwg



THE EXCAVATION CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH OSHA REGULATIONS. ALL BACKFILL SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR VALUE. SEE ADDITIONAL NOTES.

USE "TRENCH BREAKERS" EVERY 50 FEET ALONG DOWNHILL PORTIONS OF CONDUIT RUNS.

TYPICAL CONDUIT TRENCHING

N.T.S.

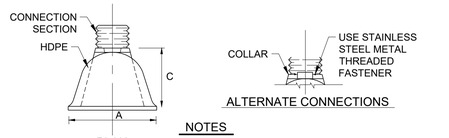
CONDUIT TRENCHING NOTES

1. THE METHODS AND MATERIALS OF CONSTRUCTION SHALL CONFORM TO THE LATEST STANDARDS OF THE CENTRAL MAINE POWER'S HANDBOOK OF REQUIREMENTS AND THE STATE OF MAINE. ALL WORK SHALL BE IN CONFORMANCE WITH ALL PERMITS AND APPROVALS ISSUED FOR THE PROJECT. IN CASE OF CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY AS DIRECTED BY THE OWNERS REPRESENTATIVE.
2. THE EXCAVATION CONTRACTOR SHALL DIG THE CONDUIT TRENCHING AND ASSIST THE ELECTRICIAN IN PLACING THE CONDUIT. THE CONDUITS SHALL BE PLACED WITH CONDUIT SPACERS WHEN MORE THAN TWO CONDUITS ARE PLACED IN A TRENCH. ALL CONDUIT AND SPACERS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
3. THE EXCAVATION CONTRACTOR SHALL ALLOW SUFFICIENT TIME FOR THE CONDUIT TO BE INSPECTED PRIOR TO BACKFILLING. IF ANY CONDUIT IS BACKFILLED WITHOUT INSPECTION IT WILL BE THE EXCAVATION CONTRACTOR'S RESPONSIBILITY TO UNCOVER THE CONDUIT FOR INSPECTION AND BACKFILL THE TRENCH WITHOUT CHARGE.
4. THE WORKERS AND PUBLIC SHALL BE PROTECTED BY THE EXCAVATION CONTRACTOR FROM ANY AND ALL HAZARDS CONNECTED WITH THE CONSTRUCTION WORK. OPEN TRENCHES, MATERIALS, OR EQUIPMENT WITHIN THE WORKING LIMITS ARE TO BE GUARDED BY THE USE OF ADEQUATE BARRICADES OR FLAGGERS. ALL BARRICADES LEFT IN POSITION OVERNIGHT ARE TO BE PROPERLY LIGHTED. WHEN WORK NARROWS THE USABLE PAVEMENT, FLAGGERS SHALL BE EMPLOYED TO AID THE FLOW OF TRAFFIC SO THAT THERE WILL BE NO UNDUE DELAYS. ALL WORK SHALL BE IN CONFORMANCE TO OSHA REGULATIONS, TITLE 19, PARTS 1926.651 AND 1926.652.
5. ALL CONDUIT CROSSING GRAVEL ROADWAYS OR VEHICLE TRAVEL PAHS SHALL BE ENCASED IN CONCRETE. CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE WITH CENTRAL MAINE POWER'S HANDBOOK OF REGULATIONS AND THE ELECTRICAL PLANS.
6. THE EXCAVATION CONTRACTOR IS RESPONSIBLE FOR COMPACTING ALL TRENCH BACKFILL TO 95% OF THE STANDARD PROCTOR VALUE.
7. THE EXCAVATION CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT EXCAVATION AND BACKFILL NECESSARY TO COMPLETE THE PROJECT.
8. REFER TO ELECTRICAL ENGINEER IFC SET FOR FINAL DETAILS AS WELL AS ADDITIONAL INFORMATION AND REQUIREMENTS. COORDINATE CONDUIT INSTALLATION WITH ON-SITE ELECTRICIAN.

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ALTERNATE CONNECTIONS

NOTES

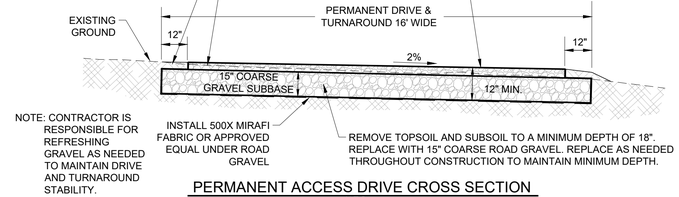
1. END SECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION SPECIFICATIONS.

PIPE DIA.	DIMENSIONS			
	A ±1"	B MAX.	C ±1"	D ±1-½"
10	42	14.5	33	6
12	42	14.5	33	6
15	41	19	34	6
18	49	22	43	6
24	59.5	28	48	6
30	88	36	63.5	6
36	88	43	66.5	6

HDPE END SECTION DETAIL

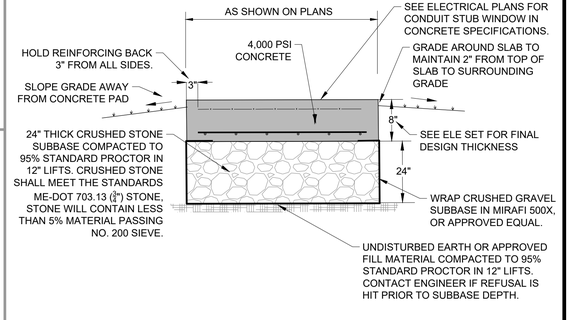
N.T.S.

NOTE: FOR THE FIRST 20' OF THE ENTRANCE THE PROJECT WILL PROVIDE A PAVED APRON. CROSS SECTION FOR PAVED APRON WILL MIMIC GRAVEL SECTION BUT WILL HAVE AND ADDITIONAL 3" BIT. CONCRETE.
- 1" TYPE III- TOP
- 2" TYPE II - BASE



PERMANENT ACCESS DRIVE CROSS SECTION

N.T.S.



REFER TO ELECTRICAL ENGINEER IFC SET FOR ALL CONCRETE DETAILS AND NOTES, INCLUDING MIX DESIGN, CURING TIMES, ADMIXTURE, ETC.

TYPICAL CONCRETE SLAB DETAIL FOR EQUIPMENT PAD

N.T.S.

AUBURN SOLAR PROJECT

E Waterman Road,
Auburn, Maine

BLUEWAVE

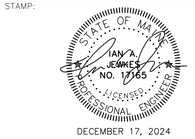
KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
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ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:



DECEMBER 17, 2024

0' 60' 120' 240' 360'
0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 120')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:

DETAILS

DATE of Issue: 12/17/2024
DRAWN BY: EJM CHECKED BY: IAJ
PROJECT NO.: 22258 SCALE: 1" = 120'
DRAWING NO.: C-3.03 REV. NO.:

DWG NAME: Bluewave_Auburn-Solar_Base.dwg

ATTACHMENT 5
OPTION AGREEMENT (REDACTED)

LAND LEASE AND EASEMENT AGREEMENT

THIS LAND LEASE AND EASEMENT AGREEMENT (this "Agreement") is made, dated and effective as of the 6th day of September, 2024 (the "Effective Date"), between Bertrand M. Roy, an individual, (together with its transferees, successors and assigns, as ("Landlord"), and BWC Gulf Island Pond, LLC, a Delaware limited liability company (together with its transferees, successors and assigns, ("Tenant"), and in connection herewith, Landlord and Tenant agree, covenant and contract as set forth in this Agreement. Landlord and Tenant are sometimes referred to in this Agreement as a "Party" or collectively as the "Parties".

WHEREAS, Landlord owns the real property including the air space thereon, located at 222 East Waterman Road, Auburn ME 04210 and identified as Tax Parcel 393-010 by the assessors' records of the locality in which such property is located , titled in the name of the Landlord by Deed recorded in the Androscoggin County Registry of Deeds in Book 3829 at Page 94 and which is more particularly described in Exhibit A-1 attached hereto and incorporated by reference herein (the "Property");

WHEREAS, Tenant wishes to lease the portion of the Property described in Exhibit A-2 attached hereto, such portion of the Property, together with the easements granted herein, being referred to herein as the "Leased Premises" in order to develop, design, install and operate the Facility (as defined in the Glossary of Terms) thereon.

WHEREAS, Landlord is willing to lease the Leased Premises to Tenant for the development, construction, operation and maintenance of the Facility and associated uses necessary or ancillary thereto;

WHEREAS, Tenant desires and Landlord is willing to grant Tenant certain easements across the Property which easements are necessary for the development, construction, operation and maintenance of the Facility on the Leased Premises;

NOW THEREFORE, in consideration of the premises, the covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant agree as follows:

1. DEFINITIONS. In addition to those terms defined in the beginning, the recitals or elsewhere in this Agreement, capitalized terms set forth in the Glossary of Terms, attached hereto and incorporated herein shall have the meanings as set forth therein.

2. LEASE. For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by Landlord and Tenant, upon the terms and conditions set forth in this Agreement, Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord the Leased Premises for the Permitted Uses for the Term. Tenant shall have quiet and peaceful possession of the Leased Premises, use of the Easements and any other rights granted by this Agreement for the entire Term without hindrance, interruption, suit, trouble or interference of any kind by Landlord or any other person or entity claiming (whether at law or in equity) by, through or under Landlord.

2.1 Permitted Uses. The Leased Premises shall be used for Due Diligence Activities, construction, operation and maintenance of the Facility, access and utilities and any other lawful related purpose and Tenant shall have the exclusive right to develop and use the Leased Premises for such purpose and the other Permitted Uses described in this Section 2 and to derive all profits therefrom, including but not limited to the following activities (collectively, "Site Activities"):

(a) If the Facility includes a solar photovoltaic electric generating facility, converting solar radiation emitted from the sun ("Solar Energy") into electrical energy, and collecting, storing, and transmitting the electrical energy so converted;

(b) Due Diligence Activities for purposes of determining the feasibility of installation and operation of the Facility, and of Solar Energy conversion on the Leased Premises and a related substation on the Property or on adjacent lands, including studies of Solar Energy emitted upon, over and across the Property and other meteorological data, environmental studies and extracting soil samples;

(c) Constructing, laying down, installing, using, replacing, relocating, reconstructing and removing from time to time, and monitoring, maintaining, repairing and operating the following improvements: (i) Solar Energy and/or electricity collection and electrical generating equipment of all types including, without limitation, any such equipment utilizing photovoltaic and/or solar thermal technology (collectively, "Solar Generating Equipment"); (ii) overhead and underground electrical distribution, collection, transmission and communications lines or cables, electric combiners, inverters, transformers and substations, energy storage facilities, and telecommunications equipment; (iii) roads and crane pads; (iv) meteorological measurement equipment; (v) control buildings, operations and maintenance facilities and building; and (vi) any other improvements, that Tenant reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing;

(d) Interconnecting the Facility to the local electric distribution system, and selling electricity produced, discharged and/or generated by the Facility. Tenant may determine whether any group of Facilities constitutes a single Facility or multiple Facilities for purposes of this Agreement, and in the case of multiple Facilities, which portion of the Property shall be included within each Facility.

2.2 Dual-Use Agricultural Operations. At Tenant's option, in its sole discretion, Tenant shall have the exclusive right to use and occupy the Leased Premises for agricultural and farming purposes to qualify the Facility as an agricultural solar generation unit, by dual land use for agriculture and a solar canopy system ("Dual-Use Solar Facility"). This includes, without limitation, the right to use the property for grazing, farming, establishing pollinator habitat, agricultural uses, and all other forms of agrivoltaics and vegetation control in connection with a Dual Use Solar Facility, including, at Tenant's discretion, installation of fencing or improvements related to said agrivoltaics and the maintenance thereof. This also includes the right to take necessary steps to enroll the Leased Premises in any preferential property tax or incentive program necessary to quality the Facility as a Dual-Use Solar Facility. This use shall include Tenant's right to sublease or sublicense the Leased Premises for agriculture and farming purposes and to enter into any related agreements ("Dual-Use Agricultural Operations") and to

make all necessary governmental and quasi-governmental filings and secure any permits in respect to such Dual-Use Agricultural Operations, in each case without the need to provide notice to or secure the prior consent of Landlord. Tenant shall also have the right, in its sole and absolute discretion, to remove or reclassify the Leased Premises and any Easements from any agricultural or farming designation.

2.3 Tenant's Use of the Leased Premises. Tenant may use the Leased Premises for Permitted Uses, as further set forth below:

(a) During the Development Period,:

(i) Tenant and its employees, agents and contractors shall have a non-exclusive right to enter upon the Property outside the Leased Premises and the right of ingress and egress over and across the Property outside the Leased Premises for the purpose of conducting due diligence activities (collectively, "Due Diligence Activities"), which Due Diligence Activities include, but are not limited to (i) surveying the Leased Premises, (ii) performing such other tests and studies as Tenant may desire in connection with the development of the Facility, including, without limitation, environmental, noise, avian and cultural resource assessments, and geotechnical, foundation and soil tests, and (iii) installing, maintaining, operating, inspecting and removing one or more solar monitoring devices and all associated activities, including the Weather Instruments (defined below) and including the performance of all tests and studies associated therewith. "Weather Instruments" shall mean ground-based instruments (including Sonic Detection and Ranging ("SODAR") instruments) used primarily to gather and transmit meteorological data relating to the solar project, and includes meteorological data acquisition equipment, power source, and any required data and electrical transmission lines. Landlord shall reasonably cooperate with all of Tenant's Due Diligence during the Initial Term, including environmental due diligence, provided that such cooperation does not cause Landlord to incur any expenditure (unless Tenant shall reimburse Landlord for any such expenditure). After its investigations of the Property during the Initial Term, Tenant shall restore the Property outside the Leased Premises, at Tenant's sole cost and expense, substantially to its condition immediately prior to Tenant's inspections, wear, tear and casualty damage excepted; and

(ii) Tenant may construct the Facility and engage in activities associated with constructing the Facility, including producing electricity prior to achieving commercial operation of the Facility and installing equipment necessary for remote monitoring of the Facility.

(b) During the Operations Period, Tenant may use the Leased Premises for any of the Permitted Uses.

(c) During the Decommissioning Period, Tenant shall cease commercial operation of the Facility, and shall remove the Facility from the Leased Premises and restore the Leased Premises to its preexisting condition, wear, tear and casualty damage excepted, as provided in Section 4.5.

3. GRANT OF EASEMENTS.

3.1 Landlord hereby grants, conveys and warrants to Tenant, and Tenant hereby accepts the following easements upon, over, across, under and burdening the Property and any Surrounding Property at all times during the Term:

(a) Solar Easement; Non-Obstruction. An exclusive easement pursuant to Applicable Law, on, over and across the Property and Surrounding Property for the purpose of ensuring access to direct sunlight to any solar panels on the Leased Premises and an exclusive easement prohibiting any obstruction of direct sunlight throughout the entire Property to and for the benefit of the area existing horizontally three hundred and sixty degrees (360°) from any point where any solar panel is or may be located at any time from time to time (each such point referred to as a "*Site*") and for a distance from each Site to the boundaries of the Property and any Surrounding Property, together vertically through all space located above the surface of the Property, that is, one hundred eighty degrees (180°) or such greater number or numbers of degrees as may be necessary to extend from each point on and along a line drawn along the surface from each point along the exterior boundary of the Property and Surrounding Property through each Site to each point and on and along such line to the opposite exterior boundary of the Property and any Surrounding Property (collectively, the "Solar Easement");

(b) Operating Easement. An exclusive easement over the Property and any Surrounding Property for all activities occurring on the Leased Premises, in the Solar Easement, Access Easement or the Utility Easement necessary to develop and operate the Facility, including but not limited to, electromagnetic, audio, visual, view, light, noise, vibration, electrical, radio interference, or other effects attributable to the Facility or any Site Activities;

(c) Access Easement. A non-exclusive easement to access the Facility and the Leased Premises for equipment access and for vehicular and pedestrian ingress to and egress, from the Facility (whether located on the Property, on adjacent property or elsewhere) over and across the Property and Surrounding Property by means of roads and lanes thereon if existing or later constructed by Landlord, or otherwise by such route or routes as Tenant may construct from time to time, and which roads and lanes must connect to a public way;

(d) Utility Easement. An exclusive easement to construct, install, operate, maintain, relocate, remove, repair electric service infrastructure, poles, towers, foundations, switchgear, cabinets, transformers, and other equipment necessary and convenient to interconnect the Facility to the local electric distribution system and for transmitting electric current and communications and intelligence, which may be overhead or underground. the Facility; and

(e) Vegetation Maintenance Easement. (i) An easement to enter upon the Property and trim and cut vegetation and trees along the access and utility easements which may overhang or interfere with such access and utility easements, and (ii) an easement to trim existing trees and vegetation on the Property that interfere with the Solar Easement from any angle upon, across and over the Leased Premises. The easement granted in this subsection (e) shall be exercised after providing Landlord with at least five (5) Business Days prior written notice of the Tenant's need to enter the Property.

(f) Temporary Construction Easement. A non-exclusive easement to

be located at a mutually acceptable location on a portion of the Property and Surrounding Property to be used for temporary (i) storage and staging of tools, materials and equipment, (ii) construction laydown, (iii) parking of construction crew vehicles and temporary construction trailers, (iv) vehicular and pedestrian access and access for rigging and material handling, and (v) other facilities reasonably necessary to construct, erect, install, expand, modify or remove the Facility. In the event that Tenant disturbs the surface of the Property or Surrounding Property in connection with the exercise of its rights under this easement, Tenant will, at its sole expense, restore the surface of such areas so-disturbed to substantially the same or better condition as existed prior to such disturbance, provided, however, that Tenant shall not be required to restore any vegetation.

(g) Other Easements. All other easements reasonably necessary to accomplish the activities permitted by this Agreement, including but not limited to the Permitted Uses and those activities described in Section 2.

3.2 Landlord's grant of easements in Section 3.1(a) through (e) shall commence on the Effective Date and continue throughout the Term and any extensions of the Term, and for the time necessary and convenient to perform any decommissioning, if such obligations extend beyond the Term. Landlord's grant of easement in Section 3.1(f) shall commence on the Effective Date and shall continue through the Construction Term.

3.3 If required by the local electric utility ("Utility"), Landlord shall grant to the Utility an easement and right to construct, operate, maintain, reconstruct, relocate, remove, and/or repair the electric utility service infrastructure and associated wires, lines and poles and other infrastructure necessary and convenient to interconnect each Project to the Utility electrical distribution system, the location of which will be determined by the Utility prior to the Commercial Operation Date. If required by the Utility, Landlord shall enter into a recordable easement instrument on the Utility's form.

3.4 All easements shall burden the Property and shall run with the land for the benefit of Tenant, its successors and assigns (including any Financing Parties and any other permitted assignees of Tenant's rights under the Agreement), and their respective agents, contractors, subcontractors and licensees.

3.5 At Tenant's request, Landlord shall timely execute one or more recordable standalone easement agreements and in addition to recording the Notice of Lease and Easements in accordance with Section 17.5 shall execute and permit Tenant to record any other documents reasonably requested by Tenant to evidence and give effect to such easements.

3.6 Tenant shall be responsible for the routine maintenance costs to any and all access roads or ways (the "Access Roads") developed for the construction and maintenance of the Solar Facility that are used by both Parties, and shall evenly share in that portion of the routine maintenance costs assessed to the Landlord for any and all shared access roads or ways that are used by both Parties until the expiration of the Final Term of the Lease. Each Party shall be responsible for the non-routine maintenance and repair of any damage to Access Roads caused by said Party.

4. TERM. The Term of this Agreement shall commence on the Effective Date and shall continue for the following described periods (collectively, the "Term"):

4.1. Development Period. The Development Period (the "Development Period") will begin on the Effective Date and will terminate on the earliest of:

(a) Delivery by Tenant of notice of termination in accordance with Section 4.2(c);

(b) Tenant's election to commence the Operations Period as provided in Section 4.3(b); or

(c) the Commercial Operation Date.

4.2. Development Period Phases. The Development Period has two phases, the Pre-Construction Phase and the Construction Phase.

(a) Pre-Construction Phase. The Pre-Construction Phase ("Pre-Construction Phase") will commence on the Effective Date and continue for up to three (3) years thereafter, in order to allow Tenant time to continue evaluation of the suitability of the Property for the Project, including in-depth site analysis, transmission, capacity, permitting constraints, geotechnical studies, environmental studies, drilling bore holes, applying for interconnection and obtaining a signed interconnection agreement and required permits in order to be able to commence construction. Subject to Tenant having made all payments of Rent then due, Tenant shall have the right, by written notice to Landlord, to extend the Pre-Construction Phase for an additional one (1) year period. The Pre-Construction Phase shall be extended on a day-for-day basis due to acts, omissions or delays of a Governmental Authority or the Utility which result in delay in achievement of the Construction Start Date.

(b) Construction Phase. The Construction Phase (the "Construction Phase") will commence on the first to occur of (i) the expiration of the Pre-Construction Phase or (ii) the Construction Start Date, and ends on the Operations Period Commencement Date, determined as provided in Section 4.3 below.

(c) Termination Right. At any time during the Development Period, Tenant shall have the right to terminate this Agreement by thirty (30) days written notice to Landlord.

(d) Confirmation of Leased Premises. In the event that it is determined by Tenant during the Development Period that there are changes required

to the legal description of the Leased Premises, including without limitation the creation of a new ALTA survey of the portion of the Property on which the Facility will be located, with metes and bounds legal description, the validity of this Agreement shall not be affected, and, upon the request of Tenant, Landlord shall execute an amendment to the legal description of the Leased Premises contained in Exhibit A-2 of this Agreement and in any memorandum of this Agreement to reflect the final legal description of the Leased Premises.

4.3. Operations Period. The Operations Period (the "Operations Period") shall commence on the earlier of:

(a) 12:01 a.m. on the first day after the Commercial Operation Date; or

(b) Tenant's election to commence the Operations Period, notwithstanding that the Facility has not yet attained the Commercial Operation Date (it being agreed that at the end of the Construction Phase of the Development Period Tenant shall have been deemed to elect to commence the Operations Period unless prior to such time Tenant has exercised any rights hereunder to terminate this Agreement);

(such date being referred to herein as the "Operations Period Commencement Date") and will end at 11:59 p.m. on the last day of the month in which the twentieth (20^{th}) anniversary of the Operations Period Commencement Date occurs. Tenant shall provide Landlord with written notice of the Commercial Operation Date.

4.4. Extended Operations Period. Tenant shall have the exclusive right to extend the Operations Period for up to four (4) additional consecutive terms of five (5) years each for a total of twenty (20) additional years.

4.5. Decommissioning Period. The Decommissioning Period (the "Decommissioning Period") shall commence when the Operations Period, including any extensions thereto, expires, and shall continue for a period of 180 days, (provided that if such 180 day term begins or ends within the months of December, January, February, March, or April, the Decommissioning Period shall be extended to the next occurring July 31) whereupon this Agreement shall expire and shall be of no further force and effect, except that such termination shall not release or modify any of the obligations of the Parties arising prior to such termination. Promptly following the Operations Period expiration, or an earlier termination of this Agreement, Tenant shall remove all structures, equipment, personal property and transmission lines from the Leased Premises at Tenant's sole cost and expense. Tenant shall perform the decommissioning during the Decommissioning Period in accordance with any permits issued by the local permitting authority. If Tenant performs the decommissioning after this Agreement terminates, Tenant's access to the Property shall be pursuant to the easements granted herein.

5. **RENT.** In consideration for the lease of the Leased Premises, Tenant agrees to pay Rent to the Landlord pursuant to the terms and conditions set forth in Exhibit B, which is incorporated herein by reference.

6. OWNERSHIP OF FACILITY.

6.1. Tenant or Financing Party shall be the legal and beneficial owner of the Facility (including without limitation, all additions, alterations, and modifications thereto or replacements thereof, all appurtenant fixtures, machinery and equipment installed therein), all electrical output from the Facility, Environmental Attributes and Incentives, at all times. Landlord shall have no ownership, lien, security or other interest in any Facility. The Facility is personal property and shall not attach to or be deemed a part of, or fixture to, the Leased Premises or the Property. The Facility shall at all times retain the legal status of personal property as defined under Article 9 of the Uniform Commercial Code. Landlord covenants that it will place all persons having an interest in or lien upon the real property comprising the Property, on notice of the ownership of the Facility and the legal status or classification of the Facility as personal property. Landlord and/or Tenant shall make any necessary filings to disclaim the Facility as a fixture of the Leased Premises and the Property in the appropriate Land Registry to place all interested parties on notice of the ownership of the Facility by Tenant. Notwithstanding anything to the contrary stated above, Landlord shall retain all rights in and to the Property, subject to the rights granted to Tenant hereunder, including the rights to profits derived from timber, and crop harvest, provided, Landlord's exercise of such rights shall not interfere with Tenant's easements rights over the Property and operation of the Facility on the Leased Premises during the Term of this Agreement.

6.2. Landlord shall have no right or interest in any of the electric energy produced by the Facility or in any Environmental Attributes, Tax Attributes, or other rights or incentives associated with the production of electric energy by the Facility.

6.3. Landlord hereby waives any and all rights it may have to any lien rights, whether statutory or otherwise, on Tenant's personal property, including without limitation, the Facility, Tenant's inventory, trade fixtures, and removable equipment and fixtures located within or on the Leased Premises, whether or not any part of the Facility becomes so related to the Leased Premises that an interest therein would otherwise arise under Applicable Law. Landlord agrees to (i) take no action to impede or interfere with a Financing Party's remedies under a security interest in said personal property of Tenant and (ii) execute, upon request, a confirmation of such waiver in a form reasonably satisfactory to Tenant and its lenders.

7. LANDLORD ACTIVITIES; REVIEW.

7.1. Landlord shall maintain the Property and its Surrounding Property adjacent to the Leased Premises in good condition and state of repair to avoid interference with Tenant's use of and access to the Leased Premises and any appurtenant easements. Landlord shall not construct structures or plant trees adjacent to the Leased Premises that will impede solar access to the Facility. Landlord shall not engage in activities at the Property or on the Surrounding Property

that will materially impact conditions on the Leased Premises, or construct any structures or improvements on the Leased Premises or the Interconnection Easement parcel.

7.2. Landlord shall not enter the Leased Premises without Tenant's consent.

7.3. Landlord has been informed by Tenant and acknowledges that the construction and operation of the Facility and other activities related to the development, operation and decommissioning of the Facility may potentially result in some nuisance to Landlord and/or any other tenant or occupant of the Property, such as visual impact and noise. Landlord hereby accepts such nuisance and waives any right that Landlord may have to object to such visual nuisance and Landlord releases Tenant from any claims Landlord and/or any other tenant or occupant of the Property may have with respect to any such nuisance.

7.4. Landlord acknowledges that Landlord has been afforded sufficient time to review and understand the terms and effects of this Agreement and to submit it to legal counsel of Landlord's choosing for review and advice. Landlord represents that the agreements and obligations herein are made voluntarily, knowingly and without duress.

8. TAXES AND UTILITIES.

8.1. Landlord shall pay all taxes, assessments, or other governmental charges, general and specific, in connection with its ownership of the Property and any improvements exclusive of the Facility as of the Effective Date of the Agreement (the "Landlord Taxes"). Upon commencement of the Operations Term, Tenant shall be responsible for (a) personal property taxes solely attributable to the Facility, plus (b) any incremental increase over and above Landlord Taxes, in taxes, assessments, or other governmental charges resulting from assessments upon the value of Tenant's leasehold interest in the Leased Premises. ("Tenant Taxes"). To the extent the applicable taxing authority provides a separate tax bill for the Tenant Taxes to Tenant, Tenant shall pay such Tenant Taxes directly to the applicable taxing authorities. If a separate tax bill for the Tenant Taxes is not provided to Tenant, Tenant shall pay the Tenant Taxes within twenty (20) days following receipt of written demand from Landlord of the amount of the Tenant Taxes with a copy of the applicable tax bill. Landlord hereby grants Tenant the right to challenge the assessment of additional real property taxes to Landlord as a result of Tenant's lease of the Leased Premises.

If any such property taxes, assessments, and/or real property taxes are due and payable and either Party fails to fulfill its obligations under this Section 8, then the other Party may, but shall not be obligated to, pay the taxing authorities the entire amount due on the tax bill and obtain reimbursement for such amount paid on behalf of such Party plus interest (computed from the date of payment) at a rate equal to the sum of: (i) two percent (2%) per annum; plus, (ii) the prime lending rate as from time to time may be published by The Wall Street Journal under the "Money Rates" section; provided, that in no event shall such total interest exceed the maximum rate permitted by law. If Tenant pays taxes, assessments, and/or real property taxes on behalf of Landlord that are Landlord' obligation hereunder, Tenant may offset the amount of such payments against amounts due Landlord under this Agreement.

8.2. If the Property as of the Effective Date is valued, assessed and taxed as open space, recreational, agricultural, horticultural, forest or other similar preferential real estate tax classification under local or state law, upon Tenant's request, Landlord and Tenant shall cooperate to remove the Leased Premises, and, if necessary, the easement areas from such classification. In particular, Landlord shall prepare, sign, and submit (after giving Tenant an opportunity to review the same) any notice required by law for such removal. Tenant shall reimburse Landlord for any payments of any recapture or rollback of real property taxes foregone due to Landlord's currently held agricultural tax exemptions under State law as a result of Tenant's use of the Leased Premises provided that Landlord had such tax exemptions at the time of the Effective Date of this Agreement and further provided that prior to the Effective Date of this Agreement Landlord notified Tenant in writing of the existence of such tax exemptions and the economic effect of the loss of such exemptions. Notwithstanding any other provisions of this Agreement, Tenant shall not commence any construction activities on the Leased Premises until the earlier of the expiration of any purchase option period afforded under law to the municipality, or Landlord's receipt of notice from the applicable taxing jurisdiction that it will not exercise any purchase option. If the applicable taxing jurisdiction, or its assignee, elects to exercise its statutory purchase option, this Agreement shall terminate and be of no further effect, except for those Lease provisions that expressly survive termination, and Landlord may seek to rescind the notice withdrawing the Lease Area from reduced tax classification. It is a condition to Landlord's right of reimbursement hereunder that Landlord submits the real property tax bill to Tenant that documents any such increase in real property taxes to recapture taxes foregone due to Landlord's currently held agricultural tax exemptions as soon as practicable, but in no event more than thirty (30) days after Landlord receives such tax bill from the taxing authority and at least ten (10) Business Days prior to the due date.

8.3. Each Party may contest in good faith any tax assessments or payments, provided that all payments are made when due and such contest (or appeal, as the case may be) complies with Applicable Law. Each Party shall use all reasonable efforts to cooperate with the other in any such contests of tax assessments or payments. In no event shall either Party postpone during the pendency of an appeal of a tax assessment the payment of taxes otherwise due except to the extent such postponement in payment has been bonded or otherwise secured in accordance with Applicable Law.

9. INDEMNIFICATION.

9.1. Each Party (the "Indemnifying Party") shall defend, indemnify and hold harmless the other Party and such other Party's Related Persons (as defined below) (each, an "Indemnified Party") from and against any and all Losses arising out of any third party (excluding Related Persons as defined below in Section 9.6) claim against Owner for property damage, bodily injury or death caused by, arising out of, or resulting from the negligence, breach of contract, violation of Applicable Law, or willful misconduct of Contractor or Subcontractors in connection with this Agreement or incurred by such Indemnified Party. An Indemnified Party's indemnity pursuant to this Section 9 shall be reduced in proportion to any negligence or willful misconduct of an Indemnified Party or it's Related Persons.

9.2. Whenever any claim arises for indemnification under this Agreement, the Indemnified Person shall notify the Indemnifying Party in writing as soon as possible (but in any event prior to the time by which the interest of the Indemnifying Party will be materially prejudiced as a result of its failure to have received such notice) after the Indemnified Person has knowledge of the facts constituting the basis for such claim (the "Notice of Claim"). Such Notice of Claim shall specify all facts known to the Indemnified Party giving rise to the indemnification right and the amount or an assessment of the amount of the liability arising therefrom.

9.3. The Indemnifying Party has the right, but not the obligation to assume the defense for the matter for which indemnification is sought hereunder. If the Indemnifying Party does not assume the defense, it shall timely pay all costs of legal counsel and case expenses incurred by Indemnified Party in connection with the defense, when and as incurred. If the Indemnifying Party assumes the defense, the Indemnified Party has the right to hire its own, separate counsel to defend it, but the Indemnified Party shall be responsible for the reasonable costs of such separate counsel. The Indemnifying Party shall not consent to the entry of any judgment or enter into any settlement with respect to the matter for which indemnification is sought without the prior written consent of the Indemnified Party (which consent shall not be unreasonably withheld) unless the judgment or settlement involves the payment of money damages only and does not require the acknowledgement of the validity of any claim or admission of any liability by or on behalf of any Indemnified Party.

9.4. In no event shall an Indemnifying Party be liable to the Indemnified Party to the extent any Claim is caused by, arises from or contributed by the negligence or intentional misconduct of the Indemnified Party or its Related Person thereof.

9.5. In no event shall Tenant or its Related Persons be liable to Landlord for property damage or personal injuries to Landlord or its Related Persons attributable to risks of known and unknown dangers associated with normal day-to-day operation of the Facility.

9.6. As used herein the term "Related Person" shall mean any officers, directors, employees, invitees, affiliates, contractors, lessees, and sub-lessees of a Party, and each of their respective, principals, officers, employees, servants, agents, representatives, subcontractors, licensees, invitees, and/or guests.

9.7. This Section 9 shall survive expiration or earlier termination of this Agreement.

10. TENANT'S REPRESENTATIONS, WARRANTIES, AND COVENANTS. Tenant hereby represents, warrants, and covenants to Landlord that:

10.1. Tenant's Authority. Tenant has the power and authority to execute this Agreement and to perform its obligations hereunder. Each person signing this Agreement on behalf of Tenant is authorized to do so. When signed by Tenant, this Agreement constitutes a valid and binding agreement enforceable against Tenant in accordance with its terms.

10.2. Insurance. Tenant shall, at its expense, be responsible for assuring that insurance coverages, as would be customary and reasonable for similarly situated companies performing the work carried out by Tenant at such time, are maintained, including, without limitation, adequate coverage to cover any personal injuries or accidents that could reasonably be expected as a direct result of the Site Activities conducted by Tenant or its Related Persons on the Property.

10.3. Requirements of Governmental Agencies. Tenant, at its expense, shall comply in all material respects with valid laws, ordinances, statutes, orders, and regulations of any governmental agency applicable to the Facility. Tenant shall have the right, in its sole discretion, to contest by appropriate legal proceedings, the validity or applicability to the Property or Facility of any law, ordinance, statute, order, regulation, property assessment, or the like now or hereafter made or issued by any federal, state, county, local or other governmental agency or entity. Any such contest or proceeding shall be controlled and directed by Tenant.

10.4. Construction Liens. If any mechanic's lien or other lien or claim of lien are publicly recorded in the applicable land records' office for labor and services performed on, materials, supplies, or equipment furnished to the Property in connection with Tenant's use of the Leased Premises on the Property pursuant to this Agreement, Tenant shall, within sixty (60) days after it receives notice of the filing of such lien, remove, pay or cancel said lien or secure the payment of any such lien or liens by bond or deposit of moneys pursuant to Applicable Law. Tenant shall have the right, at all times and at its own cost and expense, to defend, on behalf of Tenant or the Landlord, any action involving the cancellation, validity or removal of such lien or liens.

10.5. Hazardous Materials. Neither Tenant nor its Related Persons shall violate federal, state, or local law, ordinance, or regulation relating to the generation, manufacture, production, use, storage, release, discharge, disposal, transportation or presence of asbestos-containing materials, petroleum, explosives or any other substance, material, or waste which is now or hereafter classified as hazardous or toxic, or which is regulated under current or future federal, state, or local laws or regulations, on or under the Property or in any manner which may affect the Property (each, a "Hazardous Material"). Tenant shall promptly notify Landlord if any violation occurs.

10.6. Litigation. No litigation is pending against Tenant, and, to the best of Tenant's knowledge, no actions, claims or other legal or administrative proceedings are pending, threatened or anticipated with respect to, or which could adversely affect Tenant's obligations under this Agreement.

11. LANDLORD'S REPRESENTATIONS, WARRANTIES, AND COVENANTS. Landlord hereby represents, warrants, and covenants as follow:

11.1. Landlord's Authority. Landlord is the fee owner of and has good and valid title to the Property and has the unrestricted right and authority to execute this Agreement and to grant to Tenant the rights granted hereunder. Each person signing this Agreement on behalf of

Landlord is authorized to do so. When signed by Landlord, this Agreement constitutes a valid and binding Agreement enforceable against Landlord in accordance with its terms.

11.2. No Interference. Landlord's activities and any grant of rights Landlord makes to any person or entity, shall not, currently or prospectively, disturb or interfere with: the construction, installation, maintenance, or operation of the Facility on the Leased Premises or access over the Property to such Facility as provided for herein; any Site Activities; or the undertaking of any other activities permitted hereunder. Without limiting the generality of the foregoing, Landlord shall not erect any structures, plants or other equipment, or enter into any third party agreements or amend or extend any existing agreements or undertake any other activities (a "Landlord Action") that may: (i) interfere with Tenant's right to install the Facility on any portion of the Leased Premises, (ii) if such Facility is designed to collect Solar Energy, overshadow or otherwise block or interfere with sunlight access to the Facility, (iii) cause a decrease in the output or efficiency of the Facility, or (iv) otherwise interfere with Tenant's operations on the Leased Premises (each an "Interference"). Prior to undertaking a Landlord Action that may cause an Interference, Landlord shall consult with Tenant to confirm that such Landlord Action will not cause any Interference. If Tenant reasonably determines the Landlord Action could cause an Interference, then Landlord shall not be permitted to undertake such Landlord Action. Landlord shall not disturb or permit the disturbance of the subsurface of the Leased Premises such that may impact in any way the structural integrity or the operations and maintenance of the Facility.

11.3. Rights of Others; Encumbrances. Landlord has good, clear, record and marketable title to the Property subject to no liens, easements, options or other encumbrances other than the Existing Encumbrances. Landlord further represents that Tenant's installation and operation of the Facility on the Leased Premises and the use of the Easements is not restricted by any rights of use, existing structures, private agreements or options affecting the Property. Landlord shall not allow any encumbrances against the Leased Premises other than Permitted Encumbrances. Landlord shall promptly pay all obligations secured by encumbrances against the Leased Premises (whether or not such encumbrances are Permitted Encumbrances) and shall not allow any default to occur under obligations secured by encumbrances against the Leased Premises. In lieu of paying amounts secured by encumbrances which are not Permitted Encumbrances, Landlord may provide a bond or other adequate security in accordance with Applicable Law and the reasonable requirements of Tenant. At Tenant's request, Landlord shall obtain from holders of any encumbrances on the Property subordinations or non-disturbance agreements substantially in the form of Exhibit D.

11.4. Requirements of Governmental Agencies and Setback Waiver. Landlord shall assist and fully cooperate with Tenant, at no out-of-pocket expense to Landlord, in complying with or obtaining any land use permits and approvals, building permits, environmental impact reviews or any other approvals required for the financing, construction, installation, monitoring, replacement, maintenance, operation or removal of Facility, including execution of applications and documents reasonably necessary for such approvals, and including participating in any appeals or regulatory proceedings respecting the Facility. Conditioned on Landlord being provided with prior written notice thereof, Landlord hereby consent to and authorize Tenant to sign and file on Landlord's behalf all applications and related documents required for Tenant to obtain any land use permits, building permits, environmental impact reviews or any other

approvals necessary for the construction, operation or financing of the Facility on the Leased Premises. To the extent permitted by law, Landlord hereby waives enforcement of any applicable setback requirements respecting the Facility to be placed on or near the Leased Premises that are reasonably necessary, in Tenant's sole and absolute discretion, to carry out Tenant's power-generating activities on or near the Facility.

11.5. Hazardous Materials. Neither Landlord nor its Related Persons shall violate federal, state or local law, ordinance or regulation relating to the generation, manufacture, production, use, storage, release, discharge, disposal, transportation or presence of any Hazardous Material on or under the Property or in any manner which may affect the Property. Landlord shall promptly notify Tenant if any such violation occurs. To the best of Landlord's actual knowledge, (i) no underground tanks are currently located or at any time in the past have been located on the Property or any portion thereof, (ii) no Hazardous Material has been generated, manufactured, transported, produced, used, treated, stored, released, disposed of or otherwise deposited in or on or allowed to emanate from the Property or any portion thereof other than as permitted by all health, safety and other laws (each, an "Environmental Law") that govern the same or are applicable thereto and (iii) there are no Hazardous Materials in, on or emanating from the Property or any portion thereof which may support a claim or cause of action under any Environmental Law. Landlord certifies it has never received any notice or other communication from any governmental authority alleging that the Property is or was in violation of any Environmental Law. Landlord shall indemnify and hold harmless the Tenant from any actions, claims, damages or penalties arising from the violation of this paragraph and shall reimburse the Tenant for any costs, including reasonable attorney fees, incurred by Tenant as a result of such actions, claims, damages or penalties.

11.6. No Litigation. No litigation is pending, and, to the best of Landlord's knowledge, no actions, claims or other legal or administrative proceedings are pending, threatened or anticipated with respect to, or which could affect, the Property or Landlord's ability to perform its obligations under this Agreement. If Landlord learns that any such litigation, action, claim or proceeding is threatened or has been instituted, Landlord shall promptly deliver notice thereof to Tenant.

11.7. Title Insurance. Landlord agrees to execute and deliver to Tenant any documents reasonably required by the title insurance company and/or a Financing Party within ten (10) business days after presentation of said documents by Tenant to Landlord.

12. FINANCING PROVISIONS.

12.1. Financing Arrangements. Tenant may mortgage, pledge, grant security interests, assign, or otherwise encumber its interests in this Agreement to any persons providing debt or equity financing for the Facility (each, a "Financing Party"). Further, Landlord acknowledges that Tenant may obtain construction financing for the Facility from a Financing Party and that Tenant may either obtain term financing secured by the Facility or sell or assign the Facility to a Financing Party or may arrange other financing accommodations from one or more Financing Parties and may from time to time refinance, or exercise purchase options under, such transactions. Landlord acknowledges that in connection with such transactions Tenant may secure Tenant's obligations by, among other collateral, a mortgage or assignment of this

Agreement and a first security interest in the Facility. In order to facilitate such necessary sale, conveyance, or financing, and with respect to any lender or lessor, as applicable, Landlord agrees as follows:

12.1.1. Consent to Sale and to Collateral Assignment. Landlord hereby consents to both the sale of the Facility to a Financing Party and the collateral assignment to the Financing Party of the Tenant's right, title and interest in and to this Agreement.

12.1.2. Rights of Financing Party. Notwithstanding any contrary term of this Agreement:

(A) Step-In Rights. The Financing Party, as owner of the Facility, or as collateral assignee of this Agreement, shall be entitled to exercise, in the place and stead of Tenant, any and all rights and remedies of Tenant under this Agreement in accordance with the terms of this Agreement. The Financing Party shall also be entitled to exercise all rights and remedies of owners or secured parties, respectively, generally with respect to this Agreement and the Facility;

(B) Opportunity to Cure Default. The Financing Party shall have the right, but not the obligation, to pay all sums due under this Agreement and to perform any other act, duty or obligation required of Tenant hereunder or cause to be cured any default of Tenant hereunder in the time and manner provided by the terms of this Agreement. Nothing herein requires the Financing Party to cure any default of Tenant under this Agreement or (unless the Financing Party has succeeded to Tenant's interests under this Agreement or has otherwise assumed Tenant's obligations) to perform any act, duty or obligation of Tenant under this Agreement, but Landlord hereby gives it the option to do so;

(C) Exercise of Remedies. Upon the exercise of remedies, including any sale of the Facility by the Financing Party, whether by judicial proceeding or under any power of sale contained therein, or any conveyance from Tenant to the Financing Party (or any assignee of the Financing Party as defined below) in lieu thereof, the Financing Party shall give written notice to Landlord of the transferee or assignee of this Agreement. Any such exercise of remedies shall not constitute a default under this Agreement; and

(D) Cure of Bankruptcy Rejection. Upon any rejection or other termination of this Agreement pursuant to any process undertaken with respect to Tenant under the United States Bankruptcy Code, at the request of Financing Party made within ninety (90) days of such termination or rejection, Landlord shall enter into a new agreement with Financing Party

or its assignee having substantially the same terms and conditions as this Agreement.

12.1.3. Right to Cure.

(A) Cure Period. Landlord will not exercise any right to terminate or suspend this Agreement unless it shall have given the Financing Party a copy of Landlord's prior written notice to Tenant of its intent to terminate or suspend this Agreement, as required by this Agreement, specifying the condition giving rise to such right, and the Financing Party shall not have caused to be cured the condition giving rise to the right of termination or suspension within sixty (60) days after such notice or (if longer) the periods provided for in this Agreement; provided that if such Tenant default reasonably cannot be cured by the Financing Party within such period and the Financing Party commences and diligently and continuously pursues cure of such default within such period, such period for cure will be extended for a reasonable period of time under the circumstances, such period not to exceed an additional sixty (60) days. The Parties' respective obligations will otherwise remain in effect during any cure period.

(B) Continuation of Agreement. If the Financing Party or its assignee (including any purchaser or transferee), pursuant to an exercise of remedies by the Financing Party, shall acquire title to or control of Tenant's assets and shall, within the applicable time periods described above, cure all defaults under this Agreement existing as of the date of such change in title or control in the manner required by this Agreement and which are capable of cure by a third person or entity then such Person shall no longer be in default under this Agreement, and this Agreement shall continue in full force and effect. If the Financing Party notified Landlord in writing within such sixty (60) day period that it must foreclose on Tenant's Interest or otherwise take possession of Tenant's interest under this Agreement in order to cure the default (the "Foreclosure Notice"), the Landlord shall not terminate this Agreement and shall permit the Financing Party a reasonable period of time, which shall be outlined in the Foreclosure Notice, as may be necessary for such Financing Party, with the exercise of due diligence, to foreclose or acquire Tenant's interest under this Agreement and to perform or cause to be performed all of the covenants and agreements of Tenant under this Agreement.

12.2. Financing Party a Third Party Beneficiary. Landlord agrees and acknowledges that Financing Party is a third party beneficiary of the provisions of this Section 12.

12.3. Estoppel Certificates; Consent to Assignment. Landlord shall execute such estoppel certificates (certifying as to such matters as Tenant may reasonably request, including without limitation that no default by Tenant then exists under this Agreement, if such be the case)

and/or consents to assignment (whether or not such consent is actually required) and/or non-disturbance agreements as Tenant, any transferee of Tenant or Financing Party may reasonably request from time to time. The failure of Landlord to deliver any estoppel certificate within fifteen (15) days after Tenant's written request therefor shall be conclusive evidence that (i) this Agreement is in full force and effect and has not been modified; (ii) any amounts payable by Tenant to Landlord have been paid through the date of such written request; (iii) there are no uncured defaults by Tenant; and (iv) the other certifications requested by Tenant in its estoppel or consent, are in fact, true and correct. Such consent may require Owner to recognize a particular entity as a Financing Party hereunder and grant such Financing Party extended cure periods in the event of a Tenant default.

13. DEFAULTS AND REMEDIES.

13.1. Default. If a Party defaults in or otherwise fails to perform a material obligation under this Agreement (a "Default"), the non-defaulting Party shall not have the right to exercise any remedies hereunder if the default is cured by the defaulting Party within forty five (45) days of receiving written notice of such Default specifying in detail the Default and the required remedy (a "Notice of Default"); provided, that if the nature of the Default requires, in the exercise of commercially reasonable diligence, more than sixty (60) days to cure, the non- defaulting Party shall not have the right to exercise any remedies hereunder as long as the defaulting Party commences performance of the cure within sixty (60) days, and thereafter completes such cure with commercially reasonable diligence. Further, if the Parties have a good faith dispute as to whether a payment is due hereunder, the alleged defaulting Party may deposit the amount in controversy in escrow with any reputable third party escrow, or may interplead the same, which amount shall remain undistributed and shall not accrue interest penalties, and no default shall be deemed to have occurred, until final decision by a court of competent jurisdiction or upon agreement by the Parties. No such deposit shall constitute a waiver of the defaulting Party's right to institute legal action for recovery of such amounts.

13.2. Remedies. Except as qualified by Section 12 regarding Financing Party protections, should a Default remain uncured beyond the applicable cure periods, the non-defaulting Party shall have and shall be entitled to exercise any and all remedies available to it at law or in equity. Notwithstanding anything in this Lease to the contrary or any rights or remedies Landlord might have at law or in equity, if any of the Facility is then located on the Leased Premises and Tenant fails to perform any of its obligations hereunder beyond applicable cure periods, Landlord shall be limited to pursuing damages and Landlord may not commence any action to terminate or cancel this Lease Notwithstanding anything in Section 13.1 to the contrary, Landlord agrees that any breach of this Agreement will cause Tenant substantial and irreparable injury and, therefore, in the event of any such breach, in addition to other remedies which may be available, Tenant shall have the right to specific performance and injunctive and other equitable relief, and shall have the right to seek such equitable relief prior to the expiration of any cure periods set forth in Section 13.1.

14. DISPUTE RESOLUTION.

14.1. Negotiation Period. The Parties shall negotiate in good faith and attempt to resolve any dispute, controversy or claim arising out of or relating to this Agreement (a "Dispute") within 30 days after the date that a Party gives written notice of such Dispute to the other Party, except that a Party may seek injunctive relief to prevent irreparable harm without first proceeding or completing any dispute resolution proceedings.

14.2. Equitable Relief. Except in the event of a payment dispute, participation in informal dispute resolution is a condition precedent to each Party's right to resort to litigation in a court, provided that during such time as the Parties are conferring, either Party may petition a court of competent jurisdiction for injunctive relief or to preserve any applicable statutes of limitation. A Party's failure to participate in informal dispute resolution in accordance with this Section shall entitle the other Party to recover its costs and reasonable attorney's fees in any judicial proceedings that attempt to circumvent these dispute resolution provisions. In the event no agreement is reached in mediation, either Party may exercise any rights or remedies it may have at law or in equity, including but not limited to compensation for monetary damages (including reasonable costs and attorneys' fees), injunctive relief and specific performance.

14.3. Jurisdiction, Venue, and Jury Trials. If despite the efforts, if any, to negotiate, the Parties do not resolve the Dispute within the negotiation period described above, then each Party irrevocably consents to the exclusive jurisdiction of the state and federal courts sitting in the State, in connection with any action related to the Dispute. Each Party agrees that process may be served upon it in any manner authorized by such courts and that it waives all objections which it might otherwise have to such jurisdiction and process. Further, each Party irrevocably waives all of its rights to a trial by jury with respect to any such action.

14.4. Survival of Dispute Provisions. The provisions of this Section 14 shall survive any termination of this Agreement and shall apply (except as provided herein) to any disputes arising out of this Agreement.

15. TERMINATION.

15.1. Tenant's Right to Terminate. Tenant shall have the right to terminate this Agreement upon thirty (30) days prior written notice to Landlord without cause: (i) prior to the Operations Period Commencement Date, as to all or any part of the Leased Premises, (ii) upon the occurrence of a Force Majeure Event that prevents commercial operation of all or part of the Facility and (iii) upon an act of condemnation that results in a taking of all or a portion of the Leased Premise such that Tenant is, in its sole judgment, no longer able or permitted to operate the Facility on the Leased Premises in a commercially viable manner.

15.2. Effect of Termination. Upon termination of this Agreement as to all of the Leased Premises, Tenant shall, as soon as practicable thereafter, remove above-ground and below-ground (to a depth of three (3) feet below grade) equipment included in the Facility from the Leased Premises. All parts of the Leased Premises that are disturbed by Tenant shall be restored to a condition reasonably similar to its original condition as it existed upon the Effective Date, wear and tear and casualty excepted; provided, that Tenant shall not be required to replant any crops. If Tenant fails to remove such Facility within the Decommissioning Period, or such longer period as Landlord may

provide by extension, Landlord shall have the right to restore the Leased Premises and remove, or to cause removal of, any property owned by Tenant to the extent required by Tenant under this Section 16.3, and the right to receive reimbursement, less the salvage value of the Facility, from Tenant for any remaining amounts incurred for removal and restoration of the Leased Premises. Tenant shall provide a decommissioning plan and bond with the governing jurisdiction to ensure the decommissioning of the Facility.

16. LIMITATIONS ON DAMAGES.

EXCEPT AS OTHERWISE EXPRESSLY PROVIDED HEREIN, NEITHER PARTY NOR ANY OF ITS RELATED PERSONS SHALL BE LIABLE TO THE OTHER PARTY OR ITS INDEMNIFIED PERSONS FOR ANY SPECIAL, PUNITIVE, EXEMPLARY, INDIRECT, OR CONSEQUENTIAL DAMAGES, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT. Notwithstanding anything to the contrary, Tenant's total combined liability to Landlord under this Agreement (whether due to breach of contract, negligence, strict liability or any other cause) shall not exceed, for all claims, the total amount of Tenant's commercial general liability policy limit (combined single limit.

17. MISCELLANEOUS.

17.1. Force Majeure. If performance of this Agreement or of any obligation hereunder is prevented or substantially restricted or interfered with by reason of a Force Majeure Event, the affected Party, upon giving notice to the other Party, shall be excused from such performance to the extent of and for the duration of such prevention, restriction or interference, and the Term or any other time periods herein shall be extended for such period of time. The affected Party shall use its reasonable efforts to avoid or remove such causes of nonperformance and shall continue performance hereunder whenever such causes are removed. "Force Majeure Event" means any act or event that prevents or impacts the affected Party from performing its obligations in accordance with this Agreement, if such act or event is beyond the reasonable control, and not the result of the fault or negligence, of the affected Party and such Party had been unable to overcome such act or event with the exercise of due diligence. Subject to the foregoing, Force Majeure may include the following acts or events: (i) acts of God, including hurricanes, floods, lightning, earthquakes, blizzards and other extreme natural phenomena; (ii) explosions or fires arising from lightning or other causes unrelated to the acts or omissions of the Party seeking to be excused from performance; (iii) acts of war or public disorders, civil disturbances, riots, insurrection, sabotage, epidemic, pandemic, terrorist acts, or rebellion, declared state of emergency or public health emergency, government mandated quarantine or travel ban; (iv) acts of Governmental Authorities, including the Local Electric Utility, and (v) strikes or labor disputes.

17.2. Confidentiality. To the fullest extent allowed by law, Landlord shall maintain in the strictest confidence, and Landlord shall require each Related Person of Landlord to maintain in the strictest confidence, for the sole benefit of Tenant, all information pertaining to the financial terms of or payments under this Agreement, Tenant's site or product design, methods of operation, methods of construction, power production or availability of the Facility, and the like, whether disclosed by Tenant or discovered by Landlord, unless such information either (i) is in the public domain by reason of prior publication through no act or omission of Landlord or any Related

Person of Landlord, or (ii) was already known to Landlord at the time of disclosure and which Landlord is free to use or disclose without breach of any obligation to any person or entity. To the fullest extent permitted by law, Landlord shall not use such information for its own benefit, publish or otherwise disclose it to others, or permit its use by others for their benefit or to the detriment of Tenant.

17.3. Assignment. Landlord agrees that this Agreement and rights hereunder may be assigned by Tenant (i) to any entity in which Tenant, or an affiliate thereof, has an interest or (ii) to any entity as security for or in connection with a financing or other financial arrangement related to the Lease or the Facility. Further, Tenant shall have the right without the prior consent of Landlord (but with notification to Landlord) to sell, convey, lease, assign or transfer (including granting co-easements, separate easements, sub-easements) any or all of its rights hereunder in and to all of the Leased Premises and, as to easements expressly provided for herein, the Property, provided such transfer is related to the Facility, and to sublicense the Leased Premises for Dual-Use Agricultural Operations pursuant to Section 2.2 hereof. Tenant shall remain liable for all of its obligations arising under this Agreement from and after the effective date of such transfer, unless and until such transferee assumes all of Tenant's obligations under this Agreement the Facility. Upon such transferee executing an agreement to assume all of Tenant's obligations under this Agreement, Tenant shall automatically be released from all of its obligations under this Agreement.

17.4. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon Landlord and Tenant and, to the extent provided in any assignment or other transfer permitted hereunder, any transferee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them. References to Tenant in this Agreement shall be deemed to include transferees of Tenant that hold a direct ownership interest in this Agreement and actually are exercising rights under this Agreement to the extent consistent with such interest.

17.5. Notice of Lease; Recording. Landlord and Tenant shall execute in recordable form, and Tenant may then record, a notice or memorandum of this Agreement substantially in the form of Exhibit C attached hereto, incorporating only those non-substantive changes to the form as may be required by the applicable jurisdiction in which recording is sought and to reflect the terms of this Agreement. Landlord hereby consents to the recordation of the interest of a transferee of Tenant in the Leased Premises. With respect to the Operations Period, upon request from Tenant, Landlord shall execute, in recordable form, and Tenant may then record a memorandum evidencing commencement of the Operations Period, as applicable; provided that the execution of such memorandum is not necessary for such Operations Period to be effective.

17.6. Notices. All notices or other communications required or permitted by this Agreement, shall be in writing and sent by certified mail (return receipt requested), courier or nationally recognized overnight delivery service to last known address of the intended recipient. Notices may also be sent by email for which the sending Party receives a confirmation that the email message has been completely transmitted without error (of which auto-replies are insufficient). Any notices delivered on any day that is not a business day, or after 5:00 p.m. local time on a business day, shall be deemed to have been delivered on the next business day. A Party may change its address for delivery of notices hereunder by notice given in accordance with this

Section. Notices will be deemed given upon receipt or upon the failure to accept delivery addressed as follows:

LANDLORD:

Bertrand M. Roy
300 East Waterman Road
Auburn, ME 04210
Attn: Bertrand & Charlotte Roy
Email: cramanda49@aol.com

TENANT:

BlueWave
116 Huntington Avenue, Suite 601
Boston, MA 02116
Attn: Legal Notices
legal@bluewave.energy

With a copy to: CFO

17.7. Entire Agreement; Amendments. This Agreement, including all exhibits and appendixes hereto, contains the entire agreement of the Parties respecting the subject matter hereof, and there are no other promises, conditions, understandings or other agreements, whether oral or written, relating to the subject matter of this Agreement. This Agreement may be modified or amended in writing, if the writing is signed by the Parties obligated under the amendment.

17.8. Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the state where the Facility is located.

17.9. Severability. If any non-material part of this Agreement is held to be unenforceable, the rest of the Lease will continue in effect. If a material provision is determined to be unenforceable and the Party which would have been benefited by the provision does not waive its unenforceability, then the Parties shall negotiate in good faith to amend the Lease to restore to the Party that was the beneficiary of such unenforceable provision the benefits of such provision. If the Parties are unable to agree upon an amendment that restores the Parties benefits, the matter shall be resolved under Section 14 (regarding dispute resolution) and an arbitrator may reform the Lease as the arbitrator deems just and equitable in order to restore to the Party that was the beneficiary of the unenforceable provision the economic benefits of such provision.

17.10. Rules of Interpretation. Section headings are for convenience only and shall not affect the interpretation of this Agreement. References to sections are, unless the context otherwise requires, references to sections of this Agreement. The words "hereto", "hereof" and "hereunder" shall refer to this Agreement as a whole and not to any particular provision of this Agreement. The word "person" shall include individuals; partnerships; corporate bodies

(including to corporations, limited partnerships and limited liability companies); non-profit corporations or associations; governmental bodies and agencies; and regulated utilities. The word "including" shall be deemed to be followed by the words "without limitation".

17.11. Cooperation. The Parties acknowledge that the performance of each Party's obligations under this Agreement may often require the assistance and cooperation of the other Party. Each Party therefore agrees, in addition to those provisions in this Agreement specifically providing for assistance from one Party to the other, that it will at all times during the Term cooperate with the other Party as required, in its reasonable discretion, and provide all reasonable assistance to the other Party to help the other Party perform its obligations hereunder. From time to time and at any time at and after the execution of this Agreement, each Party shall execute, acknowledge and deliver such documents, and assurances, reasonably requested by the other and shall take any other action consistent with the terms of the Lease that may be reasonably requested by the other for the purpose of effecting or confirming any of the transactions contemplated by this Agreement. Neither Party shall unreasonably withhold, condition or delay its compliance with any reasonable request made pursuant to this Section 17.11.

17.12. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same document.

17.13. Tax and Renewable Energy Credits. All benefits and incentives that result from Tenant's development and use of the Leased Premises for the Permitted Uses shall accrue to the benefit of Tenant, including but not limited to all Environmental Attributes and Tax Attributes, and any other reductions or credits in taxes and/or assessments, rebates, financing, federal, state and local grants, reductions in fees, and participation in federal, state or local special programs or tax districts. If under Applicable Law, the holder of a leasehold or easement estate becomes ineligible for any tax credit, renewable energy credit, environmental credit or any other benefit or incentive for renewable energy established by any local, state or federal government, then, at Tenant's option, Landlord and Tenant shall exercise good faith and negotiate an amendment to this Agreement or replace it with a different instrument so as to convert Tenant's interest in the Leased Premises to a substantially similar interest that makes Tenant eligible for such credit, benefit or incentive.

17.14. No Partnership. Nothing contained in this Agreement shall be construed to create an association, joint venture, trust or partnership covenant, obligation or liability on or with regard to any one or more Parties in this Agreement.

17.15. Evidence of Authority. At either Party's request, the other Party shall provide a manager's certificate or a secretary's certificate, or resolutions of the member or manager or shareholders as evidence of the authority of such Party to enter into and execute this Agreement.

[Signatures Commence on Following Page]

IN WITNESS WHEREOF, Landlord and Tenant, acting through their duly authorized representatives, have executed this Agreement with the intent that it be effective as of the Effective Date, and certify that they have read, understand and agree to the terms and conditions of this Agreement.

LANDLORD:

By: Bertrand Roy

Name: Bertrand M. Roy

Title: Owner

STATE OF Maine
Androscoggin County) ss.

On this 6th day of September, 2024 before me, the undersigned Notary Public, personally appeared the above-named Bertrand M Roy, the Owner/Essence of Bertrand M. Roy proved to me by satisfactory evidence of identification, being (check whichever applies): □ driver's license or other state or federal governmental document bearing a photographic image, □ oath or affirmation of a credible witness known to me who knows the above signatory, or □ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily for its stated purpose on behalf of _____.

Andrew Ray Jackson NOTARY PUBLIC [Stamp] Exp. 09/02/2028 STATE OF MAINE

Notary Public
My Commission Expires: 9-2-28

TENANT:

By: _____

Name: Trevor Hardy

Title: Manager

COMMONWEALTH OF MASSACHUSETTS
Suffolk County) ss.:

On this 11th day of September, 2024, before me, the undersigned Notary Public, personally appeared the above-named Trevor Hardy, the Authorized Signatory of BWC Gilt Island Pond, LLC proved to me by satisfactory evidence of identification, being (check whichever applies): □ driver's license or other state or federal governmental document bearing a photographic image, □ oath or affirmation of a credible witness known to me who knows the above signatory, or ☒ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily for its stated purpose on behalf of Trevor Hardy.

_____
Notary Public
My Commission Expires:

[Stamp]

MATTHEW A HORELICK
Notary Public
Commonwealth of Massachusetts
My Commission Expires
August 23, 2030

GLOSSARY OF TERMS

As used herein, the following terms shall have the meanings set forth beside them:

"Access Easement" means the easement granted pursuant to Section 3(1)(c), as described in Exhibit A-3, as such Exhibit may be amended pursuant to Section 4.2(d).

"Access Roads" is defined in Section 3.6.

"Agreement" means this Land Lease and Easement Agreement, as amended from time to time pursuant to the provisions hereof.

"Applicable Law" means any constitutional provision, law, statute, rule, regulation, ordinance, treaty, order, decree, judgment, decision, certificate, holding injunction, registration, license, franchise, permit, authorization, or guideline issued by a Governmental Authority that is applicable to a Party to this Agreement or the transaction described herein.

"Commercial Operation" shall occur for the Facility when (i) Tenant has obtained all necessary licenses, permits and approvals under Applicable Law for the installation and operation of the Facility, (ii) the Facility is ready and able to generate and supply electricity to the Utility's distribution system, and (iii) the Utility has issued Permission to Operate for the Facility.

"Commercial Operation Date" means the date, to be designated in accordance with Section 4.3, hereof, that the Facility shall have achieved Commercial Operation.

"Construction Start Date" means the last to occur of (i) the date on which Tenant begins grading of the Leased Premises, which is not part of the Limited Construction Activities, (ii) receipt of the executed interconnection agreement for the Facility and (ii) receipt of all permits, which shall be extended day-by-day for Force Majeure Events.

"County" means the County in the State in which the Facility is located.

"Decommissioning Period" is defined in Section 4.5.

"Default" is defined in Section 13.1.

"Development Period" is defined in Sections 4.1 and 4.2.

"Dispute" is defined in Section 14.1.

"Dual-Use Agricultural Operations" is defined in Section 2.2.

"Dual-Use Solar Facility" is defined in Section 2.2.

"Easement(s)" shall mean those rights of Tenant set forth in Section 3.

"Effective Date" has the meaning assigned to such term in the preamble.

"Environmental Attributes" means Renewable Energy Certificates, carbon trading credits, emissions reductions credits, emissions allowances, green tags, Green-e certifications, or other entitlements, certificates, products, or valuations attributed to the Facility and its displacement of conventional energy generation, or any other entitlement (other than Tax Attributes) pursuant to any federal, state, or local program applicable to renewable energy sources, whether legislative or regulatory in origin, as amended from time to time.

"Environmental Law" is defined in Section 11.5.

"Existing Encumbrances" mean the easements, liens and other matters of record and disclosed in the title commitment obtained by Tenant as of the Effective Date.

"Facility" means the solar powered electric generating facility, with or without a coupled battery energy storage system, and all related Solar Energy Generating Equipment and structures, and including but not limited to photovoltaic solar panels, mounting systems/canopies, inverters, transformers, integrators, equipment containers, energy storage, batteries, and electrical lines, cables and conduits required to generate, collect, distribute, store, and transmit electrical energy, and such additional utility lines, cables, conduits, transformers, wires, meters, monitoring equipment, and other necessary and convenient equipment and appurtenances common to such a facility to be installed by Tenant on the Leased Premises in accordance with this Agreement.

"Financing Party" is defined in Section 12.1.

"Force Majeure Event" is defined in Section 17.1.

"Foreclosure Notice" is defined in Section 12.1.

"Governmental Authority" means any international, national, federal, state, municipal, county, regional or local government, administrative, judicial or regulatory entity, and includes any department, commission, bureau, board, administrative agency or regulatory body of any government.

"Indemnified Party" is defined in Section 9.1.

"Indemnifying Party" is defined in Section 9.1.

"Interconnection Easement" means the easement granted pursuant to Section 3(1)(d), as described in Exhibit A-4, as such Exhibit may be amended pursuant to Section 4.2(d).

"Interference" is defined in Section 11.2.

"Hazardous Material" is defined in Section 10.5.

"Landlord" is defined in the preamble.

"Landlord's Action" is defined in Section 11.2.

"Landlord Taxes" is defined in Section 8.1.

"Leased Premises" means the portion of the Property leased to Tenant pursuant to this Agreement, as described in Exhibit A-2, as such Exhibit may be amended pursuant to Section 4.2(d).

"Limited Construction Activities" means the specific construction activities undertaken by Tenant to preserve the Facility's eligibility for Environmental Attributes and/or Tax Attributes or such other activities which are approved by Landlord.

"Losses" means any and all losses, liabilities, claims, demands, suits, causes of action, judgments, awards, damages, cleanup and remedial obligations, interest, fines, fees, penalties, costs, and expenses (including all attorney's fees and other costs and expenses incurred in defending any such claims or matters or in asserting or enforcing any indemnity obligation).

"Notice of Claim" is defined in Section 9.2.

"Notice of Lease" is defined in Section 17.5.

"Operations Period" is defined in Section 4.3.

"Operations Period Commencement Date" is defined in Section 4.3.

"Parties" means Landlord and Tenant and "Party" means either Landlord or Tenant.

"Permitted Encumbrances" mean the Existing Encumbrances and any additional mortgages granted by Landlord in accordance with Section 11.3 hereof.

"Permitted Use" means the use of the Leased Premises for the purposes set forth in Section 2, including the development, installation, construction, interconnection, maintenance, operation, repair, replacement and decommissioning of the Facility, including any coupled or standalone energy storage device(s) and for the production, delivery and sale of electricity, capacity, and ancillary services, and Environmental Attributes produced by or associated with, the Facility, and any other lawful related purpose.

"Pre-Construction Phase" is defined in Section 4.2.

"Property" means the real property described in Exhibit A-1, attached hereto, which includes the Leased Premises and the Easements.

"Related Person" is defined in Section 9.6.

"Renewable Energy Certificate" or "REC" means a certificate, credit, allowance, green tag, or other transferable indicia, howsoever entitled, created by an applicable program or certification authority indicating generation of a particular quantity of energy, or product associated with the generation of a megawatt-hour (MWh) from a renewable energy source by a renewable energy generating facility.

"Rent" means the payments to be made in accordance with Section 5 and Exhibit B.

"Site" is defined in Section 3.1(a).

"Site Activities" is defined in Section 2.1.

"Solar Easement" is defined in Section 3.1(a).

"Solar Energy" is defined in Section 2.1(a).

"Solar Energy Generating Equipment" is defined in Section 2.1(c).

"Surrounding Property" means the Property and all adjacent real property owned or controlled by Landlord or any affiliates.

"Tax Attributes" means investment tax credits (including any grants or payments in lieu thereof) and any tax deductions or other benefits under the Internal Revenue Code or applicable federal, state, or local law available as a result of the ownership and/or operation of the Facility or the output generated by the Facility (including, without limitation, tax credits (including any grants or payments in lieu thereof) and accelerated and/or bonus depreciation).

"Tenant" has the meaning assigned to such term in the preamble.

"Tenant Taxes" is defined in Section 8.1.

"Term" means all of the Development Period, the Operations Period (including any extensions thereof), and the Decommissioning Period, as such periods are described in Section 4.

"Utility" is defined in Section 3.3.

EXHIBIT A-1

Legal Description of the Property

A CERTAIN PIECE OR PARCEL OF LAND ON THE NORTHERLY SIDE OF EAST WATERMAN ROAD, LYING PARTIALLY IN THE CITY OF AUBURN, AND PARTIALLY IN THE TOWN OF TURNER, COUNTY OF ANDROSCOGGIN, STATE OF MAINE, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A REBAR FOUND AT THE SOUTHEASTERLY CORNER OF LAND NOW OR FORMERLY OF EMILY M. BUTTERFIELD AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 9083, PAGE 77;

THENCE ALONG THE EASTERLY SIDELINE OF LAND OF BUTTERFIELD NORTH 4°39'11" WEST, FOR A DISTANCE OF 672.20 FEET TO A REBAR FOUND AT THE NORTHEASTERLY CORNER OF BUTTERFIELD;

THENCE ALONG THE NORTHERLY SIDELINE OF LAND OF BUTTERFIELD AND LAND NOW OR FORMERLY OF MARIE G. LAVOIE AND RENE L. LAVOIE AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 7959, PAGE 342, AND PASSING THROUGH A CENTRAL MAINE POWER COMPANY EASEMENT AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 654, PAGE 452 NORTH 70°37'10" WEST, FOR A DISTANCE OF 840.21 FEET TO A POINT IN THE EASTERLY SIDELINE OF TURNER ROAD, MAINE ROUTE 4;

THENCE ALONG THE EASTERLY SIDELINE OF TURNER ROAD, MAINE ROUTE 4, NORTHERLY ALONG A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 2391.83 FEET, AN ARC LENGTH OF 519.05 FEET, A CENTRAL ANGLE OF 12°26'01", A CHORD BEARING OF NORTH 16°21'57" WEST, AND A CHORD LENGTH OF 518.03 FEET TO A REBAR FOUND;

THENCE ALONG THE SOUTHEASTERLY SIDELINE OF LAND NOW OR FORMERLY OF RODMAR, INC. AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 2157, PAGE 1, AND LAND NOW OR FORMERLY OF LAURIER D. DESROSIERS AND LISA M. DESROSIERS AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 11056, PAGE 175, AND PASSING THROUGH SAID CENTRAL MAINE POWER COMPANY EASEMENT NORTH 18°49'29" EAST, FOR A DISTANCE OF 1,237.85 FEET TO A REBAR FOUND IN THE AUBURN AND TURNER TOWN LINE;

THENCE ALONG THE AUBURN AND TURNER TOWN LINE AND THE SOUTHERLY SIDELINE OF LAND NOW OR FORMERLY OF GARD S. TWITCHELL AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 5340, PAGE 33 SOUTH 70°38'24" EAST, FOR A DISTANCE OF 1,769.51 FEET TO A POINT ON SAID TOWN LINE NEAR A STREAM, SAID POINT BEING LOCATED NORTH 70°38'24" WEST, AT A DISTANCE OF 879.61 FEET FROM A REBAR FOUND ON SAID TOWN LINE;

THENCE ALONG SAID STREAM AND CONTOUR 272 AS DEVELOPED FROM USGS MAP FOR LAKE AUBURN EAST, MAINE, DATED 1979, ON FILE WITH THE USGS, FOLLOWING SAID CONTOUR TO A POINT ON THE

AUBURN AND TURNER TOWN LINE, AND THE NORTHERLY SIDELINE OF LAND NOW OR FORMERLY OF DAVID J. ROY AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 9718, PAGE 174;

THENCE NORTH 70°38'24" WEST, FOR A DISTANCE OF 226 FEET, MORE OR LESS TO A REBAR FOUND, BEING LOCATED SOUTH 70°38'24" EAST, AT A DISTANCE OF 2,649.12 FEET FROM LAST MENTIONED REBAR FOUND ON SAID TOWN LINE, ALSO BEING LOCATED NORTH 70°38'24" WEST, AT A DISTANCE OF 479.61 FEET FROM A REBAR FOUND ON SAID TOWN LINE;

THENCE ALONG THE WESTERLY SIDELINE OF SAID LAND OF ROY AND LAND NOW OR FORMERLY OF PHILIP J. WILSON AND ROBYN D. WILSON AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 11280, PAGE 47 SOUTH 18°36'38" WEST, FOR A DISTANCE OF 1,075.79 FEET TO A REBAR FOUND;

THENCE ALONG SAID LAND OF WILSON SOUTH 8°31'34" WEST, FOR A DISTANCE OF 56.39 FEET TO A REBAR FOUND;

THENCE ALONG SAID LAND OF WILSON SOUTH 74°04'55" EAST, FOR A DISTANCE OF 199.43 FEET TO A REBAR FOUND;

THENCE ALONG SAID LAND OF WILSON NORTH 26°44'53" EAST, FOR A DISTANCE OF 279.04 FEET TO A REBAR FOUND;

THENCE ALONG SAID LAND OF WILSON SOUTH 74°11'06" EAST, FOR A DISTANCE OF 90.35 FEET TO A REBAR FOUND;

THENCE ALONG SAID LAND OF WILSON SOUTH 20°54'46" WEST, FOR A DISTANCE OF 274.56 FEET TO A REBAR FOUND;

THENCE ALONG SAID LAND OF WILSON SOUTH 3°51'04" WEST, FOR A DISTANCE OF 753.29 FEET TO A REBAR FOUND IN THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD, BEING LOCATED SOUTH 79°56'05" WEST, AT A DISTANCE OF 301.66 FEET FROM A REBAR FOUND AT THE SOUTHEASTERLY CORNER OF SAID LAND OF WILSON;

THENCE ALONG THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD NORTH 85°49'45" WEST, FOR A DISTANCE OF 627.91 FEET TO A REBAR FOUND AT THE SOUTHEASTERLY CORNER OF LAND NOW OR FORMERLY OF WINFIELD COLEMAN AND CAROL A. COLEMAN AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 905, PAGE 487;

THENCE ALONG THE EASTERLY SIDELINE OF SAID LAND OF COLEMAN NORTH 12°03'02" WEST, FOR A DISTANCE OF 466.36 FEET TO A POINT;

THENCE ALONG THE NORTHERLY SIDELINE OF SAID LAND OF COLEMAN SOUTH 88°04'55" WEST, FOR A DISTANCE OF 193.56 FEET TO A POINT;

THENCE CONTINUING ALONG SAID LAND OF COLEMAN NORTH 88°50'38" WEST, FOR A DISTANCE OF 94.97 FEET TO A REBAR FOUND AT THE NORTHWESTERLY CORNER OF SAID LAND OF COLEMAN, AND THE NORTHEASTERLY CORNER OF LAND NOR OR FORMERLY OF JOHN B. HUTCHINSON AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 4637, PAGE 174;

THENCE ALONG SAID LAND OF HUTCHINSON SOUTH 86°00'56" WEST, FOR A DISTANCE OF 230.18 FEET TO A REBAR FOUND AT THE NORTHWESTERLY CORNER OF SAID LAND OF HUTCHINSON;

THENCE ALONG SAID LAND OF HUTCHINSON SOUTH 5°44'19" WEST, FOR A DISTANCE OF 366.89 FEET TO A REBAR FOUND AT THE SOUTHWESTERLY CORNER OF SAID LAND OF HUTCHINSON, IN THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD;

THENCE ALONG THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD NORTH 78°09'58" WEST, FOR A DISTANCE OF 304.91 FEET TO A POINT;

THENCE CONTINUING ALONG THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD SOUTH 88°54'05" WEST, FOR A DISTANCE OF 232.96 FEET TO THE POINT OF BEGINNING.

SAID LAND CONTAINS APPROXIMATELY 5,426,704 SQUARE FEET, MORE OR LESS, (ALSO BEING 124.580 ACRES, MORE OR LESS). MEANING AND INTENDING TO INCLUDE ANY LAND NORTHERLY OF AND ALONG THE AUBURN AND TURNER TOWN LINE THAT MAY BE ENCLOSED BY THE ABOVE MENTIONED 272 CONTOUR BETWEEN THE LAND DESCRIBED ABOVE ON THE WEST, AND ON THE EAST BY LAND NOW OR FORMERLY OF DAVID J. ROY AS DESCRIBED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 9718, PAGE 174.

EXHIBIT A-2

Description of Leased Premises

A CERTAIN LEASE PARCEL LOCATED NORTHERLY OF EAST WATERMAN ROAD, PARTIALLY IN THE TOWN OF TURNER AND PARTIALLY IN THE CITY OF AUBURN, COUNTY OF ANDROSCOGGIN, STATE OF MAINE, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT TO BE SET NORTHERLY OF THE APPARENT TOWN LINE DIVIDING CITY OF AUBURN, TOWN OF TURNER, HAVING A NORTHING OF 491,215.65 FEET AND AN EASTING OF 2,938,421.77 FEET, BEING LOCATED NORTH 55°55'14" WEST, AT A DISTANCE OF 113.21 FEET FROM A REBAR FOUND AT THE NORTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF DAVID J. ROY AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 9718, PAGE 174;

THENCE CROSSING THE APPARENT TOWN LINE FROM TURNER TO AUBURN SOUTH 0°00'00" WEST, FOR A DISTANCE OF 229.46 FEET TO A POINT TO BE SET;

THENCE SOUTH 10°14'59" WEST, FOR A DISTANCE OF 179.84 FEET TO A POINT TO BE SET;

THENCE SOUTH 22°24'56" WEST, FOR A DISTANCE OF 183.57 FEET TO A POINT TO BE SET;

THENCE SOUTH 0°00'00" EAST, FOR A DISTANCE OF 68.66 FEET TO A POINT TO BE SET IN THE WESTERLY SIDELINE OF LAND NOW OR FORMERLY OF PHILIP J. WILSON AND ROBYN D. WILSON AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 11280, PAGE 47;

THENCE RUNNING ALONG THE EASTERLY SIDELINE OF SAID LAND OF WILSON SOUTH 18°36'38" WEST, FOR A DISTANCE OF 181.70 FEET TO A POINT TO BE SET;

THENCE NORTH 71°10'30" WEST, FOR A DISTANCE OF 59.87 FEET TO A POINT TO BE SET;

THENCE NORTH 90°00'00" WEST, FOR A DISTANCE OF 219.38 FEET TO A POINT TO BE SET;

THENCE NORTH 0°00'00" EAST, FOR A DISTANCE OF 77.06 FEET TO A POINT TO BE SET;

THENCE NORTH 75°08'01" WEST, FOR A DISTANCE OF 53.11 FEET TO A POINT TO BE SET;

THENCE NORTH 0°00'00" WEST, FOR A DISTANCE OF 848.71 FEET TO A POINT TO BE SET NEAR THE SAID APPARENT TOWN LINE;

THENCE NORTH 90°00'00" EAST, FOR A DISTANCE OF 71.65 FEET TO A POINT TO BE SET NORTHERLY OF THE SAID APPARENT TOWN LINE;

THENCE SOUTH 71°10'30" EAST, FOR A DISTANCE OF 439.21 FEET TO THE POINT OF BEGINNING.

SAID LEASE PARCEL CONTAINS APPROXIMATELY 383,937 SQUARE FEET, MORE OR LESS (ALSO BEING 8.814 ACRES, MORE OR LESS), AND IS A PORTION OF LAND NOW OR FORMERLY OF BERTRAND M. ROY AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 3829, PAGE 94.

EXHIBIT A-3

Description of Access Easement

A CERTAIN ACCESS EASEMENT LOCATED ON THE NORTHERLY SIDE OF EAST WATERMAN ROAD IN THE CITY OF AUBURN, COUNTY OF ANDROSCOGGIN, STATE OF MAINE, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHERLY SIDELINE OF EAST WATERMAND ROAD, SAID POINT BEING LOCATED SOUTH 85°49'45" EAST, AT A DISTANCE OF 192.55 FEET FROM A REBAR FOUND AT THE SOUTHEASTERLY CORNER OF LAND NOW OR FORMERLY OF WINFIELD COLEMAN AND CAROL A. COLEMAN AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 905, PAGE 487;

THENCE NORTH 1°07'05" EAST, FOR A DISTANCE OF 190.47 FEET TO A POINT;

THENCE NORTH 7°43'44" EAST, FOR A DISTANCE OF 565.31 FEET TO A POINT;

THENCE NORTH 20°45'25" EAST, FOR A DISTANCE OF 421.18 FEET TO A POINT IN THE SOUTHERLY SIDELINE OF THE LEASE PARCEL;

THENCE ALONG THE SOUTHERLY SIDELINE OF THE LEASE PARCEL SOUTH 71°10'30" EAST, FOR A DISTANCE OF 30.02 FEET TO A POINT;

THENCE SOUTH 20°45'25" WEST, FOR A DISTANCE OF 418.77 FEET TO A POINT;

THENCE SOUTH 7°43'44" WEST, FOR A DISTANCE OF 560.16 FEET TO A POINT;

THENCE SOUTH 1°07'05" WEST, FOR A DISTANCE OF 190.33 FEET TO A POINT IN THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD;

THENCE ALONG THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD NORTH 85°49'45" WEST, FOR A DISTANCE OF 30.04 FEET TO THE POINT OF BEGINNING.

SAID ACCESS EASEMENT CONTAINS APPROXIMATELY 35,193 SQUARE FEET, MORE OR LESS (ALSO BEING 0.808 ACRES, MORE OR LESS, AND IS A PORTION OF LAND NOW OR FORMERLY OF BERTRAND M. ROY AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 3829, PAGE 94.

EXHIBIT A-4

Description of Utility Easement

A CERTAIN UTILITY EASEMENT LOCATED ON THE NORTHERLY SIDE OF EAST WATERMAN ROAD IN THE CITY OF AUBURN, COUNTY OF ANDROSCOGGIN, STATE OF MAINE, BEING BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD, SAID POINT BEING LOCATED NORTH 78°09'58" WEST, AT A DISTANCE OF 37.67 FEET FROM A REBAR FOUND AT THE SOUTHWESTERLY CORNER OF LAND NOW OR FORMERLY OF JOHN B. HUTCHINSON AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 4637, PAGE 174;

THENCE ALONG THE NORTHERLY SIDELINE OF EAST WATERMAN ROAD NORTH 78°09'59" WEST, FOR A DISTANCE OF 142.24 FEET TO A POINT;

THENCE NORTH 11°50'02" EAST, FOR A DISTANCE OF 36.62 FEET TO A POINT;

THENCE SOUTH 77°22'25" EAST, FOR A DISTANCE OF 125.22 FEET TO A POINT;

THENCE NORTH 36°25'18" EAST, FOR A DISTANCE OF 30.96 FEET TO A POINT;

THENCE NORTH 5°38'00" EAST, FOR A DISTANCE OF 359.98 FEET TO A POINT;

THENCE NORTH 25°07'33" EAST, FOR A DISTANCE OF 227.02 FEET TO A POINT;

THENCE NORTH 55°59'21" EAST, FOR A DISTANCE OF 551.28 FEET TO A POINT;

THENCE NORTH 90°00'00" EAST, FOR A DISTANCE OF 159.11 FEET TO A POINT;

THENCE NORTH 0°00'00" EAST, FOR A DISTANCE OF 162.15 FEET TO A POINT;

THENCE NORTH 90°00'00" EAST, FOR A DISTANCE OF 124.71 FEET TO A POINT IN THE WESTERLY SIDELINE OF THE LEASE PARCEL;

THENCE ALONG THE WESTERLY SIDELINE OF THE LEASE PARCEL SOUTH 0°00'00" EAST, FOR A DISTANCE OF 30.00 FEET TO A POINT;

THENCE NORTH 90°00'00" WEST, FOR A DISTANCE OF 94.71 FEET TO A POINT;

THENCE SOUTH 0°00'00" EAST, FOR A DISTANCE OF 162.15 FEET TO A POINT;

THENCE NORTH 90°00'00" WEST, FOR A DISTANCE OF 179.94 FEET TO A POINT;

THENCE SOUTH 55°59'21" WEST, FOR A DISTANCE OF 533.82 FEET TO A POINT;

THENCE SOUTH 25°07'33" WEST, FOR A DISTANCE OF 213.58 FEET TO A POINT;

THENCE SOUTH 5°38'00" WEST, FOR A DISTANCE OF 363.09 FEET TO A POINT;

THENCE SOUTH 36°25'18" WEST, FOR A DISTANCE OF 63.86 FEET TO THE POINT OF BEGINNING.

SAID UTILITY EASEMENT CONTAINS APPROXIMATELY 53,168 SQUARE FEET, MORE OR LESS (ALSO BEING 1.220 ACRES, MORE OR LESS), AND IS A PORTION OF LAND NOW OR FORMERLY OF BERTRAND M. ROY AS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 3829, PAGE 94.

ATTACHMENT 6
USDA SOIL MAPPING



Map Scale: 1:4,170 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 22, Aug 30, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AaC	Adams loamy sand, 8 to 15 percent slopes	8.9	21.9%
AaD	Adams loamy sand, 15 to 30 percent slopes	0.1	0.3%
AdB	Agawam fine sandy loam, 2 to 8 percent slopes	19.1	47.1%
AdC	Agawam fine sandy loam, 8 to 15 percent slopes	7.0	17.3%
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes	0.7	1.8%
HrC	Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky	0.0	0.1%
MeB	Melrose fine sandy loam, 0 to 8 percent slopes	1.0	2.4%
MeC	Melrose fine sandy loam, 8 to 20 percent slopes	3.4	8.3%
NgB	Ninigret fine sandy loam, 0 to 8 percent slopes	0.4	0.9%
Totals for Area of Interest		**40.6**	**100.0%**

ATTACHMENT 7
FINANCIAL
ASSURANCE LETTER

September 20, 2022

Marco Addonizio
Project Development
BlueWave Project Development, LLC
501 Boylston Street, Suite 10B134
Boston, MA 02116

RE: BWC Gulf Island Pond, LLC

To whom it may concern:

BlueWave Project Development, LLC ("BlueWave" or the "Company") has informed KeyBank National Association ("KeyBank") of its intention to proceed with permitting and development activities for the proposed ground mounted solar generation facility located in Auburn, ME that is identified as BWC Gulf Island Pond, LLC (the "Project"), a wholly owned subsidiary of the Company. Given our expertise within the renewable energy sector, leading debt-raising capabilities, experience financing projects (including debt and tax-efficient financings), and our longstanding and strong relationship with the BlueWave team, we believe KeyBank is very well suited to support the Company with respect to the Project.

Based on our experience providing construction and long-term financing for power generation and transmission portfolios, and our familiarity with the financial markets generally, we are confident that, once the Company obtains all required permits and approvals (based on sound engineering/design and use of equipment), Company will be able to obtain financing on market terms and conditions sufficient to cover development costs, construction financing, and other financing as necessary for the Project to reach commercial operation. Once these details are addressed, we would enter into negotiations with the Company to provide a Summary of Terms and Conditions offering financing for the Project, not to exceed an appropriate loan to value.

Cleveland-based KeyBank is one of the nation's largest bank-based financial services companies, with assets of over $186 billion. Alternative energy is a focus area for KeyBank, and we are supportive of renewable energy developers such as BlueWave. KeyBank currently has over $12 billion committed to the utility and power sector, including commitments to some of the largest renewable energy developers in the U.S. KeyBank has over $6 billion currently committed to the development and operation of renewable energy. Since 2010, KeyBank has financed over 42,500 MW of installed capacity. Additionally, KeyBank has extensive experience working in concert with tax equity providers and would be well-positioned to facilitate additional forms of financing should the Company explore additional funding sources.

This letter is for discussion purposes only and is not an offer of financing or any commitment on our part, nor is it intended to be legally binding or to give rise to any legal or fiduciary relationship between KeyBank or its affiliates and any other person. Such a commitment, if any, will be delivered upon receipt of all requisite internal approvals and completion of due diligence.

We hope that this letter demonstrates the high regard that KeyBank has for the BlueWave management team, and our confidence in their ability to obtain financing for the Project and to bring them online as scheduled.

Sincerely,

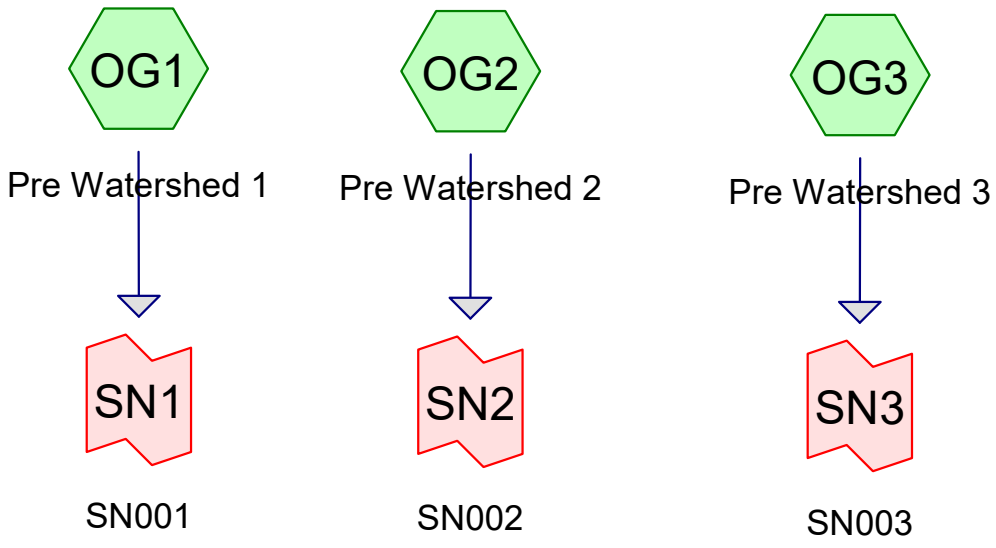


Tyler Nielsen
Director
Utilities, Power & Renewable Energy
216-689-5313

ATTACHMENT 8
HYDROCAD
REPORT

PRE-DEVELOPMENT 2 YEAR STORM

Preconstruction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 9/28/2022
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.716	39	Pasture/grassland/range, Good, HSG A (OG1, OG2, OG3)
13.961	61	Pasture/grassland/range, Good, HSG B (OG1, OG2, OG3)
8.388	74	Pasture/grassland/range, Good, HSG C (OG1, OG3)
0.395	80	Pasture/grassland/range, Good, HSG D (OG3)
0.088	98	Water (OG2)
12.265	30	Woods, Good, HSG A (OG1, OG2, OG3)
1.403	55	Woods, Good, HSG B (OG2, OG3)
0.241	70	Woods, Good, HSG C (OG3)
50.457	**50**	**TOTAL AREA**

Summary for Subcatchment OG1: Pre Watershed 1

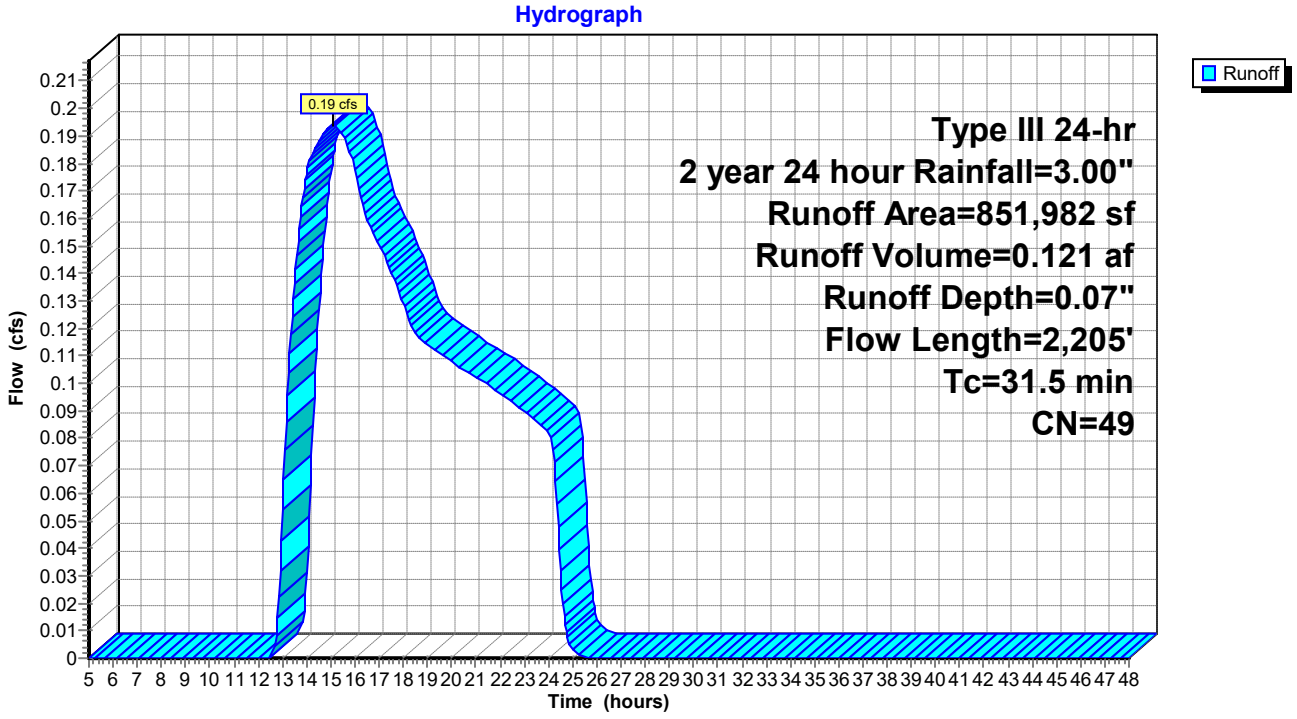
Runoff = 0.19 cfs @ 15.10 hrs, Volume= 0.121 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

Area (sf)	CN	Description
146,855	30	Woods, Good, HSG A
324,068	39	Pasture/grassland/range, Good, HSG A
288,444	61	Pasture/grassland/range, Good, HSG B
92,615	74	Pasture/grassland/range, Good, HSG C
851,982	49	Weighted Average
851,982		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	150	0.0860	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
19.2	1,300	0.0260	1.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
31.5	2,205	Total			

Subcatchment OG1: Pre Watershed 1



Summary for Subcatchment OG2: Pre Watershed 2

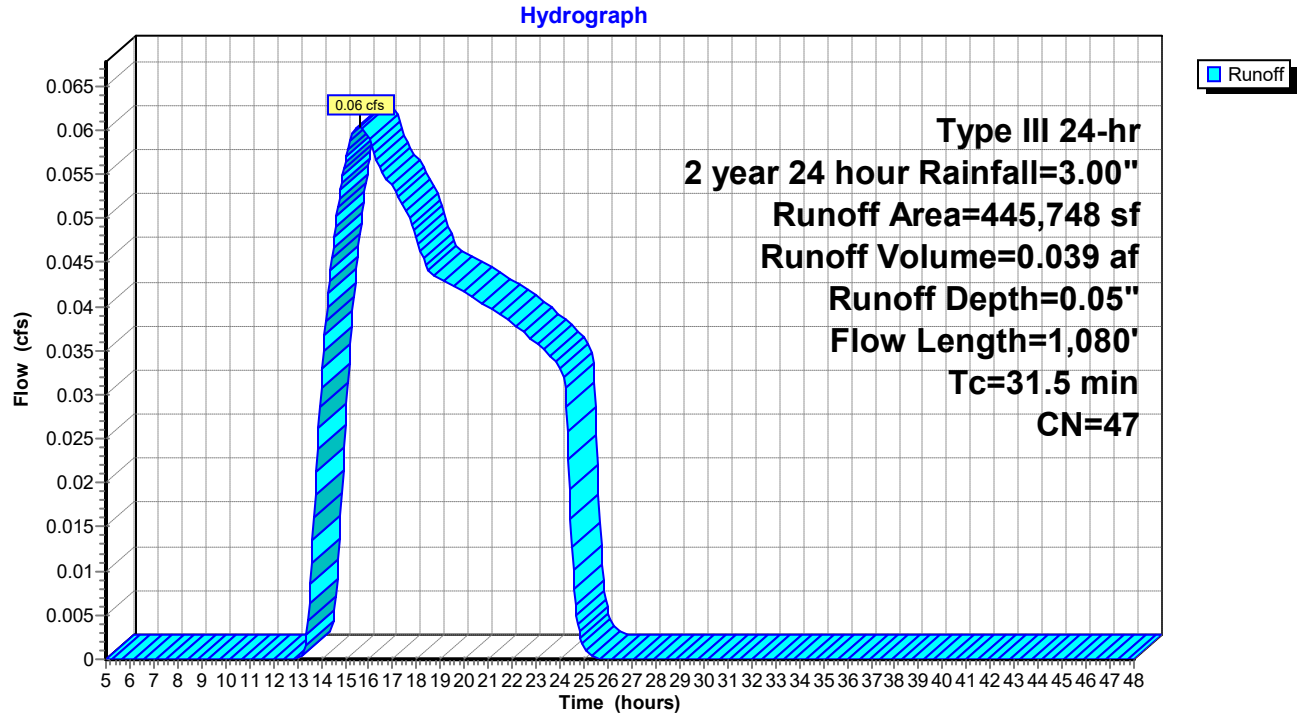
Runoff = 0.06 cfs @ 15.64 hrs, Volume= 0.039 af, Depth= 0.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	128,551	39	Pasture/grassland/range, Good, HSG A
	187,565	61	Pasture/grassland/range, Good, HSG B
	117,441	30	Woods, Good, HSG A
	8,367	55	Woods, Good, HSG B
*	3,824	98	Water
	445,748	47	Weighted Average
	441,924		99.14% Pervious Area
	3,824		0.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
8.4	610	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
31.5	1,080	Total			

Subcatchment OG2: Pre Watershed 2



Summary for Subcatchment OG3: Pre Watershed 3

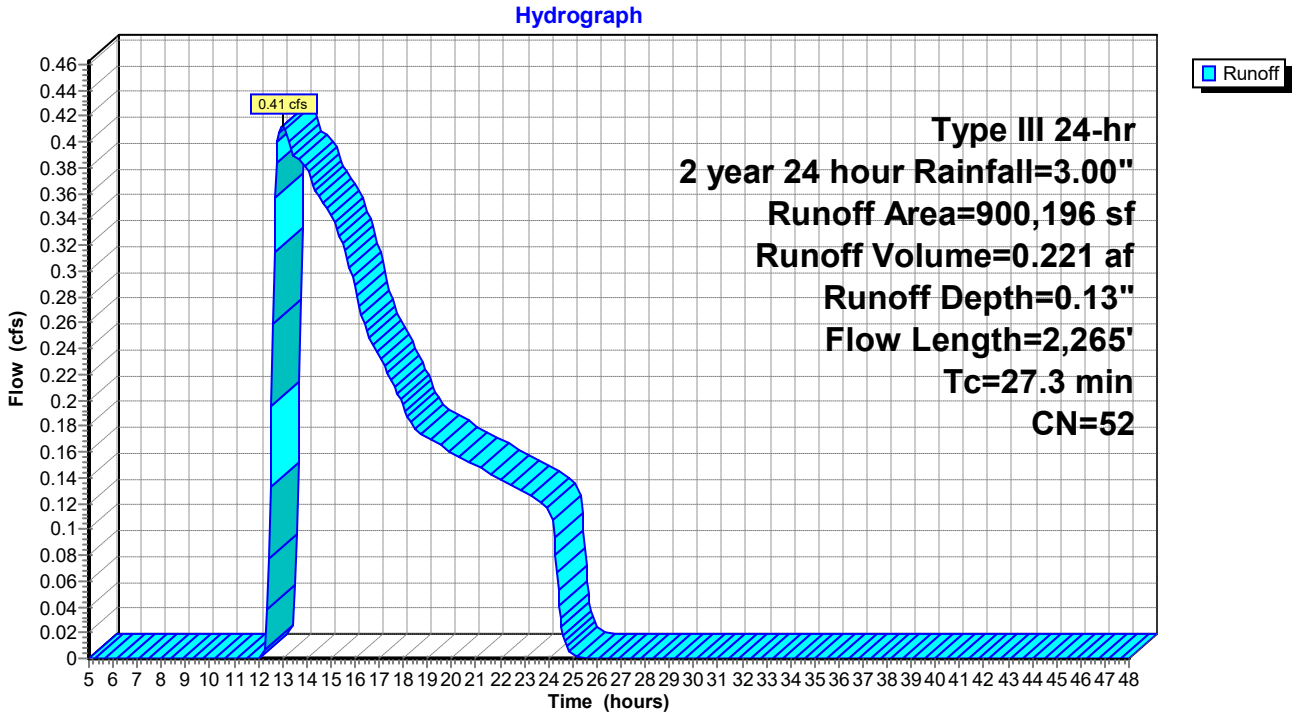
Runoff = 0.41 cfs @ 13.01 hrs, Volume= 0.221 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

Area (sf)	CN	Description
144,846	39	Pasture/grassland/range, Good, HSG A
132,138	61	Pasture/grassland/range, Good, HSG B
272,772	74	Pasture/grassland/range, Good, HSG C
17,192	80	Pasture/grassland/range, Good, HSG D
269,969	30	Woods, Good, HSG A
52,768	55	Woods, Good, HSG B
9,421	70	Woods, Good, HSG C
1,090	70	Woods, Good, HSG C
900,196	52	Weighted Average
900,196		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG3: Pre Watershed 3

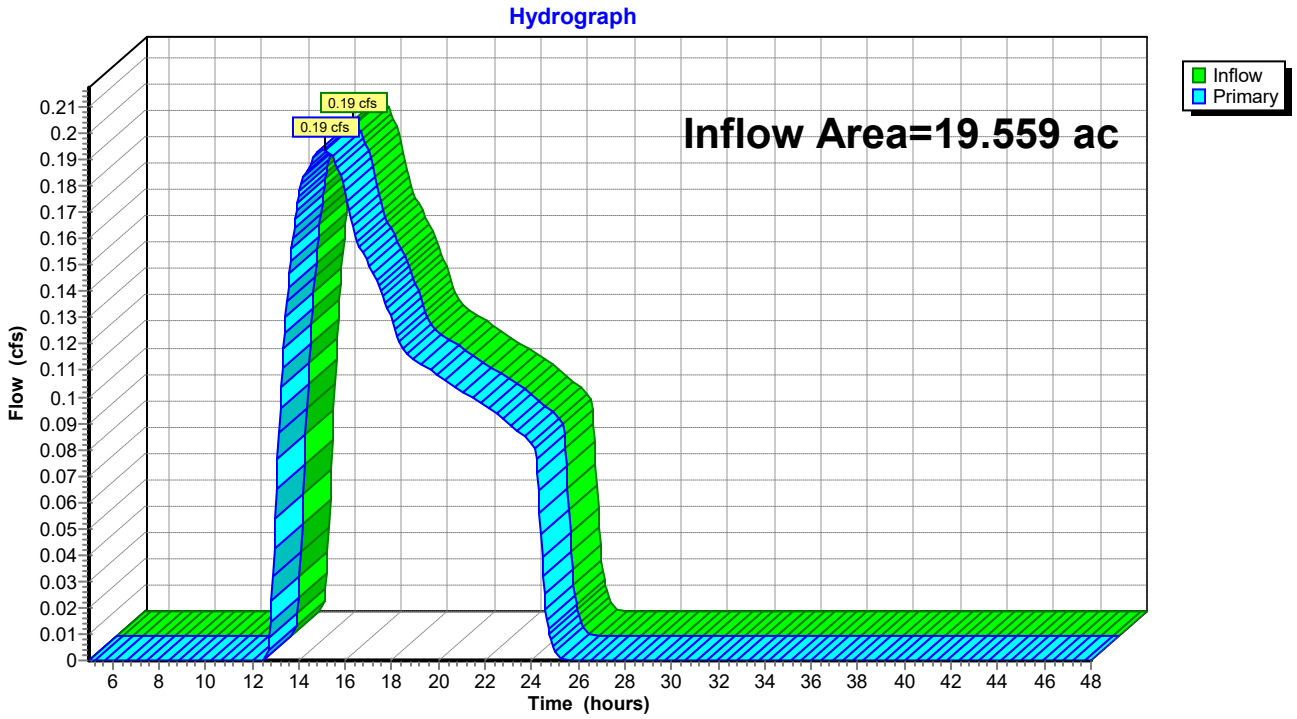


Summary for Link SN1: SN001

Inflow Area = 19.559 ac, 0.00% Impervious, Inflow Depth = 0.07" for 2 year 24 hour event
Inflow = 0.19 cfs @ 15.10 hrs, Volume= 0.121 af
Primary = 0.19 cfs @ 15.10 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN1: SN001

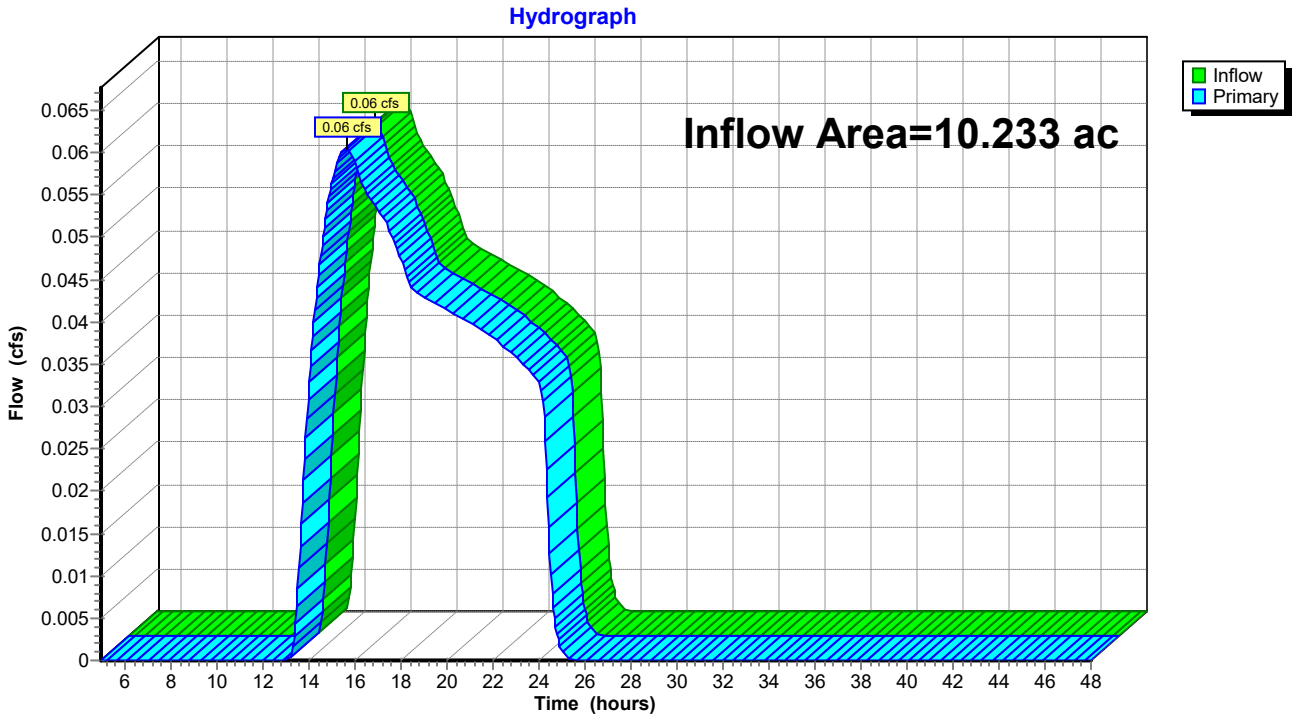


Summary for Link SN2: SN002

Inflow Area = 10.233 ac, 0.86% Impervious, Inflow Depth = 0.05" for 2 year 24 hour event
Inflow = 0.06 cfs @ 15.64 hrs, Volume= 0.039 af
Primary = 0.06 cfs @ 15.64 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN2: SN002

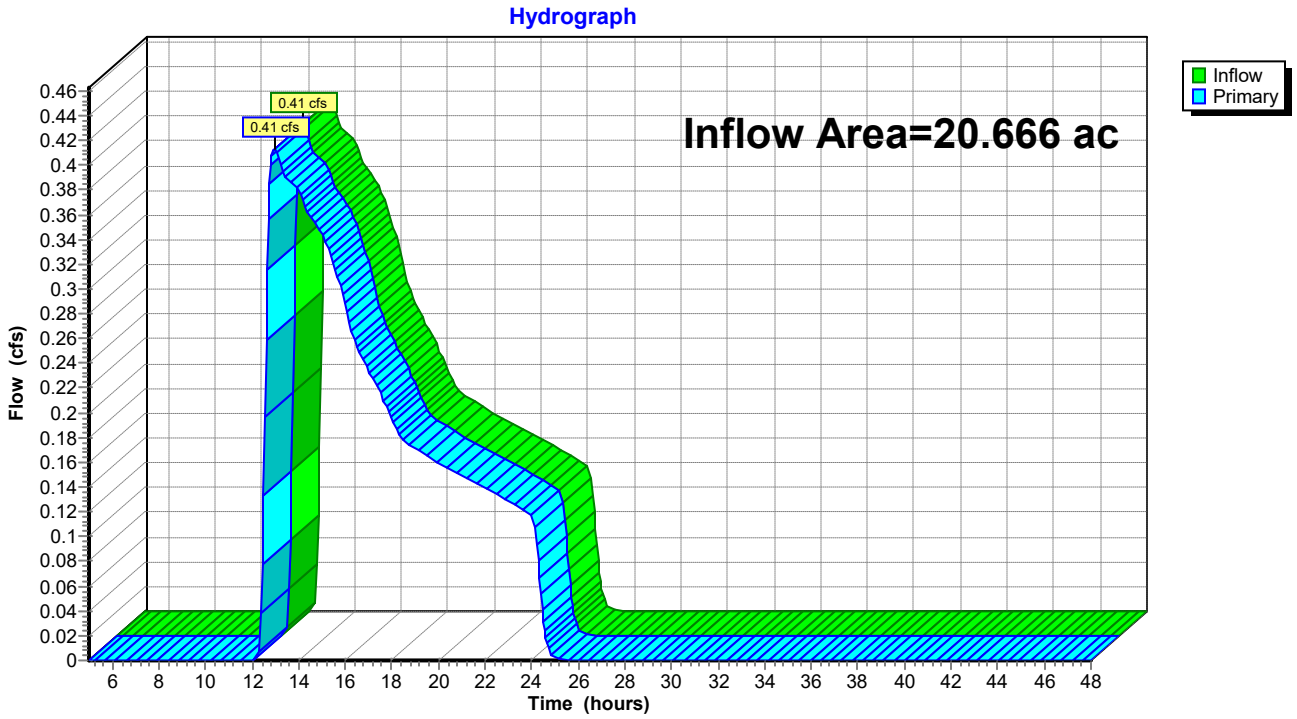


Summary for Link SN3: SN003

Inflow Area = 20.666 ac, 0.00% Impervious, Inflow Depth = 0.13" for 2 year 24 hour event
Inflow = 0.41 cfs @ 13.01 hrs, Volume= 0.221 af
Primary = 0.41 cfs @ 13.01 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min

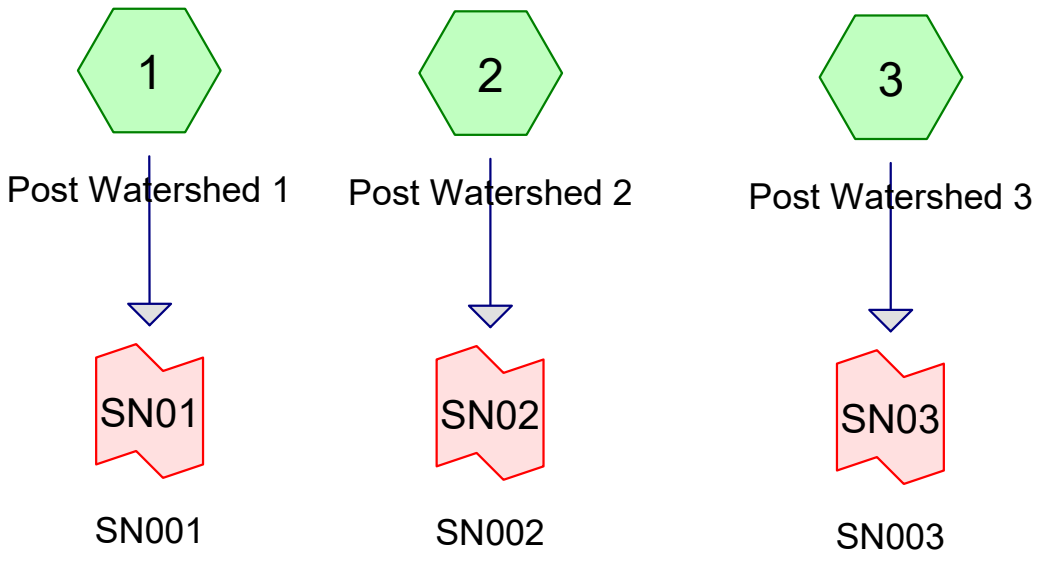
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

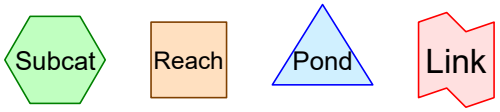
Link SN3: SN003



POST-DEVELOPMENT 2 YEAR STORM

Post Construction





Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 9/28/2022
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.703	30	Meadow, non-grazed, HSG A (2, 3)
6.417	58	Meadow, non-grazed, HSG B (1, 2, 3)
0.184	71	Meadow, non-grazed, HSG C (1)
0.674	98	NEW Impervious (1, 2, 3)
12.012	39	Pasture/grassland/range, Good, HSG A (1, 2, 3)
7.149	61	Pasture/grassland/range, Good, HSG B (1, 2, 3)
7.926	74	Pasture/grassland/range, Good, HSG C (1, 3)
0.395	80	Pasture/grassland/range, Good, HSG D (3)
0.088	98	Water (2)
12.265	30	Woods, Good, HSG A (1, 2, 3)
1.403	55	Woods, Good, HSG B (2, 3)
0.216	70	Woods, Good, HSG C (3)
0.025	77	Woods, Good, HSG D (3)
50.457	**49**	**TOTAL AREA**

Summary for Subcatchment 1: Post Watershed 1

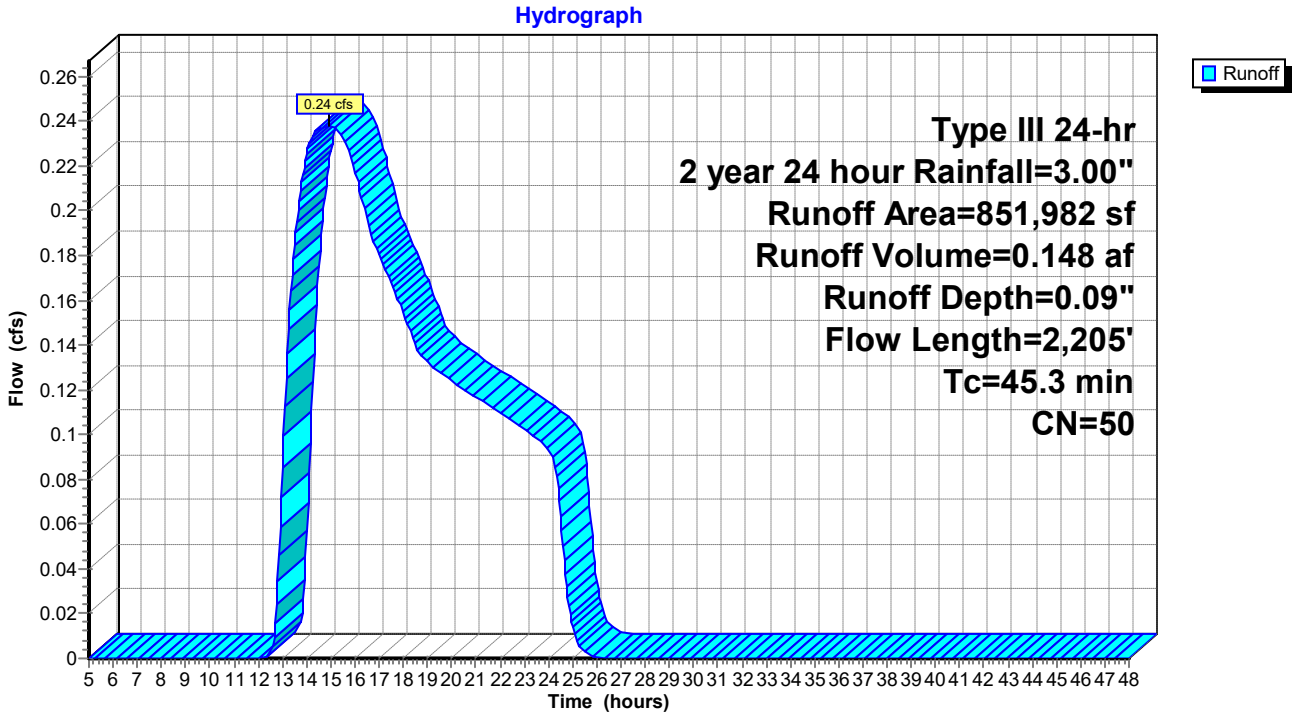
Runoff = 0.24 cfs @ 14.95 hrs, Volume= 0.148 af, Depth= 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	146,855	30	Woods, Good, HSG A
	324,068	39	Pasture/grassland/range, Good, HSG A
	235,228	61	Pasture/grassland/range, Good, HSG B
	72,502	74	Pasture/grassland/range, Good, HSG C
	36,087	58	Meadow, non-grazed, HSG B
	8,001	71	Meadow, non-grazed, HSG C
*	29,241	98	NEW Impervious
	851,982	50	Weighted Average
	822,741		96.57% Pervious Area
	29,241		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0860	0.14		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
26.9	1,300	0.0260	0.81		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
45.3	2,205	Total			

Subcatchment 1: Post Watershed 1



Summary for Subcatchment 2: Post Watershed 2

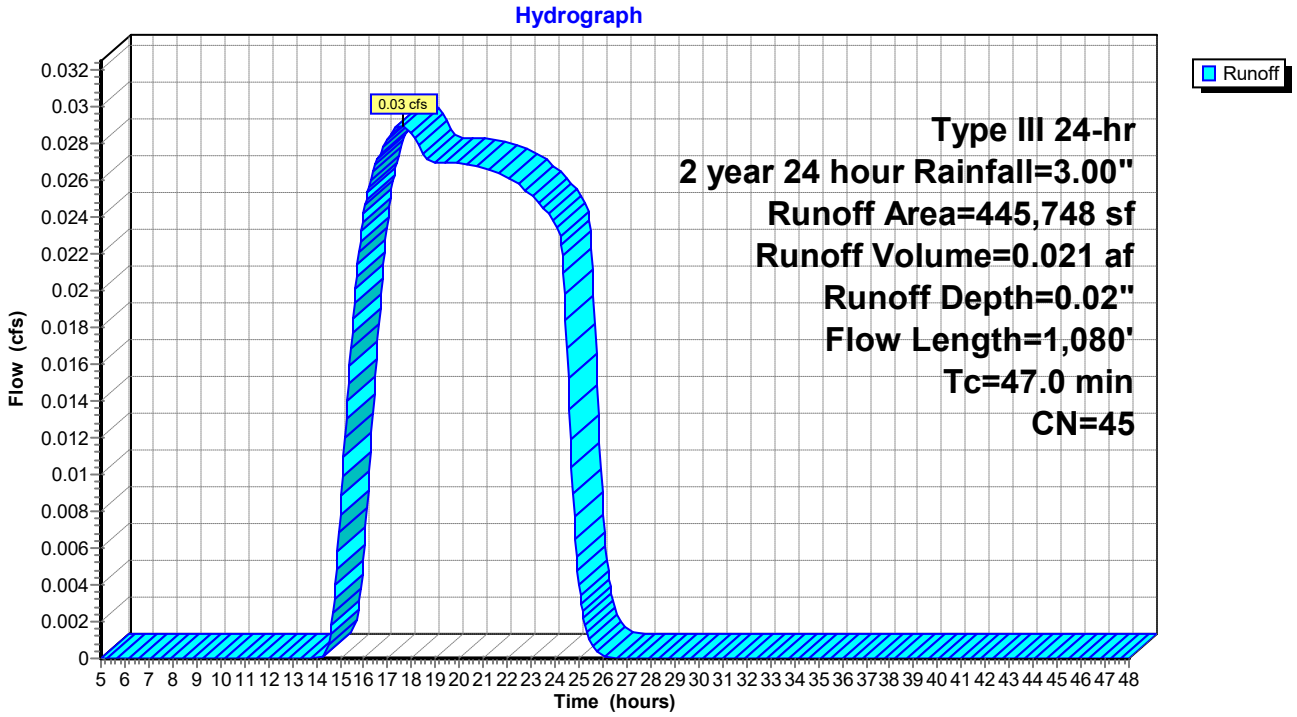
Runoff = 0.03 cfs @ 17.59 hrs, Volume= 0.021 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	72,398	39	Pasture/grassland/range, Good, HSG A
	50,528	61	Pasture/grassland/range, Good, HSG B
	117,441	30	Woods, Good, HSG A
	8,367	55	Woods, Good, HSG B
	56,133	30	Meadow, non-grazed, HSG A
	136,950	58	Meadow, non-grazed, HSG B
*	3,824	98	Water
*	107	98	NEW Impervious
	445,748	45	Weighted Average
	441,817		99.12% Pervious Area
	3,931		0.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	150	0.0150	0.07		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
11.7	610	0.0300	0.87		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
47.0	1,080	Total			

Subcatchment 2: Post Watershed 2



Summary for Subcatchment 3: Post Watershed 3

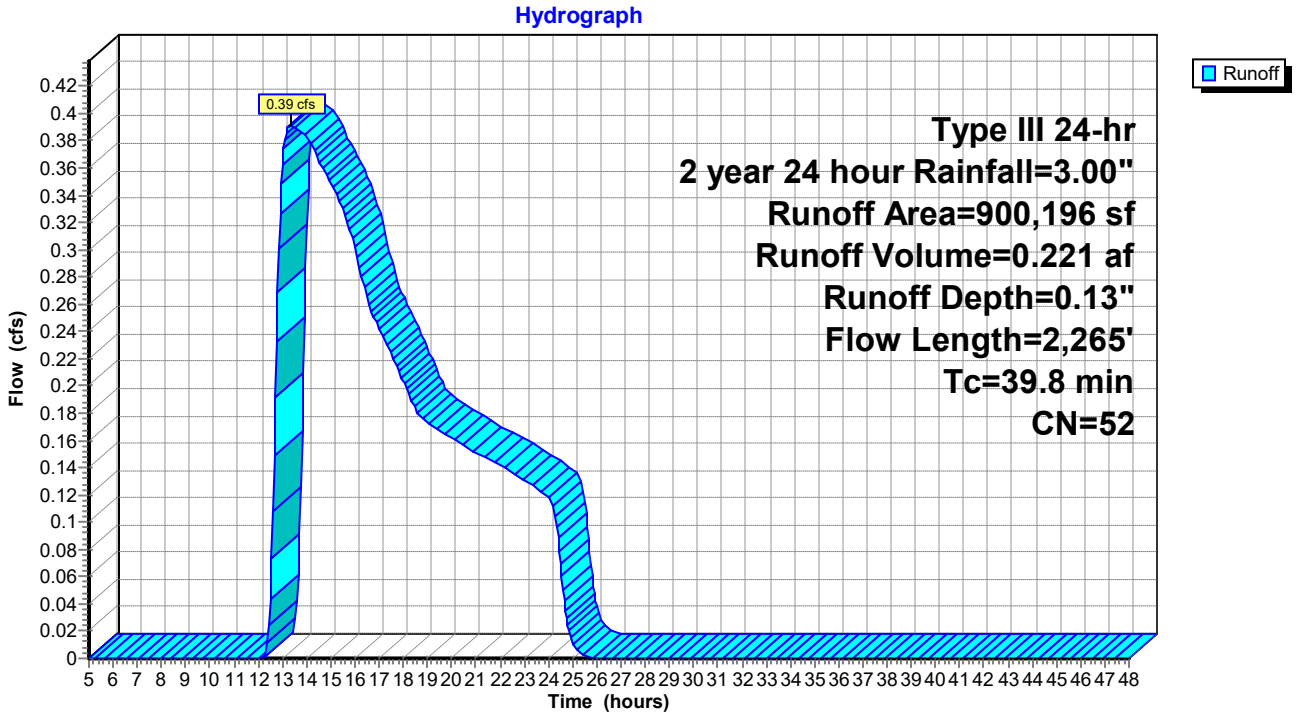
Runoff = 0.39 cfs @ 13.32 hrs, Volume= 0.221 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	126,784	39	Pasture/grassland/range, Good, HSG A
	25,643	61	Pasture/grassland/range, Good, HSG B
	272,772	74	Pasture/grassland/range, Good, HSG C
	17,192	80	Pasture/grassland/range, Good, HSG D
	269,969	30	Woods, Good, HSG A
	52,768	55	Woods, Good, HSG B
	9,421	70	Woods, Good, HSG C
	1,090	77	Woods, Good, HSG D
	18,057	30	Meadow, non-grazed, HSG A
	106,485	58	Meadow, non-grazed, HSG B
*	15	98	NEW Impervious
	900,196	52	Weighted Average
	900,181		100.00% Pervious Area
	15		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 3: Post Watershed 3

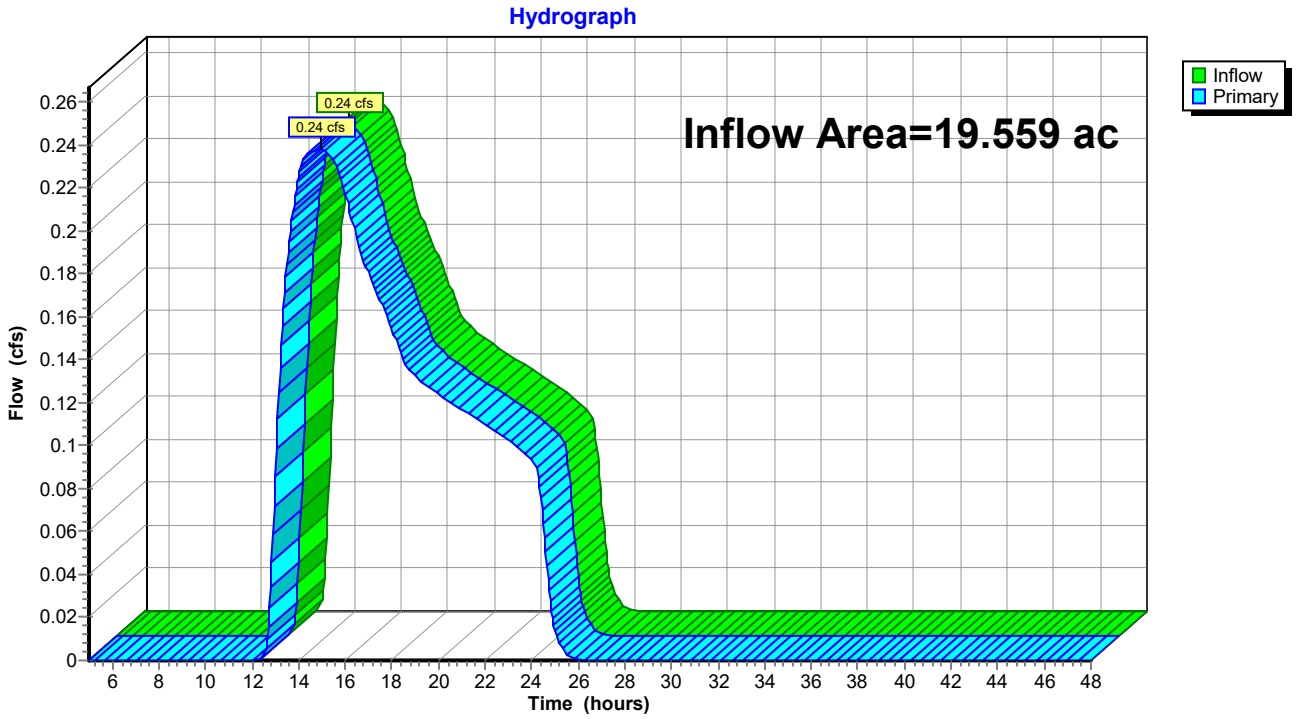


Summary for Link SN01: SN001

Inflow Area = 19.559 ac, 3.43% Impervious, Inflow Depth = 0.09" for 2 year 24 hour event
Inflow = 0.24 cfs @ 14.95 hrs, Volume= 0.148 af
Primary = 0.24 cfs @ 14.95 hrs, Volume= 0.148 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN01: SN001

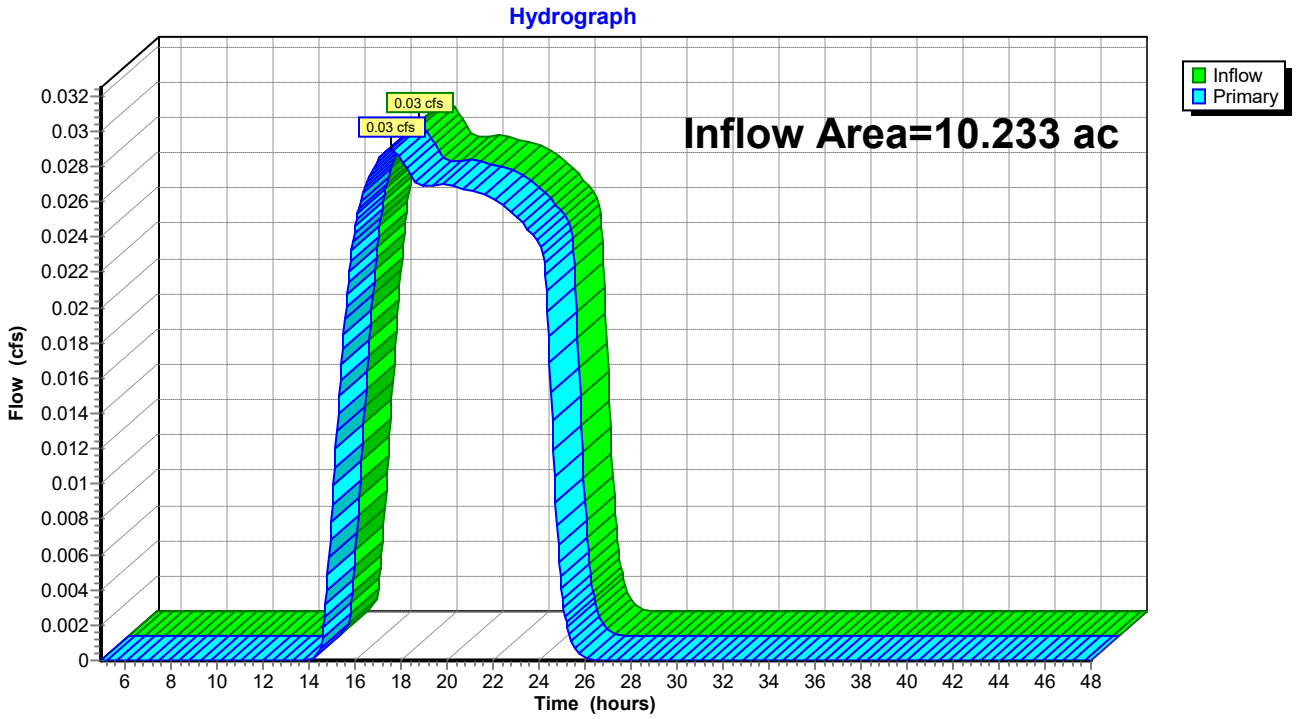


Summary for Link SN02: SN002

Inflow Area = 10.233 ac, 0.88% Impervious, Inflow Depth = 0.02" for 2 year 24 hour event
Inflow = 0.03 cfs @ 17.59 hrs, Volume= 0.021 af
Primary = 0.03 cfs @ 17.59 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN02: SN002

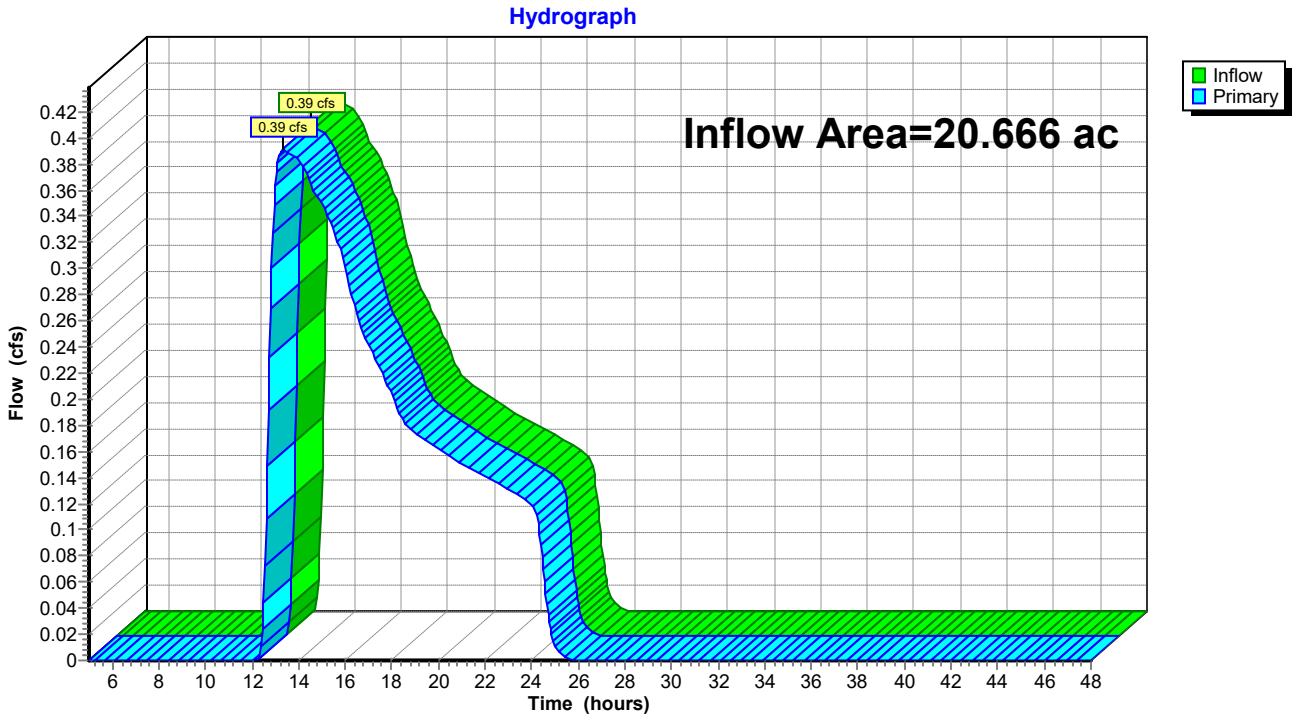


Summary for Link SN03: SN003

Inflow Area = 20.666 ac, 0.00% Impervious, Inflow Depth = 0.13" for 2 year 24 hour event
Inflow = 0.39 cfs @ 13.32 hrs, Volume= 0.221 af
Primary = 0.39 cfs @ 13.32 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min

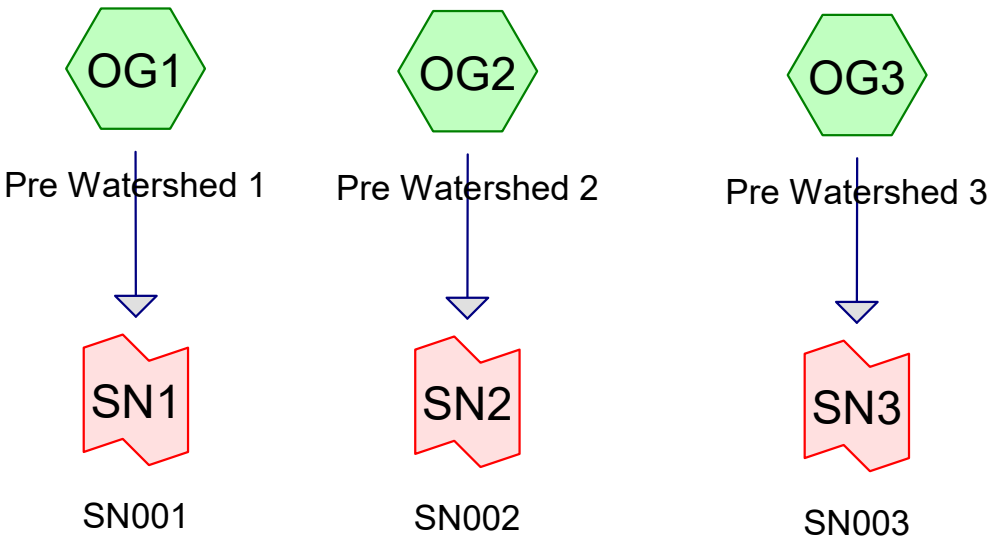
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN03: SN003



PRE-DEVELOPMENT 10 YEAR STORM

Preconstruction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 9/28/2022
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.716	39	Pasture/grassland/range, Good, HSG A (OG1, OG2, OG3)
13.961	61	Pasture/grassland/range, Good, HSG B (OG1, OG2, OG3)
8.388	74	Pasture/grassland/range, Good, HSG C (OG1, OG3)
0.395	80	Pasture/grassland/range, Good, HSG D (OG3)
0.088	98	Water (OG2)
12.265	30	Woods, Good, HSG A (OG1, OG2, OG3)
1.403	55	Woods, Good, HSG B (OG2, OG3)
0.241	70	Woods, Good, HSG C (OG3)
50.457	**50**	**TOTAL AREA**

Summary for Subcatchment OG1: Pre Watershed 1

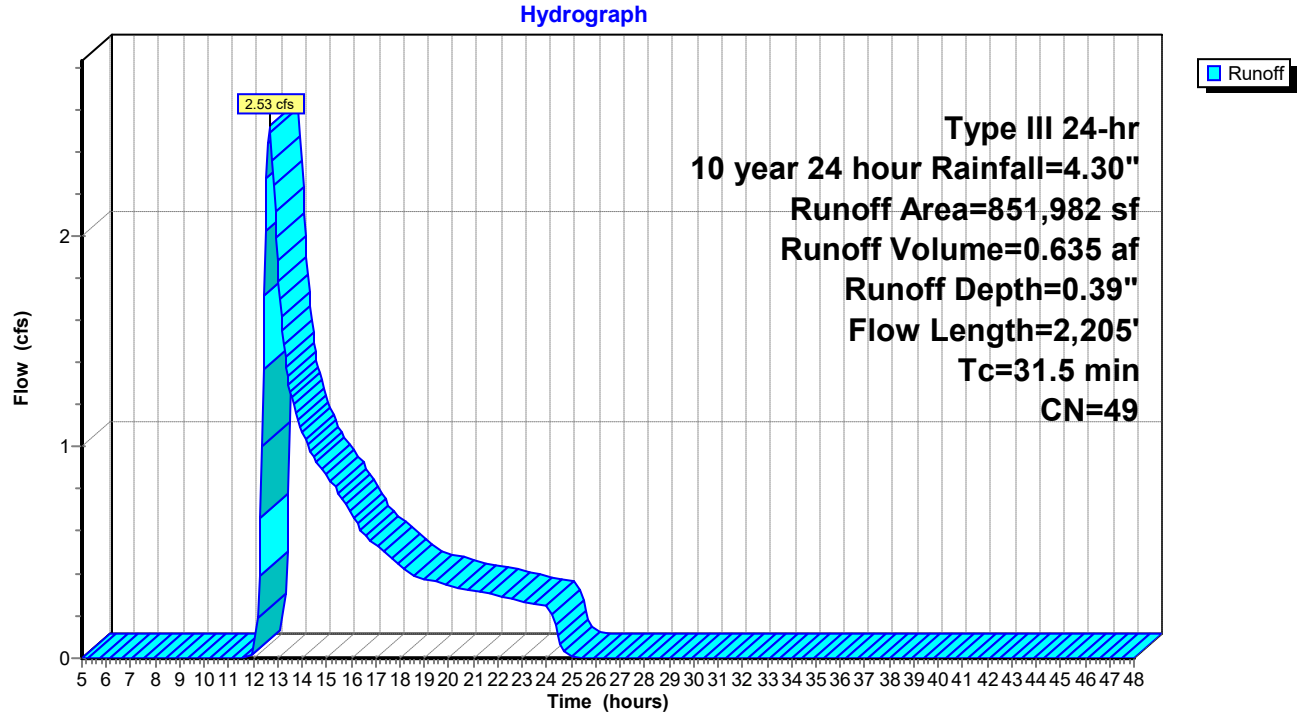
Runoff = 2.53 cfs @ 12.67 hrs, Volume= 0.635 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

Area (sf)	CN	Description
146,855	30	Woods, Good, HSG A
324,068	39	Pasture/grassland/range, Good, HSG A
288,444	61	Pasture/grassland/range, Good, HSG B
92,615	74	Pasture/grassland/range, Good, HSG C
851,982	49	Weighted Average
851,982		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	150	0.0860	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
19.2	1,300	0.0260	1.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
31.5	2,205	Total			

Subcatchment OG1: Pre Watershed 1



Summary for Subcatchment OG2: Pre Watershed 2

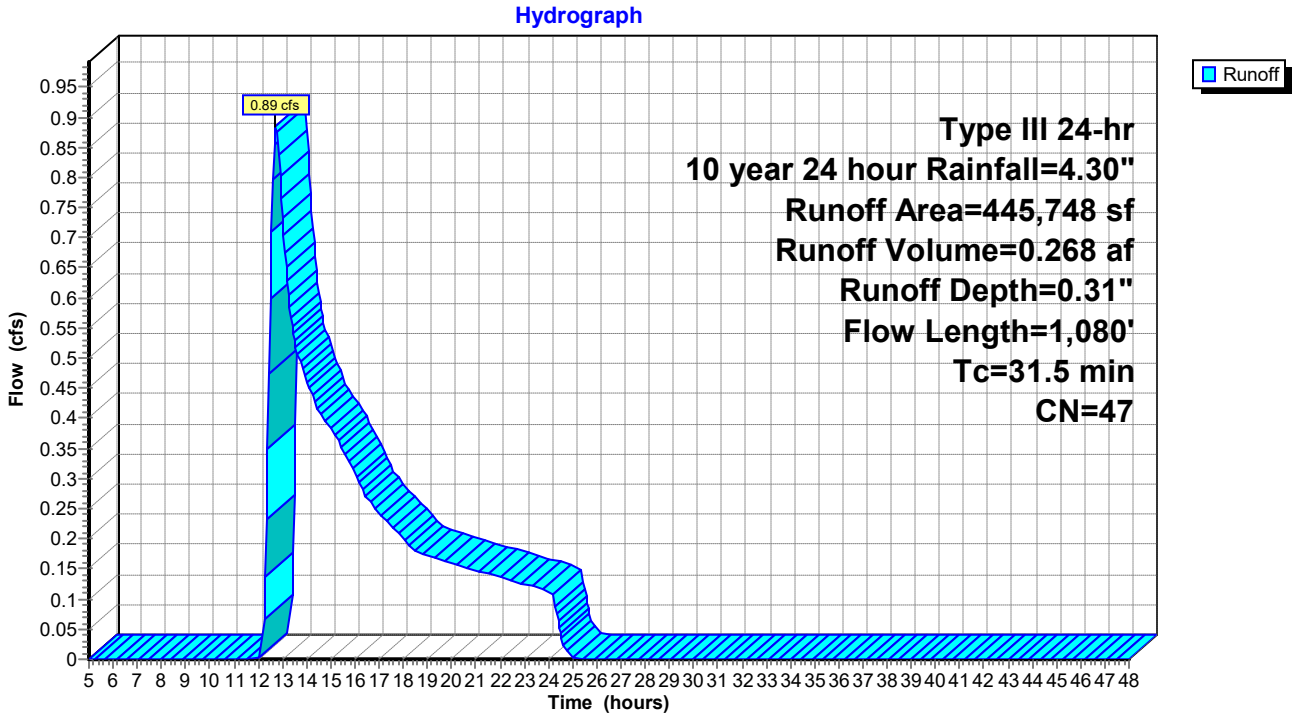
Runoff = 0.89 cfs @ 12.73 hrs, Volume= 0.268 af, Depth= 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	128,551	39	Pasture/grassland/range, Good, HSG A
	187,565	61	Pasture/grassland/range, Good, HSG B
	117,441	30	Woods, Good, HSG A
	8,367	55	Woods, Good, HSG B
*	3,824	98	Water
	445,748	47	Weighted Average
	441,924		99.14% Pervious Area
	3,824		0.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
8.4	610	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
31.5	1,080	Total			

Subcatchment OG2: Pre Watershed 2



Summary for Subcatchment OG3: Pre Watershed 3

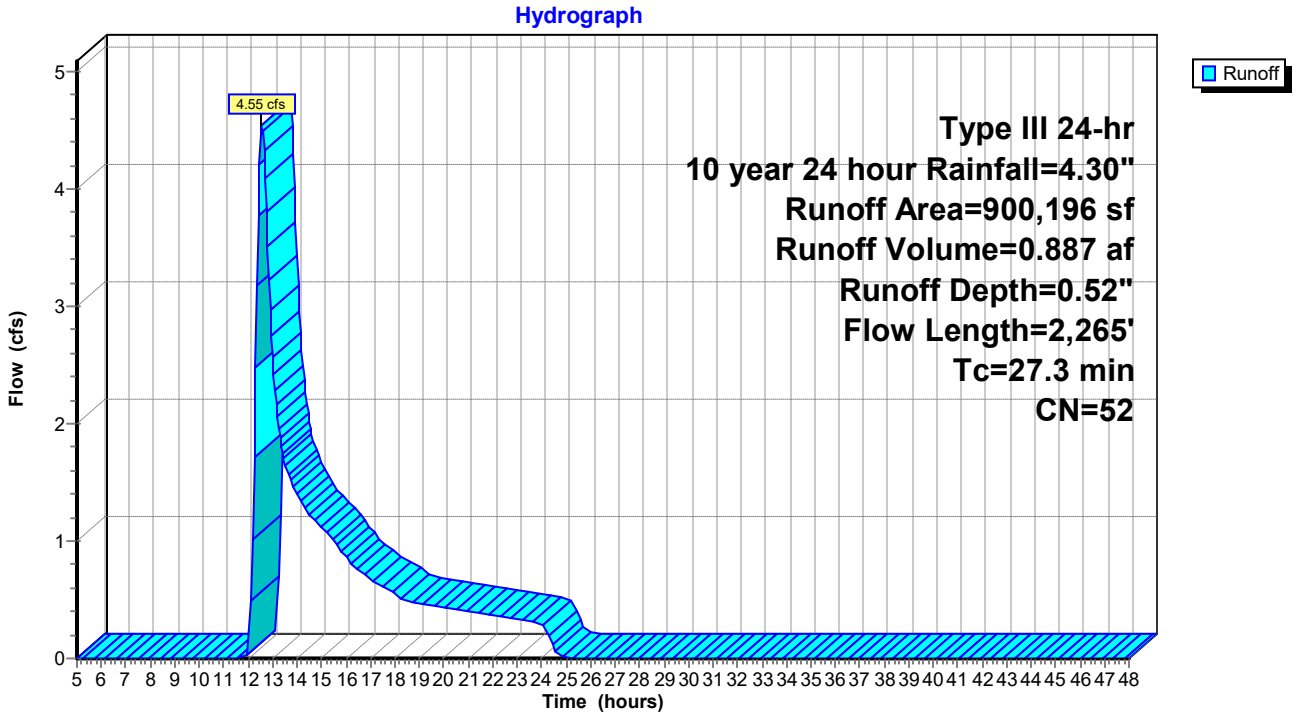
Runoff = 4.55 cfs @ 12.55 hrs, Volume= 0.887 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

Area (sf)	CN	Description
144,846	39	Pasture/grassland/range, Good, HSG A
132,138	61	Pasture/grassland/range, Good, HSG B
272,772	74	Pasture/grassland/range, Good, HSG C
17,192	80	Pasture/grassland/range, Good, HSG D
269,969	30	Woods, Good, HSG A
52,768	55	Woods, Good, HSG B
9,421	70	Woods, Good, HSG C
1,090	70	Woods, Good, HSG C
900,196	52	Weighted Average
900,196		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG3: Pre Watershed 3

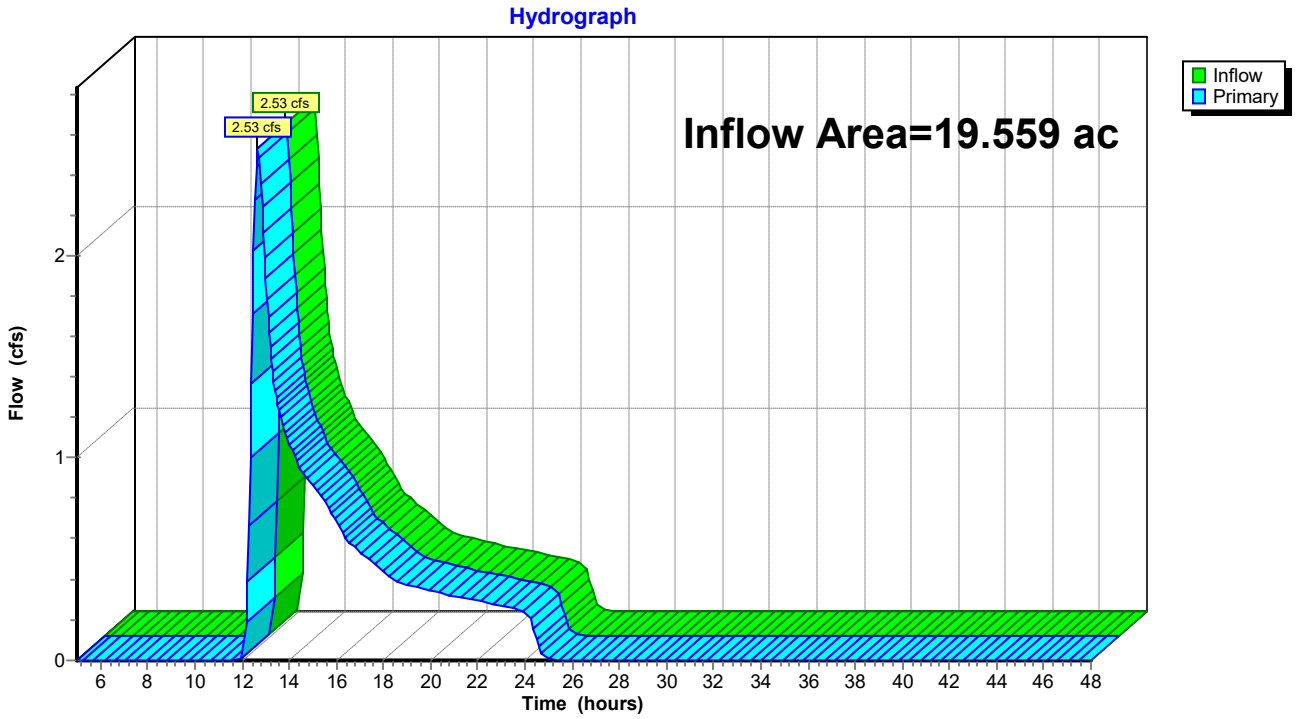


Summary for Link SN1: SN001

Inflow Area = 19.559 ac, 0.00% Impervious, Inflow Depth = 0.39" for 10 year 24 hour event
Inflow = 2.53 cfs @ 12.67 hrs, Volume= 0.635 af
Primary = 2.53 cfs @ 12.67 hrs, Volume= 0.635 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN1: SN001

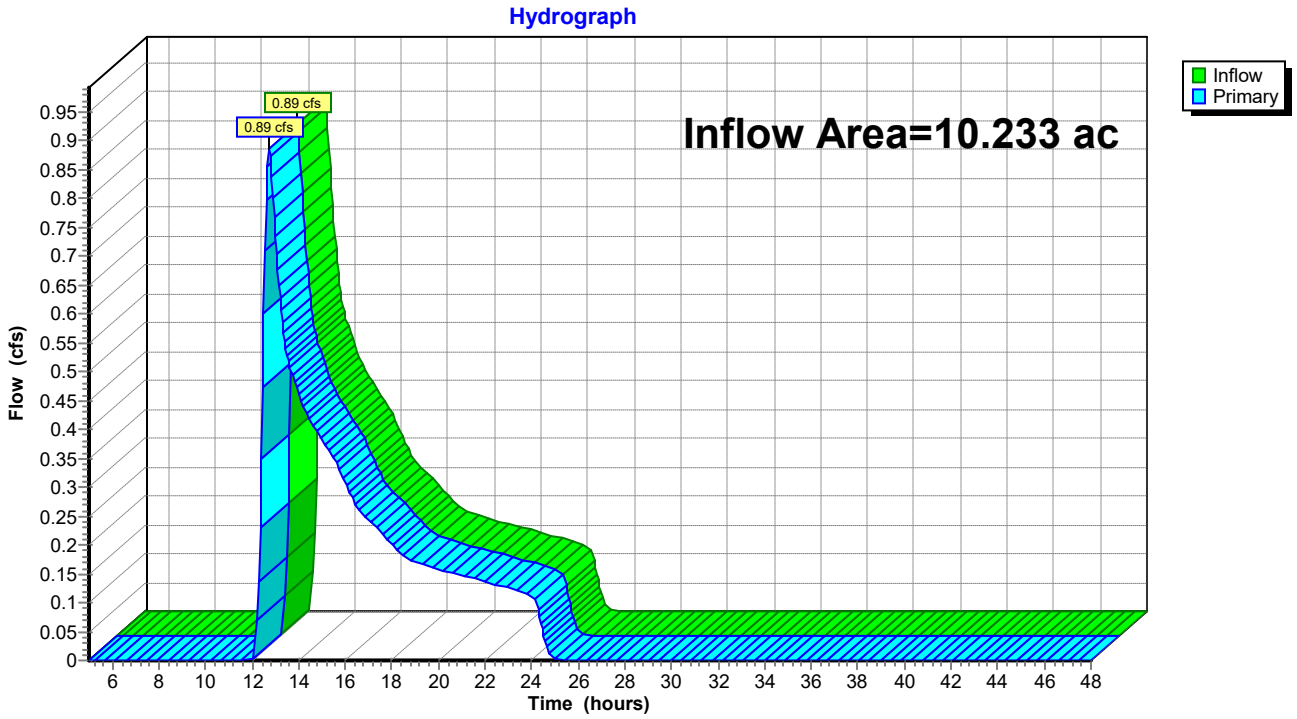


Summary for Link SN2: SN002

Inflow Area = 10.233 ac, 0.86% Impervious, Inflow Depth = 0.31" for 10 year 24 hour event
Inflow = 0.89 cfs @ 12.73 hrs, Volume= 0.268 af
Primary = 0.89 cfs @ 12.73 hrs, Volume= 0.268 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN2: SN002

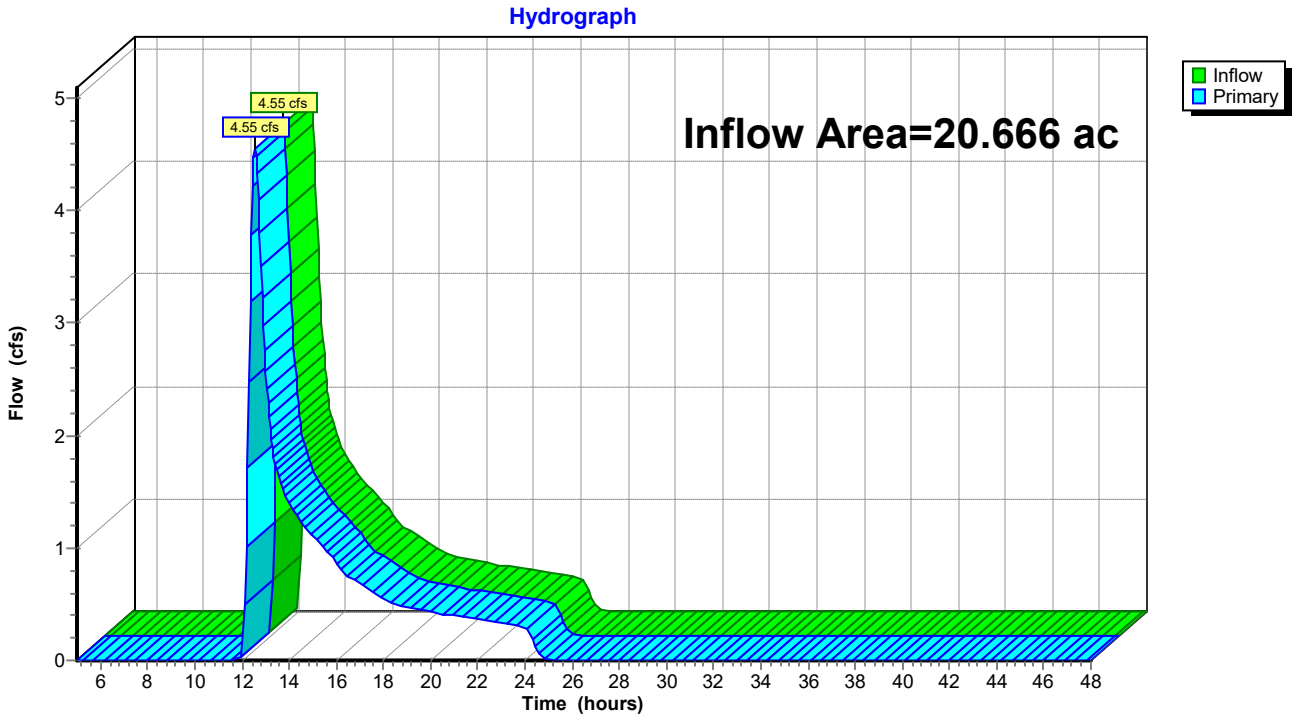


Summary for Link SN3: SN003

Inflow Area = 20.666 ac, 0.00% Impervious, Inflow Depth = 0.52" for 10 year 24 hour event
Inflow = 4.55 cfs @ 12.55 hrs, Volume= 0.887 af
Primary = 4.55 cfs @ 12.55 hrs, Volume= 0.887 af, Atten= 0%, Lag= 0.0 min

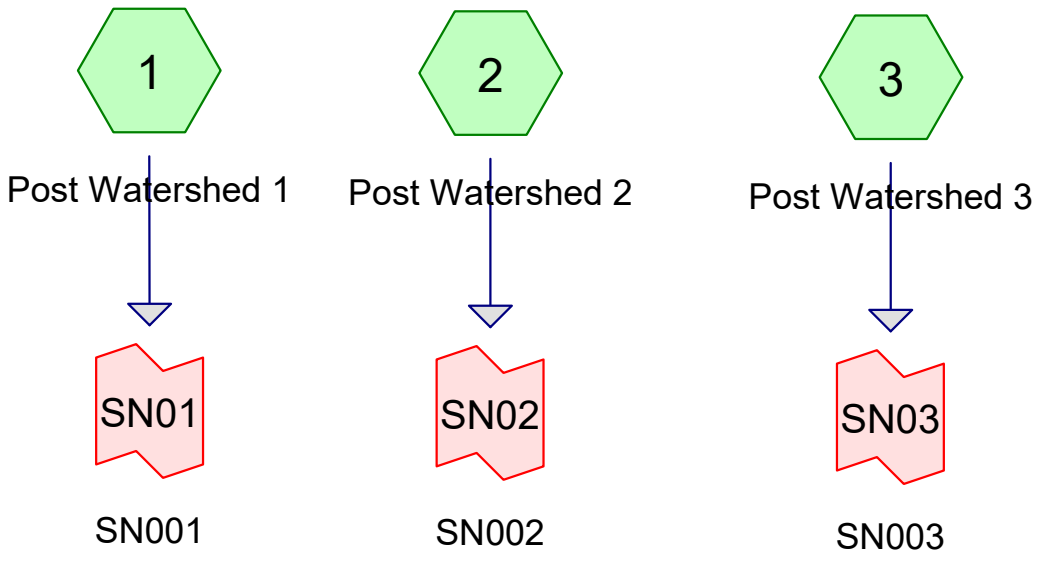
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

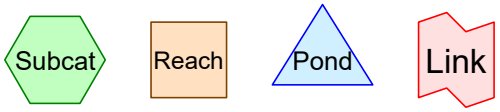
Link SN3: SN003



POST-DEVELOPMENT 10 YEAR STORM

Post Construction





Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 9/28/2022
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.703	30	Meadow, non-grazed, HSG A (2, 3)
6.417	58	Meadow, non-grazed, HSG B (1, 2, 3)
0.184	71	Meadow, non-grazed, HSG C (1)
0.674	98	NEW Impervious (1, 2, 3)
12.012	39	Pasture/grassland/range, Good, HSG A (1, 2, 3)
7.149	61	Pasture/grassland/range, Good, HSG B (1, 2, 3)
7.926	74	Pasture/grassland/range, Good, HSG C (1, 3)
0.395	80	Pasture/grassland/range, Good, HSG D (3)
0.088	98	Water (2)
12.265	30	Woods, Good, HSG A (1, 2, 3)
1.403	55	Woods, Good, HSG B (2, 3)
0.216	70	Woods, Good, HSG C (3)
0.025	77	Woods, Good, HSG D (3)
50.457	**49**	**TOTAL AREA**

Summary for Subcatchment 1: Post Watershed 1

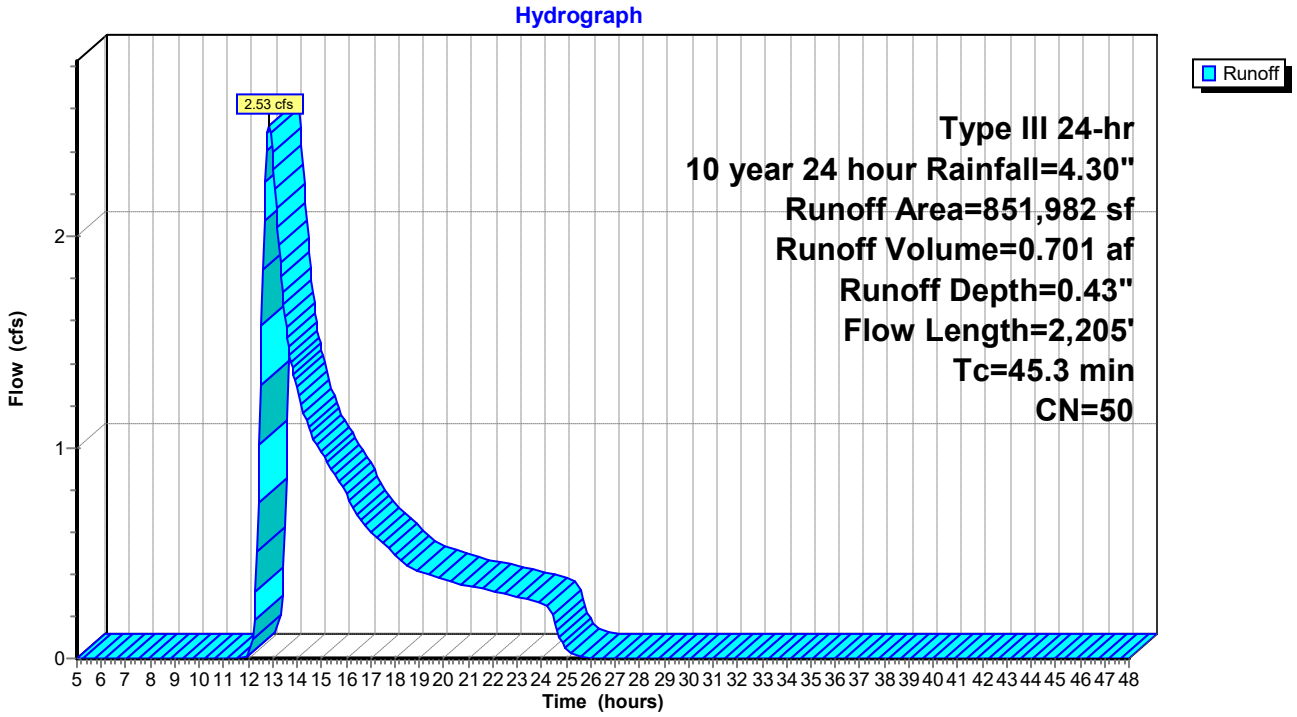
Runoff = 2.53 cfs @ 12.86 hrs, Volume= 0.701 af, Depth= 0.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	146,855	30	Woods, Good, HSG A
	324,068	39	Pasture/grassland/range, Good, HSG A
	235,228	61	Pasture/grassland/range, Good, HSG B
	72,502	74	Pasture/grassland/range, Good, HSG C
	36,087	58	Meadow, non-grazed, HSG B
	8,001	71	Meadow, non-grazed, HSG C
*	29,241	98	NEW Impervious
	851,982	50	Weighted Average
	822,741		96.57% Pervious Area
	29,241		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0860	0.14		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
26.9	1,300	0.0260	0.81		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
45.3	2,205	Total			

Subcatchment 1: Post Watershed 1



Summary for Subcatchment 2: Post Watershed 2

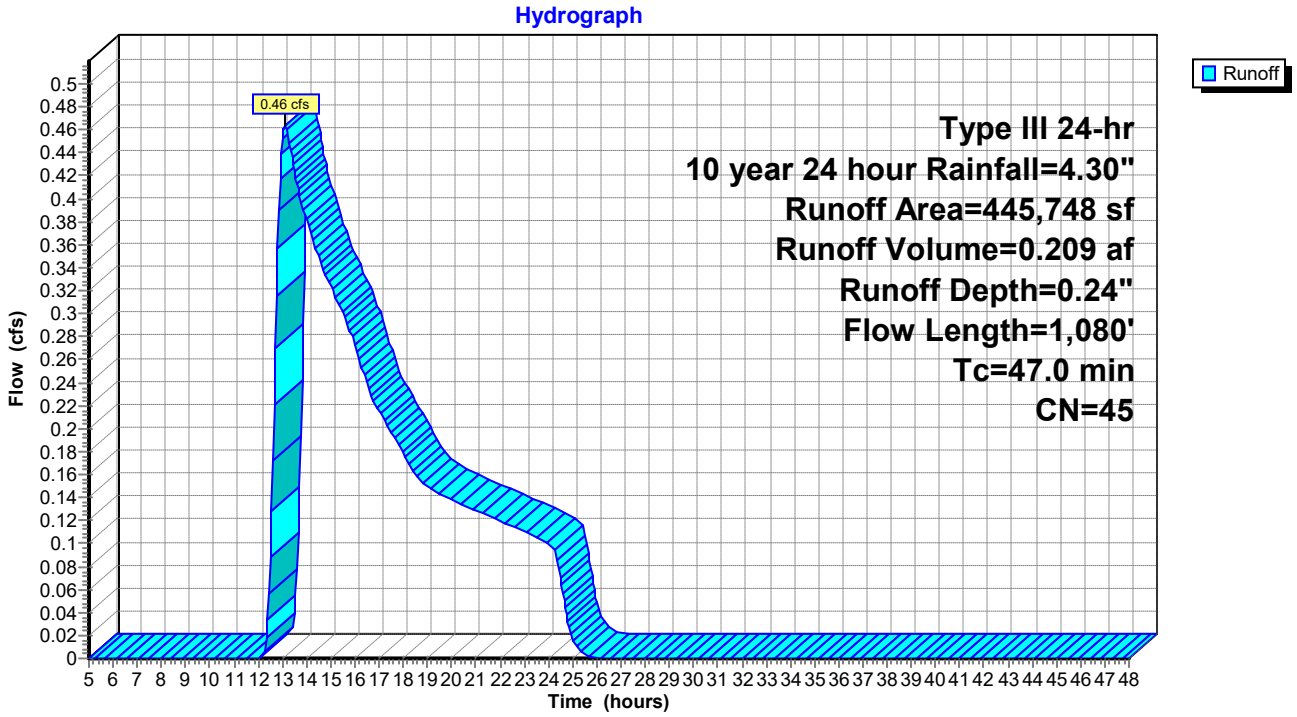
Runoff = 0.46 cfs @ 13.11 hrs, Volume= 0.209 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	72,398	39	Pasture/grassland/range, Good, HSG A
	50,528	61	Pasture/grassland/range, Good, HSG B
	117,441	30	Woods, Good, HSG A
	8,367	55	Woods, Good, HSG B
	56,133	30	Meadow, non-grazed, HSG A
	136,950	58	Meadow, non-grazed, HSG B
*	3,824	98	Water
*	107	98	NEW Impervious
	445,748	45	Weighted Average
	441,817		99.12% Pervious Area
	3,931		0.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	150	0.0150	0.07		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
11.7	610	0.0300	0.87		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
47.0	1,080	Total			

Subcatchment 2: Post Watershed 2



Summary for Subcatchment 3: Post Watershed 3

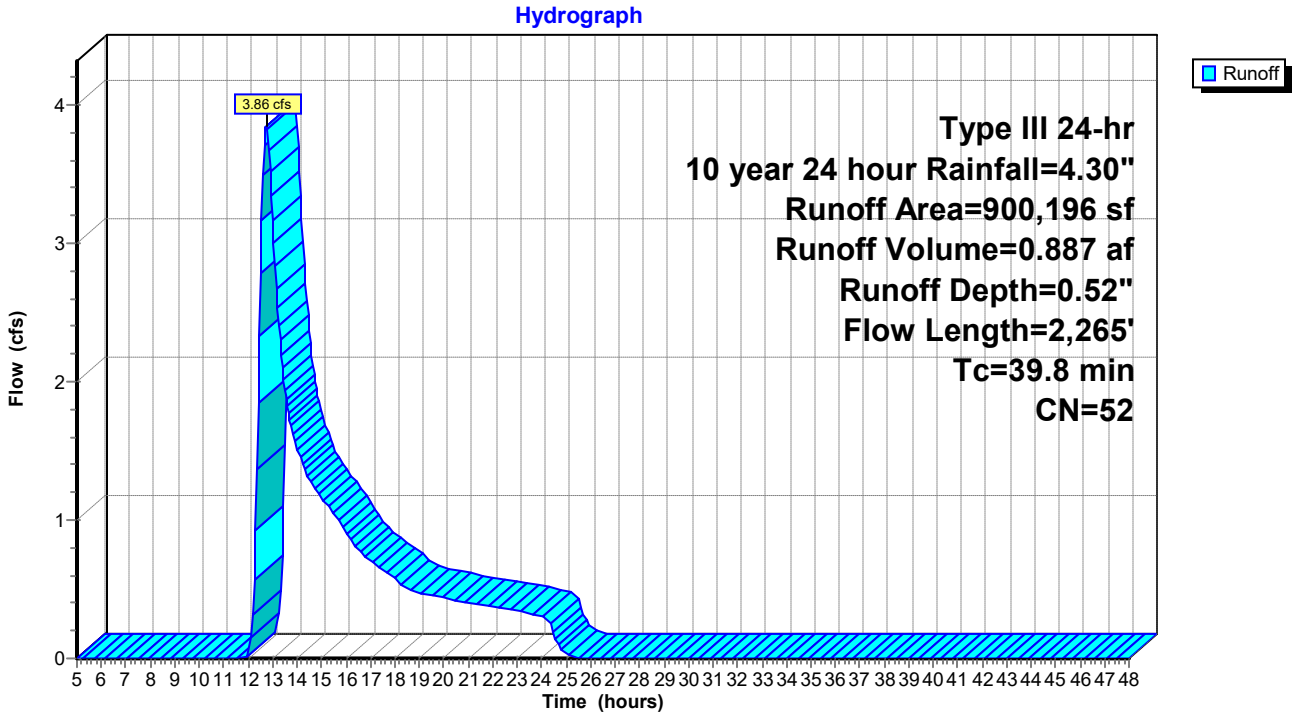
Runoff = 3.86 cfs @ 12.74 hrs, Volume= 0.887 af, Depth= 0.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	126,784	39	Pasture/grassland/range, Good, HSG A
	25,643	61	Pasture/grassland/range, Good, HSG B
	272,772	74	Pasture/grassland/range, Good, HSG C
	17,192	80	Pasture/grassland/range, Good, HSG D
	269,969	30	Woods, Good, HSG A
	52,768	55	Woods, Good, HSG B
	9,421	70	Woods, Good, HSG C
	1,090	77	Woods, Good, HSG D
	18,057	30	Meadow, non-grazed, HSG A
	106,485	58	Meadow, non-grazed, HSG B
*	15	98	NEW Impervious
	900,196	52	Weighted Average
	900,181		100.00% Pervious Area
	15		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 3: Post Watershed 3

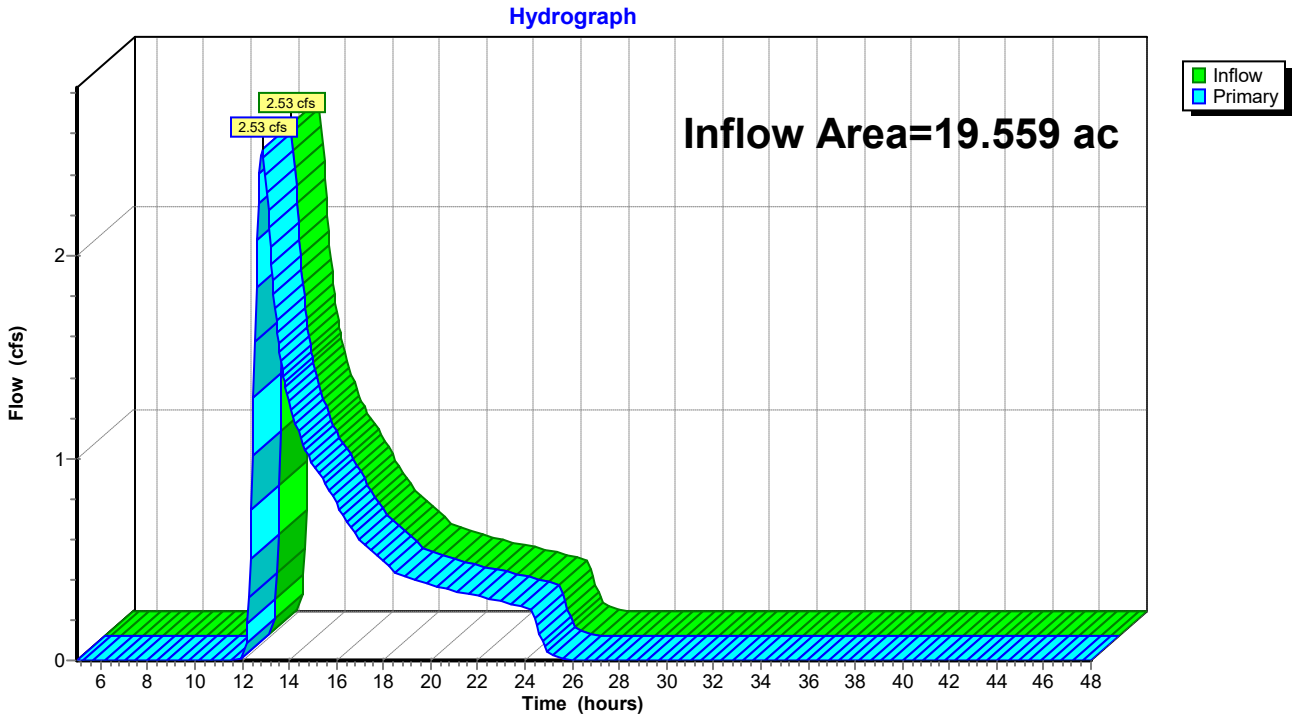


Summary for Link SN01: SN001

Inflow Area = 19.559 ac, 3.43% Impervious, Inflow Depth = 0.43" for 10 year 24 hour event
Inflow = 2.53 cfs @ 12.86 hrs, Volume= 0.701 af
Primary = 2.53 cfs @ 12.86 hrs, Volume= 0.701 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN01: SN001

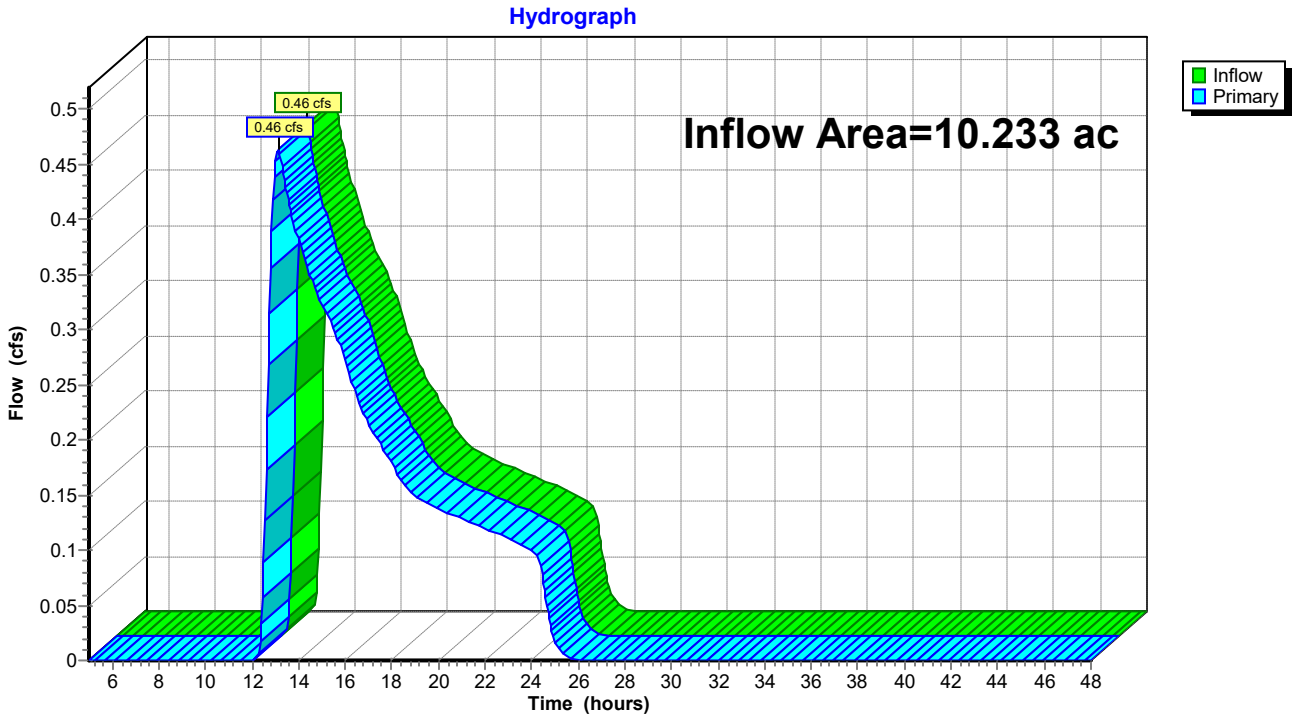


Summary for Link SN02: SN002

Inflow Area = 10.233 ac, 0.88% Impervious, Inflow Depth = 0.24" for 10 year 24 hour event
Inflow = 0.46 cfs @ 13.11 hrs, Volume= 0.209 af
Primary = 0.46 cfs @ 13.11 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN02: SN002

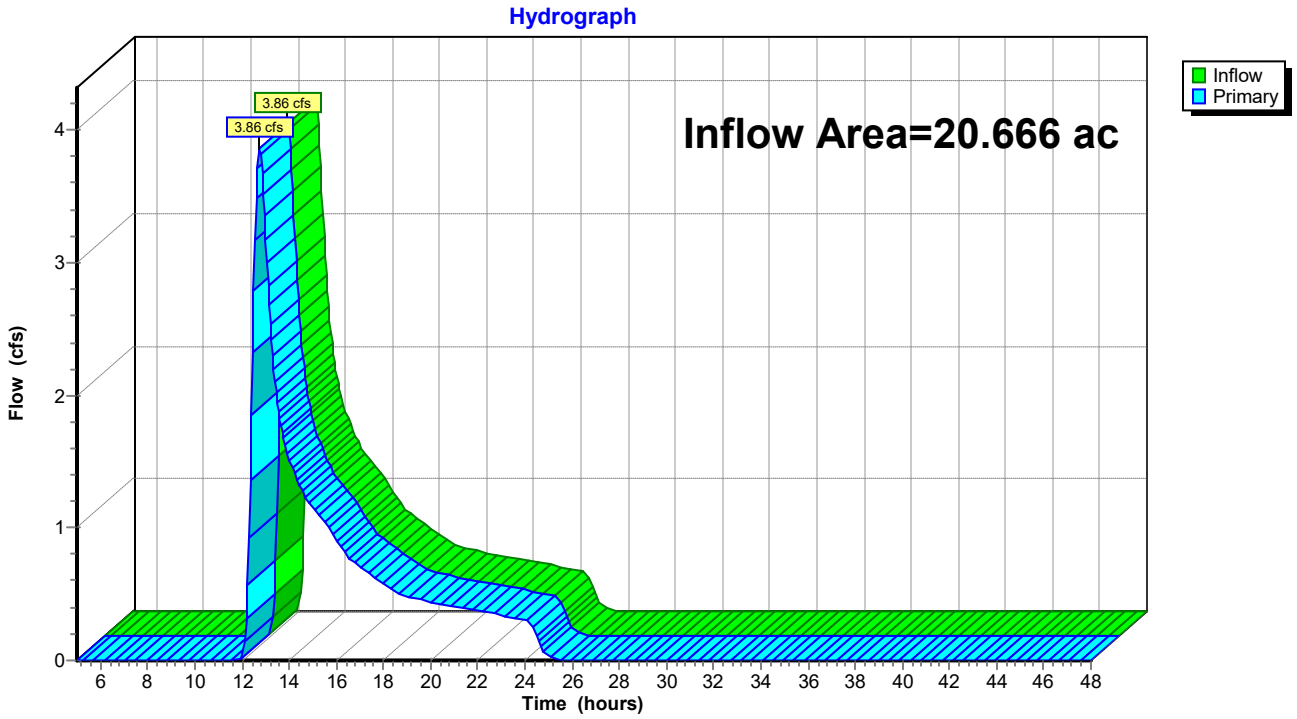


Summary for Link SN03: SN003

Inflow Area = 20.666 ac, 0.00% Impervious, Inflow Depth = 0.52" for 10 year 24 hour event
Inflow = 3.86 cfs @ 12.74 hrs, Volume= 0.887 af
Primary = 3.86 cfs @ 12.74 hrs, Volume= 0.887 af, Atten= 0%, Lag= 0.0 min

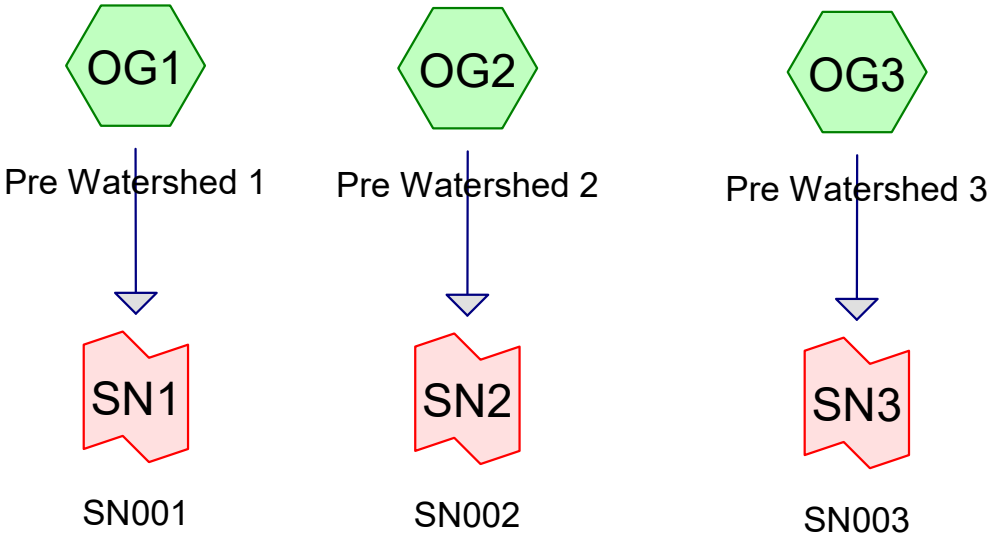
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN03: SN003



PRE-DEVELOPMENT 25 YEAR STORM

Preconstruction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 9/28/2022
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
13.716	39	Pasture/grassland/range, Good, HSG A (OG1, OG2, OG3)
13.961	61	Pasture/grassland/range, Good, HSG B (OG1, OG2, OG3)
8.388	74	Pasture/grassland/range, Good, HSG C (OG1, OG3)
0.395	80	Pasture/grassland/range, Good, HSG D (OG3)
0.088	98	Water (OG2)
12.265	30	Woods, Good, HSG A (OG1, OG2, OG3)
1.403	55	Woods, Good, HSG B (OG2, OG3)
0.241	70	Woods, Good, HSG C (OG3)
50.457	**50**	**TOTAL AREA**

Summary for Subcatchment OG1: Pre Watershed 1

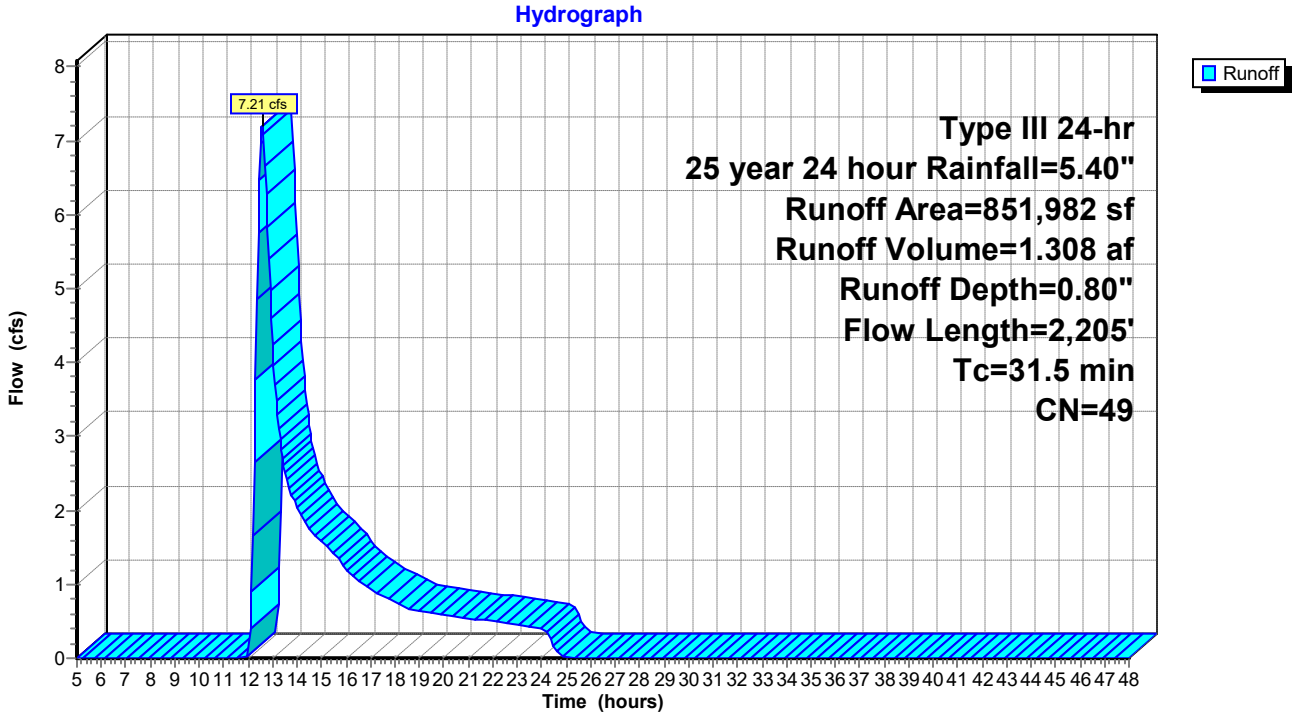
Runoff = 7.21 cfs @ 12.57 hrs, Volume= 1.308 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

Area (sf)	CN	Description
146,855	30	Woods, Good, HSG A
324,068	39	Pasture/grassland/range, Good, HSG A
288,444	61	Pasture/grassland/range, Good, HSG B
92,615	74	Pasture/grassland/range, Good, HSG C
851,982	49	Weighted Average
851,982		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	150	0.0860	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
19.2	1,300	0.0260	1.13		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
31.5	2,205	Total			

Subcatchment OG1: Pre Watershed 1



Summary for Subcatchment OG2: Pre Watershed 2

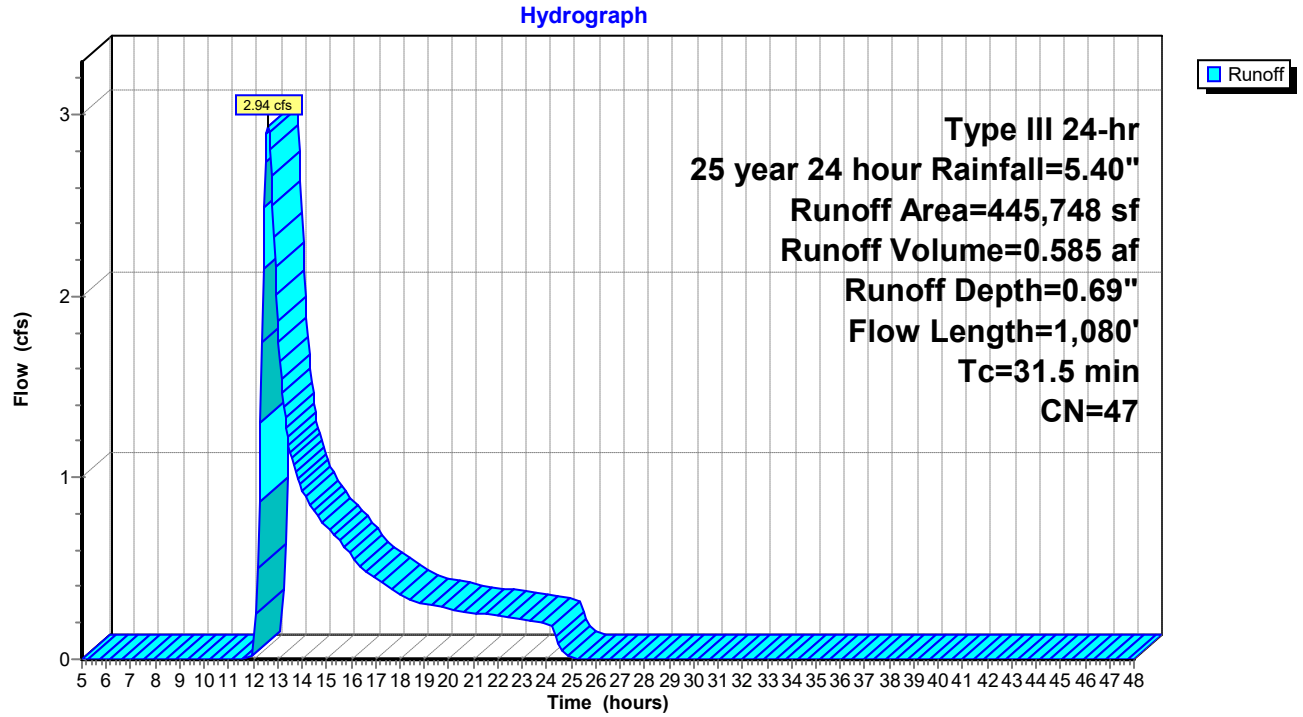
Runoff = 2.94 cfs @ 12.60 hrs, Volume= 0.585 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	128,551	39	Pasture/grassland/range, Good, HSG A
	187,565	61	Pasture/grassland/range, Good, HSG B
	117,441	30	Woods, Good, HSG A
	8,367	55	Woods, Good, HSG B
*	3,824	98	Water
	445,748	47	Weighted Average
	441,924		99.14% Pervious Area
	3,824		0.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0150	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
8.4	610	0.0300	1.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
31.5	1,080	Total			

Subcatchment OG2: Pre Watershed 2



Summary for Subcatchment OG3: Pre Watershed 3

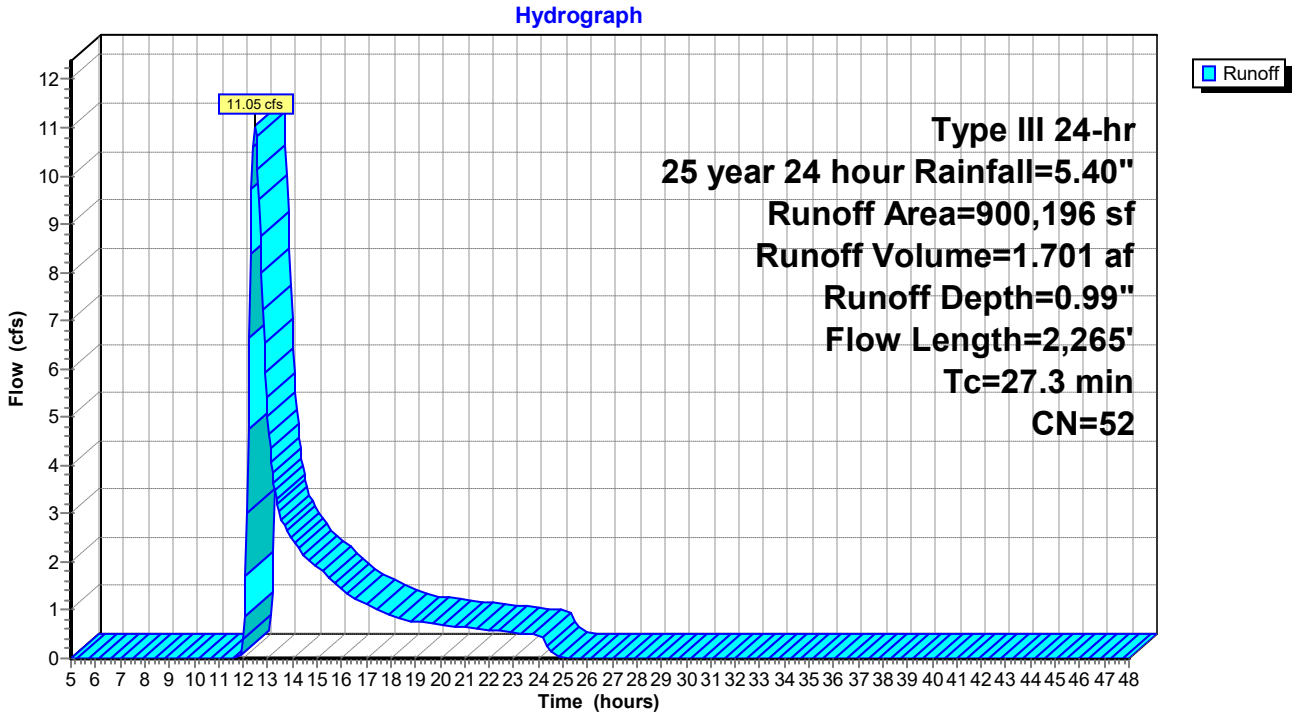
Runoff = 11.05 cfs @ 12.47 hrs, Volume= 1.701 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

Area (sf)	CN	Description
144,846	39	Pasture/grassland/range, Good, HSG A
132,138	61	Pasture/grassland/range, Good, HSG B
272,772	74	Pasture/grassland/range, Good, HSG C
17,192	80	Pasture/grassland/range, Good, HSG D
269,969	30	Woods, Good, HSG A
52,768	55	Woods, Good, HSG B
9,421	70	Woods, Good, HSG C
1,090	70	Woods, Good, HSG C
900,196	52	Weighted Average
900,196		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG3: Pre Watershed 3

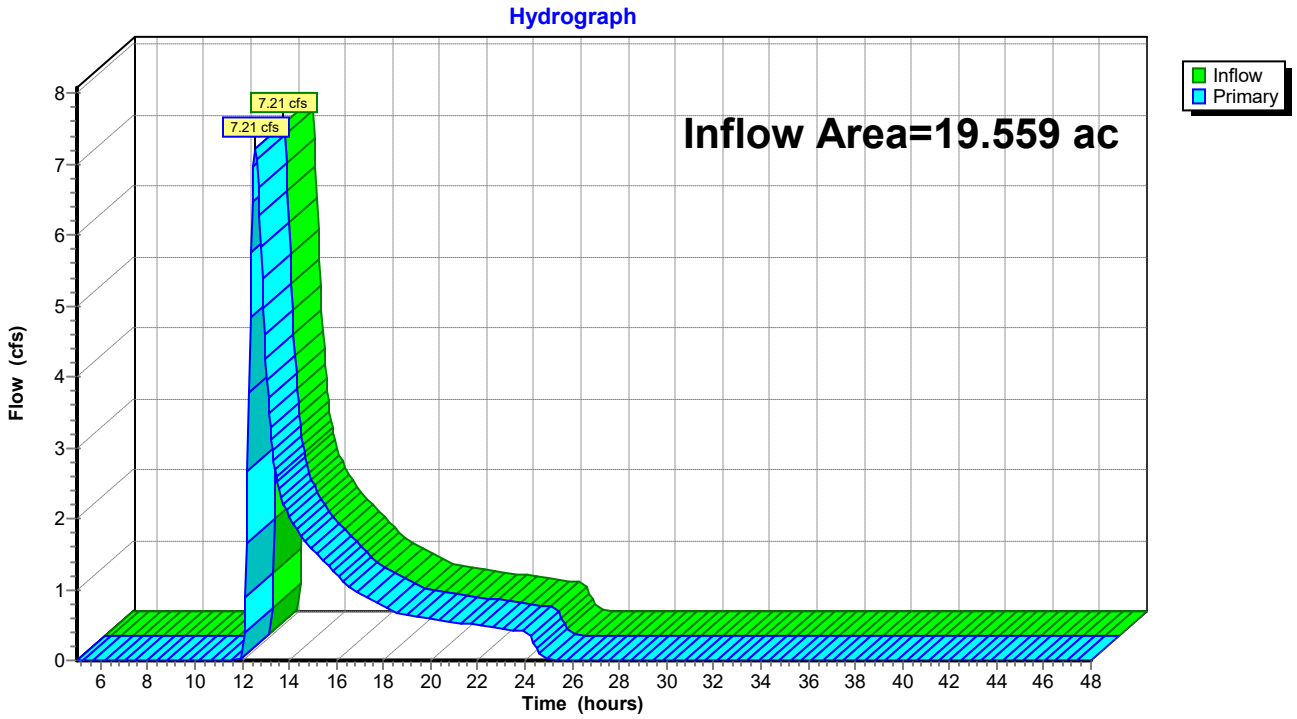


Summary for Link SN1: SN001

Inflow Area = 19.559 ac, 0.00% Impervious, Inflow Depth = 0.80" for 25 year 24 hour event
Inflow = 7.21 cfs @ 12.57 hrs, Volume= 1.308 af
Primary = 7.21 cfs @ 12.57 hrs, Volume= 1.308 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN1: SN001

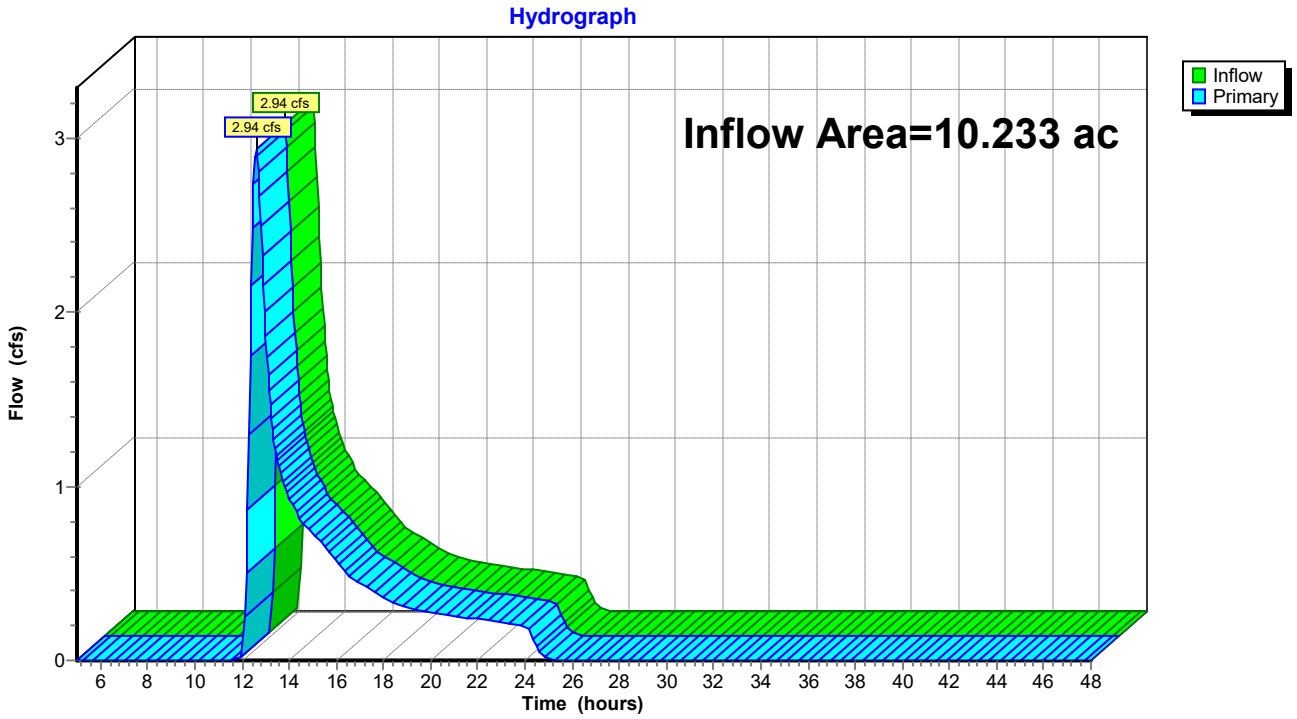


Summary for Link SN2: SN002

Inflow Area = 10.233 ac, 0.86% Impervious, Inflow Depth = 0.69" for 25 year 24 hour event
Inflow = 2.94 cfs @ 12.60 hrs, Volume= 0.585 af
Primary = 2.94 cfs @ 12.60 hrs, Volume= 0.585 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN2: SN002

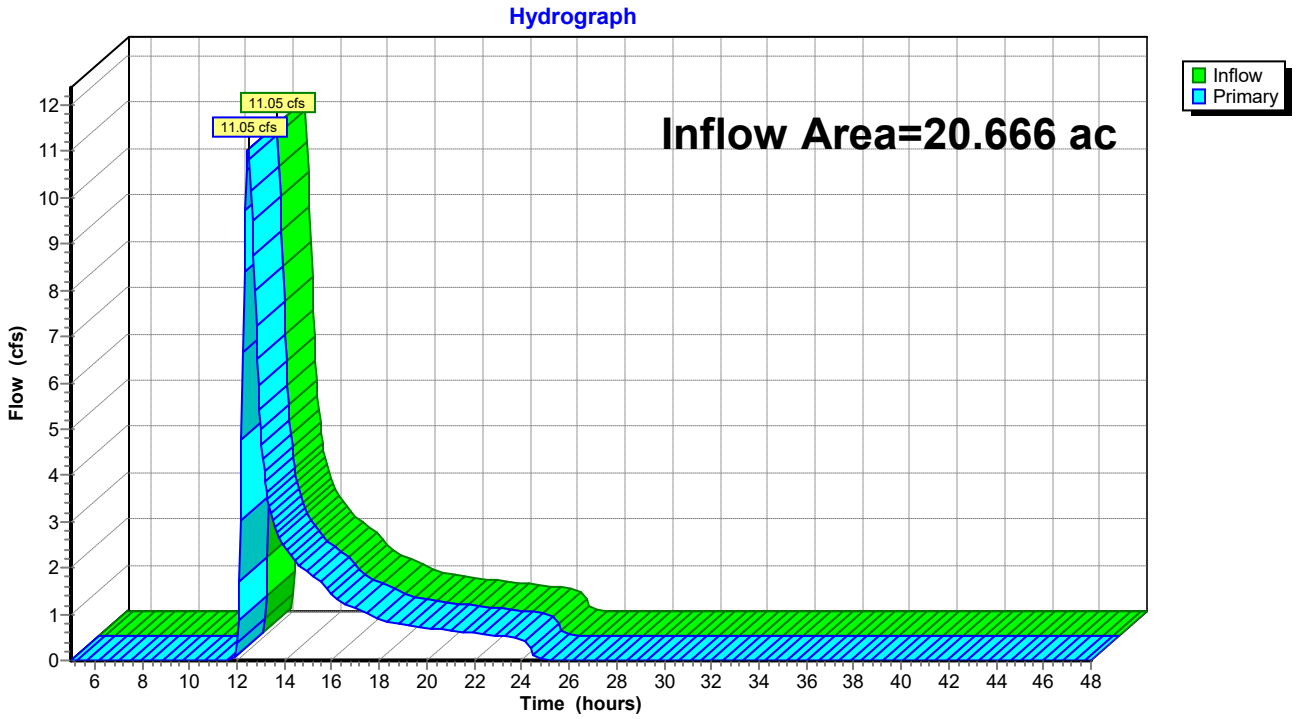


Summary for Link SN3: SN003

Inflow Area = 20.666 ac, 0.00% Impervious, Inflow Depth = 0.99" for 25 year 24 hour event
Inflow = 11.05 cfs @ 12.47 hrs, Volume= 1.701 af
Primary = 11.05 cfs @ 12.47 hrs, Volume= 1.701 af, Atten= 0%, Lag= 0.0 min

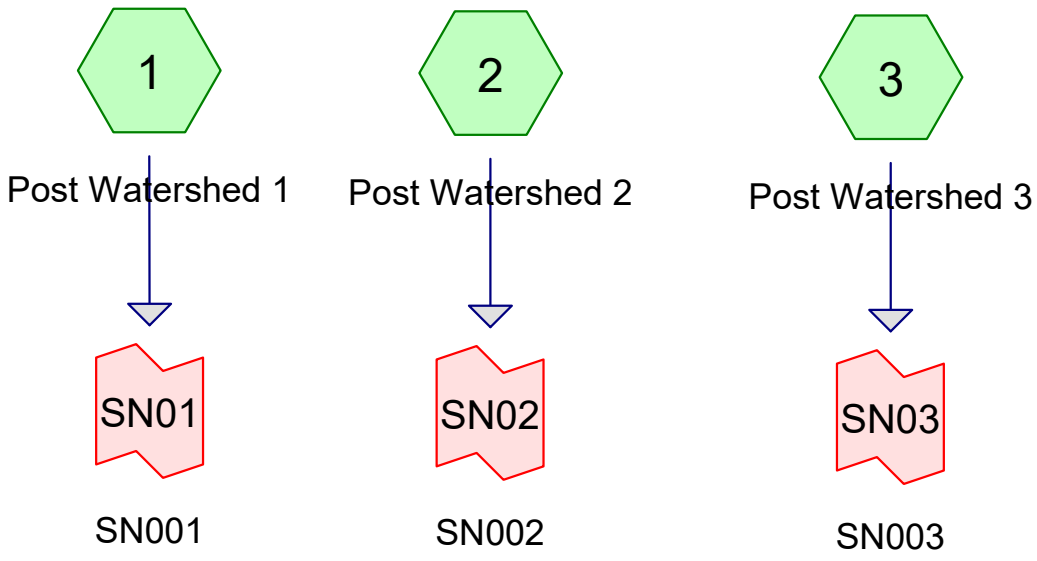
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

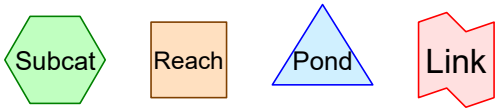
Link SN3: SN003



POST-DEVELOPMENT 25 YEAR STORM

Post Construction





Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 9/28/2022
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.703	30	Meadow, non-grazed, HSG A (2, 3)
6.417	58	Meadow, non-grazed, HSG B (1, 2, 3)
0.184	71	Meadow, non-grazed, HSG C (1)
0.674	98	NEW Impervious (1, 2, 3)
12.012	39	Pasture/grassland/range, Good, HSG A (1, 2, 3)
7.149	61	Pasture/grassland/range, Good, HSG B (1, 2, 3)
7.926	74	Pasture/grassland/range, Good, HSG C (1, 3)
0.395	80	Pasture/grassland/range, Good, HSG D (3)
0.088	98	Water (2)
12.265	30	Woods, Good, HSG A (1, 2, 3)
1.403	55	Woods, Good, HSG B (2, 3)
0.216	70	Woods, Good, HSG C (3)
0.025	77	Woods, Good, HSG D (3)
50.457	**49**	**TOTAL AREA**

Summary for Subcatchment 1: Post Watershed 1

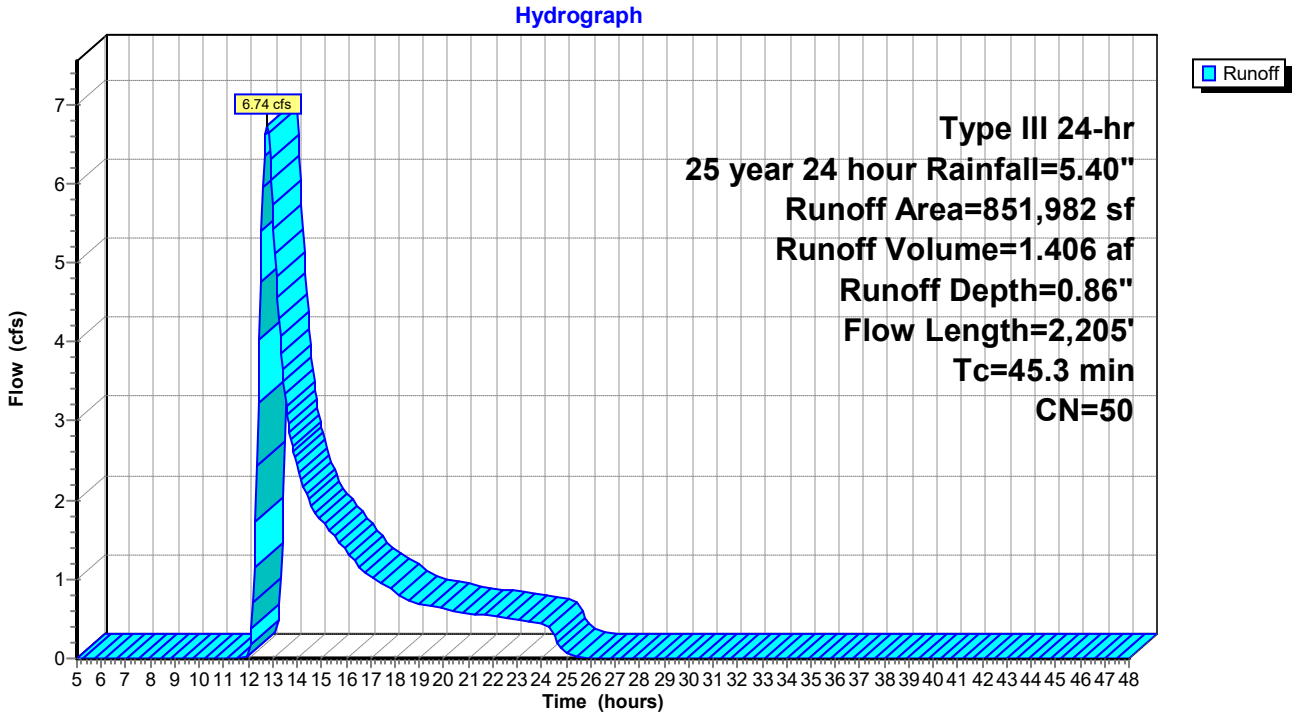
Runoff = 6.74 cfs @ 12.77 hrs, Volume= 1.406 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	146,855	30	Woods, Good, HSG A
	324,068	39	Pasture/grassland/range, Good, HSG A
	235,228	61	Pasture/grassland/range, Good, HSG B
	72,502	74	Pasture/grassland/range, Good, HSG C
	36,087	58	Meadow, non-grazed, HSG B
	8,001	71	Meadow, non-grazed, HSG C
*	29,241	98	NEW Impervious
	851,982	50	Weighted Average
	822,741		96.57% Pervious Area
	29,241		3.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0860	0.14		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
26.9	1,300	0.0260	0.81		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
45.3	2,205	Total			

Subcatchment 1: Post Watershed 1



Summary for Subcatchment 2: Post Watershed 2

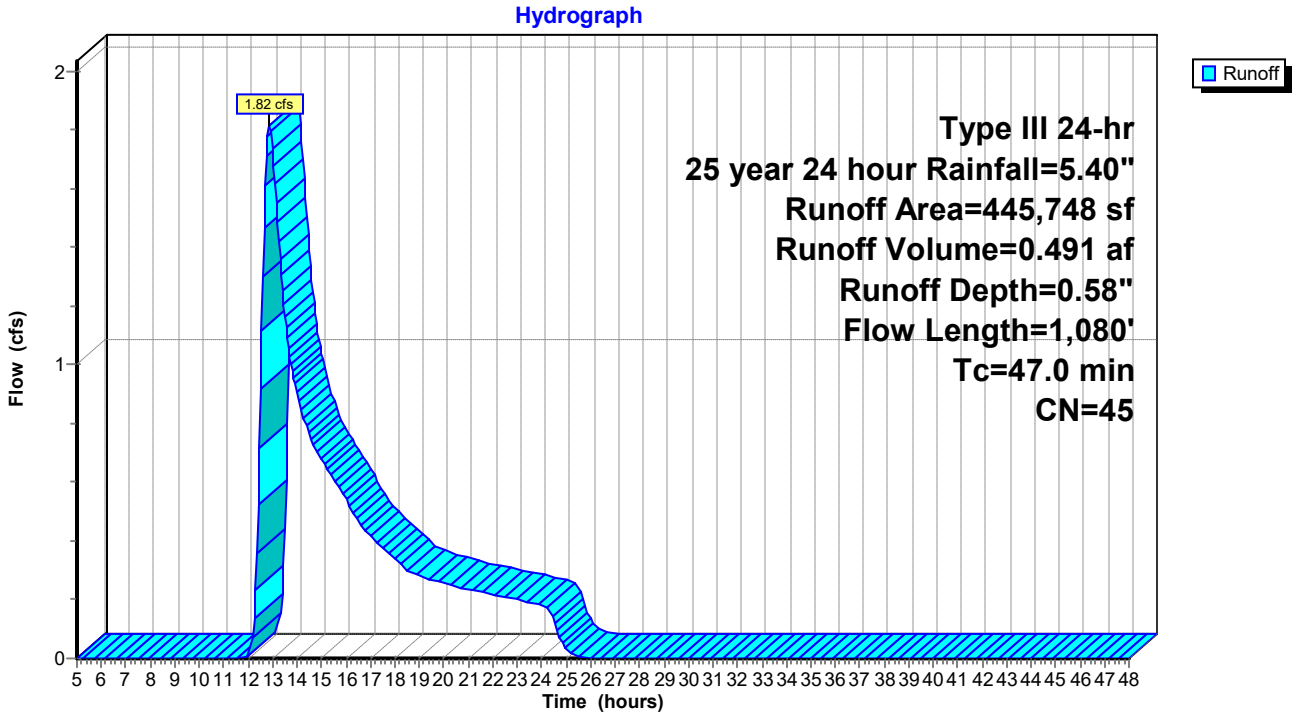
Runoff = 1.82 cfs @ 12.88 hrs, Volume= 0.491 af, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	72,398	39	Pasture/grassland/range, Good, HSG A
	50,528	61	Pasture/grassland/range, Good, HSG B
	117,441	30	Woods, Good, HSG A
	8,367	55	Woods, Good, HSG B
	56,133	30	Meadow, non-grazed, HSG A
	136,950	58	Meadow, non-grazed, HSG B
*	3,824	98	Water
*	107	98	NEW Impervious
	445,748	45	Weighted Average
	441,817		99.12% Pervious Area
	3,931		0.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	150	0.0150	0.07		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
11.7	610	0.0300	0.87		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
47.0	1,080	Total			

Subcatchment 2: Post Watershed 2



Summary for Subcatchment 3: Post Watershed 3

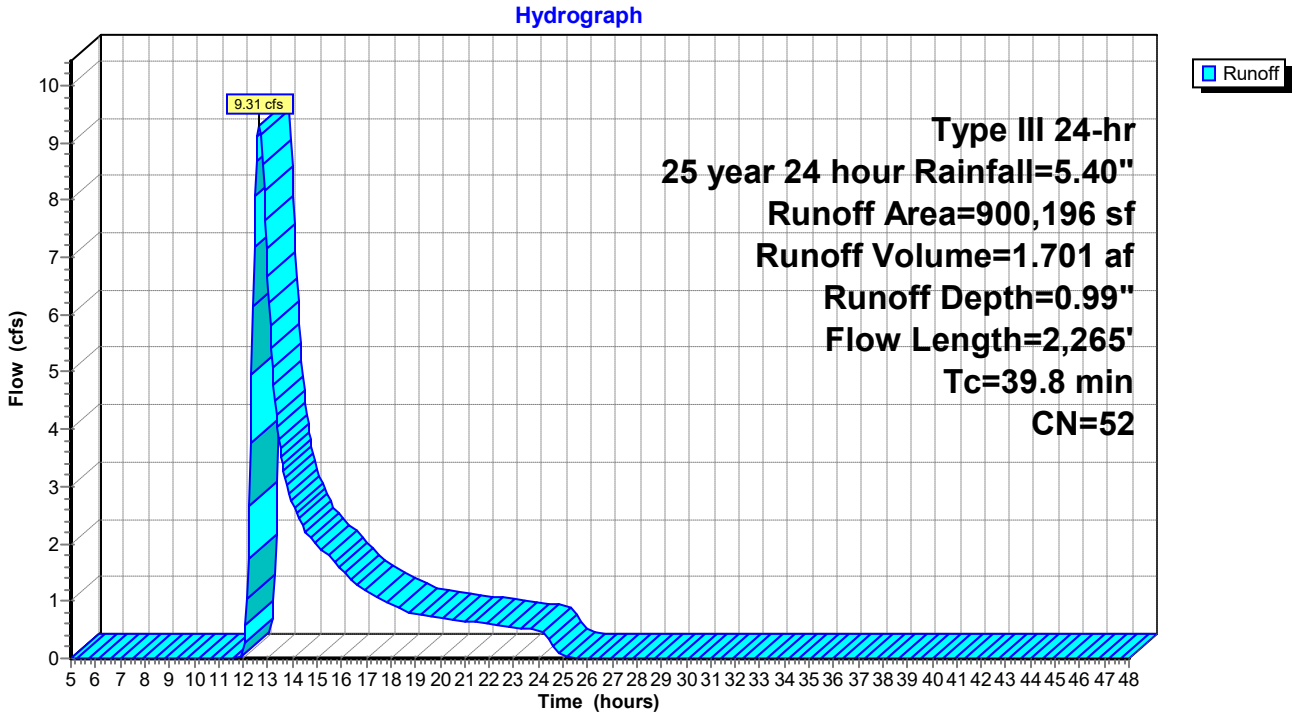
Runoff = 9.31 cfs @ 12.67 hrs, Volume= 1.701 af, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	126,784	39	Pasture/grassland/range, Good, HSG A
	25,643	61	Pasture/grassland/range, Good, HSG B
	272,772	74	Pasture/grassland/range, Good, HSG C
	17,192	80	Pasture/grassland/range, Good, HSG D
	269,969	30	Woods, Good, HSG A
	52,768	55	Woods, Good, HSG B
	9,421	70	Woods, Good, HSG C
	1,090	77	Woods, Good, HSG D
	18,057	30	Meadow, non-grazed, HSG A
	106,485	58	Meadow, non-grazed, HSG B
*	15	98	NEW Impervious
	900,196	52	Weighted Average
	900,181		100.00% Pervious Area
	15		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 3: Post Watershed 3

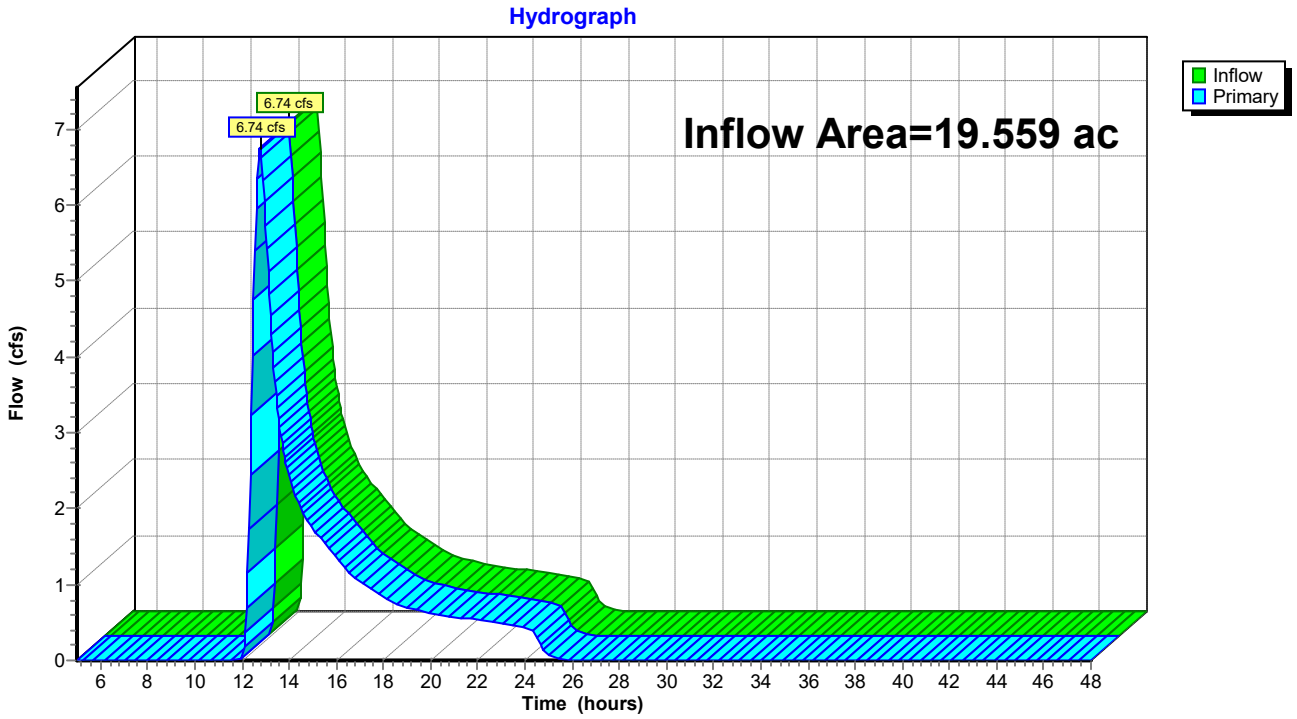


Summary for Link SN01: SN001

Inflow Area = 19.559 ac, 3.43% Impervious, Inflow Depth = 0.86" for 25 year 24 hour event
Inflow = 6.74 cfs @ 12.77 hrs, Volume= 1.406 af
Primary = 6.74 cfs @ 12.77 hrs, Volume= 1.406 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN01: SN001

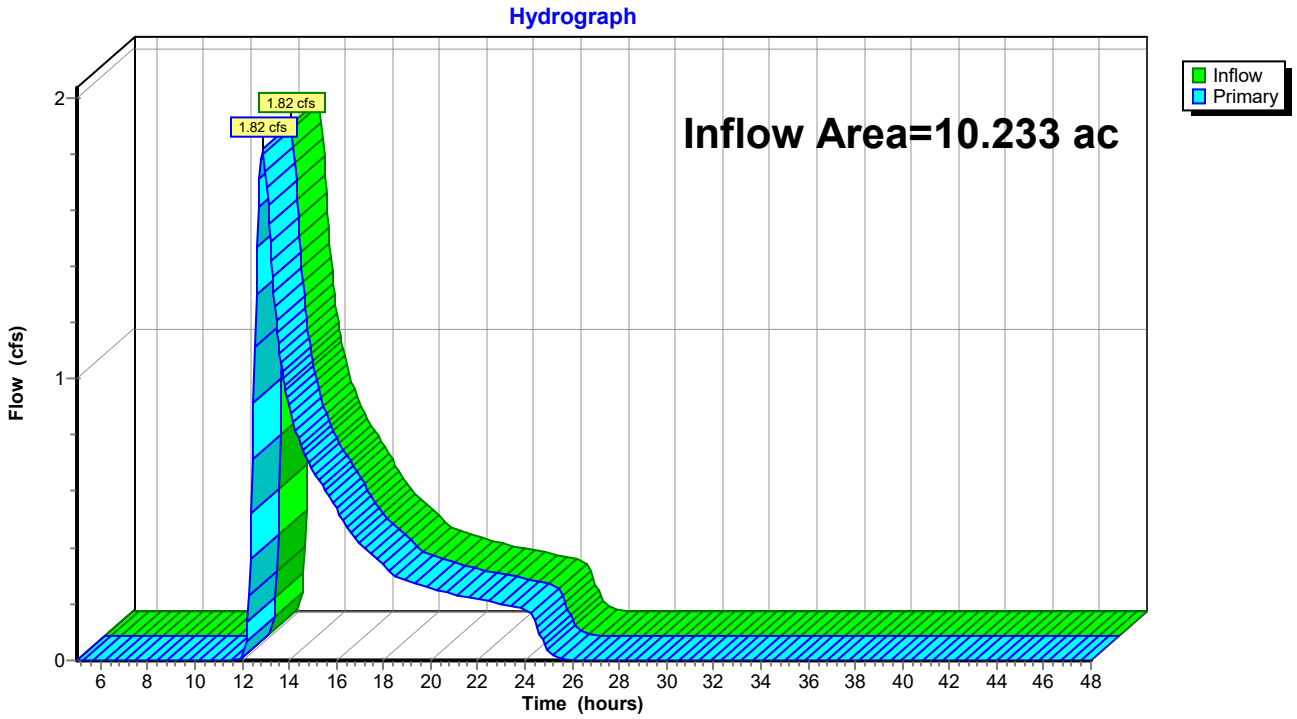


Summary for Link SN02: SN002

Inflow Area = 10.233 ac, 0.88% Impervious, Inflow Depth = 0.58" for 25 year 24 hour event
Inflow = 1.82 cfs @ 12.88 hrs, Volume= 0.491 af
Primary = 1.82 cfs @ 12.88 hrs, Volume= 0.491 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN02: SN002

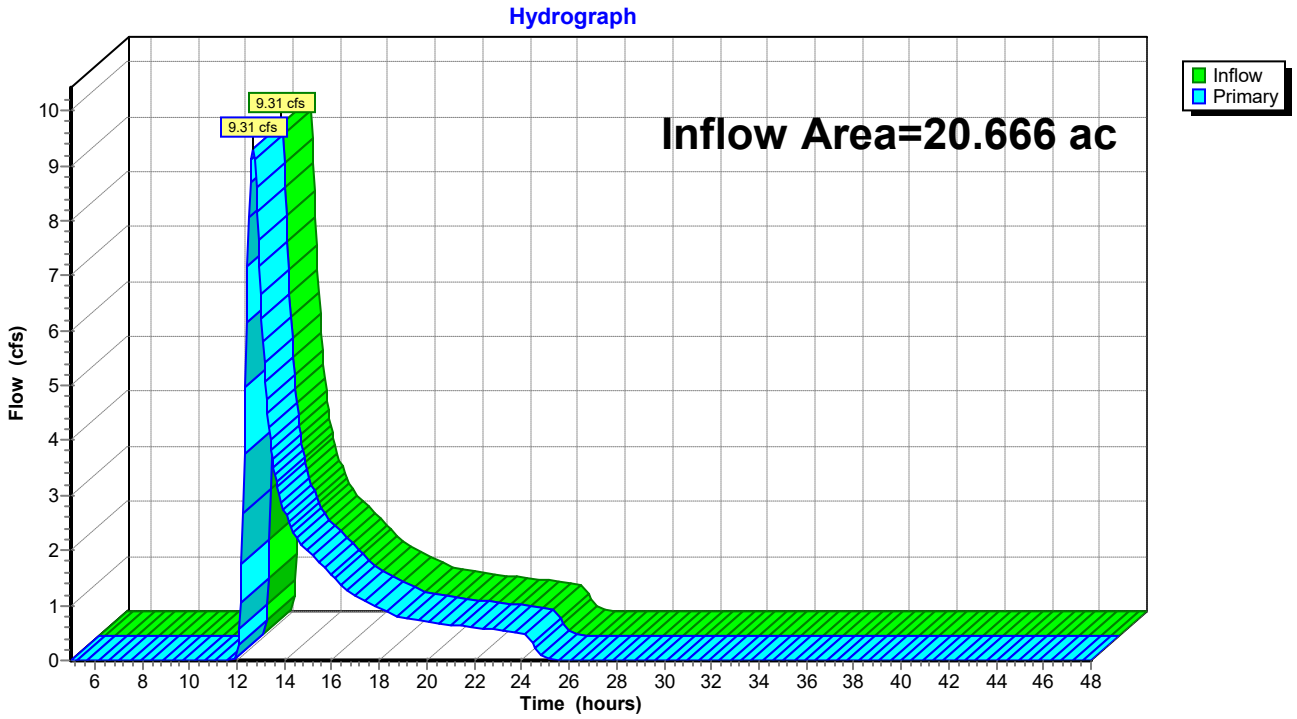


Summary for Link SN03: SN003

Inflow Area = 20.666 ac, 0.00% Impervious, Inflow Depth = 0.99" for 25 year 24 hour event
Inflow = 9.31 cfs @ 12.67 hrs, Volume= 1.701 af
Primary = 9.31 cfs @ 12.67 hrs, Volume= 1.701 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN03: SN003



ATTACHMENT 9
DECOMMISSIONING PLAN

BLUEWAVE

Decommissioning Plan

Gulf Pond Solar Project

224 E. Waterman Road, Auburn

As the owner of the Project, the Applicant, Permittee and their successors and assigns are solely responsible for decommissioning the Project. Commercial-scale solar fields are designed for a minimum expected operational life of 20 years but may operate for 30 to 35 years or more. As the solar field approaches the end of its operational life, it is expected that technological advances will make more efficient and cost-effective solar arrays that will economically drive the replacement of the existing solar arrays. Therefore, decommissioning of the Project shall commence after 12 consecutive months of no power generation at the facility in the absence of an explicit approval by the State of Maine to delay project decommissioning due to a showing that the project will become operational again. The facility will be removed in its entirety by no later than ninety (90) days after the end of the twelve-month period.

As defined by the Act to Ensure Decommissioning of Solar Energy Developments (35-A M.R.S §§ 3491 through 3496, "the Act"), there are 10.12 acres of Farmland area on the Project site as the entire site has been utilized for agricultural purposes within at least the last five years.

This decommissioning plan shall be binding upon the Applicant, Permittee and their successors and assigns and they shall:

- Be responsible for all decommissioning costs;
- Obtain any additional permits required for the decommissioning, removal, and legal disposal of Project components prior to commencement of decommissioning activities;
- Remove and dispose of all above-ground infrastructure, including arrays, inverter structures, concrete foundations and pads, and fences, and grade and revegetate in accordance with permits and in compliance with all applicable rules and regulations then in effect governing the disposal thereof;
- Remove and dispose of rack support posts and buried collector cables or abandon them in place as allowed;
- Remove all hazardous materials and transport them to be disposed of by licensed contractors at an appropriate facility in accordance with rules and regulations governing the disposal of such materials; and
- Removed materials shall be recycled and/or salvaged to the maximum extent practical and all waste streams shall be managed in accordance with the State of Maine's solid waste requirements.

Decommissioning means the physical removal of all Project components to a depth of at least 48 inches or to the depth of bedrock, whichever is less, to the extent such components are not otherwise in or proposed to be placed in productive use or otherwise authorized to remain in place by the Maine Department of Environmental Protection. Decommissioning also includes the grading to postconstruction grade and revegetation of all earth disturbed during construction and decommissioning, except for areas already restored.

The decommissioning and restoration processes consist of the removal of above-ground structures; grading, to the extent necessary; restoration of topsoil (if needed) and seeding. The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling and disposal. The Project consists of numerous materials that can be recycled, including steel, aluminum, glass, copper and plastics. In the interest of increased efficiency and minimal transportation impacts, components and material may be stored on-site until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, or disposal. Above-ground structures include the panels, racks, inverters, pads and any interconnection facilities located on the property. At the time of decommissioning, a plan will be submitted for continued beneficial use of any components to be left on site, including roads.

Estimated Costs of Decommissioning

The estimated costs for decommissioning the Gulf Island Solar Project are provided below in Table 1. These estimates are based on the following assumptions:

- While it is not possible to estimate the future costs of decommissioning with any precision, given the costs and salvage values of components today it is reasonable to assume that the cost of decommissioning the solar arrays will be at least somewhat offset by the salvage value of the solar panels and components.
- The baseline estimated costs for decommissioning activities are based on the New York State Energy Research and Development (NYSERDA) guidance document entitled “Decommissioning Solar Panels”.
- Agricultural fencing will be removed to be sold or recycled.
- Racking system will be cut, stacked, and recycled.
- Racking posts will be removed, stacked and recycled.
- AC and DC wiring that is able to be disconnected and removed will be consolidated for recycling. Buried conductors and PVC conduit that would require substantial soil disturbance for removal is excluded.
- One site power poles and medium voltage wiring will be removed.
- Disturbed areas will be backfilled and compacted, then reseeded.

Table 1: Estimated Decommissioning Costs for Penley Corner Solar Project (1 MWac)

Remove Rack Wiring	$1,920
Remove Panels	$1,920
Dismantle Racks	$9,650
Remove Electrical Equipment	$1,440
Breakup / Remove Concrete Pads	$1,200
Remove Racks	$6,100
Remove Cable	$5,070
Remove Ground Screws and Power Poles	$10,800
Remove Fence	$3,870
Grading	$3,120
Seed Disturbed Areas	$195
Truck to Recycle Center	$1,755
TOTAL:	**$47,040**

Financial Assurance and Site Restoration Funding

The total estimated decommissioning cost will be fully funded by the Applicant before construction commences. These funds may be in the form of a performance bond, surety bond, irrevocable letter of credit, or other acceptable form of financial assurance (Financial Assurance).

The decommissioning cost estimate fifteen years after approval of the decommissioning plan, and no less frequently than every five years thereafter. Financial assurance updates must be submitted to the permitting entity by December 31 of the required year. The Financial Assurance will remain in place until the decommissioning work has been completed.

ATTACHMENT 10
OPERATIONS AND MAINTENANCE PLAN

OPERATIONS AND MAINTENANCE MANUAL

1. ARRAY INSPECTION (MODULES, RACKING, SOURCE CIRCUIT WIRE MANAGEMENT & EQUIPMENT GROUNDING)

1.1. Visual Inspection

1.1.1. Module clamps – sample 20% per year to verify clamping locations are secure and sound, so that 100% is inspected every five years. Verify torque of bolts

1.1.2. Rack hardware – sample 20% per year to confirm hardware is in place and tight, so that 100% is inspected every five years

1.1.3. PV modules – verify modules are damage free and watertight, glass is clean and not fractured, back sheet free of damage and shows no discoloration, and module frame remains ridged

1.1.4. Foundation – verify foundation remains erosion free and all metal parts are corrosion free. Verify foundation is properly embedded, with no visible soil erosion or voids

1.1.5. inspection/physical vibration check:

1.1.5.1. Excessive range of motion indicates loose bolts, binders, heads, clamps, modules

1.1.5.2 signs indicate loose bolts

1.2. Electrical Inspection

1.2.1. Source circuit wire management – verify no sagging, strained, disconnected or damaged wires, connectors, and/or inline fuses

1.2.2. Verify equipment grounding is present, secured, and corrosion free

1.2.3. Verify exposed electrical raceways and supports are damage free and corrosion free

1.3. Mechanical Inspection

1.3.1. Periodic inspection of drive shafts, couplers, universal joints and PVC support sleeves to check for wear to components, such as sleeve and coupling hardware, or movement of shaft in excess of design margin (randomized inspection of up to 5% per visit)

2. COMBINER INSPECTION

2.1. Visual Inspection

2.1.1. Exterior inspection, verify that:

(a) Exterior enclosure is free from damage, rust, peeling paint, scratches and dents

(b) Mounting structure and supports have no signs of fatigue

(c) Exposed PVC conduits have no signs of damage, bleaching, cracking, and brittleness and are properly secured

(d) Metallic conduits have no signs of damage or corrosion and are properly secured

(e) Signage is present and legible as documented in as-built drawings

(f) Weatherproofing is functional and intact

(g) Where visible, Equipment grounding is secure and corrosion free

2.1.2. Interior inspection

(a) Perform thermal imaging on all overcurrent protection devices (OCPD) and ~~bolted electrical connections~~ including all terminations with combiner operating at a minimum of 40% of Imp.

(b) Inspect for signs of discoloration and overheating at all conductor terminations and over current protection

(c) Inspect for signs of condensation and verify condensation discharge valve is clear and passable

(d) Inspect surge protection device – verify inspection window of SPD shows appropriate identifier

(e) Verify conductor labeling – present and legible

(f) Inspect seal lacquer (“torque seal”) – visible and unbroken

(g) Weatherproofing – confirm sealing of door gaskets

(h) Verify watertight fittings secure – sealing and tight

(i) Inspect sealing compound in conduits/weatherheads

(j) Inspect and remove insect detritus/nests

(k) Inspect for moisture penetration, identify source if present and remedy

(l) Verify equipment grounding is secure and corrosion free

(m) ~~Verify array map and rack identification is located on combiner door~~. Verify conductor labeling is present and legible

2.2. Electrical inspection

2.2.1. Perform ~~equipment~~ combiner box grounding continuity on 20% per year, so that 100% is inspected every five years

2.2.2. Record Voc of each string w/cell temperature and irradiance.

2.2.3. Visually Confirm and correct terminal torque settings for both sides of all fuse holders, grounded (negative) terminal bar, grounding bar, PV output circuit

2.2.4. Exercise main disconnect switch

3. INVERTER DC DISCONNECT AND INVERTER AC DISCONNECT

3.1. Visual inspection

3.1.1. Exterior inspection

(a) Verify that exterior enclosure is free from damage, rust, peeling paint, scratches and dents

(b) Verify that mounting structure and supports have no signs of fatigue

(c) Verify that exposed PVC conduits have no signs of damage, bleaching, cracking, and brittleness and are properly secured

(d) Verify that signage is present and legible as documented in as-built drawings

(e) Verify that weatherproofing is functional and intact

(f) Where visible Verify that equipment grounding is secure and corrosion free

3.1.2. Interior inspection

(a) Inspect for signs of discoloration and overheating at all conductor terminations and over current protection

(b) Inspect for signs of condensation and verify condensation discharge valve is clear and passable

(c) Inspect surge protection device – verify inspection window of SPD shows appropriate identifier

(d) Verify conductor labeling is present and legible

(e) Inspect seal lacquer ("torque seal") to confirm it is visible and unbroken

(f) Weatherproofing – confirm sealing of door gaskets

(g) Verify watertight fittings are secure – sealing and tight

(h) Thermal imaging of all overcurrent protection devices (OCPD) and ~~bolted electrical connections~~

(i) Inspect and remove insect detritus/nests

(j) Perform thermal imaging on all overcurrent protection devices (OCPD) and bolted electrical connections with switch operating at a minimum of 40% of Imp (DC) or nominal operating current (AC)

3.2. Electrical inspection

3.2.1. Perform disconnect ~~equipment~~ grounding continuity on 20% per year so that 100% is inspected over five years

3.2.2. visually Confirm ~~and correct terminal~~ torque settings for bolted terminals

3.2.3. Exercise each switch

4. INVERTERS

4.1. Visual inspection

4.1.1. Exterior Inspection

(a) Verify that pad is level and any conduit is sound and secure

(b) Inspect for corrosion on all metal parts

(c) Verify that signage is present per as-built drawings and legible

(d) Listen for abnormal sounds while running and during contactor action.

(e) Inside enclosure physical inspection and cleaning

(f) Inspect and remove any insect detritus/nests

(g) Check exterior for corrosion and upon request by Owner perform needed repairs

(h) Clean air intake panels

(i) Remove upper and lower air intake panes: kick plate and air duct intake

(ii) Using brush and vacuum clean the air intakes of the upper and lower panels

(iii) Reinstall upper and lower air intake panels

(iv) Door and latch check

(v) Check seals on door by observing areas under pressure

(vi) Use talcum, Vaseline or wax to maintain seals as permitted by manufacturer

(i) Verify exposed conduits, junction boxes and switchgear are securely mounted

(j) Verify signage is present per OEM requirements and as-built drawings and is legible

4.1.2. Interior Inspection

(a) Remove dirt and dust from the interior of the switch cabinet and from all assemblies (e.g. DC switch-disconnector and AC circuit breaker) with vacuum and dry lint free cloth

(b) Check for leaks. If leaks are present, fix the leaks

(c) Thermal imaging of all overcurrent protection devices (OCPD) that are easily and safely accessible while the unit is running at a minimum of 40%

(d) Verify that caulking (typically foam) is in place at conduit entrance/exit points

4.2. Electrical Inspection

4.2.1. Check for signs of discoloration and overheating at all bolts and terminations

4.2.3. Check the surge arrester.

4.2.4. Inspect wire for abrasion damage especially at conduit entry points

4.2.5. Check for any discoloration of wire insulation, fuse holder, inside box, etc.

4.2.6. Verify that wire labels are intact

4.2.7. Verify wire colored/marking tape is intact

4.2.8. Inspect for moisture and corrosion on terminals

4.2.9. Check locking devices, door stops and hinges

(a) Open and shut door to verify latch, and closing action

(b) Lubricate hinges and latching elements as per manufacturer instructions

(c) Inspect seal lacquer ("torque seal") – visible and unbroken

4.2.10. Verify fans are working

4.2.11. Visually Confirm terminal torque settings for bolted terminals

4.2.13. Confirm switches operations

4.2.14. Visually inspect inverter grounding continuity

5. TRANSFORMER

5.1. Exterior Inspection, confirm:

5.1.1. Oil Level

5.1.2. Oil pressure

5.1.3. Oil Temperature

5.1.4. Oil leaks

5.1.5. Disconnect switch and drain valve secured by lock or special tool required for access

5.1.6. Inspect welded and painted seams transformer tank, radiators, cover and other parts for rust formation.

5.2. Interior Inspection, confirm:

5.2.1. All Primary and Secondary cable terminations

5.2.2. Leaking bushings and spades

5.2.3. Conduct oil sampling and testing per NETA standards after first three months of operation and every three years thereafter, unless test results recommend more frequent sampling

5.2.4. Inspect all welded seams and earth connections.

5.2.5 Perform thermal imaging on electrical connections with transformer operating at a minimum of 40% of nominal operating current

6. GANG OPERATED AIR BREAK SWITCH

6.1. Perform visual inspection

6.2. Confirm switch Operation

6.3. Perform greasing of all mechanical and electrical connections as recommended by manufacturer

6.4 Verify grounding is present and corrosion free

7. MONITORING COMMUNICATION EQUIPMENT

7.1. Verify data monitoring operation, internet connectivity, and backup power supply functionality. Replace battery(ies) as recommended by OEM or when below 80% capacity.

8. SENSOR MAINTENANCE PROCEDURES

Periodically and ideally at each site visit, clean the Pyranometer(s) using water, rubbing alcohol or window cleaner. Never use an abrasive cleaner on the lens. Verify orientation and attachment of pyranometers and module temperature sensors and Met station.

8.1. Pyranometers. Replacement or field calibration of pyranometers every two years using a ‘working standard’ instrument that is of similar or higher quality than the pyranometer being tested. This comparison is done under a clear sky with the sun

near zenith. Any pyranometers removed for repair or replacement shall be replaced with a new pyranometer.

8.2. **Irradiance Sensor**. Annual physical inspection or as otherwise indicated. Recalibration not required unless physical damage has occurred. Physical inspection to occur annually. Cleaning as recommended by manufacturer or if module cleaning is performed.

8.3. **Ambient Temperature Sensor**. Annual physical inspection or as otherwise indicated. Recalibration not required. Upon request by Owner, replace if physical damage has occurred. Physical inspection occurs annually. Cleaning is recommended by manufacturer if module cleaning is required.

8.4. **Module Temperature Sensor**. Annual physical inspection or as otherwise indicated. Verify adhesion to module. Recalibration not required. Upon request by Owner, replace if physical damage has occurred. Physical inspection to occur annually.

9. FENCE AND SECURITY EQUIPMENT

9.1. A perimeter fence line and gate inspection is to be performed during all scheduled and unscheduled maintenance visits. Verify all gates are secure from unauthorized entry. Upon request by Owner, if holes or defects are noted, make necessary repairs.

10. VEGETATION/EROSION/SIGNAGE MANAGEMENT

10.1. Vegetation

10.1.1. Fertilizing and Liming.

As needed per recommendations based upon analysis of soil samples taken and tested during project construction or as required to maintain vegetation growth.

10.1.2. Vegetation Control

As-needed mowing and/or grazing to maintain a height a minimum of six inches below the lowest edge of modules (or greater if required by module or racking/tracking manufacturer), or if identified as necessary by vegetation management consultant.

10.1.3. Vegetation Buffer

Maintain required vegetation buffer in accordance with the applicable ground lease.

10.1.4. Herbicide.

If permitted, applied as needed. Applied underneath modules and at base of perimeter fencing, and used in conjunction with weed-eating as needed to prevent overgrowth above panels, causing shading or growth within fence fabric.

10.1.5. Debris and Trash

Collected across the facility and in front and/or bordering residential property of the entire site at each scheduled vegetation management site visit.

10.2. Road maintenance and erosion control within array

During vegetation management site visits all erosion is identified and repaired as needed.

Silt fences installed during the construction phase shall be maintained until vegetation has recovered from site disturbance and associated permits are closed out.

Premises are reviewed periodically for management of erosion control procedures. If necessary, remediation accomplished by the addition of soil, matting and seeding.

10.3. Signage

Visually check that signage per as-built drawings is in place at each site visit and is legible; repair as necessary.

11. WARRANTY MAINTENANCE PROCEDURES

Perform the warranty maintenance services as described in the Operations and Maintenance Agreement and exhibits thereto.

Maintain an inventory of spare parts (after taking into account the initial set of spare parts acquired by Owner) in all respects in a prudent and reasonable manner and in order to support the performance of maintenance and other services hereunder.

12. UNSCHEDULED MAINTENANCE AND EMERGENCY SERVICES

12.1. Operator shall perform, or designate a Subcontractor to perform, all unscheduled maintenance and emergency services and is responsible for labor and materials as a result thereof.

12.2 Operator shall comply with all requirements of the Police and Fire Departments regarding emergency access to the job site, including snow removal.

13. MANUFACTURER'S MAINTENANCE AND CALIBRATION REQUIREMENTS

The manufacturer's recommended maintenance and calibration requirements are the baseline for operations and maintenance of the inverters, combiners, trackers (if applicable) and modules. The manufacturer's manuals are attached as Attachment 1 to this manual.

14. MAINTENANCE SCHEDULE

	SECTION REF.	SERVICE DESCRIPTION	SERVICE FREQUENCY/RESPONSE TIME
MODULES, RACKING, EXTERNAL WIRING			
	1.1	Visual inspection of modules, rack, external wiring (source circuits & equipment grounding), and removal of any animal nests that interfere with productivity	1X per year
	1.2	Electrical inspection of modules, rack, external wiring (source circuits & equipment grounding)	1X per year
	1.3	Mechanical inspection of drive shafts, couplers, universal joints and PVC support sleeves	Whenever on site
COMBINERS			
	2.2	Visual inspection of combiners	1X per year
	2.3	Electrical inspection of combiners	1X per year
INVERTER EQUIPMENT DISCONNECTS			
	3.1	Visual inspection	1X per year
	3.2	Electrical inspection	1X per year
INVERTERS			
	4.1	Visual inspection	1X per year
	4.2	Electrical inspection	1X per year

TRANSFORMER			
	5	Physical inspection and maintenance	2X per year
GANG OPERATED AIR BREAK SWITCH			
	6	Physical inspection and maintenance	2X per year
MONITORING COMMUNICATION EQUIPMENT			
	7	Verify communication equipment	Monthly
SENSOR MAINTENANCE PROCEDURES			
	8.1	Pyranometers	Every other year
	8.2	Irradiance sensor	As indicated, but at least 1x per year
	8.3	Ambient temperature sensor	As indicated, but at least 1x per year
	8.4	Module temperature sensor	As indicated, but at least 1x per year
FENCE AND SECURITY EQUIPMENT			
	9.1	Physical inspection or by remote monitoring, as applicable	Fence perimeter checked during all scheduled and unscheduled maintenance visits.
VEGETATION/EROSION/SIGNAGE MANAGEMENT			
	10.1.1	Fertilizing and liming	As recommended based upon soil sample testing
	10.1.2	Mowing, grazing, and reseeding	Mowing no more than twice a year and/or grazing as allow by Maine BMPs. Reseeding each Spring if necessary.

	10.1.3	Herbicide	As-needed
	10.1.4	Debris and trash collection and removal	At each scheduled vegetation management site visit
	10.2	Road maintenance and erosion control	As-needed or in conjunction with vegetation management procedures
	10.3	Signage inspection and repair	At each site visit
WARRANTY MAINTENANCE PROCEDURES			
	11	As indicated per manufacturer's manuals and/or warranties	Refer to manufacturer's manuals and warranties
CONTRACTUAL OBLIGATIONS			
	12	Reporting obligations	Monthly, Quarterly and Annually
	12	Maintain list of components and allocated spares (if any), with serial numbers	Incorporated into monthly report
	12	Report incidents resulting in injury to persons or damage to the project	Within 3 days of incident
CALIBRATION PROCEDURES			
	13	See manufacturer's recommendations	As indicated per manufacturer

ATTACHMENT 11
INSPECTION AND
MAINTENANCE PLAN

EROSION AND SEDIMENTATION CONTROL INSPECTION AND MAINTENCE PLAN

AUBURN SOLAR PROJECT

E Waterman Road
Auburn, Maine

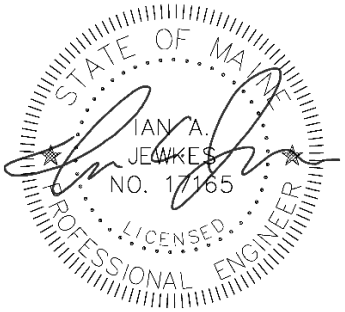
Prepared For:
BlueWave Solar

BLUEWAVE

Prepared By:

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Date:
September 27, 2022



KREBS & LANSING

Table of Contents

1.0 – Introduction Page 1

2.0 – Project Description Page 1

3.0 – Required Permits Page 2

4.0 – Responsible Parties Page 2

5.0 – Inspection and Maintenance Page 3

5.1 – During Construction Page 3

5.2 – Post-Construction Page 4

6.0 – Housekeeping Standards Page 6

7.0 – References Page 6

List of Appendices

Appendix A – Plans

Appendix B – Construction Inspection Forms

Appendix C – Erosion and Sediment Control Measures Inspection Frequency

Appendix D – Recommended Inspection and Maintenance for Stormwater Management Structures

Appendix E – Housekeeping Performance Standards

Section 1.0 – Introduction

The following plan outlines anticipated inspection and maintenance procedures for the proposed erosion and sediment control measures, as well as stormwater management systems for the proposed Auburn Solar project. This document also outlines several housekeeping requirements that shall be followed by the Contractor(s) and Project Owner during and after construction. The described procedures must be followed to ensure proper function of the stormwater measures as designed and to mitigate the risk of adverse impacts to the natural environment in the vicinity of the project.

This plan and the project design have been prepared in accordance with the 06-096 Maine DEP Chapter 500 Stormwater Management Rules and the Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual. In some instances, there may be additional measures required beyond what has been presented, due to the risk of unexpected conditions or unknown variables on the project site. If necessary, refer to the most recent edition of the Maine Erosion and Sediment Control BMP manual and/or the Maine Stormwater Management Design Manual published by Maine DEP.

Section 2.0 – Project Description

The proposed project is a 1.18 MW AC solar-generation facility located in Auburn on an existing agricultural field adjacent to Gulf Island Pond on the Androscoggin River. The project is accessed from E Waterman Road. The project proposes to construct an 18’ wide gravel road as an access road into the site along the eastern limits of the parcel. For more information about the project, the site plans and project details can be found attached to this plan in Appendix A.

The development of the project site includes general construction work such, installation of project fences, construction of gravel access roads and temporary construction entrances, use of temporary staging areas, and other typical construction activities. No tree clearing is required for the project, and environmental impacts have been avoided to the greatest extent possible. Specific tasks needed for the solar array construction include driving of support posts and construction of solar panel racking, installation of solar panels, construction of equipment pads/ installation of project transformers and inverters, trenching for underground conduit, and installation of power poles for overhead collection lines. Restoration of disturbed areas will occur throughout construction as well as final stabilization after the construction of the project is complete.

In addition, the project will utilize temporary erosion and sediment control BMPs during construction, with the proposed permanent stormwater management structures providing treatment and control during the operational life of the project. Construction of the project will be phased as such that no more than 5 acres of land are disturbed at any one time on the project site. Any disturbed areas within the active construction area will be stabilized before a

new phase of construction will commence. Refer to Appendix A for supporting site plans and details associated with the proposed erosion, sediment control, and stormwater BMPs to be utilized during and after construction.

Section 3.0 – Required Permits

The following is a list of Municipal, State and Federal Permits required for the proposed solar project.

Municipal

Town of Auburn Site Plan Permit

State of Maine

Stormwater Management Law – Permit by Rule

Federal

None

Section 4.0 – Responsible Parties

Space provided below for future determination of responsible parties.

Plan Preparer/ Project Design Engineer:	Ian A. Jewkes, Maine PE #17165 Krebs and Lansing Consulting Engineers, Inc. 164 Main Street, Suite 201 Colchester, Vermont 05446 (802) 878-0375
Project Developer:	BlueWave Solar 501 Boylston Street, Floor 10 Boston, Massachusetts 02116
General/ Civil Contractor:	_____ _____ _____ _____ _____

Third Party Inspector _____
_____
_____
_____
_____

Post-Construction Stormwater Inspector: _____
_____
_____
_____
_____

During construction the General/ Site Contractor will be responsible for implementing the erosion and sediment control BMPs as laid out on the site plans, as well as inspection and routine maintenance of the BMPs to verify their integrity and ensure proper function. The owner will retain a third-party inspector to perform weekly inspections of the erosion and sediment control BMPs during construction, including documentation using the attached inspection forms (Appendix B).

Post-construction stormwater BMPs inspection, maintenance, reporting and required recertification will be the sole responsibility of the Owner(s) or their representatives.

Section 5.0 – Inspection and Maintenance

- ### Section 5.1 – During Construction

  During the construction process, inspection and maintenance of erosion and sediment controls is an important part of keeping the construction site in good condition and identifying early signs of potential erosion and sediment control problems. During construction it is the Contractor's responsibility to ensure that the outlined erosion and sediment control BMPs are in place before construction begins, and to ensure that they remain in working order throughout the remainder of construction activities and until permanent stabilization has been achieved. These BMPs should be inspected at least once a week, as well as within a 24-hour window both before and after a storm event i.e. rainfall, and before removal of the BMPs after permanent stabilization has been achieved. These inspections should be performed by someone who is knowledgeable of erosion control measures, Maine DEP stormwater standards, and any applicable conditions associated with the project permit(s).

  If it is determined that the BMPs need to be maintained or repaired, the repair work should begin reasonably soon after discovery of the problem, but no later than the end

of the next work day. If additional BMPs or significant modifications are deemed necessary, the work should be completed within 7 calendar days, or before any predictable storm events within that time frame, if it is reasonable to do so.

The Contractor should be diligent in documentation and record-keeping of any inspection and maintenance tasks performed. The inspection forms attached in Appendix B should be used to record any major observations or corrective actions taken, including the name and qualifications of the person performing the inspection, and the date the inspections or corrections were performed. A log of the inspection forms should be maintained by the project Owner for at least five years following the completion of permanent stabilization and removal of the temporary erosion and sediment control measures. A copy of this log must be available to the Maine DEP upon request.

Some of the site-specific erosion and sediment control BMPs proposed to be used on site include, but are not limited to, the following;

- Sedimentation Barriers (Silt Fence, Sediment Control Rolls/Socks & Erosion Control Mix Berm)
- Stabilized Construction Entrance
- Temporary Construction Staging Area
- Slope Stabilization Blanket
- Stone Check Dam
- Temporary or Permanent Grass/Stone Lined Swales

More details on activities related to the inspection and maintenance of specific BMPs, as well as the frequency of such activities, can be found in Appendix C.

- **Section 5.2 – Post-Construction**

The long-term operation and maintenance of stormwater management systems is essential to the proper function of these systems as they were designed. Although the site will have been stabilized, the risk of erosion or other adverse environmental impacts could still be present if these systems were to fail and the stormwater runoff from the developed areas was not managed properly. Continued inspections and maintenance after the completion of construction will be carried out to verify BMPs stay in effective operating condition.

Any identified problems should be fixed as quickly as reasonably possible. The inspections, as well as any corrective actions taken, should be documented using the attached post-construction inspection forms found in Appendix B. This documentation should include the name and qualifications of the person performing the inspection, the date the inspections or corrections were performed, and a description of the major observations and any corrective action taken, including where sediment deposits or

waste were properly disposed of, if applicable. A log of the inspection forms should be maintained by the project owner for at least five years following the completion of the relevant work. A copy of this log must be available to the Maine DEP upon request.

Some of the site-specific stormwater BMPs proposed to be used on site include the following;

- Vegetated Meadow Buffers

At a minimum, the following inspections should be done seasonally on site by the owner or their designated representative who is familiar with the design, stormwater management BMPs and project permits, as well as any conditions which apply.

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
- Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after heavy rains to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.
- Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet. There are not culverts proposed for this project but there are some on site which should be reviewed seasonally.
- Inspect resource and treatment buffers once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turnouts must be used to ensure a more even distribution of flow into a buffer. Check down slope of all spreaders and turnouts for erosion. If erosion is present, adjust or modify the spreader's or turnout's lip to ensure a better distribution of flow into a buffer. Clean out any accumulation of sediment within the spreader bays or turnout pools.

In addition to any maintenance needs which may arise on site from the quarterly inspections, the following maintenance must be performed regularly on site.

- Grading of gravel roads, or grading of the shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder.
- Manage vegetated meadow buffers. The meadow area within and underneath the solar array racking will be maintained as the designated meadow buffer treatment areas, and is proposed to be mowed no more than twice per year.

For more details on specific inspection and maintenance actions for stormwater management systems, as well as recommended inspection frequency, see Appendix D.

Section 6.0 – Housekeeping Standards

The recommended housekeeping performance standards, as found in the Maine DEP Chapter 500 Stormwater Management Rules are attached to this plan in Appendix F. The applicable standards apply to the proposed project both before and after construction. We have also outlined them on the plan details in Appendix A of this submission.

Additional care should be taken to maintain the environmental integrity of the site and avoid undue environmental impacts outside of the limit of disturbance associated with the project. Importance should be placed on maintaining respect for abutting properties and the local surroundings in order to mitigate the impact that development could have in a previously natural/ agricultural landscape.

Section 7.0 – References

The following sources were utilized in development of the stormwater design and inspection and maintenance plan.

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
  http://legislature.maine.gov/statutes/38/title38sec420-C.html
  http://legislature.maine.gov/statutes/38/title38sec420-D.html

- 06-096 Chapter 500 – Stormwater Management
  http://www.maine.gov/sos/cec/rules/06/096/096c500.docx

- General Permit – Construction Activity
  Maine Pollutant Discharge Elimination System (MPDES)
  https://www.maine.gov/dep/land/stormwater/construction.html

- Maine Erosion and Sediment Control Best Management Practices (BMPs)
  Manual for Designers and Engineers
  https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf

- Maine Stormwater Best Management Practices (BMPs) Manual
  https://www.maine.gov/dep/land/stormwater/stormwaterbmps/

- Five-year Recertification for Long-term Maintenance
  of Stormwater Management Systems
  https://www.maine.gov/dep/land/stormwater/stormwaterbmps/five-year-recertification.html

Appendix A

See Attached Plans Provided with Permit by Rule Submission

C-1.00 - Overall Site Plan

C-2.00 Pre-Development Drainage Plan

C-2.01 Post-Development Drainage Plan

C-3.00 - Erosion and Sediment Control and Stormwater Details

C-3.01 - Erosion and Sediment Control and Stormwater Details

C-3.02 - Details

C-3.03 - Details

Appendix B

Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL					
General Information:					
Site Name:	Date:		Inspected by:		
Owner:					
Retained 3PI:	Last Rain Date:			Amount:	
Reason for Inspection:	Weekly	Winter	Final	Rain Event	Complaint
Description of disturbed area:					
Photos:					

	YES/NO/NA	COMMENTS
1. Is an Erosion and Sediment Control Plan available?		
ESC plan on-site and followed		
Other:		
2. Are all erosion control practices installed properly, maintained and functioning?		
Disturbed areas stable		
Concentrated flow inlet/outlet protection		
All areas at final grade		
Disturbed dormant areas stabilized		
Access roads and parking		
Hillsides and stockpiles		
Other:		
3. Are all sedimentation control practices installed properly, maintained and functioning?		
Construction entrance		
Sedimentation basins/traps/diversions		
Perimeter controls		
Check dams		
Other:		
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?		
Sedimentation/erosion in ditches		
Tracked Sediment or dust at exits		
Hazardous material storage and spill control practices		
Waste management (concrete, hazardous material, etc.)		
Other:		
5. Violation, Corrective Actions, Recommendations		
Sediment discharged from site?		
Corrective action required?		
Site compliant with all permits?		
Notice of violation or stop work order issued?		
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)		

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Appendix C

Erosion and Sediment Control Measures
Inspection Frequency

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized–channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

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Appendix D

Recommended Inspection and Maintenance for Stormwater Management Structures

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCH BASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

Dry Pond Maintenance:
Basins should be inspected annually for erosion, destabilization of side slopes, embankment settling and other signs of structural failure, and loss of storage volume due to sediment accumulation. Corrective action should be taken immediately upon identification of problems.

- *Maintenance Agreement:* A legal entity should be established or inspecting and maintaining any detention basin. The legal agreement should list specific maintenance responsibilities (including timetables) and provide for the funding to cover long-term inspection and maintenance.
- *Inlet & Outlet Inspections:* The inlet and outlet of the basin should be checked periodically to ensure that flow structures are not blocked by debris. Inspections should be conducted monthly during wet weather conditions (March to November). Flow structures should be easily accessible for inspection and the removal of debris blockage during storm conditions.
- *Embankment Maintenance:* Embankments should be maintained to preserve their integrity as impoundment structures, including: mowing, control of woody vegetation, rodent, and outlet maintenance and repair. Basins should be mowed no more than twice a year during the growing season to maintain maximum grass heights less than 12 inches. All accumulated trash and debris should be removed.
- *Sediment Removal:* Sediment should be removed from the pretreatment structure at least annually and from the basin when necessary.

Vegetated Buffer Maintenance:
Buffers should be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched.

- *Mowing:* Meadow buffers may be mown no more than twice per year. They may not be maintained as a lawn.
- *Access and Use:* Buffers should not be traversed by all-terrain vehicles or other vehicles. Activities within buffers should be conducted so as not to damage vegetation, disturb any organic duff layer, or expose soil.
- *Model Maintenance Plan:* The following techniques should be followed to maintain the integrity of buffers from initial planning through post-construction:
    - *Planning Stage:*
        - ✓ Require buffer limits on all clearing/grading and erosion control plans.
        - ✓ Record all buffer boundaries on official maps and site plans.
        - ✓ Clearly establish acceptable and unacceptable uses for the buffer, and include these uses in deed restrictions and conservation easements.
        - ✓ Establish clear vegetation targets and management rules for the buffer.
        - ✓ Provide incentives for owners to protect buffers through perpetual conservation easements rather than deed restrictions.
    - *Construction Stage:*
        - ✓ Pre-construction stakeout of buffers to define the Limit of Disturbance (LOD).
        - ✓ Set LOD based on drip-line of the forested buffer.
        - ✓ Familiarize contractors with LOD and buffer limit.

- ✓ Mark the LOD with barriers or signs to exclude construction equipment.
- o *Post-Development Stage:*
  - ✓ Mark buffer boundaries with permanent signs (or fences) describing use.
  - ✓ Educate property owners/homeowner associations on the purpose, limits and allowable uses of the buffer.
  - ✓ Conduct periodic "buffer walks" to inspect the condition of the buffer network.
  - ✓ Replant unused meadow buffers with trees and shrubs, if possible.

Level Lip Spreader Maintenance:

Long term maintenance of the level spreader is essential to ensure its effectiveness. Spreaders constructed of wood, asphalt, stone or concrete curbing also require inspection and maintenance.

- *Inspections:* At least once a year and following major storms, the level spreader pool should be inspected for sand accumulation and debris that may reduce its capacity.
- *Sediment Removal:* Sediment build-up within the swale should be removed when it has accumulated to approximately 25% of design volume or channel capacity. Dispose of the sediments appropriately.
- *Debris:* Remove debris such as leaf litter, branches and tree growth from the spreader.
- *Mowing:* Vegetated spreaders may require mowing.
- *Snow Storage:* Do not store snow within the area of the level spreader.
- *Level Spreader Replacement:* The reconstruction of the level spreader may be necessary when sheet flow from the spreader channelize into the buffer.

Appendix E

Housekeeping Performance Standards

APPENDIX C. Housekeeping

These performance standards apply to all projects except for stormwater PBR projects.

1. **Spill prevention.** Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

   NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at : http://www.maine.gov/dep/spills/emergspillresp/

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. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

   See Appendix D for license by rule standards for infiltration of stormwater.

   NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

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, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

   NOTE: Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. **Debris and other materials.** Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

   NOTE: To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable

provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering. Excavation 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 removed from the ponded area, either through gravity or pumping, 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.

NOTE: Dewatering controls are discussed in the "Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection."

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 Appendix (C)(3);

(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 Appendix C(5));

(k) Potable water sources including waterline flushings; and

(l) 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 Appendix C (6). 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.

City of Auburn, Maine
Office of Planning and Permitting
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

To: Auburn Planning Board
From: Natalie Thomsen, Planning Coordinator
Re: Soper Mill Brook, LLC- Penley Corner Solar Project: Site plan review application submitted by Sean Murphy of Flycatcher LLC, on behalf of the owner, Soper Mill Brook, LLC a subsidiary of BlueWave Energy. The applicant is proposing a 1 MW DC ground-mounted solar array on approximately 10.91 acres. The subject property is located at 371 Penley Corner Road, Tax Map Lot 137-026, and within the Agriculture and Resource Protection Zoning District.
Date: March 11, 2025



I. PROPOSAL: Soper Mill Brook, LLC, a subsidiary of BlueWave Energy, seeking Site Plan/Special Exception pursuant to Sec. 60-45 of the Auburn Code of Ordinances to construct a 1.39 MW-DC ground-mounted solar energy facility on approximately 10.91 of the 108.6 acre lot located on Penley Corner Road, Auburn (City Assessor's Parcel ID: 137-026). The project will utilize single-axis trackers with a helical ground-screw foundation and racking system. The proposed limit of disturbance is approximately 10.91 acres.

II. ZONING CONSIDERATIONS:

Chapter 60, Article XVIII: Solar Energy Generating Systems

(1) **Yard Requirements**: Solar energy generating systems in the AG Zone must comply with specific setback requirements. A minimum rear yard setback of 50 feet or 20% of the average lot depth (whichever is less), a minimum side yard setback of 5 feet plus an increase of one foot for every three feet of street frontage over 60 feet (up to a maximum setback of 35 feet), and a minimum front yard setback of 35 feet or 15% of the average lot depth (whichever is less) are required. The applicant has provided a site plan demonstrating compliance with these setbacks.

(2) **Lot Coverage**: Photovoltaic cells, panels, arrays, and inverters are not considered impervious areas, provided the soil underneath remains vegetated in accordance with Chapter 500 stabilization standards. The AG Zone allows a maximum of 30% impervious lot coverage. The total project area is 10.91 acres, with 0.79 acres of impervious surface, which is well within the allowable limit.

(3) **Height Regulations**: The total height of the solar energy generating system and all appurtenant structures, including equipment shelters, storage facilities, transformers, and substations, shall not exceed 30 feet. The proposed solar arrays will have a maximum height of 8 feet, complying with this requirement.

(4) **Technical and Safety**: A final as-built site plan must be provided to the Fire Prevention Officer, indicating all shut-down mechanisms for emergency response. The applicant has been in contact with the Fire Prevention Officer and will submit the as-built plan upon project completion.

(5) **Maintenance**: The facility must be maintained in good condition, including infrastructure and access ways. The applicant has submitted an Operation and Maintenance Plan as part of the application, which outlines maintenance procedures throughout the project's life. Proper maintenance includes ensuring functionality, site security, and adherence to fire safety regulations.

(6) **Glare**: Solar panels are designed to absorb sunlight rather than reflect it; however, their placement should minimize any glare impact on nearby properties or roadways. The applicant states in their narrative that the majority of the project is set back from the roadway and will not be visible to passing vehicles. The site is not within a two-nautical-mile radius of the Auburn Lewiston Municipal Airport, so additional glare mitigation measures are not required.

(7) **Visual Impact**: The ordinance requires reasonable efforts to minimize visual impact through screening, considering site topography and surrounding developments. The project site is naturally screened due to setbacks from the roadway and existing topography. The applicant proposes a 7-foot fence surrounding the project but no additional landscaping.

(8) **Lighting**: Lighting must be limited to operational and safety requirements and shielded from abutting properties. No exterior lighting is proposed except for a downward-facing light at the equipment area for nighttime maintenance and repairs.

(9) **Unbuilt Areas**: Where possible, in unbuilt areas, solar energy generating system installations must maintain ground permeability. Clearing of natural vegetation should be limited to what is necessary for construction, operation, and maintenance. The applicant has indicated that vegetation removal will be minimal, with no revegetation plan proposed.

(10) **Operation and Maintenance Plan**: An Operation and Maintenance Plan must be submitted, detailing long-term maintenance measures, including safe access to the installation and stormwater controls. The applicant has provided an Operations and Maintenance Plan included in the submission materials.

(11) **Standard Compliance**: All solar energy generating systems must comply with the National Fire Protection Association (NFPA) and National Electrical Code (NEC). The applicant is working to ensure full compliance with fire and electrical safety standards.

Sec. 60-1507: Abandonment & Decommissioning

Solar facilities must provide a financial surety to cover future removal costs and site restoration upon decommissioning. The owner or operator must remove all solar photovoltaic installations, structures, and equipment within six months of the system reaching the end of its useful life. The applicant has submitted a decommissioning plan but has not yet provided a financial surety amount. As a condition of approval, the applicant must submit an acceptable financial surety prior to receiving building permits.

The applicant has provided a Decommissioning Plan, which outlines the removal and proper disposal of all solar infrastructure upon the system's end-of-life. While a financial surety amount has not yet been submitted, the applicant has agreed to provide an acceptable financial surety prior to receiving a building permit, ensuring funds are available for site restoration and infrastructure removal. This financial guarantee will ensure compliance with local decommissioning requirements and prevent long-term environmental impacts.

The applicant has submitted a Solid and Hazardous Waste Disposal Plan, ensuring compliance with Maine's Chapter 850 (Hazardous Waste), Chapter 851 (Waste Generators), and Chapter 400 (Solid Waste Management) regulations. The plan outlines the proper disposal of solid and hazardous materials, including the recycling of solar panels and other recyclable components while ensuring that non-recyclable materials are disposed of at authorized facilities. As part of this plan, all waste generated during decommissioning will be managed in accordance with local, state, and federal environmental guidelines.

Chapter 60, Article IV, Division 2 – Agriculture and Resource Protection District, Sec. 60-145: Use Regulations

(a) Compliance with Article XVIII: The ordinance requires that solar energy generating systems comply with the provisions of Article XVIII. The proposed project meets all applicable standards under Article XVIII, including lot coverage limits, height restrictions, maintenance requirements, and decommissioning procedures. The site plan has been designed to minimize environmental and visual impacts while maintaining compliance with zoning provisions.

(b) Setbacks:

1. **Rear Yard Requirement:** The ordinance mandates a minimum rear yard setback of 25 feet behind all structures associated with a solar energy generating system. The applicant's site plan meets this requirement, ensuring compliance.
2. **Side Yard Requirement:** A minimum distance of 15 feet is required between any solar structure and the side property line. The proposed project adheres to this setback, with no encroachments.
3. **Front Yard Requirement:** A minimum front yard setback of 25 feet or 25% of the average lot depth, whichever is less, is required. The applicant's site plan confirms compliance with this requirement.

(c) Lot Coverage: The ordinance states that lot coverage shall not exceed 30% of the total parcel area. The proposed project covers 0.79 acres of impervious surface on a 10.91-acre lot, remaining well within the allowable limit.

(d) Total Land Area: Once 1% of the AG District has been developed into solar energy generating systems, the Planning Board must determine whether additional projects will materially alter the district's land use stability. The proposed project is below the 1% threshold, and it is not expected to impact agricultural land use patterns negatively.

(e) Grid Infrastructure: The ordinance encourages projects to limit the need for grid extensions. The applicant has not proposed any major grid extensions, demonstrating compliance with this requirement.

(f) Solar Development on Forestland or Prime Farmland:

1. The ordinance requires that solar projects avoid unnecessary soil erosion or loss. The applicant has designed the site to minimize disturbance and has indicated that soil integrity will be maintained.
2. Upon decommissioning, the Planning Board must review the site for conversion back to farmland or forestland. The applicant's decommissioning plan addresses site restoration requirements.

3. A wildlife habitat survey is required if the project is located in essential habitat. The site is not located in an essential habitat site identified by the IF&W maps.
4. A vegetative cover plan should demonstrate the preservation of prime soils and replanting of disturbed forested areas. The applicant has not proposed replanting, as they are proposing very limited disturbance of forested areas and it will not be required.

(g) Prime Soils: Solar energy generating systems in the AG District require a soil analysis to determine if prime farmland is present. Least productive soils should be prioritized for development unless non-prime farmland is unavailable. The solar project is not located on any prime farmland, but is it located on a portion of statewide significant land.

Difference between Prime Farmland and Soils of Statewide Significance:

Prime Farmland: Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses (the land could be in cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.

Soils of Statewide Significance: Additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

(h) Siting and Construction Requirements:

1. The overall facility and panels must follow the existing land contours. The site plan indicates that the project design aligns with existing topography.
2. Pile-driven or ballast block footing must be used to minimize soil disturbance. The applicant has confirmed that pile-driven foundations will be used.
3. Infrastructure should avoid steep slopes. The project is sited on relatively flat land, complying with this provision.
4. A topsoil maintenance plan is required.

The applicant has provided a Topsoil Maintenance Plan that addresses erosion control and soil conservation throughout the project's lifespan. The plan includes segregation of stripped topsoil, designated stockpile areas, and reseeding procedures to minimize soil loss and maintain site stability. Additionally, erosion control measures will be implemented during construction to prevent sediment runoff, and disturbed areas will be restored through revegetation efforts following project completion.

The proposed project incorporates a Vegetative Cover Plan that supports pollinator-friendly habitats while maintaining ground permeability in unbuilt areas. The applicant has indicated that the project site will remain vegetated wherever feasible, with limited disturbance beyond necessary construction, operation, and maintenance areas. This plan aligns with environmental best practices to promote soil stabilization and ecological health while minimizing disruption to local wildlife habitats.

(i) Operations and Maintenance Plan:

The applicant has submitted an Operations and Maintenance (O&M) Plan that prioritizes agricultural co-use and long-term site sustainability. The plan outlines provisions for integrating sheep grazing, inter-row crop growth, and pollinator-friendly habitat, ensuring the project aligns with Maine's dual-use solar land management principles. The applicant has also committed to annual reporting on agricultural co-use activities, ensuring ongoing compliance with local land use policies.

III. **DEPARTMENT REVIEW:**

a. *Police* – No comments received.
b. *Auburn Water and Sewer* – No comments received.
c. *Fire Department* – Application meets NFPA safety requirements and submitted a Vegetation Management Plan to reduce fire risk. The updated road access width meets emergency access standards.
d. *Code Enforcement* – No comments received.
e. *Engineering* – No comments

IV. PLANNING BOARD ACTION

The Planning Board should review this application under **Chapter 60, Article XVI – Site Plan Review** and **Article XVIII – Solar Energy Generating Systems** to determine compliance with city ordinances.

> **Sec. 60-1277**. – Objective. In considering a site plan, the Planning Board shall make findings that the development has made provisions for:
> (1) Protection of adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against artificial and reflected light, sight, sound, dust and vibration; and preservation of light and air;
> (2) Convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas;
> (3) Adequacy of the methods of disposal for wastes; and
> (4) Protection of environment features on the site and in adjacent areas.
>
> **Sec. 60-1336.** – As conditions prerequisite to the granting of any special exceptions, the board shall require evidence of the following:

(1) That the special exception sought fulfills the specific requirements, if any, set forth in the zoning ordinance relative to such exception.

(2) That the special exception sought will neither create nor aggravate a traffic hazard, a fire hazard or any other safety hazard.

(3) That the special exception sought will not block or hamper the master development plan pattern of highway circulation or of planned major public or semipublic land acquisition.

(4) That the exception sought will not alter the essential characteristics of the neighborhood and will not tend to depreciate the value of property adjoining and neighboring the property under application.

(5) That reasonable provisions have been made for adequate land space, lot width, lot area, stormwater management in accordance with section 60-1301(14), green space, driveway layout, road access, off-street parking, landscaping, building separation, sewage disposal, water supply, fire safety, and where applicable, a plan or contract for perpetual maintenance of all the common green space and clustered off-street parking areas to ensure all such areas will be maintained in a satisfactory manner.

(6) That the standards imposed are, in all cases, at least as stringent as those elsewhere imposed by the city building code and by the provisions of this chapter.

(7) That essential city services which will be required for the project are presently available or can be made available without disrupting the city's master development plan.

V. STAFF RECOMMENDATION

Staff recommends **approval** of the Soper Mills Solar Project with the following conditions:

- No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.
- Prior to any blasting activities, the applicant shall receive a blasting permit from the City of Auburn Planning, Permitting, and Code Department.
- Prior to the final electrical approval, the applicant shall submit a final as-built site plan to the Fire Prevention Officer, indicating all shut-down mechanisms for emergency response.
- Prior to the issuance of a building permit, the applicant shall submit an acceptable financial surety.

Suggested Motions:
I make a motion that the proposal meets the requirements of Sections 60-1277 and 60-1336 and approve the Site Plan by Soper Mill Brook, LLC, a subsidiary of BlueWave Energy, for the construction of a 1 MW-DC ground-mounted solar energy generating system on approximately 10.91 acres at 371 Penley Corner Road, Tax Map Lot 137-026, located in the Agriculture and Resource Protection Zoning District. The proposed project has met the standards pursuant to Chapter 60, Article XVI, Division 2 – Site Plan Review and Division 3 – Special Exception, with the following conditions:

A. *No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.*
B. *Prior to any blasting activities, the applicant shall receive a blasting permit from the City of Auburn Planning, Permitting, and Code Department.*
C. *Prior to the final electrical approval, the applicant shall submit a final as-built site plan to the Fire Prevention Officer, indicating all shut-down mechanisms for emergency response.*
D. *Prior to the issuance of a building permit, the applicant shall submit an acceptable financial surety.*

Natalie Thomsen
Planning Coordinator

Lower Falls Landing – 106 Lafayette Street, Suite 1C
Yarmouth, Maine 04906
info@flycatcherllc.com - 207-217-0959

January 9, 2025

Natalie Thomsen
Planning Coordinator
City of Auburn
60 Court Street
Auburn, Maine 04210

Subject: Soper Mill Brook**, LLC – Penley Corner Solar Project**
Development Review Application – Letter of Intent

Dear Ms. Cook,

On behalf of Soper Mill Brook, LLC, a subsidiary of BlueWave Energy (Applicant), Flycatcher LLC (Flycatcher) is pleased to submit this Development Review application for the proposed Penley Corner Solar Project (Project) to be located at 371 Penley Corner Road in Auburn.

Please find enclosed the required application form and the following attachments:

- Project Description, including requested waivers (Provided as Attachment 1)
- Narrative on Standards (Provided as Attachment 2)
- Location Maps (Provided as Attachment 3)
- Site Plans (Provided as Attachment 4)
- Option Agreement (Provided as Attachment 5)
- Soils Report (Provided as Attachment 6)
- Financial Assurance Letter (Provided as Attachment 7)
- Stormwater Modeling Report generated using HydroCAD (Provided as Attachment 8)
- Decommissioning Plan (Provided as Attachment 9)
- Operations and Maintenance Plan (Provided as Attachment 10)
- Erosion and Sediment Control Inspection and Maintenance Plan (Provided as Attachment 11)
- Maine Department of Inland Fisheries and Wildlife Correspondence (Provided as Attachment 12)
- Geotechnical Report and Recommendation (Provided as Attachment 13)

Project Overview:
Bluewave is proposing a 1.39 MW-DC ground mounted solar plant utilizing single axis trackers with a proposed helical ground-screw foundation and racking system whose limit of disturbance will be 10.91-acres. The Project has been sited to avoid and minimize environmental and visual impacts. The Project is further described in the attached documents.

Thank you for your timely review of the enclosed materials. Please don't hesitate to contact me at 207-400-6161 or sean@flycatcherllc.com if you have any questions regarding the Project.

Respectfully submitted,



Sean Murphy
Senior Project Manager

Cc: Colin Sexton, Soper Mill Brook, LLC

City of Auburn, Maine
Planning & Permitting
Eric Cousens, Director
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

Development Review Application

PROJECT NAME: Penly Corner Solar

PROPOSED DEVELOPMENT ADDRESS: 371 Penley Corner Road, Auburn

PARCEL ID #: 137-026

REVIEW TYPE: **Site Plan** ☒ **Site Plan Amendment** ☐
Subdivision ☐ **Subdivision Amendment** ☐

PROJECT DESCRIPTION: 1- MW AC solar facility. See application for additional information.

CONTACT INFORMATION:

Applicant

Name: Soper Mill Brook, LLC / Colin Sexton
Address: 116 Huntington Ave, Suite 601
City / State Boston, MA
Zip Code 02116
Work #:
Cell #: (239) 203-3944
Fax #:
Home #:
Email: csexton@bluewave.energy

Property Owner

Name: Roger G. Gauthier
Address: 276 Penley Corner Road
City / State Auburn, ME
Zip Code 04210
Work #:
Cell #:
Fax #:
Home #:
Email: queenith@rocketmail.com

Project Representative

Name: Sean Murphy, Flycatcher
Address: Lower Falls Landing, 106 Lafayette St, Suite 2a
City / State Falmouth, ME
Zip Code 04096
Work #: 207-400-6161
Cell #:
Fax #:
Home #:
Email: Sean@flycatcherllc.com

Other professional representatives for the project (surveyors, engineers, etc.),

Name:
Address:
City / State
Zip Code
Work #:
Cell #:
Fax #:
Home #:
Email:

PROJECT DATA

The following information is required where applicable, in order complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	0 sq. ft.
Proposed Total Paved Area	0 sq. ft.
Proposed Total Impervious Area	42,446 sq. ft.
Proposed Impervious Net Change	+42,446 sq. ft.
Impervious surface ratio existing	0 % of lot area
Impervious surface ratio proposed	0.85 % of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint	N/A - no buildings sq. ft.
Proposed Building Footprint	sq. ft.
Proposed Building Footprint Net change	sq. ft.
Existing Total Building Floor Area	sq. ft.
Proposed Total Building Floor Area	sq. ft.
Proposed Building Floor Area Net Change	sq. ft
New Building	(yes or no)
Building Area/Lot coverage existing	% of lot area
Building Area/Lot coverage proposed	% of lot area

ZONING

Existing	Agricultural and Resource Protection
Proposed, if applicable	N/A

LAND USE

Existing	Agriculture / Undeveloped
Proposed	Solar Farm (1 MWac)

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	N/A
Proposed Number of Residential Units	
Subdivision, Proposed Number of Lots	

PARKING SPACES

Existing Number of Parking Spaces	N/A - parking only for temporary construction period
Proposed Number of Parking Spaces	
Number of Handicapped Parking Spaces	
Proposed Total Parking Spaces	

ESTIMATED COST OF PROJECT: $3.29M

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area	0 sq. ft.
Proposed Disturbed Area	475,240 sq. ft.
Proposed Impervious Area	42,446 sq. ft.

1. ***If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.***
2. ***If the proposed impervious area is greater than one acre including any impervious area crated since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.***
3. ***If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.***
4. ***If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.***

TRAFFIC ESTIMATE

Total traffic estimated in the peak hour-existing (Since July 1, 1997) 1 passenger car equivalents (PCE)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997) 1 passenger car equivalents (PCE)

If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the Agricultural and Resource zoning district.
2. Parcel Area: 108.16 acres / _____ square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	36 Acres	108.16
Street Frontage	250 feet	1,739 feet
Min Front Yard	18 feet	1,731 feet
Min Rear Yard	25 feet	39.3 feet
Min Side Yard	15 feet	109.8
Max. Building Height	30 feet	12
Use Designation		
Parking Requirement	1 space/ per square feet of floor area	
Total Parking:	0	0
Overlay zoning districts (if any):		
Urban impaired stream watershed?	YES/NO If yes, watershed name	No

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submissions shall include fifteen (15) complete packets containing the following materials:

1. 5 Full size plans and 10 smaller (no larger than 11" x 17") plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed by the property owner or designated representative. (NOTE: All applications will be reviewed by staff and any incomplete application will not be accepted until all deficiencies are corrected.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

To view the City of Auburn Zoning Ordinance, go to:
www.auburnmaine.gov under City Departments / Planning, Permitting & Code / Subdivisions / Land Use /Zoning Ordinance

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review only; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant:	**Date:**
Colin Layton	1/8/2025

BLUEWAVE

August 12, 2024

To Whom it May Concern:

On behalf of Soper Mill Brook, LLC a subsidiary of Bluewave, I hereby authorize Flycatcher, LLC, to act as Bluewave Solar's agent with respect to all permitting and regulatory matters pertaining to the proposed Penley Corner Solar Project to be located in Auburn, Maine.

Sincerely,

Colin Sexton

Authorized Signatory

ATTACHMENT 1
PROJECT DESCRIPTION AND DEVELOPMENT REVIEW

PROJECT DESCRIPTON AND DEVELOPMENT REVIEW

Project Overview

Soper Mill Brook, LLC, a subsidiary of BlueWave (Application) is proposing to install and operate a 1-MWsc solar array (Project) at 371 Penley Corner Road in Auburn, Maine. The proposed Project includes solar panels, associated electrical equipment, perimeter fencing and site access. The location of these facilities is provided on the attached site plan. There are no buildings and therefore no floor area. Chain link fencing will be installed around the solar arrays, per the National Electric Safety Code (NESC). No exterior lighting is proposed for the facility, as none is required to meet NESC, but there may be downward lights on the equipment to allow for nighttime repairs and maintenance.

Pending approvals, the Project is anticipated to start work in Q2 of 2025 with an anticipated construction period of 6 to 8 months in duration. The Project will be constructed in compliance with applicable municipal, state and federal regulations, guidelines, and standards, and the specific requirements of the necessary permits. Maps and figures related to the Project are provided in Attachment 3, site plans are provided in Attachment 4, and a demonstration of right, title, and interest in the form of a lease option is provided in Attachment 5.

Construction of the Project will begin with establishing base lines and demarcating the Project limit of work. Following installation of temporary erosion and sediment control measures such as silt fence and erosion control mix (ECM), the site will be cleared and grubbed as necessary. The design of erosion and sedimentation control measures will be based on the Maine Erosion & Sediment Control Handbook for Construction: Best Management Practices (BMPs). Gravel access roads or entranceways will then be constructed, along with proposed stormwater management features. The perimeter fence will be installed, followed by installation of solar panels. Posts will first be installed for attachment of the racking system, then installation of solar panels and aboveground and underground conductors will occur. Solar panels will be underlain with herbaceous vegetation. The final number of panels will be based on site conditions as determined during construction and may vary slightly from the permit drawings. Individual foundation excavations will then be made and concrete pads will be installed for the placement of electrical equipment such as the BESS, transformers and inverters. Any necessary final grading, site stabilization, vegetation management and landscaping will then be conducted.

Disturbance of soils (grading, removal of soil, and importation of gravel materials) will be minimized to the greatest extent practicable. A vegetative buffer will be maintained around the Project area to the extent possible to serve as a natural wind barrier. The Project site is not located in an area that has been identified as having significant habitat or aesthetic value.

A soil report generated by the USDA Natural Resource Conservation Service is provided in Attachment 6. Depth to a restrictive feature (e.g., bedrock) is greater than 80 inches for all soil classes, which is conducive to the installation of a solar racking system. For deeper soils, the mounting poles will be driven into the ground. If there are shallower soils, a screw anchor will be used to overcome bedrock or large boulders or, if necessary, a hole will be drilled into the bedrock and grout employed to adhere the post to the substrate. A geotechnical report is provided as Attachment 13 which discusses the best options for this site.

Landscape Plan

The area under the arrays will be maintained as meadow. There are no parking spaces proposed, as the facility will be unmanned. The Project's fencing is located approximately 1,500 feet from Penley Corner Road to the southeast. Existing vegetation provides screening in all directions except to the north, which is agricultural lands. As such, the Applicant is not proposing any plantings.

Lighting Plan

No exterior lighting is proposed for the solar facility at this time.

Stormwater

The Project will disturb one acre or more of area during construction and therefore will be required to demonstrate that is has been developed accordance with the State's Stormwater Management Law. The Project is not located within the direct watershed of a lake most-at-risk from new development, or an urban impaired stream, and will not result in greater than one acre of impervious area, or five or more acres of developed area.

"Impervious area" is defined by DEP as "the total area of a parcel covered with a low-permeability material, such as asphalt, concrete, and gravel roadways." Consistent with this definition, the total impervious area calculated for the Project includes areas covered by concrete equipment pads, gravel access roadways, and the ground-driven post mounts for the solar panels. DEP has previously deemed that the solar panels are not considered impervious area. The total impervious area of the Project is 0.67 acres.

"Developed area" is defined by DEP as "an impervious area, landscaped area, or unrevegetated area; developed area includes all disturbed areas except an area that is returned to a condition that existed prior to the disturbance and is revegetated within one calendar year of being disturbed, provided the area is not mowed more than twice per year." During a DEP Solar Round Table meeting held on February 5, 2020, DEP confirmed that the area under solar panels is not considered developed as long as it is revegetated after construction and does not get mowed more than twice a year. Therefore, the total developed area of the Project is 0.974 acres.

Because the Project will not result in greater than one acre of impervious area, or five or more acres of developed area, the Project will be subject to the basic stormwater standards set forth in DEP's Chapter 500 Stormwater Management Rule ("Chapter 500"). The City of Auburn has delegated authority to determine compliance with the basic standards outlined in Chapter 500. This application is providing site plans showing pre- and post-construction drainage and erosion and sediment control measures (Attachment 4) as well as the output from a HydroCAD model (Attachment 8). Erosion and sediment controls will be designed in accordance with the State's Erosion and Sediment Control Law (M.R.S. 420-C), and the Maine Erosion and Sediment Control Best Management Practices (BMPs) manual, published by DEP.

Although the Project will not be subject to the general stormwater standards outlined in Chapter 500, the Project will utilize stormwater management BMPs to control runoff and provide water quality treatment for impervious and developed areas. Such BMPs may include wet ponds, vegetated soil filters, vegetated swales, vegetated buffers, and other low impact development (LID) techniques. Proposed stormwater BMPs will be designed in accordance with the standards set forth in Chapter 500 and the guidance provided in DEP's Stormwater Best Management Practices Manual.

Overall, though the Project has a large footprint, the Project will result in little impervious area. In general, areas disturbed adjacent to the access roads will be permanently stabilized through seeding and the majority of the site will be maintained as meadow. Based on this information, the Applicants request a waiver from providing formal calculations for different flood event scenarios.

Traffic Information

During construction, the Project will temporarily increase traffic on municipal roads, but these effects will be temporary in nature and relatively minor. Standard trucking methods will be used to transport materials and equipment to the Project site. The inverter and transformer stations are anticipated to be delivered assembled on standard-width flatbed tractor-trailers. Other Project equipment (e.g., wire, cable, conduit, and construction materials) will also be transported on standard-width trucks. On-site, heavy construction equipment is anticipated to be limited to a backhoe for foundation-post and conduit excavation, cement trucks for delivery of concrete for the pier foundations under each inverter enclosure and the transformer pads, and a light duty crane to place the enclosures on these concrete piers.

During operations, no full-time staff will be located at the facility. On-site personnel visits are anticipated to be largely limited to managing the property grounds and associated solar facilities in accordance with any permit requirements and maintenance of equipment as recommended by manufacturer specifications. Occasionally small crews may access the site to effect repairs in the event of equipment breakdown. These visits will generally be of short duration and the long-term traffic volume generated by the development will be negligible.

Utility Plan

The Project will be unmanned and therefore no water supply or wastewater disposal systems will be required for this Project. During construction, anticipated water usage will include use of bottled drinking water or water trucked in from municipal sources for construction personnel and dust abatement. Water for dust abatement will be from publicly accessible, off-site water sources, excluding streams, brooks, and groundwater sources. Water for dust abatement will be distributed via a tanker truck. Portable disposal units will be used during construction.

There will be no full-time staff for operation of the solar energy center. On-site personnel visits will be to manage the property grounds and associated solar facilities in accordance with any permit requirements and maintenance and repair of equipment as recommended by the manufacturer.
There will be no natural gas or cable/phone utilities. Electricity generated by the Project will be transmitted to the grid via wooden utility poles.

Natural Resources

The previous disturbances in this area suggest it does not serve as significant habitat for any sensitive species and the Maine Department of Inland Fisheries and Wildlife confirmed that the "Department has not mapped any Essential Habitats that would be directly affected" by the Project (see Appendix 12). The Project is not located within a FEMA-mapped floodplain (see Attachment 3).

Field studies were completed on the Project's parcel and resources identified are provided on the attached Site Plans. The Project will cross an unnamed stream and impact wetlands on either side. It will also be located within 75 feet of wetlands. Based on this magnitude of impact, the Applicant will only need to file a Natural Resources Protection Act (NRPA) Permit-by-Rule rather than Tier 1 or above NRPA application.

The Project will also need to obtain a Maine General Construction Permit prior to initiating construction.

In order to account for any changes in the design that may come about based on Planning Board review, the Applicant proposes a condition of approval that the NRPA Permit-by-Rule and Maine General Construction Permit be provided at or before the submission of the Building Permit application.

Right, Title or Interest

Soper Mill Brook, LLC has a Land Lease and Easement Agreement executed with the vesting deed owner Roger G. Gauthier. In the Quitclaim Deed granted by the Lewiston-Auburn Water Pollution Control Authority (LAWPCA) to Roger G. Gauthier, LAWPCA reserved a Right of First Offer and a Conservation Easement on the property. Soper Mill Brook, LLC, Roger G. Gauthier, and LAWPCA executed an Option Agreement to provide a limited termination of the Right of First Offer and Conservation Easement for the proposed solar project's Leased Premises allowing for the development, construction, and operation of a solar facility on the property. A copy of the Option Agreement and related documents is provided in Attachment 5 of this application.

Technical and Financial Capacity

BlueWave's vision is to protect our planet by transforming access to renewable energy. As a pioneering renewable energy developer, owner, and operator, BlueWave has developed and built more than 150 MW of solar projects to date. As built, these projects collectively generate enough solar energy to avoid more than 144,000 metric tons of carbon emissions annually.

BlueWave is proud to be a certified B Corp, scoring in the top 5% of companies assessed towards certification in Governance, and named Best for the World for Governance. BlueWave has received national recognition for its work to protect the planet from other organizations, including being named a top 100 Impact Company in the United States for each of the last five years as rated by Real Leaders Magazine, a leading growth company by Boston Business Journal, Solar Builder Project of the Year in 2021 and 2020, and Clean Energy Company of the Year in 2018 by the Northeast Energy Council.

KeyBank has provided a letter indicating their confidence that, once all required permits and approvals have been obtained, Bluewave will be able to obtain financing on market terms and conditions sufficient to cover development costs, construction financing, and other financing as necessary for the Project to reach commercial operation. This letter is provided in Attachment 7.

Resumes of key staff are available upon request.

ATTACHMENT 2
NARRATIVE ON
STANDARDS

APPLICABLE STANDARDS REVIEW

The following information is presented to demonstrate that the proposed Project adheres to the performance standards set forth in Chapter 60 of the City's Ordinances, specifically Article XVI Division 2-3, Article IV Division 2, and Article XVIII.

Article XVI Division 2

In considering a site plan, the planning board shall make findings that the development has made provisions for:

(1) Protection of adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against artificial and reflected light, sight, sound, dust and vibration; and preservation of light and air;

The lack of elevation, the modest height of the proposed structures, and the extensive system of trees along the Project will limit the impact of the Project on adjoining properties. The majority of the Project is set back from the nearby roadway and will not be visible to vehicles passing by the site. The only visible portion of the Project to vehicular traffic will be an access road and wooden utility poles.

During the Project's construction phase there will be minor and temporary noise from construction equipment and vehicles. Noise associated with the construction phase of the Project will generally occur during daylight hours. If blasting is required for the Project, there will be short-duration blasts and notifications will occur in compliance with a Blasting Plan. During operations, the Project will produce minimal noise. The Project inverters will generate a small hum when producing electricity during daylight hours; no sound will be generated by the Project during nighttime hours as the inverters will not operate at night.

Once construction is complete, there will be no dust or vibration associated with the Project.

(2) Convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas;

The Project will be fenced in as is required by the National Electric Code (NEC) to prevent access by unauthorized personnel. There will be no pedestrian traffic within the Project area.

During construction, the Project will temporarily increase traffic on municipal roads, but these effects will be temporary in nature and relatively minor. Standard trucking methods will be used to transport materials and equipment to the Project site. The inverter and transformer stations are anticipated to be delivered assembled on standard-width flatbed tractor-trailers. Other Project equipment (e.g., wire, cable, conduit, and construction materials) will also be transported on standard-width trucks. On-site, heavy construction equipment is anticipated to be limited to a backhoe for foundation-post and conduit excavation, cement trucks for delivery of concrete for the pier foundations under each inverter enclosure and the transformer pads, and a light duty crane to place the enclosures on these concrete piers.

During operations, no full-time staff will be located at the facility. On-site personnel visits are anticipated to be limited to managing the property grounds and associated solar facilities in accordance with any permit requirements and maintenance of equipment as recommended by the manufacturer. Occasionally, small crews may access the site to effect repairs in the event of equipment breakdown. These visits will generally be of short duration and so the long-term traffic volume generated by the development will be negligible.

(3) Adequacy of the methods of disposal for wastes; and

Construction of the Project is expected to generate cardboard waste (e.g., broken-down solar panel boxes) and clean wood waste (e.g., wood pallets). Recycling and reuse will be the preferred method of disposing of these solar panel delivery materials. A licensed disposal facility will be contracted to accept and recycle or dispose of waste generated from the Project. Solid waste during operation of the facility is expected to be limited to materials associated with the replacement of equipment and a similar contracting arrangement will be made with a licensed disposal facility.

As full-time staff are not required for operation of the solar energy center, no wastewater disposal systems will be required for this Project. During construction, porta-potties will be brought on-site for construction crew use and these will be removed once construction is completed.

(4) Protection of environment features on the site and in adjacent areas.

The Project has been sited to minimize impacts to wetlands and forest resources. The access road will cross an unnamed stream and require minimal wetland fill to widen the road. Based on these impacts and the distance between the Project and other wetlands, the Project will require a Natural Resources Protection Act Permit by Rule from the Maine Department of Environmental Protection and a General Permit from the U.S. Army Corps of Engineers. No other significant environmental features have been identified on the site. In order to accommodate any changes in design requested by the Planning Board, the Applicant proposes a condition of approval that the NRPA Permit-by-Rule be provided at or before the submission of the Building Permit application.

Article XVI Division 3 – Special Exception

As conditions prerequisite to the granting of any special exceptions, the board shall require evidence of the following:

(1) That the special exception sought fulfills the specific requirements, if any, set forth in the zoning ordinance relative to such exception.

As described later in this document, the Project adheres to specific requirements in the applicable zoning ordinances.

(2) That the special exception sought will neither create nor aggravate a traffic hazard, a fire hazard or any other safety hazard.

During construction, the Project will temporarily increase traffic on municipal roads, but these effects will be short in duration and relatively minor. Standard trucking methods will be used to transport materials and equipment to the Project site. The inverter and transformer stations will be delivered assembled on standard-width flatbed tractor-trailers. Other Project equipment (e.g., wire, cable, conduit, and construction materials) will also be transported on standard-width trucks.

During operations, no full-time staff will be located at the facility. On-site personnel visits should be limited to managing the property grounds and associated solar facilities in accordance with any permitting requirements and maintenance of equipment as recommended by the manufacturer. Occasionally small crews may access the site to effect repairs in the event of equipment breakdown. These visits will generally be of short and the long-term traffic volume generated by the development will be negligible.

The Project does not pose a fire or any other safety hazard. Fire safety is further discussed below.

(3) That the special exception sought will not block or hamper the master development plan pattern of highway circulation or of planned major public or semipublic land acquisition.

The Applicant is unaware of any planned public or semipublic land acquisitions. The Project will be unmanned and so the expected traffic from the site will be the less than would be expected based on the current use.

(4) That the exception sought will not alter the essential characteristics of the neighborhood and will not tend to depreciate the value of property adjoining and neighboring the property under application.

The Project design and layout has maximized use of existing topography and vegetation to shield proposed facilities from view from public view. The Project's fencing is located approximately 1,500 feet from Penley Corner Road to the southeast. Existing vegetation also provides screening for the arrays in all directions except to the north, which is agricultural lands.

During operations, the Project will produce minimal noise. The Project inverters will generate a small hum when producing electricity during daylight hours and will not operate at night. Once the Project is operational, it will not generate any dust, odor, vibration, smoke, litter or other nuisances.

(5) That reasonable provisions have been made for adequate land space, lot width, lot area, stormwater management in accordance with section 60-1301(14), green space, driveway layout, road access, off-street parking, landscaping, building separation, sewage disposal, water supply, fire safety, and where applicable, a plan or contract for perpetual maintenance of all the common green space and clustered off-street parking areas to ensure all such areas will be maintained in a satisfactory manner.

Lot Dimensions

As described below, the Project will meet required land space, lot width and lot area requirements. The Project has been designed to be as compact as possible while still allowing for existing agricultural activities outside of the Project area.

Stormwater Management

As described in Attachment 1, the Project will result in 0.974 acres of impervious area and developed area and therefore will be subject to the basic stormwater standards set forth in DEP's Chapter 500 Stormwater Management Rule ("Chapter 500"). Stormwater modeling was completed for the Project, using the hydrologic program HydroCAD, as developed by HydroCAD Software Solutions, LLC. The analysis relies on three subwatersheds, which are shown on the pre- and post-development drainage plans provided in Attachment 4. The HydroCAD output is provided as Attachment 8.

The analysis shows there is no increase in peak runoff rates at all Design Points for the 2-, 10-, and 25-year storm events (see Table 1). Overall, the peak flow of stormwater runoff for the site will not increase in the post-development condition. This finding is consistent with Projects where, although there is a large footprint, the acreage of impervious area is low.

The Project will also need to obtain a Maine General Construction Permit prior to initiating construction. In order to account for any changes in the design that may come about based on Planning Board review, the Applicant proposes a condition of approval that the Maine General Construction Permit be provided at or before the submission of the Building Permit application.

Table 1. Peak Discharge Rates			
Design Point	Peak Discharge Rates for Given Storm (cfs)		
	2-Year	10-Year	25-Year
Design Point 1: OG 1			
Pre-Development	0.79	3.16	5.89
Post-Development	0.66	2.35	4.25
Net Change	*-0.13*	*-0.81*	*-1.64*
Design Point 3: OG 2			
Pre-Development	0.00	0.08	0.38
Post-Development	0.00	0.09	0.46
Net Change	*0.00*	*0.01*	*0.08*
Design Point 3: OG 3			
Pre-Development	5.57	20.22	36.59
Post-Development	5.44	18.33	32.43
Net Change	*-0.13*	*-1.89*	*-4.16*
Design Point 1: OG 4			
Pre-Development	4.51	10.07	15.38
Post-Development	3.50	8.03	12.40
Net Change	*-1.01*	*-2.04*	*-2.98*

Green Space

The Project will be maintained as a meadow underneath the solar array.

Driveway Layout, Road Access, Off-street Parking

The Project will be accessed by a single roadway that is designed to be the shortest practical distance. No off-street parking will be required.

Landscaping

Based on the large distance of the Project from Penley Road and the presence a natural forested buffer in all other directions where public viewing is possible, no landscaping is proposed.

Building Separation

There are no buildings proposed for this Project.

Sewage Disposal and Water Supply

No water supply or wastewater disposal systems will be required for this Project. During construction, anticipated water usage will include use of bottled drinking water or water trucked in from municipal sources for construction personnel and dust abatement. Water for dust abatement and HDDs will be from publicly accessible, off-site water sources, excluding streams, brooks, and groundwater sources. Water for dust abatement will be distributed via a tanker truck. Portable disposal units will handle sewage.
There will be no full-time staff required to be located at the Project site for operation of the solar energy center. On-site personnel visits are anticipated to be largely limited to managing the property grounds and associated solar facilities in accordance with any permitting requirements and maintenance of equipment as recommended by manufacturer specifications. Therefore no water supply or sewage disposal facilities are proposed.

Fire Safety

The Project will be accessed through a single gated entrance road. Once the Project is in operation, there will be limited vehicular use on the site which will consist largely of pick-up trucks and associated trailers. The City Fire Department will have access to Project gate keys through Knox Boxes. A 16-foot buffer will be maintained between arrays and the perimeter fencing to accommodate vehicles, primarily pickup trucks or other passenger vehicles, in the event of an emergency. The Project will be remotely managed and monitored 24 hours a day. In the unlikely event of equipment failure that causes a fire, the operator is notified at once of a malfunction and can remotely shutoff some or all of the Project as necessary for safety access and fire suppression. If electrical equipment catches on fire, it is not repairable (unlike buildings and structures) so the typical course of action is isolate the area from the public, limit the potential for spread, and let the fire burn out.

Perpetual Maintenance of Common Green Space and Clustered Off-street Parking Areas

These provisions are not applicable to this Project.

(6) That the standards imposed are, in all cases, at least as stringent as those elsewhere imposed by the city building code and by the provisions of this chapter.

The Applicant believes that they have adhered the most stringent of applicable codes.

(7) That essential city services which will be required for the project are presently available or can be made available without disrupting the city's master development plan.

All necessary City services are presently available.

Article IV Division 2- Agricultural and Resource Protection District

Ground-mounted and dual-use solar energy generating systems greater than one acre in total land area as defined in section 60-1501, subject to the following conditions:

a. Must comply with the provisions of Article XVIII under this chapter;

As described later in this section, the Project will comply with the provisions of Article XVIII.

b. Setbacks, including appurtenant structures and parking areas, shall be subject to the following yard requirements:

1. Rear. There shall be behind every structure associated with a solar energy generating system a rear yard having a minimum depth of 25 feet.

2. Side. There shall be a minimum distance of 15 feet between any structure associated with a solar energy generating system and the side property line.

3. Front. There shall be in front of every structure associated with a solar energy generating system a front yard having a minimum depth of 25 feet or 25 percent of the average depth of the lot whichever is less.

This Project conforms to these standards for the rear yard, side yard and front yard setbacks.

c. Lot coverage shall not exceed 30 percent, as defined under subsection 60-1506(a)(2).

The lot area is approximately 108 acres. The Project area is 10.91 acres or approximately 10% of the lot.

d. Total land area. Once one percent of the agriculture and resource protection district has been developed into solar energy generating systems, the planning board must find that any additional proposed solar energy generating systems will not materially alter the stability of the overall land use pattern of the agriculture and resource protection district. In making this determination, the planning board shall consider the overall effect of existing and potential solar energy generating systems and if it will be more difficult for existing farms in the area to continue operation due to diminished opportunities to expand, purchase or lease farmland, acquire water rights, or diminish the number of tracts or acreage in farm use in a manner that will destabilize the overall character of the surrounding area. The planning board shall request an assessment of the proposed project based on subsection 60-145(b)(19)d. by the agriculture committee and, if located in the resource protection district, the conservation commission and carefully consider their recommendations.

It is the Applicant's understanding that this threshold would not be met with this Project.

e. All applications shall consider the location of existing grid infrastructure and plan to limit the need to extend the amenities for optimal efficiency.

The Applicant has sited this facility based on the existing capacity of the grid in consultation with utility representatives.

f. If a solar energy generating system is proposed on forestland in the agriculture and resource protection district, on a parcel adjacent to prime farmland or land currently used for farming, clearing of forestland or the use of prime farmland may be permitted under the following conditions:

1. The presence of the solar energy generating system will not result in unnecessary soil erosion or loss that could limit agricultural productivity on the subject property or abutting properties.

As previously discussed, the run-off associated with the Project will decrease from existing conditions based on HydroCAD modeling provided in Attachment 8.

2. At the time of decommissioning of any solar energy generating system approved by the planning board, the current sitting planning board shall review the site and proposed decommissioning plan for the conversion of the parcel into prime farmland or forestland, as applicable under the current ordinance standards.

The Applicant agrees with this condition. The Project's Decommissioning Plan is provided as Attachment 9 to this application.

3. A survey of critical wildlife habitat is provided at the time of application, if a project is located in an area determined to be essential habitat, as defined by the state department of inland fisheries and wildlife, an IF&W recommendation shall be secured before a planning board ruling.

The Maine Department of Inland Fisheries and Wildlife confirmed that the "Department has not mapped any Essential Habitats that would be directly affected" by the Project (see Appendix 12).

4. A vegetative cover plan is provided that demonstrates, where feasible, the replanting of forested areas disturbed during construction and preservation of prime soils throughout the life of the project.

The erosion and sediment control inspection and maintenance plan (Attachment 11) serves as a vegetative cover plan. It requires, among other measures:

- Continued inspections and maintenance after the completion of construction to verify erosion and sediment control Best Management Practices (BMPs) are in effective operating condition.
- Inspection of vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems.
- Replanting of bare areas or areas with sparse growth.
- Management of vegetated meadow buffers. The meadow area within and underneath the solar array racking will be maintained as the designated meadow buffer treatment areas, and is proposed to be mowed no more than twice per year.

- Newly seeded areas will be mulched and protected from vehicle, foot traffic and runoff.
- All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover).

As discussed below, the Inspection and Maintenance Plan provided in Attachment 11 as serves the plan for maintaining topsoil through the installation and maintenance of erosion and sediment control measures.

g. Prime soils. All solar energy generating systems proposed in the agriculture and resource protection district shall include a soil analysis. Such analysis shall demonstrate if the site proposed for development contains prime farmland as defined by the United States Department of Agriculture (USDA). Least productive agricultural soils shall be considered first for development unless it can be demonstrated to the planning board that:

1. Non-prime farmland is not reasonably available on the subject property.

The Applicant utilized the Auburn GIS Map Tool to confirm that the site contains prime agricultural soils or soils of state significance.

For a soil analysis, the Applicant completed a report utilizing the USDA's web-based soil mapper to identify prime farmland and Farmland of statewide importance on the property. The resulting report is provided as Attachment 6 to this application. This approach has been previously accepted by the Planning Board as sufficient for the purposes of this requirement.

Based on this mapping, approximately 31% of the available property are classified by the USDA as either prime farmland and Farmland of statewide importance: Adams loam sand, 0-8% (AaB), Nicholville very fine sand loam, 0-8% (BgB), Hartland very fine sand loam, 2 to 8 percent slopes (HfB), and Melrose fine sand loam, 0 to 8 percent slopes (MeB). The layout will avoid the MeB soils. The AaB and HfB soils are located along the existing access road, which will be minimally expanded. The BgB soils are located within the primary area of the array.

Based on the presence of wetland features, setback requirements, and spatial location of the soils as demonstrated by the USDA report, non-prime farmland is not reasonably available on the subject property.

h. All applications for solar energy generating systems in the agriculture and resource protection district shall be subject to the following provisions:

1. **Siting of the overall facility and individual panels shall keep with the existing contours of the land;**
2. **Only pile driven, or ballast block footing shall be used so as to minimize the disturbance of soils during installation;**
3. **To the extent possible, infrastructure shall not be located on steep slopes; and**
4. **A plan for topsoil maintenance shall be provided at the time of application to the planning board.**

The current topography within the Project area is level and the site design will not significantly alter this configuration. There are no steep slopes.

The Applicant anticipates using pile driven footings.

Topsoil is that uppermost layer of soil capable of growing and supporting vegetation. Topsoil contains the essential microorganisms, nutrients, organic matter, and physical characteristics necessary to grow and sustain permanent vegetation. Due to the flatness of the site, topsoil may be maintained through proper erosion and sediment control measures. The Inspection and Maintenance Plan provided in Attachment 11 describes the erosion and sediment control measures that will be undertaken and therefore functions as a plan for maintaining topsoil. The Operations and Maintenance Plan provided in Attachment 10 further requires periodic reviews of erosion control procedures and the identification and repair of erosion areas observed during vegetative management site visits.

i. All operations and maintenance plans shall also include:

1. A plan prioritizing the ability to co-mingle agricultural and energy generation land uses including but not limited to: apiaries, grazing or handpicked crops.

2. A plan that provides habitat for native plants and animals and native pollinators.

The Applicant is a leader in agrivoltaic projects, where agricultural uses are integrated into a solar project. A discussion of this initiative can be found here: https://bluewave.energy/solar-development-1/dual-use. In the State of Maine, they have integrated blueberry crops with a Rockport solar facility, as described in a July 6, 2021 Portland Press Herald article (https://bluewave.energy/bw-resources/on-rockport-farm-blueberry-grower-solar-power-developer-seek-common-ground). The Applicant has also spearheaded conversations with the Department of Environmental Protection and the Department of Agriculture on how to best introduce grazing onto sites in a manner that will not impact water quality. The proposed Project will also be reviewed to determine how to conduct agricultural activities within the Project area. In addition, the Project has been sited to allow for continued agricultural operations on the remainder of the property.

The Applicant has committed to the use of native plants and native pollinators.

Dimensional regulations.

All structures in this district, except as noted shall be subject to the following dimensional regulations:

(1) Minimum lot area, width and depth. No lot shall be created containing less than ten acres, exclusive of any bodies of water having a surface area of one-fourth of an acre or more and measuring less than 250 feet in width at the street frontage, and 200 feet in depth. No building shall be erected on a lot containing less than ten acres, except as allowed in this section, exclusive of any bodies of water having a surface area of one-fourth of an acre or more, and measuring not less than 250 feet in width at the street frontage, and 200 feet in depth.

a. A building may be erected on a lot containing not less than 50,000 square feet and possessing the required minimum frontage width provided it is contiguous with other lots or parcels of land in the same ownership containing an aggregate of not less than ten acres; notwithstanding the separation of the said other lots or parcels of land by a road, stream, private right-of-way or other natural boundary from the lot on which the building is to be constructed. This section shall not be construed to prevent the construction of nonresidential accessory farm buildings on any such lot.

b. On legally nonconforming undersized lots, the keeping of horses, mules, cows, goats, sheep, hogs, and similar sized animals for domestic use of the residents of the lot is permitted provided that the land area required per animal unit conforms to the definition of farm, livestock contained in section 60-2.

c. A dwelling may be constructed on lots existing as of October 1, 2017 and containing greater than 6.1 acres but less than ten acres, if approved as a special exception pursuant to subsection 60-145(b)(18).

Not applicable.

(2) Density. The density of year-round dwelling units shall not exceed an average of one dwelling per ten acres, unless approved pursuant to subsection (1) above.

No year-round dwelling units are proposed as part of this Project.

(3) Yard requirements.

a. Rear. There shall be behind every building a rear yard having a minimum depth of 25 feet.

b. Side. There shall be a minimum distance of 15 feet between any building and the side property line.

c. Front. There shall be in front of every building a front yard having a minimum depth of 25 feet or 25 percent of the average depth of the lot whichever is less.

(4) Height. The height of all dwelling structures shall be limited to two and one-half stories or 35 feet in height. Accessory buildings and structures may have a maximum height of 65 feet from grade, provided that the front yard, rear yard and each of the side yards shall be increased by one foot for each foot in height in excess of 35 feet.

(5) Off-street parking. Off-street parking spaces shall be provided in accordance with the requirements for specific uses as set forth in article V of this chapter.

The Applicant confirms that these setbacks have been met. The maximum height for structures will be less than 35 feet. No off-street parking is required for this Project.

Article XVIII – Solar Ordinance

In addition to the criteria in sections 60-1277 and 60-1336, the planning board shall consider the following standards:

(1) Yard requirements. The setbacks for solar energy generating system installations in the industrial district, including appurtenant structures and parking areas, shall be subject to the following yard requirements:

a. Rear. There shall be behind every structure associated with a solar energy generating system a rear yard having a minimum depth of 50 feet or 20 percent of the average depth of the lot, whichever is less.

b. Side. There shall be a distance of five feet between any structure associated with a solar energy generating system and the side property line, plus the side yard setback shall be increased one foot for every three feet or part thereof increased in street frontage over 60 feet to a maximum of 35 feet for side yard setback.

c. Front. There shall be in front of every structure associated with a solar energy generating system a front yard having a minimum depth of 35 feet or 15 percent of the average depth of the lot whichever is less. No front yard need be any deeper than the average depth of front yards on the lots next thereto on either side. A vacant lot or a lot occupied by a building with a front yard more than 35 feet shall be considered as having a front yard of 35 feet.

The Project is not located in the Industrial District.

(2) Lot coverage. The paved, mounting block, or otherwise impervious areas of sites on which ground mounted solar energy systems are installed shall comply with the lot coverage standards as defined in section 60-579(2). For the purposes of this section, photovoltaic cells, panels, arrays, and inverters shall not be considered impervious areas provided the soil underneath the collector is not compacted and remains vegetated in accordance with the standards applicable to vegetation established in Chapter 500, Appendix A(6) Permanent Stabilization.

The site is approximately 108 acres in total, with a proposed 0.974 acres of impervious area. This will result in impervious area covering approximately 0.85% of the lot area, conforming to the City's requirement.

(3) Height regulations. The total height of the solar energy generating system and all appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations shall not exceed 30 feet.

The total height of the solar energy generating system and all appurtenant structures, including but not limited to, equipment shelters, storage facilities, and transformers, will be approximately 12 feet. No substation is proposed for this Project.

(4) Technical and safety. A copy of the as-built site plan for the solar energy generating system shall be provided to the local fire prevention officer. All means of shutting down the solar energy generating system shall be clearly marked.

The Applicant confirms that providing means of shutting down the solar energy generating system will be marked on site and on the as-built Site Plan. The as-built site plan will be provided to Auburn's fire prevention officer. There will also be protected access on the site as a gate with a Knox Box will be provided. In case of an emergency, there will by 24-hour contact information for utility and emergency personnel. The Applicant would agree to making these provisions a condition of the permit.

(5) Maintenance. The owner or operator of the solar energy generating system shall maintain the facility in good condition. Proper maintenance of the facility means that it is operating as designed and approved. Maintenance shall include, but not be limited to, painting, structural repairs, repairing damaged panels and integrity of security measures. The solar energy generating system must be properly maintained and kept free from all hazards, including, but not limited to, faulty wiring, loose fastenings, being in an unsafe condition or detrimental to public health, safety or general welfare. Site access shall be maintained to a level acceptable by the local fire prevention officer for emergency response. The owner or operator shall be responsible for the cost of maintaining the solar energy generating system and any access road(s), unless accepted as a public way.

The Applicant has a vested interest in proper maintenance of the facility, as faulty equipment will result in income loss and significant damage will require costly equipment replacement. The site grounds will be low maintenance as native grasses or specific pollinator plantings will be seeded. This approach will result in a highly effective as a filtration system and erosion control, in addition to other proposed erosion and sedimentation control measures. There would be additional site visits for regular maintenance. An Operations and Maintenance Plan is provided as Attachment 10 to this application.

(6) Glare. Solar panels are designed to absorb (not reflect) sunlight and are generally less reflective than other varnished or glass exterior materials. However, solar panel placement should minimize or negate any solar glare impacting nearby properties or roadways, without unduly impacting the functionality or efficiency of the solar energy system. Parcels located within a two-nautical-mile radius of the Auburn Lewiston Municipal Airport, as measured based on the runway centerline closest to the location in question shall comply with subsection 60-1505(a)(6).

The Project is approximately 3 miles from the Auburn Lewiston Municipal Airport, which means it falls outside of the airport area of influence.

(7) Visual impact. An Applicant shall make reasonable efforts, as determined by the planning board, to minimize visual impacts associated with the installation of a solar energy generating system. The board shall consider the size, location and topography of the site, the characteristics of the surrounding property and the amount and type of development on said properties in determining the amount and type of screening and buffering that it deems appropriate.

The Project design and layout has maximized use of existing topography and vegetation to shield proposed facilities from view from public view. The Project's fencing is located approximately 1,500 feet from Penley Corner Road to the southeast. Existing vegetation also provides screening for the arrays in all directions except to the north, which is agricultural lands. Agricultural fencing will be utilized, to further break up the visual impacts associated with the arrays. Based on these specifications, the Applicant is not proposing any additional screening.

(8) Lighting. Ground-mounted solar energy generating system lighting shall be consistent with local, state and federal law. Lighting of other parts of the installation, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Where feasible, lighting of the solar energy system shall be directed downward and shall incorporate full cutoff fixtures to reduce light pollution.

No exterior lighting is proposed for the solar facility at this time, other than downward light at the equipment area to allow for nighttime maintenance and repairs.

(9) Unbuilt areas. Where possible, in unbuilt areas, solar energy generating system installations shall maintain the permeability of the ground. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the solar energy generating system or as otherwise prescribed by applicable laws, regulations and bylaws/ordinances.

The impervious surface for the project has been limited to what is needed for the access road, equipment pads, and installation of utility poles. Clearing of natural vegetation has been limited through the extensive use of open fields.

(10) Operation and maintenance plan. The owner or operator shall submit a plan for the operation and maintenance of ground-mounted and dual-use solar energy systems, which shall include measures for maintaining safe access to the installation, stormwater controls, as well as general procedures for operational maintenance of the installation.

An Operations and Maintenance Plan has been provided in Attachment 10 of this application.

(11) Standard compliance. All solar energy generating system installations shall be installed in compliance with the photovoltaic systems standards of the latest edition of the

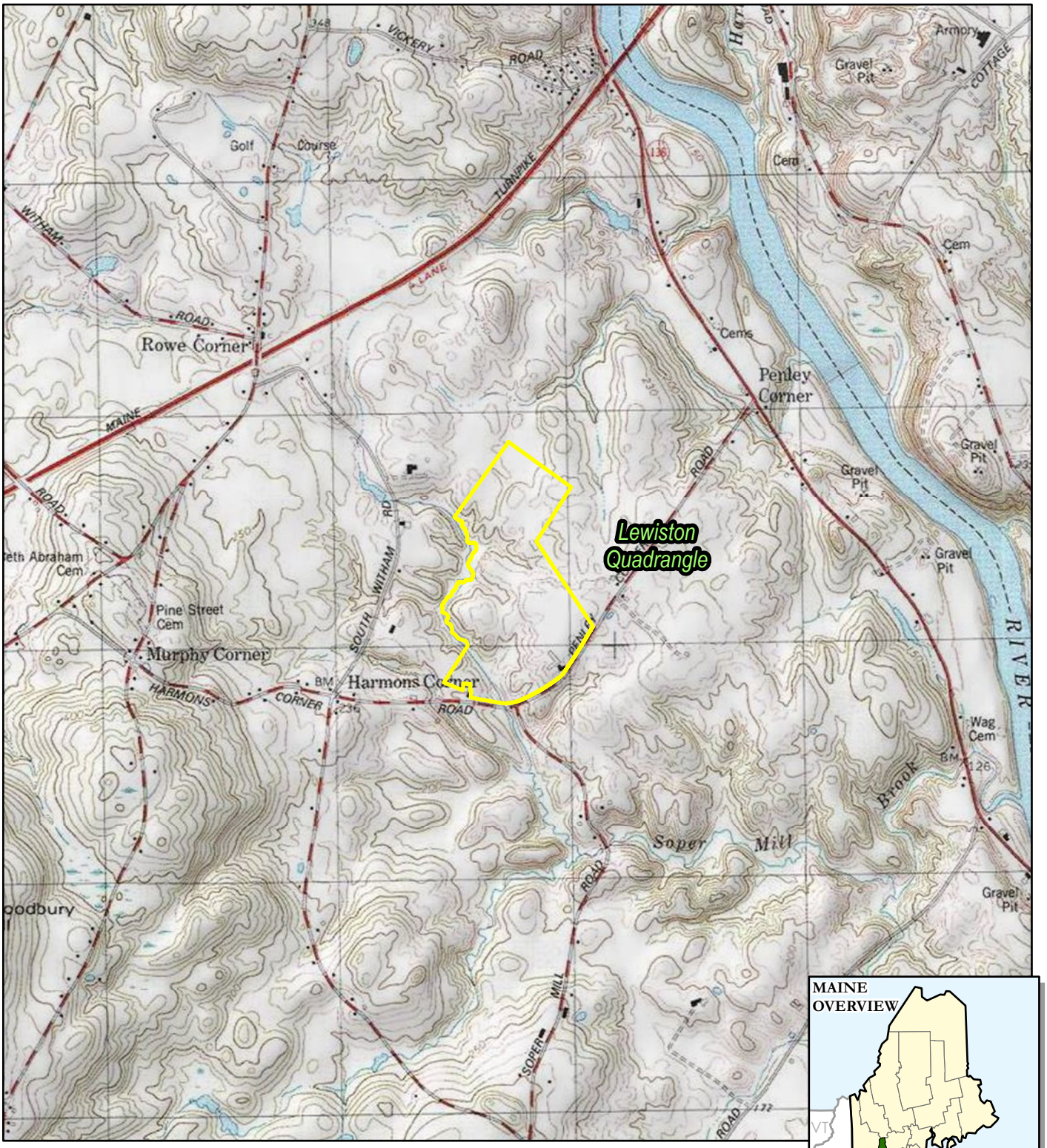
National Fire Protection Association (NFPA) 1, Fire Prevention Code. All wiring shall be installed in compliance with the photovoltaic systems standards identified in the latest edition of the National Electrical Code (NFPA 70).

The Applicant will commit to adhere to all national codes for fire prevention and all wiring will be installed in compliance with standards identified in the National Electrical Code.

Sec. 60-1507. Abandonment or decommissioning.

A Decommissioning Plan is provided in Attachment 9 of this application. This document adheres to the provision of Section 60-1507 (a).

ATTACHMENT 3
PROJECT MAPS AND FIGURES



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

BLUEWAVE

Flycatcher
LAND + SCIENCE + PEOPLE

PROJECT:

BLUEWAVE
PENLEY CORNER SOLAR
AUBURN, androscoggin COUNTY, MAINE

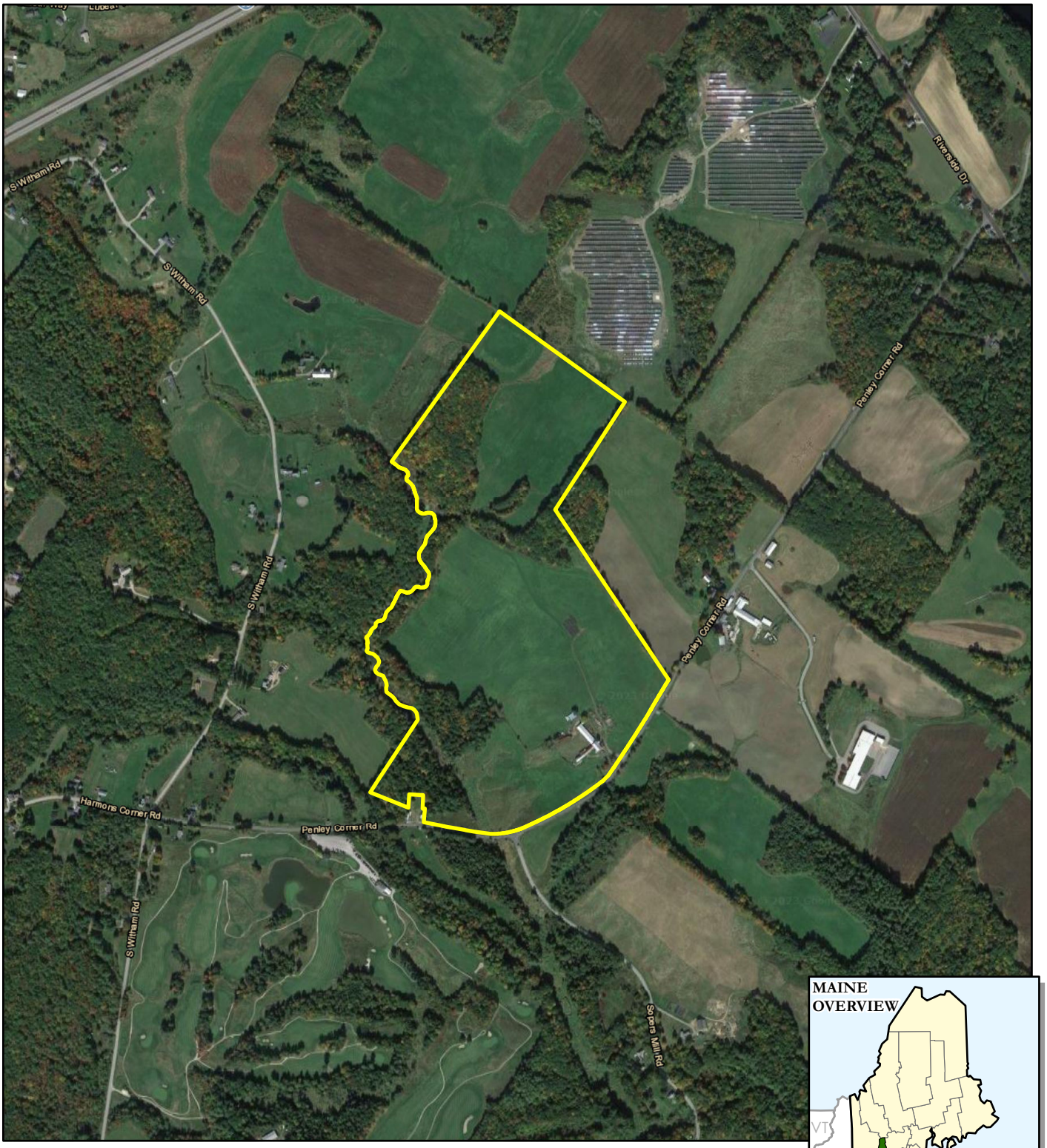
LEGEND:

DATA REQUEST AREA
USGS 7.5' QUADRANGLE BOUNDARY

DRAWN BY:	D. KENWORTHY
CHECKED BY:	S. MURPHY
MONTH:	MAY
YEAR:	2023
PROJ. NO.:	22K-011
CLIENT:	BW

ATTACHMENT A

C:\FLYCATCHER\Projects\BlueWave\BlueWave_22K011_PenleyCorner_AgencyOutreach_AttA_Topo_8x11.mxd -- Saved By: DREWKENWORTHY on 5/22/2023, 10:25:45 AM



BASE MAP FROM ESRI/NAIP "WORLD IMAGERY" SERVICE LAYER.

1 " = 1,000 '
1:12,000

0 1,000 2,000
FEET

BLUEWAVE

Flycatcher
LAND + SCIENCE + PEOPLE

PROJECT:

BLUEWAVE
PENLEY CORNER SOLAR
AUBURN, androscoggin COUNTY, MAINE

LEGEND:

DATA REQUEST AREA

DRAWN BY:	D. KENWORTHY
CHECKED BY:	S. MURPHY
MONTH:	MAY
YEAR:	2023
PROJ. NO.:	22K-011
CLIENT:	BW

ATTACHMENT B

C:\FLYCATCHER\Projects\BlueWave\BlueWave_22K011_PenleyCorner_AgencyOutreach_AttB_Aerial_8x11.mxd -- Saved By: DREWKENWORTHY on 5/22/2023, 10:28:40 AM

National Flood Hazard Layer FIRMette

FEMA

70°13'7"W 44°2'54"N



70°12'30"W 44°2'28"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/12/2023 at 10:49 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT 4
SITE PLANS

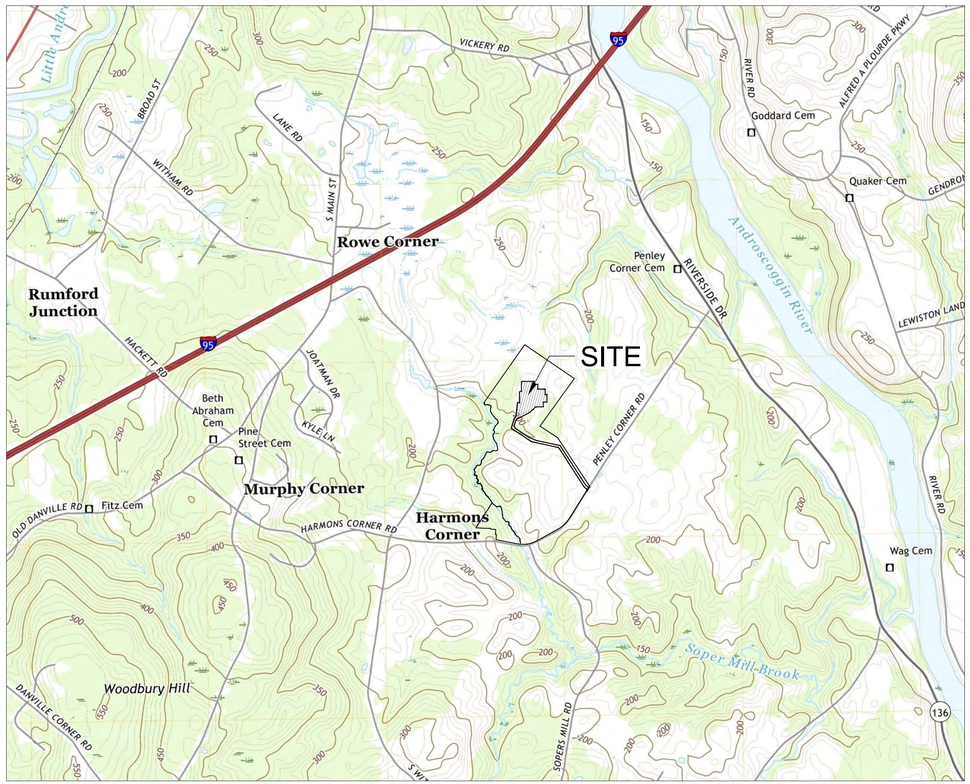
PENLEY CORNER SOLAR

CIVIL SITE PLANS

PROPOSED PHOTOVOLTAIC POWER GENERATION FACILITY

PENLEY CORNER ROAD

AUBURN, MAINE



LOCATION MAP

SCALE: 1" = 1 MILE

SHEET INDEX

C-1.00 OVERALL SITE PLAN
C-1.01 EXISTING CONDITIONS PLAN
C-2.00 PRE-DEVELOPMENT DRAINAGE PLAN
C-2.01 POST-DEVELOPMENT DRAINAGE PLAN
C-3.00 PHASING & ESC PLAN
C-4.00 EROSION AND SEDIMENT CONTROL DETAILS
C-4.01 EROSION AND SEDIMENT CONTROL DETAILS
C-4.02 STANDARD DETAILS
C-4.03 STANDARD DETAILS

PENLEY CORNER SOLAR PROJECT

Penley Corner Road,
Auburn, Maine

BLUEWAVE

116 Huntington Avenue, Suite 601 P: (617) 209-3122
Boston, Massachusetts 02116

KREBS & LANSING CONSULTING ENGINEERS

164 Main Street, Suite 201 P: (802) 878-0375
Colchester, Vermont 05446 www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

PROJECT APPLICANT
SOPER MILL BROOK, LLC.

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:

STATE OF MAINE · IAN A JAMES · NO. 17169 · LICENSED PROFESSIONAL ENGINEER

JANUARY 9, 2025

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
INDEX SHEET
CIVIL SITE PLAN

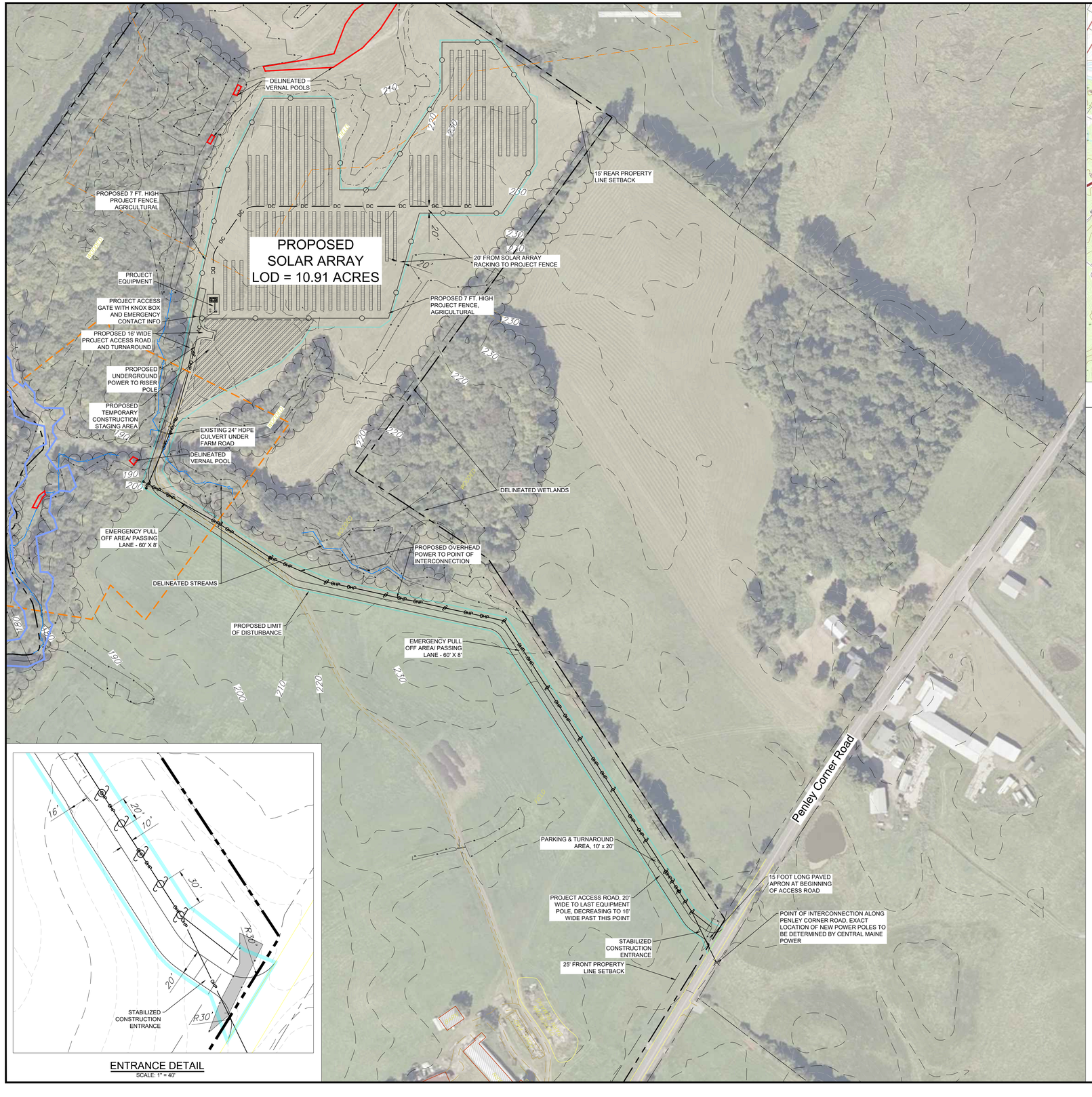
DATE ISSUED: 1/9/2025

DRAWN BY: MNS CHECKED BY: IAJ

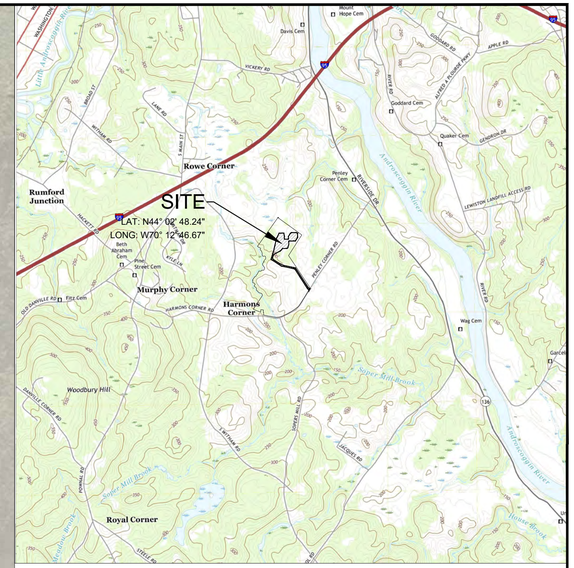
PROJECT NO.: 23320 SCALE: N/A

DRAWING NO.: INDEX

REV. NO.:



ENTRANCE DETAIL
SCALE: 1" = 40'



LOCATION MAP
SCALE: 1" = 1/2 MILE

LEGEND

- EXISTING POWER POLE / PROPOSED POLE
- APPROXIMATE PROPERTY LINES
- APPROXIMATE PROJECT PARCEL
- SETBACKS TO SOLAR PANEL RACKING
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING OVERHEAD POWER
- EXISTING TREELINE
- DELINEATED WETLAND
- DELINEATED STREAM
- 75' STREAM BUFFER
- PROPOSED PROJECT FENCE
- PROPOSED TREELINE
- PROPOSED OVERHEAD POWER
- PROPOSED UNDERGROUND POWER
- PROPOSED PROJECT EQUIPMENT
- PROPOSED SINGLE AXIS TRACKER SOLAR PANEL RACKING
- STAGING AREA FOR CONSTRUCTION
- LIMIT OF DISTURBANCE (LOD)
- FEMA FLOODZONE
- DELINEATED VERNAL POOL WITH 250' BUFFER

Maine State Plane, West Grid North (NAD83)

NOTES:

1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, WEST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED STATE OF MAINE LiDAR
4. UTILITIES ARE NOT WARRANTED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL CONTACT DIG SAFE BEFORE BEGINNING ANY EXCAVATION.
5. THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE FROM TOWN TAX MAPS AND ALTERED BASED ON EVIDENCE FROM AERIAL PHOTOGRAPHY.
6. THIS IS A PRELIMINARY DESIGN PLAN. FINAL DESIGN WILL BE MODIFIED TO MATCH EQUIPMENT PURCHASED AND POSSIBLE PERMIT CONSTRAINTS REVEALED DURING PROJECT'S REVIEW.
7. PRELIMINARY ENVIRONMENTAL SITE REVIEW DATA IS BASED ON INFORMATION DOWNLOADED FROM THE MAINE OFFICE OF GIS WEBSITE AND PRELIMINARY FIELD REVIEWS.
8. EROSION CONTROL MEASURES SHOWN ON THIS PLAN MAY BE MODIFIED BASED ON FUTURE INFORMATION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPS" DOCUMENT, DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION.

PROJECT SPECIFICATIONS:

NUMBER OF MODULES: 2,352 (@580 PER PANEL)

DC OUTPUT: 1.36 MW

AC OUTPUT: 0.99 MW

DC/AC RATIO: 1.37

DESIGN: SINGLE AXIS TRACKER

GCR: 0.391 (39.1%)

AREAS:

LIMIT OF DISTURBANCE = 10.91 ACRES

NEW IMPERVIOUS SURFACE = 0.79 ACRES

PENLEY CORNER SOLAR PROJECT

Penley Corner Road,
Auburn, Maine

BLUEWAVE

116 Huntington Avenue, Suite 601
Boston, Massachusetts 02116
P: (617) 209-3122

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

PROJECT APPLICANT
SOPER MILL BROOK, LLC.

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:
STATE OF MAINE
IAN A. JEMKES
NO. 17165
LICENSED PROFESSIONAL ENGINEER
JANUARY 9, 2025

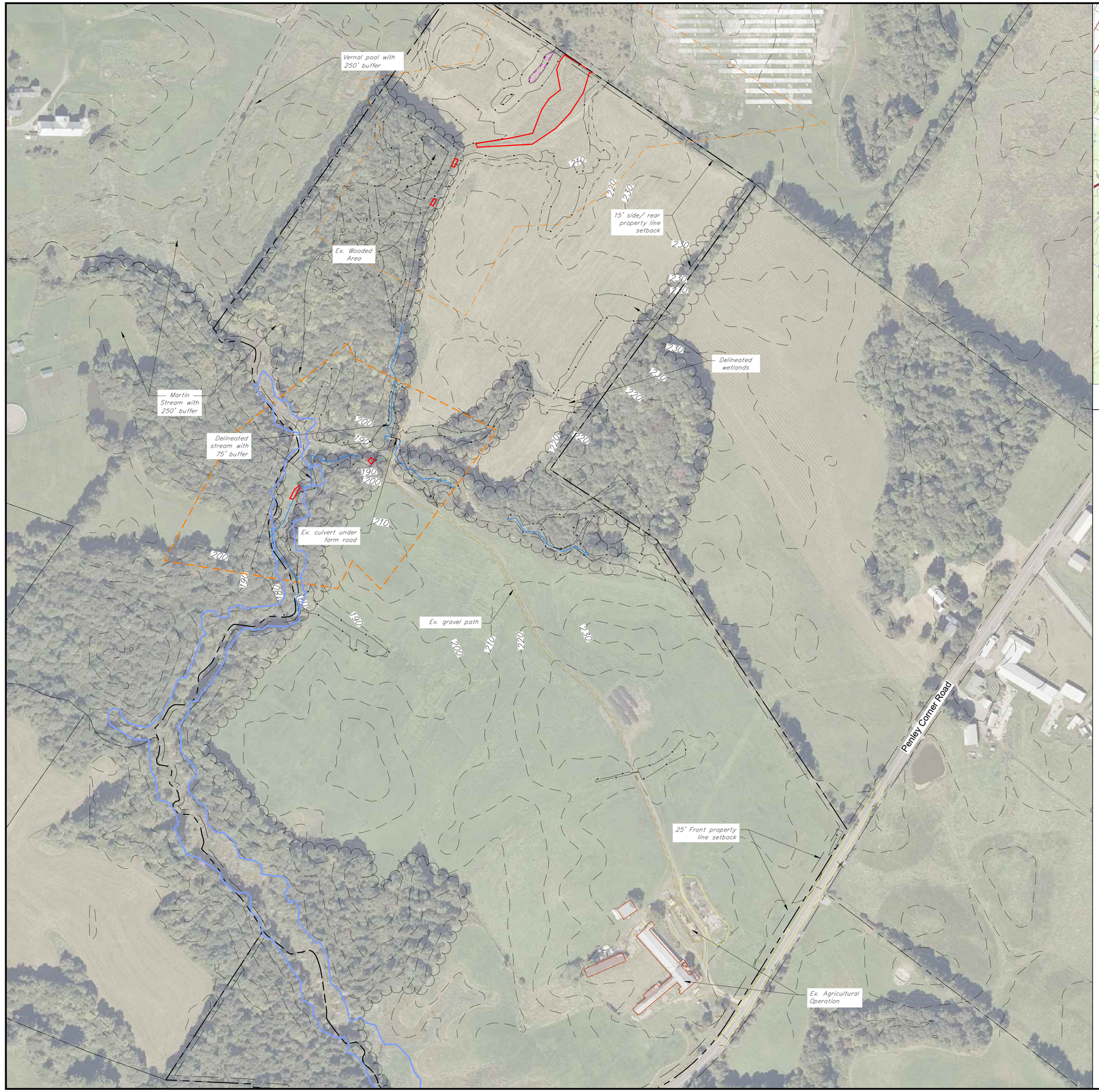
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STANDARD GRAPHIC SCALE (1" = 120')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

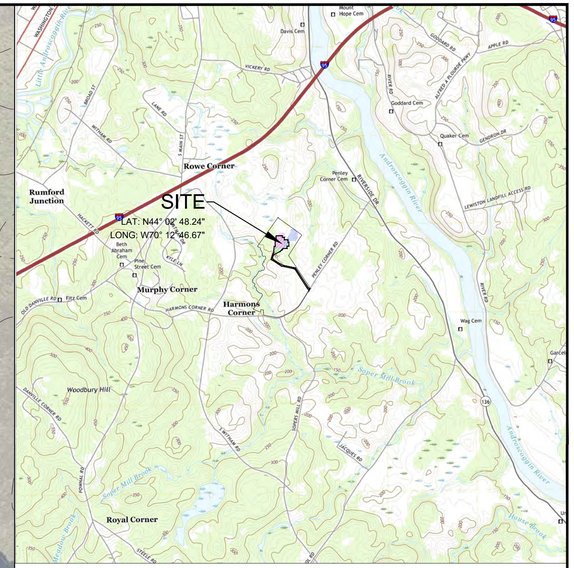
REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
OVERALL SITE PLAN

DATE ISSUED: 1/9/2025
DRAWN BY: MNS CHECKED BY: IAJ
PROJECT NO.: 23320 SCALE: 1" = 120'
DRAWING NO.: C-1.00 REV. NO.:

DWG NAME: Bluewave_PenleyCorner-Solar_Base.dwg





LOCATION MAP
SCALE: 1" = 1/2 MILE

LEGEND

- EXISTING POWER POLE
- APPROXIMATE PROJECT PARCEL
- SETBACKS TO SOLAR PANEL RACKING
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING TREELINE
- DELINEATED WETLAND
- DELINEATED STREAM
- 75' STREAM BUFFER
- DELINEATED VERNAL POOL WITH 250' BUFFER
- FEMA FLOODZONE

NOTES:

1. ASPECTS OF PLAN ARE APPROXIMATE AND DERIVED FROM AERIAL PHOTOGRAPHY.
2. THE HORIZONTAL COORDINATE SYSTEM IS BASED ON NAD83 MAINE STATE PLANES, EAST ZONE (US SURVEY FEET). ELEVATIONS ARE BASED ON THE NAVD88 (US SURVEY FEET).
3. EXISTING GROUND CONTOUR ELEVATIONS ARE BASED ON STATE OF MAINE LIDAR COLLECTED IN 2021, DOWNLOADED IN MARCH OF 2024.
4. THIS IS IN NO WAY A BOUNDARY SURVEY. PROPERTY LINES & METES AND BOUNDS SHOWN ARE FROM A SURVEY COMPLETED BY BH2M IN SEPTEMBER OF 2024, ENTITLED "STANDARD BOUNDARY SURVEY, LANDS OF RICKER HILL ORCHARDS & APPLE RIDGE FARMS, INC.".
5. PRELIMINARY ENVIRONMENTAL SITE REVIEW DATA IS BASED ON INFORMATION DOWNLOADED FROM THE MAINE OFFICE OF GIS WEBSITE AND PRELIMINARY FIELD REVIEWS PERFORMED BY FLYCATCHER ENVIRONEMENTAL.

PROPERTY INFORMATION:

LOT AREA: 44.0± ACRES

ZONING DISTRICT: COMMERCIAL I

DEVELOPED AREA: 50% MAXIMUM

ROAD FRONTAGE: 200 FEET MINIMUM

MAXIMUM HEIGHT: 45 FEET

FRONT YARD SETBACK: 50 FEET

SIDE YARD SETBACK: 15 FEET

REAR YARD SETBACK: 10 FEET

Maine State Plane, West Grid North (NAD83)

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ENVIRONMENTAL:
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Yarmouth, Maine 04096

STAMP:
STATE OF MAINE — IAN A. JENKS — NO. 17165 — LICENSED PROFESSIONAL ENGINEER
JANUARY 9, 2025

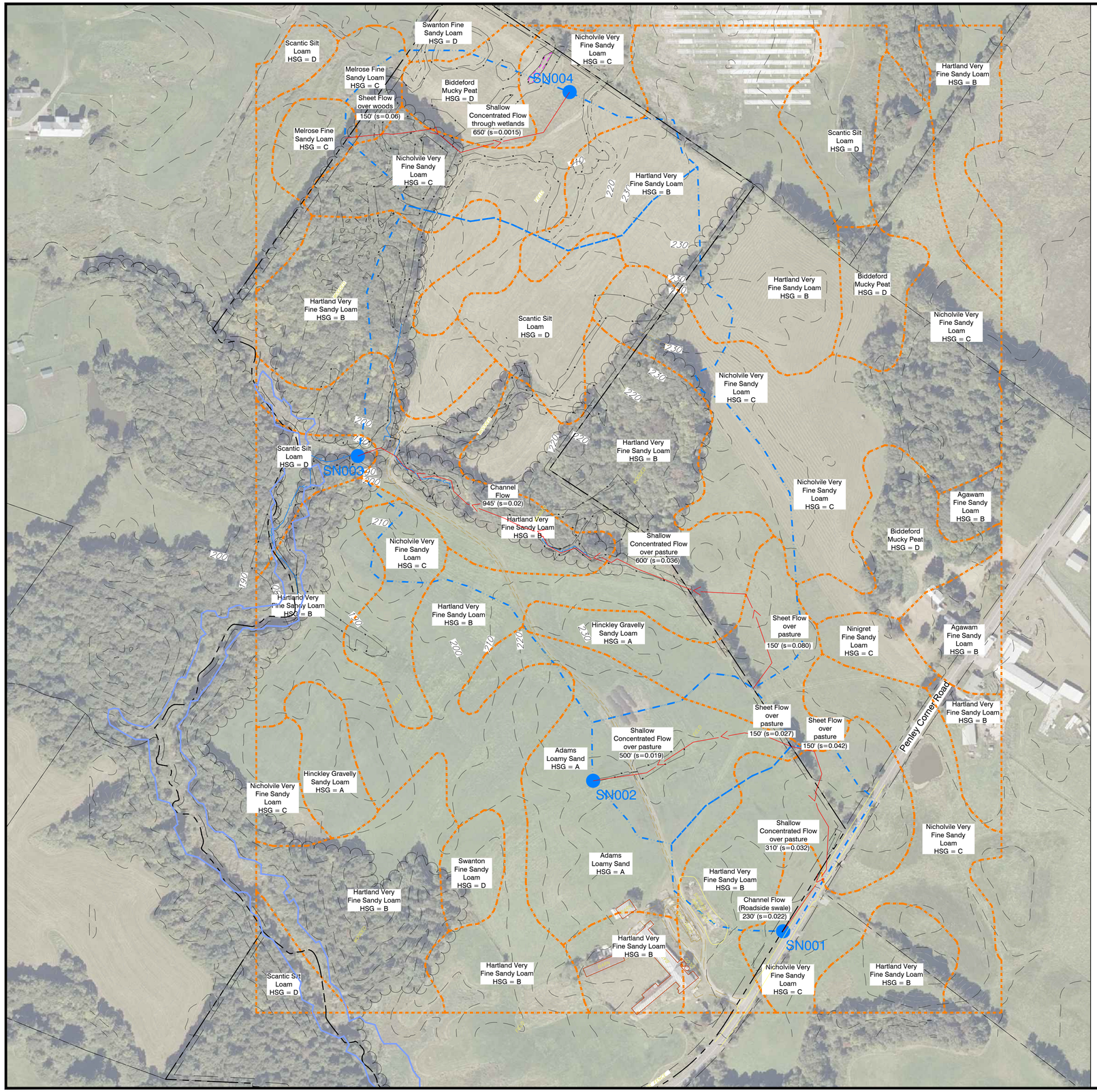
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STANDARD GRAPHIC SCALE (1" = 150')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
EXISTING CONDITIONS PLAN

DATE ISSUED: 1/9/2025
DRAWN BY: MNS CHECKED BY: IAJ
PROJECT NO.: 23320 SCALE: 1" = 150'
DRAWING NO.: C-1.01
REV. NO.:

DWG NAME: Bluewave_PenleyCorner-Solar_Base.dwg



LEGEND

- EXISTING POWER POLE
- APPROXIMATE PROPERTY LINES
- PROJECT PROPERTY LINES
- SETBACKS TO SOLAR PANEL RACKING
- EXISTING GRADE CONTOUR LINES (10 FOOT INTERVALS)
- EXISTING GRADE CONTOUR LINES (2 FOOT INTERVALS)
- EXISTING TREELINE
- DELINEATED WETLAND
- DELINEATED STREAM
- RESOURCE PROTECTION DISTRICT
- NRCS SOIL MAPPING
- PRE-CONSTRUCTION WATERSHED BOUNDARY
- FEMA FLOODZONE
- TIME OF CONCENTRATION FLOW PATH
- SN004 PROJECT ANALYSIS POINT

Maine State Plane, West Zone (NAD 83/2011) (Feet)

SEE SHEET C-1.00 FOR NOTES

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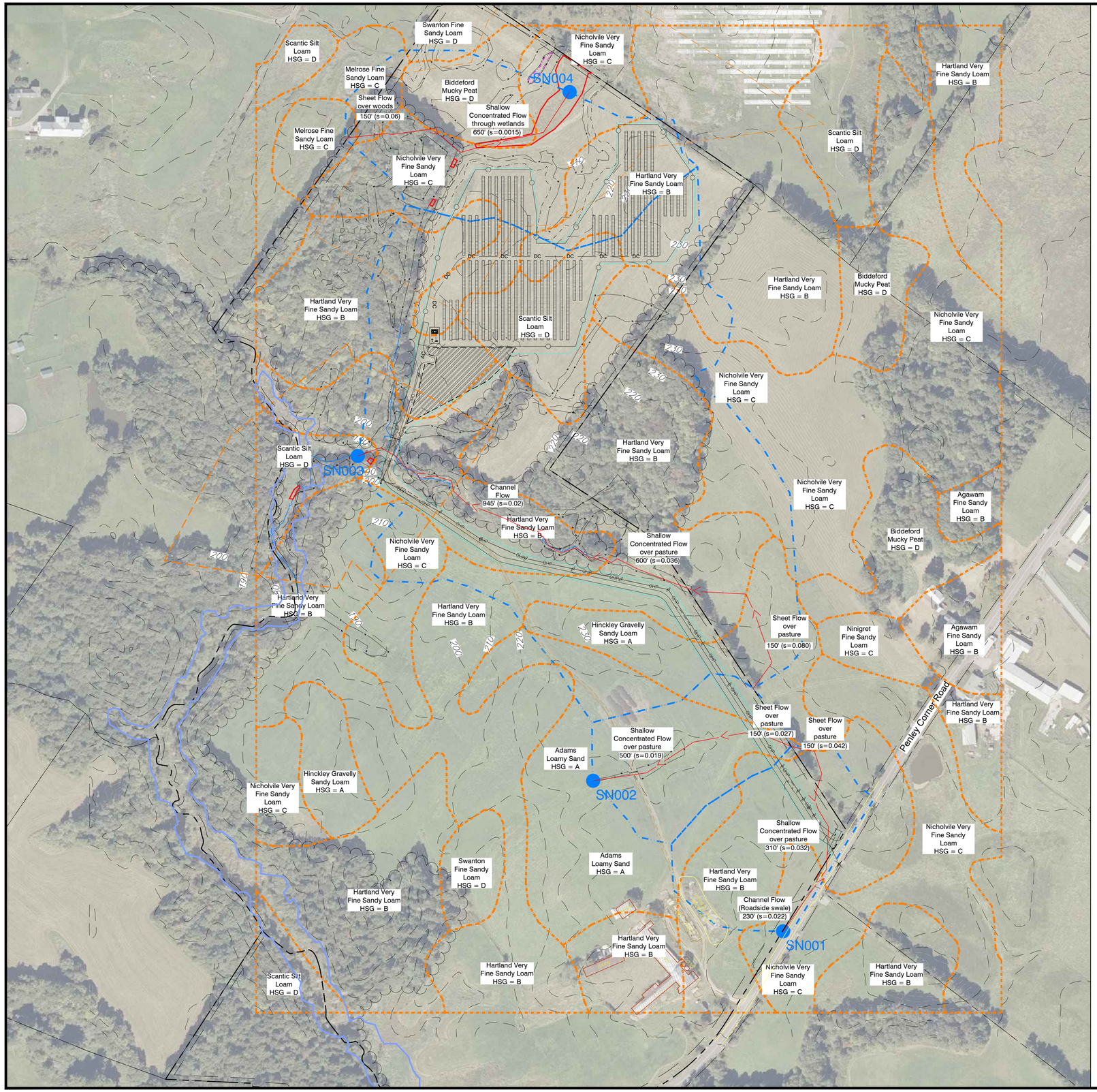
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0" 1" 2" 3"
STANDARD GRAPHIC SCALE (1" = 150')
VALID WHEN PLOTTED ON 24" BY 36" MEDIA

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
PRE-DEVELOPMENT DRAINAGE PLAN

DATE ISSUED: 1/9/2025
DRAWN BY: MNS CHECKED BY: IAJ
PROJECT NO.: 23320 SCALE: 1" = 120'
DRAWING NO.: C-2.00
REV. NO.:

DWG NAME: Bluewave_PenleyCorner-Solar_Base.dwg


Swanton Fine Sandy Loam HSG = D
Nicholvile Very Fine Sandy Loam HSG = C
Scantic Silt Loam HSG = D
Melrose Fine Sandy Loam HSG = C
Biddeford Mucky Peat HSG = D
Sheet Flow over woods 150' (s=0.06)
Shallow Concentrated Flow through wetlands 650' (s=0.0015)
SN004
Hartland Very Fine Sandy Loam HSG = B
Scantic Silt Loam HSG = D
Nicholvile Very Fine Sandy Loam HSG = C
Hartland Very Fine Sandy Loam HSG = B
Hartland Very Fine Sandy Loam HSG = B
Biddeford Mucky Peat HSG = D
Scantic Silt Loam HSG = D
Nicholvile Very Fine Sandy Loam HSG = C
Nicholvile Very Fine Sandy Loam HSG = C
Hartland Very Fine Sandy Loam HSG = B
Scantic Silt Loam HSG = D
SN003
Channel Flow 945' (s=0.02)
Hartland Very Fine Sandy Loam HSG = B
Nicholvile Very Fine Sandy Loam HSG = C
Shallow Concentrated Flow over pasture 600' (s=0.036)
Agawam Fine Sandy Loam HSG = B
Biddeford Mucky Peat HSG = D
Hartland Very Fine Sandy Loam HSG = B
Hinckley Gravelly Sandy Loam HSG = A
Sheet Flow over pasture 150' (s=0.080)
Ninigret Fine Sandy Loam HSG = C
Agawam Fine Sandy Loam HSG = B
Sheet Flow over pasture 150' (s=0.027)
Sheet Flow over pasture 150' (s=0.042)
Penley Corner Road
Hartland Very Fine Sandy Loam HSG = B
Shallow Concentrated Flow over pasture 500' (s=0.019)
Adams Loamy Sand HSG = A
SN002
Nicholvile Very Fine Sandy Loam HSG = C
Hinckley Gravelly Sandy Loam HSG = A
Shallow Concentrated Flow over pasture 310' (s=0.032)
Nicholvile Very Fine Sandy Loam HSG = C
Swanton Fine Sandy Loam HSG = D
Adams Loamy Sand HSG = A
Hartland Very Fine Sandy Loam HSG = B
Hartland Very Fine Sandy Loam HSG = B
Channel Flow (Roadside swale) 230' (s=0.022)
SN001
Hartland Very Fine Sandy Loam HSG = B
Hartland Very Fine Sandy Loam HSG = B
Nicholvile Very Fine Sandy Loam HSG = C
Hartland Very Fine Sandy Loam HSG = B
Scantic Silt Loam HSG = D
DC
Grass
Gravel
Gravel
Grass
Grass
Grass



LEGEND

- PHASE 1 (1.61 ACRES): ROAD CONSTRUCTION
- PHASE 2 (0.91 ACRES): CONSTRUCTION STAGING
- PHASE 3 (3.88 ACRES): PHOTOVOLTAIC ARRAY AREA
- PHASE 4 (3.55 ACRES): PHOTOVOLTAIC ARRAY AREA
- PHASE 4 (0.96 ACRES): OVERHEAD LINE & INTERCONNECTION EQUIPMENT

NOTE: PHASING IS BASED ON RECOMMENDATIONS MADE IN MAINE DEP'S "TECHNICAL GUIDANCE ON LARGE CONSTRUCTION PROJECTS". CONTRACTOR SHOULD MAINTAIN A MAXIMUM LIMIT OF DISTURBED AREAS OF 2 ACRES AT ANY TIME. DISTURBED AREAS SHOULD BE STABILIZED BEFORE FURTHER DISTURBANCE IS CREATED.

A MINIMUM OF 200 BALES OF STRAW HAY/ MULCH SHOULD BE MAINTAINED ON SITE FOR EROSION CONTROL AND STABILIZATION OF DISTURBED AREAS AS NECESSARY. EROSION CONTROLS SHALL BE MAINTAINED ALONG THE LIMITS OF THE PROJECT AND REFRESHED AFTER LARGE STORM EVENTS OR AS NECESSARY. ACCEPTABLE EROSION CONTROLS INCLUDE SILT FENCE, EROSION CONTROL MIX BERM, STRAW WATTLES, OR OTHER APPROVED ALTERNATIVES.

STAGING AREAS SHOWN ON THE PLAN ARE SCHEMATIC AND MAY NOT REFLECT THE EXACT AREA USED FOR STAGING. STAGING AREAS SHOULD BE RESTORED TO THEIR ORIGINAL CONDITION AFTER THE COMPLETION OF CONSTRUCTION. ANY STAGING AREAS LEFT IN PLACE LONGER THAN 12 MONTHS MUST HAVE STORMWATER TREATMENT IN COMPLIANCE WITH ME DEP CHAPTER 500 STANDARDS.

PENLEY CORNER SOLAR PROJECT

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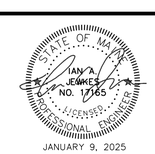
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PROJECT APPLICANT
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CIVIL ENGINEER:
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STAMP:



JANUARY 9, 2025

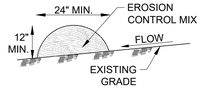
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0" 1" 2" 3"
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REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
PHASING & ESC PLAN

DATE ISSUED: 1/9/2025
DRAWN BY: MNS CHECKED BY: IAJ
PROJECT NO.: 23320 SCALE: 1" = 120'
DRAWING NO.: C-3.00 REV. NO.:

DWG NAME: Bluewave_PenleyCorner-Solar_Base.dwg



COMPOSITION:

EROSION CONTROL MIX BERM SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH *THE MAINE EROSION CONTROL AND BEST MANAGEMENT PRACTICES (BMPS) MANUAL*. SEDIMENT CONTROL BMP, B-1 SEDIMENT BARRIERS. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED WOOD AND BARK CHIPS AND/OR ACCEPTABLE MANUFACTURED PRODUCTS. GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE. ALL MATERIALS USED TO MANUFACTURE THE EROSION CONTROL MIX SHALL BE NATIVE MAINE MATERIALS.

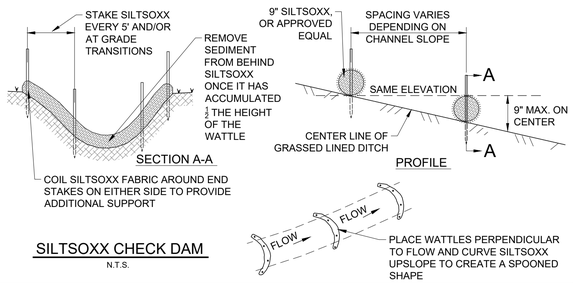
NOTES

1. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL CONTOUR.
2. EXISTING GROUND SHALL BE PREPARED AS NEEDED SUCH THAT THE BARRIER LIES NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
3. ON SLOPES < 5% OR AT THE BOTTOM OF STEEPER SLOPES (<2:1) UP TO 20' LONG, THE BARRIER MUST BE A MINIMUM OF 12" HIGH, AS MEASURED ON THE UPHILL SIDE OF THE BARRIER, AND A MINIMUM OF 2 FT. WIDE. ON LONGER OR STEEPER SLOPES, THE BARRIER SHALL BE WIDER TO ACCOMMODATE ADDITIONAL FLOW.
4. EROSION CONTROL MIX MAY BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED AND SCHEDULED ON THE DESIGN PLANS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW STORMWATER END SECTIONS AT OUTFALLS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES (UP TO 2:1 WITH ON SITE PLAN COORDINATOR APPROVAL) THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM. EROSION CONTROL MIX MAY NOT BE USED IN WETLAND AREAS.

TYPICAL EROSION CONTROL MIX BERM
N.T.S.

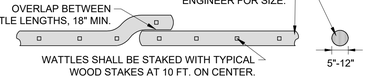
NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF SILTSOXX IN ALL LOCATIONS SHOWN ON THE PLANS. SILTSOXX MAY BE LEFT IN PLACE IF THE CONTRACTOR SEEDS AND MULCHES WATTLE FOR GROWTH POST CONSTRUCTION.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ADDITIONAL SILTSOXX WILL BE ADDED WHEN SEDIMENT REACHES HALF OF PRODUCT HEIGHT.
3. WHEN INSTALLING LENGTHS OF SILTSOXX, LENGTHS WILL OVERLAP BY MINIMUM 2' WHEN TRANSITIONING TO A NEW LENGTH OF WATTLE.
4. CONTRACTOR SHALL REFER TO ALL MANUFACTURES SPECIFICATIONS AND DETAILS.
5. SILTSOXX CAN ONLY BE USED IN A GRASS LINED SWALE, MAY NOT BE USED IN STONE LINED SWALES.
6. SILTSOXX CHECK DAM CAN ONLY BE USED IN CHANNELS WITH SLOPES LESS THAN 5%.
5. SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.



SILTSOXX CHECK DAM
N.T.S.

5" TO 12" DIAMETER SILTSOXX, OR APPROVED EQUAL, MAY BE USED IN LOCATIONS SHOWN ON PLANS OR AS AN ALTERNATE TO SILT FENCE ONLY WITH PRIOR APPROVAL FROM ENGINEER. SIZE OF SILTSOXX WILL BE BASED ON APPLICATION, CHECK WITH ENGINEER FOR SIZE.



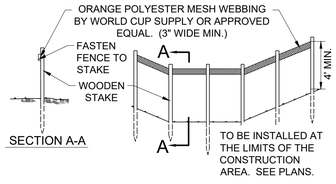
NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND REMOVAL OF SILTSOXX IN ALL LOCATIONS SHOWN ON THE PLANS. SILTSOXX MAY BE LEFT IN PLACE IF THE CONTRACTOR SEEDS AND MULCHES OVER SILTSOXX FOR GROWTH POST CONSTRUCTION.
2. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND ADDITIONAL WATTLES WILL BE ADDED WHEN SEDIMENT REACHES HALF OF PRODUCT HEIGHT.
3. WHEN INSTALLING LENGTHS OF SILTSOXX, LENGTHS WILL OVERLAP BY MINIMUM 18" WHEN TRANSITIONING TO A NEW LENGTH OF SILTSOXX.
4. CONTRACTOR SHALL REFER TO ALL MANUFACTURES SPECIFICATIONS AND DETAILS.
5. SILTSOXX IS A SPECIFIC MANUFACTURER, OTHER MANUFACTURERS WITH EQUAL PRODUCTS MAY BE USED IF APPROVED BY ENGINEER.
6. SILTSOXX CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER.

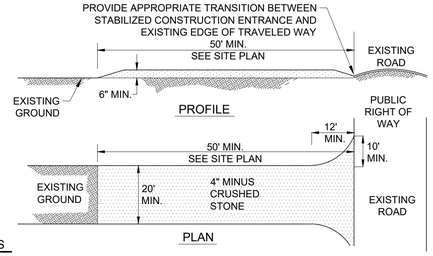
TYPICAL SILTSOXX SEDIMENT CONTROL
N.T.S.

NOTES

1. ACCEPTABLE EPSC MEASURE DETAILS ARE PROVIDED BELOW.
2. AT A MINIMUM, EPSC MEASURES MEET ME DEP STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
3. LIMITS OF DISTURBANCE (OR "CONSTRUCTION DEMARCATION") SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
4. BARRIER TAPE/ROPE: FOR USE WHERE PROPOSED DISTURBANCE BORDERS NON-WOODED, VEGETATED AREAS MORE THAN 100 FT FROM THE NEAREST WATER RESOURCE (STREAM, BROOK, LAKE, POND, WETLAND, ETC.). BARRIER TAPE IS HIGH VISIBILITY FIBERGLASS TAPE, MINIMUM 3" IN WIDTH COMMONLY USED IN SKI AREAS FOR DEMARCATING CLOSED AREAS. BARRIER TAPE AND ROPE SHOULD BE ATTACHED TO STAKES, AT A MINIMUM HEIGHT OF 4 FT FROM THE GROUND.
5. MINIMUM 1 TO 2 ROWS OF MESH BARRIER TAPE TO BE INSTALLED ALONG CONSTRUCTION PERIMETER.
6. EACH ROW OF BARRIER TAPE TO BE 3" WIDE MINIMUM.
7. BARRIER TAPE TO BE ORANGE.
8. SECURE BARRIER TAPE TO STAKES OR EXISTING TREE TRUNKS WITH BOTTOM ROW AT 4' DISTANCE FROM GROUND SURFACE (MINIMUM).
9. MAINTAIN AND REPLACE AS NEEDED. REMOVE AT COMPLETION OF PROJECT PER ON SITE PLAN COORDINATOR.
10. IN EVENT THE ON SITE PLAN COORDINATOR DETERMINES BARRIER TAPE IS NOT SUFFICIENT, REPLACE WITH ORANGE CONSTRUCTION FENCE OR SNOW FENCE.



TYPICAL CONSTRUCTION LIMIT BARRIER
N.T.S.



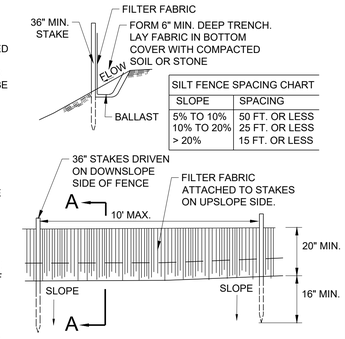
NOTES

1. CONTRACTOR SHALL STABILIZE CONSTRUCTION ENTRANCE AS REQUIRED TO PREVENT TRACKING OF SEDIMENT OFF-SITE.
2. CONTRACTOR TO USE MIRAFI 500X UNDER STONE FOR TEMPORARY CONSTRUCTION ROADS.
3. CRUSHED STONE SHALL BE ADDED OR REPLACED WHEN 80% OF THE VOIDS ARE FILLED WITH SEDIMENT.
4. STONE SIZE SHALL BE 2-3" ROCK.
5. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES IS ALLOWED.

STABILIZED CONSTRUCTION ENTRANCE
N.T.S.

NOTES

1. AT A MINIMUM, EROSION AND SEDIMENT CONTROL MEASURES MUST MEET ALL MEDEP STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL OR PREVIOUSLY APPROVED INTERCHANGEABLE PRACTICES.
2. PERIMETER CONTROLS SHALL BE UTILIZED IN SMALL AREAS < 1 ACRE. IN AREAS > 1 ACRE, TEMPORARY SEDIMENT TRAPS OR TEMPORARY SEDIMENT BASINS ARE TO BE UTILIZED.
3. PERIMETER CONTROLS SHALL BE INSTALLED ON DOWNSLOPE SIDE OF PLANNED EARTH DISTURBANCE.
4. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO ANY EARTH DISTURBING ACTIVITIES WITHIN UPSLOPE CONTRIBUTING AREA.
5. SILT FENCE SHALL NOT BE USED AS CONSTRUCTION DEMARCATION.
6. SILTSOXX CAN BE USED AS A SILT FENCE ALTERNATIVE, WITH PRIOR APPROVAL OF THE ENGINEER. SEE DETAIL.
7. IF SILT FENCE IS INSTALLED WHEN GROUND IS FROZEN, A GRAVEL, SHOT ROCK, OR SAND BALLAST MUST BE USED, MINIMUM OF 8".
8. WHEN DISTURBANCE IS WITHIN 75' OF A WATERBODY OR WETLAND CONTRACTOR MUST USE 2 ROWS OF SILT FENCE OR OTHER APPROVED PERIMETER BMP (SUCH AS SILT FENCE WITH FILTER SOCK OR SILT FENCE WITH EROSION CONTROL MIX).
9. INSTALL SILT FENCE AROUND DOWNGRADIENT OF ALL STOCKPILES AND PREVENT STORMWATER FROM RUNNING ONTO STOCKPILE AREAS.



TYPICAL TEMPORARY SILT FENCE
N.T.S.

CONSTRUCTION EROSION AND SEDIMENT CONTROL INSPECTOR

1. THE CONTRACTOR SHALL DESIGNATE A EROSION AND SEDIMENT CONTROL INSPECTOR THROUGHOUT THE ENTIRETY OF CONSTRUCTION. THE INSPECTOR OR HIS/HER DESIGNEE SHALL BE ON-SITE ON A DAILY BASIS DURING ACTIVE CONSTRUCTION.
2. THE INSPECTOR SHALL BE KNOWLEDGEABLE IN PRINCIPLES AND PRACTICES OF EROSION PREVENTION AND STORMWATER CONTROL. IMPLEMENTATION AND POSSESS SKILLS TO ASSESS CONDITIONS AT THE CONSTRUCTION SITE THAT COULD IMPACT STORMWATER QUALITY. TO ASSESS EFFECTIVENESS OF CONSTRUCTION BEST MANAGEMENT PRACTICES (BMPs) SELECTED TO CONTROL QUALITY OF STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY.
3. THE INSPECTOR SHALL BE RESPONSIBLE FOR ON-SITE IMPLEMENTATION OF THIS EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTIONS, MONITORING AND REPORTING.
4. INSPECTIONS SHALL BE PERFORMED AT MINIMUM ONCE A WEEK BUT ALSO PRIOR TO AND 24 HOURS AFTER A WET WEATHER EVENT. A "WET WEATHER EVENT" IS DEFINED AS 0.5 INCHES OR GREATER IN A 24 HOUR PERIOD.
5. THE SCOPE OF CONSTRUCTION INSPECTIONS SHALL INCLUDE BUT ARE NOT LIMITED TO ALL THE EROSION AND SEDIMENT CONTROL MEASURES ON SITE. DOCUMENTATION OF THE OVERALL DISTURBANCE FOR THE PROJECT SITE. REVIEW OF ALL STOCKPILE AREAS AND VEHICLE EGRESSES FROM THE PROJECT SITE.
6. CONSTRUCTION INSPECTION AND CORRECTIVE ACTION DOCUMENTATION RECORDS SHALL BE MAINTAINED FOR A MINIMUM OF 3 YEARS. THIS DOCUMENTATION SHALL BE MAINTAINED BY THE CONTRACTOR UNLESS OTHERWISE AUTHORIZED BY THE OWNER. CORRECTIVE ACTIONS SHOULD BE STARTED SAME DAY COMPLETED WITHIN 7 DAYS OR BEFORE THE NEXT STORM EVENT, WHICHEVER IS FIRST.
7. THE INSPECTOR SHALL HAVE AUTHORITY TO STOP AND/OR MODIFY CONSTRUCTION ACTIVITIES AS NECESSARY TO COMPLY WITH THESE PLANS AND TERMS AND CONDITIONS OF THE PERMIT.
8. THE INSPECTORS CONTACT INFORMATION SHALL BE PROVIDED TO MAINE DEP (IF DESIRED), PROJECT ENGINEER AND PROJECT OWNER PRIOR TO START OF CONSTRUCTION.

CONSTRUCTION LIMITS FOR EROSION AND SEDIMENT CONTROL

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PERFORMED IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMPs" DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST REVISION. CONTRACTOR SHALL HAVE A COPY OF THE LATEST REVISION ON SITE AT ALL TIMES.
2. CONTRACTOR SHALL LIMIT EXCAVATION AND EARTHWORK TO NO MORE THAN 10 ACRES NON-CONTIGUOUS OR 10 ACRES PER PROJECT SUBCATCHMENT THROUGHOUT THE CONSTRUCTION SITE AT ONE TIME. TEMPORARY STABILIZE ALL AREAS OF COMPLETED EXCAVATION AND EARTHWORK PRIOR TO MOVING ONTO A NEW AREA.
3. EXPOSED OR OPEN AREA FREE OF VEGETATION FROM CONSTRUCTION ACTIVITY SHALL BE LIMITED TO THAT WHICH CAN BE MULCHED IN ONE DAY.
4. CONTRACTOR SHALL MINIMIZE THE AMOUNT OF TIME AN AREA UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT EXPOSED OR FREE OF VEGETATION. AREAS WHICH ARE INITIALLY DISTURBED BUT FURTHER CONSTRUCT IS PLANNED MUST BE TEMPORARILY STABILIZED WITHIN 7 DAYS. IF THE AREAS ARE BEING LEFT FOR AN EXTENDED PERIOD OF TIME. AREAS WHICH ARE CONSIDERED FINISHED SHALL BE PERMANENTLY STABILIZED WITHIN 7 DAYS OF THE FINISH WORK. IF WORK IS WITHIN 75 FEET OF A WETLAND OR WATERBODY, THE ABOVE MENTIONED TIMEFRAME IS REDUCED TO 2 DAYS IN BOTH THE PERMANENT AND TEMPORARY CONDITIONS.
5. ALL EROSION AND SEDIMENT CONTROL BMPs SHALL BE INSTALLED PRIOR TO ANY SOIL DISTURBANCE. CONTRACTOR SHALL MAINTAIN THE BMPS THROUGHOUT CONSTRUCTION. REFER TO INDIVIDUAL DETAILS FOR EACH BMP.
6. REPAIR AND/OR REPLACE ANY EROSION AND SEDIMENT CONTROL BMPs WHICH HAVE BEEN DAMAGED OR NEED MAINTENANCE. ONCE A PROBLEM HAS BEEN IDENTIFIED BY THE INSPECTOR OR OTHERS, THE REPAIR SHALL BE UNDERWAY WITHIN THE END OF THE NEXT WORKING DAY AND COMPLETED WITHIN 7 DAYS OR BEFORE THE NEXT STORM EVENT.
7. CONTRACTOR IS RESPONSIBLE TO REMOVE ALL EROSION AND SEDIMENT CONTROL BMPs WITHIN 30 DAYS OF PERMANENT STABILIZATION. PERMANENT STABILIZATION IS DEFINED AS 90% GRASS CATCH IN VEGETATED AREAS.

GRADING, SEEDING AND MULCHING

1. NO SLOPES, PERMANENT OR TEMPORARY, SHALL BE STEEPER THAN 1.5:1. SLOPE STABILITY BASED UPON UNSATURATED SOIL CONDITIONS. IF DURING CONSTRUCTION SATURATED SOILS ARE ENCOUNTERED CONTRACTOR , CONTACT THE ENGINEER.
2. ALL AREA DISTURBED AND ALL AREAS WITHIN THE CLEARING LIMITS SHALL BE GRADED AND COVERED WITH A MINIMUM OF 4" OF LOAM TOPSOIL AND SMOOTHED.
3. MULCH ALL AREAS WHICH ARE DISTURBED FROM CONSTRUCTION PER THE TABLE BELOW. IF MULCH IS USED AS TEMPORARY STABILIZATION, REFRESH MULCHING AS NEEDED TO MAINTAIN STABILIZATION.
4. SEEDING SHOULD BE PERFORMED THROUGHOUT CONSTRUCTION AS A PERMANENT AND TEMPORARY STABILIZATION MEASURE. SEE SEED SPECIFICATIONS BELOW, TEMPORARY SEED CAN BE USES FOR BOTH TEMPORARY STABILIZATION OR IN COLDER MONTHS.

SEEDING SPECIFICATIONS

PERMANENT SEED MIX SHALL BE USED AS EARLY AS PRACTICABLE BETWEEN 4/15 AND 8/15 AND SHALL MEET THE FOLLOWING CRITERIA:

SEED	% WEIGHT
RED FESCUE	50%
SHEEP FESCUE	25%
RED TOP	5%
WHITE CLOVER	10%
ANNUAL RYE	10%

TEMPORARY SEED MIX SHALL BE USED BETWEEN 8/15 AND 04/15 AND SHALL MEET THE FOLLOWING CRITERIA:

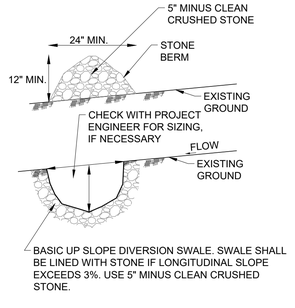
SEED	% WEIGHT	%GERMINATION
WINTER RYE	80% MIN.	85% MIN.
RED FESCUE (CREEPING)	4% MIN.	80% MIN.
PERENNIAL RYE GRASS	3% MIN.	90% MIN.
RED CLOVER	3% MIN.	90% MIN.
OTHER CROP GRASS	0.5% MAX.	
NOXIOUS WEED SEED	0.5% MAX.	
INERT MATTER	1% MAX.	

POLLINATOR SEED MIX SHALL CONTAIN SOME OF THE SPECIES OF SEED OR APPROVED EQUAL:

EASTERN (RED) COLUMBINE	VIRGINIA MOUNTAIN MINT	FOXGLOVE BEARDTONGUE
BLUE FALSE INDIGO	EARLY GOLDENROD	INDIAN BLANKET
HORSEFLYWEED	SMOOTH ASTER	BEE BALM
TALL WHITE BEARD TONGUE	NEW ENGLAND ASTER	CARDINAL FLOWER
OHIO SPIDERWORT	HEATH ASTER	GOLDEN ALEXANDERS
COMMON MILKWEED	GRAY GOLDEN ROD	SUNDIAL LUPINE
BUTTERFLY MILKWEED	LITTLE BLUESTEM	
PARTRIDGE PEA	BLACK EYED SUSAN	
WILD BERGAMOT	COREOPSIS	

GUIDE TO MULCH MATERIALS, RATES, AND USES

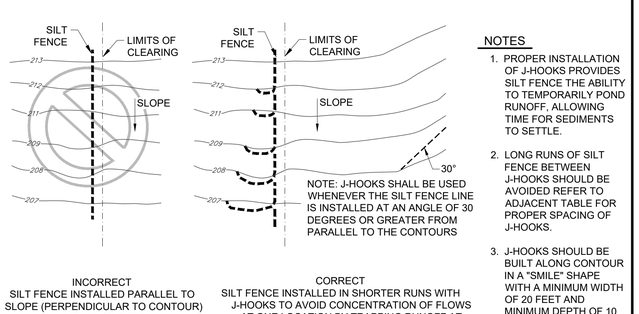
	QUALITY STANDARDS	PER 1000 SQ. FT. (Rates noted shall be doubled during winter construction)	PER ACRE	DEPTH OF APPLICATION	REMARKS
WOOD CHIPS OR SHAVINGS	AIR-DRIED. FREE OF OBJECTIONABLE COARSE MATERIAL	500-900 LBS	10-20 TONS	2 - 7"	USED PRIMARILY AROUND SHRUB AND TREE PLANTINGS AND RECREATION TRAILS TO INHIBIT WEED COMPETITION. RESISTANT TO WIND BLOWING. DECOMPOSES SLOWLY.
WOOD FIBER CELLULOSE (PARTLY DIGESTED WOOD FIBERS)	MADE FROM NATURAL WOOD USUALLY WITH GREEN DYE AND DISPERSING AGENT	50 LBS	2,000 LBS.	-	APPLY WITH HYDROMULCHER. NO TIE DOWN REQUIRED. LESS EROSION CONTROL PROVIDED THAN 2 TONS OF HAY OR STRAW.
GRAVEL, CRUSHED STONE OR SLAG	WASHED; SIZE 2B OR 3A - 1½"	9 CU. YDS.	405 CU. YDS.	3"	EXCELLENT MULCH FOR SHORT SLOPES AND AROUND PLANTS AND ORNAMENTALS. USE 2B WHERE SUBJECT TO TRAFFIC. (APPROXIMATELY 2,000 LBS./CU. YD.). FREQUENTLY USED OVER FILTER FABRIC FOR BETTER WEED CONTROL.
HAY OR STRAW	AIR-DRIED; FREE OF UNDESIRABLE SEEDS & COARSE MATERIALS	90-100 LBS 2-3 BALES	2 TONS (100-120 BALES)	COVER ABOUT 90% SURFACE	USE SMALL GRAIN STRAW WHERE MULCH IS MAINTAINED FOR MORE THAN THREE MONTHS. SUBJECT TO WIND BLOWING UNLESS ANCHORED. MOST COMMONLY USED MULCHING MATERIAL. PROVIDES THE BEST MICRO-ENVIRONMENTAL FOR GERMINATING SEEDS.
COMPOST	UP TO 3" PIECES, MODERATELY TO HIGHLY STABLE	3-9 CU. YDS.	134-402 CU. YDS.	1 - 3"	COARSER TEXTURED MULCHES MAY BE MORE EFFECTIVE IN REDUCING WEED GROWTH AND WIND EROSION.
EROSION CONTROL MIX	WELL-GRADED MIXTURE OF PARTICLE SIZES. ORGANIC CONTENT BETWEEN 80-100%, DRY WEIGHT. PARTICLE SIZE SHALL PASS 6" SCREEN (100%)	* SLOPES 3(HZ.):1(VERT.) OR FLATTER = 2 INCH DEPTH PLUS ADDITIONAL 1/2 INCH DEPTH PER 20 FT. OF SLOPE UP TO 100 FT. ** SLOPES BETWEEN 3(HZ.):1(VERT.) AND 2(HZ.):1(VERT.) = 4 INCH DEPTH PLUS ADDITIONAL 1/2 INCH PER 20 FT. OF SLOPE UP TO 100 FT. *** SLOPES STEEPER THAN 2(HZ.):1(VERT.) USE OF EROSION CONTROL MIX AND MULCH DEPTH TO BE REVIEWED AND APPROVED PRIOR TO USE BY ON SITE PLAN COORDINATOR OR EPSC SPECIALIST			COMPRISED OF SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. MAY CONTAIN ROCK < 4" IN DIAMETER. ORGANICS SHALL BE FIBROUS AND ELONGATED. NO LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS.



NOTES

1. UPSLOPE DIVERSION BERM WILL BE USED AS SHOWN ON PLAN AND DETAIL. DIVERSION SWALES ARE NOT PART OF THIS DESIGN, IF NECESSARY DURING CONSTRUCTION, CONTRACTOR SHALL CHECK WITH THE PROJECT ENGINEER FOR SIZING.

TYPICAL UPSLOPE DIVERSION DETAIL
N.T.S.

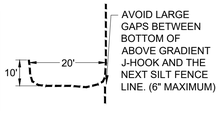


NOTE: J-HOOKS SHALL BE USED WHENEVER THE SILT FENCE LINE IS INSTALLED AT AN ANGLE OF 30 DEGREES OR GREATER FROM PARALLEL TO THE CONTOURS

NOTES

1. PROPER INSTALLATION OF J-HOOKS PROVIDES SILT FENCE THE ABILITY TO TEMPORARILY POND RUNOFF, ALLOWING TIME FOR SEDIMENTS TO SETTLE.
2. LONG RUNS OF SILT FENCE BETWEEN J-HOOKS SHOULD BE AVOIDED REFER TO ADJACENT TABLE FOR PROPER SPACING OF J-HOOKS.
3. J-HOOKS SHOULD BE BUILT ALONG CONTOUR IN A "SMILE" SHAPE WITH A MINIMUM WIDTH OF 20 FEET AND MINIMUM DEPTH OF 10 FEET.
4. ALONG A NARROW RIGHT OF WAY, NARROWER J-HOOKS CAN BE USED WITH A HIGHER SPACING FREQUENCY.

SLOPE STEEPNESS	MAXIMUM SPACING BETWEEN SILT FENCE J-HOOKS (FT.)
2:1 SLOPE (50%)	25
3:1 SLOPE (33%)	50
4:1 SLOPE (25%)	75
5:1 SLOPE OR FLATTER (50%)	100



TYPICAL SILT FENCE "J-HOOK" CONSTRUCTION
N.T.S.

PENLEY CORNER SOLAR PROJECT

Penley Corner Road,
Auburn, Maine

BLUEWAVE
116 Huntington Avenue, Suite 601
Boston, Massachusetts 02116
P: (617) 209-3122

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

PROJECT APPLICANT
SOPER MILL BROOK, LLC.

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

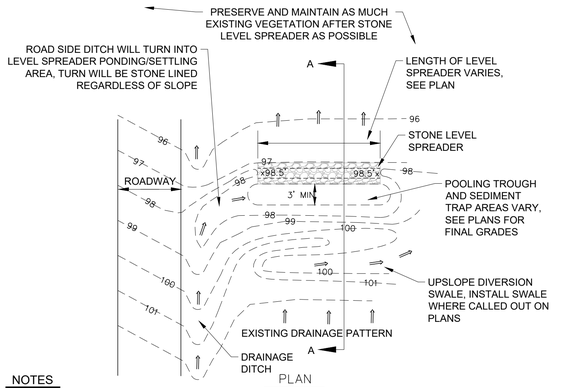
STAMP:
STATE OF MAINE
IAN JENKES
NO. 17165
LICENSED PROFESSIONAL ENGINEER
JANUARY 9, 2025

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
EROSION & SEDIMENT CONTROL DETAILS

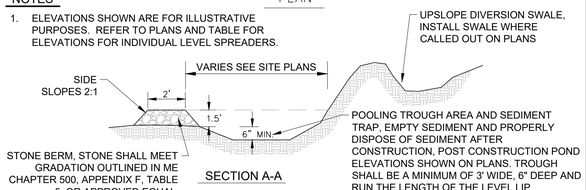
DATE ISSUED: 1/9/2025
DRAWN BY: MNS
CHECKED BY: IAJ
PROJECT NO.: 23320
SCALE: N/A
DRAWING NO.: C-4.00
REV. NO.:

DWG NAME: Bluewave_PenleyCorner-Solar_Base.dwg



NOTES

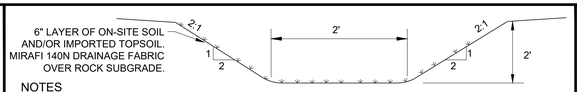
1. ELEVATIONS SHOWN ARE FOR ILLUSTRATIVE PURPOSES. REFER TO PLANS AND TABLE FOR ELEVATIONS FOR INDIVIDUAL LEVEL SPREADERS.



SECTION A-A

LEVEL LIP SPREADER & DITCH TURNOUT DETAIL

N.T.S.



NOTES

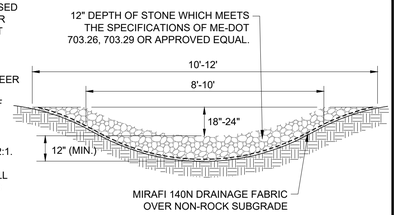
1. TYPICAL GRASS SWALE. SEE PLAN VIEW FOR LOCATIONS.
2. TYPICAL SIDE SLOPES TO BE 2:1.
3. DURING CONSTRUCTION TEMPORARILY SEEDED AND HEAVILY MULCHED. EROSION CONTROL BLANKET MAY BE NECESSARY IN STEEPER SLOPES, INSTALL BLANKET IF EROSION PERSISTS AND/OR GRASS IS HAVING DIFFICULTY GERMINATING. POST CONSTRUCTION CONTRACTOR SHALL RE-GRADE ANY EROSION, REMOVE BUILD UP SEDIMENTS, PERMANENT SEED AND HEAVILY RE-MULCH.
4. CROSS-SECTION SHALL BE EXCAVATED TO NEAT LINES AND GRADES. OVER-EXCAVATED AREAS SHALL BE BACKFILLED WITH MOIST SOIL COMPACTED TO DENSITY OF SURROUNDING MATERIAL.
5. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF IN APPROVED UPLAND AREA (PER ON SITE PLAN COORDINATOR) SUCH THAT IT DOES NOT INTERFERE WITH FUNCTION.

GRASS SWALE CROSS SECTION

N.T.S.

NOTES

1. STONE-LINED SWALES TO BE USED ON SLOPES >5%. DESIGNED FOR VELOCITIES LESS THAN 10 FEET PER SECOND.
2. USE RIP RAP STONE. PROVIDE QUARRY GRADATION TO ENGINEER FOR APPROVAL. STONE WHICH MEETS THE SPECIFICATIONS OF ME-DOT 703.26, 703.29 OR APPROVED EQUAL.
3. SIDE SLOPES NOT TO EXCEED 2:1.
4. STONE LINING THICKNESS SHALL BE 1.5 X MAX. STONE SIZE PLUS THE THICKNESS OF FILTER OR BEDDING.
5. ALL DISTURBED AREAS SHALL BE STABILIZED AND OTHERWISE PROTECTED AGAINST SOIL EROSION.

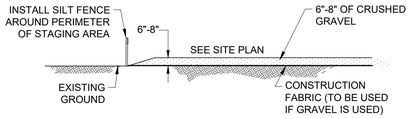


STONE SWALE CROSS SECTION

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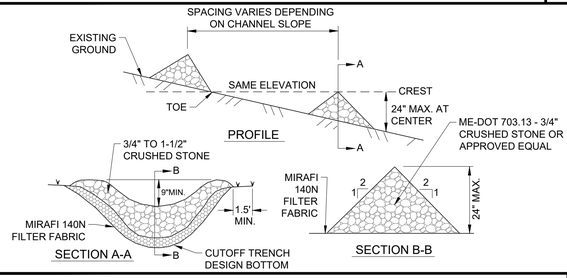
NOTES

1. SILT FENCING TO BE INSTALLED BEFORE CONSTRUCTION OF STAGING AREA IS INSTALLED.
2. INSTALL AND MAINTAIN SURFACE OF STAGING AREA WITH CONSTRUCTION FABRIC OVER EXISTING GROUND. COVER WITH 6"-8" OF CRUSHED GRAVEL, SEE DETAIL. MAINTAIN DEPTH OF GRAVEL THROUGHOUT PROJECT CONSTRUCTION.
3. INSTALL AND MAINTAIN STABILIZED CONSTRUCTION ENTRANCE, SEE DETAIL. INSTALL WOODEN GATE AT ENTRANCE OF OF STAGING AREA.
4. ALL ABUTTERS TO STAGING AREA WILL BE NOTIFIED OF THE PROJECT. DUE TO LIKELY CONSTRUCTION NOISE, ACTIVITIES AT STAGING AREA AND CONSTRUCTION SITE SHALL ABIDE BY LOCAL NOISE ORDINANCES.
5. STAGING AREA IS LIKELY TO BE USED FOR PARKING DURING CONSTRUCTION, STAGING OF CONSTRUCTION MATERIALS, BASE OF PROJECT OPERATIONS AND MISCELLANEOUS PROJECT ACTIVITIES.
6. CLOSE TO PROJECT CONSTRUCTION COMPLETION, STAGING AREA WILL BE REMOVED. GRAVEL AND CONSTRUCTION FABRIC SHALL BE REMOVED AND PROPERLY DISPOSED OF. RESTORE THE PORTION OF EXISTING MEADOW COVERED BY STAGING AREA BY SEEDING, MULCHING, AERATING, ETC AS NECESSARY TO RESTORE AREA TO ITS NATURAL PRECONSTRUCTION STATE.
7. CONTRACTOR IS RESPONSIBLE FOR REFRESHING GRAVEL AS NEEDED TO MAINTAIN STABILITY OF STABILIZED STAGING AREA.



TYPICAL STABILIZED STAGING AREA SURFACE

N.T.S.



NOTES

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONES.

STONE CHECK DAM

N.T.S.

WINTER EROSION CONTROL PROCEDURES

(FOR ANY EARTH WORK PERFORMED BETWEEN NOVEMBER 1ST AND APRIL 15TH)

WINTER EROSION CONTROL NARRATIVE:
OBJECTIVE - ANY SITE WORK PERFORMED LATER THAN NOVEMBER 1ST WILL RESULT IN EXPOSED SOIL THROUGH THE WINTER. THIS PRESENTS A POTENTIAL FOR EROSION THROUGH THE WINTER. THE WINTER EROSION CONTROL MEASURES ARE INTENDED TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION ZONE DURING THAWS AND RAINSTORMS IN THE SPRING AND DURING MID-WINTER THAWS.

WINTER EROSION CONTROL SEQUENCE:
THE CONTRACTOR SHALL BE SURE ALL EROSION CONTROL MEASURES REQUIRED FOR WINTER CONSTRUCTION ARE INSTALLED BY NOVEMBER 1ST AND PRIOR TO GROUND FREEZING. IF A PERMITTED AREA CAN BE LEFT UNDISTURBED UNTIL THE SPRING THE CONTRACTOR SHALL MAKE EVERY EFFORT TO LIMIT DISTURBANCE OF THESE AREAS.

THE CONTRACTOR SHALL STABILIZE ANY PORTION OF THE SITE THAT IS BEING WORKED AND DISTURBED PRIOR TO BEGINNING CONSTRUCTION AT ANOTHER AREA OF THE SITE. AT NO TIME DURING WINTER CONSTRUCTION SHALL THERE BE MORE THAN 1 ACRE OF EXPOSED SOIL OR WHAT CAN BE STABILIZED IN ONE DAY ON SITE.

ANTICIPATED WINTER CONSTRUCTION ACTIVITIES WILL INCLUDE ALL ASPECTS OF THE PROJECT PROPOSED DURING SUMMER CONSTRUCTION. THIS IS A CONTINUATION OF WORK WHICH WAS NOT COMPLETED DURING THE SUMMER. MAJOR GRADING IS EXPECTED TO BE COMPLETE BEFORE NOVEMBER 1ST.

LIMITS OF DISTURBANCE - LOD WILL BE MOVED AND/OR REPLACED TO REFLECT THE BOUNDARY OF WINTER WORK. CONTRACTOR WILL MAINTAIN A MINIMUM 25' BUFFER FROM PERIMETER CONTROLS TO ALLOW FOR SNOW CLEARING AND MAINTENANCE.

SNOW STORAGE ON SITE - CONTRACTOR WILL CREATE A SNOW MANAGEMENT PLAN. PLAN WILL IDENTIFY LOCATIONS FOR ADEQUATE SNOW STORAGE AND CONTROL SNOW MELT. SNOW STORAGE WILL BE DOWN GRADIENT OF ALL DISTURBED AREAS AND WILL NOT PROHIBIT THE FUNCTION OF ALL PERMANENT STORMWATER TREATMENT STRUCTURES. CONTRACTOR SHALL KEEP ALL DRAINAGE STRUCTURES OPEN AND FREE OF SNOW AND ICE DAMS. CONTRACTOR SHALL NOT STORE SNOW IN ONE CENTRAL LOCATION WHICH WOULD CREATE A CENTRALIZED POINT IN A MELTING SITUATION, ATTEMPT TO SPREAD SNOW PILES.

INSTALL SILT FENCE - SILT FENCE SHALL BE INSTALLED ON THE DOWNHILL SIDE OF THE WINTER CONSTRUCTION AREAS AND SOIL STOCKPILE AREAS, AS SHOWN ON THE PLAN, BY NOVEMBER 1ST. IF THE GROUND IS UNFROZEN, THE SILT FENCE SHALL BE DUG IN AS NORMAL. IF THE GROUND IS FROZEN CONTACT THE ENGINEER FOR ALTERNATE OPTIONS. STONE BERM, FILTREXX SILT SOXX, STRAW WATTLES, HAY BALES,ETC. ALL MAY BE USED TO KEY IN SILT FENCE AND STRENGTHEN THE BMP.

STABILIZED CONSTRUCTION ENTRANCE - THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL STABILIZED CONSTRUCTION ENTRANCES TO PREVENT SEDIMENT TRACKING OFF SITE. CONTRACTOR SHALL ENLARGE THE WIDTH OF ACCESS TO PROVIDE ADDITIONAL ROOM FOR SNOW STOCKPILING, IF NEEDED. ADDITIONAL STONE SHALL BE ADDED OR THE LENGTH SHALL BE INCREASED, IF ICE AND SNOW LIMITS CONSTRUCTION ENTRANCE'S ABILITY TO HOLD SEDIMENTS ON SITE.

WINTER STABILIZATION – ALL DISTURBED AREAS NOT INVOLVED IN WINTER CONSTRUCTION SHALL BE AT LEAST TEMPORARILY STABILIZED BY NOVEMBER 1ST. AFTER, ALL AREAS DISTURBED DURING WINTER CONSTRUCTION SHALL BE STABILIZED DAILY TO PREVENT EXPOSURE FROM RAIN EVENTS AND ACCUMULATION OF SNOWFALL (SEE EXCEPTIONS BELOW). STABILIZATION RATES IN THE WINTER WILL BE DOUBLED THE RATES LISTED IN THE MULCHING SCHEDULE. CONTRACTOR SHALL ADD ADDITIONAL STONE, AS NECESSARY, TO PROVIDE STABILIZATION THROUGH WINTER CONSTRUCTION ON ALL AREAS WHERE CONSTRUCTION TRAFFIC IS ANTICIPATED.

EXCEPTIONS:

- HYDROSEEDING AFTER NOVEMBER 1ST AND BEFORE APRIL 15TH MUST BE STABILIZED WITH STRAW MULCH OR EROSION CONTROL MATTING.
- SNOW AND/OR ICE MUST BE REMOVED TO, AT MOST, ONE INCH PRIOR TO APPLYING MULCH OR EROSION CONTROL STABILIZATION MATTING.
- IF NO PRECIPITATION, WITHIN 24 HOURS, IS FORECASTED AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.
- DISTURBED AREAS THAT COLLECT AND RETAIN RUNOFF, SUCH AS OPEN UTILITY TRENCHES, REQUIRE STABILIZATION AT THE END OF EACH WORK WEEK.

MAINTENANCE - ALL DISTURBED AREAS SHALL BE MONITORED BY THE CONTRACTOR AND THE INSPECTOR IN ACCORDANCE WITH THE PERMIT. THE CONTRACTOR AND INSPECTOR SHALL EVALUATE THE SITE AFTER A THAW OR RAINSTORM. THE CONTRACTOR OR INSPECTOR SHALL NOTIFY THE ENGINEER IF ANY EROSION CONTROL MEASURES APPEAR TO BE INADEQUATE. THE CONTRACTOR OR INSPECTOR SHALL IMMEDIATELY (WITHIN THE SAME BUSINESS DAY) IMPLEMENT ANY FURTHER EROSION CONTROL MEASURES SPECIFIED BY THE ENGINEER. THE CONTRACTOR OR INSPECTOR SHALL ADD MULCH, AS NECESSARY, THROUGHOUT THE WINTER AFTER THAWS OR RAINSTORMS. THE MULCH DEPTHS SHALL BE DOUBLED. THE MULCH AND SILT FENCE SHALL BE MAINTAINED UNTIL A PERMANENT GROUND COVER (90% STABILIZATION) IS ESTABLISHED IN THE SPRING. THE SITE SHALL BE REMULCHED AND RESEEDED, IN THE SPRING, AS REQUIRED TO ESTABLISH A VIGOROUS PERMANENT GROUND COVER.

INSPECTION - THE EROSION AND SEDIMENT INSPECTOR SHALL BE RESPONSIBLE FOR, AT A MINIMUM, DAILY WRITTEN INSPECTIONS WHILE THE SITE IS DISTURBED OR WEEKLY IF EVERYTHING IS STABILIZED BUT CONSTRUCTION IS ON-GOING. IF, DURING WINTER CONSTRUCTION, EARTH DISTURBANCE ACTIVITIES TEMPORARILY CEASE AND THE SITE HAS BEEN FULLY STABILIZED, INSPECTION AND MONITORING REQUIREMENTS FOR THE INSPECTOR MAY BE REDUCED TO ONCE PER MONTH MINIMUM. ALL INSPECTION SHEETS SHALL BE KEPT ON SITE AND BE AVAILABLE UPON REQUEST.

HOUSEKEEPING PROCEDURES

1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT : HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

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. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

SEE APPENDIX D FOR LICENSE BY RULE STANDARDS FOR INFILTRATION OF STORMWATER.

NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

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, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

4. DEBRIS AND OTHER MATERIALS. MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST- CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. EXCAVATION DE-WATERING. EXCAVATION 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 REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, 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.

NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

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 APPENDIX (C)(3)
   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 APPENDIX C(5))
   k. POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS
   l. 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 APPENDIX C (6). 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
   d. TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE

8. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

SLOPE INSTALLATION



NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN SLOPE IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNELS. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™ STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE: BLANKET SHALL BE USED ON SLOPES 3:1 OR STEEPER

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040 CANADA 1-800-448-2040
www.nagreen.com

EROSION CONTROL BLANKET

NORTH AMERICAN GREEN S75BN

MATERIAL SPECIFICATIONS:

- EROSION CONTROL BLANKET SHALL BE A MACHINE-PRODUCED MAT OF 100% AGRICULTURAL STRAW.
- THE BLANKET SHALL BE OF CONSISTENT THICKNESS WITH THE STRAW EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP SIDE WITH 100% BIODEGRADABLE WOVEN NATURAL ORGANIC FIBER NETTING HAVING AN APPROXIMATE 1/2" X 1" MESH AND BE SEWN TOGETHER WITH BIODEGRADABLE THREAD.
- STRAW EROSION CONTROL BLANKET SHALL BE S75BN AS MANUFACTURED BY NORTH AMERICAN GREEN, INC. (812-867-6632) OR EQUIVALENT. EROSION CONTROL BLANKET SHALL HAVE THE FOLLOWING PROPERTIES:

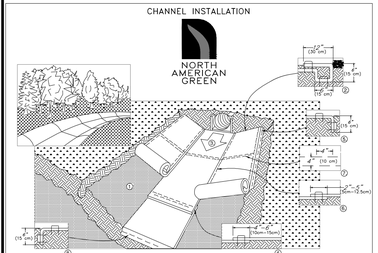
MATERIAL CONTENT:

- STRAW: 100% (0.50 lbs/sq.yd.)(0.27 kg/m^2)
- NETTING: ONE SIDE ONLY, LENO WOVEN 100% BIODEGRADABLE NATURAL ORGANIC FIBER (APPROX. WEIGHT 9.3 lbs./100 sq. ft.)
- THREAD: BIODEGRADABLE

PHYSICAL SPECIFICATIONS (ROLL):

- WIDTH: 6.67 feet (2.03 m)
- LENGTH: 108 feet (32.92 m)
- WEIGHT: 46.4 lbs. ± 10% (21.05 kg)
- AREA: 80 sq. yd. (50 m^2)

CHANNEL INSTALLATION


NORTH AMERICAN GREEN
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6" (15cm)
4" (10cm)
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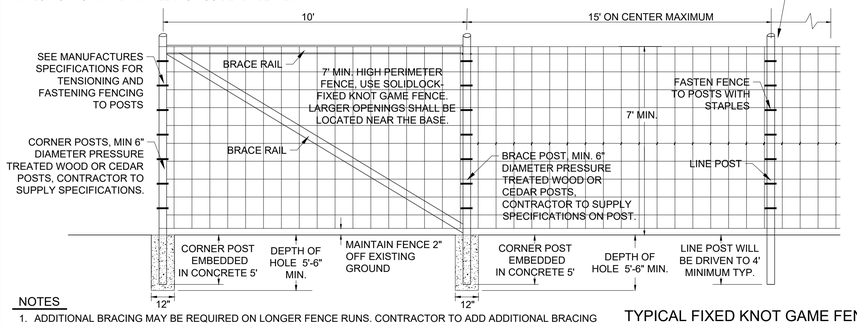
FENCE MATERIAL:
SOLIDLOCK FIXED KNOT GAME FENCE SPECIFICATION:

- FENCE FABRIC SHALL BE BEKAERT ZA-6" FIXED KNOT GAME FENCE
- 96" HIGH
- 12.5 GAUGE WIRE
- CLASS 3 GALVANIZED

INSTALL ALL FENCE COMPONENTS IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS. SEE "FIXED KNOT BRACE SPECIFICATIONS AND INSTALLATION GUIDE" BY BEKAERT.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO ORDERING AND CONSTRUCTING FENCE.

LINE POSTS 15' ON CENTER MAXIMUM. LINE POSTS SHALL BE MIN. 4" DIAMETER PRESSURE TREATED WOOD OR CEDAR POST CONSTRUCTED IN SIMILAR FASHION AS CORNER POSTS ON THIS DETAIL.



NOTES

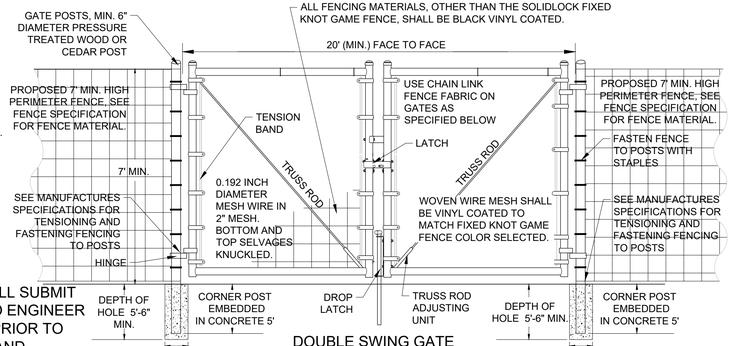
1. ADDITIONAL BRACING MAY BE REQUIRED ON LONGER FENCE RUNS. CONTRACTOR TO ADD ADDITIONAL BRACING WHEN CONTRACTOR OBSERVES CORNER POST DEFLECTION DURING FENCE TENSINOING/FASTENING.
2. FABRIC TO BE FASTENED TO POSTS WITH STAPLES APPROVED BY THE ENGINEER.

TYPICAL FIXED KNOT GAME FENCE AROUND ARRAY (RENDERING)
N.T.S.

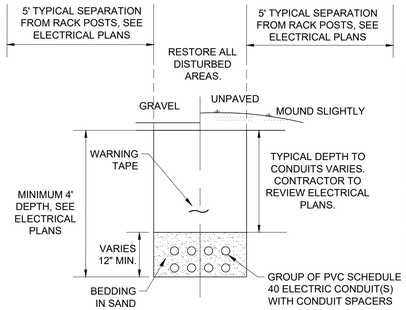
NOTES

1. PAINT ALL GALVANIZED PIPE AND FITTINGS TO MATCH SOLIDLOCK FIXED KNOT GAME FENCE. PAINT SHALL BE SUITABLE FOR USE ON GALVANIZED SURFACES.
2. EMERGENCY CONTACT SIGN SHALL BE PLACED ON THE GATE, WHICH IDENTIFIES THE PROJECT OWNER AND PROVIDES A 24-HOUR EMERGENCY CONTACT PHONE NUMBER.

CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ENGINEER FOR APPROVAL PRIOR TO ORDERING AND CONSTRUCTING FENCE.



DOUBLE SWING GATE (RENDERING)
N.T.S.



THE EXCAVATION CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH OSHA REGULATIONS. ALL BACKFILL SHALL BE COMPACTED TO 95% OF THE STANDARD PROCTOR VALUE. SEE ADDITIONAL NOTES.

USE "TRENCH BREAKERS" EVERY 50 FEET ALONG DOWNHILL PORTIONS OF CONDUIT RUNS.

TYPICAL CONDUIT TRENCH
N.T.S.

CONDUIT TRENCHING NOTES

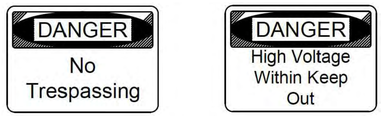
1. THE METHODS AND MATERIALS OF CONSTRUCTION SHALL CONFORM TO THE LATEST STANDARDS OF THE CENTRAL MAINE POWER'S HANDBOOK OF REQUIREMENTS AND THE STATE OF MAINE. ALL WORK SHALL BE IN CONFORMANCE WITH ALL PERMITS AND APPROVALS ISSUED FOR THE PROJECT. IN CASE OF CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY AS DIRECTED BY THE OWNERS REPRESENTATIVE.
2. THE EXCAVATION CONTRACTOR SHALL DIG THE CONDUIT TRENCHING AND ASSIST THE ELECTRICIAN IN PLACING THE CONDUIT. THE CONDUITS SHALL BE PLACED WITH CONDUIT SPACERS WHEN MORE THAN TWO CONDUITS ARE PLACED IN A TRENCH. ALL CONDUIT AND SPACERS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
3. THE EXCAVATION CONTRACTOR SHALL ALLOW SUFFICIENT TIME FOR THE CONDUIT TO BE INSPECTED PRIOR TO BACKFILLING. IF ANY CONDUIT IS BACKFILLED WITHOUT INSPECTION IT WILL BE THE EXCAVATION CONTRACTOR'S RESPONSIBILITY TO UNCOVER THE CONDUIT FOR INSPECTION AND BACKFILL THE TRENCH WITHOUT CHARGE.
4. THE WORKERS AND PUBLIC SHALL BE PROTECTED BY THE EXCAVATION CONTRACTOR FROM ANY AND ALL HAZARDS CONNECTED WITH THE CONSTRUCTION WORK. OPEN TRENCHES, MATERIALS, OR EQUIPMENT WITHIN THE WORKING LIMITS ARE TO BE GUARDED BY THE USE OF ADEQUATE BARRICADES OR FLAGGERS. ALL BARRICADES LEFT IN POSITION OVERNIGHT ARE TO BE PROPERLY LIGHTED. WHEN WORK NARROWS THE USABLE PAVEMENT, FLAGGERS SHALL BE EMPLOYED TO AID THE FLOW OF TRAFFIC SO THAT THERE WILL BE NO UNDUE DELAYS. ALL WORK SHALL BE IN CONFORMANCE TO OSHA REGULATIONS, TITLE 19, PARTS 1926.651 AND 1926.652.
5. ALL CONDUIT CROSSING GRAVEL AREAS OR GRASS PATH AREAS SHALL BE ENCASED IN CONCRETE. CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE WITH CENTRAL MAINE POWER'S HANDBOOK OF REGULATIONS AND THE ELECTRICAL PLANS.
6. THE EXCAVATION CONTRACTOR IS RESPONSIBLE FOR COMPACTING ALL TRENCH BACKFILL TO 95% OF THE STANDARD PROCTOR VALUE.
7. THE EXCAVATION CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT EXCAVATION AND BACKFILL NECESSARY TO COMPLETE THE PROJECT.
8. REFER TO ELECTRICAL ENGINEER PLANS AND DETAILS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

SITE ADDRESS: XXXXXXX

SITE OWNER: XXXXXXX
CONTACT: XXX-XXX-XXXX

O & M COMPANY: SOLAR PROJECT OWNER NAME
CONTACT: XXX-XXX-XXXX

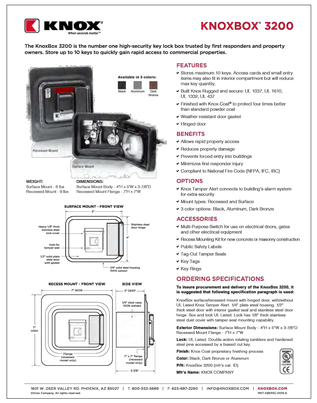
TYPICAL EMERGENCY CONTACT SIGN
N.T.S.



TYPICAL WARNING SIGNS
N.T.S.

NOTES

1. SIGNS SHALL CONFORM TO 2013 OSHA AND ANSI REQUIREMENTS
2. SIGNS SHALL BE 20" WIDE BY 14" HIGH MINIMUM
3. SIGNS SHALL HAVE A MOUNTING HEIGHT BETWEEN 45 AND 66 INCHES.
4. SIGNS SHALL BE 10 GAUGE ALUMINUM WITH HIGH VISIBILITY REFLECTIVE SHEETING, OR APPROVED EQUAL



KNOX BOX 3200 DETAIL

THE PRODUCT SHOWN (OR AN APPROVED EQUIVALENT) SHALL BE USED TO MAINTAIN EMERGENCY ACCESS TO PROJECT GATE FOR LOCAL POLICE AND FIRE DEPARTMENT SERVICES. COORDINATE INSTALLATION AND SECURITY OF ACCESS GATE WITH THE TOWN OF TURNER FIRE DEPARTMENT.

CONSTRUCTION NOTES

1. THE METHODS AND MATERIALS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH ALL PERMITS AND APPROVALS ISSUED FOR THE PROJECT. IN CASE OF CONFLICT, THE MORE STRINGENT SPECIFICATION SHALL APPLY AS DIRECTED BY ENGINEER. ALL WORK SHALL BE DONE IN A WORKMANLIKE MANNER AND COMPLETED IN THE TIME SPECIFIED BY OWNER.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS SHOWN AND REQUIRED TO MAKE THE JOB COMPLETE. THESE DRAWINGS DO NOT SHOW EVERY FITTING OR APPURTENANCE. MATERIALS SHALL BE AS SPECIFIED ON THE DRAWINGS. MANUFACTURER'S PRODUCT SPECIFICATIONS SHALL BE SUBMITTED FOR ALL MATERIALS TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
3. THE LOCATION AND SIZE OF EXISTING UNDERGROUND UTILITIES IS NOT WARRANTED TO BE EXACT OR COMPLETE. THE CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES AND SHALL CONTACT THE AFFECTED UTILITY COMPANY, THE ENGINEER AND THE TOWN PRIOR TO MAKING ANY HOOK UPS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXISTING UTILITIES AND THEIR UNINTERRUPTED SERVICES. ALL OFF-SITE BACKFILL, SHEETING AND SHORING, DEWATERING, CLEARING AND GRUBBING, EROSION CONTROL, DUST CONTROL, TRAFFIC CONTROL, GRADING, AND ALL INCIDENTALS SHALL BE INCLUDED AS PART OF THE REQUIRED WORK.
4. THE CONTRACTOR SHALL VERIFY ALL TEMPORARY BENCH MARKS BEFORE USE.
5. THE WORKMEN AND PUBLIC SHALL BE PROTECTED BY THE CONTRACTOR FROM ANY AND ALL HAZARDS CONNECTED WITH THE CONSTRUCTION WORK. OPEN TRENCHES, MATERIALS, OR EQUIPMENT WITHIN THE WORKING LIMITS ARE TO BE GUARDED BY THE USE OF ADEQUATE BARRICADES OR FLAGMEN. ALL BARRICADES LEFT IN POSITION OVERNIGHT ARE TO BE PROPERLY LIGHTED. KEROSENE POTS ARE NOT ACCEPTABLE. WHEN WORK NARROWS THE USABLE PAVEMENT, FLAGMEN SHALL BE EMPLOYED TO AID THE FLOW OF TRAFFIC SO THAT THERE WILL BE NO UNDUE DELAYS. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR THE SAFETY OF ALL WORKMEN AND THE GENERAL PUBLIC AND ALL DAMAGES TO PROPERTY OCCURRING FROM OR UPON THE WORK OCCASIONED BY NEGLIGENCE OR OTHERWISE GROWING OUT OF A FAILURE ON THE PART OF THE CONTRACTOR TO PROTECT PERSONS OR PROPERTY FROM HAZARDS OF OPEN TRENCHES, MATERIALS, OR EQUIPMENT AT ANY TIME OF THE DAY OR NIGHT WITHIN THE WORKING AREA. ALL WORK SHALL BE IN CONFORMANCE TO OSHA REGULATIONS, TITLE 19, PARTS 1926.651 AND 1926.652.
6. THE CONTRACTOR SHALL VERIFY ALL UTILITY INTERSECTIONS AND CONTACT ENGINEER AND OWNER WITH CONFLICTS.
7. THE CONTRACTOR SHALL CALL, DIG SAFE OR OTHER APPROVED EQUAL UNDERGROUND UTILITY IDENTIFIER PRIOR TO ANY EXCAVATION.
8. THE CONTRACTOR SHALL COORDINATE WITH FINAL ELECTRICAL, STRUCTURAL AND LANDSCAPING PLANS.

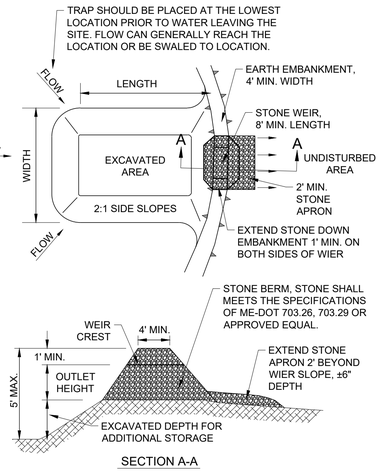
NOTES

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT (VEGETATION DUFF LAYER). THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER. THE USE OF GREATER SLOPES MAYBE PERMITTED WITH OSPC OR EPSC SPECIALIST APPROVAL.
4. THE STONE USED IN THE OUTLET SHALL BE VAOT 706.04 TYPE 1 STONE OR APPROVED ON SITE SHOT ROCK, PLACED ON MIRAFI 140N OR APPROVED EQUAL DRAINAGE FABRIC.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO $\frac{1}{2}$ THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND AS REQUIRED BY THE PERMIT.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. IF THE SEDIMENT TRAP IS NOT IN THE LOCATION OF A PERMANENT STORMWATER POND, THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.
9. THE MAXIMUM CONTRIBUTING DRAINAGE AREA IS 5 ACRES.
10. GENERAL SIZING REQUIREMENTS FOR ANY SEDIMENT TRAPS NOT IN THE LOCATION OF A PERMANENT STORMWATER POND, SHALL BE 3,600 CUBIC FEET PER ACRE OF DRAINAGE AREA. VOLUME CALCULATION FOR NATURAL SEDIMENT TRAPS MAY BE APPROXIMATED USING THE SURFACE AREA AT OUTLET ELEVATION (A), TRAPS MAXIMUM DEPTH (D) AND THE FOLLOWING EQUATION:
    - TOTAL VOLUME = 0.4 * A (IN SQUARE FEET) * D (FEET)

    FOR CONSTRUCTED/EXCAVATED TEMPORARY SEDIMENT TRAPS THE SIZE SHALL BE ADJUSTED PROPORTIONALLY FOR LARGER DRAINAGE AREAS BASED ON THE BELOW CHART.

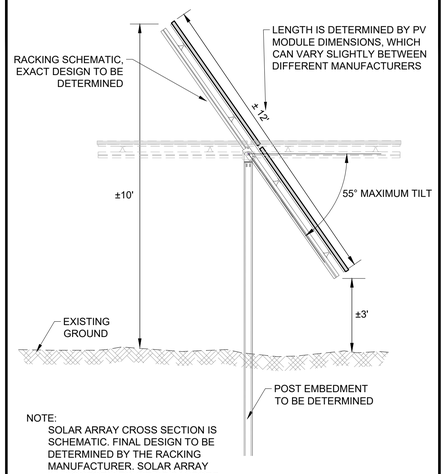
APPROX. DRAINAGE AREA	APPROX. STORAGE VOLUME	RECOMMENDED BOTTOM DIMENSIONS	RECOMMENDED DIMENSIONS AT OUTLET	DEPTH AT OUTLET	SIDE SLOPES
0.25 ACRES (±10,900 S.F.)	±900 C.F.	10 FT. WIDE X 13 FT. LONG	22 FT. WIDE X 25 FT. LONG	3 FT.	2:1

11. FOR THOSE TEMPORARY SEDIMENT TRAPS TO BE PERMANENT DRY OR WET PONDS, SEDIMENT SHALL BE REMOVED AND THE ENTIRE AREA SEEDED AND MULCHED OR COVERED WITH EROSION CONTROL MATTING PRIOR TO PUTTING THE STORMWATER POND INTO USE.
12. LOCATIONS FOR TEMPORARY SEDIMENT TRAPS TO BE APPROVED BY THE OSPC OR THE EPSC SPECIALIST.



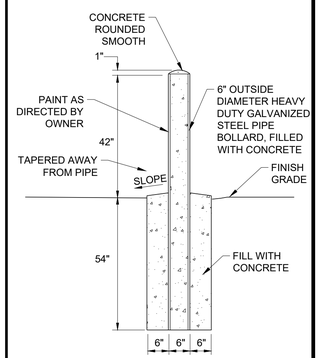
SECTION A-A

TYPICAL TEMPORARY SEDIMENT TRAP
N.T.S.



NOTE:
SOLAR ARRAY CROSS SECTION IS SCHEMATIC. FINAL DESIGN TO BE DETERMINED BY THE RACKING MANUFACTURER. SOLAR ARRAY ILL CONFORM TO CIT OF SANFORD DIMENSIONAL REQUIREMENTS FOR PV PROJECTS.

TYPICAL SOLAR ARRAY CROSS SECTION (RENDERING)
N.T.S.



PIPE BOLLARD DETAIL
N.T.S.

PENLEY CORNER SOLAR PROJECT

Penley Corner Road,
Auburn, Maine

BLUEWAVE

116 Huntington Avenue, Suite 601
Boston, Massachusetts 02116
P: (617) 209-3122

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

PROJECT APPLICANT
SOPER MILL BROOK, LLC.

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:



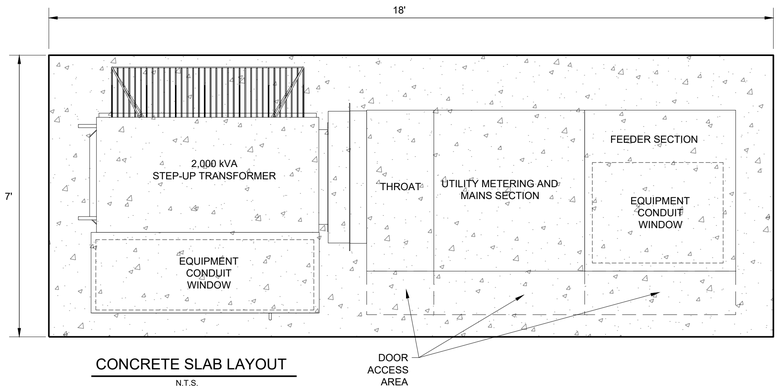
JANUARY 9, 2025

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:
STANDARD DETAILS

DATE ISSUED: 1/9/2025
DRAWN BY: MNS CHECKED BY: IAJ
PROJECT NO.: 23320 SCALE: N/A
DRAWING NO.: C-4.02
REV. NO.:

DWG NAME: Bluewave_PenleyCorner-Solar_Base.dwg

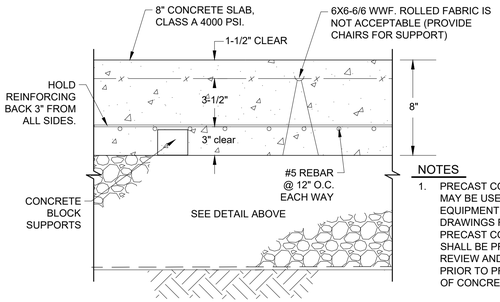


CONCRETE SLAB LAYOUT

N.T.S.

NOTES:

1. SLAB LAYOUT TO BE REVIEWED AND CERTIFIED BY ELECTRICAL ENGINEER PRIOR TO INSTALLATION.
2. CONTRACTOR TO VERIFY LOCATIONS OF REBAR IN SLAB AND REDUCE CONFLICTS WITH DRILL LOCATIONS FOR EQUIPMENT SUPPORTS.
3. NO CONCRETE WINDOWS ARE PROPOSED FOR THIS SLAB. CONDUIT WILL BE INSTALLED PRIOR TO POURING CONCRETE. STUB CONDUIT UP THROUGH THE PREPARED SLAB IN THE EQUIPMENT WINDOW LOCATIONS SHOWN AND POUR CONCRETE AROUND STUBBED CONDUIT.

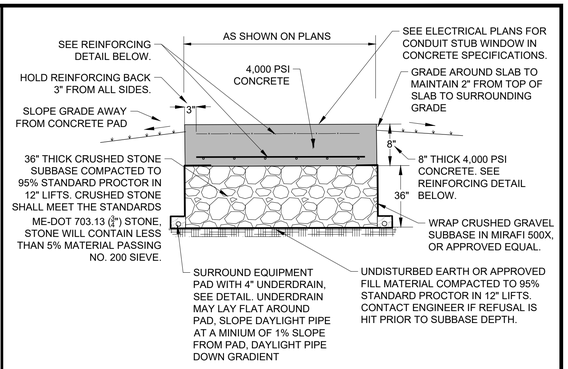


NOTES

1. PRECAST CONCRETE MAY BE USED FOR EQUIPMENT PAD. SHOP DRAWINGS FOR ALL PRECAST CONCRETE SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO PRODUCTION OF CONCRETE.

TYPICAL CONCRETE SLAB REINFORCING DETAIL

N.T.S.



NOTES

1. COLD WEATHER CONSTRUCTION PROCEDURES:
   - A. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTINUOUSLY PROTECT SOILS, CONCRETE, MASONRY AND OTHER BUILDING MATERIALS FROM DAMAGE DUE TO COLD TEMPERATURES UNTIL THE SLAB HAS BEEN TURNED OVER TO THE OWNER.
   - B. THIS SHALL INCLUDE TEMPORARY ENCLOSURES, INSULATED BLANKETS AND TEMPORARY HEATING. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE ANY DAMAGED OR DEFECTIVE WORK, IN A MANNER APPROVED BY THE ARCHITECT/ENGINEER.
   - C. ALL PROTECTIVE AND CORRECTIVE WORK SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
2. PERFORM WORK IN ACCORDANCE WITH ACI 301 STANDARDS AND RECOMMENDED PRACTICES.
3. ACQUIRE CEMENT AND AGGREGATE FROM SAME SOURCE FOR ALL WORK.
4. CONFORM TO ACI 305R WHEN CONCRETING DURING HOT WEATHER.
5. CONFORM TO ACI 306R WHEN CONCRETING DURING COLD WEATHER.
6. CEMENT ASTM C150, TYPE I, GRAY - NORMAL; DO NOT CHANGE SOURCE OF MANUFACTURER OF CEMENT DURING THE COURSE OF THE WORK.
7. FINE AND COARSE AGGREGATES ASTM C33.
8. WATER CLEAN, POTABLE AND NOT DETRIMENTAL TO CONCRETE.
9. AIR ENTRAINMENT ASTM C260.
10. CHEMICAL ASTM C494 TYPE A - WATER REDUCING.
11. BONDING AGENT SIKA ARMATEC 110 EPOCEM BONDING AGENT, NO -SOLVENT THREE COMPONENT EPOXY AS MANUFACTURED BY SIKA OR EQUIVALENT.
12. NON -SHRINK GROUT PREMIXED COMPOUND CONSISTING OF NON -METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS; CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 2,400 PSI IN 48 HOURS AND 7,000 PSI IN 28 DAYS; MANUFACTURED BY FIVE STAR PRODUCTS, INC. OR APPROVED EQUIVALENT.
13. FORM RELEASE AGENT WATER BASED, NON TOXIC, ENVIRONMENTALLY FRIENDLY PRODUCT WHICH WILL NOT STAIN CONCRETE, OR ABSORB MOISTURE , OR IMPAIR NATURAL BONDING OR COLOR CHARACTERISTICS OF COATING INTENDED FOR USE ON CONCRETE.
14. MIX CONCRETE IN ACCORDANCE WITH ACI 304. DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94.
15. THE MIX DESIGN SHALL MEET THE REQUIREMENTS OF ACI 318, CHAPTER 19. INCLUDE THE WATER -CEMENT RATIO, AIR CONTENT, SLUMP, ADMIXTURES, AND THE PLANT TO BE USED.
16. CONCRETE MIXTURES SHALL CONSIST OF THE APPROPRIATE PROPORTIONS OF PORTLAND CEMENT, WATER, COARSE AND FINE AGGREGATE, AIR ENTRAINING AGENT AND WATER REDUCING AGENT FOR THE INTENDED APPLICATION.
17. PROVIDE CONCRETE TO THE FOLLOWING CRITERIA
    - A. COMPRESSIVE STRENGTH AT 28 DAYS SLABS ON GRADE = 4,000 PSI
    - B. SLUMP 2 -4 INCHES BEFORE ADDITION OF WATER REDUCER, 6 -8 INCHES AFTER THE ADDITION OF WATER REDUCER.
    - C. MAXIMUM WATER TO CEMENT RATIO= 0.5
18. USE ACCELERATING ADMIXTURES IN COLD WEATHER ONLY WHEN APPROVED BY ARCHITECT/ENGINEER. USE OF ADMIXTURES WILL NOT RELAX COLD WEATHER PLACEMENT REQUIREMENTS.
19. USE CALCIUM CHLORIDE SHALL NOT BE PERMITTED.
20. USE SET RETARDING ADMIXTURES DURING HOT WEATHER ONLY WHEN APPROVED BY ARCHITECT/ENGINEER.
21. ADD AIR ENTRAINING AGENT TO NORMAL WEIGHT CONCRETE MIX FOR WORK EXPOSED TO EXTERIOR. DO NOT ADD AIR ENTRAINMENT TO INTERIOR SLABS.
22. PLACE CONCRETE IN ACCORDANCE WITH ACI 301, ACI 318, AND ACI 304.
23. ENSURE REINFORCEMENT, INSERTS, EMBEDDED PARTS, FORMED EXPANSION AND CONTRACTION JOINTS, ARE NOT DISTURBED DURING CONCRETE PLACEMENT.
24. DO NOT INTERRUPT SUCCESSIVE PLACEMENT; DO NOT PERMIT COLD JOINTS TO OCCUR.
25. SCREED SLABS ON GRADE LEVEL, MAINTAINING SURFACE FLATNESS OF MAXIMUM 1/4 INCH IN 10 FT.
26. FLOOR SLABS SHALL BE FINISHED AS FOLLOWS IN ACCORDANCE WITH ACI 301 AS FOLLOWS: EXTERIOR SURFACES = BROOM FINISH PERPENDICULAR TO PEDESTRIAN TRAFFIC. SAWCUT CONTROL JOINTS 4" DEPTH AT INTERVALS OF 20'.
27. IMMEDIATELY AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY.
28. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
29. CURE FLOOR SURFACES IN ACCORDANCE WITH ACI 305, ACI 306, AND ACI 308.
30. OWNER AND/OR CONTRACTOR IS NOT ALLOWED TO PLACE DEICING MATERIAL ON NEWLY PORED CONCRETE FOR A PERIOD OF 6 MONTHS.
31. APPLY 2 COATS OF EUCLID EVERCLEAR VOX CURE SEAL COMPOINT TO ALL CONCRETE SURFACES, PER MANUFACTURER'S SPECIFICATIONS. PRODUCT SHALL BE APPLIED AFTER 7 DAY CURING IS COMPLETE.

CONCRETE SLAB DETAIL FOR EQUIPMENT PAD

N.T.S.

NOTE: EXACT EQUIPMENT HAS NOT BEEN DETERMINED AT THIS TIME. SOLAR TECHNOLOGY IS AN EVOLVING FIELD AND THE CONSTRUCTION DATE FOR THIS PROJECT COULD BE YEARS OUT. PROJECT ENGINEERS WILL EVALUATE EQUIPMENT PURCHASED FOR CONSTRUCTION AND MAKE SURE IT MEETS THE SPECIFICATIONS BELOW.

NOTE:

1. THE O&M FIRM WILL REVIEW THE INSTALLATION FOR SAFETY AND CODE COMPLIANCE (BY THE APPROPRIATE QUALIFIED LICENSED MECHANICAL AND ELECTRICAL PROFESSIONAL(S), ACCURATE AND UP TO DATE REPORTING INFORMATION AND UPDATES REQUIRED. PLEASE NOTE THAT KREBS AND LANSING CONSULTING ENGINEERS, INC. WORK PERTAINS TO THE STORMWATER CONTROLS ONLY. THE SAFETY AND CODE COMPLIANCE PORTION OF THE DESIGN AND REVIEW SHALL BE COMPLETED BY THE APPROPRIATE LICENSED MECHANICAL AND ELECTRICAL PROFESSIONALS (ENGINEERS) HIRED BY THE O&M FIRM PRIOR TO CONSTRUCTION OF THE PROJECT. ANY APPROPRIATE CODE OR SAFETY MODIFICATIONS DICTATED BY THAT REVIEW SHALL BE INCORPORATED INTO O&M PROTOCOLS FOR THE SITE PRIOR TO CONSTRUCTION COMMENCING.
2. THIS DESIGN ASSUMES THAT ALL PENETRATIONS THROUGH THE CONCRETE BASE OF THE TRANSFORMER VAULT COVER WILL BE SEALED. IF PENETRATIONS ARE NOT SEALED CONTRACTOR MUST MAKE BOTTOM OF THE TRANSFORMER VAULT SUMP WATER TIGHT OR INSTALL AN OIL REACTIVE PLUG IN ALL VAULT DRAINS, "PETRO PLUG" OR APPROVED EQUAL.
3. THIS DESIGN IS FOR A PAD MOUNTED TRANSFORMER, FILLED WITH 550 GALLONS OF FLUID.
4. SECONDARY OIL CONTAINMENT WILL BE REVIEWED PRIOR TO INSTALLATION AND DESIGNED SPECIFICALLY FOR THE EQUIPMENT BEING INSTALLED. EQUIPMENT MANUFACTURER MAY PROVIDE THEIR OWN SECONDARY OIL CONTAINMENT. CONTAINMENT DESIGN WILL NEED TO BE REVIEWED BY THE ENGINEER AND FIT THE STATE SPECIFIED VOLUME.

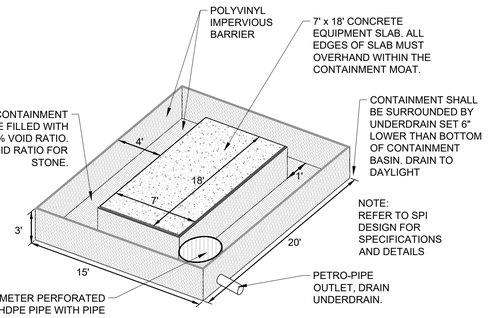
VOLUME CALCULATIONS:

REQUIRED CAPACITY:
125% OF THE 550 GALLONS OF TRANSFORMER OIL = 688 GAL. = 92 C.F.

REQUIRED MINIMUM FREEBOARD
(24-HOUR DURATION, 25 YEAR STORM) = 4.6" (0.39')
CONTAINMENT AREA & PAD = 20' X 15' = 300 S.F.
VOLUME OF FREEBOARD REQUIRED = 300 S.F. X 0.39 FT. = 117 C.F.

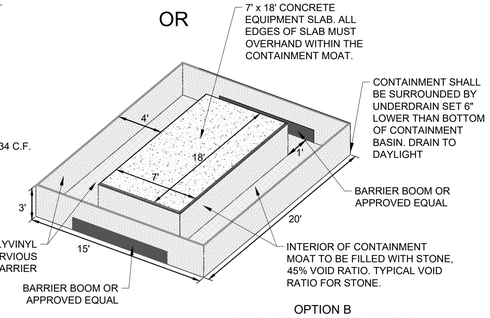
TOTAL CAPACITY REQUIRED = 92 C.F. + 117 C.F. = 209C.F.

CAPACITY PROVIDED IN SECONDARY OIL CONTAINMENT SYSTEM:
AREA OF CONTAINMENT = (20'X15') - (18'X7') = 174 S.F.
VOLUME OF CONTAINMENT = 174 S.F. X 3.0' OF DEPTH = 522 C.F.
WHEN FILLED WITH STONE WITH 45% VOID RATIO = 522 C.F. * 0.45 = 234 C.F.
TOTAL CAPACITY PROVIDED = 234 C.F. > 209 C.F. REQUIRED



OPTION A
SCHEMATIC OF CONTAINMENT
N.T.S.

OR



OPTION B
SCHEMATIC OF CONTAINMENT
N.T.S.

TRANSFORMER FLUID SECONDARY CONTAINMENT DESIGN

N.T.S.

STORMWATER BMP MAINTENANCE NOTES

VEGETATED BUFFERS

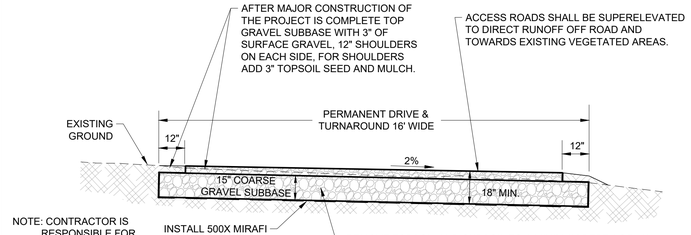
MAINTENANCE: BUFFERS SHOULD BE INSPECTED ANNUALLY FOR EVIDENCE OF EROSION OR CONCENTRATED FLOWS THROUGH OR AROUND THE BUFFER. ALL ERODED AREAS SHOULD BE REPAIRED, SEEDED AND MULCHED.

- MOWING: MEADOW BUFFERS MAY BE MOWN NO MORE THAN TWICE PER YEAR. THEY MAY NOT BE MAINTAINED AS A LAWN.
- ACCESS AND USE: BUFFERS SHOULD NOT BE TRAVERSED BY ALL-TERRAIN VEHICLES OR OTHER VEHICLES. ACTIVITIES WITHIN BUFFERS SHOULD BE CONDUCTED SO AS NOT TO DAMAGE VEGETATION, DISTURB ANY ORGANIC DUFF LAYER, OR EXPOSE SOIL.
- MODEL MAINTENANCE PLAN: THE FOLLOWING TECHNIQUES SHOULD BE FOLLOWED TO MAINTAIN THE INTEGRITY OF BUFFERS FROM INITIAL PLANNING THROUGH POST-CONSTRUCTION:

O PLANNING STAGE:
- ✓ REQUIRE BUFFER LIMITS ON ALL CLEARING/GRADING AND EROSION CONTROL PLANS.
- ✓ RECORD ALL BUFFER BOUNDARIES ON OFFICIAL MAPS AND SITE PLANS.
- ✓ CLEARLY ESTABLISH ACCEPTABLE AND UNACCEPTABLE USES FOR THE BUFFER, AND INCLUDE THESE USES IN DEED RESTRICTIONS AND CONSERVATION EASEMENTS.
- ✓ ESTABLISH CLEAR VEGETATION TARGETS AND MANAGEMENT RULES FOR THE BUFFER.
- ✓ PROVIDE INCENTIVES FOR OWNERS TO PROTECT BUFFERS THROUGH PERPETUAL CONSERVATION EASEMENTS RATHER THAN DEED RESTRICTIONS.

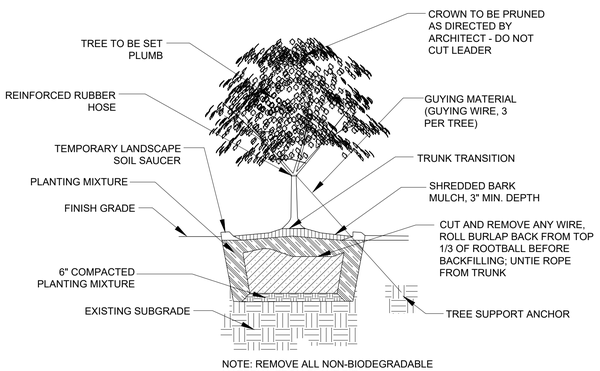
O CONSTRUCTION STAGE:
- ✓ PRE-CONSTRUCTION STAKEOUT OF BUFFERS TO DEFINE THE LIMIT OF DISTURBANCE (LOD).
- ✓ SET LOD BASED ON DRIP-LINE OF THE FORESTED BUFFER.
- ✓ FAMILIARIZE CONTRACTORS WITH LOD AND BUFFER LIMIT.
- ✓ MARK THE LOD WITH BARRIERS OR SIGNS TO EXCLUDE CONSTRUCTION EQUIPMENT.

O POST-DEVELOPMENT STAGE:
- ✓ MARK BUFFER BOUNDARIES WITH PERMANENT SIGNS (OR FENCES) DESCRIBING USE.
- ✓ EDUCATE PROPERTY OWNERS/HOMEOWNER ASSOCIATIONS ON THE PURPOSE, LIMITS AND ALLOWABLE USES OF THE BUFFER.
- ✓ CONDUCT PERIODIC "BUFFER WALKS" TO INSPECT THE CONDITION OF THE BUFFER NETWORK.
- ✓ REPLANT UNUSED MEADOW BUFFERS WITH TREES AND SHRUBS, IF POSSIBLE.



PERMANENT ACCESS DRIVE CROSS SECTION

N.T.S.



TREE PLANTING IN LANDSCAPE DETAIL

N.T.S.

PENLEY CORNER SOLAR PROJECT

Penley Corner Road,
Auburn, Maine

BLUEWAVE
116 Huntington Avenue, Suite 601 P: (617) 209-3122
Boston, Massachusetts 02116

KREBS & LANSING CONSULTING ENGINEERS
164 Main Street, Suite 201 P: (802) 878-0375
Colchester, Vermont 05446 www.krebsandlansing.com

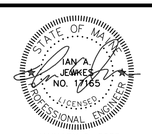
ISSUED FOR PERMIT REVIEW
NOT FOR CONSTRUCTION

PROJECT APPLICANT
SOPER MILL BROOK, LLC.

CIVIL ENGINEER:
Krebs and Lansing Consulting Engineers, Inc.
164 Main Street, Suite 201
Colchester, Vermont 05446

ENVIRONMENTAL:
Flycatcher LLC
Lower Falls Landing
106 Lafayette Street, Suite 1C
Yarmouth, Maine 04096

STAMP:



JANUARY 9, 2025

REV. NO.	REVISIONS/COMMENTS	DATE

DRAWING TITLE:

STANDARD DETAILS

DATE ISSUED: 1/9/2025

DRAWN BY: MNS CHECKED BY: IAJ

PROJECT NO.: 23320 SCALE: N/A

DRAWING NO.: C-4.03 REV. NO.:

DWG NAME: Bluewave_PenleyCorner-Solar_Base.dwg

ATTACHMENT 5
OPTION AGREEMENT (REDACTED)

LAND LEASE AND EASEMENT AGREEMENT

THIS LAND LEASE AND EASEMENT AGREEMENT (this "Agreement") is made, dated and effective as of the 21 day of March, 2024, (the "Effective Date"), between Roger G. Gauthier (together with its transferees, successors and assigns, as ("Landlord"), and Soper Mill Brook, LLC, a Delaware limited liability company (together with its transferees, successors and assigns, ("Tenant"), and in connection herewith, Landlord and Tenant agree, covenant and contract as set forth in this Agreement. Landlord and Tenant are sometimes referred to in this Agreement as a "Party" or collectively as the "Parties".

WHEREAS, Landlord owns the real property including the air space thereon, located at 371 Penley Corner Rd, Auburn, Maine and identified as Tax Parcel 137-026 by the assessors' records of the City of Auburn, titled in the name of the Landlord by Deed recorded in the Androscoggin County Registry of Deeds in Book 10994 at Page 141 and which is more particularly described in Exhibit A-1 attached hereto and incorporated by reference herein (the "Property");

WHEREAS, Tenant wishes to lease the portion of the Property described in Exhibit A-2 attached hereto, such portion of the Property being referred to herein as the "Leased Premises", in order to develop, design, install and operate the Facility (as defined in the Glossary of Terms) thereon;

WHEREAS, Landlord is willing to lease the Leased Premises and the Easements (as hereinafter defined) to Tenant for the development, construction, operation and maintenance of the Facility and associated uses necessary or ancillary thereto;

NOW THEREFORE, in consideration of the premises, the covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant agree as follows:

1. DEFINITIONS. In addition to those terms defined in the beginning, the recitals or elsewhere in this Agreement, capitalized terms set forth in the Glossary of Terms, attached hereto and incorporated herein shall have the meanings as set forth therein.

2. LEASE. For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by Landlord and Tenant, upon the terms and conditions set forth in this Agreement, Landlord hereby leases to Tenant, and Tenant hereby leases from Landlord the Leased Premises and the Easements for the Permitted Uses for the Term. Tenant shall have quiet and peaceful possession of the Leased Premises, use of the Easements and any other rights granted by this Agreement for the entire Term without hindrance, interruption, suit, trouble or interference of any kind by Landlord or any other person or entity claiming (whether at law or in equity) by, through or under Landlord.

2.1 Permitted Uses. The Leased Premises shall be used for Due Diligence Activities, construction, operation and maintenance of the Facility, access and utilities and any other lawful related purpose and Tenant shall have the exclusive right to develop and use the

Leased Premises for such purpose and the other Permitted Uses described in this Section 2 and to derive all profits therefrom, including but not limited to the following activities (collectively, "Site Activities"):

(a) If the Facility includes a solar photovoltaic electric generating facility, converting solar radiation emitted from the sun ("Solar Energy") into electrical energy, and collecting, storing, and transmitting the electrical energy so converted;

(b) Due Diligence Activities for purposes of determining the feasibility of installation and operation of the Facility, and of Solar Energy conversion on the Leased Premises and a related substation on the Property or on adjacent lands, including studies of Solar Energy emitted upon, over and across the Property and other meteorological data, environmental studies and extracting soil samples;

(c) Constructing, laying down, installing, using, replacing, relocating, reconstructing and removing from time to time, and monitoring, maintaining, repairing and operating the following improvements: (i) Solar Energy and/or electricity collection and electrical generating equipment of all types including, without limitation, any such equipment utilizing photovoltaic and/or solar thermal technology (collectively, "Solar Energy Generating Equipment"); (ii) overhead and underground electrical distribution, collection, transmission and communications lines or cables, electric combiners, inverters, transformers and substations, energy storage facilities, and telecommunications equipment; (iii) roads and crane pads; (iv) meteorological measurement equipment; (v) control buildings, operations and maintenance facilities and building; and (vi) any other improvements, that Tenant reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing;

(d) Interconnecting the Facility to the local electric distribution system, and selling electricity produced, discharged and/or generated by the Facility. Tenant may determine whether any group of Facilities constitutes a single Facility or multiple Facilities for purposes of this Agreement, and in the case of multiple Facilities, which portion of the Property shall be included within each Facility.

2.2 Dual-Use Agricultural Operations. At Tenant's option, in its sole discretion, Tenant shall have the exclusive right to use and occupy the Leased Premises for agricultural and farming purposes to qualify the Facility as an agricultural solar generation unit, by dual land use for agriculture and a solar canopy system ("Dual-Use Solar Facility"). This includes, without limitation, the right to use the property for grazing, farming, establishing pollinator habitat, agricultural uses, and all other forms of agrivoltaics and vegetation control in connection with a Dual Use Solar Facility, including, at Tenant's discretion, installation of fencing or improvements related to said agrivoltaics and the maintenance thereof. This also includes the right to take necessary steps to enroll the Leased Premises in any preferential property tax or incentive program necessary to quality the Facility as a Dual-Use Solar Facility. This use shall include Tenant's right to sublease or sublicense the Leased Premises for agriculture and farming purposes and to enter into any related agreements ("Dual-Use Agricultural Operations") and to make all necessary governmental and quasi-governmental filings and secure any permits in respect to such Dual-Use Agricultural Operations, in each case without the need to provide notice to or secure the prior consent of Landlord. Tenant shall also have the right, in its sole and absolute

discretion, to remove or reclassify the Leased Premises and any Easements from any agricultural or farming designation.

2.3 Tenant's Use of the Leased Premises. Tenant may use the Leased Premises for Permitted Uses, as further set forth below:

(a) During the Development Period,

(i) Tenant and its employees, agents and contractors shall have a non-exclusive right to enter upon the Property outside the Leased Premises and the right of ingress and egress over and across the Property outside the Leased Premises for the purpose of conducting due diligence activities (collectively, "Due Diligence Activities"), which Due Diligence Activities include, but are not limited to (i) surveying the Leased Premises, (ii) performing such other tests and studies as Tenant may desire in connection with the development of the Facility, including, without limitation, environmental, noise, avian, bat and cultural resource assessments, and geotechnical, foundation and soil tests, and (iii) installing, maintaining, operating, inspecting and removing one or more solar monitoring devices and all associated activities, including the Weather Instruments (defined below) and including the performance of all tests and studies associated therewith. "Weather Instruments" shall mean ground-based instruments (including Sonic Detection and Ranging ("SODAR") instruments) used primarily to gather and transmit meteorological data relating to the solar project, and includes meteorological data acquisition equipment, power source, and any required data and electrical transmission lines. Landlord shall reasonably cooperate with all of Tenant's Due Diligence during the Development Period, including environmental due diligence, provided that such cooperation does not cause Landlord to incur any expenditure (unless Tenant shall reimburse Landlord for any such expenditure). After its investigations of the Property during the Development Period, Tenant shall restore the Property outside the Leased Premises, at Tenant's sole cost and expense, substantially to its condition immediately prior to Tenant's inspections, wear, tear and casualty damage excepted; and

(ii) Tenant may construct the Facility and engage in activities associated with constructing the Facility, including producing electricity prior to achieving commercial operation of the Facility and installing equipment necessary for remote monitoring of the Facility.

(b) During the Operations Period, Tenant may use the Leased Premises for any of the Permitted Uses.

(c) During the Decommissioning Period, Tenant shall cease commercial operation of the Facility, and shall remove the Facility from the Leased Premises and restore the Leased Premises to its preexisting condition, wear, tear and casualty damage excepted, as provided in Section 4.5.

3. GRANT OF EASEMENTS.

3.1 Landlord hereby grants, conveys and warrants to Tenant, and Tenant hereby accepts the following easements ("Easements") upon, over, across, under and burdening the Property and any Surrounding Property at all times during the Term:

(a) Solar Easement; Non-Obstruction. An exclusive easement pursuant to Applicable Law, on, over and across the Property and Surrounding Property for the purpose of ensuring access to direct sunlight to any solar panels on the Leased Premises and an exclusive easement prohibiting any obstruction of direct sunlight throughout the entire Property to and for the benefit of the area existing horizontally three hundred and sixty degrees (360°) from any point where any solar panel is or may be located at any time from time to time (each such point referred to as a "*Site*") and for a distance from each Site to the boundaries of the Property and any Surrounding Property, together vertically through all space located above the surface of the Property, that is, one hundred eighty degrees (180°) or such greater number or numbers of degrees as may be necessary to extend from each point on and along a line drawn along the surface from each point along the exterior boundary of the Property and Surrounding Property through each Site to each point and on and along such line to the opposite exterior boundary of the Property and any Surrounding Property (collectively, the "Solar Easement");

(b) Operating Easement. An exclusive easement over the Property and any Surrounding Property for all activities occurring on the Leased Premises, in the Solar Easement, Access Easement or the Utility Easement necessary to develop and operate the Facility, including but not limited to, electromagnetic, audio, visual, view, light, noise, vibration, electrical, radio interference, or other effects attributable to the Facility or any Site Activities;

(c) Access Easement. A nonexclusive easement to access the Facility and the Leased Premises for equipment access and for vehicular and pedestrian ingress to and egress, from the Facility over and across the Property by means of roads and lanes thereon if existing or later constructed by Landlord, or otherwise by such route or routes as Tenant may construct from time to time, and which roads and lanes must connect to a public way, including over any areas specifically identified on Exhibit A-2 hereto ("Access Easement");

(d) Utility Easement. An exclusive easement to construct, install, operate, maintain, relocate, remove, repair electric service infrastructure, poles, towers, foundations, switchgear, cabinets, transformers, and other equipment necessary and convenient to interconnect the Facility to the local electric distribution system and for transmitting electric current and communications and intelligence, which may be overhead or underground, including over any areas specifically identified on Exhibit A-2 hereto ("Utility Easement"); and

(e) Vegetation Maintenance Easement. (i) An easement to enter upon the Property and trim and cut vegetation and trees along the access and utility easements which may overhang or interfere with such access and utility easements, and (ii) an easement to trim existing trees and vegetation on the Property that interfere with the Solar Easement from any angle upon, across and over the Leased Premises. The easement granted in this subsection (e) shall be exercised after providing Landlord with at least five (5) Business Days prior written notice of the Tenant's need to enter the Property.

(f) Temporary Construction Easement. A non-exclusive easement to be located as shown on Exhibit A-2 hereto or at a mutually acceptable location on a portion or portions of the Property, to be used for temporary (i) storage and staging of tools, materials and equipment,

(ii) construction laydown, (iii) parking of construction crew vehicles and temporary construction trailers, (iv) vehicular and pedestrian access and access for rigging and material handling, and (v) other facilities reasonably necessary to construct, erect, install, expand, modify or remove the Facility. In the event that Tenant disturbs the surface of the Property in connection with the exercise of its rights under this easement, Tenant will, at its sole expense, restore the surface of such areas so-disturbed to substantially the same or better condition as existed prior to such disturbance, provided, however, that Tenant shall not be required to restore any vegetation.

(g) Declaration of Restrictions to Protect Stormwater Buffer Areas. Prior to the Commercial Operation Date, the right to protect stormwater buffer areas on portions of the Leased Premises or other portions of the Property, as may be required by the Maine Department of Environmental Protection in connection with the Facility, by granting and recording a Declaration of Restrictions burdening such stormwater buffer areas until the decommissioning of the Facility.

(h) Other Easements. All other easements reasonably necessary to accomplish the activities permitted by this Agreement, including but not limited to the Permitted Uses and those activities described in Section 2. During the Development Period, the boundaries of the easements granted in sections 3.1(c) and 3.1(d) shall be determined by means of a plan or survey prepared by Tenant, and such plan or survey shall then define the easement locations. Exhibit A-2 shall be amended with such plan or survey.

3.2 Landlord's grant of easements in Section 3.1(a) through (e) shall commence on the Effective Date and continue throughout the Term and any extensions of the Term, and for the time necessary and convenient to perform any decommissioning, if such obligations extend beyond the Term. Landlord's grant of easement in Section 3.1(f) shall commence on the Effective Date and shall continue through the Construction Term.

3.3 If required by the local electric utility ("Utility"), Landlord shall grant to the Utility an easement and right to construct, operate, maintain, reconstruct, relocate, remove, and/or repair the electric utility service infrastructure and associated wires, lines and poles and other infrastructure necessary and convenient to interconnect the Facility to the Utility electrical distribution system, the location of which will be determined by the Utility prior to the Commercial Operation Date. If required by the Utility, Landlord shall enter into a recordable easement instrument on the Utility's form.

3.4 All easements shall burden the Property and shall run with the land for the benefit of Tenant, its successors and assigns (including any Financing Parties and any other permitted assignees of Tenant's rights under the Agreement), and their respective agents, contractors, subcontractors and licensees.

3.5 At Tenant's request, Landlord shall timely execute one or more recordable standalone easement agreements and in addition to recording the Memorandum of Lease in accordance with Section 17.5 shall execute and permit Tenant to record any other documents reasonably requested by Tenant to evidence and give effect to such Easements.

3.6 The Parties shall evenly share in the routine maintenance costs to any and all access roads or ways (the "Access Roads") developed for the construction and maintenance of

the Solar Facility that are used by both Parties, and shall evenly share in that portion of the routine maintenance costs assessed to the Landlord for any and all shared access roads or ways that are used by both Parties until the expiration of the Final Term of the Lease. Each Party shall be responsible for the non-routine maintenance and repair of any damage to Access Roads caused by said Party.

4. TERM. The Term of this Agreement shall commence on the Effective Date and shall continue for the following described periods (collectively, the "Term"):

4.1. Development Period. The Development Period (the "Development Period") will begin on the Effective Date and will terminate on the earliest of:

(a) Delivery by Tenant of notice of termination in accordance with Section 4.2(c);

(b) Tenant's election to commence the Operations Period as provided in Section 4.3(b); or

(c) the Commercial Operation Date.

4.2. Development Period Phases. The Development Period has two phases, the Pre-Construction Phase and the Construction Phase.

(a) Pre-Construction Phase. The Pre-Construction Phase ("Pre-Construction Phase") will commence on the Effective Date and continue for up to two (2) years thereafter, in order to allow Tenant time to continue evaluation of the suitability of the Property for the Project, including in-depth site analysis, transmission, capacity, permitting constraints, geotechnical studies, environmental studies, drilling bore holes, applying for interconnection and obtaining a signed interconnection agreement and required permits in order to be able to commence construction. Subject to Tenant having made all payments of Rent then due, Tenant shall have the right, by written notice to Landlord, to extend the Pre-Construction Phase for an additional one (1) year period. The Pre-Construction Phase shall be extended on a day-for-day basis due to acts, omissions or delays of a Governmental Authority or the Utility which result in delay in achievement of the Construction Start Date.

(b) Construction Phase. The Construction Phase (the "Construction Phase") will commence on the first to occur of (i) the expiration of the Pre-Construction Phase or (ii) the Construction Start Date, and ends on the Operations Period Commencement Date, determined as provided in Section 4.3 below.

(c) Termination Right. At any time during the Development Period, Tenant shall have the right to terminate this Agreement by thirty (30) days

written notice to Landlord. Upon termination, neither Party shall be required to perform any obligations hereunder which, but for such termination, would have arisen after the effective date of such termination.

(d) Confirmation of Leased Premises. In the event that it is determined by Tenant during the Development Period that there are changes required to the description of the Leased Premises contained in Exhibit A-2 of this Agreement, including without limitation the creation of a new ALTA survey of the portion of the Property on which the Facility will be located, with metes and bounds legal description, the validity of this Agreement shall not be affected, and, upon the request of Tenant, Landlord shall execute an amendment to the description of the Leased Premises contained in Exhibit A-2 of this Agreement and in any memorandum of this Agreement to reflect the final legal description of the Leased Premises.

4.3. Operations Period. The Operations Period (the "Operations Period") shall commence on the earlier of:

(a) 12:01 a.m. on the first day after the Commercial Operation Date; or

(b) Tenant's election to commence the Operations Period, notwithstanding that the Facility has not yet attained the Commercial Operation Date (it being agreed that at the end of the Construction Phase of the Development Period Tenant shall have been deemed to elect to commence the Operations Period unless prior to such time Tenant has exercised any rights hereunder to terminate this Agreement);

(such date being referred to herein as the "Operations Period Commencement Date") and will end at 11:59 p.m. on the last day of the month in which the twentieth (20^{th}) anniversary of the Operations Period Commencement Date occurs. Tenant shall provide Landlord with written notice of the Commercial Operation Date.

4.4. Extended Operations Period. Tenant shall have the exclusive right to extend the Operations Period for up to four (4) additional consecutive terms of five (5) years each for a total of twenty (20) additional years.

4.5. Decommissioning Period. The Decommissioning Period (the "Decommissioning Period") shall commence when the Operations Period, including any extensions thereto, expires, and shall continue for a period of 180 days, (provided that if such 180 day term begins or ends within the months of December, January, February, March, or April, the Decommissioning Period shall be extended to the next occurring July 31) whereupon this Agreement shall expire and shall be of no further force and effect, except that such termination shall not release or modify any of the obligations of the Parties arising prior to such termination. Promptly following the Operations Period expiration, or an earlier termination of this Agreement, Tenant shall remove all structures, equipment, personal

property and transmission lines from the Leased Premises at Tenant's sole cost and expense. Tenant shall perform the decommissioning during the Decommissioning Period in accordance with any permits issued by the local permitting authority. If Tenant performs the decommissioning after this Agreement terminates, Tenant's access to the Property shall be pursuant to the easements granted herein.

4.6. End of Term. No later than seventy-five (75) years after the Effective Date, the Term of this Agreement shall terminate.

5. RENT. In consideration for the lease of the Leased Premises, Tenant agrees to pay Rent to the Landlord pursuant to the terms and conditions set forth in Exhibit B, which is incorporated herein by reference.

6. OWNERSHIP OF FACILITY.

6.1. Tenant or Financing Party shall be the legal and beneficial owner of the Facility (including without limitation, all additions, alterations, and modifications thereto or replacements thereof, all appurtenant fixtures, machinery and equipment installed therein), all electrical output from the Facility, Environmental Attributes and Incentives, at all times. Landlord shall have no ownership, lien, security or other interest in any Facility. The Facility is personal property and shall not attach to or be deemed a part of, or fixture to, the Leased Premises or the Property. The Facility shall at all times retain the legal status of personal property as defined under Article 9 of the Uniform Commercial Code. Landlord covenants that it will place all persons having an interest in or lien upon the real property comprising the Property, on notice of the ownership of the Facility and the legal status or classification of the Facility as personal property. Landlord and/or Tenant shall make any necessary filings to disclaim the Facility as a fixture of the Leased Premises and the Property in the appropriate Land Registry to place all interested parties on notice of the ownership of the Facility by Tenant. Notwithstanding anything to the contrary stated above, Landlord shall retain all rights in and to the Property, subject to the rights granted to Tenant hereunder, including the rights to profits derived from timber, and crop harvest, provided, Landlord's exercise of such rights shall not interfere with Tenant's easements rights over the Property and operation of the Facility on the Leased Premises during the Term of this Agreement.

6.2. Landlord shall have no right or interest in any of the electric energy produced by the Facility or in any Environmental Attributes, Tax Attributes, or other rights or incentives associated with the production of electric energy by the Facility.

6.3. Landlord hereby waives any and all rights it may have to any lien rights, whether statutory or otherwise, on Tenant's personal property, including without limitation, the Facility, Tenant's inventory, trade fixtures, and removable equipment and fixtures located within or on the Leased Premises, whether or not any part of the Facility becomes so related to the Leased Premises that an interest therein would otherwise arise under Applicable Law. Landlord agrees to (i) take no action to impede or interfere with a Financing Party's remedies under a security interest

in said personal property of Tenant and (ii) execute, upon request, a confirmation of such waiver in a form reasonably satisfactory to Tenant and its lenders.

7. LANDLORD ACTIVITIES; REVIEW.

7.1. Landlord shall maintain the Property and its Surrounding Property adjacent to the Leased Premises in good condition and state of repair to avoid interference with Tenant's use of and access to the Leased Premises and any appurtenant easements. Landlord shall not construct structures or plant trees adjacent to the Leased Premises that will impede solar access to the Facility. Landlord shall not engage in activities at the Property or on the Surrounding Property that will materially impact conditions on the Leased Premises, or construct any structures or improvements on the Leased Premises or the Interconnection Easement parcel.

7.2. Landlord shall not enter the Leased Premises without Tenant's consent.

7.3. Landlord has been informed by Tenant and acknowledges that the construction and operation of the Facility and other activities related to the development, operation and decommissioning of the Facility may potentially result in some nuisance to Landlord and/or any other tenant or occupant of the Property, such as visual impact and noise. Landlord hereby accepts such nuisance and waives any right that Landlord may have to object to such visual nuisance and Landlord releases Tenant from any claims Landlord and/or any other tenant or occupant of the Property may have with respect to any such nuisance.

7.4. Landlord acknowledges that Landlord has been afforded sufficient time to review and understand the terms and effects of this Agreement and to submit it to legal counsel of Landlord's choosing for review and advice. Landlord represents that the agreements and obligations herein are made voluntarily, knowingly and without duress.

8. TAXES AND UTILITIES.

8.1. Landlord shall pay all taxes, assessments, or other governmental charges, general and specific, in connection with its ownership of the Property and any improvements exclusive of the Facility as of the Effective Date of the Agreement (the "Landlord Taxes"). Upon commencement of the Operations Term, Tenant shall be responsible for (a) personal property taxes solely attributable to the Facility, plus (b) any incremental increase over and above Landlord Taxes, in taxes, assessments, or other governmental charges resulting from assessments upon the value of Tenant's leasehold interest in the Leased Premises. ("Tenant Taxes"). To the extent the applicable taxing authority provides a separate tax bill for the Tenant Taxes to Tenant, Tenant shall pay such Tenant Taxes directly to the applicable taxing authorities. If a separate tax bill for the Tenant Taxes is not provided to Tenant, Tenant shall pay the Tenant Taxes within twenty (20) days following receipt of written demand from Landlord of the amount of the Tenant Taxes with a copy of the applicable tax bill. Landlord hereby grants Tenant the right to challenge the assessment of additional real property taxes to Landlord as a result of Tenant's lease of the Leased Premises.

If any such property taxes, assessments, and/or real property taxes are due and payable and either Party fails to fulfill its obligations under this Section 8, then the other Party

may, but shall not be obligated to, pay the taxing authorities the entire amount due on the tax bill and obtain reimbursement for such amount paid on behalf of such Party plus interest (computed from the date of payment) at a rate equal to the sum of: (i) two percent (2%) per annum; plus, (ii) the prime lending rate as from time to time may be published by The Wall Street Journal under the "Money Rates" section; provided, that in no event shall such total interest exceed the maximum rate permitted by law. If Tenant pays taxes, assessments, and/or real property taxes on behalf of Landlord that are Landlord' obligation hereunder, Tenant may offset the amount of such payments against amounts due Landlord under this Agreement.

8.2. If the Property as of the Effective Date is valued, assessed and taxed as open space, recreational, agricultural, horticultural, forest or other similar preferential real estate tax classification under local or state law, upon Tenant's request, Landlord and Tenant shall cooperate to remove the Leased Premises, and, if necessary, the easement areas from such classification. In particular, Landlord shall prepare, sign, and submit (after giving Tenant an opportunity to review the same) any notice required by law for such removal. Tenant shall reimburse Landlord for any payments of any recapture or rollback of real property taxes foregone due to Landlord's currently held agricultural tax exemptions under State law as a result of Tenant's use of the Leased Premises provided that Landlord had such tax exemptions at the time of the Effective Date of this Agreement and further provided that prior to the Effective Date of this Agreement Landlord notified Tenant in writing of the existence of such tax exemptions and the economic effect of the loss of such exemptions. Notwithstanding any other provisions of this Agreement, Tenant shall not commence any construction activities on the Leased Premises until the earlier of the expiration of any purchase option period afforded under law to the municipality, or Landlord's receipt of notice from the applicable taxing jurisdiction that it will not exercise any purchase option. If the applicable taxing jurisdiction, or its assignee, elects to exercise its statutory purchase option, this Agreement shall terminate and be of no further effect, except for those Lease provisions that expressly survive termination, and Landlord may seek to rescind the notice withdrawing the Lease Area from reduced tax classification. It is a condition to Landlord's right of reimbursement hereunder that Landlord submits the real property tax bill to Tenant that documents any such increase in real property taxes to recapture taxes foregone due to Landlord's currently held agricultural tax exemptions as soon as practicable, but in no event more than thirty (30) days after Landlord receives such tax bill from the taxing authority and at least ten (10) Business Days prior to the due date.

8.3. Each Party may contest in good faith any tax assessments or payments, provided that all payments are made when due and such contest (or appeal, as the case may be) complies with Applicable Law. Each Party shall use all reasonable efforts to cooperate with the other in any such contests of tax assessments or payments. In no event shall either Party postpone during the pendency of an appeal of a tax assessment the payment of taxes otherwise due except to the extent such postponement in payment has been bonded or otherwise secured in accordance with Applicable Law.

9. INDEMNIFICATION.

9.1. Each Party (the "Indemnifying Party") shall defend, indemnify and hold harmless the other Party and such other Party's Related Persons (as defined below) (each, an "Indemnified Party") from and against any and all Losses arising out of any third party

(excluding Related Persons as defined below in Section 9.6) claim against the other Party for property damage, bodily injury or death caused by, arising out of, or resulting from the negligence, breach of contract, violation of Applicable Law, or willful misconduct of the Indemnifying Party or Persons acting at the direction of the Indemnifying Party in connection with this Agreement or incurred by such Indemnified Party. An Indemnified Party's indemnity pursuant to this Section 9 shall be reduced in proportion to any negligence or willful misconduct of an Indemnified Party or it's Related Persons.

9.2. Whenever any claim arises for indemnification under this Agreement, the Indemnified Person shall notify the Indemnifying Party in writing as soon as possible (but in any event prior to the time by which the interest of the Indemnifying Party will be materially prejudiced as a result of its failure to have received such notice) after the Indemnified Person has knowledge of the facts constituting the basis for such claim (the "Notice of Claim"). Such Notice of Claim shall specify all facts known to the Indemnified Party giving rise to the indemnification right and the amount or an assessment of the amount of the liability arising therefrom.

9.3. The Indemnifying Party has the right, but not the obligation to assume the defense for the matter for which indemnification is sought hereunder. If the Indemnifying Party does not assume the defense, it shall timely pay all costs of legal counsel and case expenses incurred by Indemnified Party in connection with the defense, when and as incurred. If the Indemnifying Party assumes the defense, the Indemnified Party has the right to hire its own, separate counsel to defend it, but the Indemnified Party shall be responsible for the reasonable costs of such separate counsel. The Indemnifying Party shall not consent to the entry of any judgment or enter into any settlement with respect to the matter for which indemnification is sought without the prior written consent of the Indemnified Party (which consent shall not be unreasonably withheld) unless the judgment or settlement involves the payment of money damages only and does not require the acknowledgement of the validity of any claim or admission of any liability by or on behalf of any Indemnified Party.

9.4. In no event shall an Indemnifying Party be liable to the Indemnified Party to the extent any Claim is caused by, arises from or contributed by the negligence or intentional misconduct of the Indemnified Party or its Related Person thereof.

9.5. In no event shall Tenant or its Related Persons be liable to Landlord for property damage or personal injuries to Landlord or its Related Persons attributable to risks of known and unknown dangers associated with normal day-to-day operation of the Facility.

9.6. As used herein the term "Related Person" shall mean any officers, directors, employees, invitees, affiliates, contractors, lessees, and sub-lessees of a Party, and each of their respective, principals, officers, employees, servants, agents, representatives, subcontractors, licensees, invitees, and/or guests.

9.7. This Section 9 shall survive expiration or earlier termination of this Agreement.

10. TENANT'S REPRESENTATIONS, WARRANTIES, AND COVENANTS. Tenant hereby represents, warrants, and covenants to Landlord that:

10.1. Tenant's Authority. Tenant has the power and authority to execute this Agreement and to perform its obligations hereunder. Each person signing this Agreement on behalf of Tenant is authorized to do so. When signed by Tenant, this Agreement constitutes a valid and binding agreement enforceable against Tenant in accordance with its terms.

10.2. Insurance. Tenant shall, at its expense, be responsible for assuring that insurance coverages, as would be customary and reasonable for similarly situated companies performing the work carried out by Tenant at such time, are maintained, including, without limitation, adequate coverage to cover any personal injuries or accidents that could reasonably be expected as a direct result of the Site Activities conducted by Tenant or its Related Persons on the Property.

10.3. Requirements of Governmental Agencies. Tenant, at its expense, shall comply in all material respects with valid laws, ordinances, statutes, orders, and regulations of any governmental agency applicable to the Facility. Tenant shall have the right, in its sole discretion, to contest by appropriate legal proceedings, the validity or applicability to the Property or Facility of any law, ordinance, statute, order, regulation, property assessment, or the like now or hereafter made or issued by any federal, state, county, local or other governmental agency or entity. Any such contest or proceeding shall be controlled and directed by Tenant.

10.4. Construction Liens. If any mechanic's lien or other lien or claim of lien are publicly recorded in the applicable land records' office for labor and services performed on, materials, supplies, or equipment furnished to the Property in connection with Tenant's use of the Leased Premises on the Property pursuant to this Agreement, Tenant shall, within sixty (60) days after it receives notice of the filing of such lien, remove, pay or cancel said lien or secure the payment of any such lien or liens by bond or deposit of moneys pursuant to Applicable Law. Tenant shall have the right, at all times and at its own cost and expense, to defend, on behalf of Tenant or the Landlord, any action involving the cancellation, validity or removal of such lien or liens.

10.5. Hazardous Materials. Neither Tenant nor its Related Persons shall violate federal, state, or local law, ordinance, or regulation relating to the generation, manufacture, production, use, storage, release, discharge, disposal, transportation or presence of asbestos-containing materials, petroleum, explosives or any other substance, material, or waste which is now or hereafter classified as hazardous or toxic, or which is regulated under current or future federal, state, or local laws or regulations, on or under the Property or in any manner which may affect the Property (each, a "Hazardous Material"). Tenant shall promptly notify Landlord if any violation occurs.

10.6. Litigation. No litigation is pending against Tenant, and, to the best of Tenant's knowledge, no actions, claims or other legal or administrative proceedings are pending, threatened or anticipated with respect to, or which could adversely affect Tenant's obligations under this Agreement.

11. LANDLORD'S REPRESENTATIONS, WARRANTIES, AND COVENANTS. Landlord hereby represents, warrants, and covenants as follow:

11.1. Landlord's Authority. Landlord is the fee owner of and has good and valid title to the Property and has the unrestricted right and authority to execute this Agreement and to grant to Tenant the rights granted hereunder. Each person signing this Agreement on behalf of Landlord is authorized to do so. When signed by Landlord, this Agreement constitutes a valid and binding Agreement enforceable against Landlord in accordance with its terms.

11.2. No Interference. Landlord's activities and any grant of rights Landlord makes to any person or entity, shall not, currently or prospectively, disturb or interfere with: the construction, installation, maintenance, or operation of the Facility on the Leased Premises or access over the Property to such Facility as provided for herein; any Site Activities; or the undertaking of any other activities permitted hereunder. Without limiting the generality of the foregoing, Landlord shall not erect any structures, plants or other equipment, or enter into any third party agreements or amend or extend any existing agreements or undertake any other activities (a "Landlord Action") that may: (i) interfere with Tenant's right to install the Facility on any portion of the Leased Premises, (ii) if such Facility is designed to collect Solar Energy, overshadow or otherwise block or interfere with sunlight access to the Facility, (iii) cause a decrease in the output or efficiency of the Facility, or (iv) otherwise interfere with Tenant's operations on the Leased Premises (each an "Interference"). Prior to undertaking a Landlord Action that may cause an Interference, Landlord shall consult with Tenant to confirm that such Landlord Action will not cause any Interference. If Tenant reasonably determines the Landlord Action could cause an Interference, then Landlord shall not be permitted to undertake such Landlord Action. Landlord shall not disturb or permit the disturbance of the subsurface of the Leased Premises such that may impact in any way the structural integrity or the operations and maintenance of the Facility.

11.3. Rights of Others; Encumbrances. Landlord has good, clear, record and marketable title to the Property subject to no liens, easements, options or other encumbrances other than the Existing Encumbrances. Landlord further represents that Tenant's installation and operation of the Facility on the Leased Premises and the use of the Easements is not restricted by any rights of use, existing structures, private agreements or options affecting the Property. Landlord shall not allow any encumbrances against the Leased Premises other than Permitted Encumbrances. Landlord shall promptly pay all obligations secured by encumbrances against the Leased Premises (whether or not such encumbrances are Permitted Encumbrances) and shall not allow any default to occur under obligations secured by encumbrances against the Leased Premises. In lieu of paying amounts secured by encumbrances which are not Permitted Encumbrances, Landlord may provide a bond or other adequate security in accordance with Applicable Law and the reasonable requirements of Tenant. At Tenant's request, Landlord shall obtain from holders of any encumbrances on the Property subordinations or non-disturbance agreements substantially in the form of Exhibit D.

11.4. Requirements of Governmental Agencies and Setback Waiver. Landlord shall assist and fully cooperate with Tenant, at no out-of-pocket expense to Landlord, in complying with or obtaining any land use permits and approvals, building permits, environmental

impact reviews or any other approvals required for the financing, construction, installation, monitoring, replacement, maintenance, operation or removal of Facility, including execution of applications and documents reasonably necessary for such approvals, and including participating in any appeals or regulatory proceedings respecting the Facility. Conditioned on Landlord being provided with prior written notice thereof, Landlord hereby consent to and authorize Tenant to sign and file on Landlord's behalf all applications and related documents required for Tenant to obtain any land use permits, building permits, environmental impact reviews or any other approvals necessary for the construction, operation or financing of the Facility on the Leased Premises. To the extent permitted by law, Landlord hereby waives enforcement of any applicable setback requirements respecting the Facility to be placed on or near the Leased Premises that are reasonably necessary, in Tenant's sole and absolute discretion, to carry out Tenant's power-generating activities on or near the Facility.

11.5. Hazardous Materials. Neither Landlord nor its Related Persons shall violate federal, state or local law, ordinance or regulation relating to the generation, manufacture, production, use, storage, release, discharge, disposal, transportation or presence of any Hazardous Material on or under the Property or in any manner which may affect the Property. Landlord shall promptly notify Tenant if any such violation occurs. To the best of Landlord's actual knowledge, (i) no underground tanks are currently located or at any time in the past have been located on the Property or any portion thereof, (ii) no Hazardous Material has been generated, manufactured, transported, produced, used, treated, stored, released, disposed of or otherwise deposited in or on or allowed to emanate from the Property or any portion thereof other than as permitted by all health, safety and other laws (each, an "Environmental Law") that govern the same or are applicable thereto and (iii) there are no Hazardous Materials in, on or emanating from the Property or any portion thereof which may support a claim or cause of action under any Environmental Law. Landlord certifies it has never received any notice or other communication from any governmental authority alleging that the Property is or was in violation of any Environmental Law. Landlord shall indemnify and hold harmless the Tenant from any actions, claims, damages or penalties arising from the violation of this paragraph and shall reimburse the Tenant for any costs, including reasonable attorney fees, incurred by Tenant as a result of such actions, claims, damages or penalties.

11.6. No Litigation. No litigation is pending, and, to the best of Landlord's knowledge, no actions, claims or other legal or administrative proceedings are pending, threatened or anticipated with respect to, or which could affect, the Property or Landlord's ability to perform its obligations under this Agreement. If Landlord learns that any such litigation, action, claim or proceeding is threatened or has been instituted, Landlord shall promptly deliver notice thereof to Tenant.

11.7. Title Insurance. Landlord agrees to execute and deliver to Tenant any documents reasonably required by the title insurance company and/or a Financing Party within ten (10) business days after presentation of said documents by Tenant to Landlord.

12. FINANCING PROVISIONS.

12.1. Financing Arrangements. Tenant may mortgage, pledge, grant security interests, assign, or otherwise encumber its interests in this Agreement to any persons providing

debt or equity financing for the Facility (each, a "Financing Party"). Further, Landlord acknowledges that Tenant may obtain construction financing for the Facility from a Financing Party and that Tenant may either obtain term financing secured by the Facility or sell or assign the Facility to a Financing Party or may arrange other financing accommodations from one or more Financing Parties and may from time to time refinance, or exercise purchase options under, such transactions. Landlord acknowledges that in connection with such transactions Tenant may secure Tenant's obligations by, among other collateral, a mortgage or assignment of this Agreement and a first security interest in the Facility. In order to facilitate such necessary sale, conveyance, or financing, and with respect to any lender or lessor, as applicable, Landlord agrees as follows:

12.1.1. Consent to Sale and to Collateral Assignment. Landlord hereby consents to both the sale of the Facility to a Financing Party and the collateral assignment to the Financing Party of the Tenant's right, title and interest in and to this Agreement.

12.1.2. Rights of Financing Party. Notwithstanding any contrary term of this Agreement:

(A) Step-In Rights. The Financing Party, as owner of the Facility, or as collateral assignee of this Agreement, shall be entitled to exercise, in the place and stead of Tenant, any and all rights and remedies of Tenant under this Agreement in accordance with the terms of this Agreement. The Financing Party shall also be entitled to exercise all rights and remedies of owners or secured parties, respectively, generally with respect to this Agreement and the Facility;

(B) Opportunity to Cure Default. The Financing Party shall have the right, but not the obligation, to pay all sums due under this Agreement and to perform any other act, duty or obligation required of Tenant hereunder or cause to be cured any default of Tenant hereunder in the time and manner provided by the terms of this Agreement. Nothing herein requires the Financing Party to cure any default of Tenant under this Agreement or (unless the Financing Party has succeeded to Tenant's interests under this Agreement or has otherwise assumed Tenant's obligations) to perform any act, duty or obligation of Tenant under this Agreement, but Landlord hereby gives it the option to do so;

(C) Exercise of Remedies. Upon the exercise of remedies, including any sale of the Facility by the Financing Party, whether by judicial proceeding or under any power of sale contained therein, or any conveyance from Tenant to the Financing Party (or any assignee of the Financing Party as defined below) in lieu thereof, the Financing Party shall give written notice to Landlord of the transferee or assignee of this Agreement. Any such exercise of remedies shall not constitute a default under this Agreement; and

(D) Cure of Bankruptcy Rejection. Upon any rejection or other termination of this Agreement pursuant to any process undertaken with respect to Tenant under the United States Bankruptcy Code, at the request of Financing Party made within ninety (90) days of such termination or rejection, Landlord shall enter into a new agreement with Financing Party or its assignee having substantially the same terms and conditions as this Agreement.

12.1.3. Right to Cure.

(A) Cure Period. Landlord will not exercise any right to terminate or suspend this Agreement unless it shall have given the Financing Party a copy of Landlord's prior written notice to Tenant of its intent to terminate or suspend this Agreement, as required by this Agreement, specifying the condition giving rise to such right, and the Financing Party shall not have caused to be cured the condition giving rise to the right of termination or suspension within sixty (60) days after such notice or (if longer) the periods provided for in this Agreement; provided that if such Tenant default reasonably cannot be cured by the Financing Party within such period and the Financing Party commences and diligently and continuously pursues cure of such default within such period, such period for cure will be extended for a reasonable period of time under the circumstances, such period not to exceed an additional sixty (60) days. The Parties' respective obligations will otherwise remain in effect during any cure period.

(B) Continuation of Agreement. If the Financing Party or its assignee (including any purchaser or transferee), pursuant to an exercise of remedies by the Financing Party, shall acquire title to or control of Tenant's assets and shall, within the applicable time periods described above, cure all defaults under this Agreement existing as of the date of such change in title or control in the manner required by this Agreement and which are capable of cure by a third person or entity then such Person shall no longer be in default under this Agreement, and this Agreement shall continue in full force and effect. If the Financing Party notified Landlord in writing within such sixty (60) day period that it must foreclose on Tenant's Interest or otherwise take possession of Tenant's interest under this Agreement in order to cure the default (the "Foreclosure Notice"), the Landlord shall not terminate this Agreement and shall permit the Financing Party a reasonable period of time, which shall be outlined in the Foreclosure Notice, as may be necessary for such Financing Party, with the exercise of due diligence, to foreclose or acquire Tenant's interest under this Agreement and to perform or cause to be performed all of the covenants and agreements of Tenant under this Agreement.

12.2. Financing Party a Third Party Beneficiary. Landlord agrees and acknowledges that Financing Party is a third party beneficiary of the provisions of this Section 12.

12.3. Estoppel Certificates; Consent to Assignment. Landlord shall execute such estoppel certificates (certifying as to such matters as Tenant may reasonably request, including without limitation that no default by Tenant then exists under this Agreement, if such be the case) and/or consents to assignment (whether or not such consent is actually required) and/or non-disturbance agreements as Tenant, any transferee of Tenant or Financing Party may reasonably request from time to time. The failure of Landlord to deliver any estoppel certificate within fifteen (15) days after Tenant's written request therefor shall be conclusive evidence that (i) this Agreement is in full force and effect and has not been modified; (ii) any amounts payable by Tenant to Landlord have been paid through the date of such written request; (iii) there are no uncured defaults by Tenant; and (iv) the other certifications requested by Tenant in its estoppel or consent, are in fact, true and correct. Such consent may require Owner to recognize a particular entity as a Financing Party hereunder and grant such Financing Party extended cure periods in the event of a Tenant default.

13. DEFAULTS AND REMEDIES.

13.1. Default. If a Party defaults in or otherwise fails to perform a material obligation under this Agreement (a "Default"), the non-defaulting Party shall not have the right to exercise any remedies hereunder if the default is cured by the defaulting Party within forty five (45) days of receiving written notice of such Default specifying in detail the Default and the required remedy (a "Notice of Default"); provided, that if the nature of the Default requires, in the exercise of commercially reasonable diligence, more than sixty (60) days to cure, the non- defaulting Party shall not have the right to exercise any remedies hereunder as long as the defaulting Party commences performance of the cure within sixty (60) days, and thereafter completes such cure with commercially reasonable diligence. Further, if the Parties have a good faith dispute as to whether a payment is due hereunder, the alleged defaulting Party may deposit the amount in controversy in escrow with any reputable third party escrow, or may interplead the same, which amount shall remain undistributed and shall not accrue interest penalties, and no default shall be deemed to have occurred, until final decision by a court of competent jurisdiction or upon agreement by the Parties. No such deposit shall constitute a waiver of the defaulting Party's right to institute legal action for recovery of such amounts.

13.2. Remedies. Except as qualified by Section 12 regarding Financing Party protections, should a Default remain uncured beyond the applicable cure periods, the non-defaulting Party shall have and shall be entitled to exercise any and all remedies available to it at law or in equity. Notwithstanding anything in this Lease to the contrary or any rights or remedies Landlord might have at law or in equity, if any of the Facility is then located on the Leased Premises and Tenant fails to perform any of its obligations hereunder beyond applicable cure periods, Landlord shall be limited to pursuing damages and Landlord may not commence any action to terminate or cancel this Lease Notwithstanding anything in Section 13.1 to the contrary, Landlord agrees that any breach of this Agreement will cause Tenant substantial and irreparable injury and, therefore, in the event of any such breach, in addition to other remedies which may be available, Tenant shall have the right to

specific performance and injunctive and other equitable relief, and shall have the right to seek such equitable relief prior to the expiration of any cure periods set forth in Section 13.1.

14. DISPUTE RESOLUTION.

14.1. Negotiation Period. The Parties shall negotiate in good faith and attempt to resolve any dispute, controversy or claim arising out of or relating to this Agreement (a "Dispute") within 30 days after the date that a Party gives written notice of such Dispute to the other Party, except that a Party may seek injunctive relief to prevent irreparable harm without first proceeding or completing any dispute resolution proceedings.

14.2. Equitable Relief. Except in the event of a payment dispute, participation in informal dispute resolution is a condition precedent to each Party's right to resort to litigation in a court, provided that during such time as the Parties are conferring, either Party may petition a court of competent jurisdiction for injunctive relief or to preserve any applicable statutes of limitation. A Party's failure to participate in informal dispute resolution in accordance with this Section shall entitle the other Party to recover its costs and reasonable attorney's fees in any judicial proceedings that attempt to circumvent these dispute resolution provisions. In the event no agreement is reached in mediation, either Party may exercise any rights or remedies it may have at law or in equity, including but not limited to compensation for monetary damages (including reasonable costs and attorneys' fees), injunctive relief and specific performance.

14.3. Jurisdiction, Venue, and Jury Trials. If despite the efforts, if any, to negotiate, the Parties do not resolve the Dispute within the negotiation period described above, then each Party irrevocably consents to the exclusive jurisdiction of the state and federal courts sitting in the State, in connection with any action related to the Dispute. Each Party agrees that process may be served upon it in any manner authorized by such courts and that it waives all objections which it might otherwise have to such jurisdiction and process. Further, each Party irrevocably waives all of its rights to a trial by jury with respect to any such action.

14.4. Survival of Dispute Provisions. The provisions of this Section 14 shall survive any termination of this Agreement and shall apply (except as provided herein) to any disputes arising out of this Agreement.

15. TERMINATION.

15.1. Tenant's Right to Terminate. Tenant shall have the right to terminate this Agreement upon thirty (30) days prior written notice to Landlord without cause: (i) prior to the Operations Period Commencement Date, as to all or any part of the Leased Premises, (ii) upon the occurrence of a Force Majeure Event that prevents commercial operation of all or part of the Facility and (iii) upon an act of condemnation that results in a taking of all or a portion of the Leased Premise such that Tenant is, in its sole judgment, no longer able or permitted to operate the Facility on the Leased Premises in a commercially viable manner.

15.2. Effect of Termination. Upon termination of this Agreement as to all of the Leased Premises, Tenant shall, as soon as practicable thereafter, remove above-ground and below-ground (to a depth of three (3) feet below grade) equipment included in the Facility from the Leased Premises. All parts of the Leased Premises that are disturbed by Tenant shall be restored to a condition reasonably similar to its original condition as it existed upon the Effective Date, wear and tear and casualty excepted; provided, that Tenant shall not be required to replant any crops. If Tenant fails to remove such Facility within the Decommissioning Period, or such longer period as Landlord may provide by extension, Landlord shall have the right to restore the Leased Premises and remove, or to cause removal of, any property owned by Tenant to the extent required by Tenant under this Section 16.3, and the right to receive reimbursement, less the salvage value of the Facility, from Tenant for any remaining amounts incurred for removal and restoration of the Leased Premises. Tenant shall provide a decommissioning plan and bond with the governing jurisdiction to ensure the decommissioning of the Facility.

16. LIMITATIONS ON DAMAGES.

EXCEPT AS OTHERWISE EXPRESSLY PROVIDED HEREIN, NEITHER PARTY NOR ANY OF ITS RELATED PERSONS SHALL BE LIABLE TO THE OTHER PARTY OR ITS INDEMNIFIED PERSONS FOR ANY SPECIAL, PUNITIVE, EXEMPLARY, INDIRECT, OR CONSEQUENTIAL DAMAGES, ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT. Notwithstanding anything to the contrary, Tenant's total combined liability to Landlord under this Agreement (whether due to breach of contract, negligence, strict liability or any other cause) shall not exceed, for all claims, the total amount of Tenant's commercial general liability policy limit (combined single limit.

17. MISCELLANEOUS.

17.1. Force Majeure. If performance of this Agreement or of any obligation hereunder is prevented or substantially restricted or interfered with by reason of a Force Majeure Event, the affected Party, upon giving notice to the other Party, shall be excused from such performance to the extent of and for the duration of such prevention, restriction or interference, and the Term or any other time periods herein shall be extended for such period of time. The affected Party shall use its reasonable efforts to avoid or remove such causes of nonperformance and shall continue performance hereunder whenever such causes are removed. "Force Majeure Event" means any act or event that prevents or impacts the affected Party from performing its obligations in accordance with this Agreement, if such act or event is beyond the reasonable control, and not the result of the fault or negligence, of the affected Party and such Party had been unable to overcome such act or event with the exercise of due diligence. Subject to the foregoing, Force Majeure may include the following acts or events: (i) acts of God, including hurricanes, floods, lightning, earthquakes, blizzards and other extreme natural phenomena; (ii) explosions or fires arising from lightning or other causes unrelated to the acts or omissions of the Party seeking to be excused from performance; (iii) acts of war or public disorders, civil disturbances, riots, insurrection, sabotage, epidemic, pandemic, terrorist acts, or rebellion, declared state of emergency or public health emergency, government mandated quarantine or travel ban; (iv) acts of Governmental Authorities, including the Local Electric Utility, and (v) strikes or labor disputes.

17.2. Confidentiality. To the fullest extent allowed by law, Landlord shall maintain in the strictest confidence, and Landlord shall require each Related Person of Landlord to maintain in the strictest confidence, for the sole benefit of Tenant, all information pertaining to the financial terms of or payments under this Agreement, Tenant's site or product design, methods of operation, methods of construction, power production or availability of the Facility, and the like, whether disclosed by Tenant or discovered by Landlord, unless such information either (i) is in the public domain by reason of prior publication through no act or omission of Landlord or any Related Person of Landlord, or (ii) was already known to Landlord at the time of disclosure and which Landlord is free to use or disclose without breach of any obligation to any person or entity. To the fullest extent permitted by law, Landlord shall not use such information for its own benefit, publish or otherwise disclose it to others, or permit its use by others for their benefit or to the detriment of Tenant.

17.3. Assignment. Landlord agrees that this Agreement and rights hereunder may be assigned by Tenant (i) to any entity in which Tenant, or an affiliate thereof, has an interest or (ii) to any entity as security for or in connection with a financing or other financial arrangement related to the Lease or the Facility. Further, Tenant shall have the right without the prior consent of Landlord (but with notification to Landlord) to sell, convey, lease, assign or transfer (including granting co-easements, separate easements, sub-easements) any or all of its rights hereunder in and to all of the Leased Premises and, as to easements expressly provided for herein, the Property, provided such transfer is related to the Facility, and to sublicense the Leased Premises for Dual-Use Agricultural Operations pursuant to Section 2.2 hereof. Tenant shall remain liable for all of its obligations arising under this Agreement from and after the effective date of such transfer, unless and until such transferee assumes all of Tenant's obligations under this Agreement the Facility. Upon such transferee executing an agreement to assume all of Tenant's obligations under this Agreement, Tenant shall automatically be released from all of its obligations under this Agreement.

17.4. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon Landlord and Tenant and, to the extent provided in any assignment or other transfer permitted hereunder, any transferee, and their respective heirs, transferees, successors and assigns, and all persons claiming under them. References to Tenant in this Agreement shall be deemed to include transferees of Tenant that hold a direct ownership interest in this Agreement and actually are exercising rights under this Agreement to the extent consistent with such interest.

17.5. Memorandum of Lease; Recording. Landlord and Tenant shall execute in recordable form, and Tenant may then record, a memorandum of this Agreement substantially in the form of Exhibit C attached hereto, incorporating only those non-substantive changes to the form as may be required by the applicable jurisdiction in which recording is sought and to reflect the terms of this Agreement. It shall be a condition to payment of rent that Landlord executes and notarizes a memorandum of lease substantially in the form of Exhibit C hereto. Landlord hereby consents to the recordation of the interest of a transferee of Tenant in the Leased Premises. With respect to the Operations Period, upon request from Tenant, Landlord shall execute, in recordable form, and Tenant may then record a memorandum evidencing commencement of the Operations Period, as applicable; provided that the execution of such memorandum is not necessary for such Operations Period to be effective.

17.6. Notices. All notices or other communications required or permitted by this Agreement, shall be in writing and sent by certified mail (return receipt requested), courier or nationally recognized overnight delivery service to last known address of the intended recipient. Notices may also be sent by email for which the sending Party receives a confirmation that the email message has been completely transmitted without error (of which auto-replies are insufficient). Any notices delivered on any day that is not a business day, or after 5:00 p.m. local time on a business day, shall be deemed to have been delivered on the next business day. A Party may change its address for delivery of notices hereunder by notice given in accordance with this Section. Notices will be deemed given upon receipt or upon the failure to accept delivery addressed as follows:

LANDLORD:

Roger G Gauthier
276 Penley Corner Road
Auburn, ME 04210
Attn: Legal Notices
Email: queenith@rocketmail.com

With a copy to: Landlord

TENANT:

BlueWave
116 Huntington Avenue, Suite 601
Boston, MA 02116
Attn: Legal Notices
legal@bluewave.energy

With a copy to: CFO

17.7. Entire Agreement; Amendments. This Agreement, including all exhibits and appendixes hereto, contains the entire agreement of the Parties respecting the subject matter hereof, and there are no other promises, conditions, understandings or other agreements, whether oral or written, relating to the subject matter of this Agreement. This Agreement may be modified or amended in writing, if the writing is signed by the Parties obligated under the amendment.

17.8. Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the state where the Facility is located.

17.9. Severability. If any non-material part of this Agreement is held to be unenforceable, the rest of the Lease will continue in effect. If a material provision is determined to be unenforceable and the Party which would have been benefited by the provision does not waive its unenforceability, then the Parties shall negotiate in good faith to amend the Lease to restore to the Party that was the beneficiary of such unenforceable provision the benefits of such

provision. If the Parties are unable to agree upon an amendment that restores the Parties benefits, the matter shall be resolved under Section 14 (regarding dispute resolution) and an arbitrator may reform the Lease as the arbitrator deems just and equitable in order to restore to the Party that was the beneficiary of the unenforceable provision the economic benefits of such provision.

17.10. Rules of Interpretation. Section headings are for convenience only and shall not affect the interpretation of this Agreement. References to sections are, unless the context otherwise requires, references to sections of this Agreement. The words "hereto", "hereof" and "hereunder" shall refer to this Agreement as a whole and not to any particular provision of this Agreement. The word "person" shall include individuals; partnerships; corporate bodies (including to corporations, limited partnerships and limited liability companies); non-profit corporations or associations; governmental bodies and agencies; and regulated utilities. The word "including" shall be deemed to be followed by the words "without limitation".

17.11. Cooperation. The Parties acknowledge that the performance of each Party's obligations under this Agreement may often require the assistance and cooperation of the other Party. Each Party therefore agrees, in addition to those provisions in this Agreement specifically providing for assistance from one Party to the other, that it will at all times during the Term cooperate with the other Party as required, in its reasonable discretion, and provide all reasonable assistance to the other Party to help the other Party perform its obligations hereunder. From time to time and at any time at and after the execution of this Agreement, each Party shall execute, acknowledge and deliver such documents, and assurances, reasonably requested by the other and shall take any other action consistent with the terms of the Lease that may be reasonably requested by the other for the purpose of effecting or confirming any of the transactions contemplated by this Agreement. Neither Party shall unreasonably withhold, condition or delay its compliance with any reasonable request made pursuant to this Section 17.11.

17.12. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original and all of which when taken together shall constitute one and the same document.

17.13. Tax and Renewable Energy Credits. All benefits and incentives that result from Tenant's development and use of the Leased Premises for the Permitted Uses shall accrue to the benefit of Tenant, including but not limited to all Environmental Attributes and Tax Attributes, and any other reductions or credits in taxes and/or assessments, rebates, financing, federal, state and local grants, reductions in fees, and participation in federal, state or local special programs or tax districts. If under Applicable Law, the holder of a leasehold or easement estate becomes ineligible for any tax credit, renewable energy credit, environmental credit or any other benefit or incentive for renewable energy established by any local, state or federal government, then, at Tenant's option, Landlord and Tenant shall exercise good faith and negotiate an amendment to this Agreement or replace it with a different instrument so as to convert Tenant's interest in the Leased Premises to a substantially similar interest that makes Tenant eligible for such credit, benefit or incentive.

17.14. No Partnership. Nothing contained in this Agreement shall be construed to create an association, joint venture, trust or partnership covenant, obligation or liability on or with regard to any one or more Parties in this Agreement.

17.15. Evidence of Authority. At either Party's request, the other Party shall provide a manager's certificate or a secretary's certificate, or resolutions of the member or manager or shareholders as evidence of the authority of such Party to enter into and execute this Agreement.

[Signatures Commence on Following Page]

IN WITNESS WHEREOF, Landlord and Tenant, acting through their duly authorized representatives, have executed this Agreement with the intent that it be effective as of the Effective Date, and certify that they have read, understand and agree to the terms and conditions of this Agreement.

LANDLORD: Roger G. Gauthier

By: _____

Name: Roger G. Gauthier

Date: _____

TENANT: Soper Mill Brook, LLC

By: _____

Name: Mark D. Sylvia

Title: Authorized Signatory

Date: March 19, 2024

GLOSSARY OF TERMS

As used herein, the following terms shall have the meanings set forth beside them:

"Access Roads" is defined in Section 3.6.

"Agreement" means this Land Lease and Easement Agreement, as amended from time to time pursuant to the provisions hereof.

"Applicable Law" means any constitutional provision, law, statute, rule, regulation, ordinance, treaty, order, decree, judgment, decision, certificate, holding injunction, registration, license, franchise, permit, authorization, or guideline issued by a Governmental Authority that is applicable to a Party to this Agreement or the transaction described herein.

"Commercial Operation Date" is defined on Exhibit B.

"Construction Start Date" is defined on Exhibit B.

"County" means the County in the State in which the Facility is located.

"Decommissioning Period" is defined in Section 4.5.

"Default" is defined in Section 13.1.

"Development Period" is defined in Sections 4.1 and 4.2.

"Dispute" is defined in Section 14.1.

"Dual-Use Agricultural Operations" is defined in Section 2.2.

"Dual-Use Solar Facility" is defined in Section 2.2.

"Easement(s)" shall mean those rights of Tenant set forth in Section 3.

"Effective Date" has the meaning assigned to such term in the preamble.

"Environmental Attributes" means Renewable Energy Certificates, carbon trading credits, emissions reductions credits, emissions allowances, green tags, Green-e certifications, or other entitlements, certificates, products, or valuations attributed to the Facility and its displacement of conventional energy generation, or any other entitlement (other than Tax Attributes) pursuant to any federal, state, or local program applicable to renewable energy sources, whether legislative or regulatory in origin, as amended from time to time.

"Environmental Law" is defined in Section 11.5.

"Existing Encumbrances" mean the easements, liens and other matters of record approved by Tenant in its sole discretion and disclosed in the title commitment obtained by Tenant.

"Facility" means the solar powered electric generating facility, with or without a coupled battery energy storage system, and all related Solar Energy Generating Equipment and structures, and including but not limited to photovoltaic solar panels, mounting systems/canopies, inverters, transformers, integrators, equipment containers, energy storage, batteries, and electrical lines, cables and conduits required to generate, collect, distribute, store, and transmit electrical energy, and such additional utility lines, cables, conduits, transformers, wires, meters, monitoring equipment, and other necessary and convenient equipment and appurtenances common to such a facility to be installed by Tenant on the Leased Premises in accordance with this Agreement.

"Financing Party" is defined in Section 12.1.

"Force Majeure Event" is defined in Section 17.1.

"Foreclosure Notice" is defined in Section 12.1.

"Governmental Authority" means any international, national, federal, state, municipal, county, regional or local government, administrative, judicial or regulatory entity, and includes any department, commission, bureau, board, administrative agency or regulatory body of any government.

"Indemnified Party" is defined in Section 9.1.

"Indemnifying Party" is defined in Section 9.1.

"Interconnection Easement" means the easement granted pursuant to Section 3.1(d).

"Interference" is defined in Section 11.2.

"Hazardous Material" is defined in Section 10.5.

"Landlord" is defined in the preamble.

"Landlord's Action" is defined in Section 11.2.

"Landlord Taxes" is defined in Section 8.1.

"Leased Premises" means the real property leased to Tenant pursuant to this Agreement, as described in Exhibit A-2, as such Exhibit may be amended pursuant to Section 4.2(d).

"Limited Construction Activities" means the specific construction activities undertaken by Tenant to preserve the Facility's eligibility for Environmental Attributes and/or Tax Attributes or such other activities which are approved by Landlord.

"Losses" means any and all losses, liabilities, claims, demands, suits, causes of action, judgments, awards, damages, cleanup and remedial obligations, interest, fines, fees, penalties, costs, and expenses (including all attorney's fees and other costs and expenses incurred in defending any such claims or matters or in asserting or enforcing any indemnity obligation).

"Notice of Claim" is defined in Section 9.2.

"Operations Period" is defined in Section 4.3.

"Operations Period Commencement Date" is defined in Section 4.3.

"Parties" means Landlord and Tenant and "Party" means either Landlord or Tenant.

"Permitted Encumbrances" mean the Existing Encumbrances and any additional mortgages granted by Landlord in accordance with Section 11.3 hereof.

"Permitted Use" means the use of the Leased Premises for the purposes set forth in Section 2, including the development, installation, construction, interconnection, maintenance, operation, repair, replacement and decommissioning of the Facility, including any coupled or standalone energy storage device(s) and for the production, delivery and sale of electricity, capacity, and ancillary services, and Environmental Attributes produced by or associated with, the Facility, and any other lawful related purpose.

"Pre-Construction Phase" is defined in Section 4.2.

"Property" means the real property described in Exhibit A-1, attached hereto, which includes the Leased Premises and the Easements.

"Related Person" is defined in Section 9.6.

"Renewable Energy Certificate" or "REC" means a certificate, credit, allowance, green tag, or other transferable indicia, howsoever entitled, created by an applicable program or certification authority indicating generation of a particular quantity of energy, or product associated with the generation of a megawatt-hour (MWh) from a renewable energy source by a renewable energy generating facility.

"Rent" means the payments to be made in accordance with Section 5 and Exhibit B.

"Site" is defined in Section 3.1(a).

"Site Activities" is defined in Section 2.1.

"Solar Easement" is defined in Section 3.1(a).

"Solar Energy" is defined in Section 2.1(a).

"Solar Energy Generating Equipment" is defined in Section 2.1(c).

"Surrounding Property" means the Property and all adjacent real property owned or controlled by Landlord or any affiliates.

"Tax Attributes" means investment tax credits (including any grants or payments in lieu thereof) and any tax deductions or other benefits under the Internal Revenue Code or applicable federal, state, or local law available as a result of the ownership and/or operation of the Facility or the

output generated by the Facility (including, without limitation, tax credits (including any grants or payments in lieu thereof) and accelerated and/or bonus depreciation).

"Tenant" has the meaning assigned to such term in the preamble.

"Tenant Taxes" is defined in Section 8.1.

"Term" means all of the Development Period, the Operations Period (including any extensions thereof), and the Decommissioning Period, as such periods are described in Section 4.

"Utility" is defined in Section 3.3.

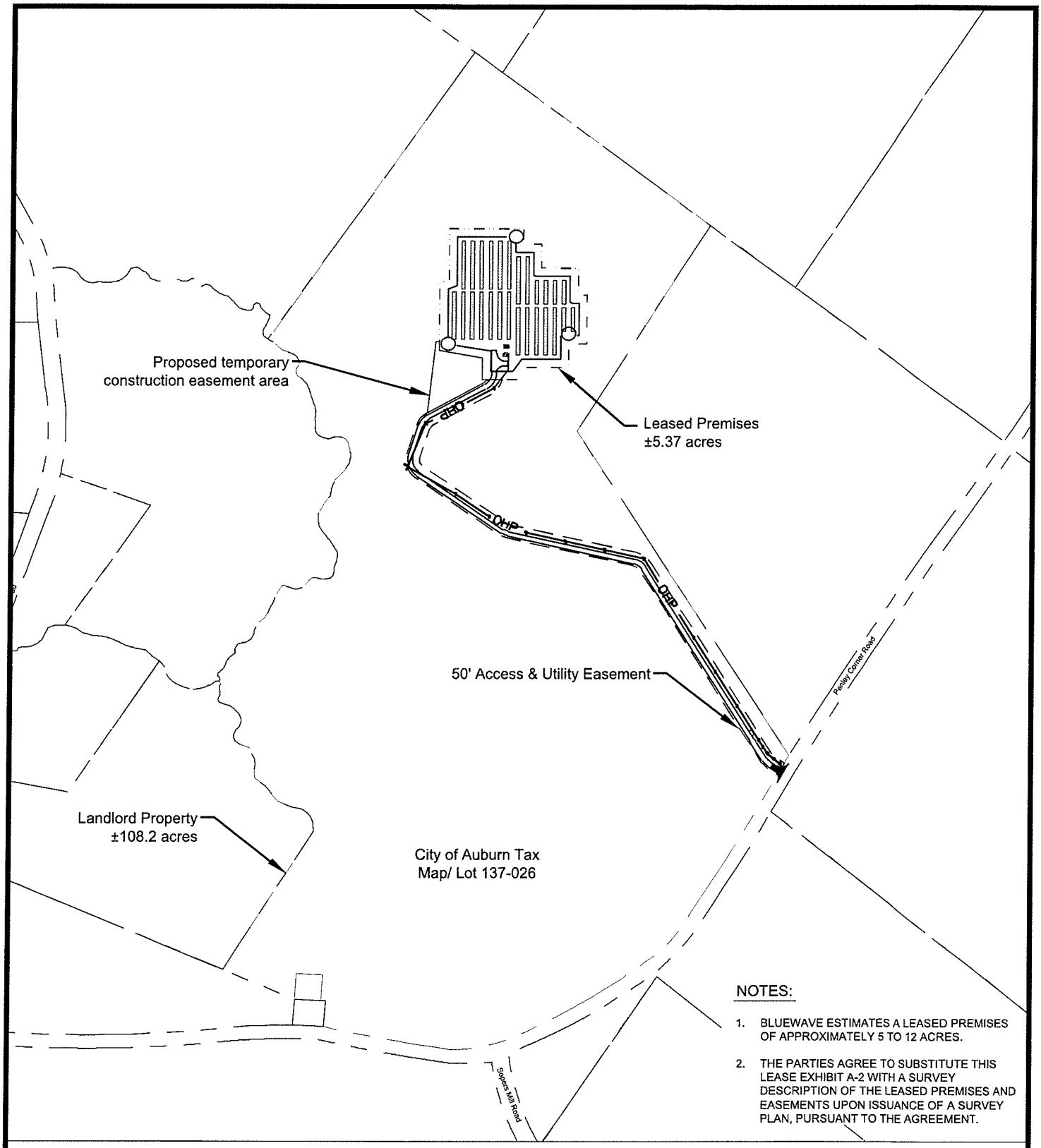
EXHIBIT A-1

Description of the Property

That certain parcel of land situated in Auburn, County of Androscoggin and State of Maine described in the Deed from Lewiston-Auburn Water Pollution Control Authority to Roger G. Gauthier dated December 28, 2021 and recorded at the Androscoggin County Registry of Deeds in Book 10994 Page 141, generally shown as City of Auburn Tax Map/Lot 137-026.

EXHIBIT A-2

Initial Plan of Leased Premises and Easements



NOTES:

1. BLUEWAVE ESTIMATES A LEASED PREMISES OF APPROXIMATELY 5 TO 12 ACRES.
2. THE PARTIES AGREE TO SUBSTITUTE THIS LEASE EXHIBIT A-2 WITH A SURVEY DESCRIPTION OF THE LEASED PREMISES AND EASEMENTS UPON ISSUANCE OF A SURVEY PLAN, PURSUANT TO THE AGREEMENT.

LEASE EXHIBIT A-2

SCALE: 1" = 500'

PENLEY CORNER SOLAR PROJECT

Penley Corner Road
Auburn, Maine

BLUEWAVE

116 Huntington Avenue, Suite 601
Boston, Massachusetts 02116
P: (617) 209-3122

KREBS & LANSING CONSULTING ENGINEERS

164 Main Street, Suite 201
Colchester, Vermont 05446
P: (802) 878-0375
www.krebsandlansing.com

Date: February 29, 2024

EXHIBIT B
RENT PAYMENT SCHEDULE
SOLAR PROJECT

Lease Term	Annual Payment	Commencement of Payment	Duration
Development Period Pre-Construction Phase	[redacted]	Lease Effective Date	Effective Date until the day before the Construction Start Date
Development Period Construction Phase		Construction Start Date	Construction Start Date until COD
Operations Period Year 1		Commercial Operation Date	20 years from the COD, with four (4) five (5) year extension terms

[redacted]

Definitions

"Construction Start Date" means the last to occur of (i) the date on which Tenant begins grading of the Leased Premises, which is not part of the Limited Construction Activities, (ii) receipt of the executed interconnection agreement for the Facility and (ii) receipt of all permits, which shall be extended day-by-day for Force Majeure Events.

"Commercial Operation Date" or "COD" means the date, which shall be notified by Tenant to Landlord means that (a) completion of the construction and successful testing of the Solar Project

has occurred, (b) the Solar Project has obtained final approval for interconnected operation by the local electric utility, (c) the Solar Project has been interconnected to the utility electric grid, and (d) sale of energy on a commercial basis has commenced.

Rent Payment Terms



EXHIBIT C TO LEASE AGREEMENT

FORM OF MEMORANDUM OF LEASE

(attached behind)

EXHIBIT D TO LEASE AGREEMENT

FORM OF SNDA

SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT AGREEMENT

THIS AGREEMENT (this "Agreement") is made as of this _____ day of _____, 20__, by and among _____, a duly organized banking association, with a principal office at _____("Lender"), _____("Landlord"), and _____, ("Tenant").

W I T N E S S E T H

WHEREAS, Tenant and Landlord have entered into a Lease Agreement dated _____, 20__, (the "Lease") covering the premises located at _____ (the "Premises"), notice of which is recorded with [Name of Registry] (the "Registry") in Book _____, Page _____, (being the property more particularly described in Exhibit A attached hereto and incorporated herein) pursuant to which Tenant has installed or will install on the Premises a photovoltaic facility for the generation of electricity from solar energy (the "Solar Facility"); and

WHEREAS, Lender is the mortgagee pursuant to a [Mortgage and Security Agreement dated _____] (the "Mortgage") and a [Conditional Assignment of Rents and Leases dated _____] (the "Assignment") encumbering, the Premises which are both recorded with the _____ Registry in Book _____page _____ and Book _____ page _____ respectively; and

WHEREAS, Lender, Tenant, and Landlord wish to set forth respective rights of each party;

NOW, THEREFORE, in consideration of the mutual covenants hereinafter contained and other valuable consideration, the parties hereto covenant and agree as follows:

1. The Lease and any extensions, renewals, replacements or modifications thereof, and all of the right, title and interest of Tenant thereunder in and to the Premises are and shall be subject and subordinate to the Mortgage and to all of the terms and conditions contained therein, and to any advances, renewals, modifications, replacements, consolidations, amendments, substitutions and extensions thereof.

2. Lender agrees that the Lease will not trigger the due upon transfer clause of the Mortgage, or otherwise create an event of default under the Mortgage and in the event Lender comes into possession of or acquires title to the Premises as a result of the foreclosure, or other enforcement of the Mortgage, or as a result of any other means, Lender agrees that Lender will recognize Tenant and will not disturb Tenant or Tenant's financing parties in their possession of the Premises or their rights in the Lease for any reason other than one which would entitle Landlord to terminate the Lease under its terms or would cause, without any further action by

Landlord, the termination of the Lease, and the Lease will continue in full force and effect as a direct agreement between Lender and Tenant.

3. The Solar Facility shall not be, or be deemed to be, a part of or an accession or addition to or a fixture on the Premises even though the Solar Facility is installed on the Premises; nor shall the Solar Facility be moved from the Premises by the Lender unless Tenant's prior written consent to such move has been obtained.

4. Lender waives any and all right, title and interest in the Solar Facility and shall not acquire any such right title or interest by virtue of the installation of the Solar Facility on the Premises. The undersigned Lender further waives any right to seize, or to claim any interest, whatsoever in the Solar Facility on account of any claim or right the undersigned may have against any person, including, without limitation, any claim or right the undersigned may have or assert against the Landlord, by foreclosure or otherwise.

5. Tenant may at any time, at its option, enter upon the Premises and inspect, maintain, remove or repair the Solar Facility to the extent provided in the Lease.

6. When sending to Landlord any notice of impending or actual foreclosure of the Premises, the undersigned Lender shall concurrently provide Tenant a copy of the same.

7. Tenant and Lender agree that if the interests of Landlord in the Premises shall be transferred to and owned by Lender by reason of foreclosure or other proceedings brought by it, or any other manner, or shall be conveyed thereafter by Lender or shall be conveyed pursuant to a foreclosure sale of the Premises, Tenant shall be bound to Lender and Lender shall be bound to Tenant under all of the terms, covenants and conditions of the Lease for the balance of the time thereof remaining and any extensions or renewals thereof which may be effected in accordance with any option therefor in the Lease, with the same force and effect as if Lender were the landlord under the Lease and Tenant does hereby attorn to Lender as its landlord, said attornment to be effective and self-operative without the execution of any further instruments on the part of any of the parties hereto immediately upon Lender succeeding to the interest of Landlord in the Premises.

8. This Agreement shall bind and inure to the benefit of the parties hereto, their successors and assigns. As used herein the term "Tenant" shall include Tenant, its successors and assigns; the words "foreclosure" and "foreclosure sale" as used herein shall be deemed to include the acquisition of Landlord's estate in the Premises by voluntary deed (or assignment) in lieu of foreclosure; and the word "Lender" shall include the Lender herein specifically named and any of its successors, participants and assigns, including anyone who shall have succeeded to Landlord's interest in the Premises by, or through, Lender foreclosure of the Mortgage.

9. All notices, consents and other communications pursuant to the provisions of this Agreement shall be in writing and shall be sent by registered or certified mail, return receipt requested, or by a reputable commercial overnight carrier that provides a receipt, or by facsimile with confirmation of transmission, and shall be deemed given when postmarked and addressed as follows:

If to Lender:

If to Tenant:

If to Landlord:

or to such other address as shall from time to time have been designated by written notice by such party to the other parties as herein provided.

10. This Agreement may not be modified orally or in any manner other than by agreement, in writing, signed by the parties hereto. This Agreement may be executed in counterparts, each of which shall be deemed an original, and such counterparts taken together shall constitute but one agreement. This Agreement shall be governed by the laws of the state or commonwealth where the Premises are located.

[This Page Ends Here – Signature Page to SNDA Follows]

IN WITNESS WHEREOF, the parties hereto have placed their hands and seals the day and year first written above.

TENANT: Soper Mill Brook, LLC

By:_____
Printed Name:
Title:

COMMONWEALTH OF MASSACHUSETTS

Suffolk, ss.

On this _____ day of _____, 202_, before me, the undersigned Notary Public, personally appeared the above-named _____, Authorized Signatory of _____ proved to me by satisfactory evidence of identification, being (check whichever applies): □ driver's license or other state or federal governmental document bearing a photographic image, □ oath or affirmation of a credible witness known to me who knows the above signatory, or □ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily for its stated purpose as Authorized Signatory on behalf of _____.

_____
Notary Public
My Commission Expires:

LANDLORD: Roger G Gauthier

By:_____
Printed Name: Roger G Gauthier
Title: Landlord

STATE/COMMONWEALTH OF _____
_____ County, ss.

On this _____ day of _____, 202_, before me, the undersigned Notary Public, personally appeared the above-named _____, the _____ of _____ proved to me by satisfactory evidence of identification, being (check whichever applies): □ driver's license or other state or federal governmental document bearing a photographic image, □ oath or affirmation of a credible witness known to me who knows the above signatory, or □ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily for its stated purpose on behalf of _____.

_____
Notary Public
My Commission Expires:

LENDER:

By:_____
Printed Name:
Title:

STATE/COMMONWEALTH OF _____
_____ County, ss.

On this _____ day of _____, 202_, before me, the undersigned Notary Public, personally appeared the above-named _____, the _____ of _____ proved to me by satisfactory evidence of identification, being (check whichever applies): □ driver's license or other state or federal governmental document bearing a photographic image, □ oath or affirmation of a credible witness known to me who knows the above signatory, or □ my own personal knowledge of the identity of the signatory, to be the person whose name is signed above, and acknowledged the foregoing to be signed by him voluntarily for its stated purpose on behalf of _____.

_____
Notary Public
My Commission Expires:

Bk 10994 Pg141 #328
01-05-2022 @ 10:47a

16

DLN: 1002140177837

QUITCLAIM DEED WITH COVENANT

LEWISTON-AUBURN WATER POLLUTION CONTROL AUTHORITY, a quasi-municipal corporation duly organized and existing under the laws of the State of Maine, with an office located at, and a mailing address of 535 Lincoln Street, P. O. Box 1928, Lewiston, ME 04241-1928 (the "Grantor"), for valuable consideration, grants to **ROGER G. GAUTHIER** of 276 Penley Corner Road in Auburn, County of Androscoggin, State of Maine (the "Grantee"), with **QUITCLAIM COVENANT**, a certain lot or parcel of land situated in Auburn, County of Androscoggin, and State of Maine, bounded and described as follows:

MAINE REAL ESTATE TRANSFER TAX PAID

1. Parcel

BEGINNING on the northwesterly sideline of Penley Corner Road at the southerly corner of land now or formerly of Cecilia N. Cholewa as described in a deed recorded in the Androscoggin County Registry of Deeds in Book 771, Page 265;

THENCE N 14° 30' W, along a tree line and wire fence remnants marking the southwesterly line of said Cholewa, about 1,075 feet to an angle in said tree line and wire fence;

THENCE N 37° 15' W continuing along the southwesterly line of land of said Cholewa being marked by a tree line and wire fence remnants, about 400 feet to the westerly corner of land of said Cholewa;

THENCE N 54° 45'E, along the northwesterly line of land of said Cholewa being marked by wire fence remnants, about 1,080 feet to the northerly corner of land of said Cholewa and the southwesterly line of land now or formerly of Roger G. Gauthier, Sr. as described in a deed recorded in said Registry in Book 2519, Page 93;

THENCE N 37° 00' W along the said southwesterly line of Gauthier and land now or formerly of Calvin L. Bowie as described in a deed recorded in said Registry in Book 3399, Page 262, being marked by wire fence remnants, about 1,110 feet to the easterly corner of land now or formerly of Treasure Cay, Inc. as

described in a deed recorded in said Registry in Book 3275, Page 75;

THENCE S 53° 00' W along the southeasterly line of land of said Treasure Cay, Inc. about 1,310 feet to a brook;

THENCE southerly and southwesterly along said brook and the easterly line of a parcel recently conveyed by Alfred T. Libby to Douglas and Susan Horsman, about 1,670 feet to a brook intersection marking the southerly corner of land of said Horsman;

THENCE southerly and southeasterly, along said brook and the northeasterly line of a parcel retained by Alfred T. Libby, about 780 feet to the southeasterly line of a parcel conveyed to Ernest Libby by deed recorded in said Registry in Book 924, Page 269;

THENCE S 53° 00' W, along the southeasterly line of said parcel retained by Alfred T. Libby and the southeasterly line of said parcel described in Book 924, Page 269 being marked by wire fence remnants, about 550 feet to the northeasterly line of land now or formerly of Fox Ridge, LLC as described in a deed recorded in said Registry in Book 4147, Page 243;

THENCE S 68° 24' 47" E along the northeasterly line of land of said Fox Ridge, LLC about 270 feet to the easterly corner of said Fox Ridge, LLC;

THENCE S 23° 04' 57" W along the southeasterly line of said Fox Ridge, LLC about 105 feet to the northerly corner of land now or formerly of Proprietors of the Free Meeting House of Several Religious Denominations in Danville, hereafter referred to as the "Church Lot" and as described in a deed recorded in the Cumberland County Registry of Deeds in Book 175, Page 314;

THENCE S 67° 00' E, along the northeasterly line of said "Church Lot", about 115 feet to the northerly corner of said "Church Lot".

THENCE S 23° 00' W, along the southeasterly line of said "Church Lot", about 95 feet to the northerly line of Harmons Corner Road;

THENCE southeasterly, easterly and northeasterly, along the northeasterly line of Harmons Corner Road and the northerly and northwesterly line of Penley Corner Road, a total distance of about 2,214 feet to the point of beginning.

Said parcel contains about 110 acres.

All bearings refer to magnetic north as observed in 1997. Bearings rounded off to the nearest 15 minutes reflect approximate field measurements. Bearings to the nearest second reflect property lines taken from a plan entitled "Standard Boundary Survey, Fox Ridge Golf Course", dated December, 1998, prepared by Technical Services, Inc.

SUBJECT TO an easement granted by Alfred T. Libby to New Life Fellowship recorded in the Androscoggin County Registry of Deeds in Book 2670, Page 67.

Being the same premises described in the deed from Alfred T. Libby to Lewiston-Auburn Water Pollution Control Authority dated March 15, 1999 and recorded in the Androscoggin County Registry of Deeds (the "Registry") in Book 4204, Page 89.

2. Exception

Excepted from this conveyance are any and all rights that the Grantor may have in and to the following:

A certain lot or parcel of land situated in Auburn, County of Androscoggin and State of Maine, off of the north side of the road leading from the River Road by Theophilus Libby's to Danville Corner (later known as Harmon's Corner Road and now known as Penley Corner Road), abutting and being adjacent to a certain lot or parcel of land described in a deed from Theophilus Libby to the Proprietors of the Free Meeting House of the Several Religious Denominations in Danville dated October 29, 1840 and recorded in the Cumberland County Registry of Deeds in Book 175, Page 314, (also being Parcel One as described in the deed from Liana L. Marston to Rudy M. Wing dated June 3, 2004 and recorded in the Androscoggin County Registry of Deeds in Book 6329, Page 46). The point of beginning for the parcel herein described being the northwest corner of that parcel conveyed to the Proprietors of the Free Meeting House of the Several Religious Denominations in Danville; thence running Northerly a distance of 5 rods 12 ½ feet (95.0') to a point; thence Easterly six rods (99') to a point; thence Southerly 5 rods 12 ½ feet (95.0') to a point on the northerly line of the aforesaid parcel conveyed to the Proprietors of the Free Meeting House of the Several Religious Denominations in Danville; thence Westerly a distance of 6 rods (99') along said Northerly line to the point of beginning.

Being the same premises described as PARCEL TWO in the deed from Liana L. Marston to Rudy W. Wing dated June 3, 2004, and recorded in the Androscoggin

County Registry of Deeds in Book 6329, Page 46, and being the same premises described in the Confirmatory Deed from Lewiston-Auburn Water Pollution Control Authority to Rudy M. Wing dated December 13, 2021 and recorded in the Registry in Book 10969, Page 235.

3. Reservations

Reserved from this conveyance in favor of the Grantor are the following:

1. The right of first offer more particularly described in Exhibit 1 annexed hereto and made a part hereof; and

2. The conservation easement more particularly described in Exhibit 2 annexed hereto and made a part hereof.

IN WITNESS WHEREOF, the Grantor has caused this instrument to be executed as of the 28th day of December, 2021 by its duly authorized General Manager.

Lewiston-Auburn Water Pollution Control Authority

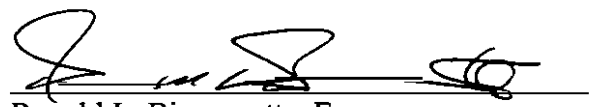
Witness

By: _____
Travis B. Peaslee
Its General Manager

STATE OF MAINE
COUNTY OF ANDROSCOGGIN December 28, 2021

Then personally appeared the above-named Travis B. Peaslee and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of said Authority,

Before me,



Ronald L. Bissonnette, Esq.
Maine Attorney at Law

H:\DOCS\TITUS\CLIENTS\Lewiston Auburn Water Pollution Control Authority\Penley Corner Road (Beauschene & Gauthier)\Closing Documents\Deed Authority to Gauthier (371 Penley).docx

Exhibit 1
(Right of First Offer Reserved to Grantor)

Reservation of Right of First Offer

If Roger G. Gauthier, Jr., or his heirs, personal representatives and assigns (the "**Grantee**") intends to sell all or part of the real estate conveyed herein (the "**Real Estate**"), the Grantee shall first offer to sell the same to Lewiston-Auburn Water Pollution Control Authority (the "**Authority**") in the manner described herein. The Grantee shall provide notice to the Authority of the Grantee's intent to sell the Real Estate, reasonably describing the part (if less than all) of the Real Estate the Grantee intends to sell and invite the Authority to make an offer to purchase. If the Grantee and the Authority have not entered into an agreement for the sale and purchase of the Real Estate (or part thereof, if applicable) within thirty (30) days following the Authority's receipt of the Grantee's notice, then the Grantee may sell the Real Estate (or part thereof, if applicable) free of the Authority's right granted herein and the right granted herein shall no longer apply to the Real Estate (or part thereof, if applicable). All notices required or useful hereunder shall be given to the party's last known address (and the address of the party maintained by the Assessor of the City of Auburn shall be deemed adequate for these purposes) (i) by delivery in hand, (ii) by U. S. mail, prepaid, certified, return receipt requested or (iii) by reputable overnight commercial courier. If not sooner terminated, this right shall terminate ninety (90) years following the date of this conveyance of the Real Estate by the Authority to the Grantee. Any person may rely on an affidavit of the Grantee recorded in the Registry setting forth the facts establishing that the right granted herein has terminated or no longer applies to the Real Estate (or part thereof, if applicable).

Exhibit 2
(Conservation Easement Reserved by the Authority in 371 Penley Corner Road)

Reservation of Conservation Easement

Lewiston-Auburn Water Pollution Control Authority (the "**Authority**" which term shall include its successors and assigns) reserves to itself and its successors and assigns an easement (the "**Easement**") relating to the land (the "**Property**") in Auburn, County of Androscoggin, and State of Maine, conveyed by the Authority in this deed. The grantee in this deed, Roger G. Gauthier, Jr., and his heirs, personal representatives and assigns may hereinafter be referred to as the "**Grantees**").

Section 1: Purpose. The purpose (the "**Purpose**") of the Easement is for the Property (a) to remain as active agricultural farm land and (b) to serve as a nuisance buffer for the Authority's Composting Facility located on the land retained by the Authority that is part of the land described in the deed from Roger G. Gauthier, Jr. to the Authority dated June 4, 1992 and recorded in the Androscoggin County Registry of Deeds (the "**Registry**") in Book 2859, Page 209 (the "**Authority Property**").

Section 2: Limitations on Use. This Easement limits the use of the Property in perpetuity to such activities as are consistent with the Purpose of this Easement. Except as otherwise expressly provided in this Easement, any activity on or use of the Property inconsistent with the Purpose of this Easement is prohibited. Without intending to limit the prohibitions on uses inconsistent with the Purpose, the following specific covenants, restrictions and limitations shall apply:

2.1: No Subdivision. The Property shall not be subdivided and no portion of or interest in the Property shall be conveyed separately from the remainder of the Property without prior written approval by the Authority.

2.2: Single-Family. The Property shall remain an active agricultural site. No more than one single-family residential dwelling shall be located on the Property at any time.

2.3: Application of Bio-Solids. The Property shall be maintained in perpetuity, unless agreed otherwise in writing by the Authority, as active agricultural farm land and available for land application of certain bio-solids produced by the Authority in conformity with Department of Environmental Protection Order No. S-0060503-SI-C-R, or any subsequent or amended permit or order for this Property. The application of bio-solids shall be done under the supervision of the Authority and only in locations currently approved by the Department of Environmental Protection. The use of the Property shall allow for storage of bio-solids on the Property in accordance with the above referenced Order (DEP license). The Authority will be responsible for any necessary winter access for the purpose of storing biosolids.

2.4: No Dumping. There shall be no dumping, burning (other than small tree debris), release, burial, injection, or disposal of any type of material on the Property.

2.5: No Commercial Groundwater Extraction. There shall be no commercial groundwater extraction activities on the Property.

Section 3: No Third-Party Beneficiaries or Public Access. This Easement is reserved exclusively for the benefit of the Authority, its successors and assigns, and for the Authority Property and any future owner of the Authority Property. No other person or entity shall derive any benefit or be entitled to assert any right or claim under this Easement. This Easement does not grant or convey to members of the general public any rights of ownership, entry or use of the Property.

Section 4: Application Bio-Solids. The Authority reserves the right to continue with land application to and on the Property of bio-solids produced from the Authority's Compost Facility located on the Authority Property and the right to access to the Property for the Authority's bio-solids management contractor and the Authority's agents in the exercise of said reserved rights.

Section 5: Monitoring Wells. The Authority reserves the right to install and maintain groundwater monitoring wells on the Property if required by a regulatory agency, or, if in the sole and absolute judgment of the Authority, the installation and maintenance of such wells is a prudent course of conduct.

Section 6: Entry and Inspection. The Authority and its duly authorized designees or agents reserve the right to enter upon the Property, with reasonable prior notice to the Grantees, to inspect the Property, to determine compliance with the terms and conditions of this Easement and to exercise any of the rights reserved by the Authority.

Section 7: Property Transfers. The Grantees shall notify the Authority in writing no less than twenty-one (21) days before the transfer of title to the Property and shall include the following notice on all deeds, mortgages, plats, or any other legal instrument used to convey any interest in the Property:

> **NOTICE:** This Property is Subject to a Conservation Easement recorded in the Androscoggin County Registry of Deeds in Book _____, Page _____.

The failure to comply with the foregoing obligation shall not impair the validity or enforceability of this Easement.

Section 8: Maintenance, Taxes and Assessments. The Authority shall be under no obligation to maintain the Property or to pay any taxes or assessments thereon.

Section 9: Benefits and Burdens. The burden of the Easement reserved herein shall run with the Property and shall be enforceable against all future owners and tenants of the Property in perpetuity. The benefit of the Easement shall run with the Authority Property and may be enforced by the Authority and all future owners of the Authority Property.

Section 10: Notices. All notices, requests and other communication required or permitted to be given under this Easement shall be in writing and shall be delivered (i) in hand, or (ii) by U. S. mail, certified, return receipt requested, or by reputable overnight commercial courier to the address of the party set forth in this deed or at such other address as either party may hereafter designate by notice given to the other party in accordance herewith. If a party has knowledge that any of the foregoing addresses are no longer correct, then notice may be given to the party's last known address (and the address of the party maintained by the Assessor of the City of Auburn shall be deemed adequate for these purposes). Notice shall be deemed to have been given when so delivered or mailed.

Section 11: Breach of Covenants and Restrictions.

11.1: Notice. In the event of a breach of any of the covenants and restrictions contained in this Easement or of conduct by anyone inconsistent with any of the covenants and restrictions contained in this Easement, the Authority may provide written notice of the same to the Grantees in the manner provided herein.

11.2: Cure by Grantees. Within thirty (30) calendar days after receipt of such notice or after otherwise learning of such breach or conduct, the Grantees shall forthwith undertake those actions, including restoration, which are reasonably calculated to cure said breach, or to terminate said conduct, and to repair any damage (collectively, the "**Curative Actions**"). The Grantees shall, within said thirty (30) calendar days promptly notify the Authority of the Curative Actions taken by the Grantees under this section.

11.3: Failure to Cure. If the Grantees fail to take Curative Actions or to notify the Authority of the Curative Actions taken within the time required by the foregoing subsection, the Authority may (but is not under a duty to) undertake any actions that are reasonably necessary to cure such breach or to repair any damage in the Grantees' name or to terminate such conduct. The cost thereof, including, without limitation intended, the Authority's expenses, court costs and reasonable attorneys' fees, shall be paid by the Grantees including the expenses, court costs and reasonable attorneys' fees incurred in enforcing this provision.

11.4: Emergency Action. If the Authority, in the reasonable exercise of its discretion, determines that circumstances require immediate action to prevent or mitigate damages to the Property, or to prevent action or potential action which is determined to be inconsistent with the stated purposes of this Easement, the Authority may (but is not under a duty to) pursue any remedy it deems appropriate to correct such breach, without prior notice to the Grantees or waiting for the expiration of the cure period.

11.5: Enforcement Against Third Parties. The Grantees and the Authority shall have the right, separately or collectively, to pursue all available remedies against any third party responsible for any actions detrimental to the Purpose of this Easement. The Authority is under no duty, however, to take any such action and shall never have any liability of any kind to any person for its negligent or intentional action or failure to act to enforce any provision of this Easement.

11.6: No Waiver. No delay or omission by the Authority in the exercise of any right or remedy reserved to the Authority herein shall impair the Authority's rights or remedies or be construed as a waiver.

Section 12: Severability. If any provision of this Easement, or the application thereof to any person or circumstances, is found to be invalid by a court of competent jurisdiction, by confirmation of an arbitration award or otherwise, the remainder of the provisions of this Easement or the application of such provisions to persons or circumstances other than those to which it is found to be invalid, as the case may be, shall not be affected thereby.

Section 13: Merger. The Easement reserved herein is to last in perpetuity, unless stated in writing otherwise by the Authority, and no purchase or transfer of the underlying fee interest in the Property by the Grantees or any successor or assignee shall be deemed to eliminate the Easement, or any portion thereof, under the doctrine of merger or any other legal doctrine.

Section 14: Rule Against Perpetuities. In the event that the Easement or any of the rights reserved by the Authority pursuant to the Easement should be found to violate the Rule Against Perpetuities, then those rights found to be in violation of the Rule Against Perpetuities shall be deemed to expire and terminate ninety (90) years following the date of this deed given by the Authority to the Grantees.

Section 15: Section Headings. Section headings are for convenience only. They are not intended to expand or restrict the scope or the substance of the provisions of this Easement.

Section 16: Gender, Etc. Wherever used in this Easement, the singular shall include the plural, the plural shall include the singular, and pronouns shall be read as masculine, feminine or neuter as the context requires.

Section 17: Governing Law. This Easement shall be governed by the laws of the State of Maine.

Section 18: Time. Time is of the essence of the provisions of this Easement.

Section 19: Amendment. This Easement may not be amended, modified or revoked except by a writing recorded in the Registry signed by the party against whom enforcement of the amendment, modification or revocation is sought.

Section 20: Entire Understanding. This is the entire understanding among the parties. There is no other agreement, oral or written, relating to this Easement.

ANDROSCOGGIN COUNTY
TINA M CHOUINARD
REGISTER OF DEEDS

OPTION AGREEMENT

THIS OPTION AGREEMENT is made this 21 day of November, 2023, between **Roger G. Gauthier**, having an address of 276 Penley Corner Road, Auburn, Maine 04210 ("Gauthier"), **Lewiston-Auburn Water Pollution Control Authority**, having an address of 535 Lincoln Street P.O. Box 1928, Lewiston, Maine 04241 ("LAWPCA"), and **BlueWave Origination, LLC**, a Delaware limited liability company having an address of 116 Huntington Ave., Suite 601, Boston, MA 02116 ("BlueWave").

A. Option: [redacted] to be paid by BlueWave to LAWPCA as Option Consideration within five (5) business days after the date of this Option Agreement, Gauthier and LAWPCA hereby grant to BlueWave the exclusive, irrevocable right for a period of one (1) year from the date hereof (the "Option Period") to have Gauthier and LAWPCA execute and deliver the Easement Termination Agreement and Use Restriction in the form attached hereto as EXHIBIT A (the "Termination Agreement"), relating to certain real estate of Gauthier situated at or near 371 Penley Corner Road in the City of Auburn, Androscoggin County, Maine and more particularly described in the Termination Agreement (the "Property").

B. Purchase Price: If this Option is exercised, the Purchase Price for the Termination Agreement shall be [redacted], payable entirely to LAWPCA. If BlueWave elects to purchase the Termination Agreement, such election shall be made by written notice to both Gauthier and LAWPCA at the above addresses given prior to the expiration of the Option Period. The Option Consideration paid shall be credited against the Purchase Price payable at the closing. If BlueWave does not exercise the Option, LAWPCA shall retain the Option Consideration paid. If BlueWave exercises the Option, but does not close due to its default, LAWPCA shall retain the Option Consideration paid as the sole and exclusive remedy for both LAWPCA and Gauthier.

C. Closing: If BlueWave elects to purchase the Termination Agreement, the parties shall execute and deliver the Termination Agreement. The parties agree that the "Restricted Area" as described in the Termination Agreement shall be a portion of Gauthier's Property selected by BlueWave containing not less than ninety (90) acres, to be shown and described by survey prepared by a Maine licensed surveyor at BlueWave's expense. The closing shall take place within thirty (30) days after written notice from BlueWave that it has exercised the Option, at the date, time and place specified in the notice. Subject to the foregoing, the closing may occur after the Option Period so long as this Option shall have been exercised prior to the expiration of the Option Period. LAWPCA and Gauthier agree to deliver such other duly executed documents as are reasonably necessary to complete the closing, including any certifications as may be required to comply with Internal Revenue Code Regulations (including Section 1445 of the Internal Revenue Code of 1986) and the Maine withholding tax requirement (36 M.R.S.A. § 5250-A).

D. Title: If the representations of LAWPCA contained in Recital D of the Termination Agreement are not true to BlueWave's reasonable satisfaction, or if there is any defect in Gauthier's title to the Property that adversely affects the validity of the Termination Agreement, then BlueWave shall have the right to extend the time for delivery of the Termination Agreement for a period of thirty (30) days or such other period of time as the parties may mutually agree, during which time LAWPCA and Gauthier shall make reasonable efforts to remove such defects at their respective expense, to the reasonable satisfaction of counsel of BlueWave. If title remains defective within

the aforesaid period after notice from BlueWave of the nature of the defect, BlueWave may, at BlueWave's election, (i) close notwithstanding such defect, or (ii) terminate this Option Agreement, in which case the Option Consideration paid shall be refunded to BlueWave, whereupon the parties shall be relieved from its obligations under this Option Agreement.

E. Ownership of the Property: Gauthier warrants that he is the owner of the Property in fee simple with the full right and authority to execute and deliver the Termination Agreement, and that there is no other option, contract or other right to purchase the Property in existence, other than the January 3, 2023 Option Agreement with BlueWave. Gauthier further agrees not to encumber the Property with any easement, lease, license, permit, lien or any other legal or beneficial interest while this Option Agreement is in effect.

F. Miscellaneous: All notices hereunder shall be in writing and shall be deemed given when a certified letter (return receipt requested) containing such notice, properly addressed to the party for which it is intended at the address first set forth above, is deposited in the U.S. Mails. This Option Agreement shall be binding upon the parties and their heirs, administrators, successors and assigns.

LEWISTON-AUBURN WATER POLLUTION CONTROL AUTHORITY

Witness

By: _____
Travis B. Peaslee
General Manager

Witness

_____
Roger G. Gauthier

BLUEWAVE ORIGINATION, LLC

Witness

By: _____
Print: Mark D. Sylvia
Its: Authorized Signatory

ATTACHMENT: Exhibit A – Termination Agreement

EASEMENT TERMINATION AGREEMENT AND USE RESTRICTION

This Easement Termination Agreement and Use Restriction is made as of the ____ day of _____, 202_ by and between **Lewiston-Auburn Water Pollution Control Authority**, having an address of 535 Lincoln Street P.O. Box 1928, Lewiston, Maine 04241 (the "Authority"), and **Roger G. Gauthier**, having an address of 276 Penley Corner Road, Auburn, Maine 04210 ("Owner").

RECITALS

A. By Quitclaim Deed with Covenant from the Authority to Owner dated December 28, 2021 and recorded at the Androscoggin County Registry of Deeds in Book 10994 Page 141 (the "Authority Deed to Owner"), the Authority conveyed to Owner certain real estate situated at or near 371 Penley Corner Road in the City of Auburn, Androscoggin County, Maine (the "Property").

B. Pursuant to the Authority Deed to Owner, the Authority reserved (i) a Right of First Offer set forth on Exhibit 1 thereto (the "ROFO"), and (ii) a Conservation Easement set forth on Exhibit 2 thereto (the "Easement").

C. Owner has requested that the Easement be terminated, and the Authority has agreed to such requested termination on the following terms and conditions.

D. The Authority has represented to Owner that there has been no assignment, transfer or encumbrance of its rights under the Easement and that no consent or approval of any other party is required for it to enter into this termination and release all of its rights under the Easement in the Property.

NOW THEREFORE, for good and valuable consideration, Owner and the Authority hereby agree as follows:

1. Termination of Easement. The Easement is terminated, and the Authority releases to Owner, his heirs and assigns, all rights in the Property arising under or pursuant to the Easement. The foregoing termination does not terminate the ROFO, which shall remain in effect as an encumbrance on the Property.

2. Use Restriction. In consideration of the foregoing termination of Easement, Owner grants to the Authority an easement and negative covenant (collectively, the "Use Restriction"), whereby Owner covenants and agrees for himself, his heirs and assigns, that the portion of the Property described as "Restricted Area" on Exhibit A attached hereto (the "Restricted Area") shall be subject to the easements, covenants and restrictions set forth on Exhibit B attached hereto. Notwithstanding anything to the contrary contained in Exhibit B, the Use Restriction does not restrict construction, maintenance, repair or replacement of (a) one single-family residential dwelling, and associated improvements, within the Restricted Area,

or (b) any roadway or utility services within the Restricted Area that serve remaining portions of the Property. The burden of the Use Restriction shall run with the land included within the Restricted Area. The benefit of the Use Restriction is appurtenant to the land currently owned by the Authority that is part of the land described in the deed from Roger G. Gauthier, Jr. to the Authority dated June 4, 1992 and recorded at the Androscoggin County Registry of Deeds in Book 2859 Page 209 (the "Authority Property"). This Use Restriction may be modified or terminated only by written agreement between the owner of the Restricted Area and the owner of the Authority Property.

This instrument may be executed in any number of counterparts with the same effect as if all parties hereto had signed the same document. All such counterparts shall be construed together and shall constitute one instrument, which shall be binding upon and inure to the benefit of the parties and their respective successors and assigns.

IN WITNESS WHEREOF, this Easement Termination Agreement and Use Restriction has been duly executed and delivered as of the day and year set forth above.

AUTHORITY:

Lewiston-Auburn Water Pollution Control Authority

By: _____
Name: Travis B. Peaslee
Title: General Manager

STATE OF MAINE

COUNTY OF ANDROSCOGGIN SS

_____, 202_

Personally appeared the above-named Travis B. Peaslee, as General Manager of the Lewiston-Auburn Water Pollution Control Authority and acknowledged the foregoing instrument to be his free act and deed in said capacity and the free act and deed of the Lewiston-Auburn Water Pollution Control Authority,

Before me,

_____
Notary Public
Print Name: _____
My Commission Expires: _____

OWNER:

_____
Roger G. Gauthier

STATE OF MAINE

COUNTY OF ANDROSCOGGIN SS

_____, 202_

Personally appeared the above-named Roger G. Gauthier, and acknowledged the foregoing instrument to be his free act and deed,

Before me,

_____
Notary Public
Print Name: _____
My Commission Expires: _____

EXHIBIT A
Restricted Area

EXHIBIT B
Use Restriction

No Subdivision: The Restricted Area shall not be subdivided and no portion of or interest in the Restricted Area shall be conveyed separately from the remainder of the Restricted Area without prior written approval by the Authority.

No Dumping: There shall be no dumping, burning (other than small tree debris), release, burial, injection, or disposal of any type of material on the Restricted Area.

No Commercial Groundwater Extraction: There shall be no commercial groundwater extraction activities on the Restricted Area.

Remain as Agricultural Farmland and Available for Land Application of Bio-Solids: The Restricted Area shall be maintained in perpetuity, unless agreed other in writing by the Authority, as active agricultural farm land and available for land application of certain bio-solids produced by the Authority in conformity with Department of Environmental Protection Order No. S-0060503-SI-C-R, or any subsequent or amended permit or order for the Restricted Area. The application of bio-solids shall be done under the supervision of the Authority and only in locations currently approved by the Department of Environmental Protection. The use of the Restricted Area shall allow for storage of bio-solids on the Restricted Area in accordance with the above referenced Order (DEP License). The Authority will be responsible for any necessary winter access for the purpose of storing biosolids.

Entry, Inspection, and Monitoring: The Authority and its duly authorized designees or agents reserve the right to enter upon the Restricted Area, with reasonable prior notice to Owner, to inspect the Restricted Area, to determine compliance with the terms and conditions of this Use Restriction and to exercise any of the rights reserved by the Authority. The Authority reserves the right to install and maintain groundwater monitoring wells on the Restricted Area if required by a regulatory agency, or, if in the sole and absolute judgment of the Authority, the installation and maintenance of such wells is a prudent course of conduct.

ATTACHMENT 6
USDA SOIL MAPPING

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Androscoggin and Sagadahoc Counties, Maine



April 12, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....12
Map Unit Descriptions.....12
Androscoggin and Sagadahoc Counties, Maine.....15
AaB—Adams loamy sand, 0 to 8 percent slopes.....15
BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes.....16
Bo—Biddeford mucky peat, 0 to 3 percent slopes.....17
HfB—Hartland very fine sandy loam, 2 to 8 percent slopes.....18
HfC2—Hartland very fine sandy loam, 8 to 15 percent slopes, eroded.....19
HfD2—Hartland very fine sandy loam, 15 to 25 percent slopes, eroded.....20
HkC—Hinckley gravelly sandy loam, 8 to 15 percent slopes.....21
MeB—Melrose fine sandy loam, 0 to 8 percent slopes.....22
MeC—Melrose fine sandy loam, 8 to 20 percent slopes.....23
ScA—Scantic silt loam, 0 to 3 percent slopes.....24
SzA—Swanton fine sandy loam, 0 to 3 percent slopes.....25
References.....26

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:5,820 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 23, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AaB	Adams loamy sand, 0 to 8 percent slopes	4.7	11.0%
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	8.5	19.8%
Bo	Biddeford mucky peat, 0 to 3 percent slopes	2.4	5.7%
HfB	Hartland very fine sandy loam, 2 to 8 percent slopes	0.1	0.2%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	16.6	38.6%
HfD2	Hartland very fine sandy loam, 15 to 25 percent slopes, eroded	4.6	10.7%
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes	0.6	1.3%
MeB	Melrose fine sandy loam, 0 to 8 percent slopes	0.0	0.1%
MeC	Melrose fine sandy loam, 8 to 20 percent slopes	0.7	1.5%
ScA	Scantic silt loam, 0 to 3 percent slopes	3.8	8.9%
SzA	Swanton fine sandy loam, 0 to 3 percent slopes	1.0	2.3%
Totals for Area of Interest		**43.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion

of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Androscoggin and Sagadahoc Counties, Maine

AaB—Adams loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wqn9
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Adams and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
Bs - 7 to 21 inches: sand
BC - 21 to 27 inches: sand
C - 27 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjg5
Elevation: 20 to 2,300 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nicholville and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam
Bs - 7 to 19 inches: very fine sandy loam
BC - 19 to 30 inches: very fine sandy loam
C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

Bo—Biddeford mucky peat, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t0jn
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Biddeford and similar soils: 82 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Biddeford

Setting

Landform: Marine terraces, river valleys
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Parent material: Organic material over glaciomarine deposits

Typical profile

Oe - 0 to 12 inches: mucky peat
Eg - 12 to 16 inches: silt loam
Bg - 16 to 45 inches: silty clay
Cg - 45 to 65 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: F144BY002ME - Marine Terrace Depression, F144BY304ME - Wet Clay Flat
Hydric soil rating: Yes

HfB—Hartland very fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9kd6
Elevation: 0 to 590 feet
Mean annual precipitation: 46 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hartland and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hartland

Setting

Landform: Lakebeds
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 19 inches: very fine sandy loam
H3 - 19 to 28 inches: very fine sandy loam
H4 - 28 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY508ME - Silty Slope
Hydric soil rating: No

HfC2—Hartland very fine sandy loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: 9kd7
Elevation: 0 to 410 feet
Mean annual precipitation: 46 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Hartland and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hartland

Setting

Landform: Lakebeds
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 19 inches: very fine sandy loam
H3 - 19 to 28 inches: very fine sandy loam
H4 - 28 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY508ME - Silty Slope
Hydric soil rating: No

HfD2—Hartland very fine sandy loam, 15 to 25 percent slopes, eroded

Map Unit Setting

National map unit symbol: 9kd8
Elevation: 0 to 380 feet
Mean annual precipitation: 46 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Hartland and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hartland

Setting

Landform: Lakebeds
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 19 inches: very fine sandy loam
H3 - 19 to 28 inches: very fine sandy loam
H4 - 28 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY508ME - Silty Slope
Hydric soil rating: No

HkC—Hinckley gravelly sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9kdb
Elevation: 10 to 2,000 feet
Mean annual precipitation: 30 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Hinckley and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy-skeletal glaciofluvial deposits derived from granite and gneiss

Typical profile

H1 - 0 to 4 inches: gravelly sandy loam
H2 - 4 to 20 inches: gravelly loamy sand
H3 - 20 to 44 inches: very cobbly sand
H4 - 44 to 65 inches: stratified very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 1.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

MeB—Melrose fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9kdq
Elevation: 10 to 900 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Melrose and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Melrose

Setting

Landform: Stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 24 inches: fine sandy loam
H3 - 24 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

MeC—Melrose fine sandy loam, 8 to 20 percent slopes

Map Unit Setting

National map unit symbol: 9kdr
Elevation: 10 to 900 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Melrose and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Melrose

Setting

Landform: Stream terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 24 inches: fine sandy loam
H3 - 24 to 65 inches: silty clay loam

Properties and qualities

Slope: 8 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

ScA—Scantic silt loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2slv3
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Scantic and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scantic

Setting

Landform: Marine terraces, river valleys
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Bg1 - 9 to 16 inches: silty clay loam
Bg2 - 16 to 29 inches: silty clay
Cg - 29 to 65 inches: silty clay

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: F144BY304ME - Wet Clay Flat
Hydric soil rating: Yes

SzA—Swanton fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9kfn
Elevation: 10 to 900 feet
Mean annual precipitation: 36 to 48 inches
Mean annual air temperature: 39 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Swanton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Swanton

Setting

Landform: Outwash plains
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy glaciolacustrine deposits and/or marine deposits

Typical profile

H1 - 0 to 7 inches: fine sandy loam
H2 - 7 to 22 inches: fine sandy loam
H3 - 22 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Ecological site: F144BY401ME - Clay Flat, F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

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ATTACHMENT 7
FINANCIAL
ASSURANCE LETTER

KeyBank

September 4, 2024

James Haley
Chief Financial Officer
BlueWave Project Development, LLC
116 Huntington Avenue, Suite 601
Boston, MA 02116

RE: Soper Mill Brook, LLC

To whom it may concern:

BlueWave Project Development, LLC ("BlueWave" or the "Company") has informed KeyBank National Association ("KeyBank") of its intention to proceed with permitting and development activities for the proposed ground mounted solar generation facility located in Androscoggin County, ME that is identified as Soper Mill Brook, LLC (the "Project"), a wholly owned subsidiary of the Company. Given our expertise within the renewable energy sector, leading debt-raising capabilities, experience financing projects (including debt and tax-efficient financings), and our longstanding and strong relationship with the BlueWave team, we believe KeyBank is very well suited to support the Company with respect to the Project.

Based on our experience providing construction and long-term financing for power generation and transmission portfolios, and our familiarity with the financial markets generally, we are confident that, once the Company obtains all required permits and approvals (based on sound engineering/design and use of equipment), Company will be able to obtain financing on market terms and conditions sufficient to cover development costs, construction financing, and other financing as necessary for the Project to reach commercial operation. Once these details are addressed, we would enter into negotiations with the Company to provide a Summary of Terms and Conditions offering financing for the Project, not to exceed an appropriate loan to value.

Cleveland-based KeyBank is one of the nation's largest bank-based financial services companies, with assets of over $187 billion. Alternative energy is a focus area for KeyBank, and we are supportive of renewable energy developers such as BlueWave. KeyBank currently has over $13.3 billion committed to the utility and power sector, including commitments to some of the largest renewable energy developers in the U.S. KeyBank has over $7.8 billion currently committed to the development and operation of renewable energy. Since 2010, KeyBank has financed over 74,200 MW of installed capacity. Additionally, KeyBank has extensive experience working in concert with tax equity providers and would be well-positioned to facilitate additional forms of financing should the Company explore additional funding sources.

This letter is for discussion purposes only and is not an offer of financing or any commitment on our part, nor is it intended to be legally binding or to give rise to any legal or fiduciary relationship between KeyBank or its affiliates and any other person. Such a commitment, if any, will be delivered upon receipt of all requisite internal approvals and completion of due diligence.

We hope that this letter demonstrates the high regard that KeyBank has for the BlueWave management team, and our confidence in their ability to obtain financing for the Project and to bring them online as scheduled.

Sincerely,

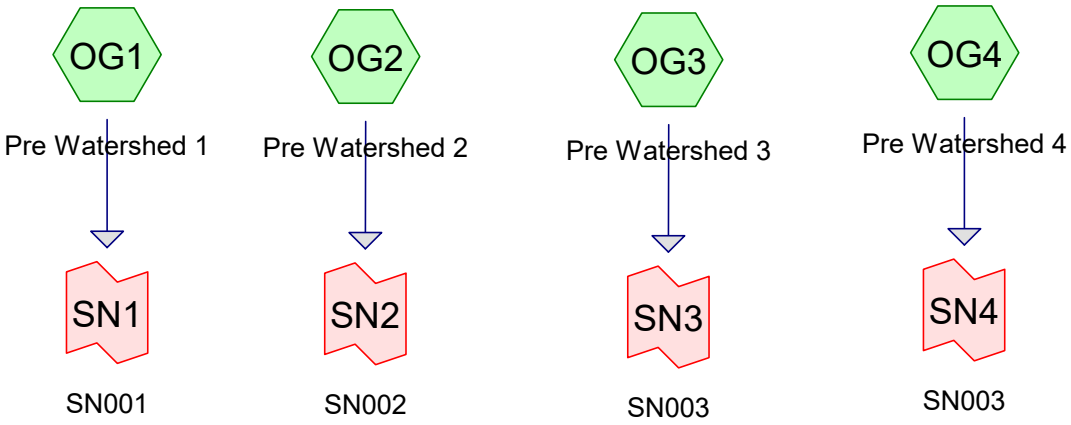


Tyler Nielsen
Director
Utilities, Power & Renewable Energy
216-689-5313

ATTACHMENT 8
HYDROCAD
REPORT

PRE-DEVELOPMENT 2 YEAR STORM

Preconstruction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad

Prepared by Krebs & Lansing Consulting Engineers, Printed 12/13/2024

HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.344	98	Ex. Impervious (OG1, OG2, OG3)
9.465	39	Pasture/grassland/range, Good, HSG A (OG1, OG2, OG3)
18.178	61	Pasture/grassland/range, Good, HSG B (OG1, OG2, OG3, OG4)
9.273	74	Pasture/grassland/range, Good, HSG C (OG1, OG3, OG4)
5.490	80	Pasture/grassland/range, Good, HSG D (OG3, OG4)
9.023	55	Woods, Good, HSG B (OG3)
2.226	70	Woods, Good, HSG C (OG3, OG4)
54.000	**61**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.344	0.344	Ex. Impervious	OG1, OG2, OG3
9.465	18.178	9.273	5.490	0.000	42.407	Pasture/grassland/range, Good	OG1, OG2, OG3, OG4
0.000	9.023	2.226	0.000	0.000	11.249	Woods, Good	OG3, OG4
9.465	**27.201**	**11.498**	**5.490**	**0.344**	**54.000**	**TOTAL AREA**	

Summary for Subcatchment OG1: Pre Watershed 1

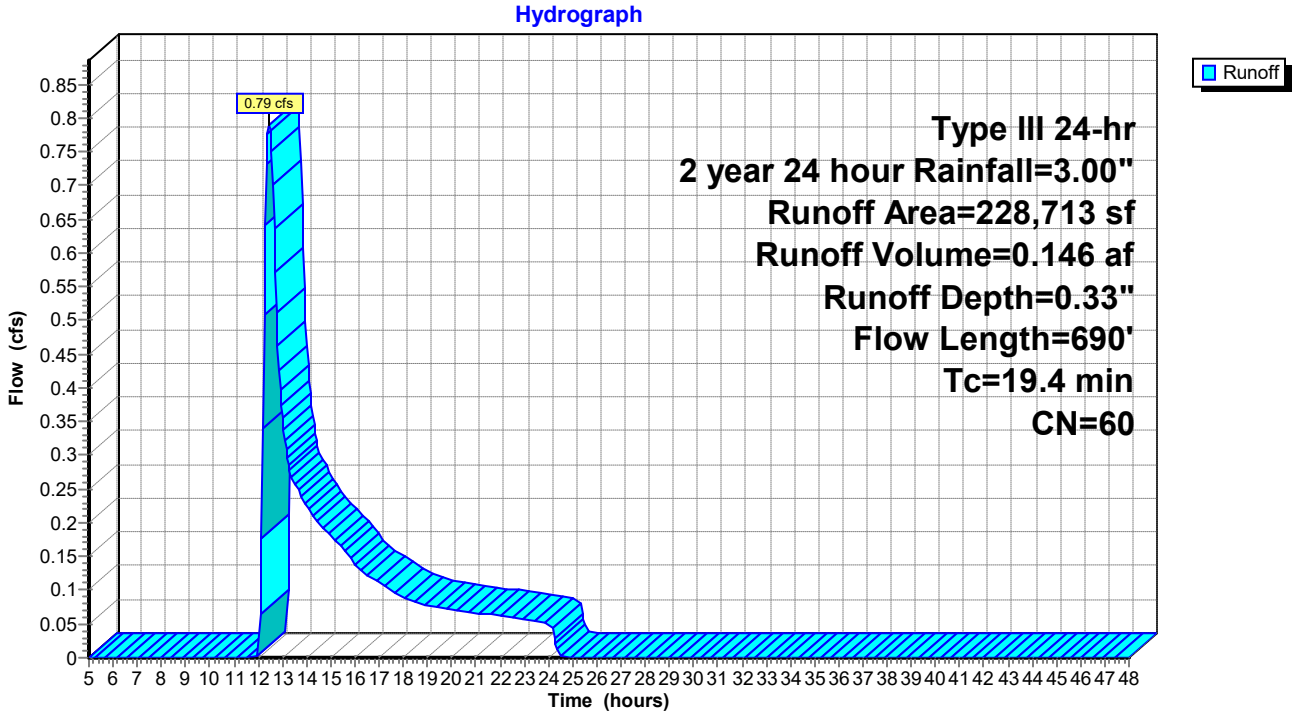
Runoff = 0.79 cfs @ 12.46 hrs, Volume= 0.146 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
*	1,286	98	Ex. Impervious
	25,151	39	Pasture/grassland/range, Good, HSG A
	173,485	61	Pasture/grassland/range, Good, HSG B
	28,791	74	Pasture/grassland/range, Good, HSG C
	228,713	60	Weighted Average
	227,427		99.44% Pervious Area
	1,286		0.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	150	0.0460	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
4.3	310	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	230	0.0220	7.81	78.07	**Channel Flow,** Area= 10.0 sf Perim= 12.0' r= 0.83' n= 0.025
19.4	690	Total			

Subcatchment OG1: Pre Watershed 1



Summary for Subcatchment OG2: Pre Watershed 2

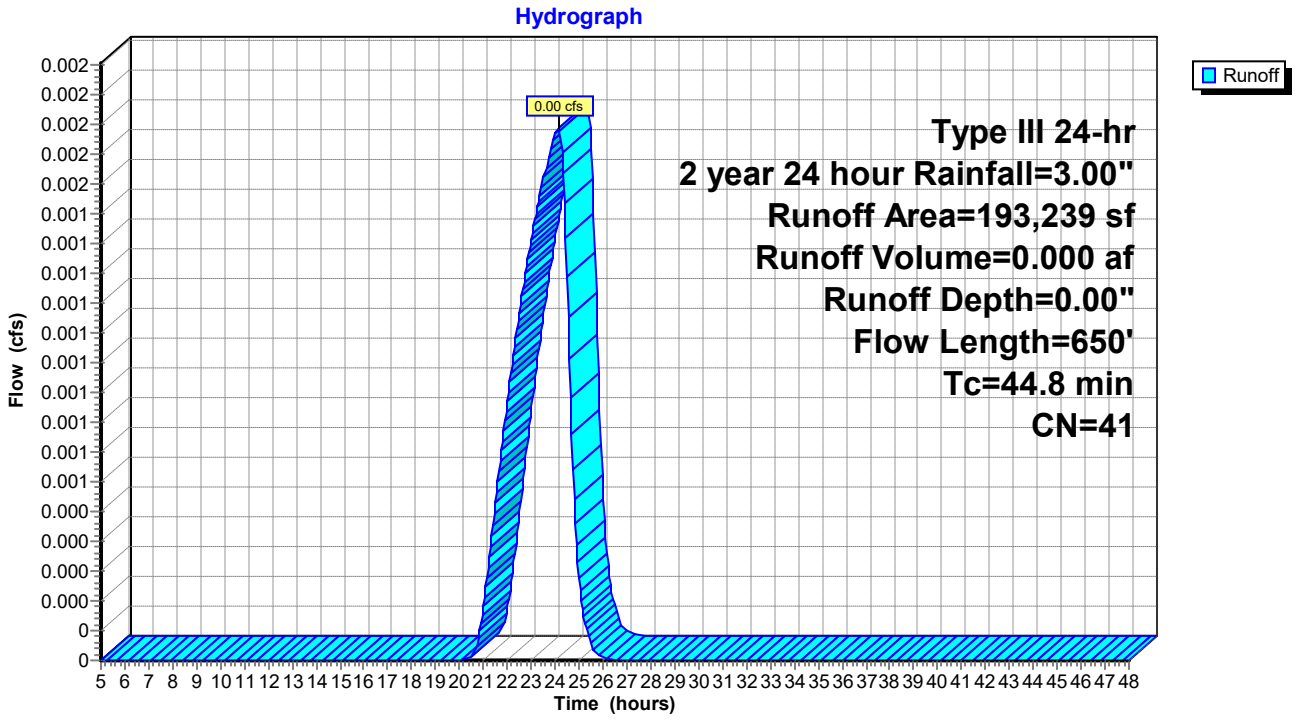
Runoff = 0.00 cfs @ 24.14 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	181,638	39	Pasture/grassland/range, Good, HSG A
	8,173	61	Pasture/grassland/range, Good, HSG B
*	3,428	98	Ex. Impervious
	193,239	41	Weighted Average
	189,811		98.23% Pervious Area
	3,428		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.7	150	0.0330	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
28.1	500	0.0018	0.30		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
44.8	650	Total			

Subcatchment OG2: Pre Watershed 2



Summary for Subcatchment OG3: Pre Watershed 3

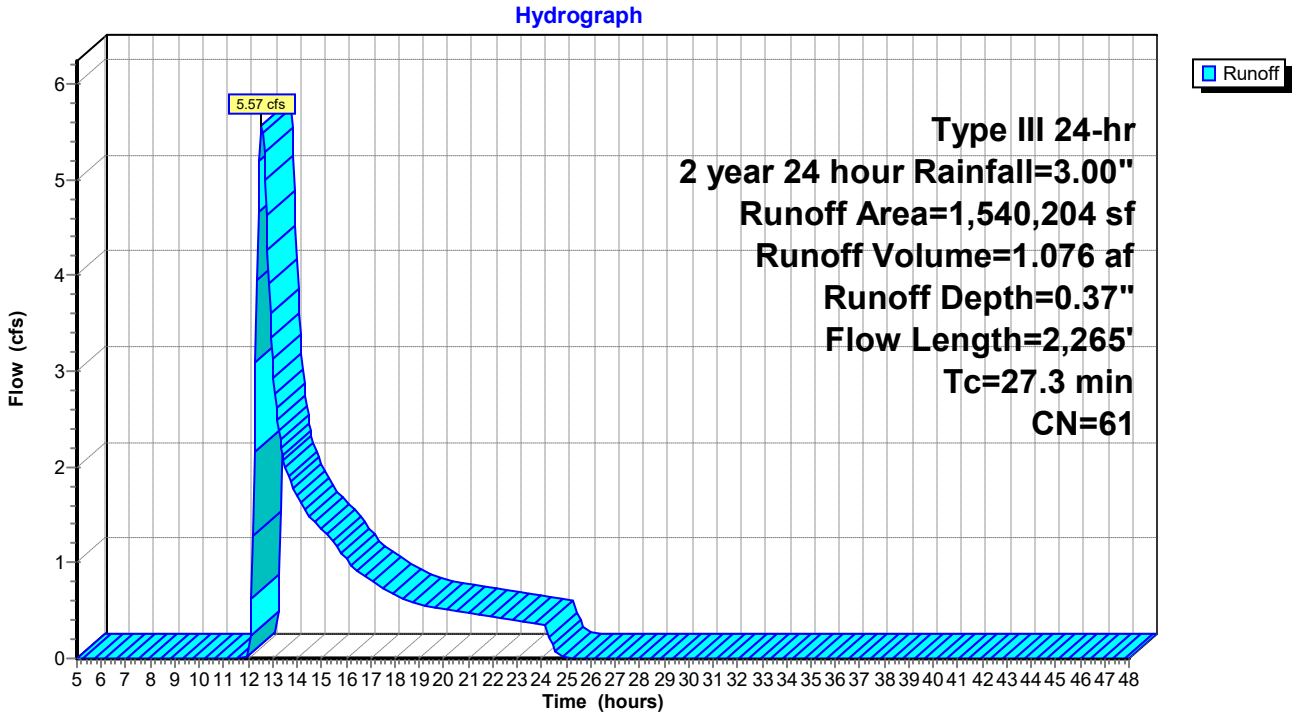
Runoff = 5.57 cfs @ 12.55 hrs, Volume= 1.076 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	205,523	39	Pasture/grassland/range, Good, HSG A
	528,420	61	Pasture/grassland/range, Good, HSG B
	228,700	74	Pasture/grassland/range, Good, HSG C
	142,657	80	Pasture/grassland/range, Good, HSG D
	393,043	55	Woods, Good, HSG B
	28,174	70	Woods, Good, HSG C
	3,399	70	Woods, Good, HSG C
*	10,288	98	Ex. Impervious
	1,540,204	61	Weighted Average
	1,529,916		99.33% Pervious Area
	10,288		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG3: Pre Watershed 3



Summary for Subcatchment OG4: Pre Watershed 4

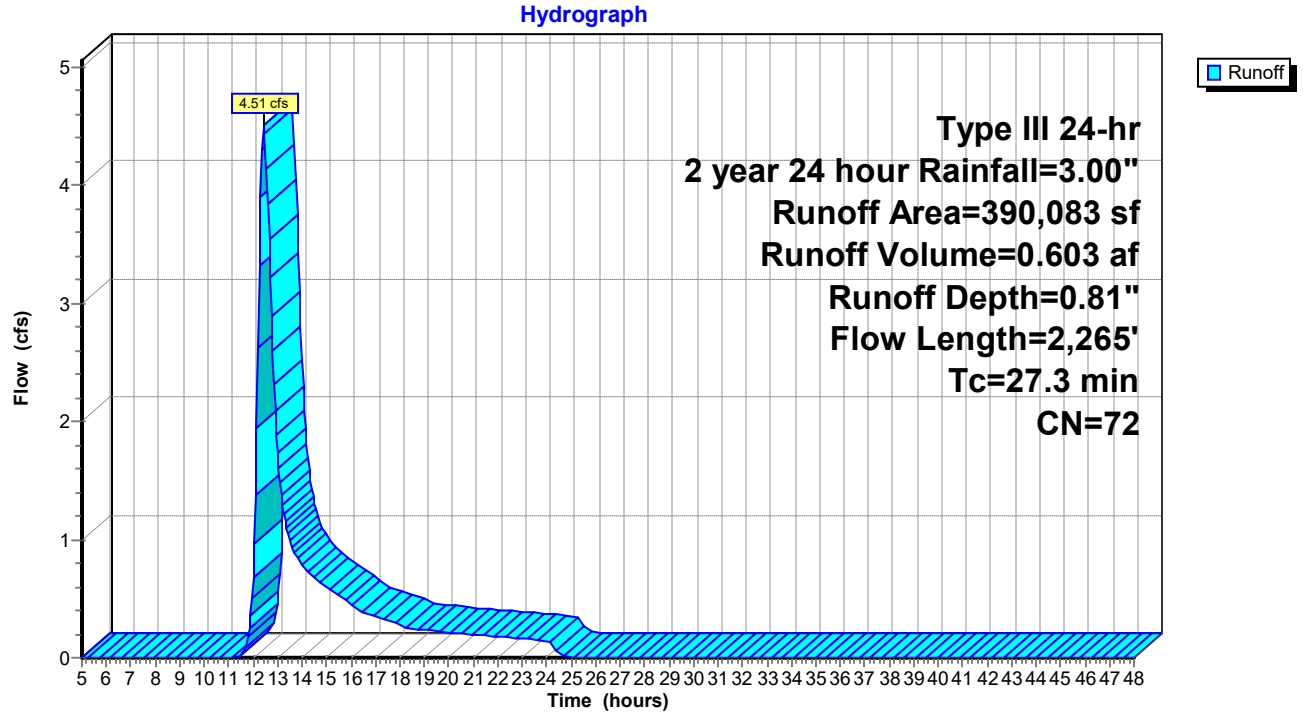
Runoff = 4.51 cfs @ 12.43 hrs, Volume= 0.603 af, Depth= 0.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

Area (sf)	CN	Description
81,775	61	Pasture/grassland/range, Good, HSG B
146,428	74	Pasture/grassland/range, Good, HSG C
96,504	80	Pasture/grassland/range, Good, HSG D
64,838	70	Woods, Good, HSG C
538	70	Woods, Good, HSG C
390,083	72	Weighted Average
390,083		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG4: Pre Watershed 4

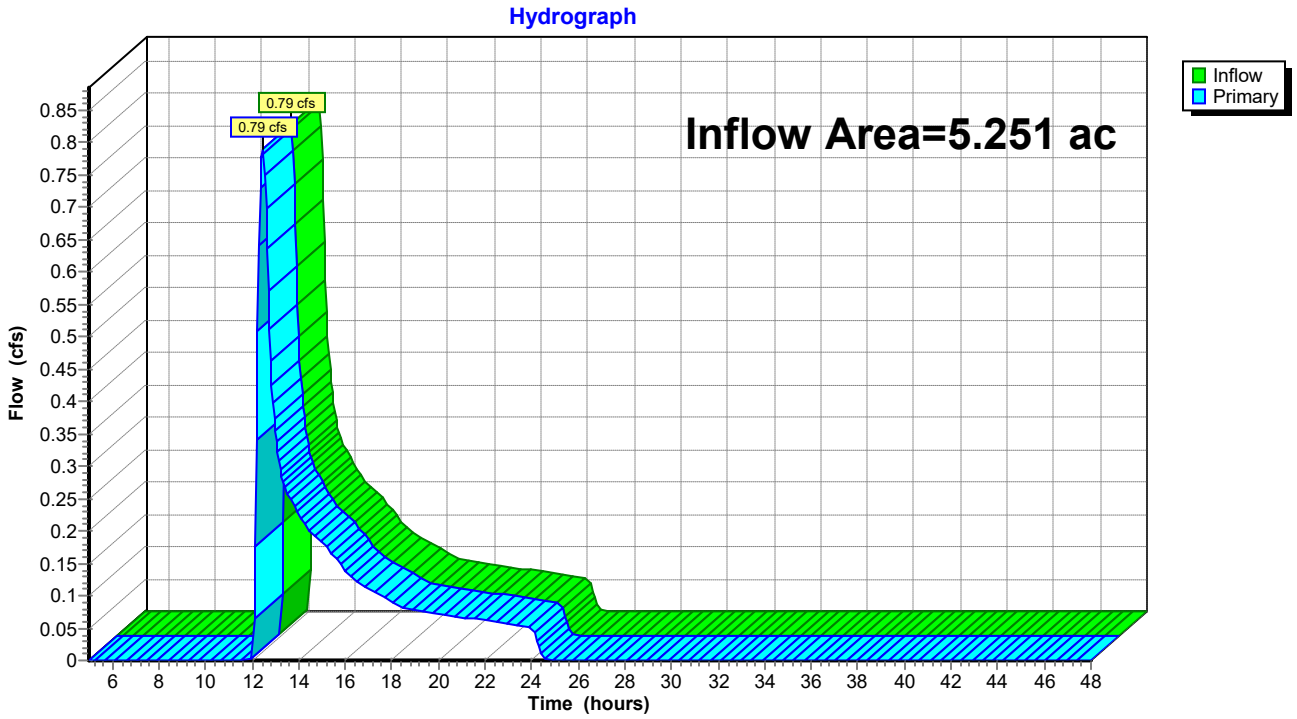


Summary for Link SN1: SN001

Inflow Area = 5.251 ac, 0.56% Impervious, Inflow Depth = 0.33" for 2 year 24 hour event
Inflow = 0.79 cfs @ 12.46 hrs, Volume= 0.146 af
Primary = 0.79 cfs @ 12.46 hrs, Volume= 0.146 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN1: SN001

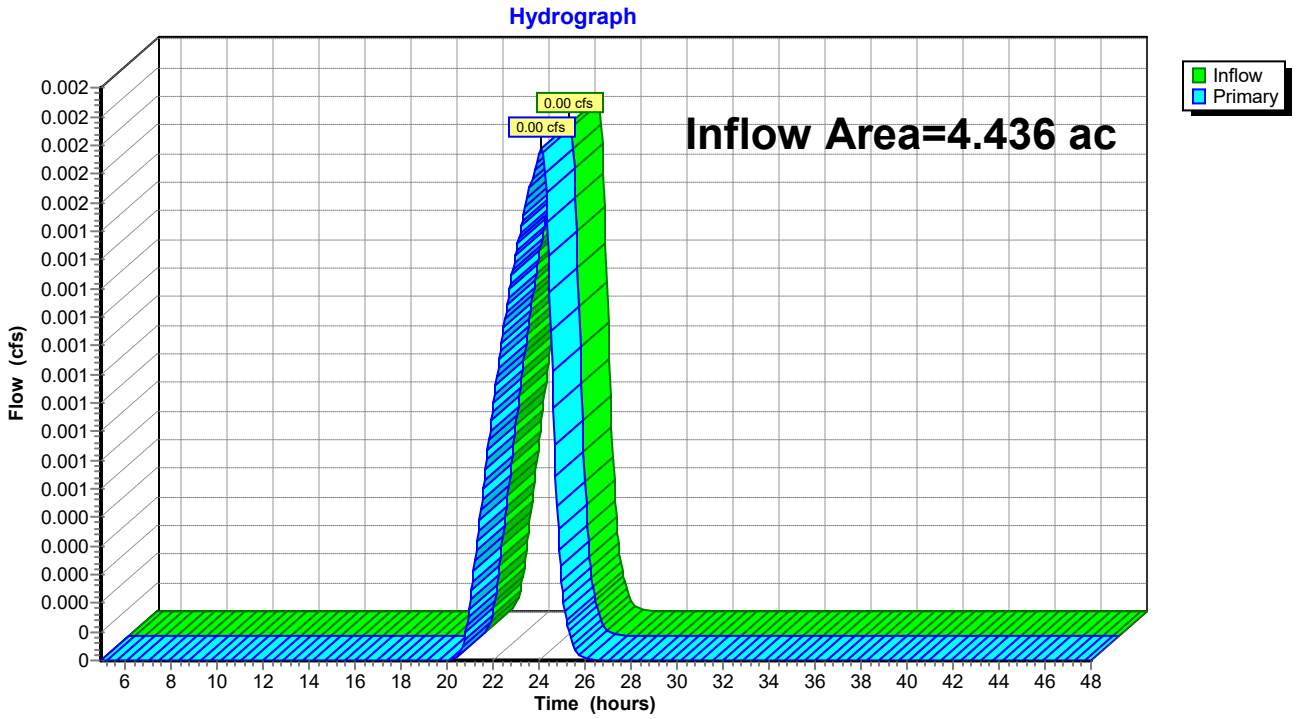


Summary for Link SN2: SN002

Inflow Area = 4.436 ac, 1.77% Impervious, Inflow Depth = 0.00" for 2 year 24 hour event
Inflow = 0.00 cfs @ 24.14 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 24.14 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN2: SN002

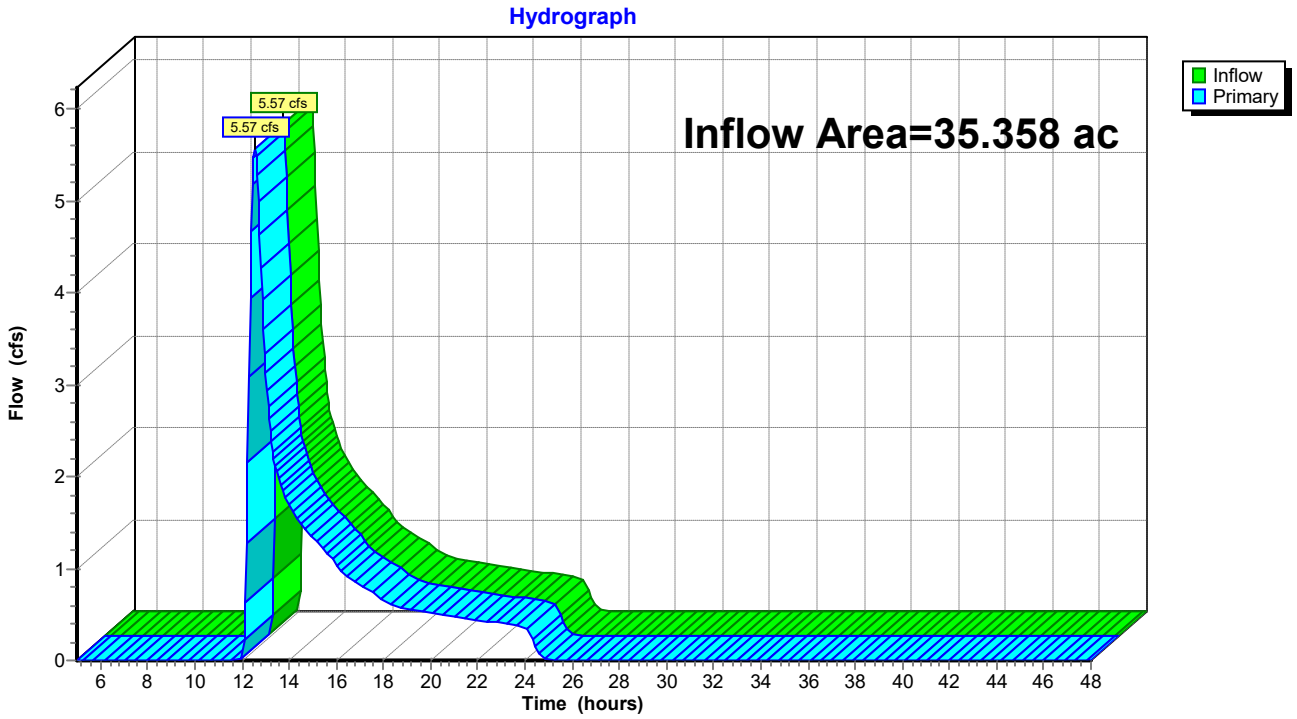


Summary for Link SN3: SN003

Inflow Area = 35.358 ac, 0.67% Impervious, Inflow Depth = 0.37" for 2 year 24 hour event
Inflow = 5.57 cfs @ 12.55 hrs, Volume= 1.076 af
Primary = 5.57 cfs @ 12.55 hrs, Volume= 1.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN3: SN003

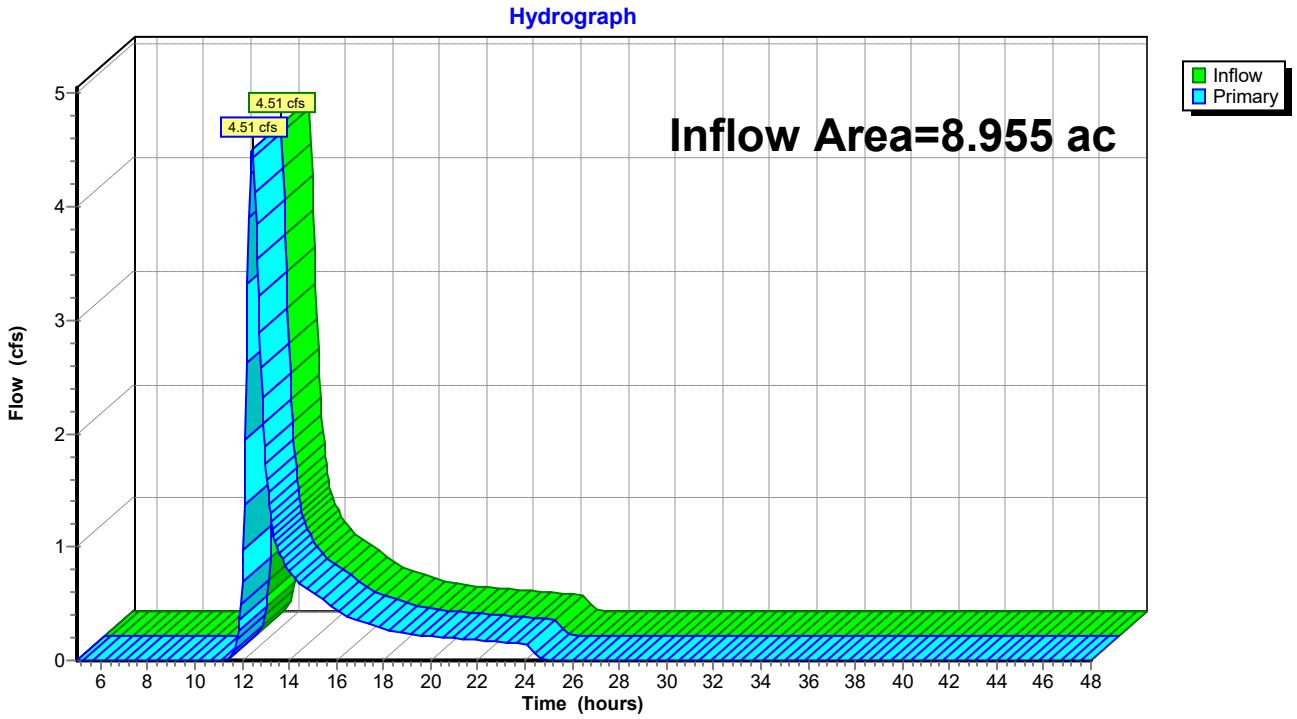


Summary for Link SN4: SN003

Inflow Area = 8.955 ac, 0.00% Impervious, Inflow Depth = 0.81" for 2 year 24 hour event
Inflow = 4.51 cfs @ 12.43 hrs, Volume= 0.603 af
Primary = 4.51 cfs @ 12.43 hrs, Volume= 0.603 af, Atten= 0%, Lag= 0.0 min

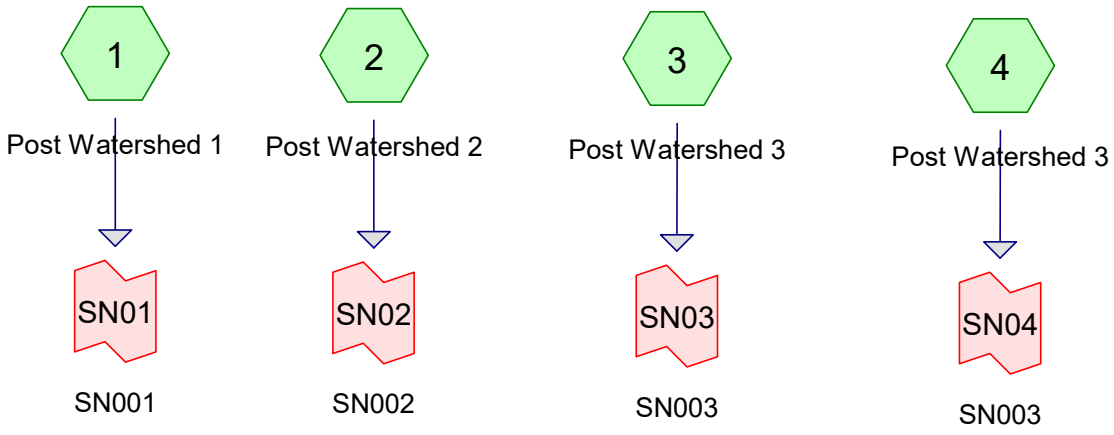
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN4: SN003



POST-DEVELOPMENT 2 YEAR STORM

Post Construction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 12/13/2024
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.344	98	Ex. Impervious (1, 2, 3)
0.259	30	Meadow, non-grazed, HSG A (2, 3)
4.894	58	Meadow, non-grazed, HSG B (1, 2, 3, 4)
4.897	71	Meadow, non-grazed, HSG C (3, 4)
1.676	78	Meadow, non-grazed, HSG D (3, 4)
1.059	98	NEW Impervious (1, 2, 3, 4)
9.053	39	Pasture/grassland/range, Good, HSG A (1, 2, 3)
9.684	61	Pasture/grassland/range, Good, HSG B (1, 2, 3, 4)
8.555	74	Pasture/grassland/range, Good, HSG C (1, 3, 4)
2.328	80	Pasture/grassland/range, Good, HSG D (3, 4)
9.023	55	Woods, Good, HSG B (3)
2.135	70	Woods, Good, HSG C (3, 4)
0.090	77	Woods, Good, HSG D (3, 4)
54.000	**62**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.344	0.344	Ex. Impervious	1, 2, 3
0.259	4.894	4.897	1.676	0.000	11.727	Meadow, non-grazed	1, 2, 3, 4
0.000	0.000	0.000	0.000	1.059	1.059	NEW Impervious	1, 2, 3, 4
9.053	9.684	8.555	2.328	0.000	29.620	Pasture/grassland/range, Good	1, 2, 3, 4
0.000	9.023	2.135	0.090	0.000	11.249	Woods, Good	3, 4
9.312	**23.602**	**15.587**	**4.095**	**1.404**	**54.000**	**TOTAL AREA**	

Summary for Subcatchment 1: Post Watershed 1

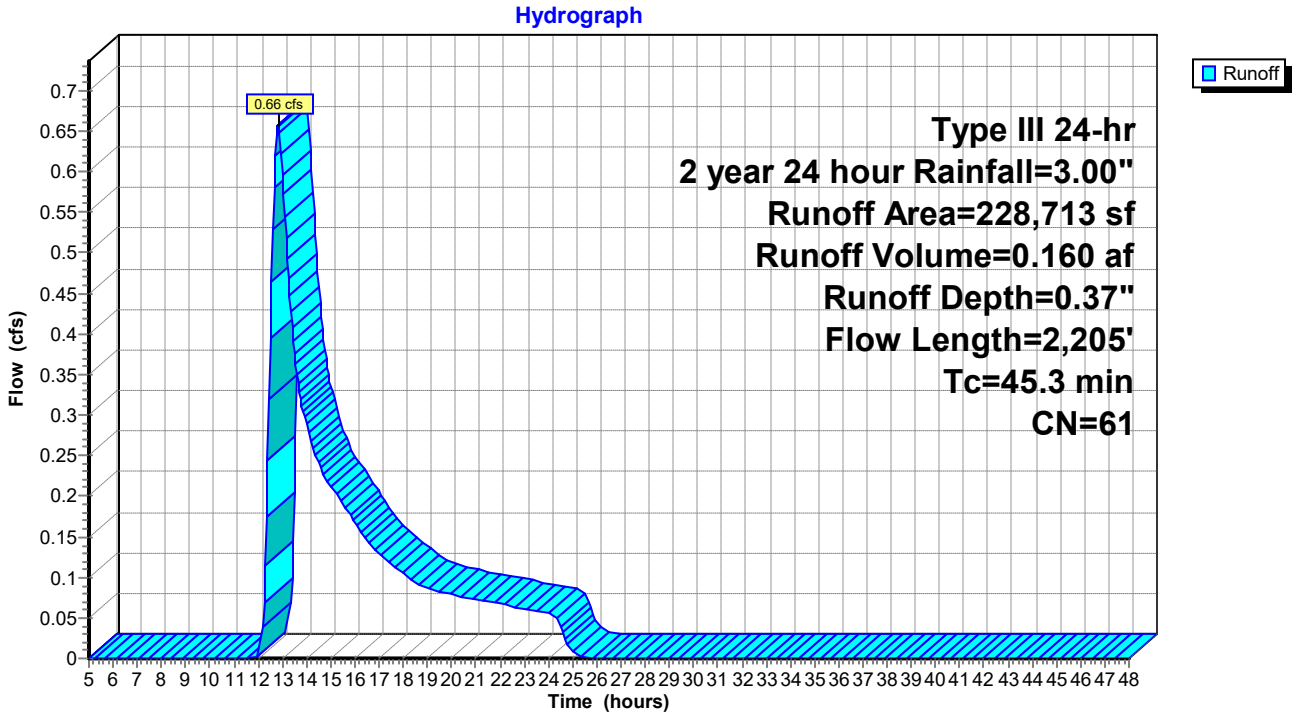
Runoff = 0.66 cfs @ 12.82 hrs, Volume= 0.160 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	25,151	39	Pasture/grassland/range, Good, HSG A
	158,649	61	Pasture/grassland/range, Good, HSG B
	28,791	74	Pasture/grassland/range, Good, HSG C
	8,376	58	Meadow, non-grazed, HSG B
*	6,460	98	NEW Impervious
*	1,286	98	Ex. Impervious
	228,713	61	Weighted Average
	220,967		96.61% Pervious Area
	7,746		3.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0860	0.14		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
26.9	1,300	0.0260	0.81		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
45.3	2,205	Total			

Subcatchment 1: Post Watershed 1



Summary for Subcatchment 2: Post Watershed 2

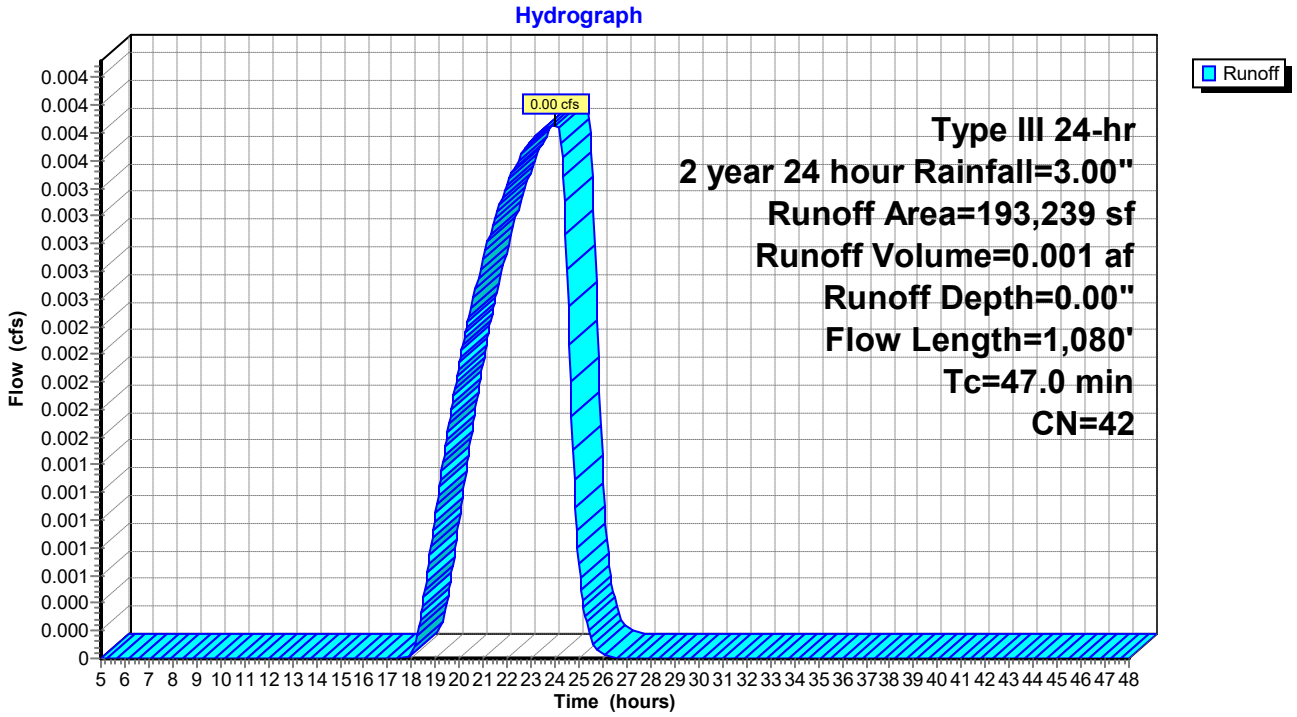
Runoff = 0.00 cfs @ 23.97 hrs, Volume= 0.001 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	168,726	39	Pasture/grassland/range, Good, HSG A
	7,075	61	Pasture/grassland/range, Good, HSG B
	8,140	30	Meadow, non-grazed, HSG A
	501	58	Meadow, non-grazed, HSG B
*	3,428	98	Ex. Impervious
*	5,369	98	NEW Impervious
	193,239	42	Weighted Average
	184,442		95.45% Pervious Area
	8,797		4.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	150	0.0150	0.07		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
11.7	610	0.0300	0.87		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
47.0	1,080	Total			

Subcatchment 2: Post Watershed 2



Summary for Subcatchment 3: Post Watershed 3

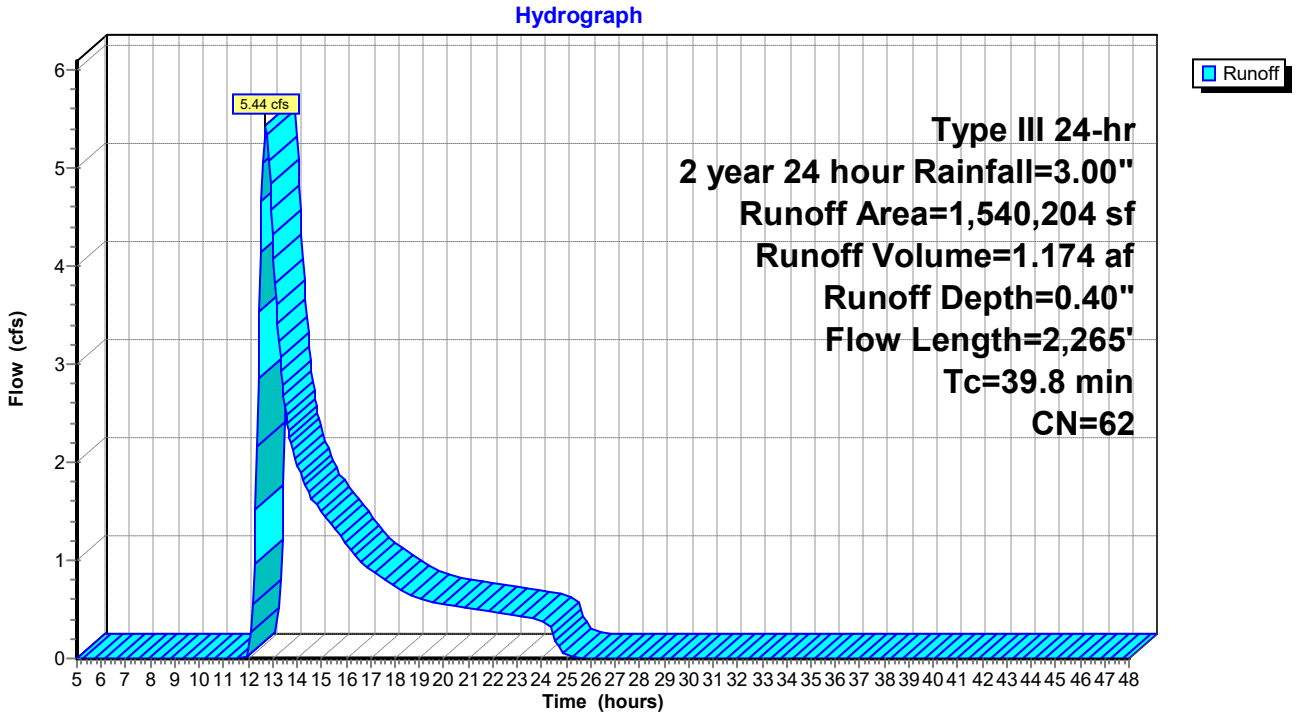
Runoff = 5.44 cfs @ 12.72 hrs, Volume= 1.174 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	200,478	39	Pasture/grassland/range, Good, HSG A
	240,534	61	Pasture/grassland/range, Good, HSG B
	228,700	74	Pasture/grassland/range, Good, HSG C
	7,409	80	Pasture/grassland/range, Good, HSG D
	393,043	55	Woods, Good, HSG B
	28,174	70	Woods, Good, HSG C
	3,399	77	Woods, Good, HSG D
	3,145	30	Meadow, non-grazed, HSG A
	138,158	58	Meadow, non-grazed, HSG B
	182,050	71	Meadow, non-grazed, HSG C
	70,525	78	Meadow, non-grazed, HSG D
*	34,301	98	NEW Impervious
*	10,288	98	Ex. Impervious
	1,540,204	62	Weighted Average
	1,495,615		97.10% Pervious Area
	44,589		2.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 3: Post Watershed 3



Summary for Subcatchment 4: Post Watershed 3

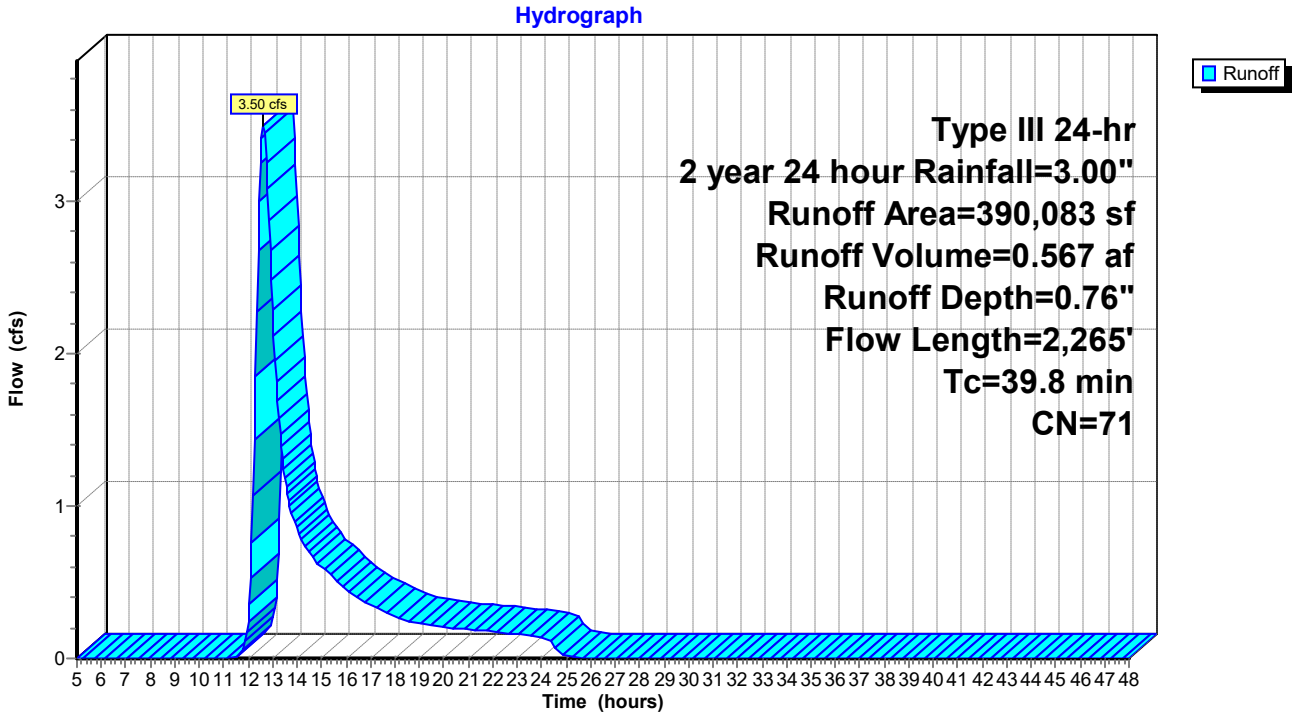
Runoff = 3.50 cfs @ 12.62 hrs, Volume= 0.567 af, Depth= 0.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year 24 hour Rainfall=3.00"

	Area (sf)	CN	Description
	15,592	61	Pasture/grassland/range, Good, HSG B
	115,150	74	Pasture/grassland/range, Good, HSG C
	94,009	80	Pasture/grassland/range, Good, HSG D
	64,838	70	Woods, Good, HSG C
	538	77	Woods, Good, HSG D
	66,168	58	Meadow, non-grazed, HSG B
	31,278	71	Meadow, non-grazed, HSG C
	2,495	78	Meadow, non-grazed, HSG D
*	15	98	NEW Impervious
	390,083	71	Weighted Average
	390,068		100.00% Pervious Area
	15		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 4: Post Watershed 3

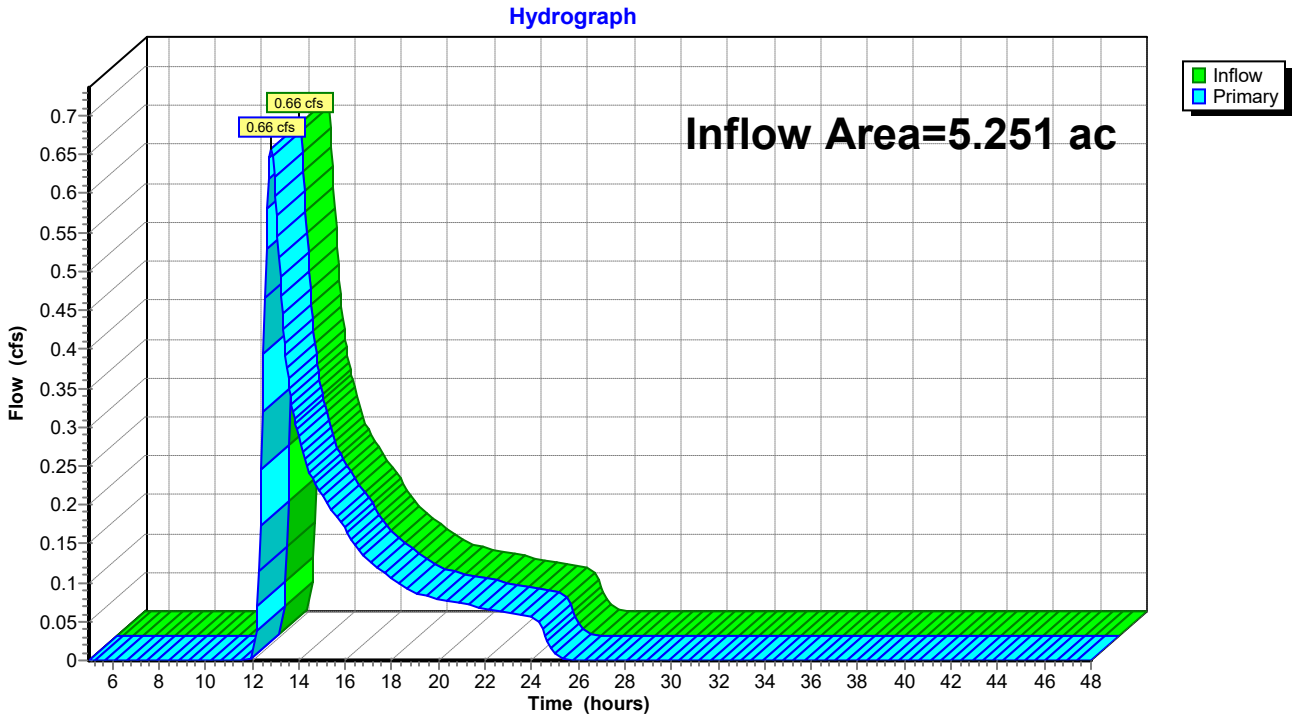


Summary for Link SN01: SN001

Inflow Area = 5.251 ac, 3.39% Impervious, Inflow Depth = 0.37" for 2 year 24 hour event
Inflow = 0.66 cfs @ 12.82 hrs, Volume= 0.160 af
Primary = 0.66 cfs @ 12.82 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN01: SN001

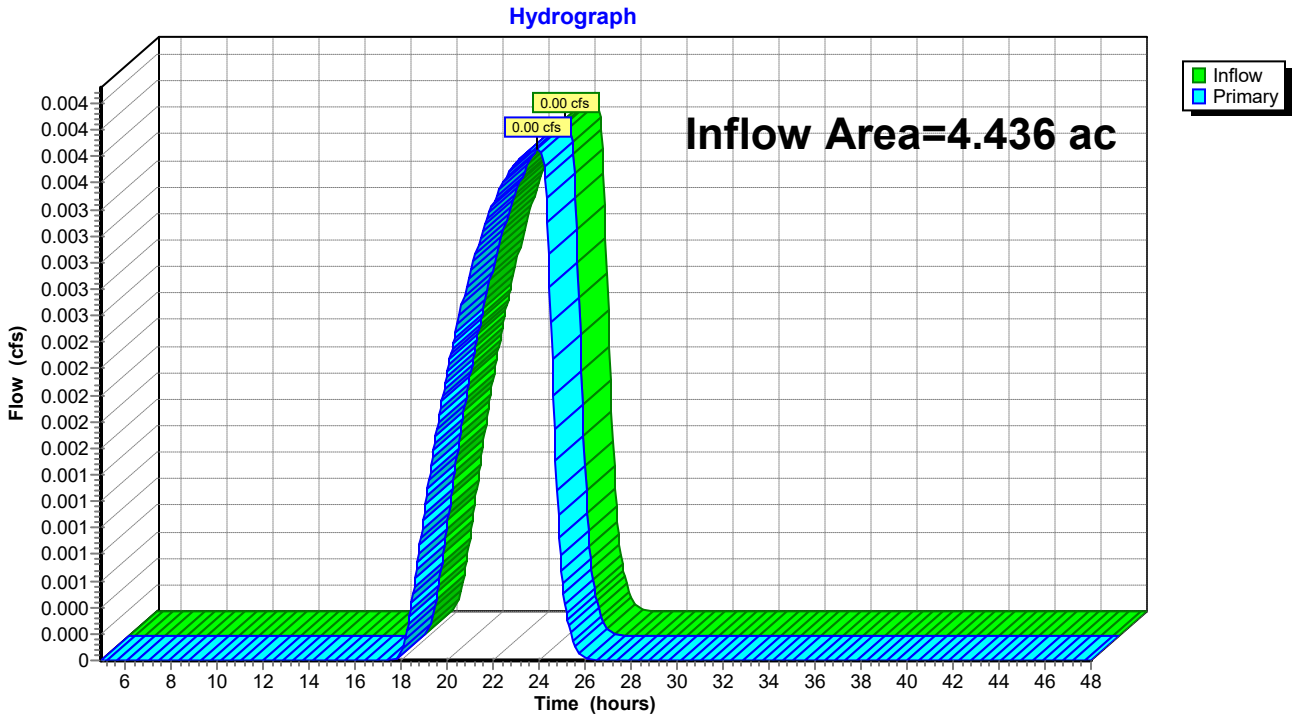


Summary for Link SN02: SN002

Inflow Area = 4.436 ac, 4.55% Impervious, Inflow Depth = 0.00" for 2 year 24 hour event
Inflow = 0.00 cfs @ 23.97 hrs, Volume= 0.001 af
Primary = 0.00 cfs @ 23.97 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN02: SN002

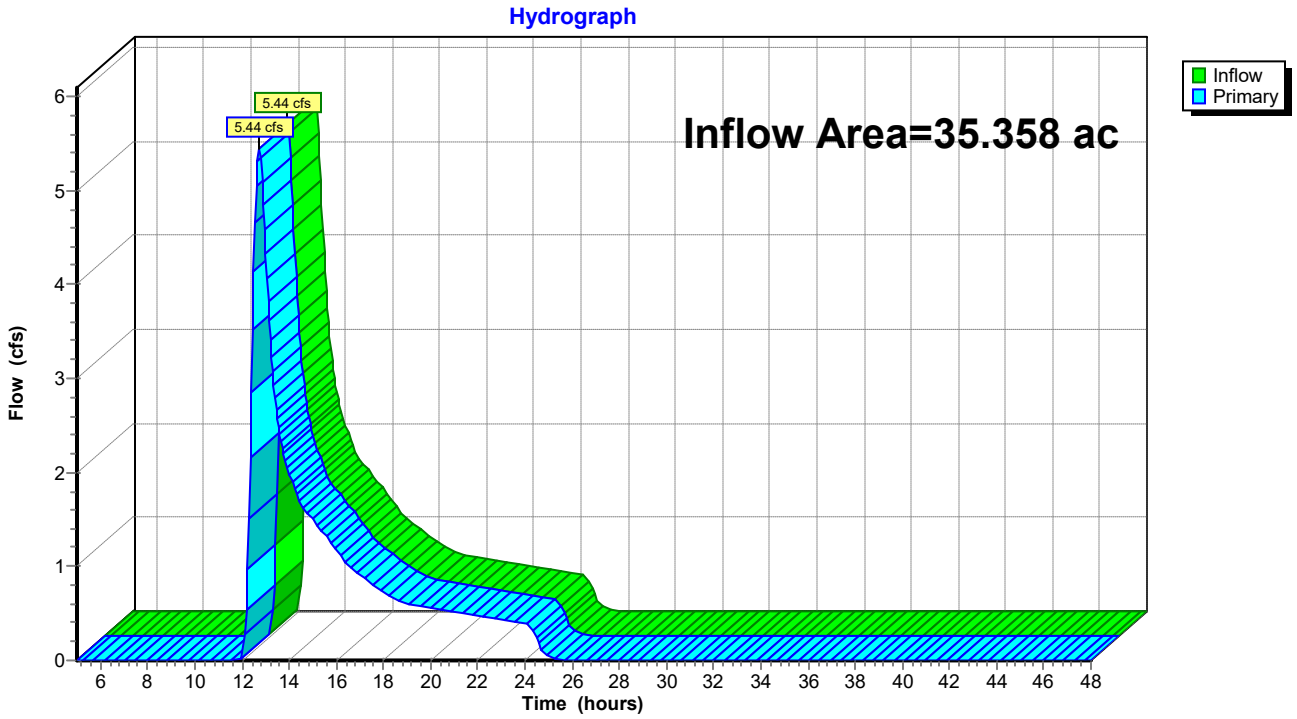


Summary for Link SN03: SN003

Inflow Area = 35.358 ac, 2.90% Impervious, Inflow Depth = 0.40" for 2 year 24 hour event
Inflow = 5.44 cfs @ 12.72 hrs, Volume= 1.174 af
Primary = 5.44 cfs @ 12.72 hrs, Volume= 1.174 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN03: SN003

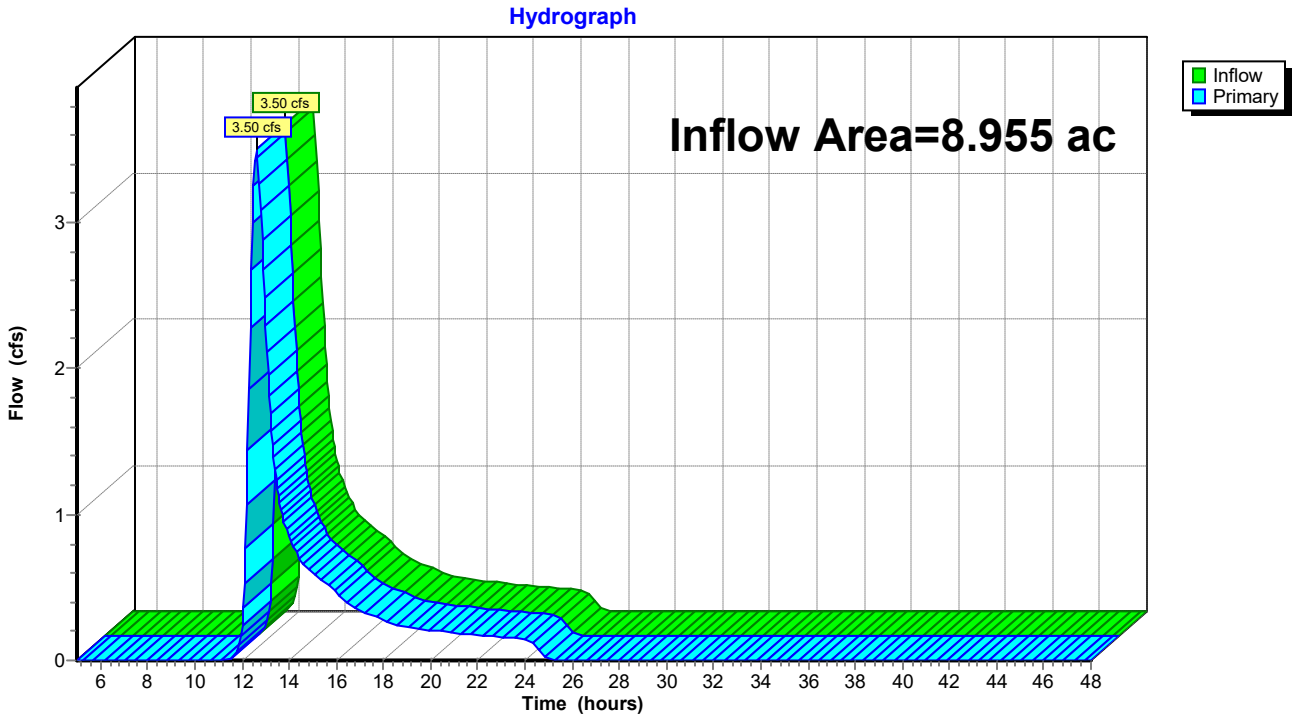


Summary for Link SN04: SN003

Inflow Area = 8.955 ac, 0.00% Impervious, Inflow Depth = 0.76" for 2 year 24 hour event
Inflow = 3.50 cfs @ 12.62 hrs, Volume= 0.567 af
Primary = 3.50 cfs @ 12.62 hrs, Volume= 0.567 af, Atten= 0%, Lag= 0.0 min

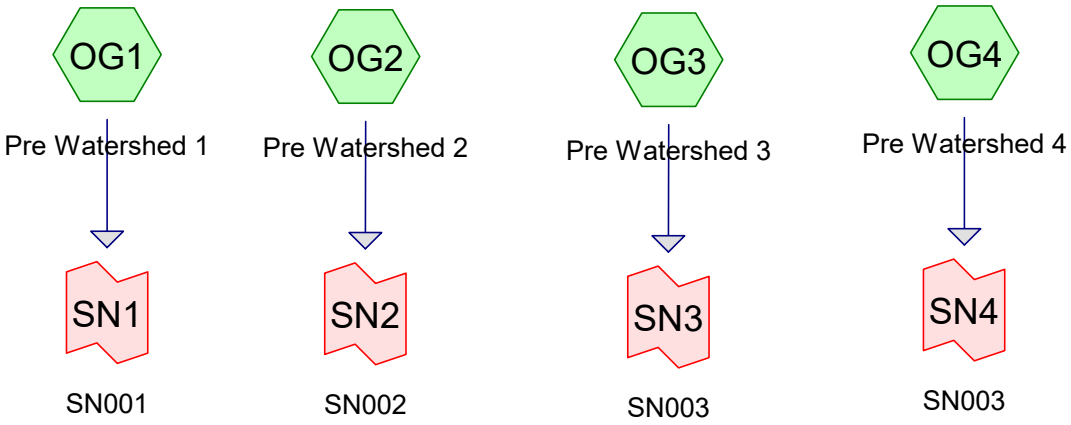
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN04: SN003



PRE-DEVELOPMENT 10 YEAR STORM

Preconstruction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 12/13/2024
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.344	98	Ex. Impervious (OG1, OG2, OG3)
9.465	39	Pasture/grassland/range, Good, HSG A (OG1, OG2, OG3)
18.178	61	Pasture/grassland/range, Good, HSG B (OG1, OG2, OG3, OG4)
9.273	74	Pasture/grassland/range, Good, HSG C (OG1, OG3, OG4)
5.490	80	Pasture/grassland/range, Good, HSG D (OG3, OG4)
9.023	55	Woods, Good, HSG B (OG3)
2.226	70	Woods, Good, HSG C (OG3, OG4)
54.000	**61**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.344	0.344	Ex. Impervious	OG1, OG2, OG3
9.465	18.178	9.273	5.490	0.000	42.407	Pasture/grassland/range, Good	OG1, OG2, OG3, OG4
0.000	9.023	2.226	0.000	0.000	11.249	Woods, Good	OG3, OG4
9.465	**27.201**	**11.498**	**5.490**	**0.344**	**54.000**	**TOTAL AREA**	

Summary for Subcatchment OG1: Pre Watershed 1

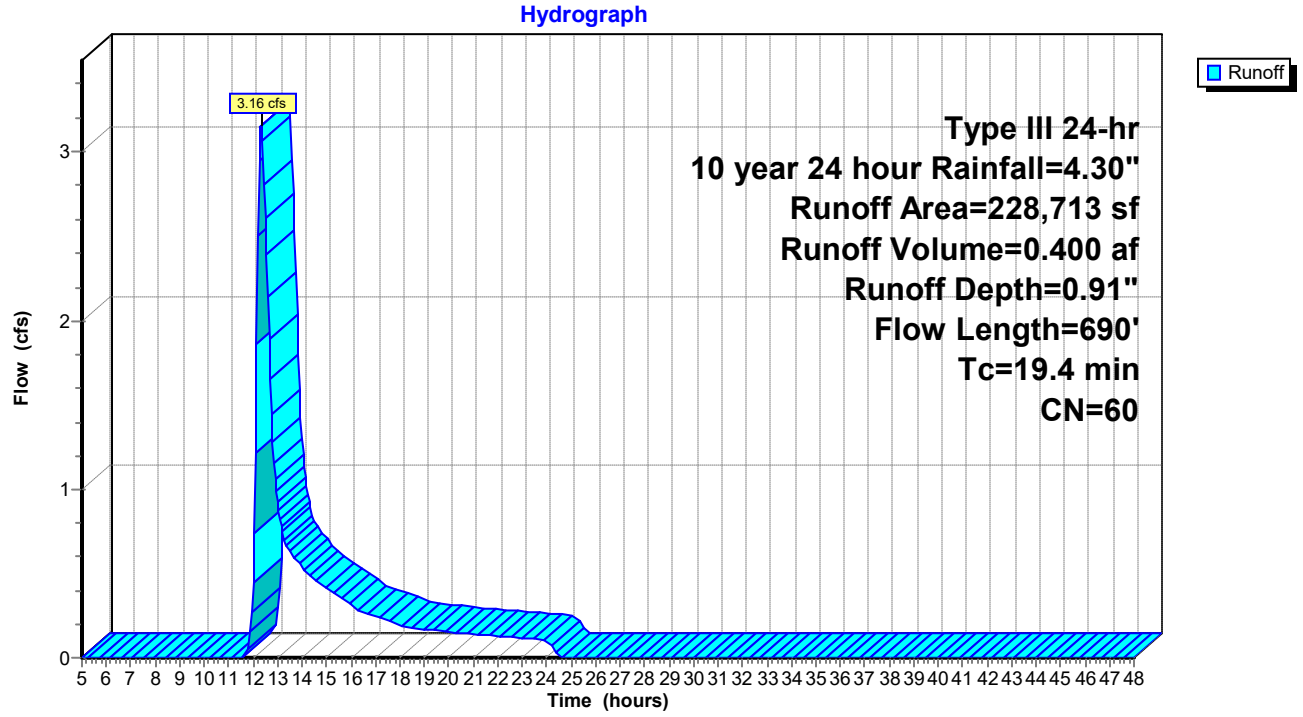
Runoff = 3.16 cfs @ 12.32 hrs, Volume= 0.400 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
*	1,286	98	Ex. Impervious
	25,151	39	Pasture/grassland/range, Good, HSG A
	173,485	61	Pasture/grassland/range, Good, HSG B
	28,791	74	Pasture/grassland/range, Good, HSG C
	228,713	60	Weighted Average
	227,427		99.44% Pervious Area
	1,286		0.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	150	0.0460	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
4.3	310	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	230	0.0220	7.81	78.07	**Channel Flow,** Area= 10.0 sf Perim= 12.0' r= 0.83' n= 0.025
19.4	690	Total			

Subcatchment OG1: Pre Watershed 1



Summary for Subcatchment OG2: Pre Watershed 2

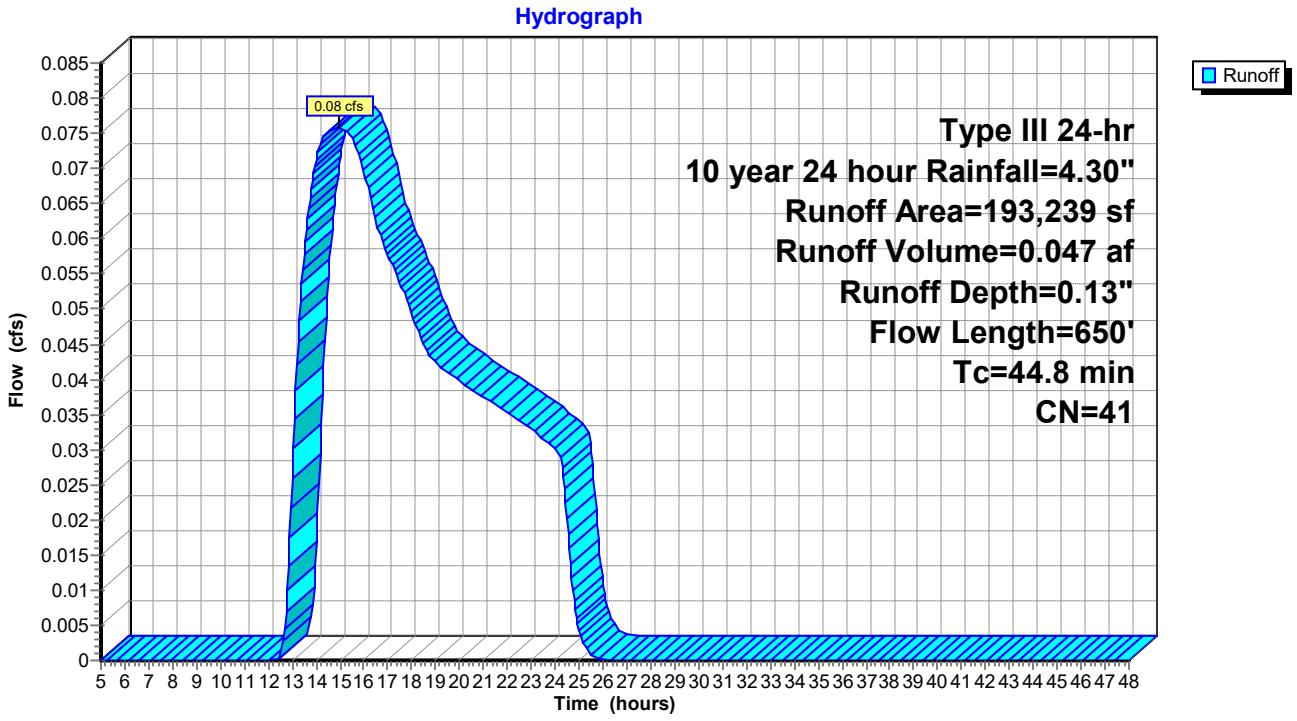
Runoff = 0.08 cfs @ 14.99 hrs, Volume= 0.047 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	181,638	39	Pasture/grassland/range, Good, HSG A
	8,173	61	Pasture/grassland/range, Good, HSG B
*	3,428	98	Ex. Impervious
	193,239	41	Weighted Average
	189,811		98.23% Pervious Area
	3,428		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.7	150	0.0330	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
28.1	500	0.0018	0.30		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
44.8	650	Total			

Subcatchment OG2: Pre Watershed 2



Summary for Subcatchment OG3: Pre Watershed 3

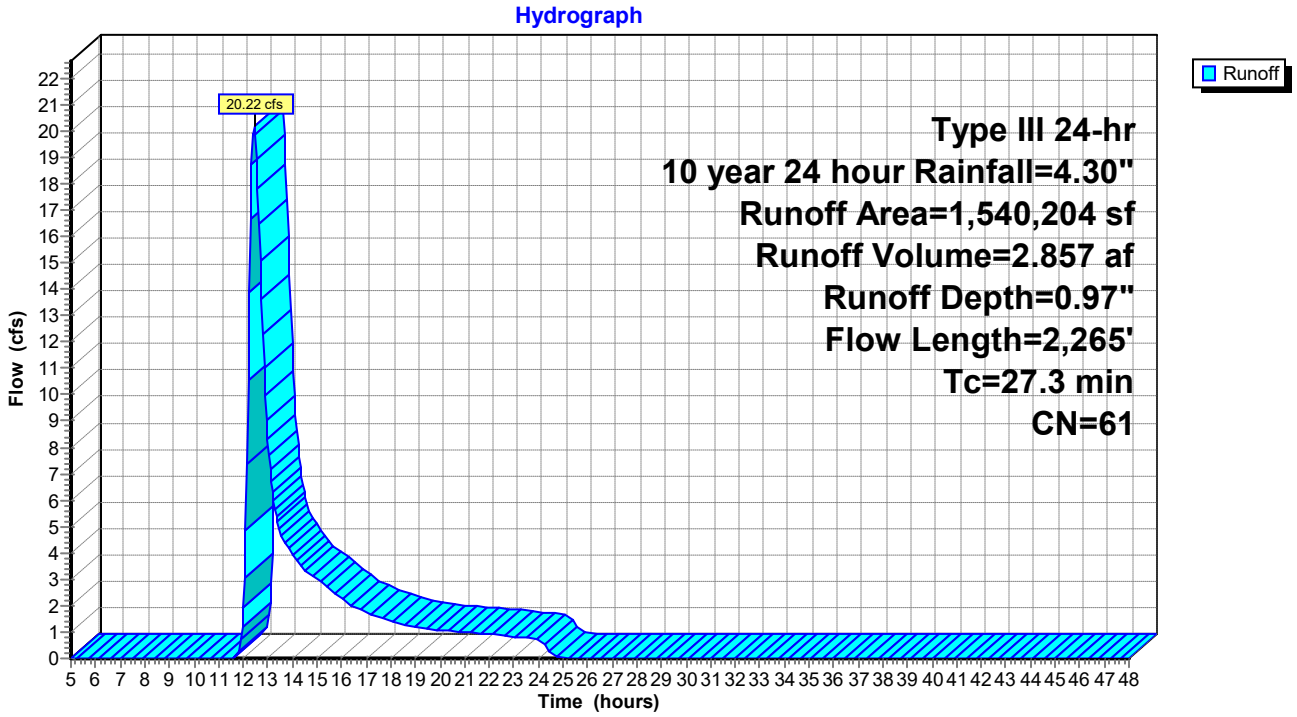
Runoff = 20.22 cfs @ 12.45 hrs, Volume= 2.857 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	205,523	39	Pasture/grassland/range, Good, HSG A
	528,420	61	Pasture/grassland/range, Good, HSG B
	228,700	74	Pasture/grassland/range, Good, HSG C
	142,657	80	Pasture/grassland/range, Good, HSG D
	393,043	55	Woods, Good, HSG B
	28,174	70	Woods, Good, HSG C
	3,399	70	Woods, Good, HSG C
*	10,288	98	Ex. Impervious
	1,540,204	61	Weighted Average
	1,529,916		99.33% Pervious Area
	10,288		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG3: Pre Watershed 3



Summary for Subcatchment OG4: Pre Watershed 4

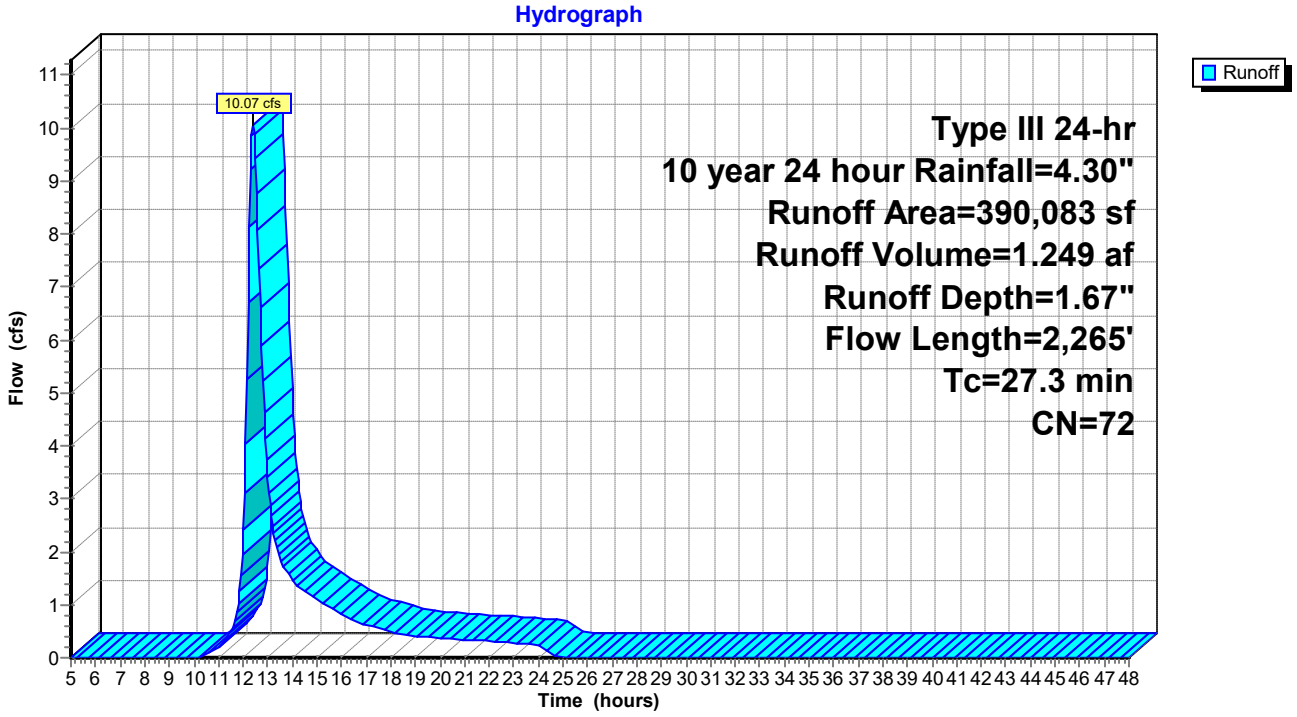
Runoff = 10.07 cfs @ 12.40 hrs, Volume= 1.249 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

Area (sf)	CN	Description
81,775	61	Pasture/grassland/range, Good, HSG B
146,428	74	Pasture/grassland/range, Good, HSG C
96,504	80	Pasture/grassland/range, Good, HSG D
64,838	70	Woods, Good, HSG C
538	70	Woods, Good, HSG C
390,083	72	Weighted Average
390,083		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG4: Pre Watershed 4

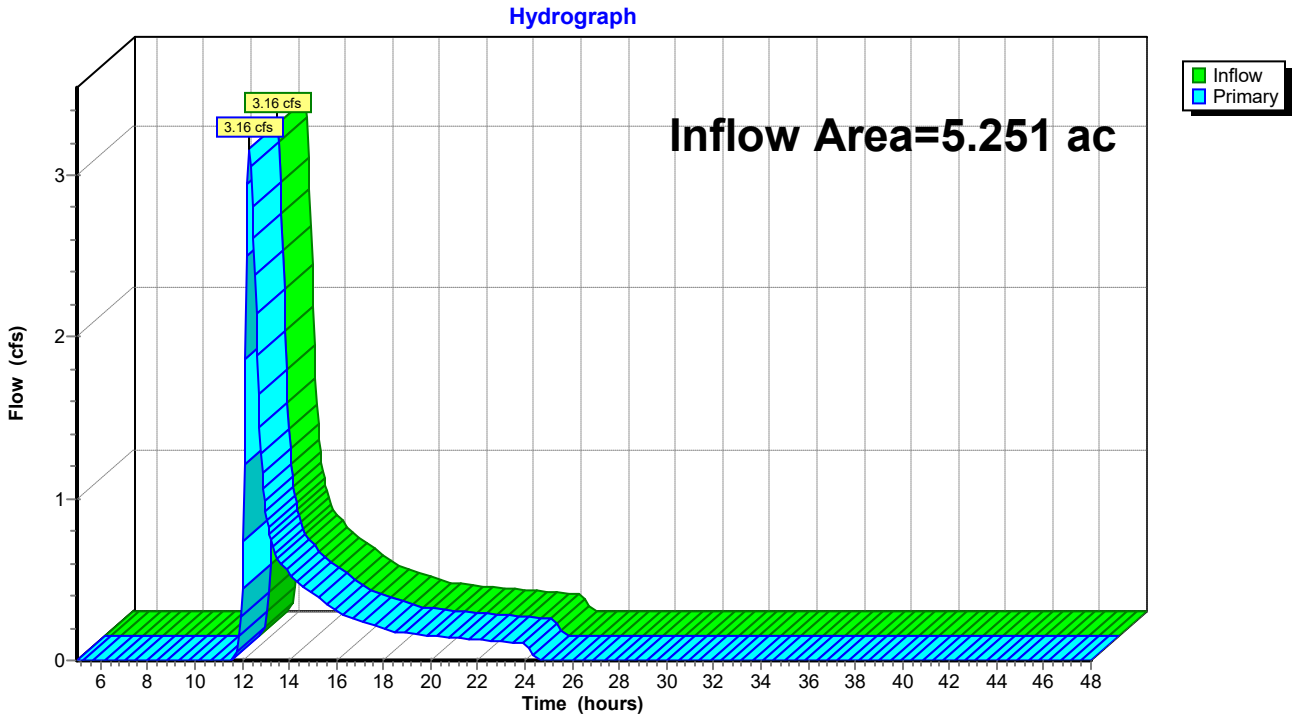


Summary for Link SN1: SN001

Inflow Area = 5.251 ac, 0.56% Impervious, Inflow Depth = 0.91" for 10 year 24 hour event
Inflow = 3.16 cfs @ 12.32 hrs, Volume= 0.400 af
Primary = 3.16 cfs @ 12.32 hrs, Volume= 0.400 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN1: SN001

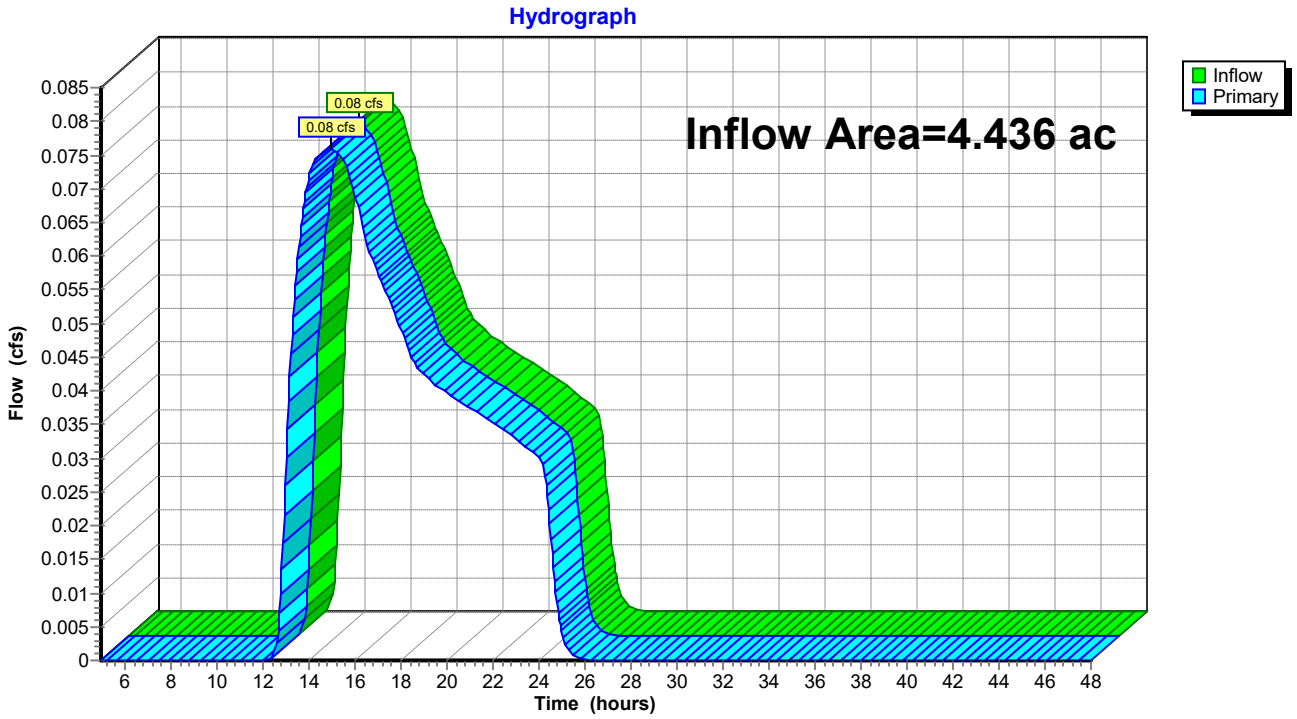


Summary for Link SN2: SN002

Inflow Area = 4.436 ac, 1.77% Impervious, Inflow Depth = 0.13" for 10 year 24 hour event
Inflow = 0.08 cfs @ 14.99 hrs, Volume= 0.047 af
Primary = 0.08 cfs @ 14.99 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN2: SN002

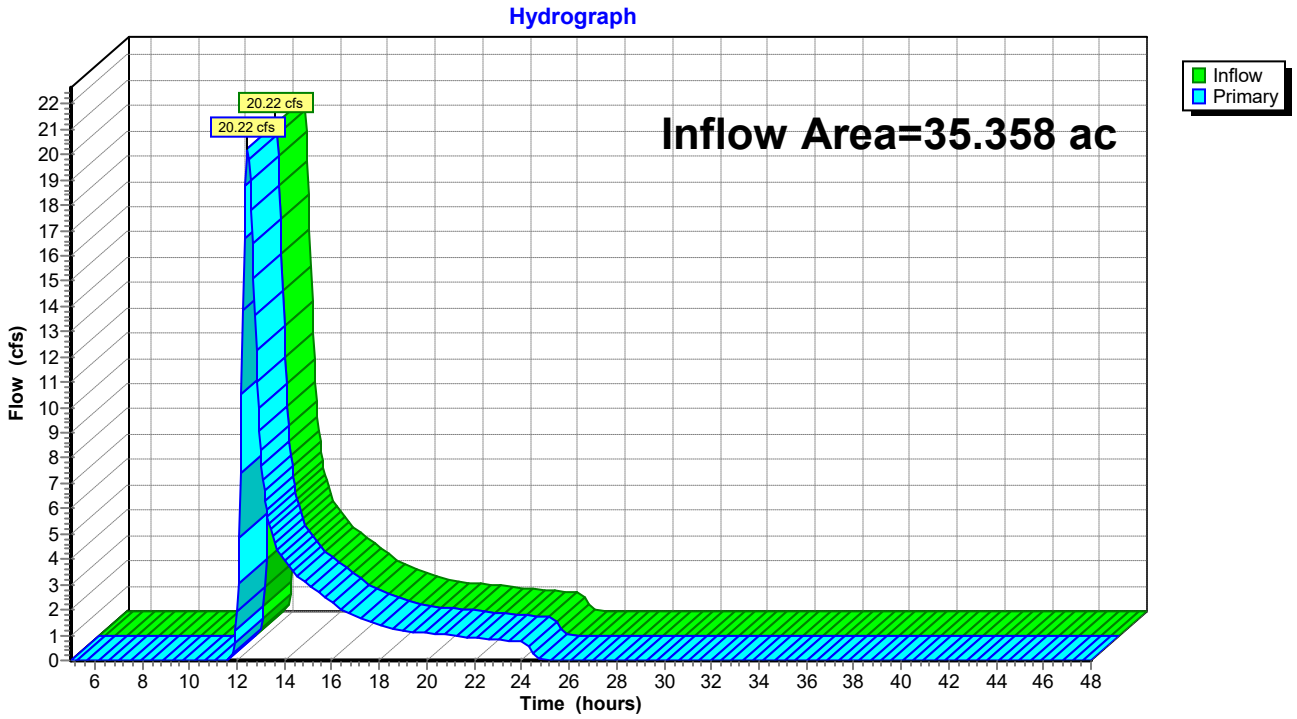


Summary for Link SN3: SN003

Inflow Area = 35.358 ac, 0.67% Impervious, Inflow Depth = 0.97" for 10 year 24 hour event
Inflow = 20.22 cfs @ 12.45 hrs, Volume= 2.857 af
Primary = 20.22 cfs @ 12.45 hrs, Volume= 2.857 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN3: SN003

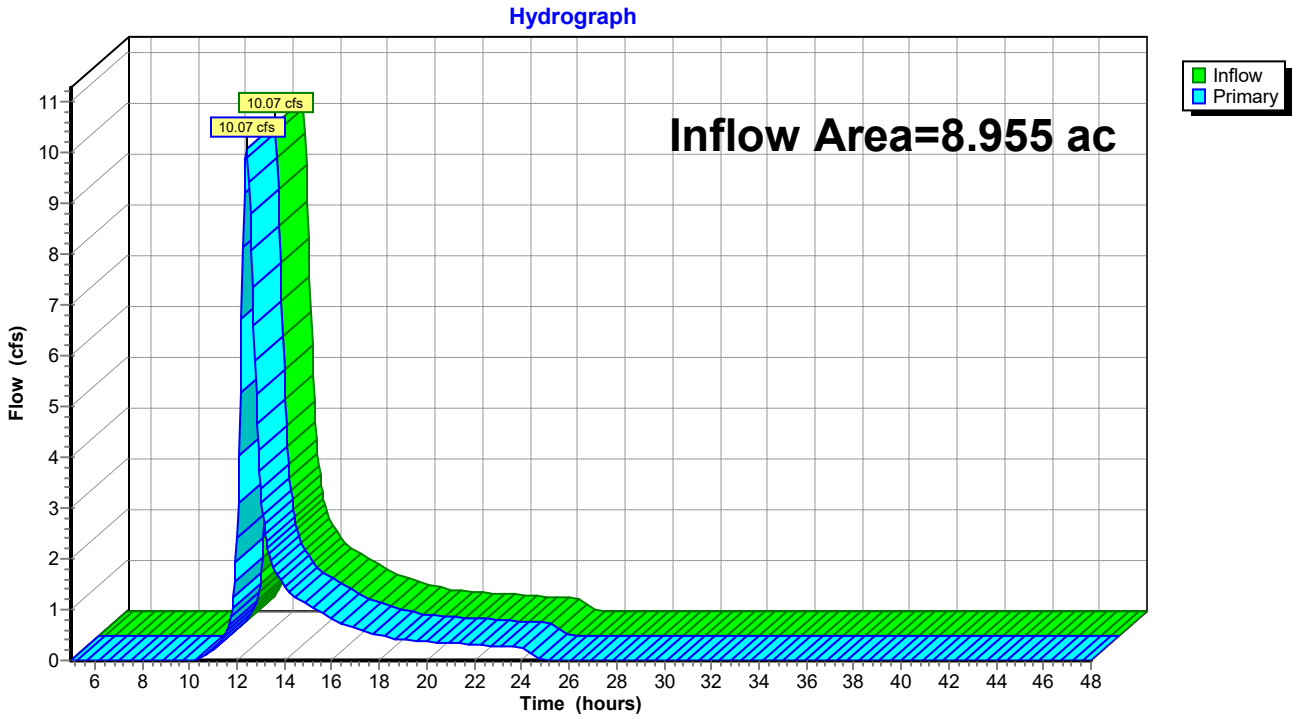


Summary for Link SN4: SN003

Inflow Area = 8.955 ac, 0.00% Impervious, Inflow Depth = 1.67" for 10 year 24 hour event
Inflow = 10.07 cfs @ 12.40 hrs, Volume= 1.249 af
Primary = 10.07 cfs @ 12.40 hrs, Volume= 1.249 af, Atten= 0%, Lag= 0.0 min

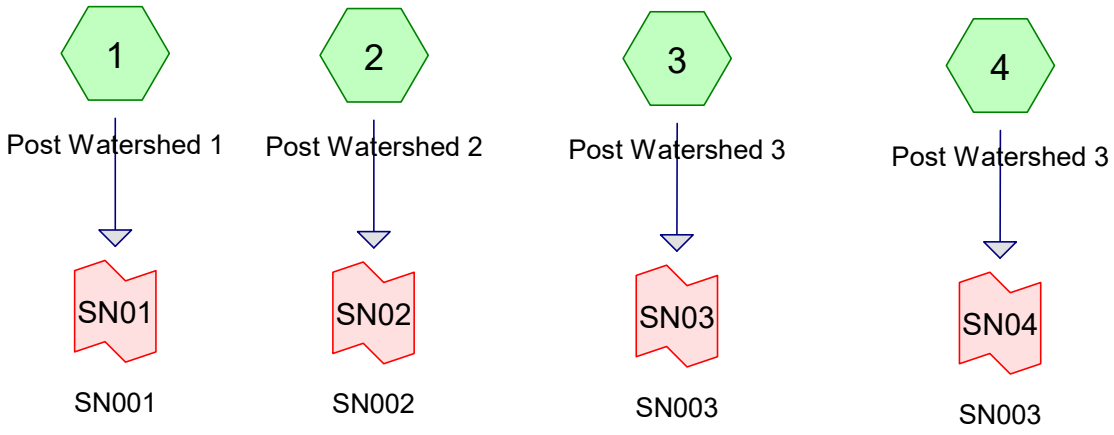
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN4: SN003



POST-DEVELOPMENT 10 YEAR STORM

Post Construction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 12/13/2024
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.344	98	Ex. Impervious (1, 2, 3)
0.259	30	Meadow, non-grazed, HSG A (2, 3)
4.894	58	Meadow, non-grazed, HSG B (1, 2, 3, 4)
4.897	71	Meadow, non-grazed, HSG C (3, 4)
1.676	78	Meadow, non-grazed, HSG D (3, 4)
1.059	98	NEW Impervious (1, 2, 3, 4)
9.053	39	Pasture/grassland/range, Good, HSG A (1, 2, 3)
9.684	61	Pasture/grassland/range, Good, HSG B (1, 2, 3, 4)
8.555	74	Pasture/grassland/range, Good, HSG C (1, 3, 4)
2.328	80	Pasture/grassland/range, Good, HSG D (3, 4)
9.023	55	Woods, Good, HSG B (3)
2.135	70	Woods, Good, HSG C (3, 4)
0.090	77	Woods, Good, HSG D (3, 4)
54.000	**62**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.344	0.344	Ex. Impervious	1, 2, 3
0.259	4.894	4.897	1.676	0.000	11.727	Meadow, non-grazed	1, 2, 3, 4
0.000	0.000	0.000	0.000	1.059	1.059	NEW Impervious	1, 2, 3, 4
9.053	9.684	8.555	2.328	0.000	29.620	Pasture/grassland/range, Good	1, 2, 3, 4
0.000	9.023	2.135	0.090	0.000	11.249	Woods, Good	3, 4
9.312	**23.602**	**15.587**	**4.095**	**1.404**	**54.000**	**TOTAL AREA**	

Summary for Subcatchment 1: Post Watershed 1

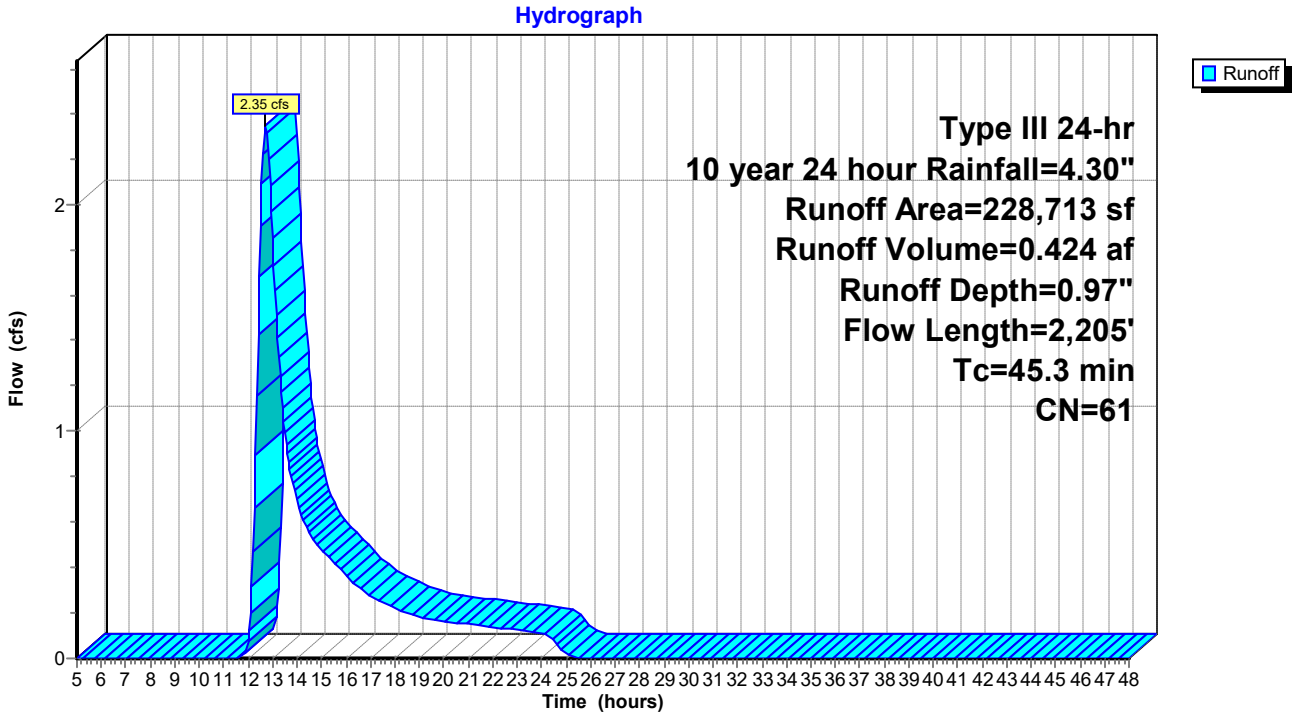
Runoff = 2.35 cfs @ 12.72 hrs, Volume= 0.424 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	25,151	39	Pasture/grassland/range, Good, HSG A
	158,649	61	Pasture/grassland/range, Good, HSG B
	28,791	74	Pasture/grassland/range, Good, HSG C
	8,376	58	Meadow, non-grazed, HSG B
*	6,460	98	NEW Impervious
*	1,286	98	Ex. Impervious
	228,713	61	Weighted Average
	220,967		96.61% Pervious Area
	7,746		3.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0860	0.14		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
26.9	1,300	0.0260	0.81		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
45.3	2,205	Total			

Subcatchment 1: Post Watershed 1



Summary for Subcatchment 2: Post Watershed 2

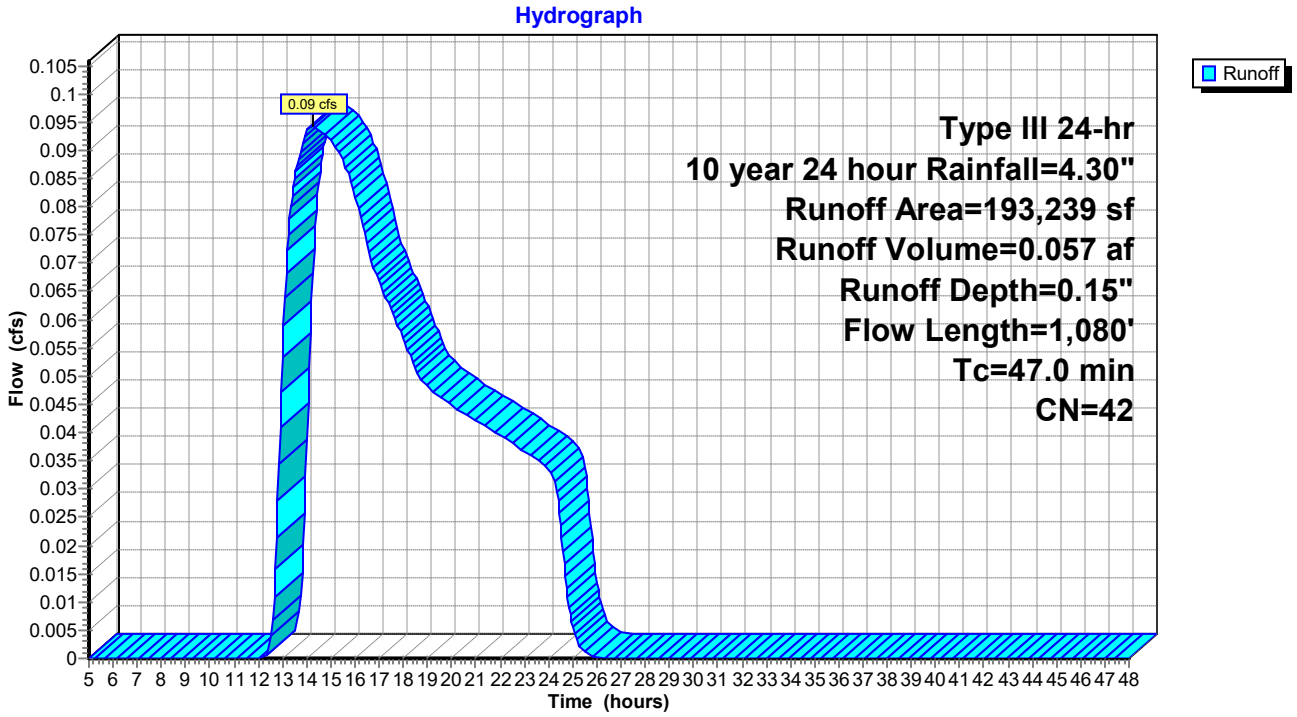
Runoff = 0.09 cfs @ 14.25 hrs, Volume= 0.057 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	168,726	39	Pasture/grassland/range, Good, HSG A
	7,075	61	Pasture/grassland/range, Good, HSG B
	8,140	30	Meadow, non-grazed, HSG A
	501	58	Meadow, non-grazed, HSG B
*	3,428	98	Ex. Impervious
*	5,369	98	NEW Impervious
	193,239	42	Weighted Average
	184,442		95.45% Pervious Area
	8,797		4.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	150	0.0150	0.07		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
11.7	610	0.0300	0.87		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
47.0	1,080	Total			

Subcatchment 2: Post Watershed 2



Summary for Subcatchment 3: Post Watershed 3

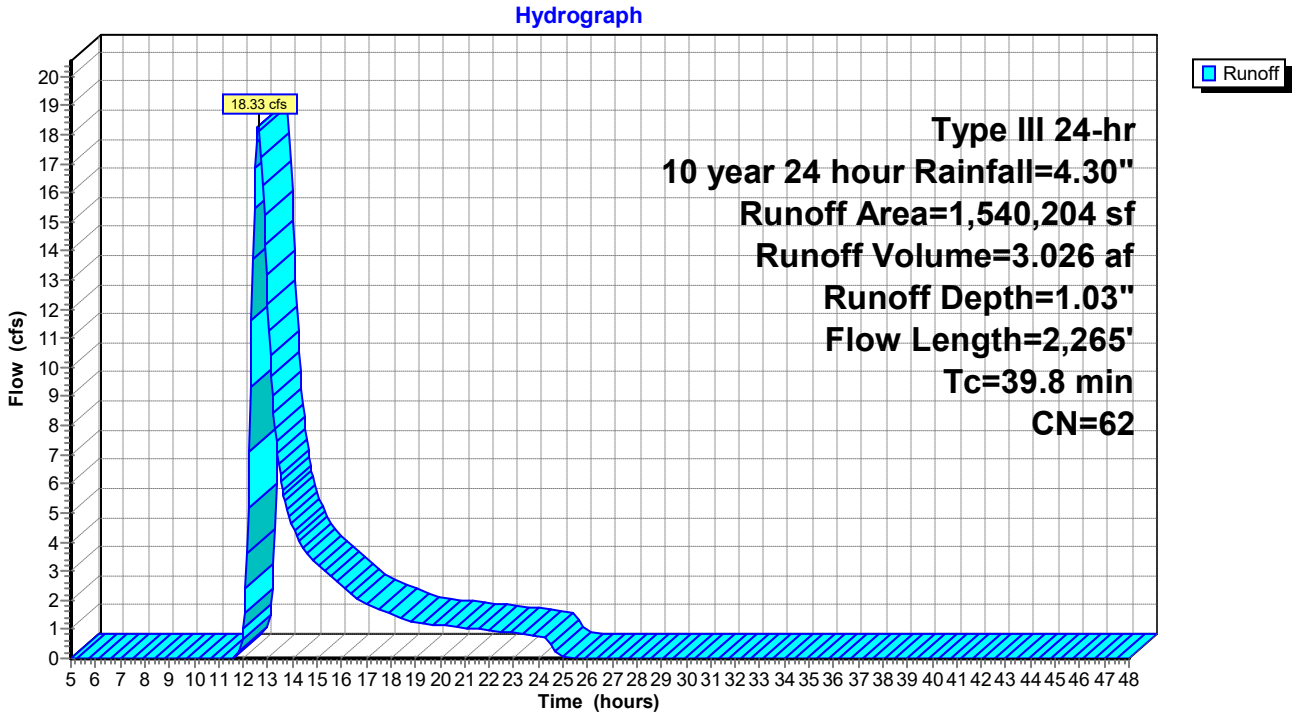
Runoff = 18.33 cfs @ 12.63 hrs, Volume= 3.026 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	200,478	39	Pasture/grassland/range, Good, HSG A
	240,534	61	Pasture/grassland/range, Good, HSG B
	228,700	74	Pasture/grassland/range, Good, HSG C
	7,409	80	Pasture/grassland/range, Good, HSG D
	393,043	55	Woods, Good, HSG B
	28,174	70	Woods, Good, HSG C
	3,399	77	Woods, Good, HSG D
	3,145	30	Meadow, non-grazed, HSG A
	138,158	58	Meadow, non-grazed, HSG B
	182,050	71	Meadow, non-grazed, HSG C
	70,525	78	Meadow, non-grazed, HSG D
*	34,301	98	NEW Impervious
*	10,288	98	Ex. Impervious
	1,540,204	62	Weighted Average
	1,495,615		97.10% Pervious Area
	44,589		2.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 3: Post Watershed 3



Summary for Subcatchment 4: Post Watershed 3

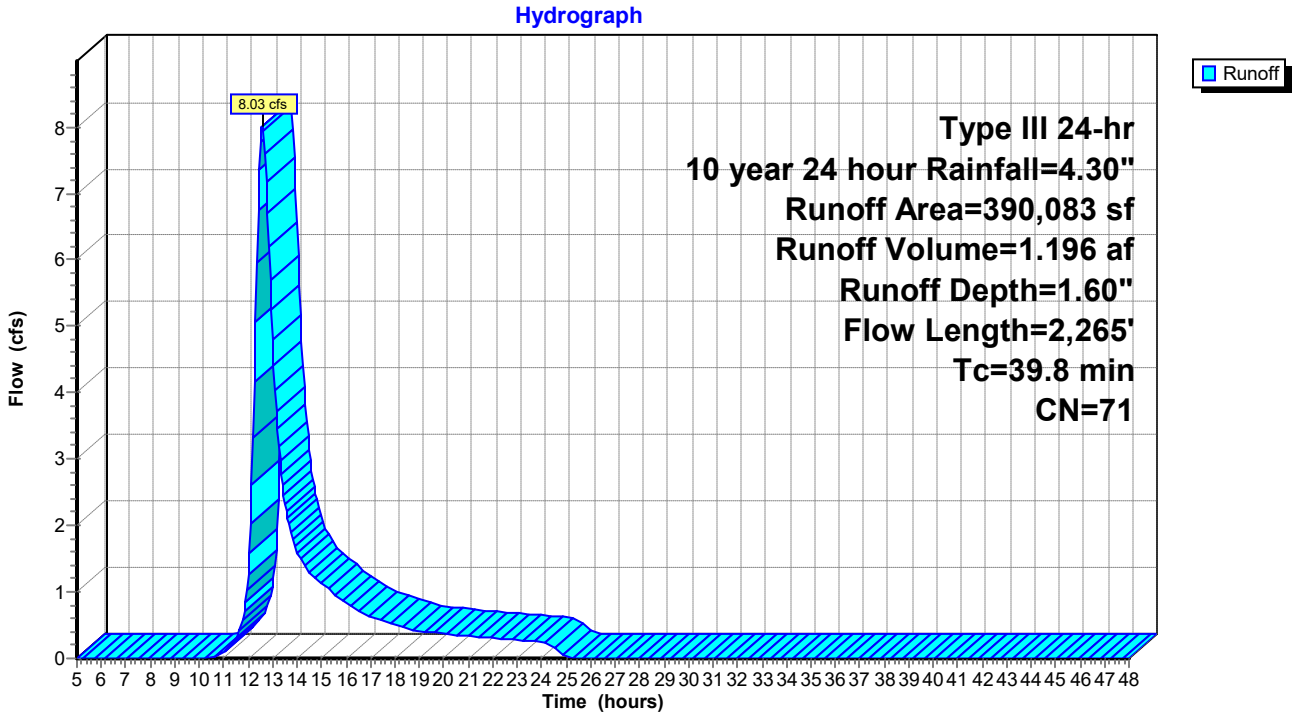
Runoff = 8.03 cfs @ 12.59 hrs, Volume= 1.196 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year 24 hour Rainfall=4.30"

	Area (sf)	CN	Description
	15,592	61	Pasture/grassland/range, Good, HSG B
	115,150	74	Pasture/grassland/range, Good, HSG C
	94,009	80	Pasture/grassland/range, Good, HSG D
	64,838	70	Woods, Good, HSG C
	538	77	Woods, Good, HSG D
	66,168	58	Meadow, non-grazed, HSG B
	31,278	71	Meadow, non-grazed, HSG C
	2,495	78	Meadow, non-grazed, HSG D
*	15	98	NEW Impervious
	390,083	71	Weighted Average
	390,068		100.00% Pervious Area
	15		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 4: Post Watershed 3

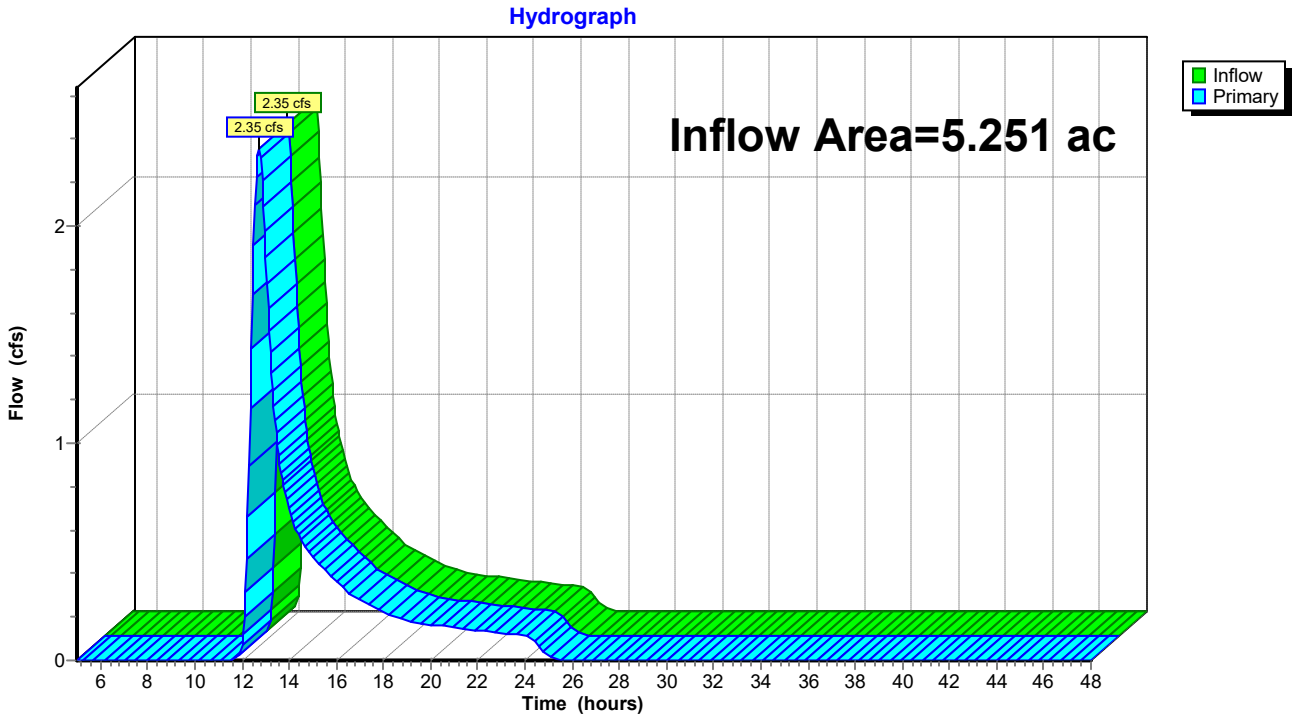


Summary for Link SN01: SN001

Inflow Area = 5.251 ac, 3.39% Impervious, Inflow Depth = 0.97" for 10 year 24 hour event
Inflow = 2.35 cfs @ 12.72 hrs, Volume= 0.424 af
Primary = 2.35 cfs @ 12.72 hrs, Volume= 0.424 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN01: SN001

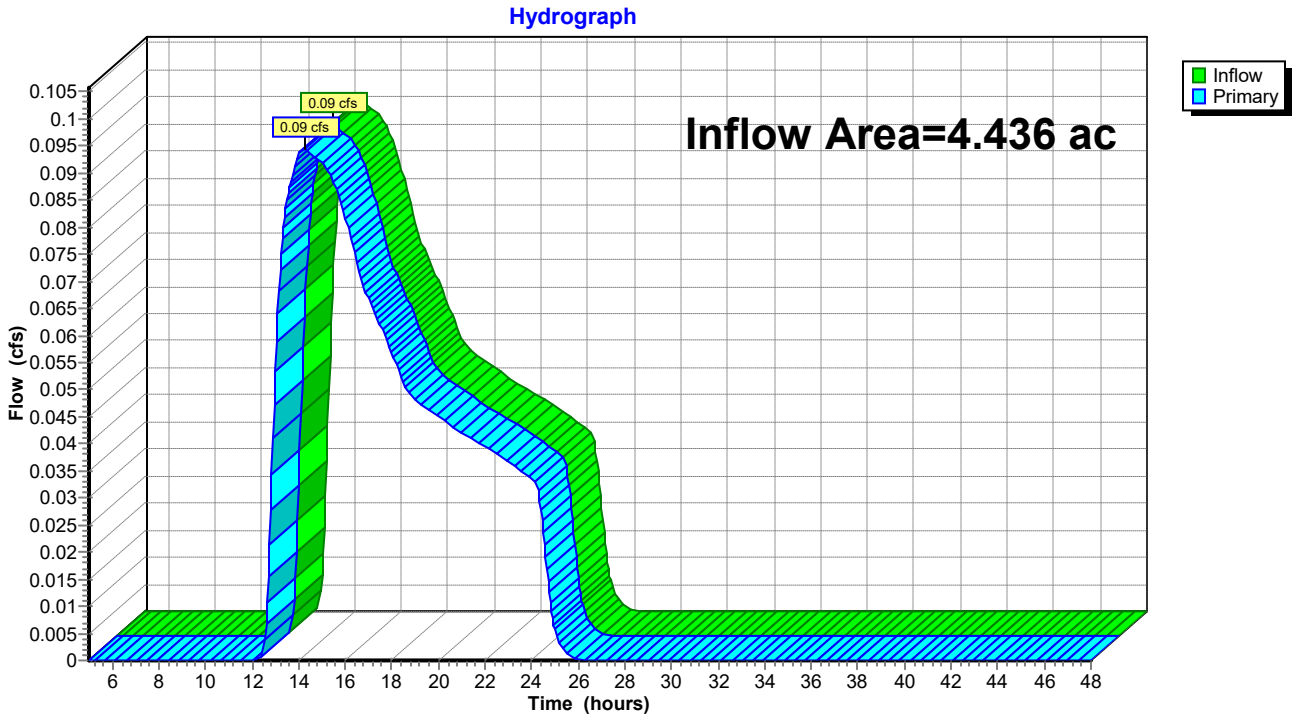


Summary for Link SN02: SN002

Inflow Area = 4.436 ac, 4.55% Impervious, Inflow Depth = 0.15" for 10 year 24 hour event
Inflow = 0.09 cfs @ 14.25 hrs, Volume= 0.057 af
Primary = 0.09 cfs @ 14.25 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN02: SN002



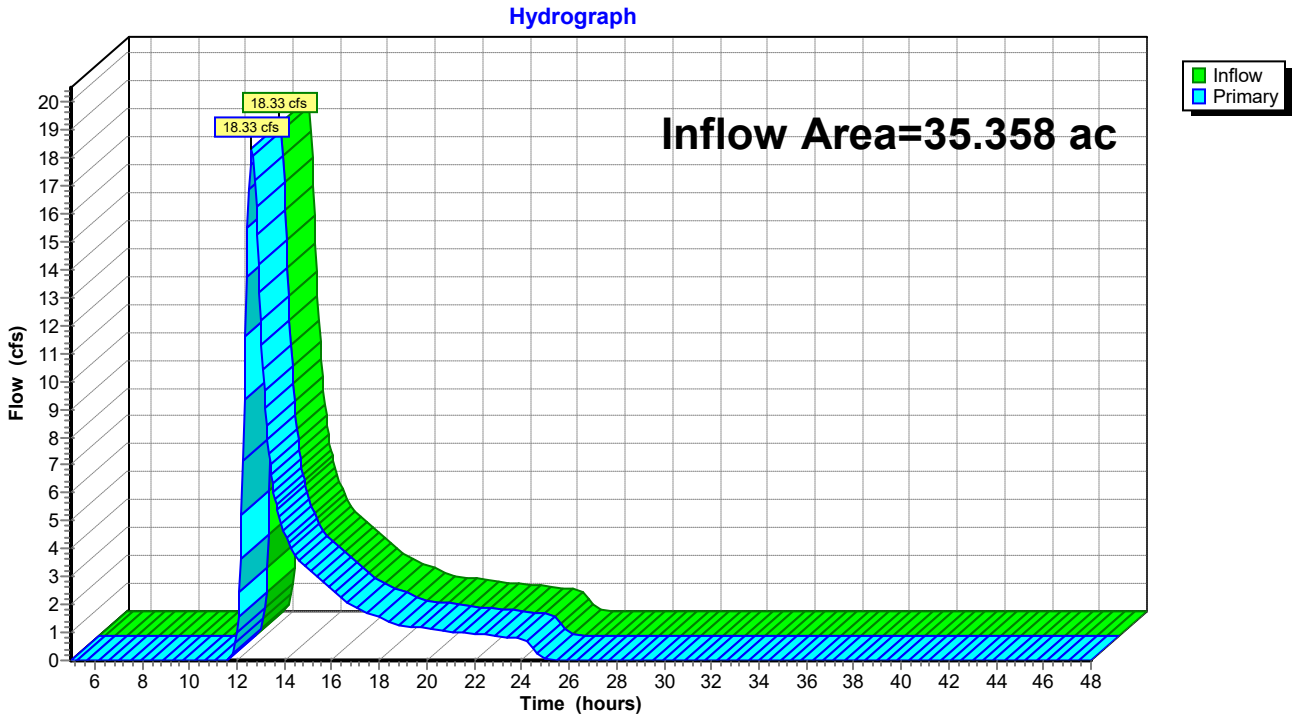
Summary for Link SN03: SN003

Inflow Area = 35.358 ac, 2.90% Impervious, Inflow Depth = 1.03" for 10 year 24 hour event
Inflow = 18.33 cfs @ 12.63 hrs, Volume= 3.026 af
Primary = 18.33 cfs @ 12.63 hrs, Volume= 3.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN03: SN003

Hydrograph

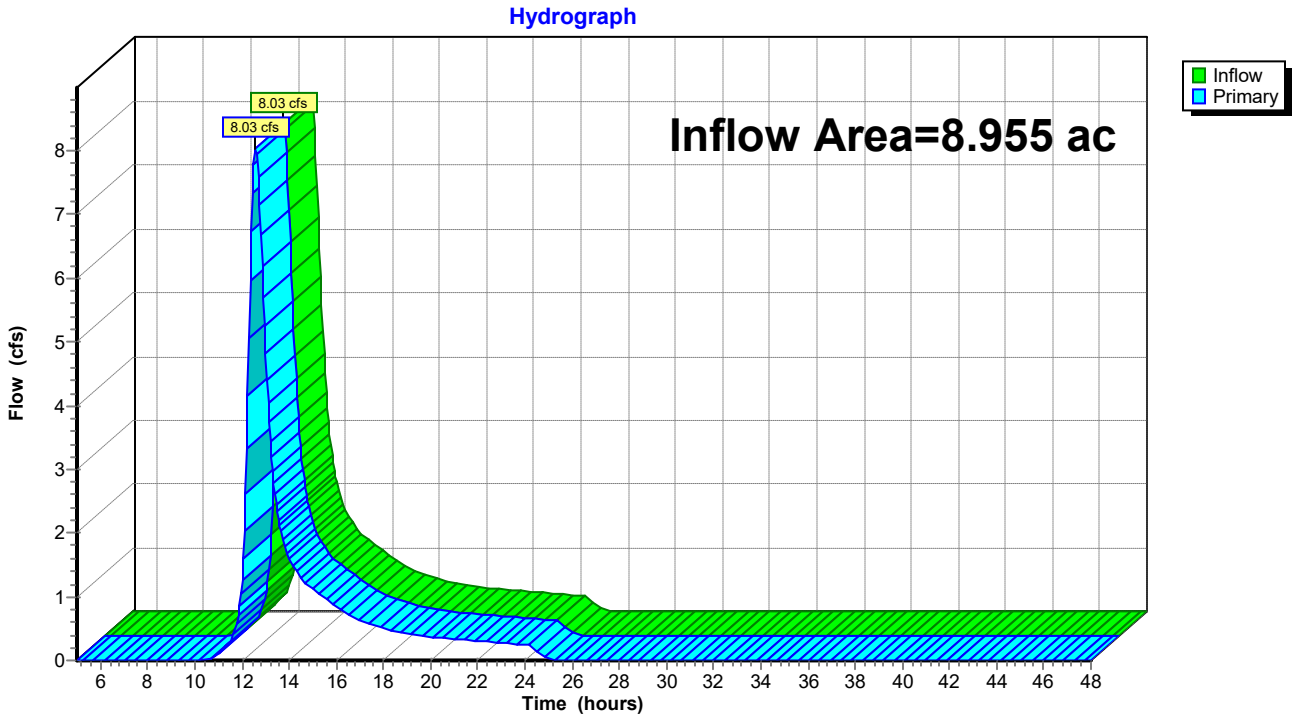


Summary for Link SN04: SN003

Inflow Area = 8.955 ac, 0.00% Impervious, Inflow Depth = 1.60" for 10 year 24 hour event
Inflow = 8.03 cfs @ 12.59 hrs, Volume= 1.196 af
Primary = 8.03 cfs @ 12.59 hrs, Volume= 1.196 af, Atten= 0%, Lag= 0.0 min

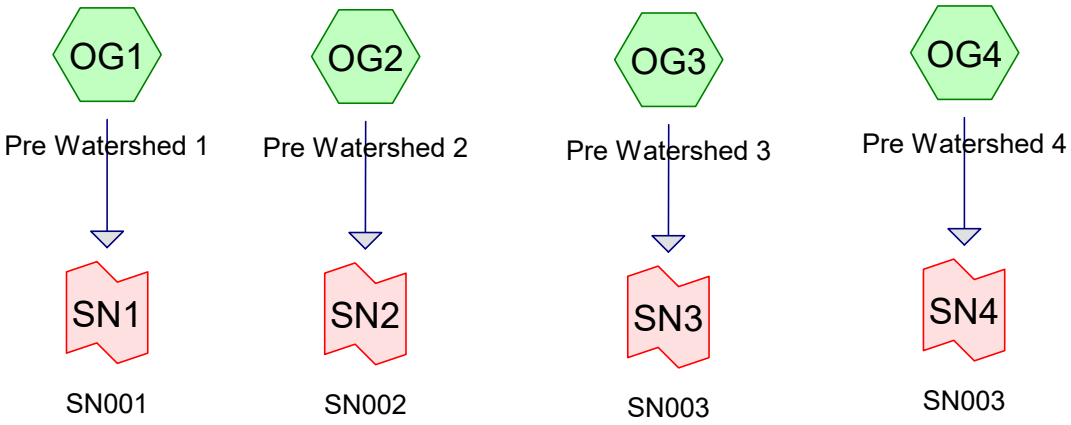
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN04: SN003



PRE-DEVELOPMENT 25 YEAR STORM

Preconstruction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 12/13/2024
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.344	98	Ex. Impervious (OG1, OG2, OG3)
9.465	39	Pasture/grassland/range, Good, HSG A (OG1, OG2, OG3)
18.178	61	Pasture/grassland/range, Good, HSG B (OG1, OG2, OG3, OG4)
9.273	74	Pasture/grassland/range, Good, HSG C (OG1, OG3, OG4)
5.490	80	Pasture/grassland/range, Good, HSG D (OG3, OG4)
9.023	55	Woods, Good, HSG B (OG3)
2.226	70	Woods, Good, HSG C (OG3, OG4)
54.000	**61**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.344	0.344	Ex. Impervious	OG1, OG2, OG3
9.465	18.178	9.273	5.490	0.000	42.407	Pasture/grassland/range, Good	OG1, OG2, OG3, OG4
0.000	9.023	2.226	0.000	0.000	11.249	Woods, Good	OG3, OG4
9.465	**27.201**	**11.498**	**5.490**	**0.344**	**54.000**	**TOTAL AREA**	

Summary for Subcatchment OG1: Pre Watershed 1

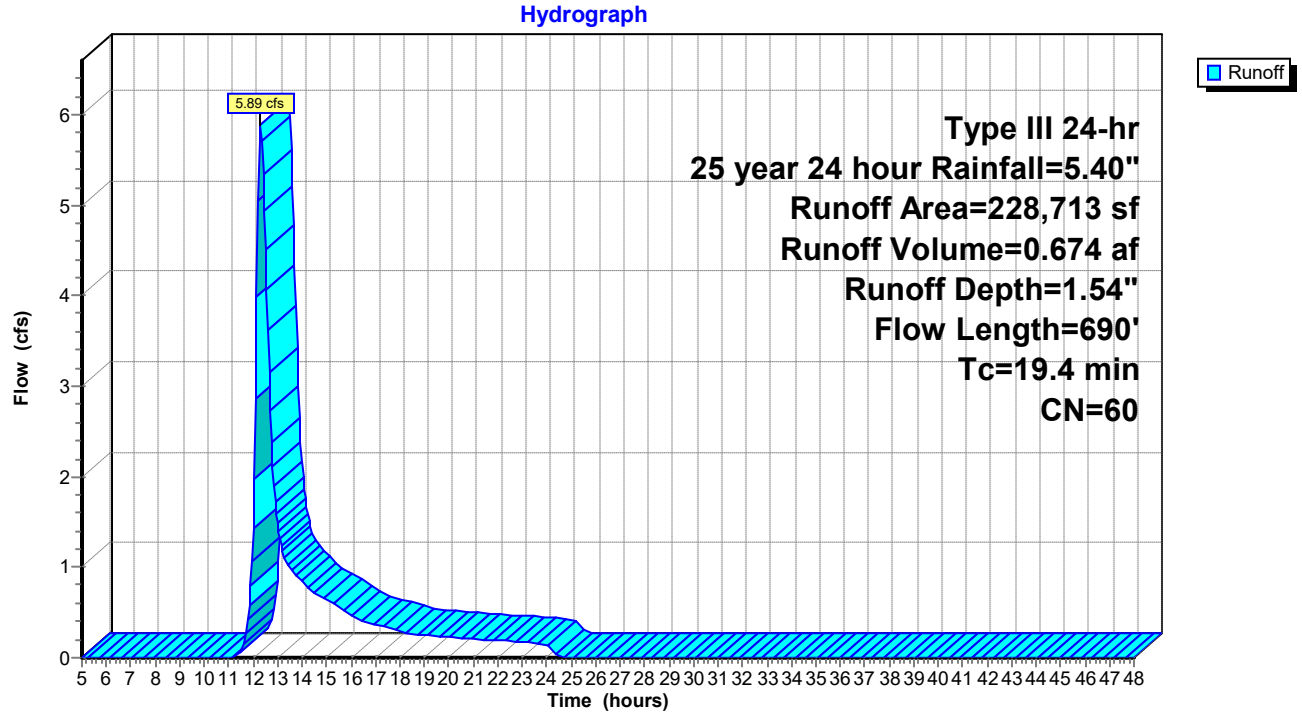
Runoff = 5.89 cfs @ 12.30 hrs, Volume= 0.674 af, Depth= 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
*	1,286	98	Ex. Impervious
	25,151	39	Pasture/grassland/range, Good, HSG A
	173,485	61	Pasture/grassland/range, Good, HSG B
	28,791	74	Pasture/grassland/range, Good, HSG C
	228,713	60	Weighted Average
	227,427		99.44% Pervious Area
	1,286		0.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.6	150	0.0460	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
4.3	310	0.0290	1.19		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	230	0.0220	7.81	78.07	**Channel Flow,** Area= 10.0 sf Perim= 12.0' r= 0.83' n= 0.025
19.4	690	Total			

Subcatchment OG1: Pre Watershed 1



Summary for Subcatchment OG2: Pre Watershed 2

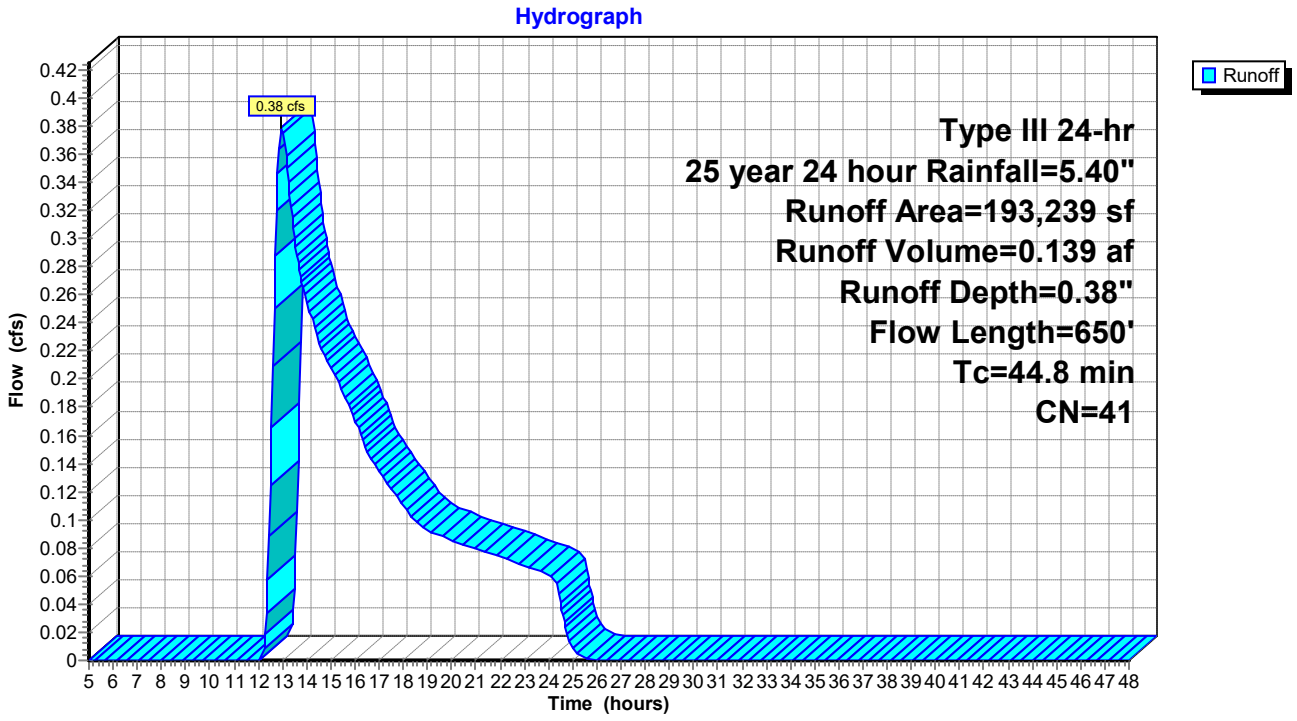
Runoff = 0.38 cfs @ 12.97 hrs, Volume= 0.139 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	181,638	39	Pasture/grassland/range, Good, HSG A
	8,173	61	Pasture/grassland/range, Good, HSG B
*	3,428	98	Ex. Impervious
	193,239	41	Weighted Average
	189,811		98.23% Pervious Area
	3,428		1.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.7	150	0.0330	0.15		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
28.1	500	0.0018	0.30		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
44.8	650	Total			

Subcatchment OG2: Pre Watershed 2



Summary for Subcatchment OG3: Pre Watershed 3

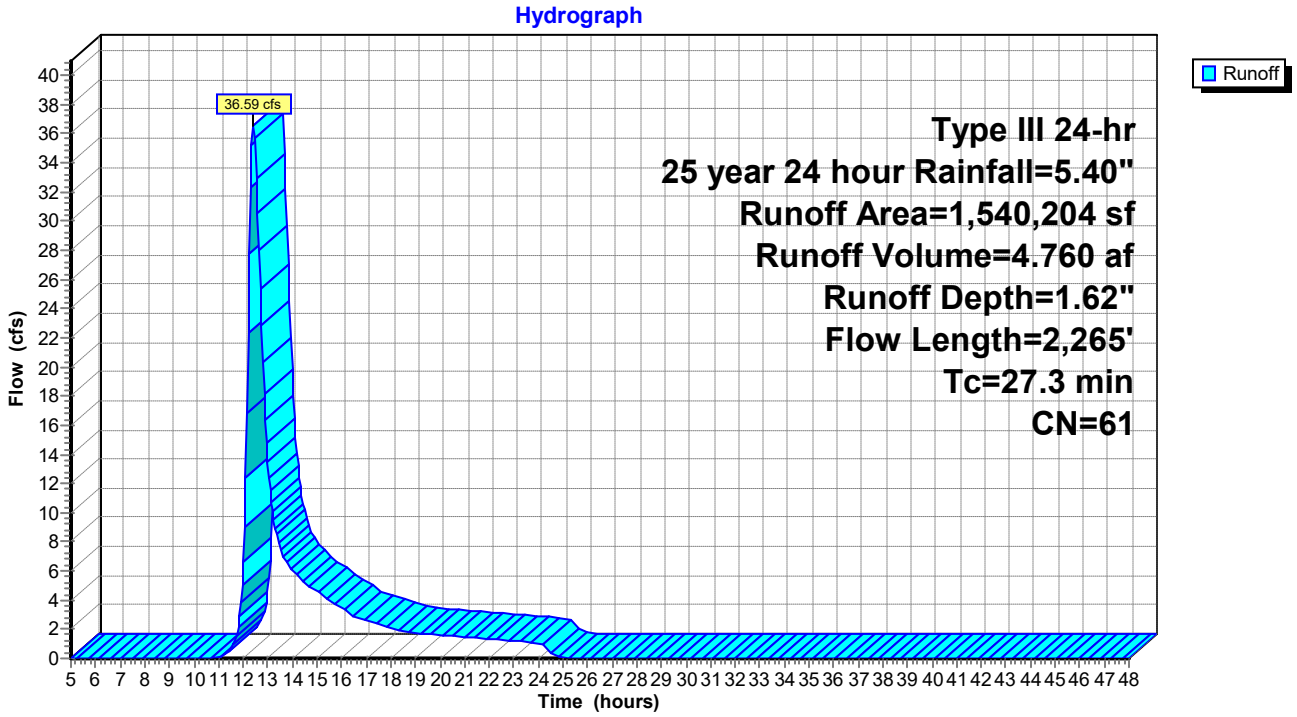
Runoff = 36.59 cfs @ 12.42 hrs, Volume= 4.760 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	205,523	39	Pasture/grassland/range, Good, HSG A
	528,420	61	Pasture/grassland/range, Good, HSG B
	228,700	74	Pasture/grassland/range, Good, HSG C
	142,657	80	Pasture/grassland/range, Good, HSG D
	393,043	55	Woods, Good, HSG B
	28,174	70	Woods, Good, HSG C
	3,399	70	Woods, Good, HSG C
*	10,288	98	Ex. Impervious
	1,540,204	61	Weighted Average
	1,529,916		99.33% Pervious Area
	10,288		0.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG3: Pre Watershed 3



Summary for Subcatchment OG4: Pre Watershed 4

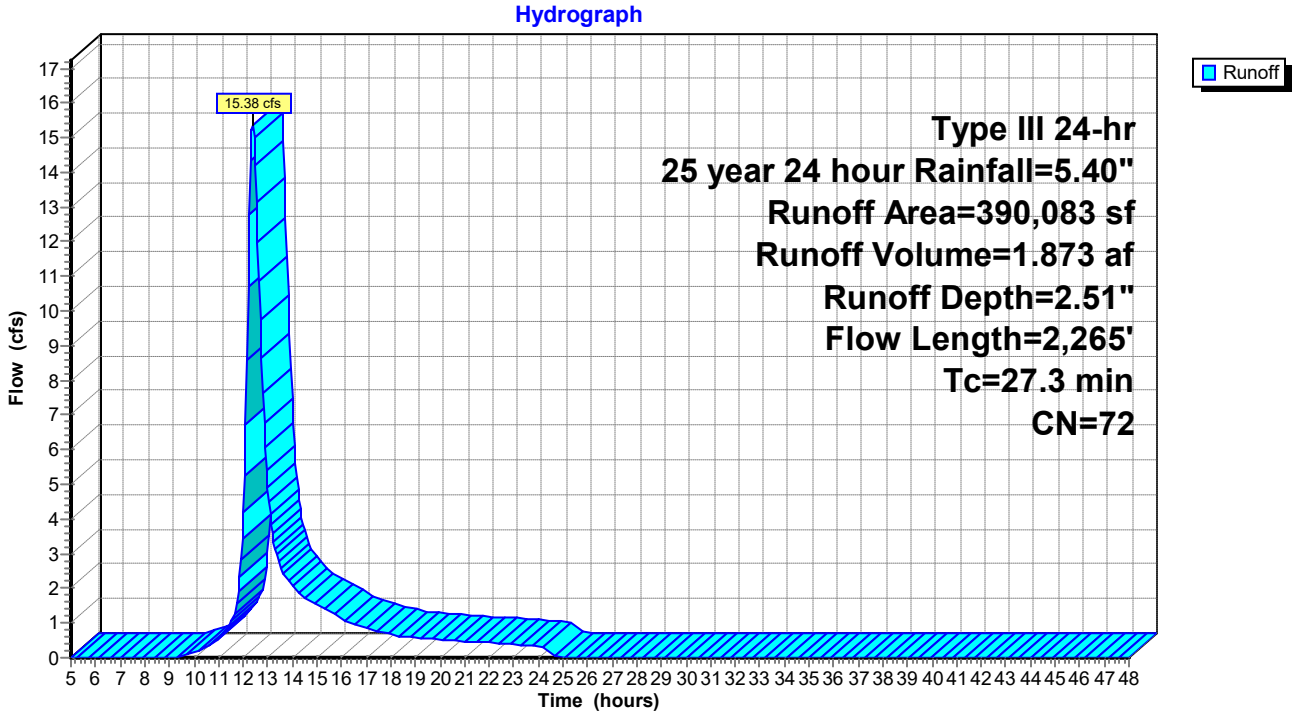
Runoff = 15.38 cfs @ 12.39 hrs, Volume= 1.873 af, Depth= 2.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

Area (sf)	CN	Description
81,775	61	Pasture/grassland/range, Good, HSG B
146,428	74	Pasture/grassland/range, Good, HSG C
96,504	80	Pasture/grassland/range, Good, HSG D
64,838	70	Woods, Good, HSG C
538	70	Woods, Good, HSG C
390,083	72	Weighted Average
390,083		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.1	150	0.0270	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
7.1	600	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
27.3	2,265	Total			

Subcatchment OG4: Pre Watershed 4

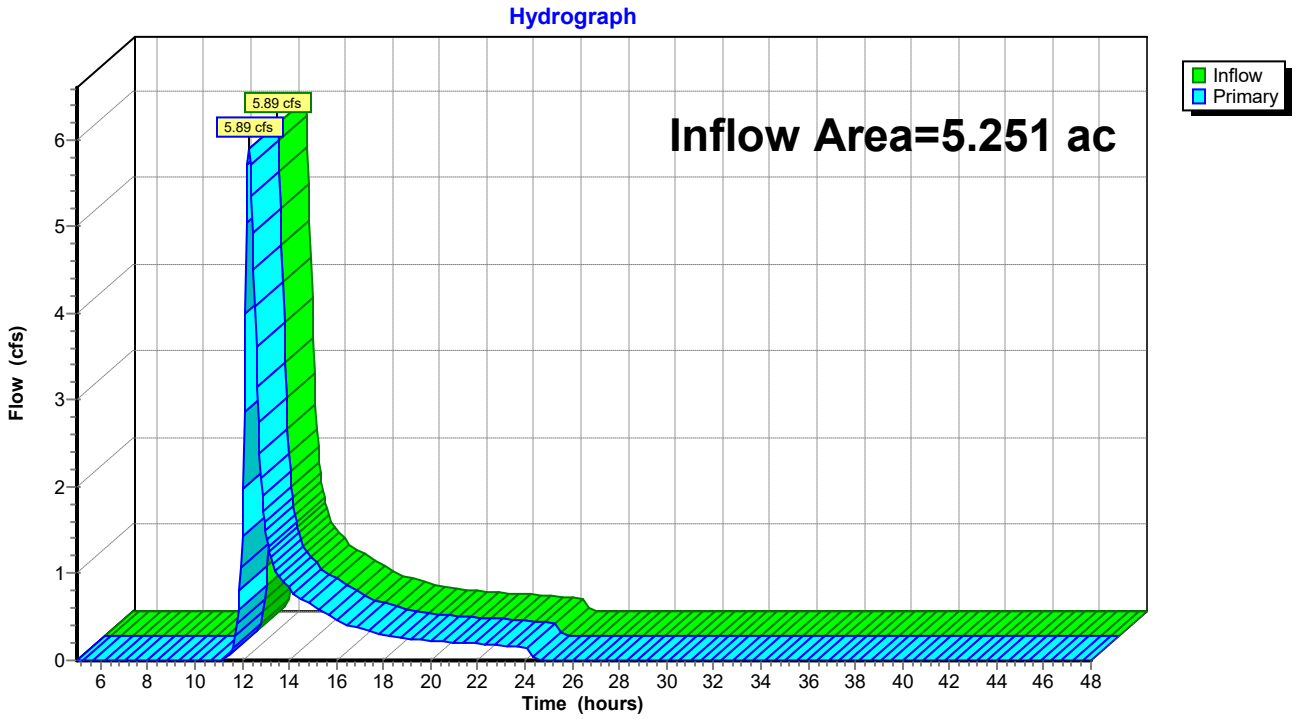


Summary for Link SN1: SN001

Inflow Area = 5.251 ac, 0.56% Impervious, Inflow Depth = 1.54" for 25 year 24 hour event
Inflow = 5.89 cfs @ 12.30 hrs, Volume= 0.674 af
Primary = 5.89 cfs @ 12.30 hrs, Volume= 0.674 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN1: SN001

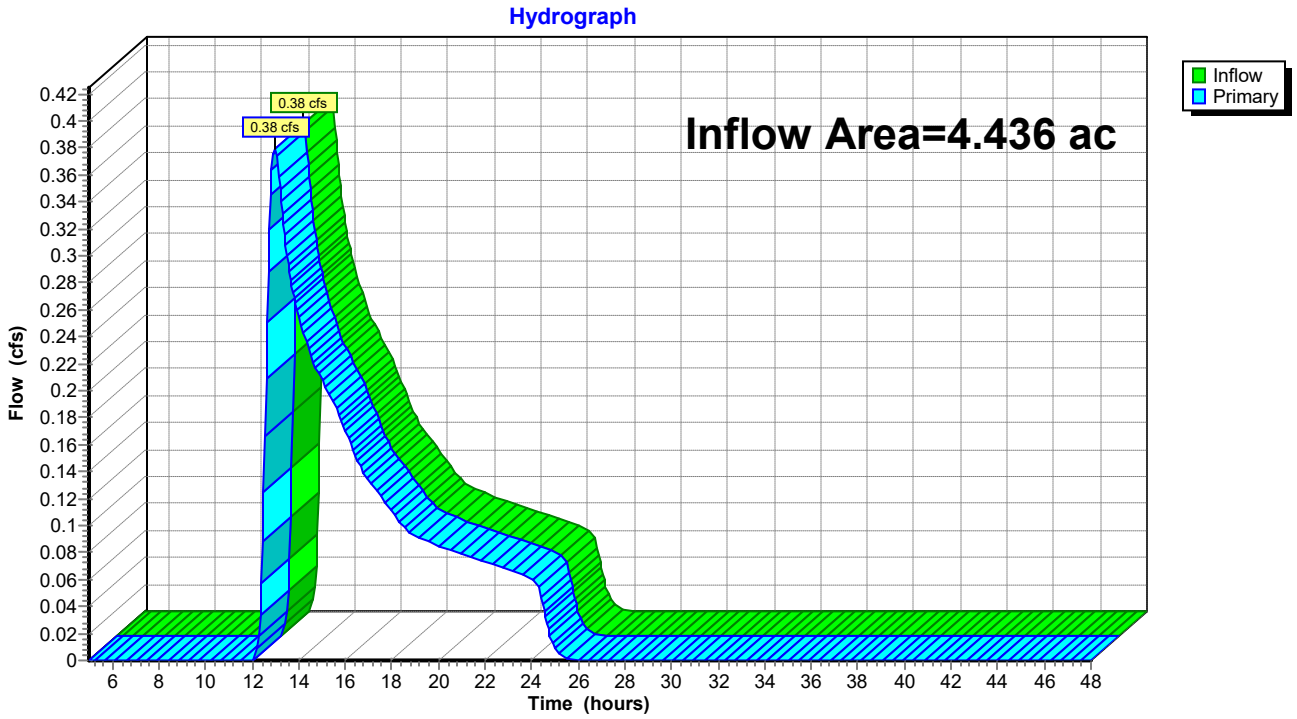


Summary for Link SN2: SN002

Inflow Area = 4.436 ac, 1.77% Impervious, Inflow Depth = 0.38" for 25 year 24 hour event
Inflow = 0.38 cfs @ 12.97 hrs, Volume= 0.139 af
Primary = 0.38 cfs @ 12.97 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN2: SN002

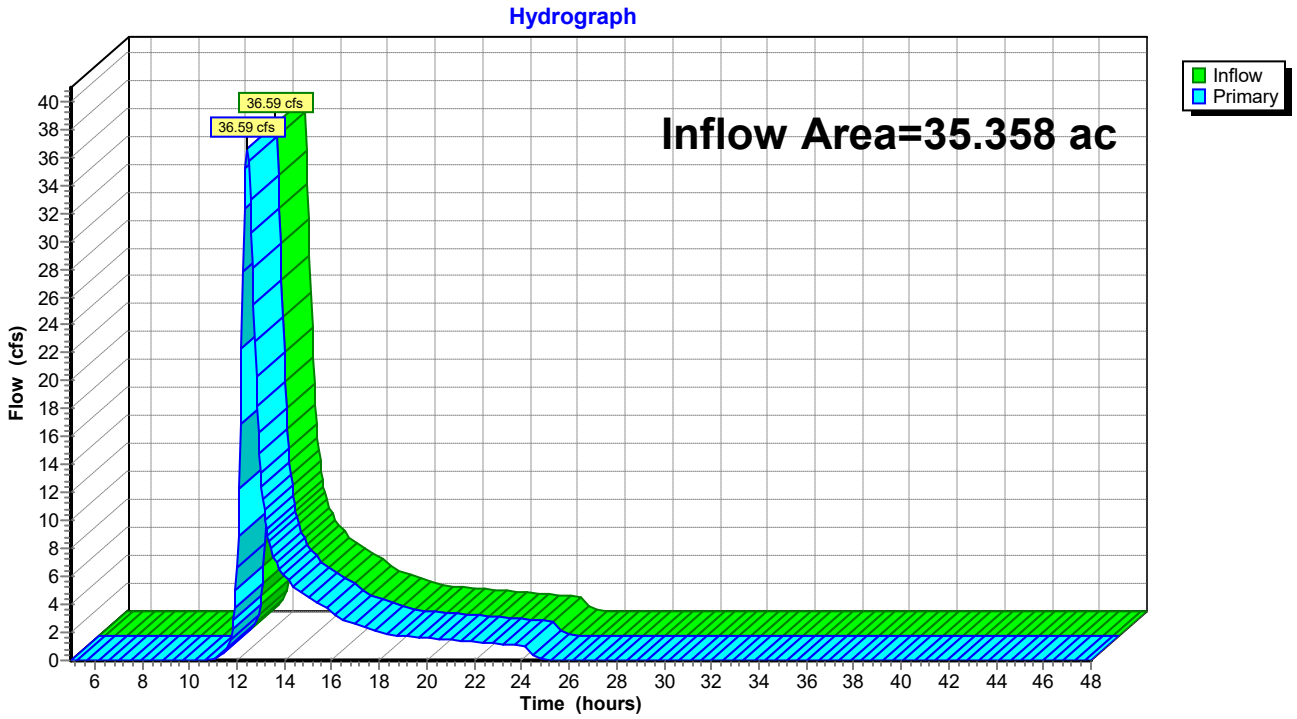


Summary for Link SN3: SN003

Inflow Area = 35.358 ac, 0.67% Impervious, Inflow Depth = 1.62" for 25 year 24 hour event
Inflow = 36.59 cfs @ 12.42 hrs, Volume= 4.760 af
Primary = 36.59 cfs @ 12.42 hrs, Volume= 4.760 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN3: SN003

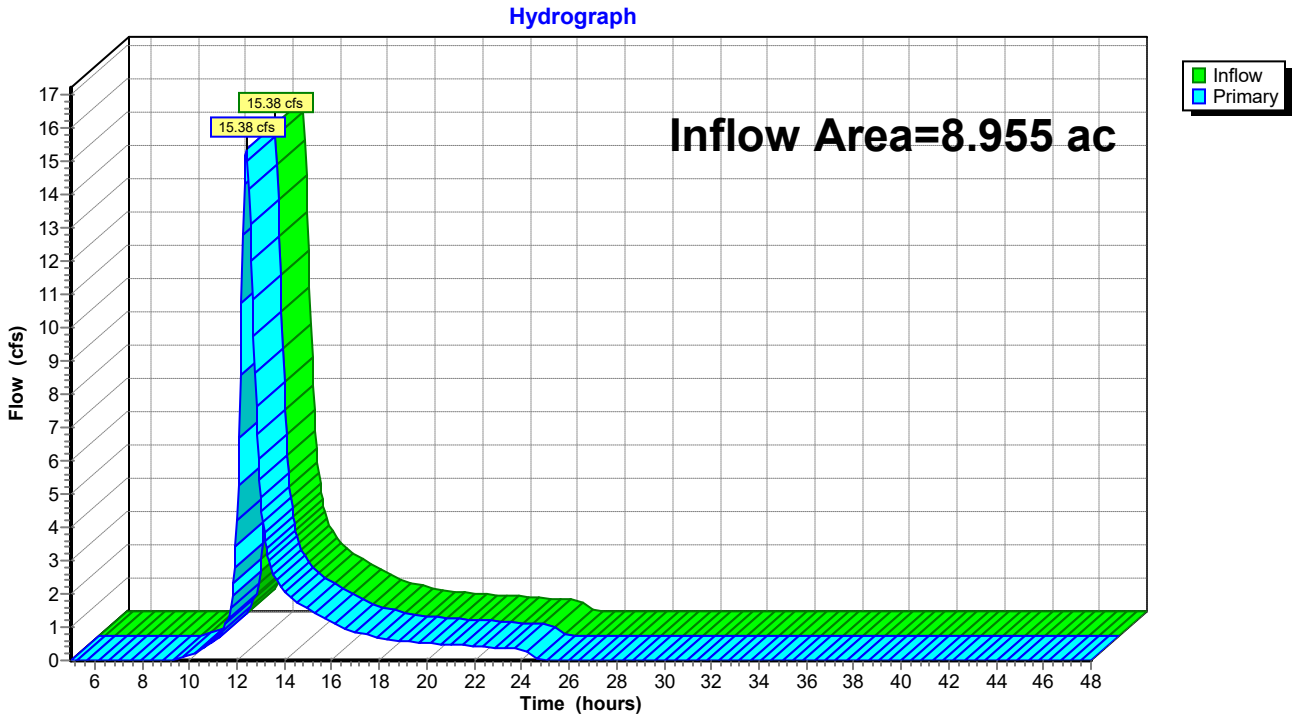


Summary for Link SN4: SN003

Inflow Area = 8.955 ac, 0.00% Impervious, Inflow Depth = 2.51" for 25 year 24 hour event
Inflow = 15.38 cfs @ 12.39 hrs, Volume= 1.873 af
Primary = 15.38 cfs @ 12.39 hrs, Volume= 1.873 af, Atten= 0%, Lag= 0.0 min

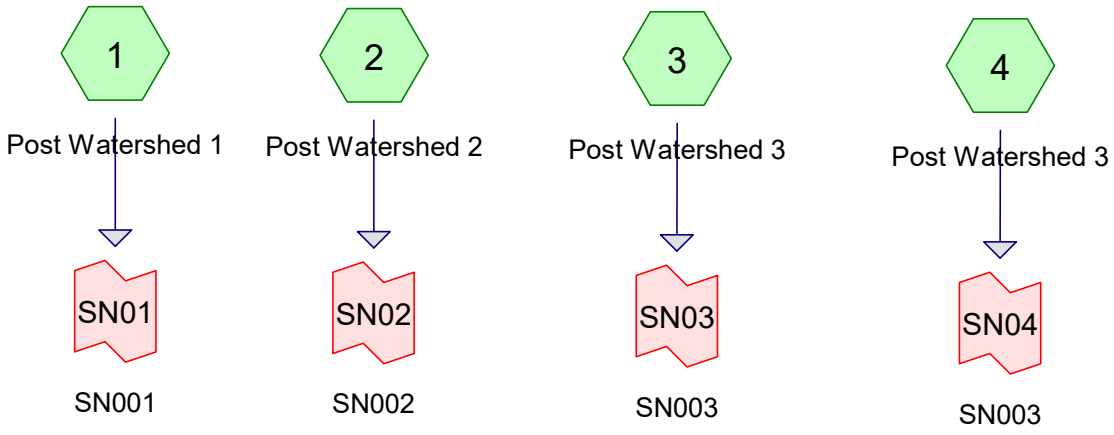
Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN4: SN003



POST-DEVELOPMENT 25 YEAR STORM

Post Construction



Subcat Reach Pond Link

Routing Diagram for Auburn Solar-Hydrocad
Prepared by Krebs & Lansing Consulting Engineers, Printed 12/13/2024
HydroCAD® 10.00-19 s/n 06429 © 2016 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.344	98	Ex. Impervious (1, 2, 3)
0.259	30	Meadow, non-grazed, HSG A (2, 3)
4.894	58	Meadow, non-grazed, HSG B (1, 2, 3, 4)
4.897	71	Meadow, non-grazed, HSG C (3, 4)
1.676	78	Meadow, non-grazed, HSG D (3, 4)
1.059	98	NEW Impervious (1, 2, 3, 4)
9.053	39	Pasture/grassland/range, Good, HSG A (1, 2, 3)
9.684	61	Pasture/grassland/range, Good, HSG B (1, 2, 3, 4)
8.555	74	Pasture/grassland/range, Good, HSG C (1, 3, 4)
2.328	80	Pasture/grassland/range, Good, HSG D (3, 4)
9.023	55	Woods, Good, HSG B (3)
2.135	70	Woods, Good, HSG C (3, 4)
0.090	77	Woods, Good, HSG D (3, 4)
54.000	**62**	**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.344	0.344	Ex. Impervious	1, 2, 3
0.259	4.894	4.897	1.676	0.000	11.727	Meadow, non-grazed	1, 2, 3, 4
0.000	0.000	0.000	0.000	1.059	1.059	NEW Impervious	1, 2, 3, 4
9.053	9.684	8.555	2.328	0.000	29.620	Pasture/grassland/range, Good	1, 2, 3, 4
0.000	9.023	2.135	0.090	0.000	11.249	Woods, Good	3, 4
9.312	**23.602**	**15.587**	**4.095**	**1.404**	**54.000**	**TOTAL AREA**	

Summary for Subcatchment 1: Post Watershed 1

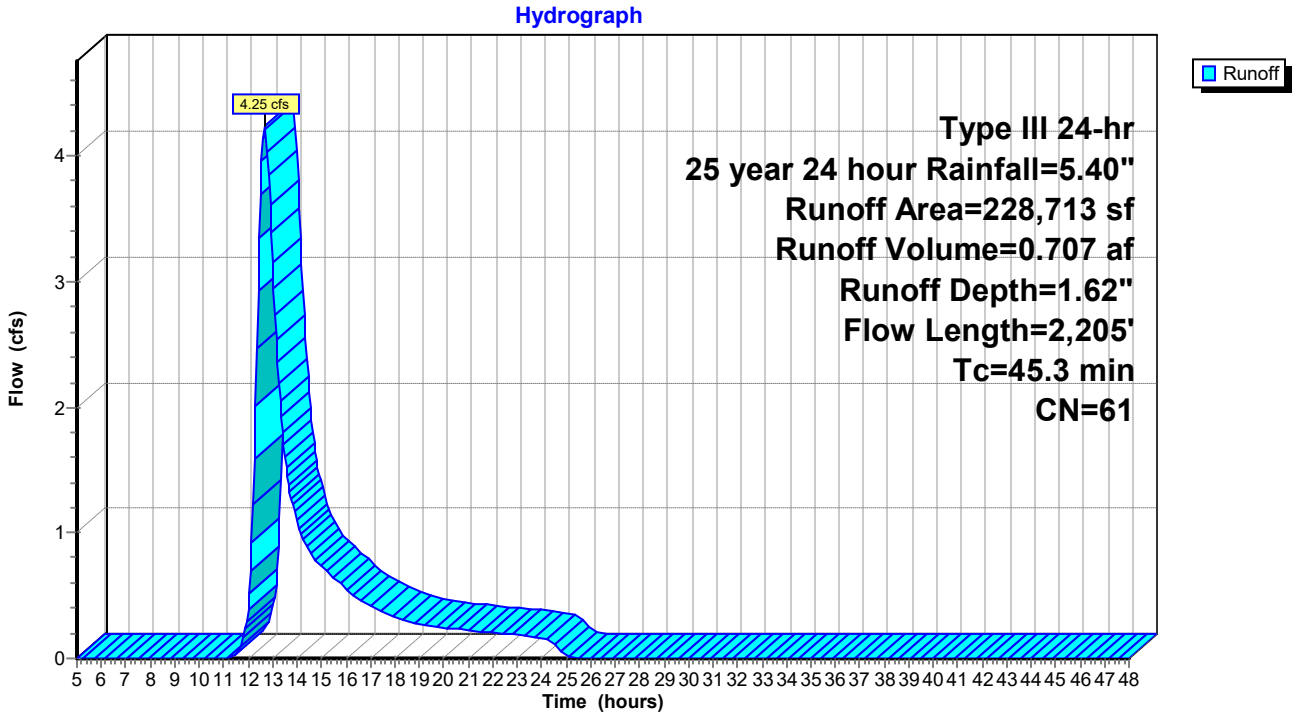
Runoff = 4.25 cfs @ 12.68 hrs, Volume= 0.707 af, Depth= 1.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	25,151	39	Pasture/grassland/range, Good, HSG A
	158,649	61	Pasture/grassland/range, Good, HSG B
	28,791	74	Pasture/grassland/range, Good, HSG C
	8,376	58	Meadow, non-grazed, HSG B
*	6,460	98	NEW Impervious
*	1,286	98	Ex. Impervious
	228,713	61	Weighted Average
	220,967		96.61% Pervious Area
	7,746		3.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.5	150	0.0860	0.14		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
26.9	1,300	0.0260	0.81		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.9	755	0.0280	13.98	349.54	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
45.3	2,205	Total			

Subcatchment 1: Post Watershed 1



Summary for Subcatchment 2: Post Watershed 2

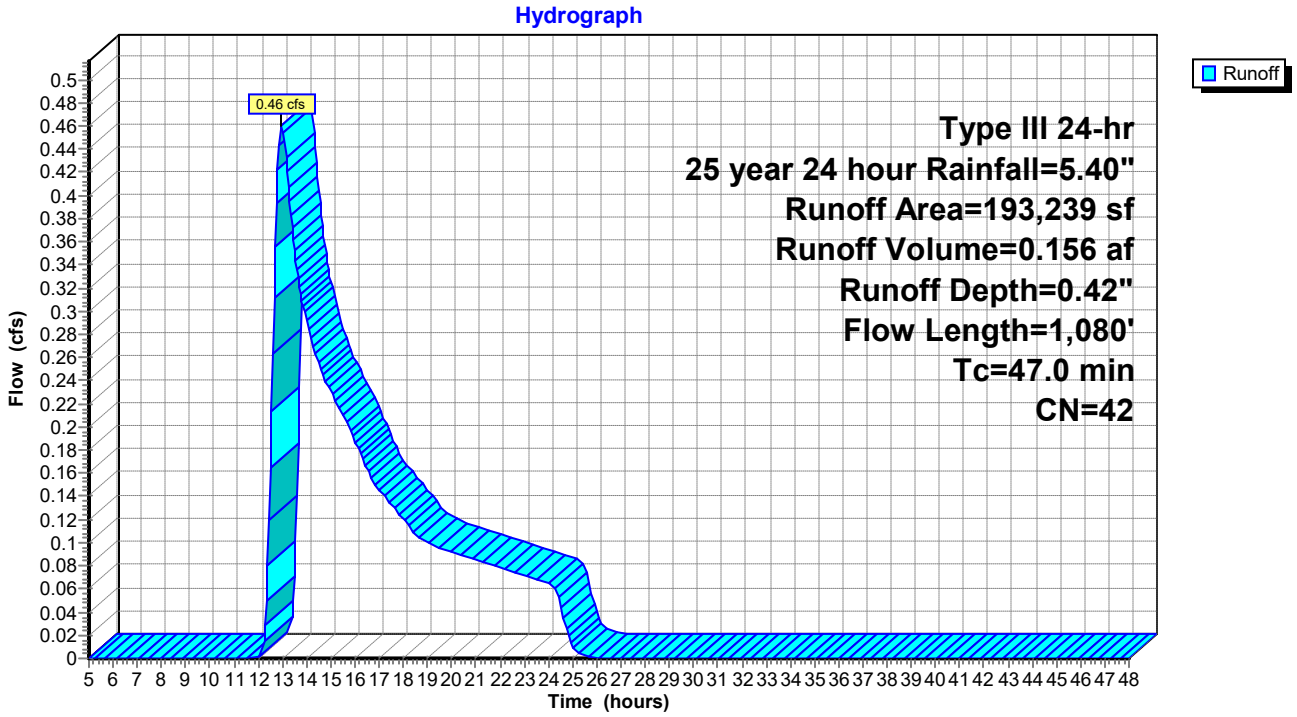
Runoff = 0.46 cfs @ 12.96 hrs, Volume= 0.156 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	168,726	39	Pasture/grassland/range, Good, HSG A
	7,075	61	Pasture/grassland/range, Good, HSG B
	8,140	30	Meadow, non-grazed, HSG A
	501	58	Meadow, non-grazed, HSG B
*	3,428	98	Ex. Impervious
*	5,369	98	NEW Impervious
	193,239	42	Weighted Average
	184,442		95.45% Pervious Area
	8,797		4.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.1	150	0.0150	0.07		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
11.7	610	0.0300	0.87		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
0.2	320	0.0880	24.79	619.67	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
47.0	1,080	Total			

Subcatchment 2: Post Watershed 2



Summary for Subcatchment 3: Post Watershed 3

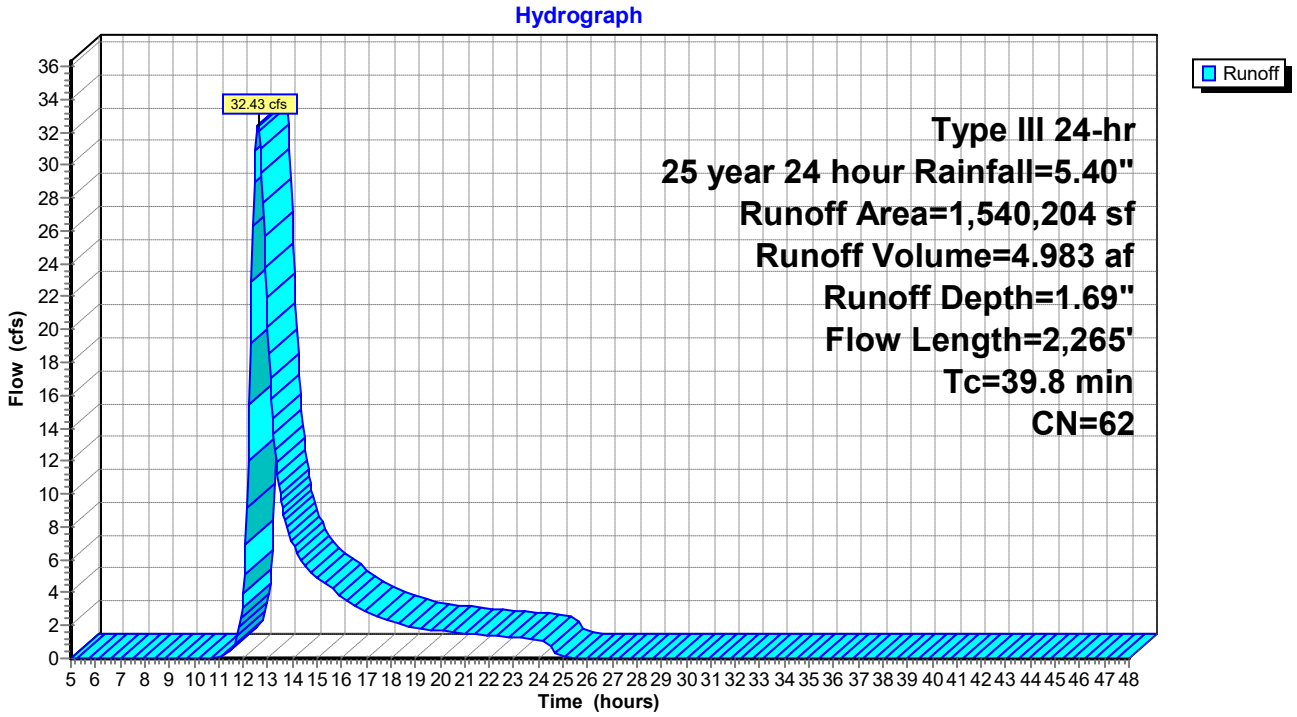
Runoff = 32.43 cfs @ 12.60 hrs, Volume= 4.983 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	200,478	39	Pasture/grassland/range, Good, HSG A
	240,534	61	Pasture/grassland/range, Good, HSG B
	228,700	74	Pasture/grassland/range, Good, HSG C
	7,409	80	Pasture/grassland/range, Good, HSG D
	393,043	55	Woods, Good, HSG B
	28,174	70	Woods, Good, HSG C
	3,399	77	Woods, Good, HSG D
	3,145	30	Meadow, non-grazed, HSG A
	138,158	58	Meadow, non-grazed, HSG B
	182,050	71	Meadow, non-grazed, HSG C
	70,525	78	Meadow, non-grazed, HSG D
*	34,301	98	NEW Impervious
*	10,288	98	Ex. Impervious
	1,540,204	62	Weighted Average
	1,495,615		97.10% Pervious Area
	44,589		2.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 3: Post Watershed 3



Summary for Subcatchment 4: Post Watershed 3

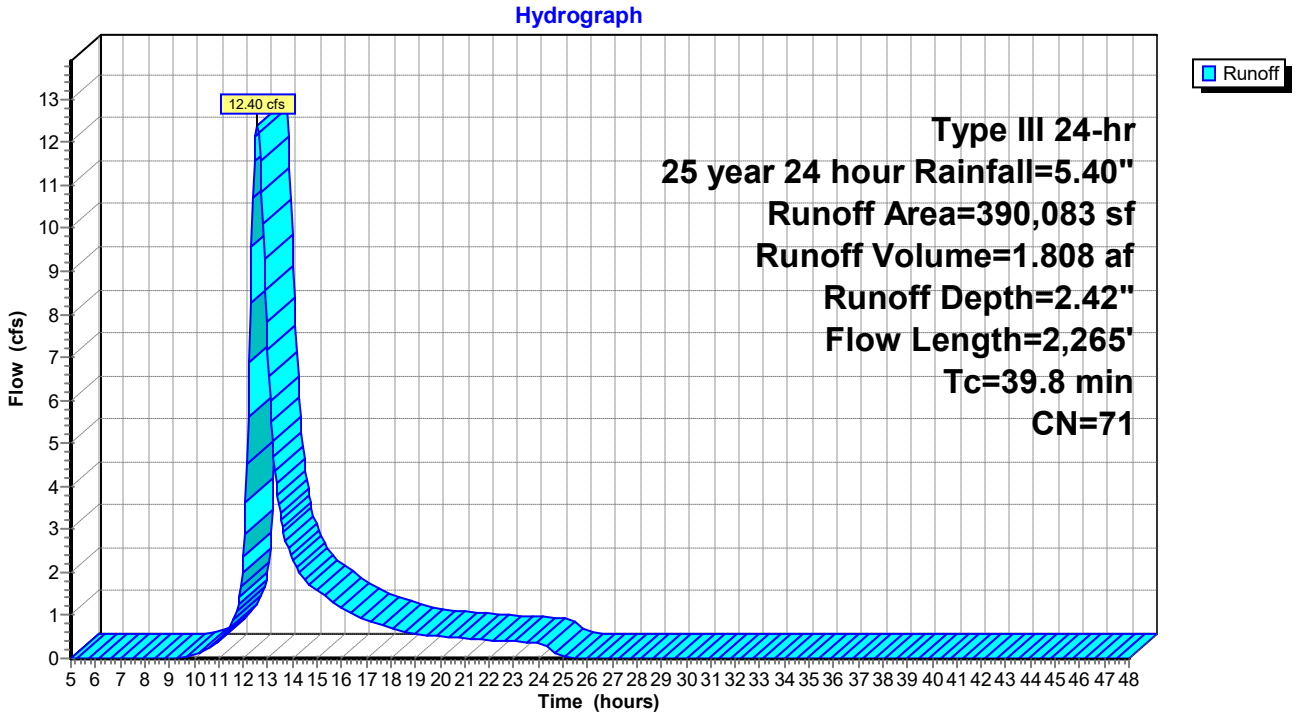
Runoff = 12.40 cfs @ 12.57 hrs, Volume= 1.808 af, Depth= 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year 24 hour Rainfall=5.40"

	Area (sf)	CN	Description
	15,592	61	Pasture/grassland/range, Good, HSG B
	115,150	74	Pasture/grassland/range, Good, HSG C
	94,009	80	Pasture/grassland/range, Good, HSG D
	64,838	70	Woods, Good, HSG C
	538	77	Woods, Good, HSG D
	66,168	58	Meadow, non-grazed, HSG B
	31,278	71	Meadow, non-grazed, HSG C
	2,495	78	Meadow, non-grazed, HSG D
*	15	98	NEW Impervious
	390,083	71	Weighted Average
	390,068		100.00% Pervious Area
	15		0.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.7	150	0.0270	0.09		**Sheet Flow, Meadow** Grass: Bermuda n= 0.410 P2= 3.00"
10.0	600	0.0400	1.00		**Shallow Concentrated Flow, Meadow** Woodland Kv= 5.0 fps
2.1	1,515	0.0210	12.11	302.71	**Channel Flow,** Area= 25.0 sf Perim= 15.0' r= 1.67' n= 0.025
39.8	2,265	Total			

Subcatchment 4: Post Watershed 3

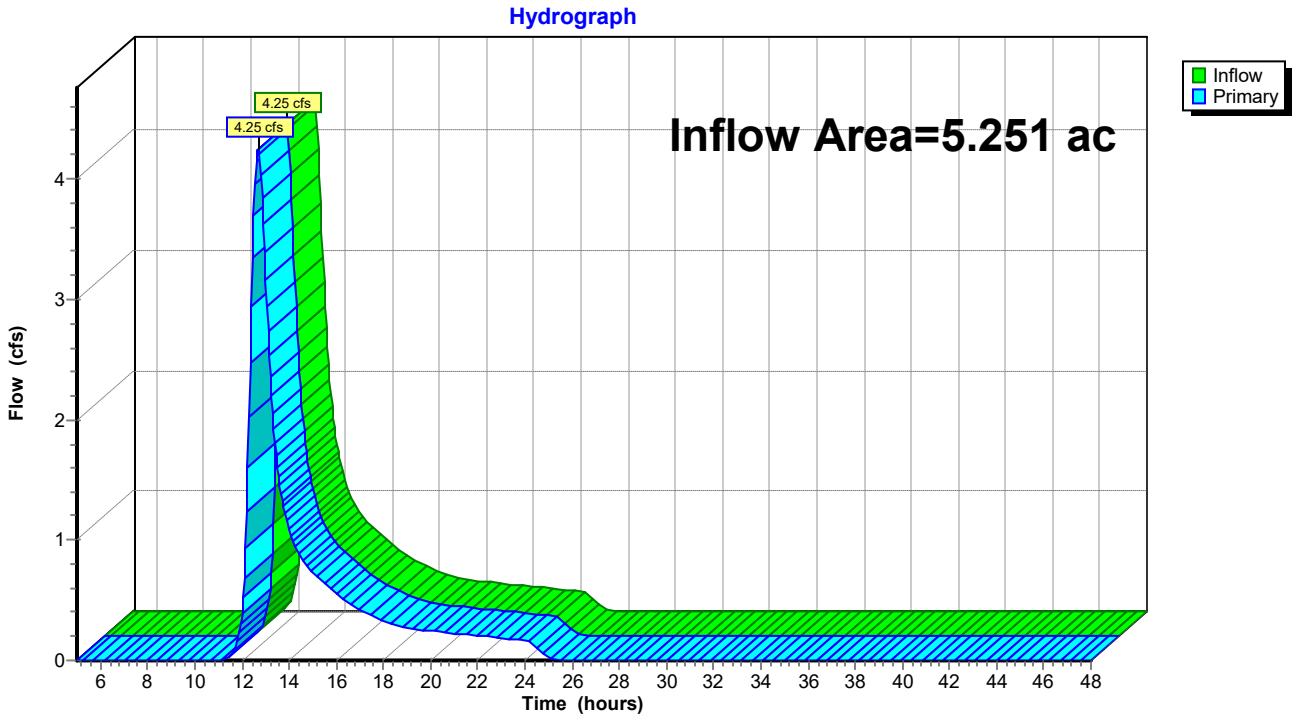


Summary for Link SN01: SN001

Inflow Area = 5.251 ac, 3.39% Impervious, Inflow Depth = 1.62" for 25 year 24 hour event
Inflow = 4.25 cfs @ 12.68 hrs, Volume= 0.707 af
Primary = 4.25 cfs @ 12.68 hrs, Volume= 0.707 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN01: SN001

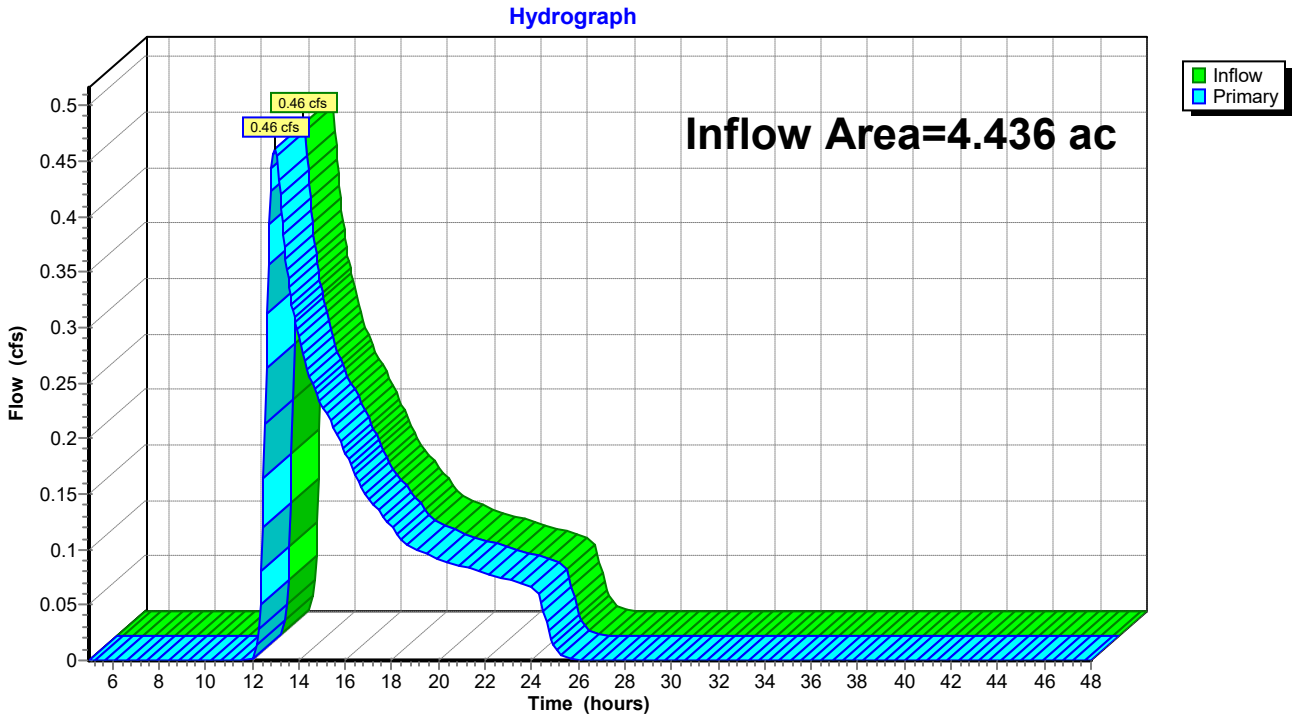


Summary for Link SN02: SN002

Inflow Area = 4.436 ac, 4.55% Impervious, Inflow Depth = 0.42" for 25 year 24 hour event
Inflow = 0.46 cfs @ 12.96 hrs, Volume= 0.156 af
Primary = 0.46 cfs @ 12.96 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN02: SN002

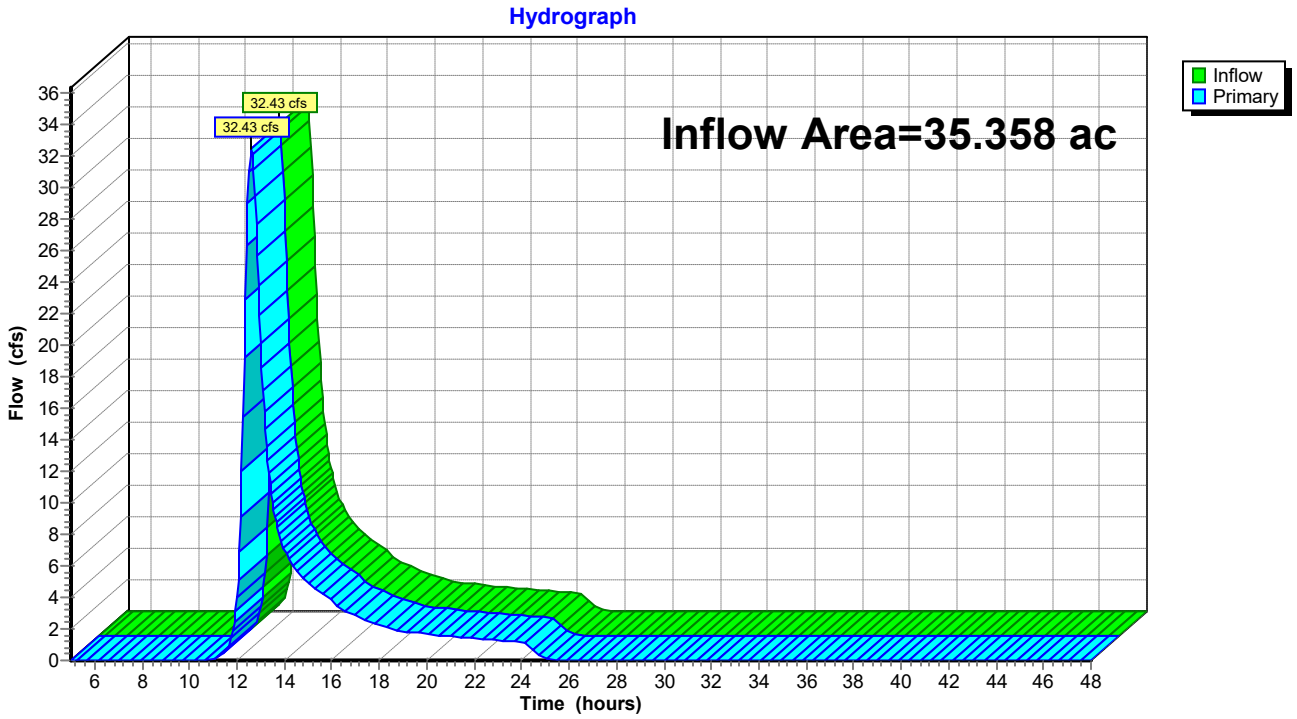


Summary for Link SN03: SN003

Inflow Area = 35.358 ac, 2.90% Impervious, Inflow Depth = 1.69" for 25 year 24 hour event
Inflow = 32.43 cfs @ 12.60 hrs, Volume= 4.983 af
Primary = 32.43 cfs @ 12.60 hrs, Volume= 4.983 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN03: SN003

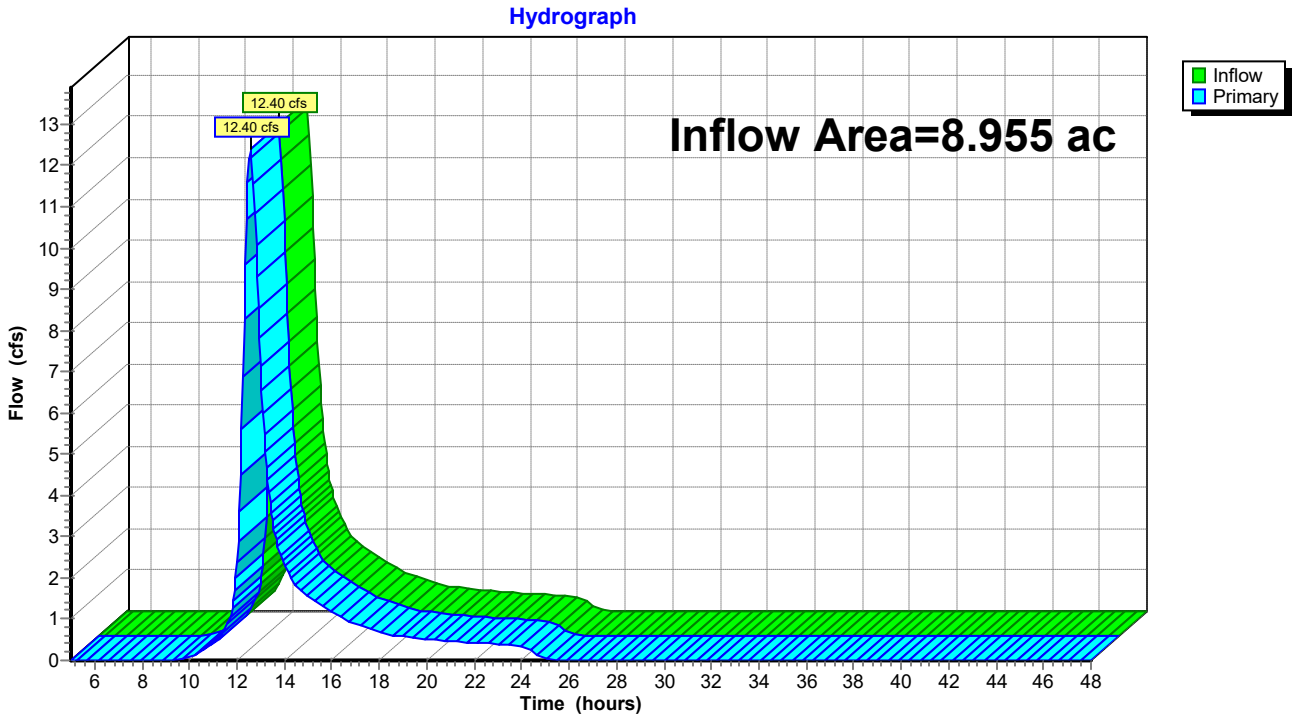


Summary for Link SN04: SN003

Inflow Area = 8.955 ac, 0.00% Impervious, Inflow Depth = 2.42" for 25 year 24 hour event
Inflow = 12.40 cfs @ 12.57 hrs, Volume= 1.808 af
Primary = 12.40 cfs @ 12.57 hrs, Volume= 1.808 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

Link SN04: SN003



ATTACHMENT 9
DECOMMISSIONING PLAN

BLUEWAVE

Decommissioning Plan

Penley Corner Solar Project

371 Penley Corner Road, Auburn

As the owner of the Project, the Applicant, Permittee and their successors and assigns are solely responsible for decommissioning the Project. Commercial-scale solar fields are designed for a minimum expected operational life of 20 years but may operate for 30 to 35 years or more. As the solar field approaches the end of its operational life, it is expected that technological advances will make more efficient and cost-effective solar arrays that will economically drive the replacement of the existing solar arrays. Therefore, decommissioning of the Project shall commence after 12 consecutive months of no power generation at the facility in the absence of an explicit approval by the State of Maine to delay project decommissioning due to a showing that the project will become operational again. The facility will be removed in its entirety by no later than ninety (90) days after the end of the twelve-month period.

As defined by the Act to Ensure Decommissioning of Solar Energy Developments (35-A M.R.S §§ 3491 through 3496, "the Act"), there are 7.68 acres of Farmland area on the Project site as the entire site has been utilized for agricultural purposes within at least the last five years.

This decommissioning plan shall be binding upon the Applicant, Permittee and their successors and assigns and they shall:

- Be responsible for all decommissioning costs;
- Obtain any additional permits required for the decommissioning, removal, and legal disposal of Project components prior to commencement of decommissioning activities;
- Remove and dispose of all above-ground infrastructure, including arrays, inverter structures, concrete foundations and pads, and fences, and grade and revegetate in accordance with permits and in compliance with all applicable rules and regulations then in effect governing the disposal thereof;
- Remove and dispose of rack support posts and buried collector cables or abandon them in place as allowed;
- Remove all hazardous materials and transport them to be disposed of by licensed contractors at an appropriate facility in accordance with rules and regulations governing the disposal of such materials; and
- Removed materials shall be recycled and/or salvaged to the maximum extent practical and all waste streams shall be managed in accordance with the State of Maine's solid waste requirements.

Decommissioning means the physical removal of all Project components to a depth of at least 48 inches or to the depth of bedrock, whichever is less, to the extent such components are not otherwise in or proposed to be placed in productive use or otherwise authorized to remain in place by the Maine Department of Environmental Protection. Decommissioning also includes the grading to postconstruction grade and revegetation of all earth disturbed during construction and decommissioning, except for areas already restored.

The decommissioning and restoration processes consist of the removal of above-ground structures; grading, to the extent necessary; restoration of topsoil (if needed) and seeding. The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling and disposal. The Project consists of numerous materials that can be recycled, including steel, aluminum, glass, copper and plastics. In the interest of increased efficiency and minimal transportation impacts, components and material may be stored on-site until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, or disposal. Above-ground structures include the panels, racks, inverters, pads and any interconnection facilities located on the property. At the time of decommissioning, a plan will be submitted for continued beneficial use of any components to be left on site, including roads.

Estimated Costs of Decommissioning

The estimated costs for decommissioning the Penley Corner Solar Project are provided below in Table 1. These estimates are based on the following assumptions:

- While it is not possible to estimate the future costs of decommissioning with any precision, given the costs and salvage values of components today it is reasonable to assume that the cost of decommissioning the solar arrays will be at least somewhat offset by the salvage value of the solar panels and components.
- The baseline estimated costs for decommissioning activities are based on the New York State Energy Research and Development (NYSERDA) guidance document entitled “Decommissioning Solar Panels”.
- Agricultural fencing will be removed to be sold or recycled.
- Racking system will be cut, stacked, and recycled.
- Racking posts will be removed, stacked and recycled.
- AC and DC wiring that is able to be disconnected and removed will be consolidated for recycling. Buried conductors and PVC conduit that would require substantial soil disturbance for removal is excluded.
- One site power poles and medium voltage wiring will be removed.
- Disturbed areas will be backfilled and compacted, then reseeded.

Table 1: Estimated Decommissioning Costs for Penley Corner Solar Project (1 MWac)

Remove Rack Wiring	$1,920
Remove Panels	$1,920
Dismantle Racks	$9,650
Remove Electrical Equipment	$1,440
Breakup / Remove Concrete Pads	$1,200
Remove Racks	$6,100
Remove Cable	$5,070
Remove Ground Screws and Power Poles	$10,800
Remove Fence	$3,870
Grading	$3,120
Seed Disturbed Areas	$195
Truck to Recycle Center	$1,755
TOTAL:	**$47,040**

Financial Assurance and Site Restoration Funding

The total estimated decommissioning cost will be fully funded by the Applicant before construction commences. These funds may be in the form of a performance bond, surety bond, irrevocable letter of credit, or other acceptable form of financial assurance (Financial Assurance).

The decommissioning cost estimate fifteen years after approval of the decommissioning plan, and no less frequently than every five years thereafter. Financial assurance updates must be submitted to the permitting entity by December 31 of the required year. The Financial Assurance will remain in place until the decommissioning work has been completed.

ATTACHMENT 10
OPERATIONS AND MAINTENANCE PLAN

OPERATIONS AND MAINTENANCE MANUAL

1. ARRAY INSPECTION (MODULES, RACKING, SOURCE CIRCUIT WIRE MANAGEMENT & EQUIPMENT GROUNDING)

1.1. Visual Inspection

1.1.1. Module clamps – sample 20% per year to verify clamping locations are secure and sound, so that 100% is inspected every five years. Verify torque of bolts

1.1.2. Rack hardware – sample 20% per year to confirm hardware is in place and tight, so that 100% is inspected every five years

1.1.3. PV modules – verify modules are damage free and watertight, glass is clean and not fractured, back sheet free of damage and shows no discoloration, and module frame remains ridged

1.1.4. Foundation – verify foundation remains erosion free and all metal parts are corrosion free. Verify foundation is properly embedded, with no visible soil erosion or voids

1.1.5. inspection/physical vibration check:

1.1.5.1. Excessive range of motion indicates loose bolts, binders, heads, clamps, modules

1.1.5.2 signs indicate loose bolts

1.2. Electrical Inspection

1.2.1. Source circuit wire management – verify no sagging, strained, disconnected or damaged wires, connectors, and/or inline fuses

1.2.2. Verify equipment grounding is present, secured, and corrosion free

1.2.3. Verify exposed electrical raceways and supports are damage free and corrosion free

1.3. Mechanical Inspection

1.3.1. Periodic inspection of drive shafts, couplers, universal joints and PVC support sleeves to check for wear to components, such as sleeve and coupling hardware, or movement of shaft in excess of design margin (randomized inspection of up to 5% per visit)

2. COMBINER INSPECTION

2.1. Visual Inspection

2.1.1. Exterior inspection, verify that:

(a) Exterior enclosure is free from damage, rust, peeling paint, scratches and dents

(b) Mounting structure and supports have no signs of fatigue

(c) Exposed PVC conduits have no signs of damage, bleaching, cracking, and brittleness and are properly secured

(d) Metallic conduits have no signs of damage or corrosion and are properly secured

(e) Signage is present and legible as documented in as-built drawings

(f) Weatherproofing is functional and intact

(g) Where visible, Equipment grounding is secure and corrosion free

2.1.2. Interior inspection

(a) Perform thermal imaging on all overcurrent protection devices (OCPD) and ~~bolted electrical connections~~ including all terminations with combiner operating at a minimum of 40% of Imp.

(b) Inspect for signs of discoloration and overheating at all conductor terminations and over current protection

(c) Inspect for signs of condensation and verify condensation discharge valve is clear and passable

(d) Inspect surge protection device – verify inspection window of SPD shows appropriate identifier

(e) Verify conductor labeling – present and legible

(f) Inspect seal lacquer (“torque seal”) – visible and unbroken

(g) Weatherproofing – confirm sealing of door gaskets

(h) Verify watertight fittings secure – sealing and tight

(i) Inspect sealing compound in conduits/weatherheads

(j) Inspect and remove insect detritus/nests

(k) Inspect for moisture penetration, identify source if present and remedy

(l) Verify equipment grounding is secure and corrosion free

(m) ~~Verify array map and rack identification is located on combiner door~~. Verify conductor labeling is present and legible

2.2. Electrical inspection

2.2.1. Perform ~~equipment~~ combiner box grounding continuity on 20% per year, so that 100% is inspected every five years

2.2.2. Record Voc of each string w/cell temperature and irradiance.

2.2.3. Visually Confirm and correct terminal torque settings for both sides of all fuse holders, grounded (negative) terminal bar, grounding bar, PV output circuit

2.2.4. Exercise main disconnect switch

3. INVERTER DC DISCONNECT AND INVERTER AC DISCONNECT

3.1. Visual inspection

3.1.1. Exterior inspection

(a) Verify that exterior enclosure is free from damage, rust, peeling paint, scratches and dents

(b) Verify that mounting structure and supports have no signs of fatigue

(c) Verify that exposed PVC conduits have no signs of damage, bleaching, cracking, and brittleness and are properly secured

(d) Verify that signage is present and legible as documented in as-built drawings

(e) Verify that weatherproofing is functional and intact

(f) Where visible Verify that equipment grounding is secure and corrosion free

3.1.2. Interior inspection

(a) Inspect for signs of discoloration and overheating at all conductor terminations and over current protection

(b) Inspect for signs of condensation and verify condensation discharge valve is clear and passable

(c) Inspect surge protection device – verify inspection window of SPD shows appropriate identifier

(d) Verify conductor labeling is present and legible

(e) Inspect seal lacquer ("torque seal") to confirm it is visible and unbroken

(f) Weatherproofing – confirm sealing of door gaskets

(g) Verify watertight fittings are secure – sealing and tight

(h) Thermal imaging of all overcurrent protection devices (OCPD) and ~~bolted electrical connections~~

(i) Inspect and remove insect detritus/nests

(j) Perform thermal imaging on all overcurrent protection devices (OCPD) and bolted electrical connections with switch operating at a minimum of 40% of Imp (DC) or nominal operating current (AC)

3.2. Electrical inspection

3.2.1. Perform disconnect ~~equipment~~ grounding continuity on 20% per year so that 100% is inspected over five years

3.2.2. visually Confirm ~~and correct terminal~~ torque settings for bolted terminals

3.2.3. Exercise each switch

4. INVERTERS

4.1. Visual inspection

4.1.1. Exterior Inspection

(a) Verify that pad is level and any conduit is sound and secure

(b) Inspect for corrosion on all metal parts

(c) Verify that signage is present per as-built drawings and legible

(d) Listen for abnormal sounds while running and during contactor action.

(e) Inside enclosure physical inspection and cleaning

(f) Inspect and remove any insect detritus/nests

(g) Check exterior for corrosion and upon request by Owner perform needed repairs

(h) Clean air intake panels

(i) Remove upper and lower air intake panes: kick plate and air duct intake

(ii) Using brush and vacuum clean the air intakes of the upper and lower panels

(iii) Reinstall upper and lower air intake panels

(iv) Door and latch check

(v) Check seals on door by observing areas under pressure

(vi) Use talcum, Vaseline or wax to maintain seals as permitted by manufacturer

(i) Verify exposed conduits, junction boxes and switchgear are securely mounted

(j) Verify signage is present per OEM requirements and as-built drawings and is legible

4.1.2. Interior Inspection

(a) Remove dirt and dust from the interior of the switch cabinet and from all assemblies (e.g. DC switch-disconnector and AC circuit breaker) with vacuum and dry lint free cloth

(b) Check for leaks. If leaks are present, fix the leaks

(c) Thermal imaging of all overcurrent protection devices (OCPD) that are easily and safely accessible while the unit is running at a minimum of 40%

(d) Verify that caulking (typically foam) is in place at conduit entrance/exit points

4.2. Electrical Inspection

4.2.1. Check for signs of discoloration and overheating at all bolts and terminations

4.2.3. Check the surge arrester.

4.2.4. Inspect wire for abrasion damage especially at conduit entry points

4.2.5. Check for any discoloration of wire insulation, fuse holder, inside box, etc.

4.2.6. Verify that wire labels are intact

4.2.7. Verify wire colored/marking tape is intact

4.2.8. Inspect for moisture and corrosion on terminals

4.2.9. Check locking devices, door stops and hinges

(a) Open and shut door to verify latch, and closing action

(b) Lubricate hinges and latching elements as per manufacturer instructions

(c) Inspect seal lacquer ("torque seal") – visible and unbroken

4.2.10. Verify fans are working

4.2.11. Visually Confirm terminal torque settings for bolted terminals

4.2.13. Confirm switches operations

4.2.14. Visually inspect inverter grounding continuity

5. TRANSFORMER

5.1. Exterior Inspection, confirm:

5.1.1. Oil Level

5.1.2. Oil pressure

5.1.3. Oil Temperature

5.1.4. Oil leaks

5.1.5. Disconnect switch and drain valve secured by lock or special tool required for access

5.1.6. Inspect welded and painted seams transformer tank, radiators, cover and other parts for rust formation.

5.2. Interior Inspection, confirm:

5.2.1. All Primary and Secondary cable terminations

5.2.2. Leaking bushings and spades

5.2.3. Conduct oil sampling and testing per NETA standards after first three months of operation and every three years thereafter, unless test results recommend more frequent sampling

5.2.4. Inspect all welded seams and earth connections.

5.2.5 Perform thermal imaging on electrical connections with transformer operating at a minimum of 40% of nominal operating current

6. GANG OPERATED AIR BREAK SWITCH

6.1. Perform visual inspection

6.2. Confirm switch Operation

6.3. Perform greasing of all mechanical and electrical connections as recommended by manufacturer

6.4 Verify grounding is present and corrosion free

7. MONITORING COMMUNICATION EQUIPMENT

7.1. Verify data monitoring operation, internet connectivity, and backup power supply functionality. Replace battery(ies) as recommended by OEM or when below 80% capacity.

8. SENSOR MAINTENANCE PROCEDURES

Periodically and ideally at each site visit, clean the Pyranometer(s) using water, rubbing alcohol or window cleaner. Never use an abrasive cleaner on the lens. Verify orientation and attachment of pyranometers and module temperature sensors and Met station.

8.1. Pyranometers. Replacement or field calibration of pyranometers every two years using a ‘working standard’ instrument that is of similar or higher quality than the pyranometer being tested. This comparison is done under a clear sky with the sun

near zenith. Any pyranometers removed for repair or replacement shall be replaced with a new pyranometer.

8.2. **Irradiance Sensor**. Annual physical inspection or as otherwise indicated. Recalibration not required unless physical damage has occurred. Physical inspection to occur annually. Cleaning as recommended by manufacturer or if module cleaning is performed.

8.3. **Ambient Temperature Sensor**. Annual physical inspection or as otherwise indicated. Recalibration not required. Upon request by Owner, replace if physical damage has occurred. Physical inspection occurs annually. Cleaning is recommended by manufacturer if module cleaning is required.

8.4. **Module Temperature Sensor**. Annual physical inspection or as otherwise indicated. Verify adhesion to module. Recalibration not required. Upon request by Owner, replace if physical damage has occurred. Physical inspection to occur annually.

9. FENCE AND SECURITY EQUIPMENT

9.1. A perimeter fence line and gate inspection is to be performed during all scheduled and unscheduled maintenance visits. Verify all gates are secure from unauthorized entry. Upon request by Owner, if holes or defects are noted, make necessary repairs.

10. VEGETATION/EROSION/SIGNAGE MANAGEMENT

10.1. Vegetation

10.1.1. Fertilizing and Liming.

As needed per recommendations based upon analysis of soil samples taken and tested during project construction or as required to maintain vegetation growth.

10.1.2. Vegetation Control

As-needed mowing and/or grazing to maintain a height a minimum of six inches below the lowest edge of modules (or greater if required by module or racking/tracking manufacturer), or if identified as necessary by vegetation management consultant.

10.1.3. Vegetation Buffer

Maintain required vegetation buffer in accordance with the applicable ground lease.

10.1.4. Herbicide.

If permitted, applied as needed. Applied underneath modules and at base of perimeter fencing, and used in conjunction with weed-eating as needed to prevent overgrowth above panels, causing shading or growth within fence fabric.

10.1.5. Debris and Trash

Collected across the facility and in front and/or bordering residential property of the entire site at each scheduled vegetation management site visit.

10.2. Road maintenance and erosion control within array

During vegetation management site visits all erosion is identified and repaired as needed.

Silt fences installed during the construction phase shall be maintained until vegetation has recovered from site disturbance and associated permits are closed out.

Premises are reviewed periodically for management of erosion control procedures. If necessary, remediation accomplished by the addition of soil, matting and seeding.

10.3. Signage

Visually check that signage per as-built drawings is in place at each site visit and is legible; repair as necessary.

11. WARRANTY MAINTENANCE PROCEDURES

Perform the warranty maintenance services as described in the Operations and Maintenance Agreement and exhibits thereto.

Maintain an inventory of spare parts (after taking into account the initial set of spare parts acquired by Owner) in all respects in a prudent and reasonable manner and in order to support the performance of maintenance and other services hereunder.

12. UNSCHEDULED MAINTENANCE AND EMERGENCY SERVICES

12.1. Operator shall perform, or designate a Subcontractor to perform, all unscheduled maintenance and emergency services and is responsible for labor and materials as a result thereof.

12.2 Operator shall comply with all requirements of the Police and Fire Departments regarding emergency access to the job site, including snow removal.

13. MANUFACTURER'S MAINTENANCE AND CALIBRATION REQUIREMENTS

The manufacturer's recommended maintenance and calibration requirements are the baseline for operations and maintenance of the inverters, combiners, trackers (if applicable) and modules. The manufacturer's manuals are attached as Attachment 1 to this manual.

14. MAINTENANCE SCHEDULE

	SECTION REF.	SERVICE DESCRIPTION	SERVICE FREQUENCY/RESPONSE TIME
MODULES, RACKING, EXTERNAL WIRING			
	1.1	Visual inspection of modules, rack, external wiring (source circuits & equipment grounding), and removal of any animal nests that interfere with productivity	1X per year
	1.2	Electrical inspection of modules, rack, external wiring (source circuits & equipment grounding)	1X per year
	1.3	Mechanical inspection of drive shafts, couplers, universal joints and PVC support sleeves	Whenever on site
COMBINERS			
	2.2	Visual inspection of combiners	1X per year
	2.3	Electrical inspection of combiners	1X per year
INVERTER EQUIPMENT DISCONNECTS			
	3.1	Visual inspection	1X per year
	3.2	Electrical inspection	1X per year
INVERTERS			
	4.1	Visual inspection	1X per year
	4.2	Electrical inspection	1X per year

TRANSFORMER			
	5	Physical inspection and maintenance	2X per year
GANG OPERATED AIR BREAK SWITCH			
	6	Physical inspection and maintenance	2X per year
MONITORING COMMUNICATION EQUIPMENT			
	7	Verify communication equipment	Monthly
SENSOR MAINTENANCE PROCEDURES			
	8.1	Pyranometers	Every other year
	8.2	Irradiance sensor	As indicated, but at least 1x per year
	8.3	Ambient temperature sensor	As indicated, but at least 1x per year
	8.4	Module temperature sensor	As indicated, but at least 1x per year
FENCE AND SECURITY EQUIPMENT			
	9.1	Physical inspection or by remote monitoring, as applicable	Fence perimeter checked during all scheduled and unscheduled maintenance visits.
VEGETATION/EROSION/SIGNAGE MANAGEMENT			
	10.1.1	Fertilizing and liming	As recommended based upon soil sample testing
	10.1.2	Mowing, grazing, and reseeding	Mowing no more than twice a year and/or grazing as allow by Maine BMPs. Reseeding each Spring if necessary.

	10.1.3	Herbicide	As-needed
	10.1.4	Debris and trash collection and removal	At each scheduled vegetation management site visit
	10.2	Road maintenance and erosion control	As-needed or in conjunction with vegetation management procedures
	10.3	Signage inspection and repair	At each site visit
WARRANTY MAINTENANCE PROCEDURES			
	11	As indicated per manufacturer's manuals and/or warranties	Refer to manufacturer's manuals and warranties
CONTRACTUAL OBLIGATIONS			
	12	Reporting obligations	Monthly, Quarterly and Annually
	12	Maintain list of components and allocated spares (if any), with serial numbers	Incorporated into monthly report
	12	Report incidents resulting in injury to persons or damage to the project	Within 3 days of incident
CALIBRATION PROCEDURES			
	13	See manufacturer's recommendations	As indicated per manufacturer

ATTACHMENT 11
INSPECTION AND
MAINTENANCE PLAN

EROSION AND SEDIMENTATION CONTROL INSPECTION AND MAINTENCE PLAN

PENLEY CORNER SOLAR PROJECT

Penley Corner Road
Auburn, Maine

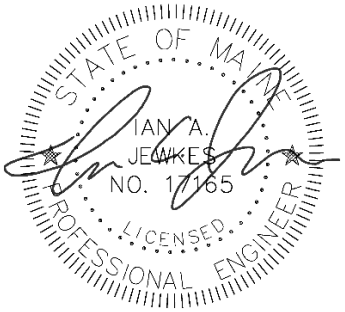
Prepared For:
BlueWave Solar

BLUEWAVE

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Date:
December 13, 2024



KREBS & LANSING

Table of Contents

1.0 – Introduction Page 1

2.0 – Project Description Page 1

3.0 – Required Permits Page 2

4.0 – Responsible Parties Page 2

5.0 – Inspection and Maintenance Page 3

5.1 – During Construction Page 3

5.2 – Post-Construction Page 4

6.0 – Housekeeping Standards Page 6

7.0 – References Page 6

List of Appendices

Appendix A – Plans

Appendix B – Construction Inspection Forms

Appendix C – Erosion and Sediment Control Measures Inspection Frequency

Appendix D – Recommended Inspection and Maintenance for Stormwater Management Structures

Appendix E – Housekeeping Performance Standards

KREBS & LANSING

Section 1.0 – Introduction

The following plan outlines anticipated inspection and maintenance procedures for the proposed erosion and sediment control measures, as well as stormwater management systems for the proposed Penley Corner Solar project. This document also outlines several housekeeping requirements that shall be followed by the Contractor(s) and Project Owner during and after construction. The described procedures must be followed to ensure proper function of the stormwater measures as designed and to mitigate the risk of adverse impacts to the natural environment in the vicinity of the project.

This plan and the project design have been prepared in accordance with the 06-096 Maine DEP Chapter 500 Stormwater Management Rules and the Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual. In some instances, there may be additional measures required beyond what has been presented, due to the risk of unexpected conditions or unknown variables on the project site. If necessary, refer to the most recent edition of the Maine Erosion and Sediment Control BMP manual and/or the Maine Stormwater Management Design Manual published by Maine DEP.

Section 2.0 – Project Description

The proposed project is a 0.99 MW AC solar-generation facility located in Auburn on an existing agricultural field off Penley Corner Road, which is the access point for the project. The project proposes to construct a 16’ wide gravel road as an access road into the site along the eastern limits of the parcel, along an existing farm access road. For more information about the project, the site plans and project details can be found attached to this plan in Appendix A.

The development of the project site includes general construction work such, installation of project fences, construction of gravel access roads and temporary construction entrances, use of temporary staging areas, and other typical construction activities. No tree clearing is required for the project, and environmental impacts have been avoided to the greatest extent possible. Specific tasks needed for the solar array construction include driving of support posts and construction of solar panel racking, installation of solar panels, construction of equipment pads/ installation of project transformers and inverters, trenching for underground conduit, and installation of power poles for overhead collection lines. Restoration of disturbed areas will occur throughout construction as well as final stabilization after the construction of the project is complete.

In addition, the project will utilize temporary erosion and sediment control BMPs during construction, with the proposed permanent stormwater management structures providing treatment and control during the operational life of the project. Construction of the project will be phased as such that no more than 5 acres of land are disturbed at any one time on the project site. Any disturbed areas within the active construction area will be stabilized before a

new phase of construction will commence. Refer to Appendix A for supporting site plans and details associated with the proposed erosion, sediment control, and stormwater BMPs to be utilized during and after construction.

Section 3.0 – Required Permits

The following is a list of Municipal, State and Federal Permits required for the proposed solar project.

Municipal

Town of Auburn Site Plan Permit

State of Maine

Stormwater Management Law – Permit by Rule

Federal

None

Section 4.0 – Responsible Parties

Space provided below for future determination of responsible parties.

Plan Preparer/ Project Design Engineer:	Ian A. Jewkes, Maine PE #17165 Krebs and Lansing Consulting Engineers, Inc. 164 Main Street, Suite 201 Colchester, Vermont 05446 (802) 878-0375
Project Developer:	BlueWave Solar 501 Boylston Street, Floor 10 Boston, Massachusetts 02116
General/ Civil Contractor:	_____ _____ _____ _____ _____

Third Party Inspector _____
_____
_____
_____
_____

Post-Construction Stormwater Inspector: _____
_____
_____
_____
_____

During construction the General/ Site Contractor will be responsible for implementing the erosion and sediment control BMPs as laid out on the site plans, as well as inspection and routine maintenance of the BMPs to verify their integrity and ensure proper function. The owner will retain a third-party inspector to perform weekly inspections of the erosion and sediment control BMPs during construction, including documentation using the attached inspection forms (Appendix B).

Post-construction stormwater BMPs inspection, maintenance, reporting and required recertification will be the sole responsibility of the Owner(s) or their representatives.

Section 5.0 – Inspection and Maintenance

- **Section 5.1 – During Construction**

  During the construction process, inspection and maintenance of erosion and sediment controls is an important part of keeping the construction site in good condition and identifying early signs of potential erosion and sediment control problems. During construction it is the Contractor's responsibility to ensure that the outlined erosion and sediment control BMPs are in place before construction begins, and to ensure that they remain in working order throughout the remainder of construction activities and until permanent stabilization has been achieved. These BMPs should be inspected at least once a week, as well as within a 24-hour window both before and after a storm event i.e. rainfall, and before removal of the BMPs after permanent stabilization has been achieved. These inspections should be performed by someone who is knowledgeable of erosion control measures, Maine DEP stormwater standards, and any applicable conditions associated with the project permit(s).

  If it is determined that the BMPs need to be maintained or repaired, the repair work should begin reasonably soon after discovery of the problem, but no later than the end

of the next work day. If additional BMPs or significant modifications are deemed necessary, the work should be completed within 7 calendar days, or before any predictable storm events within that time frame, if it is reasonable to do so.

The Contractor should be diligent in documentation and record-keeping of any inspection and maintenance tasks performed. The inspection forms attached in Appendix B should be used to record any major observations or corrective actions taken, including the name and qualifications of the person performing the inspection, and the date the inspections or corrections were performed. A log of the inspection forms should be maintained by the project Owner for at least five years following the completion of permanent stabilization and removal of the temporary erosion and sediment control measures. A copy of this log must be available to the Maine DEP upon request.

Some of the site-specific erosion and sediment control BMPs proposed to be used on site include, but are not limited to, the following;

- Sedimentation Barriers (Silt Fence, Sediment Control Rolls/Socks & Erosion Control Mix Berm)
- Stabilized Construction Entrance
- Temporary Construction Staging Area
- Slope Stabilization Blanket
- Stone Check Dam
- Temporary or Permanent Grass/Stone Lined Swales

More details on activities related to the inspection and maintenance of specific BMPs, as well as the frequency of such activities, can be found in Appendix C.

- **Section 5.2 – Post-Construction**

The long-term operation and maintenance of stormwater management systems is essential to the proper function of these systems as they were designed. Although the site will have been stabilized, the risk of erosion or other adverse environmental impacts could still be present if these systems were to fail and the stormwater runoff from the developed areas was not managed properly. Continued inspections and maintenance after the completion of construction will be carried out to verify BMPs stay in effective operating condition.

Any identified problems should be fixed as quickly as reasonably possible. The inspections, as well as any corrective actions taken, should be documented using the attached post-construction inspection forms found in Appendix B. This documentation should include the name and qualifications of the person performing the inspection, the date the inspections or corrections were performed, and a description of the major observations and any corrective action taken, including where sediment deposits or

waste were properly disposed of, if applicable. A log of the inspection forms should be maintained by the project owner for at least five years following the completion of the relevant work. A copy of this log must be available to the Maine DEP upon request.

Some of the site-specific stormwater BMPs proposed to be used on site include the following;

- Vegetated Meadow Buffers

At a minimum, the following inspections should be done seasonally on site by the owner or their designated representative who is familiar with the design, stormwater management BMPs and project permits, as well as any conditions which apply.

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.
- Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after heavy rains to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.
- Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet. There are not culverts proposed for this project but there are some on site which should be reviewed seasonally.
- Inspect resource and treatment buffers once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turnouts must be used to ensure a more even distribution of flow into a buffer. Check down slope of all spreaders and turnouts for erosion. If erosion is present, adjust or modify the spreader's or turnout's lip to ensure a better distribution of flow into a buffer. Clean out any accumulation of sediment within the spreader bays or turnout pools.

In addition to any maintenance needs which may arise on site from the quarterly inspections, the following maintenance must be performed regularly on site.

- Grading of gravel roads, or grading of the shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder.
- Manage vegetated meadow buffers. The meadow area within and underneath the solar array racking will be maintained as the designated meadow buffer treatment areas, and is proposed to be mowed no more than twice per year.

For more details on specific inspection and maintenance actions for stormwater management systems, as well as recommended inspection frequency, see Appendix D.

Section 6.0 – Housekeeping Standards

The recommended housekeeping performance standards, as found in the Maine DEP Chapter 500 Stormwater Management Rules are attached to this plan in Appendix F. The applicable standards apply to the proposed project both before and after construction. We have also outlined them on the plan details in Appendix A of this submission.

Additional care should be taken to maintain the environmental integrity of the site and avoid undue environmental impacts outside of the limit of disturbance associated with the project. Importance should be placed on maintaining respect for abutting properties and the local surroundings in order to mitigate the impact that development could have in a previously natural/ agricultural landscape.

Section 7.0 – References

The following sources were utilized in development of the stormwater design and inspection and maintenance plan.

- Stormwater Management Law 38 M.R.S. §420-C and §420-D
  http://legislature.maine.gov/statutes/38/title38sec420-C.html
  http://legislature.maine.gov/statutes/38/title38sec420-D.html

- 06-096 Chapter 500 – Stormwater Management
  http://www.maine.gov/sos/cec/rules/06/096/096c500.docx

- General Permit – Construction Activity
  Maine Pollutant Discharge Elimination System (MPDES)
  https://www.maine.gov/dep/land/stormwater/construction.html

- Maine Erosion and Sediment Control Best Management Practices (BMPs)
  Manual for Designers and Engineers
  https://www.maine.gov/dep/land/erosion/escbmps/esc_bmp_engineers.pdf

- Maine Stormwater Best Management Practices (BMPs) Manual
  https://www.maine.gov/dep/land/stormwater/stormwaterbmps/

- Five-year Recertification for Long-term Maintenance
  of Stormwater Management Systems
  https://www.maine.gov/dep/land/stormwater/stormwaterbmps/five-year-recertification.html

Appendix A

See Attached Plans Provided with Permit by Rule Submission

C-1.00 - Overall Site Plan

C-1.01 Ex. Conditions Plan

C-2.00 – Pre-Development Drainage Plan

C-2.01 - Post-Development Drainage Plan

C-3.00 - Phasing Plan

C-4.00 - Erosion and Sediment Control and Stormwater Details

C-4.01 - Erosion and Sediment Control and Stormwater Details

Appendix B

Construction Inspection Forms

CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL					
General Information:					
Site Name:	Date:		Inspected by:		
Owner:					
Retained 3PI:	Last Rain Date:			Amount:	
Reason for Inspection:	Weekly	Winter	Final	Rain Event	Complaint
Description of disturbed area:					
Photos:					

	YES/NO/NA	COMMENTS
1. Is an Erosion and Sediment Control Plan available?		
ESC plan on-site and followed		
Other:		
2. Are all erosion control practices installed properly, maintained and functioning?		
Disturbed areas stable		
Concentrated flow inlet/outlet protection		
All areas at final grade		
Disturbed dormant areas stabilized		
Access roads and parking		
Hillsides and stockpiles		
Other:		
3. Are all sedimentation control practices installed properly, maintained and functioning?		
Construction entrance		
Sedimentation basins/traps/diversions		
Perimeter controls		
Check dams		
Other:		
4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?		
Sedimentation/erosion in ditches		
Tracked Sediment or dust at exits		
Hazardous material storage and spill control practices		
Waste management (concrete, hazardous material, etc.)		
Other:		
5. Violation, Corrective Actions, Recommendations		
Sediment discharged from site?		
Corrective action required?		
Site compliant with all permits?		
Notice of violation or stop work order issued?		
Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day)		

Appendix C

Erosion and Sediment Control Measures
Inspection Frequency

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized–channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

CATCH BASIN SYSTEMS			
Catch basins are built properly	X		
Accumulated sediments and debris are removed from sump, grate and collection area		X	X
Floating debris and floating oils are removed from trap			X
ROADWAYS AND PARKING SURFACES			
The gravel pad at the construction entrance is clear from sediments	X	X	
Roads are crowned		X	X
Cross drainage (culvert) is provided	X		
False ditches (from winter sand) are graded		X	X
BUFFERS			
Buffers are free of erosion or concentrated flows		X	X
The downgradient of spreaders and turnouts is stable		X	X
Level spreaders are on the contour			X
The number of spreaders and ditch turnouts is adequate for flow distribution		X	X
Any sediment accumulation is removed from within spreader or turnouts		X	X
STORMWATER BASINS AND TRAPS			
Embankments are free of settlement, slope erosion, internal piping, and downstream swamping		X	X
All flow control structure or orifices are operational and clear of debris or sediments		X	X
Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained		X	X
Vegetated filters and infiltration basins have adequate grass growth			X
Any impoundment or forebay is free of sediment		X	X
WINTER CONSTRUCTION (November 1st-April15th)			
Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow)	Daily		
A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground)	Daily		
Newly constructed ditches are riprapped	Daily		
Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix	Daily		
HOUSEKEEPING PUNCH LIST			
All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover)			X
All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc.			X
All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.)			X
All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc.			X

Appendix D

Recommended Inspection and Maintenance for Stormwater Management Structures

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)

	INSPECTION SCHEDULE	CORRECTIVE ACTIONS
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodge
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCH BASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.

Vegetated Buffer Maintenance:
Buffers should be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched.

- *Mowing:* Meadow buffers may be mown no more than twice per year. They may not be maintained as a lawn.
- *Access and Use:* Buffers should not be traversed by all-terrain vehicles or other vehicles. Activities within buffers should be conducted so as not to damage vegetation, disturb any organic duff layer, or expose soil.
- *Model Maintenance Plan:* The following techniques should be followed to maintain the integrity of buffers from initial planning through post-construction:
  - *Planning Stage:*
    - ✓ Require buffer limits on all clearing/grading and erosion control plans.
    - ✓ Record all buffer boundaries on official maps and site plans.
    - ✓ Clearly establish acceptable and unacceptable uses for the buffer, and include these uses in deed restrictions and conservation easements.
    - ✓ Establish clear vegetation targets and management rules for the buffer.
    - ✓ Provide incentives for owners to protect buffers through perpetual conservation easements rather than deed restrictions.
  - *Construction Stage:*
    - ✓ Pre-construction stakeout of buffers to define the Limit of Disturbance (LOD).
    - ✓ Set LOD based on drip-line of the forested buffer.
    - ✓ Familiarize contractors with LOD and buffer limit.
    - ✓ Mark the LOD with barriers or signs to exclude construction equipment.
  - *Post-Development Stage:*
    - ✓ Mark buffer boundaries with permanent signs (or fences) describing use.
    - ✓ Educate property owners/homeowner associations on the purpose, limits and allowable uses of the buffer.
    - ✓ Conduct periodic "buffer walks" to inspect the condition of the buffer network.
    - ✓ Replant unused meadow buffers with trees and shrubs, if possible.

Level Lip Spreader Maintenance:
Long term maintenance of the level spreader is essential to ensure its effectiveness. Spreaders constructed of wood, asphalt, stone or concrete curbing also require inspection and maintenance.

- *Inspections:* At least once a year and following major storms, the level spreader pool should be inspected for sand accumulation and debris that may reduce its capacity.
- *Sediment Removal:* Sediment build-up within the swale should be removed when it has accumulated to approximately 25% of design volume or channel capacity. Dispose of the sediments appropriately.
- *Debris:* Remove debris such as leaf litter, branches and tree growth from the spreader.
- *Mowing:* Vegetated spreaders may require mowing.
- *Snow Storage:* Do not store snow within the area of the level spreader.

- *Level Spreader Replacement:* The reconstruction of the level spreader may be necessary when sheet flow from the spreader channelize into the buffer.

Appendix E

Housekeeping Performance Standards

APPENDIX C. Housekeeping

These performance standards apply to all projects except for stormwater PBR projects.

1. **Spill prevention.** Controls must be used to prevent pollutants from construction and waste materials stored on site to enter stormwater, which includes storage practices to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

   NOTE: Any spill or release of toxic or hazardous substances must be reported to the Department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the Department's website at : http://www.maine.gov/dep/spills/emergspillresp/

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. Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide for treatment within the infiltration area, in order to prevent the accumulation of fines, reduction in infiltration rate, and consequent flooding and destabilization.

   See Appendix D for license by rule standards for infiltration of stormwater.

   NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

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, but other water additives may be considered as needed. A stabilized construction entrance (SCE) should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

   NOTE: Dewatering a stream without a permit from the Department may violate state water quality standards and the *Natural Resources Protection Act*.

4. **Debris and other materials.** Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

   NOTE: To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable

provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Excavation de-watering. Excavation 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 removed from the ponded area, either through gravity or pumping, 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.

NOTE: Dewatering controls are discussed in the "Maine Erosion and Sediment Control BMPs, Maine Department of Environmental Protection."

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 Appendix (C)(3);

(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 Appendix C(5));

(k) Potable water sources including waterline flushings; and

(l) 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 Appendix C (6). 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.

ATTACHMENT 12
MAINE DEPARTMENT OF INLAND FISHERIES AND WILDLIFE

JANET T. MILLS
GOVERNOR

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

JUDITH CAMUSO
COMMISSIONER

September 19, 2023

Sean Murphy
Flycatcher LLC
Lower Falls Landing,
106 Lafayette Street, Suite 2A
Yarmouth, ME 04096

RE: Information Request – Penley Corner Road, Auburn Project

Dear Sean:

Per your request received on May 19, 2023, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Penley Corner Road, Auburn* project. Please note that as project details are lacking, our comments should be considered preliminary.

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

Endangered, Threatened, and Special Concern Species

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

Significant Wildlife Habitat

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

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

Aquatic Resources

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

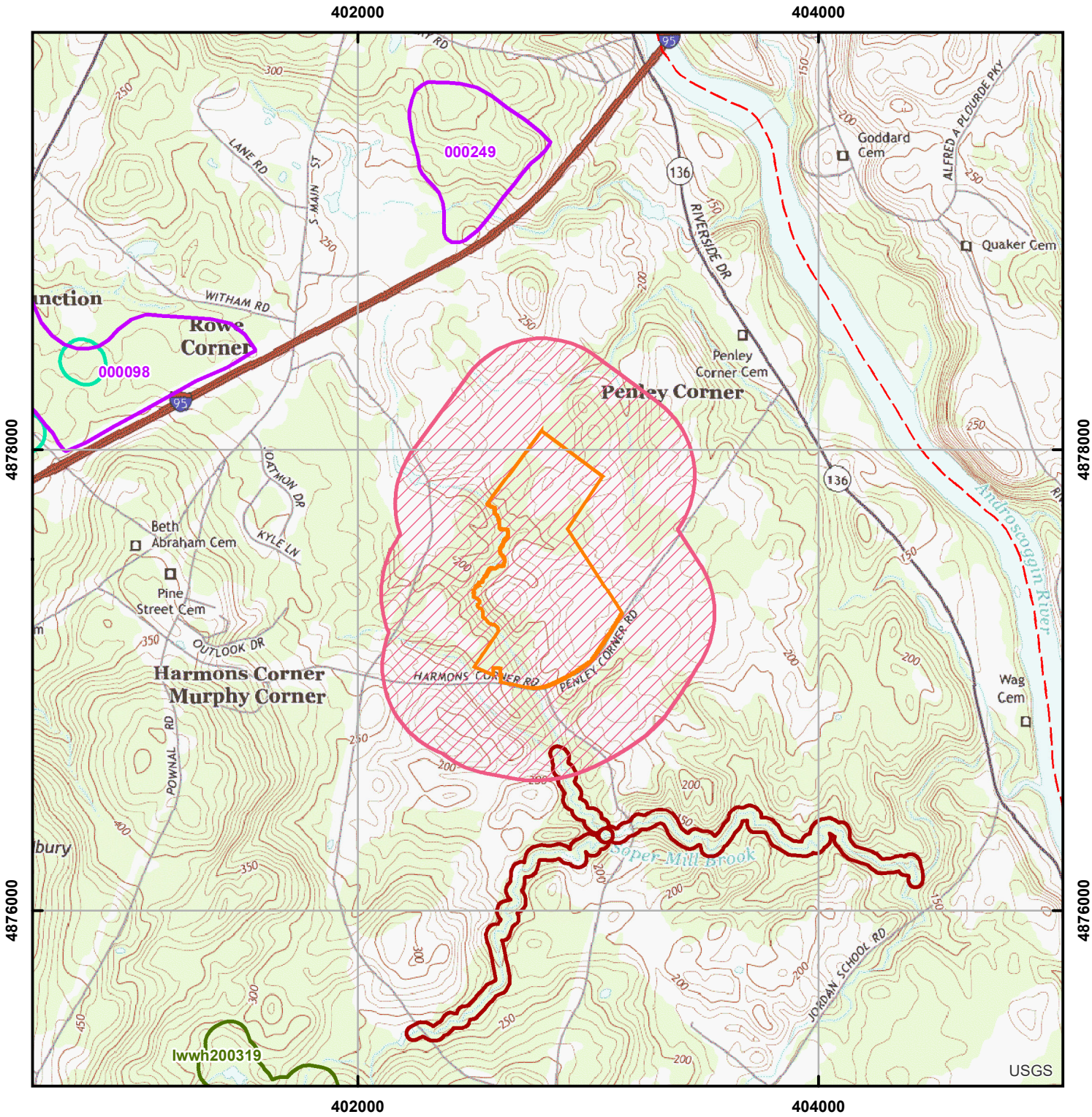
This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional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

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

Best regards,

Emily Robinson

Emily Robinson
Resource Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Penley Corner Road, Auburn (Version 1)

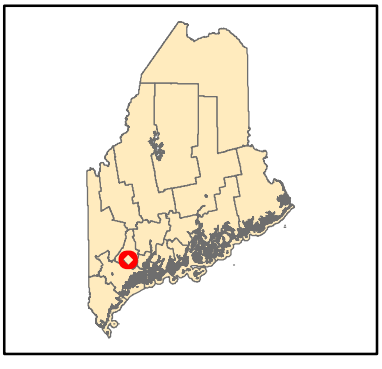
Maine Department of Inland Fisheries and Wildlife

0 0.125 0.25 0.5 0.75 1 Miles

Projection: UTM, NAD83, Zone 19N

Date: 5/31/2023

- ProjectSearchAreas - All Versions
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



ATTACHMENT 13
GEOTECHNICAL REPORT

S.W.COLE
ENGINEERING, INC.

REPORT

24-0434 S

December 12, 2024

Explorations and Geotechnical Engineering Services

Proposed Penley Corner Solar
Penley Corner Road
Auburn, Maine

Prepared For:
Soper Mill Brook, LLC
Attention: Colin Sexton
116 Huntington Avenue, Suite 601
Boston, MA 02116

Prepared By:
S. W. Cole Engineering, Inc.
37 Liberty Drive
Bangor, ME 04401
Tel: (207) 848-5714

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Scope and Purpose 1
1.2 Site and Proposed Construction 2
2.0 EXPLORATION AND TESTING 2
2.1 Explorations 2
2.2 Laboratory Testing 2
2.3 Field Soil Resistivity 3
3.0 SUBSURFACE CONDITIONS 4
3.1 Soil and Bedrock 4
3.2 Groundwater 4
4.0 EVALUATION AND RECOMMENDATIONS 4
4.1 General Findings 4
4.2 Existing Soil Properties 5
4.3 Frost Susceptibility and Protection 5
4.4 Foundations 6
4.4.1 Screw Piles 7
4.4.2 Driven Piles 7
4.5 Corrosion Protection & Cement Type 8
4.6 Limitations of Subsurface Data 9
5.0 CLOSURE 9

Appendix A Limitations
Appendix B Figures
Appendix C Exploration Logs & Key
Appendix D Laboratory Test Results
Appendix E Resistivity Test Results

24-0434 S

December 12, 2024

Soper Mill Brook, LLC
Attention: Colin Sexton
116 Huntington Avenue, Suite 601
Boston, MA 02116

Subject: Explorations, Geotechnical Engineering Services & Soil Resistivity Testing
Proposed Penley Corner Solar – Phases I and II
Penley Corner Road
Auburn, Maine

Dear Colin:

In accordance with our Proposal dated March 12, 2024, we have performed subsurface explorations for the subject project. This report summarizes our findings and evaluation and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to explore the subsurface conditions at the site, to characterize the general subsurface profile, to provide geotechnical laboratory testing, to provide a general evaluation of the frost conditions at the site, and a preliminary assessment of the site soils to support driven or screw anchor support posts of the solar panels The purpose of the soil resistivity testing is to develop parameters for use by others in the grounding design associated with the proposed construction. In accordance with the BlueWave Geotechnical Services Specification (Specification), REV 02 dated May 8, 2023, our scope of services was to perform a Phase I and Phase II site investigation including eight test pit explorations, laboratory soil testing, a preliminary geotechnical analysis of the subsurface findings based on the specification, and preparation of this report. We understand Phase III services may be performed at a later date.

1.2 Site and Proposed Construction

The site is located on the west side of Penley Corner Road in Auburn, Maine. We understand the site includes about 7.68 +/- acres of open field area. Based on the provided Preliminary Design - Civil Site Plan (Plan), dated February 29, 2024, from Krebs & Lansing Consulting Engineers, we understand the solar array is proposed to produce approximately 1.39 megawatts DC / 0.99 megawatts AC. We understand the site will be accessed from the Penley Corner Road and include an approximate 2,600-foot gravel surfaced access road. Based on the Plan, we understand the site within the development area generally slopes downward from northeast to southwest from about elevation 220 to 200 feet (project datum).

We anticipate the solar panels will be supported by driven post or screw anchor post foundation support. We understand associated electrical equipment will be supported by concrete pads. Foundation loads are unknown at this time. Details regarding proposed grading are unknown, however; we anticipate that finish grade for the solar array will be near existing grades requiring minor cuts and fills.

Proposed and existing site features are shown on the "Exploration Location Plan" attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Eight test pits (TP-1 through TP-8) were made at the site on November 15, 2024 by J&S Excavation, Inc. using a Volvo EC140 excavator under subcontract to S. W. Cole Engineering, Inc. (S.W.COLE). The test pit locations were selected by BlueWave and established in the field by S.W.COLE personnel using a mapping-grade GPS. The approximate exploration locations are shown on the "Exploration Location Plan" attached in Appendix B. Logs of the explorations and a key to the notes and symbols used on the logs are attached in Appendix C.

2.2 Laboratory Testing

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Laboratory testing was performed on select soil samples

including 4 moisture content tests (ASTM D2216), 3 gradations with hydrometer tests (ASTM D422) and 3 Atterberg Limits tests (ASTM D4318).

Two soil samples were submitted to Testing Engineers International (TEI) for determination of pH, water soluble chloride, water soluble sulfate, water soluble sulfide, reduction-oxidation potential, electrical resistivity and alkalinity testing. Also, two additional samples were tested for electrical resistivity. The results of the testing are included in Appendix D.

Additionally, testing included two moisture-density tests and two laboratory-thermal soil analyses (thermal resistivity). The results of the testing are included in Appendix D.

Moisture content test results are shown on the logs in Appendix C. The remaining laboratory test results are included in Appendix D.

2.3 Field Soil Resistivity

Two field soil electrical resistivity test spreads (AUB-ER-1 and AUB-ER-2) were performed at the site on November 19, 2024 by S.W.COLE. The test spreads included two mutually perpendicular test lines identified as A and B. The approximate locations of the test spreads are shown on the "Exploration Location Plan," attached in Appendix B.

Field soil electrical resistivity testing was performed using a fixed-center Wenner Array, with an Advanced Geosciences, Inc. (AGI) SuperSting R1 resistivity meter. We made the electrical resistivity testing at two mutually perpendicular test spreads at two separate locations at the site. Maximum A-spacing for each mutually perpendicular spread were 60 feet. Instrument settings included automatic current and voltage settings and the use of interference compensation settings (for power at 60 Hz), which helps to minimize interferences to testing from nearby electrical fields. The apparent resistivity testing results are tabulated and graphed on the Resistivity Computation Data Sheets included as Appendix E.

As shown on the Resistivity Computation Data Sheets, the apparent resistivity ranged from approximately 141 ohm-meters (Ωm) at spread AUB-ER-1B (60 foot A-spacing) to 2,646 Ωm at spread AUB-ER-1A (2.5 foot A-spacing). Variations in apparent resistivity

between test locations and spread locations are interpreted as being due to variations in surficial and bedrock geology, moisture content and depth to water, and proximal unknown interferences.

The resistivity data meets our data collection quality guidelines. The resistivity data should be reviewed by a grounding design engineer, in combination with the test pit logs, to confirm that they are acceptable for the design of the grounding grid. It should be noted that these apparent resistivity measurements may be higher during drier seasonal conditions.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

Underlying a surficial layer of topsoil, the explorations encountered a soils profile generally consisting of brown silt and clay with varying portions of sand (glaciomarine soils). The test pits were terminated in the glaciomarine soils at depths ranging from about 9.8 to 10.4 feet. A few test pits transition in color from brown to gray nearing the bottom of the exploration depth.

Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

3.2 Groundwater

Water seepage was not observed in the test pits at the time the explorations were performed. We interpret that groundwater likely correlates to the depths where the soils transition to gray in color. Groundwater likely becomes perched on the relatively impervious glaciomarine soils encountered at the explorations. Long term groundwater information is not available. It should be anticipated that seasonal groundwater levels will fluctuate, particularly during periods of snowmelt, precipitation, and changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principal geotechnical considerations include:

- Support of the proposed PV panel on post or screw anchor foundations appears feasible. The site is underlain with glaciomarine soils generally consisting of silt and clay with varying portions of sand.

- Equipment slabs bearing on properly prepared subgrades appear suitable for the proposed exterior equipment. Exterior ground slabs should be over-excavated to frost depth or insulated to protect from adverse frost action as recommended herein.

- Subgrades across the site will generally consist of silt and clay with varying portions of sand (glaciomarine soils). Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.

4.2 Existing Soil Properties

Laboratory Atterberg Limits testing indicates the silt and clay spoils are plastic, cohesive soils and therefore, direct shear testing is not appropriate. Based on our laboratory testing and field observations we estimate the following strength parameters and as shown in Appendix D:

ESTIMATED SOIL PROPERTIES				
Test Pit Location	**Soil Description**	**Sample Location**	**Estimated Total Unit Weight (pcf)**	**Cohesion (psf)**
TP-3	Silt and Clay, trace sand	S-1, 1.5-3 feet	110	1,500
TP-4	Clay and Silt, trace sand	S-2, 3-4 feet	110	1,500
TP-6	Clayey Silt, trace sand	S-5, 6-8 feet	110	1,500

4.3 Frost Susceptibility and Protection

Based on the project requirements, we understand the design freezing index is requested for a 35-year risk period for adfreeze mitigation. The design-freezing index for the Auburn, Maine area is approximately 1,450 Fahrenheit degree-days according to the National Oceanic and Atmospheric Administration (NOAA) databases, corresponding to a design frost depth of 4.5 feet. Based on the "Atlas of Freezing Depth Extremes for the Northeastern United States", from Cornell University (Publication Number RR 96-1), dated

March 1996, we interpret the 35-year frost depth to be on the order of 50 centimeters (1.6 feet) for sod covered soil. It is our opinion that the above frost penetration values of 1.6 feet above can be used to inform design relative to adfreeze. For soil supported concrete foundations, we recommend adhering to the 35-year air freezing index which corresponds with a frost depth of 4.5 feet.

Results of the laboratory gradation testing indicates the native glaciomarine soils generally have about 90 to 98 percent fines (percent passing the No. 200 sieve), including clay contents of about 24 to 49 percent, and moisture contents ranging from about 19 to 27 percent. Based on the laboratory gradation and moisture contents, the native soils have a high frost susceptibility. We recommend the posts/foundations extend at least 4.5 feet below finish grade for frost protection.

Additionally, seasonal heaving/uplift of the posts/foundations should be anticipated due to adfreeze and frost heaving. Adfreeze results when soil freezes to the post/foundation creating an adfreeze bond. When the bonded soil adjacent to the foundation heaves this can cause uplift of the pipe/foundation. We recommend the foundation designer take the potential for adfreeze and uplift into account during foundation design which will likely result in the screw-in piles extending deeper than 4.5 feet. Based on the subsurface findings encountered at the explorations, as well as the results of laboratory testing, we followed the BlueWave Solar outlined approach to classify the adfreeze risk of the site soils. Following this methodology, we interpret the site soils as having high risk for adfreeze forces with an adfreeze bond value of 15 psi. The adfreeze bond value should ultimately be determined by the foundation designer based on the selected foundation type and design.

4.4 Foundations

Based on our experience with construction of similar structures and subsurface conditions, we anticipate the solar array could be supported by a foundation system consisting of driven steel posts or ground screw piles to resist the vertical, lateral, and uplift loads.

We understand that our subsurface information provided, in conjunction with loading information from the structural engineer, will be used to design the number and capacity of piles required. The piles should be designed, installed, and load tested by a certified

subcontractor. We recommend a design phase load test be performed to verify the applicability of the piles to the specific site conditions.

4.4.1 Screw Piles

We understand design may utilize a ground-mounted system with screw pile foundation support. Piles typically consist of hot-dipped, galvanized steel to reduce the potential for corrosion. Screw piles must have a conical point and flights designed to advance through the in-situ soil conditions.

4.4.2 Driven Piles

The proposed solar panels may be supported on driven steel piles. Driven piles should ultimately be designed, sized and installed by a qualified design-build contractor. A driven pile submittal, prepared and sealed by a licensed Professional Engineer in the State of Maine and endorsed by the Pile Installer, should be provided for review by the project team.

For post foundations end-bearing on native soils, we recommend an end bearing capacity of 1 ksf. Estimated PV panel foundation parameters are shown below, the parameters are un-factored:

ESTIMATED PV PANEL FOUNDATION PARAMETERS					
Soil Description	**K_s, modulus of horizontal subgrade reaction (static loading)**	**K_c, modulus of horizontal subgrade reaction (cyclic loading)**	**Corresponding L-Pile Curve Soil Model (e.g. Reese, Matlock, etc.)**	**E_{50} for cohesive soils**	**Estimated Skin Friction Coefficients**
Native Glaciomarine Soils	500 pci	200 pci	Stiff Clay with free water (Reese)	0.007	0.5 ksf

The subsurface conditions at the site consist of glaciomarine soils that are highly susceptible to adhesion/ad-freeze (soils adhering to the sides of the driven piles when frozen) causing uplift forces on the piles when the soils frost heave. If measures are taken to create a bond break along the sides of the piles to fervent adhesion, the provided side friction values should be reduced or eliminated to discount the zone when friction will not be developed along the pile.

4.5 Corrosion Protection & Cement Type

Soil samples were submitted to TEI for determination of pH, water soluble chloride, water soluble sulfate, water soluble sulfide, reduction-oxidation potential, electrical resistivity and alkalinity testing. The results of the testing are shown below and also included in Appendix E:

Exploration & Location	pH Testing (ASTM D4972)	Chloride Testing (ASTM D1411-09)	Sulfate Testing (ASTM D516-16)	Sulfide Testing (ASTM D4658-15)	Sulfate Exposure Classification (ACI 318 Table 4.2.1)
TP-3, S-1 1.5-3 ft	5.63	Less than 10 ppm	Less than 10 ppm	340 ppb	Not Applicable S0
TP-5, S-1 1.5-3 ft	5.75	Less than 10 ppm	Less than 10 ppm	2,500 ppb	Not Applicable S0

Exploration & Location	Reduction Oxidation Potential (ASTM G200)	Electrical Resistivity (ASTM G187)	Alkalinity Testing (EPA Method 310.1)
TP-3, S-1 1.5-3 ft	126.0 mV	48,500 ohms-cm	Less than 10 ppm
TP-4, S-2 3-4 ft	N/A	7,000 ohms-cm	N/A
TP-5, S-1 1.5-3 ft	128.5 mV	8,900 ohms-cm	138 ppm
TP-6, S-2 3-4 ft	N/A	20,100 ohms-cm	N/A

N/A – Not Tested

Considering the corrosivity test results, we interpret the "10-Point System" provided in the ANSI/AWWA C105/A21.5 standard the sample score to be about 3 to 6 points. Since this value is less than 10, this indicates that the soil samples are not considered corrosive to ductile iron and cast iron.

According to the Portland Cement Association (PCA) manual Design and Control of Concrete Mixtures, Type II cement is used when concrete is to be in an environment with "negligible" to "moderate" sulfate exposure (sulfate values between 0 and 1500 ppm). Sulfate contents for the samples tested were less than 10 ppm and therefore, Type II cement is applicable.

4.6 Limitations of Subsurface Data

Test pit explorations were widely spaced and variations in subsurface conditions should be expected between explorations. The client must make a determination on if they warrant additional explorations during a later phase of the project to reduce subsurface risk presented by data gaps.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you as the project progresses.

S. W. Cole Engineering, Inc.

Nathan D. Strout, P.E.
Senior Geotechnical Engineer

NDS:cbm



APPENDIX A

Limitations

This report has been prepared for the exclusive use of Soper Mill Brook, LLC for specific application to the proposed Penley Corner Solar project on Penley Corner Road in Auburn, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

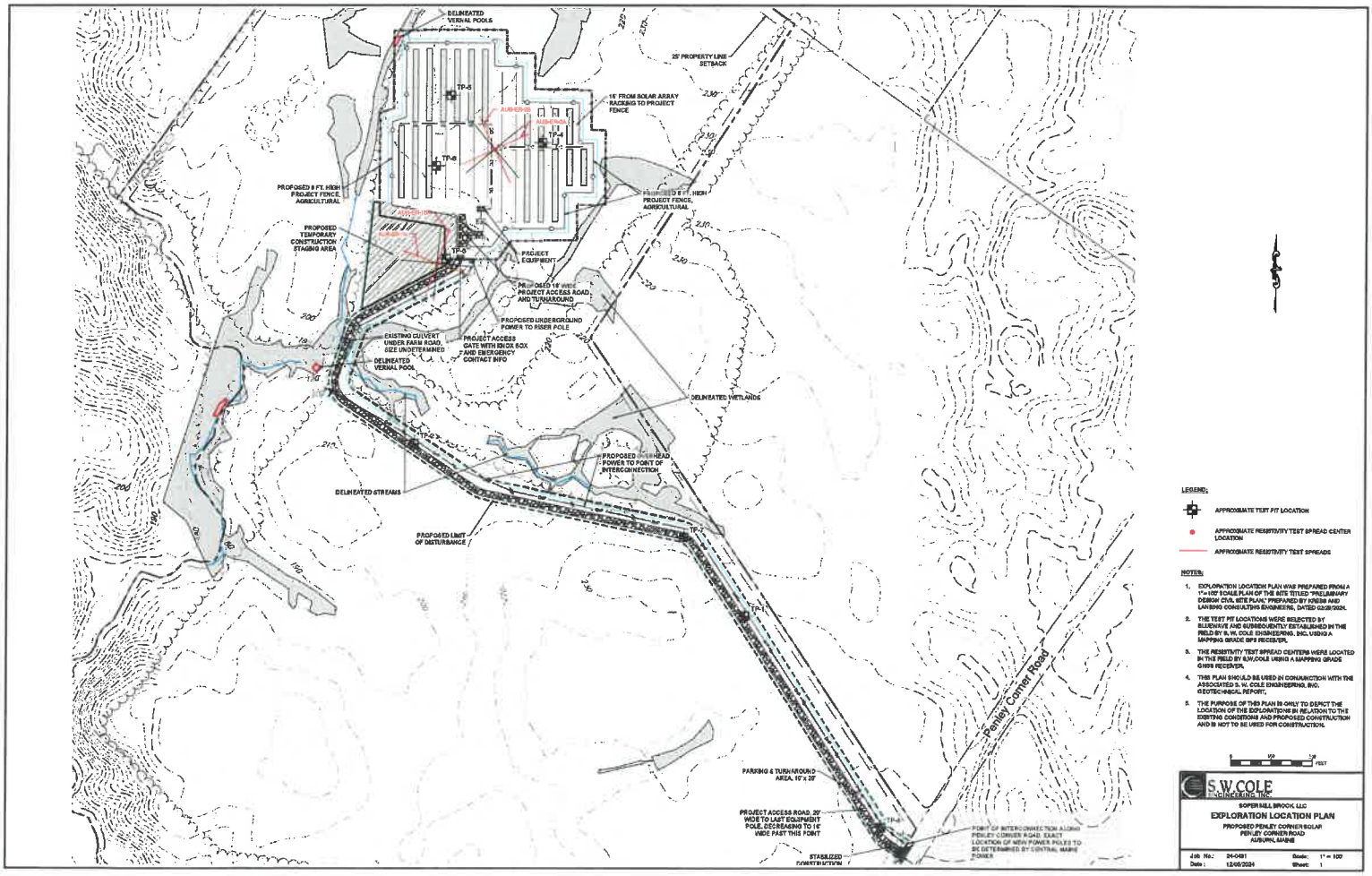
Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures


DELINEATED VERNAL POOLS
25' PROPERTY LINE SETBACK
16' FROM SOLAR ARRAY RACKING TO PROJECT FENCE
TP-5
TP-4
TP-6
AUGER-05
AUGER-04
PROPOSED 8 FT. HIGH PROJECT FENCE, AGRICULTURAL
PROPOSED 8 FT. HIGH PROJECT FENCE, AGRICULTURAL
AUGER-03
AUGER-02
PROPOSED TEMPORARY CONSTRUCTION STAGING AREA
TP-3
PROJECT EQUIPMENT
PROPOSED 16' WIDE PROJECT ACCESS ROAD AND TURNAROUND
PROPOSED UNDERGROUND POWER TO RISER POLE
EXISTING CULVERT UNDER FARM ROAD, SIZE UNDETERMINED
PROJECT ACCESS GATE WITH KNOX BOX AND EMERGENCY CONTACT INFO
DELINEATED VERNAL POOL
DELINEATED WETLANDS
PROPOSED OVERHEAD POWER TO POINT OF INTERCONNECTION
DELINEATED STREAMS
PROPOSED LIMIT OF DISTURBANCE
TP-2
TP-1
Penley Corner Road
PARKING & TURNAROUND AREA, 10' x 20'
PROJECT ACCESS ROAD, 20' WIDE TO LAST EQUIPMENT POLE, DECREASING TO 16' WIDE PAST THIS POINT
TP-01
POINT OF INTERCONNECTION ALONG PENLEY CORNER ROAD. EXACT LOCATION OF NEW POWER POLES TO BE DETERMINED BY CENTRAL MAINE POWER
STABILIZED CONSTRUCTION
LEGEND:
APPROXIMATE TEST PIT LOCATION
APPROXIMATE RESISTIVITY TEST SPREAD CENTER LOCATION
APPROXIMATE RESISTIVITY TEST SPREADS
NOTES:
1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=100' SCALE PLAN OF THE SITE TITLED "PRELIMINARY DESIGN CIVIL SITE PLAN," PREPARED BY KREMM AND LANSING CONSULTING ENGINEERS, DATED 02/28/2024.
2. THE TEST PIT LOCATIONS WERE SELECTED BY ELLENVALE AND SUBSEQUENTLY ESTABLISHED IN THE FIELD BY S. W. COLE ENGINEERING, INC. USING A MAPPING GRADE GPS RECEIVER.
3. THE RESISTIVITY TEST SPREAD CENTERS WERE LOCATED IN THE FIELD BY S.W.COLE USING A MAPPING GRADE GNSS RECEIVER.
4. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
5. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.
0
100
200
FEET
S.W.COLE ENGINEERING, INC.
SOPER MILL BROOK, LLC
EXPLORATION LOCATION PLAN
PROPOSED PENLEY CORNER SOLAR
PENLEY CORNER ROAD
AUBURN, MAINE
Job No.: 24-0481
Date: 12/05/2024
Scale: 1" = 100'
Sheet: 1

APPENDIX C

Exploration Logs and Key

TEST PIT LOGS

S.W.COLE

CLIENT: Soper Mill Brook, LLC
PROJECT: Proposed Penley Corner Solar
LOCATION: Penley Corner Road, Auburn, Maine

PROJECT NO.: 24-0434
LOGGED BY: Nate Strout
CONTRACTOR: J&S Excavation, Inc.
EQUIPMENT: Volvo EC140 Excavator

TEST PIT TP-1

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 9.8
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_2O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.4 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		0.8 Brown silty fine SAND		S-1		2-3	
		3.0 Brown fine sandy SILT					
5							

Bottom of Exploration at 9.8 feet

TEST PIT TP-2

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 10.1
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_2O Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.5 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		0.8 Brown SILT and SAND		S-1		1-3	
		3.0 Brown SILT and CLAY					
5							
		... becoming gray					
10							

Bottom of Exploration at 10.1 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
- ▽ At time of Digging
- ▼ At Completion of Digging
- ▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT 24-0434.GPJ SWCE TEMPLATE.GDT 12/11/24

TEST PIT LOGS

S.W.COLE

CLIENT: Soper Mill Brook, LLC
PROJECT: Proposed Penley Corner Solar
LOCATION: Penley Corner Road, Auburn, Maine

PROJECT NO.: 24-0434
LOGGED BY: Nate Strout
CONTRACTOR: J&S Excavation, Inc.
EQUIPMENT: Volvo EC140 Excavator

TEST PIT TP-3

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 10.3
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		0.4 Topsoil					
		0.9 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		Brown clayey SILT, some fine sand		S-1		1.5-3	ID 30986B w =24.1 % W_L=29 W_P=23
		3.0 Brown SILT and CLAY, trace fine sand		S-2		3-4	
				S-3		4-5	
5				S-4		5-6	
10							

Bottom of Exploration at 10.3 feet

TEST PIT TP-4

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 10.4
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		0.4 Topsoil					
		0.9 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		1.5 Brown SILT and SAND		S-1		1.5-3	
		Brown CLAY and SILT, trace fine sand		S-2		3-4	ID 30987B w =27.2 % W_L=38 W_P=21
				S-3		4-5	
5		... becoming gray					
10							

Bottom of Exploration at 10.4 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
- ▽ At time of Digging
- ▼ At Completion of Digging
- ▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT 24-0434.GPJ SWCE TEMPLATE.GDT 12/11/24

TEST PIT LOGS

S.W.COLE

CLIENT: Soper Mill Brook, LLC
PROJECT: Proposed Penley Corner Solar
LOCATION: Penley Corner Road, Auburn, Maine

PROJECT NO.: 24-0434
LOGGED BY: Nate Strout
CONTRACTOR: J&S Excavation, Inc.
EQUIPMENT: Volvo EC140 Excavator

TEST PIT TP-5

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 10.1
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.5 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		0.9 Brown SILT and SAND		S-1		1.5-3	ID 30990B w =19.4 %
		1.5 Brown clayey SILT, trace fine sand		S-2		3-4	
				S-3		4-5	
5							
10							

Bottom of Exploration at 10.1 feet

TEST PIT TP-6

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 10.2
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.5 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		0.9 Brown SILT and SAND		S-1		1.5-3	
		3.5 Brown clayey SILT, trace fine sand		S-2		3-4	
				S-3		4-5	
5				S-4		5-6	
				S-5		6-8	ID 30988B w =25.9 % W_L=25 W_P=19
10							

Bottom of Exploration at 10.2 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
- ▽ At time of Digging
- ▼ At Completion of Digging
- ▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT 24-0434.GPJ SWCE TEMPLATE.GDT 12/11/24

TEST PIT LOGS

S.W.COLE

CLIENT: Soper Mill Brook, LLC
PROJECT: Proposed Penley Corner Solar
LOCATION: Penley Corner Road, Auburn, Maine

PROJECT NO.: 24-0434
LOGGED BY: Nate Strout
CONTRACTOR: J&S Excavation, Inc.
EQUIPMENT: Volvo EC140 Excavator

TEST PIT TP-7

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 10.1
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.5 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		0.8 Brown SILT and SAND					
		2.0 Brown SILT and CLAY		S-1		2-4	
5		... becoming gray					
10		Bottom of Exploration at 10.1 feet					

TEST PIT TP-8

DATE: 11/15/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** N/A **COMPLETION DEPTH (FT):** 10.0
WATER LEVEL DEPTHS (FT): No free water observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Topsoil					
		0.5 Dark brown SILT and SAND, trace organics (probable agriculture plowed layer)					
		1.0 Brown SILT and CLAY		S-1		1-3	
5							
10		Bottom of Exploration at 10.0 feet					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
- ▽ At time of Digging
- ▼ At Completion of Digging
- ⧩ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT 24-0434.GPJ SWCE TEMPLATE.GDT 12/11/24

S.W.COLE ENGINEERING, INC.

KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to ½" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

APPENDIX D

Laboratory Test Results

S.W.COLE ENGINEERING, INC.

Report of Hydrometer

ASTM D422-63 (07)

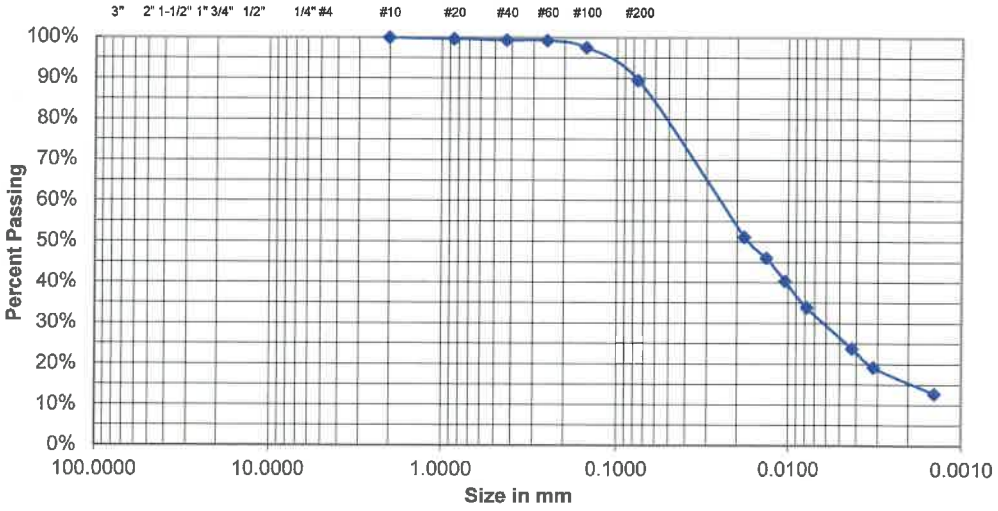
Project Name:	Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30986B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/2024
Material Description:	TP-3	**Date Completed:**	11/30/2024
Material Source:	S-1, 1.5-3 feet	**Tested By:**	AA

Sieve Analysis

Sieve Size	Standard Designation (mm)	Amount Passing (%)
3"	76	**100**
2"	50	**100**
1½"	38.1	**100**
1"	25	**100**
¾"	19	**100**
½"	12.5	**100**
¼"	6.3	**100**
No. 4	4.75	**100**
No. 10	2	**100**
No. 20	0.85	**100**
No. 40	0.425	**99**
No. 60	0.25	**99**
No. 100	0.15	**98**
No. 200	0.075	**89.5**

Hydrometer Analysis

Particle Size (mm)	Amount Passing (%)
0.01794	**51.2**
0.01336	**46.0**
0.01040	**40.4**
0.00774	**33.9**
0.00421	**23.9**
0.00316	**19.3**
0.00141	**12.8**



Particle Distribution:

Gravel (3" - No. 4)	**0.0%**	Fines (0.074 -0.005)	**64.9%**
Sand (No. 4 - No. 200)	**10.5%**	Clay (<0.005)	**24.6%**

Comments:

TH

Reviewed By

37 Liberty Drive, Hermon, ME 04401-5478 • P: (207) 848.5714 • F: (207) 848.7995 • E: info@swcole.com

S.W.COLE ENGINEERING, INC.

Report of Hydrometer

ASTM D422-63 (07)

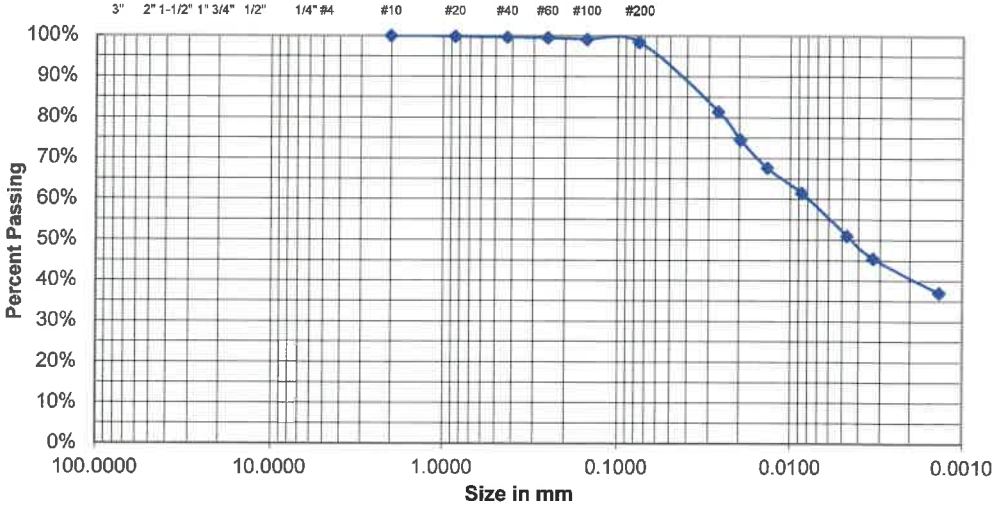
Project Name:	Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30987B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/2024
Material Description:	TP-4	**Date Completed:**	11/30/2024
Material Source:	S-2, 3-4 feet	**Tested By:**	AA

Sieve Analysis

Sieve Size	Standard Designation (mm)	Amount Passing (%)
3"	76	**100**
2"	50	**100**
1½"	38.1	**100**
1"	25	**100**
¾"	19	**100**
½"	12.5	**100**
¼"	6.3	**100**
No. 4	4.75	**100**
No. 10	2	**100**
No. 20	0.85	**100**
No. 40	0.425	**100**
No. 60	0.25	**99**
No. 100	0.15	**99**
No. 200	0.075	**98.4**

Hydrometer Analysis

Particle Size (mm)	Amount Passing (%)
0.02620	**81.5**
0.01948	**74.6**
0.01359	**67.6**
0.00854	**61.5**
0.00463	**51.0**
0.00326	**45.5**
0.00135	**37.1**



Particle Distribution:

Gravel (3" - No. 4)	**0.0%**	Fines (0.074 -0.005)	**49.1%**
Sand (No. 4 - No. 200)	**1.6%**	Clay (<0.005)	**49.4%**

Comments:

TH

Reviewed By

37 Liberty Drive, Hermon, ME 04401-5478 • P: (207) 848.5714 • F: (207) 848.7995 • E: info@swcole.com

S.W.COLE ENGINEERING, INC.

Report of Hydrometer

ASTM D422-63 (07)

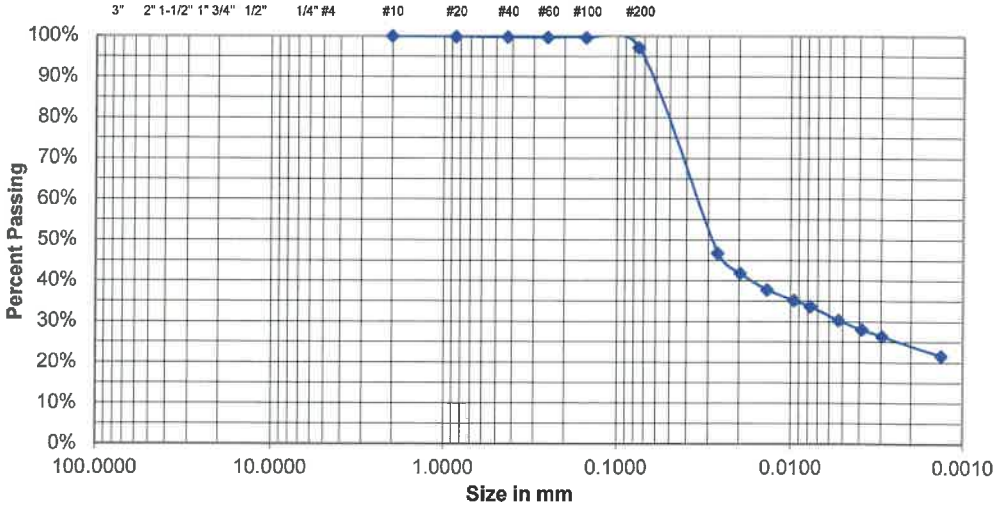
Project Name:	Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30988B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/2024
Material Description:	TP-6	**Date Completed:**	11/30/2024
Material Source:	S-5, 6-8 feet	**Tested By:**	AA

Sieve Analysis

Sieve Size	Standard Designation (mm)	Amount Passing (%)
3"	76	**100**
2"	50	**100**
1½"	38.1	**100**
1"	25	**100**
¾"	19	**100**
½"	12.5	**100**
¼"	6.3	**100**
No. 4	4.75	**100**
No. 10	2	**100**
No. 20	0.85	**100**
No. 40	0.425	**100**
No. 60	0.25	**100**
No. 100	0.15	**100**
No. 200	0.075	**97.2**

Hydrometer Analysis

Particle Size (mm)	Amount Passing (%)
0.02623	**46.8**
0.01947	**41.9**
0.01357	**37.8**
0.00949	**35.2**
0.00767	**33.8**
0.00526	**30.3**
0.00383	**28.0**
0.00293	**26.4**
0.00133	**21.7**



Particle Distribution:

Gravel (3" - No. 4)	**0.0%**	Fines (0.074 -0.005)	**68.4%**
Sand (No. 4 - No. 200)	**2.8%**	Clay (<0.005)	**28.9%**

Comments:

TH

Reviewed By

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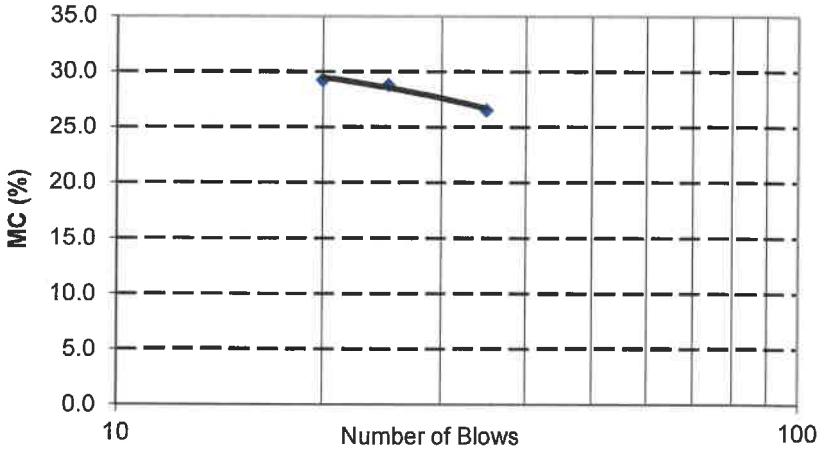
Report of Atterberg Limits

ASTM D4318-10 - Method A

Project Name:	Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30986B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/24
Material Description:	TP-3	**Date Completed:**	12/10/24
Material Source:	S-1, 1.5-3 feet	**Tested By:**	DM

Liquid Limit	**29**
Plastic Limit	**23**
Plasticity Index	**6**

LIQUID LIMIT CURVE



Material Retained On the No. 40 Sieve:	1%
As-received Moisture Content:	24%

Comments:

Reviewed By: Tom Higgins

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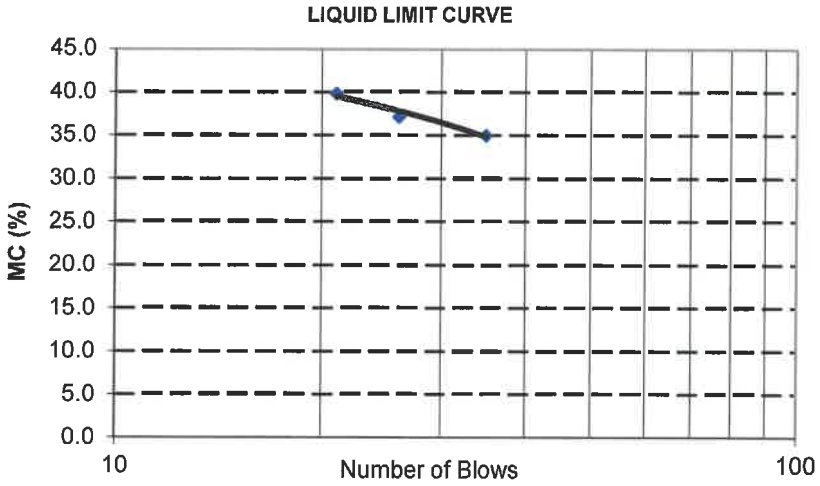
S.W.COLE ENGINEERING, INC.

Report of Atterberg Limits

ASTM D4318-10 - Method A

Project Name:	Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30987B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/24
Material Description:	TP-4	**Date Completed:**	11/30/24
Material Source:	S-2, 3-4 feet	**Tested By:**	AA

Liquid Limit	**38**
Plastic Limit	**21**
Plasticity Index	**17**



Material Retained On the No. 40 Sieve:	1%
As-received Moisture Content:	27%

Comments:

Reviewed By: TH

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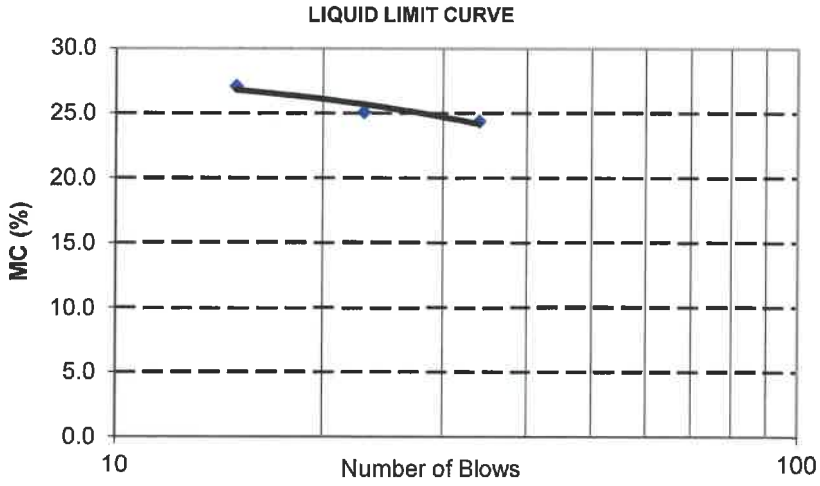
S.W.COLE ENGINEERING, INC.

Report of Atterberg Limits

ASTM D4318-10 - Method A

Project Name:	Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30988B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/24
Material Description:	TP-6	**Date Completed:**	12/10/24
Material Source:	S-5, 6-8 feet	**Tested By:**	DM

Liquid Limit	**25**
Plastic Limit	**19**
Plasticity Index	**6**



Material Retained On the No. 40 Sieve:	1%
As-received Moisture Content:	26%

Comments:

Reviewed By: Tom Higgins

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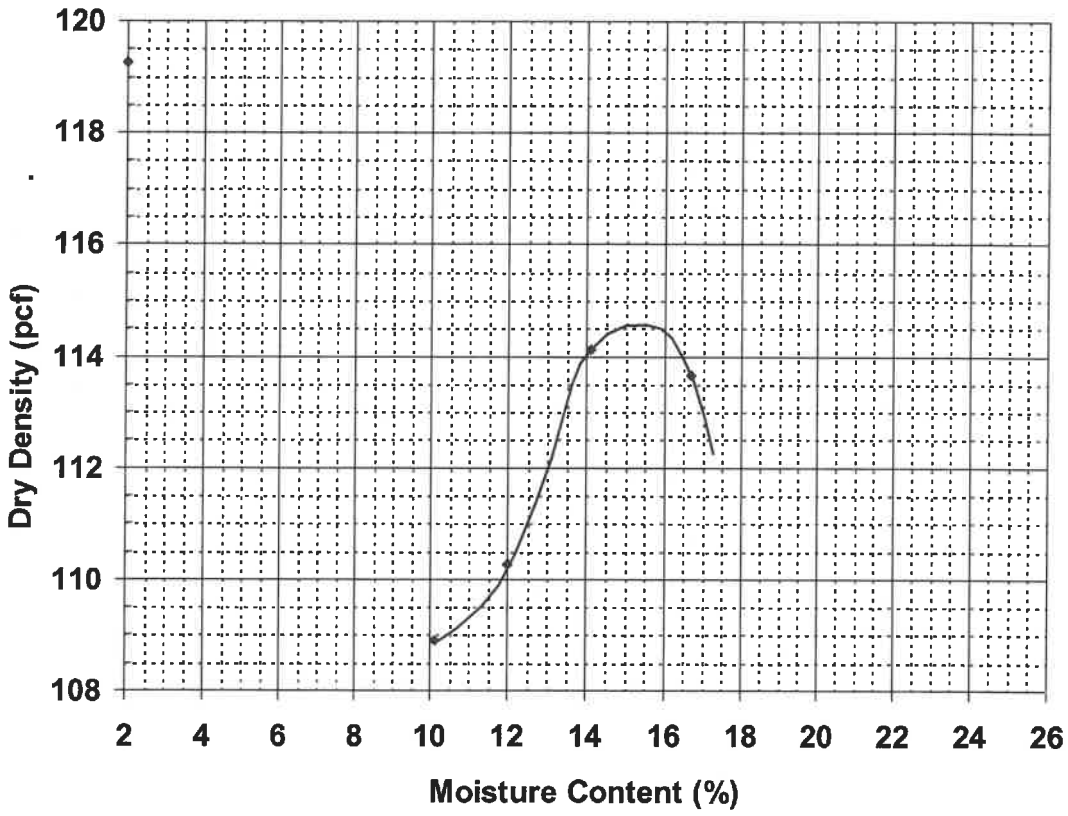
S.W.COLE ENGINEERING, INC.

Report of Moisture-Density

Method ASTM D-1557 MODIFIED Procedure A

Project Name	AUBURN ME - PROPOSED PENLEY CORNER SOLAR - ENGINEERING AND GEOTECHNICAL ENGINEERING	Project Number	24-0434
Client	SOPER MILL BROOK, LLC	Lab ID	30986B
Material Type	TEST PIT SAMPLE	Date Received	11/18/2024
Material Source	TP-3, 1.5-3 FEET	Date Completed	11/26/2024
		Tested By	ALEXANDREA ALLEN

Moisture-Density Relationship Curve



Maximum Dry Density (pcf)	114.5
Optimum Moisture Content (%)	15.2
Percent Oversized	0.0%

Corrected Dry Density (pcf)	**114.5**
Corrected Moisture Content (%)	**15.2**

Tom Higgins

Comments

37 Liberty Drive, Bangor, ME 04401-5874 • Tel (207) 848-6029 • Fax (207) 848-2403 • www.swcole.com

S.W.COLE ENGINEERING, INC.

Report of Thermal Resistivity Dryout Curve

Project Name:	Proposed Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30986B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/2024
Material Description:	Glaciomarine Soils	**Date Completed:**	12/2/2024
Material Source:	TP-3, S-1, 1.5-3 feet	**Test By:**	D. Jack

Thermal properties were tested, per customers request, at optimum moisture content of 15.8% and at 95% compaction per ASTM Standard D1557. The thermal tests were conducted using the IEEE Standard 442-2017.

Sample Information

Sample ID

TP-3, S-1, 1.5-3 feet

Sample Description

Glaciomarine Soils

Dry Bulk Density (lb/ft³)

114.5

Moisture Content (%)

15.8

Thermal properties

Thermal resistivity (°C-cm/W)

Wet	74
Dry	264

Dryout Resistivity curve was created utilizing the data on this report.
Please contact us with any questions related to the report or its contents.

Reviewed by: Richard Smith

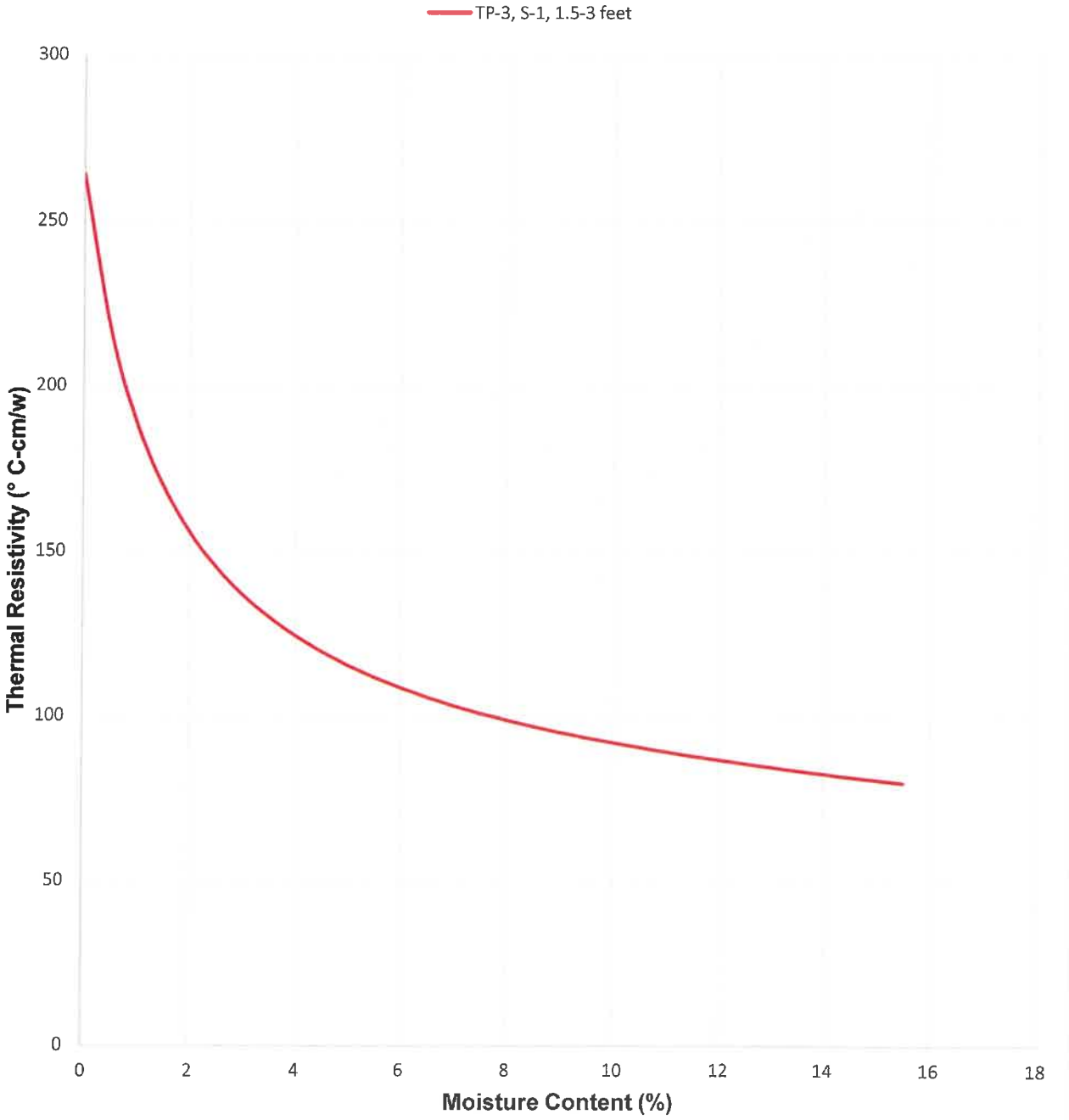
Richard Smith

13 Delta Drive, Unit 8, Londonderry NH 03053 • P: (603) 716.2111 • F: (603) 716.2112 • E: infolondonderry@swcole.com

S.W.COLE ENGINEERING, INC.

Project Number: 24-0434
Lab ID: 30986B

Dry-Out Resistivity Curve



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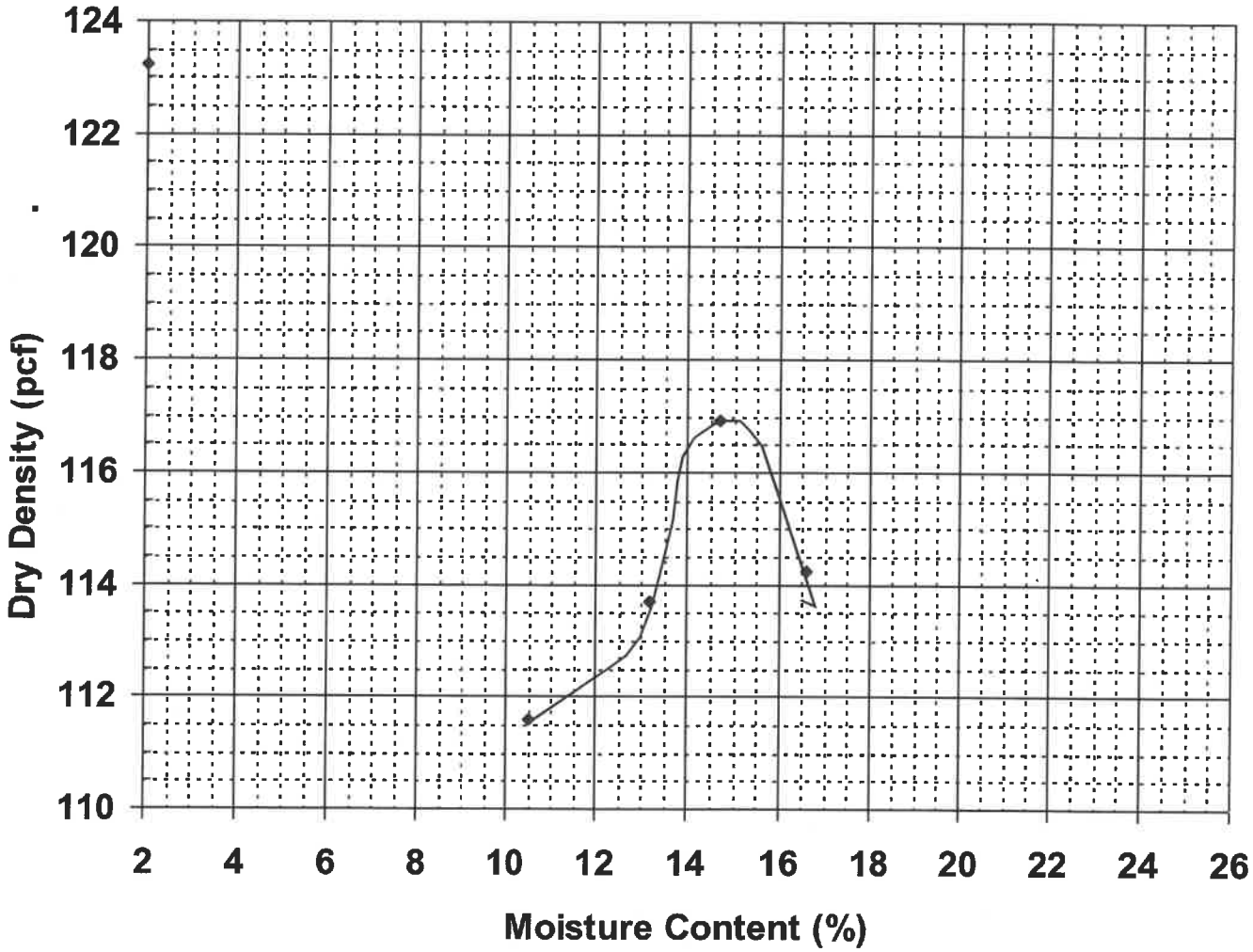
S.W.COLE ENGINEERING, INC.

Report of Moisture-Density

Method ASTM D-1557 MODIFIED Procedure A

Project Name	AUBURN ME - PROPOSED PENLEY CORNER SOLAR - ENGINEERING AND GEOTECHNICAL ENGINEERING	Project Number	24-0434
Client	SOPER MILL BROOK, LLC	Lab ID	30990B
Material Type	TEST PIT SAMPLE	Date Received	11/18/2024
Material Source	TP-5, 1.5-3 FEET	Date Completed	11/25/2024
		Tested By	NICHOLAS BOUTIN

Moisture-Density Relationship Curve



Maximum Dry Density (pcf)	116.8
Optimum Moisture Content (%)	14.6
Percent Oversized	0.0%

Corrected Dry Density (pcf)	**116.8**
Corrected Moisture Content (%)	**14.6**

Comments

Chris Raymond

37 Liberty Drive, Bangor, ME 04401-5874 • Tel (207) 848-6029 • Fax (207) 848-2403 • www.swcole.com

S.W.COLE ENGINEERING, INC.

Report of Thermal Resistivity Dryout Curve

Project Name:	Proposed Penley Corner Solar	**Project Number:**	24-0434
Project Location:	Auburn, Maine	**Lab ID:**	30990B
Client:	Soper Mill Brook, LLC	**Date Received:**	11/18/2024
Material Description:	Glaciomarine Soils	**Date Completed:**	12/2/2024
Material Source:	TP-5, S-1, 1.5-3 feet	**Test By:**	D. Jack

Thermal properties were tested, per customers request, at optimum moisture content of 14.6% and at 95% compaction per ASTM Standard D1557. The thermal tests were conducted using the IEEE Standard 442-2017.

Sample Information

Sample ID

TP-5, S-1, 1.5-3 feet

Sample Description

Glaciomarine Soils

Dry Bulk Density (lb/ft³)

116.8

Moisture Content (%)

14.6

Thermal properties

Thermal resistivity (°C-cm/W)

Wet	71
Dry	221

Dryout Resistivity curve was created utilizing the data on this report.
Please contact us with any questions related to the report or its contents.

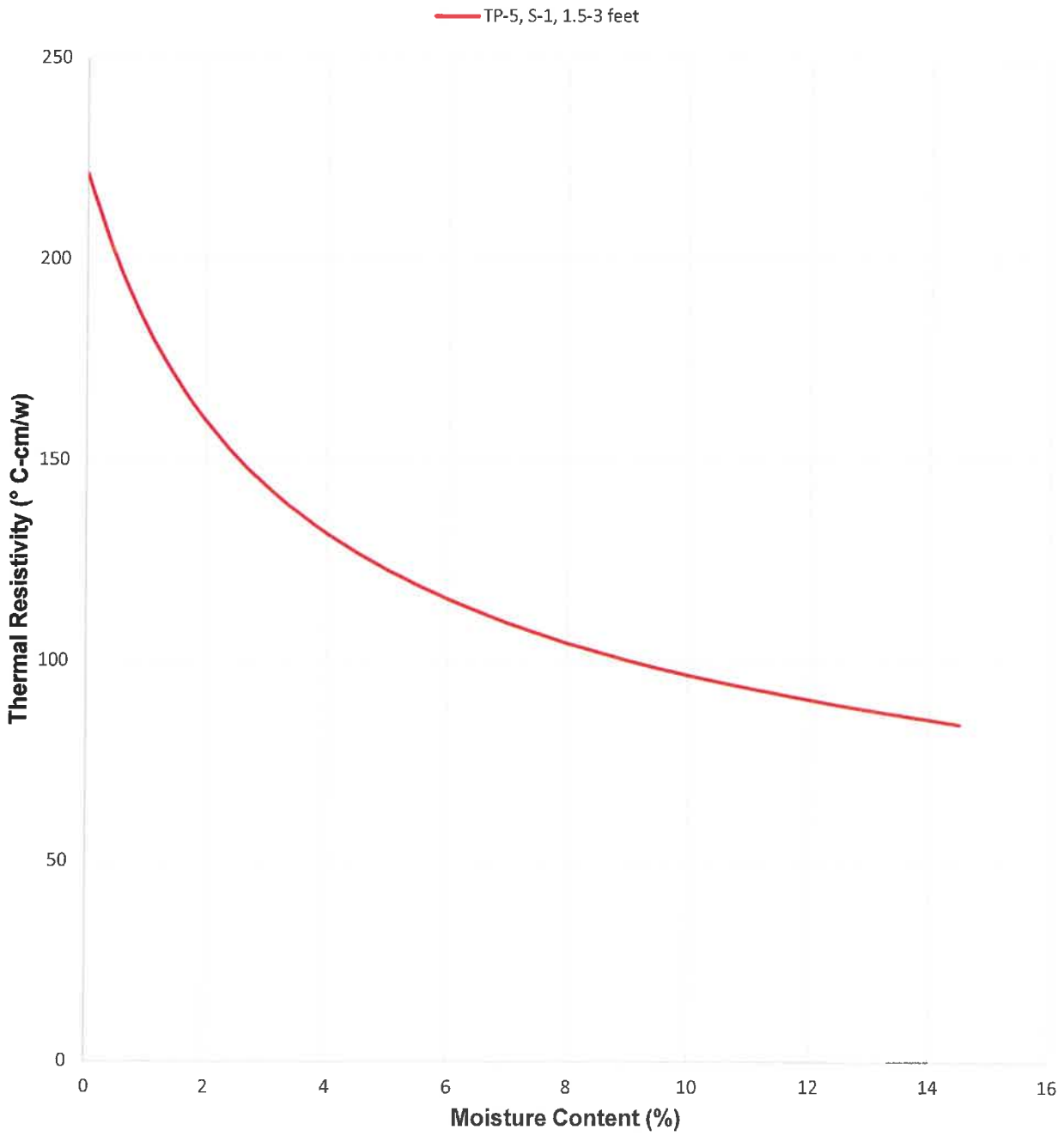
Reviewed by: Richard Smith
Richard Smith

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S.W.COLE ENGINEERING, INC.

Project Number: 24-0434
Lab ID: 30990B

Dry-Out Resistivity Curve



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Testing sm services

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SW COLE ENGINEERING INCORPORATED
37 LIBERTY DRIVE
HERMON ME 04401-1130
USA

Analysis No.	TS-A2412290
Report Date	21 November 2024
Date Sampled	18 November 2024
Date Received	19 November 2024
Where Sampled	Hermon, ME USA
Sampled By	Client

This is to attest that we have examined: Soils, Project: Proposed Penley Corner Solar; Site Location: Penley Corner Road, Auburn, ME; Job Number: 24-0434

When examined to the applicable requirements of:

ASTM D 1411–09*	"Standard Test Methods for Water-Soluble Chlorides Present as Admixtures in Graded Aggregate Road Mixes" Method A
ASTM D 516-16	"Standard Test Method for Sulfate Ion in Water"
ASTM D 4658-15	"Standard Test Method for Sulfide Ion in Water"
ASTM G 51-18	"Standard Test Method for Measuring pH of Soil for Use in Corrosion Testing"
ASTM G 200-14	"Standard Test Method for Measurement of Oxidation-Reduction Potential (ORP) of Soil"
ASTM G 187–18	"Standard Test Method for Measurement of Soil Resistivity Using the Two-Electrode Soil Box Method"
EPA/600/4-90/027F	"Alkalinity Method 310.1"

Results:

ASTM D 1411 – Chloride Method A

Sample		Results		Detection Limit
		ppm (mg/kg)	%[1]	
TP-3		< 10.	< 0.0010	10.
S-1	1.5 – 3.0'			
TP-4		Not Requested		
S-2	3.0 – 4.0'			
TP-5		< 10.	< 0.0010	
S-1	1.5 – 3.0'			
TP-6		Not Requested		
S-2	3.0 – 4.0'			

NOTE: [1]Percent by weight after drying and prepared as per the Standard. *Withdrawn 2018

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CERTIFICATE OF ANALYSIS

ASTM D 516 – Sulfates (Soluble)

Sample		Results		Detection Limit
		ppm (mg/kg)	%[1]	
TP-3		< 10.	< 0.0010	10.
S-1	1.5 – 3.0'			
TP-4		Not Requested		
S-2	3.0 – 4.0'			
TP-5		< 10.	< 0.0010	
S-1	1.5 – 3.0'			
TP-6		Not Requested		
S-2	3.0 – 4.0'			

NOTE: [1]Percent by weight after drying and prepared as per the Standard.

ASTM D 4658 – Sulfide

Sample		Results		Detection Limit
		ppb (µg/kg)	%[1]	
TP-3		340.	0.0340	10.
S-1	1.5 – 3.0'			
TP-4		Not Requested		
S-2	3.0 – 4.0'			
TP-5		2 500.	0.2500	
S-1	1.5 – 3.0'			
TP-6		Not Requested		
S-2	3.0 – 4.0'			

NOTE: [1]Percent by weight after drying and prepared as per the Standard.

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CERTIFICATE OF ANALYSIS

ASTM G 51 – pH

Sample		Results	Detection Limit
TP-3		5.63	0.01
S-1	1.5 – 3.0'		
TP-4		Not Requested	
S-2	3.0 – 4.0'		
TP-5		5.75	
S-1	1.5 – 3.0'		
TP-6		Not Requested	
S-2	3.0 – 4.0'		

NOTE: Prepared as per the Standard.

ASTM G 200 – Reduction Oxidation Potential (REDOX)

Sample		Results	Detection Limit
TP-3		126.0 @ 18.7 °C	0.1mV
S-1	1.5 – 3.0'		
TP-4		Not Requested	
S-2	3.0 – 4.0'		
TP-5		128.5 @ 19.2 °C	
S-1	1.5 – 3.0'		
TP-6		Not Requested	
S-2	3.0 – 4.0'		

NOTE: Prepared as per the Standard.

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ASTM G 187 – Resistivity (Saturated using Soil Box)

Sample		Results	
		ohms-cm	mho/cm
TP-3		48 500	0.0000206
S-1	1.5 – 3.0'		
TP-4		7 000	0.000143
S-2	3.0 – 4.0'		
TP-5		8 900	0.000112
S-1	1.5 – 3.0'		
TP-6		20 100	0.0000498
S-2	3.0 – 4.0'		

NOTE: Prepared as per the Standard.

EPA Method 310.1 – Alkalinity

Sample		Results		Detection Limit
		ppm (mg/kg)	%[1]	
TP-3		< 10.	< 0.0010	10.
S-1	1.5 – 3.0'			
TP-4		Not Requested		
S-2	3.0 – 4.0'			
TP-5		138.	0.01380	
S-1	1.5 – 3.0'			
TP-6		Not Requested		
S-2	3.0 – 4.0'			

NOTE: [1]Percent by weight after drying and prepared as per the Standard.

END OF ANALYSIS

USEPA Laboratory ID UT00930

Merrill Gee P.E. – Engineer in Charge

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APPENDIX E

Resistivity Test Results

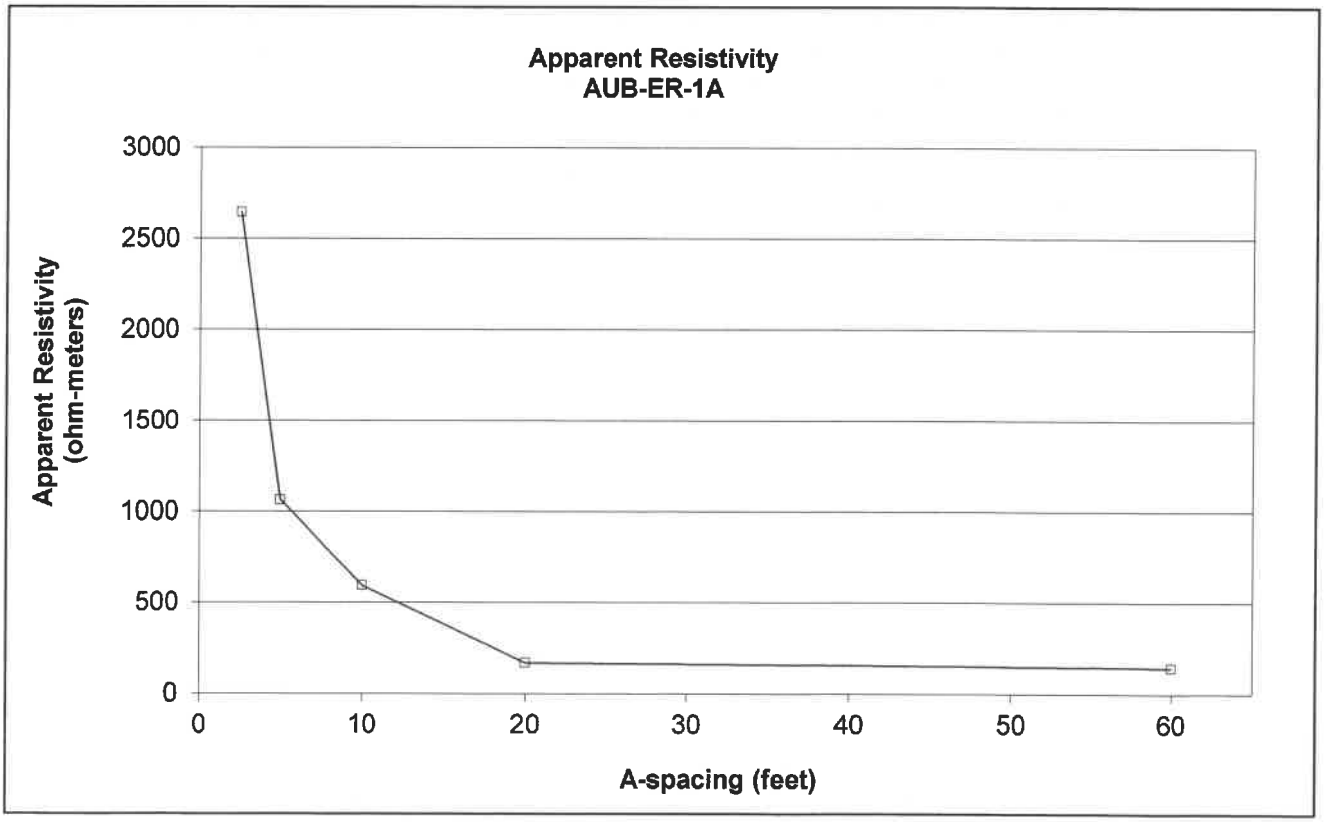
S.W.COLE ENGINEERING, INC

RESISTIVITY COMPUTATION DATA SHEET
Wenner Configuration
Fixed Center

Project #: 24-0434
Site: Proposed Penley Corner Solar, Auburn, ME
Spread No.: AUB-ER-1A
Orientation: 110° Magnetic

Date: 11/19/2024
Mid point GPS Coordinates: See Exploration Location Plan
Instrument: AGI SuperSting R1

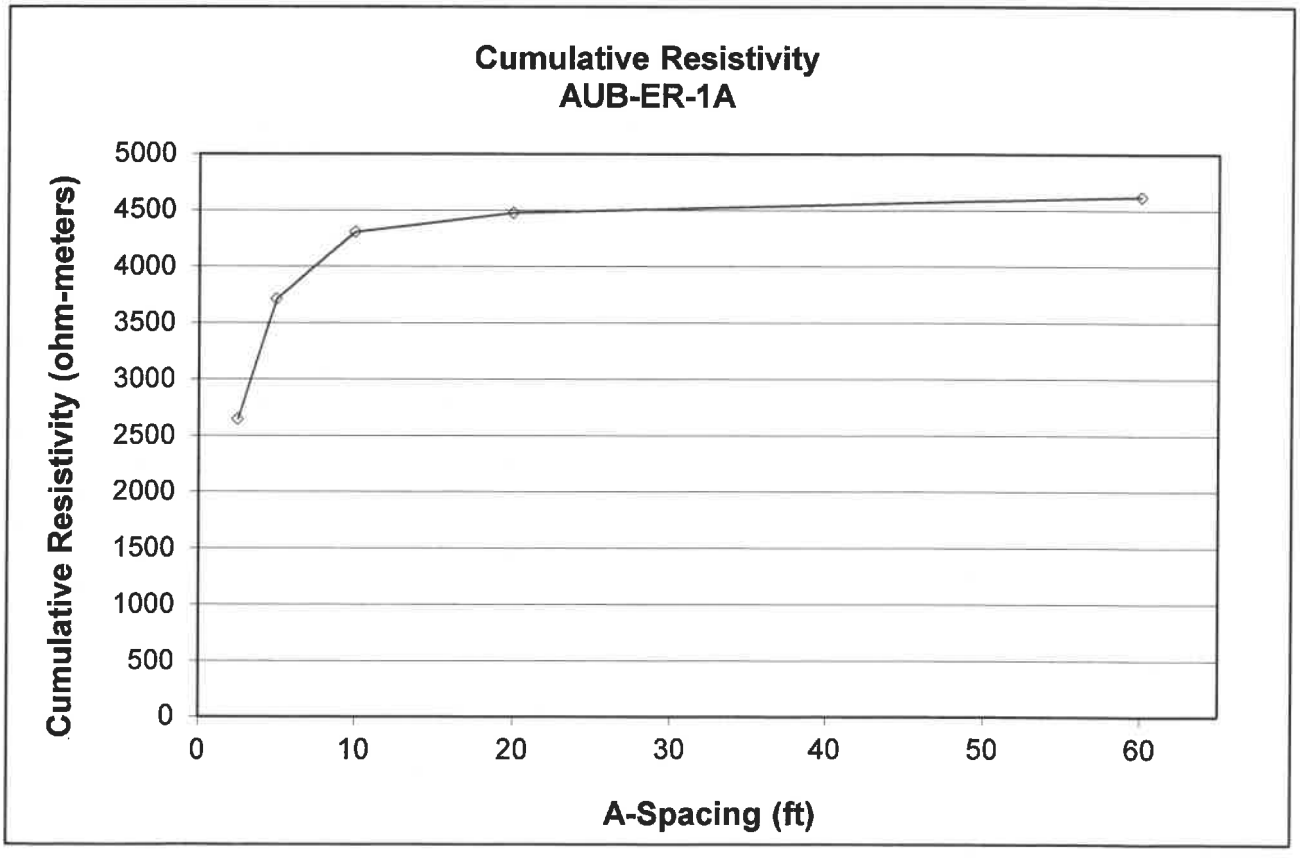
A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	V mV	Resistance (v/I) Ω	Apparent Resistivity (ohm-meters)	% Error
2.5	1.3	3.8	4.9	2697	552.6	2646	0.0
5	2.5	7.5	10.0	1112	111.3	1065	0.0
10	5.0	15.0	9.8	303	31.1	595	0.1
20	10.0	30.0	10.0	44	4.4	169	0.0
60	30.0	90.0	9.6	12	1.2	143	0.0



Cumulative Resistivity Sheet

AUB-ER-1A

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	Apparent Resistivity (ohm-meters)	% Error	Cumulative Resistivity
2.5	1.3	3.8	4.9	2646	0.0	2646
5	2.5	7.5	10.0	1065	0.0	3711
10	5.0	15.0	9.8	595	0.1	4306
20	10.0	30.0	10.0	169	0.0	4475
60	30.0	90.0	9.6	143	0.0	4619



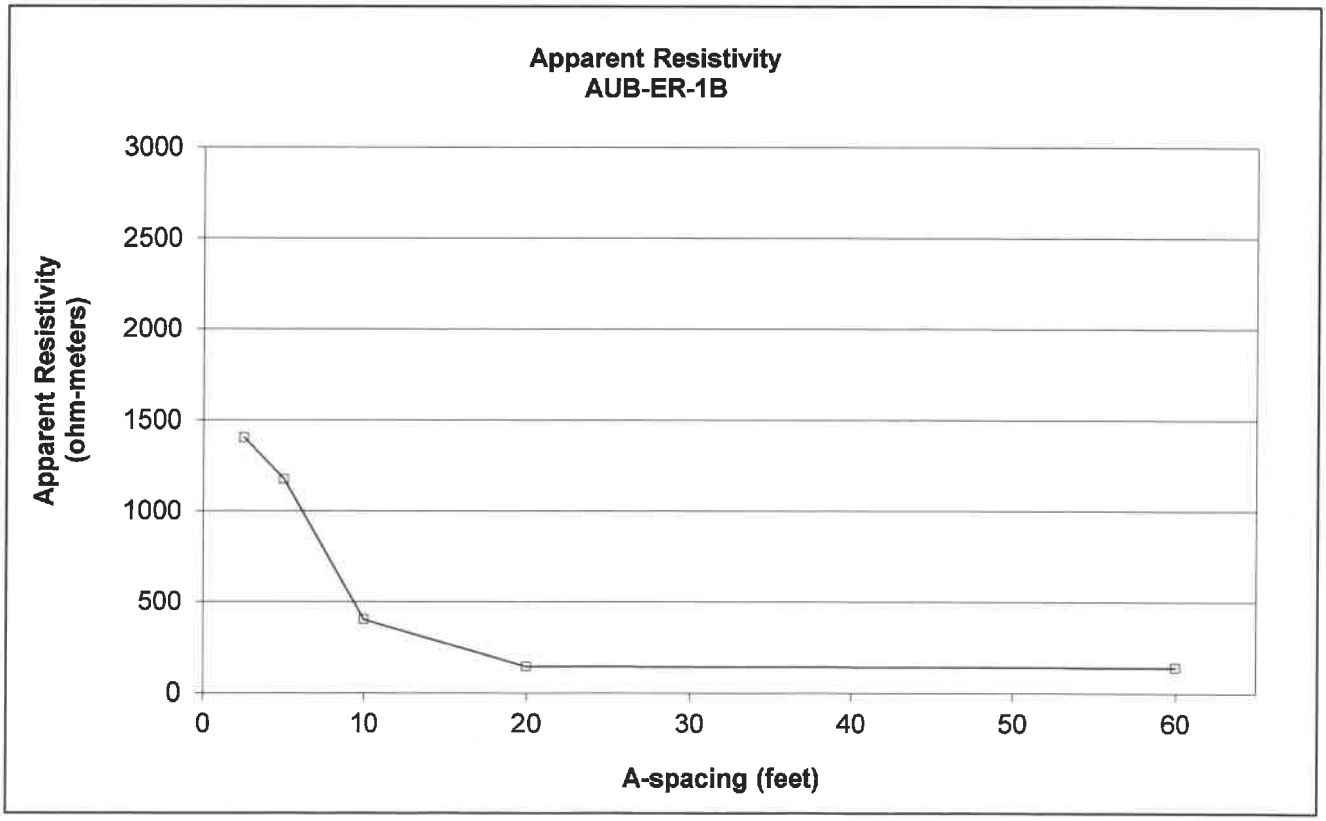
S.W.COLE ENGINEERING, INC.

RESISTIVITY COMPUTATION DATA SHEET
Wenner Configuration
Fixed Center

Project #: 24-0434
Site: Proposed Penley Corner Solar, Auburn, ME
Spread No.: AUB-ER-1B
Orientation: 20° Magnetic

Date: 11/19/2024
Mid point GPS Coordinates: See Exploration Location Plan
Instrument: AGI SuperSting R1

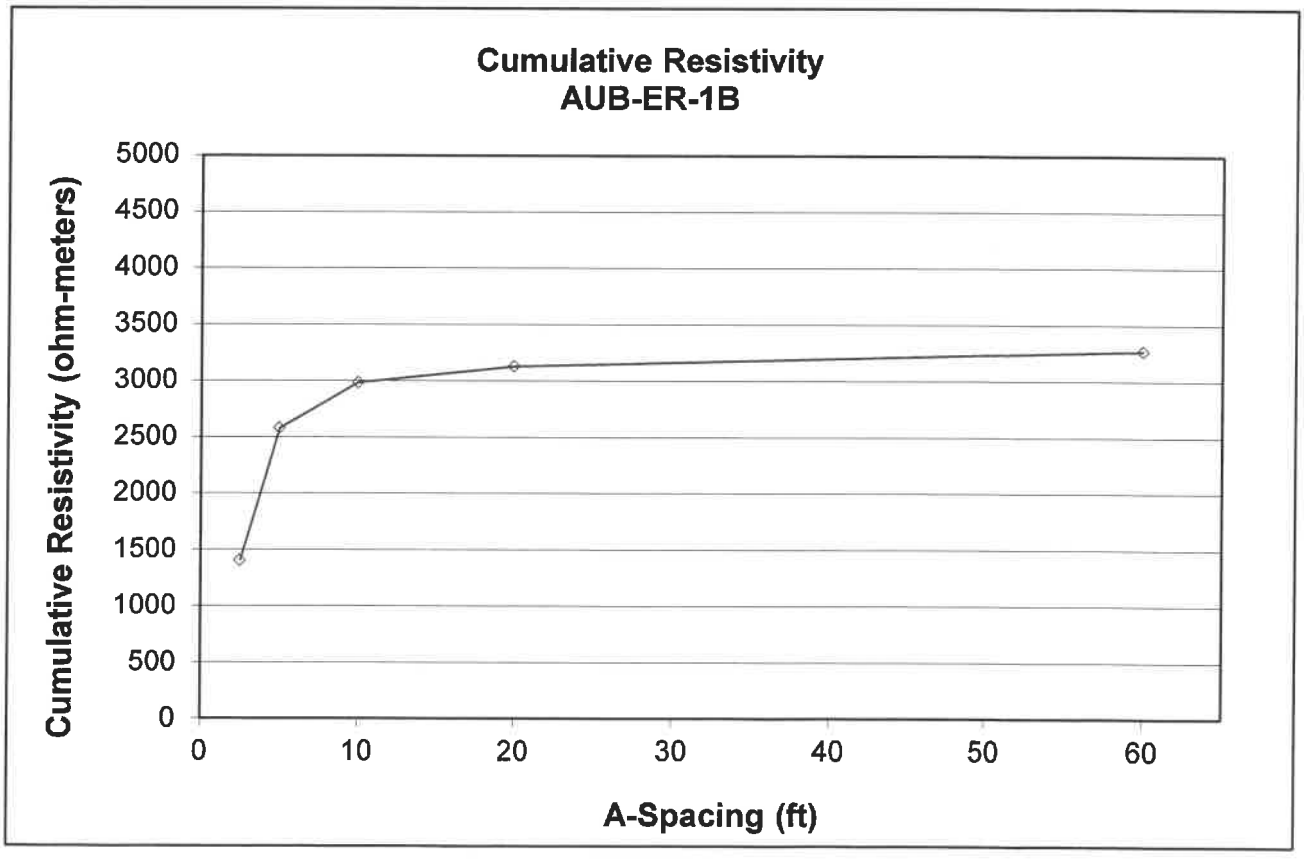
A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	V mV	Resistance (v/I) Ω	Apparent Resistivity (ohm-meters)	% Error
2.5	1.3	3.8	9.9	2896	293.1	1404	0.0
5	2.5	7.5	10.1	1239	122.8	1176	0.0
10	5.0	15.0	9.9	210	21.1	404	0.0
20	10.0	30.0	9.7	37	3.8	146	0.0
60	30.0	90.0	9.5	12	1.2	141	0.0



Cumulative Resistivity Sheet

AUB-ER-1B

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	Apparent Resistivity (ohm-meters)	% Error	Cumulative Resistivity
2.5	1.3	3.8	9.9	1404	0.0	1404
5	2.5	7.5	10.1	1176	0.0	2579
10	5.0	15.0	9.9	404	0.0	2983
20	10.0	30.0	9.7	146	0.0	3129
60	30.0	90.0	9.5	141	0.0	3270



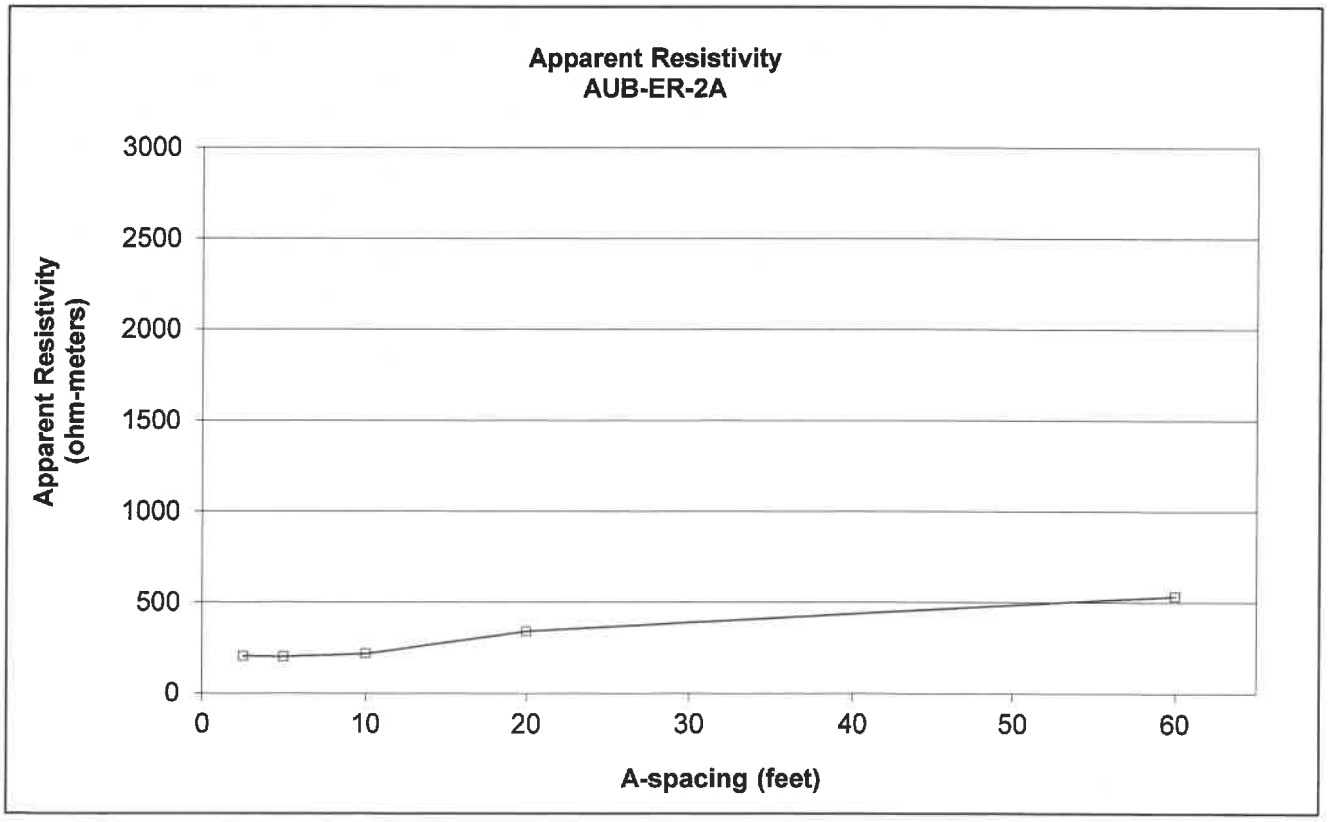
S.W.COLE ENGINEERING, INC.

RESISTIVITY COMPUTATION DATA SHEET
Wenner Configuration
Fixed Center

Project #: 24-0434
Site: Proposed Penley Corner Solar, Auburn, ME
Spread No.: AUB-ER-2A
Orientation: 65° Magnetic

Date: 11/19/2024
Mid point GPS Coordinates: See Exploration Location Plan
Instrument: AGI SuperSting R1

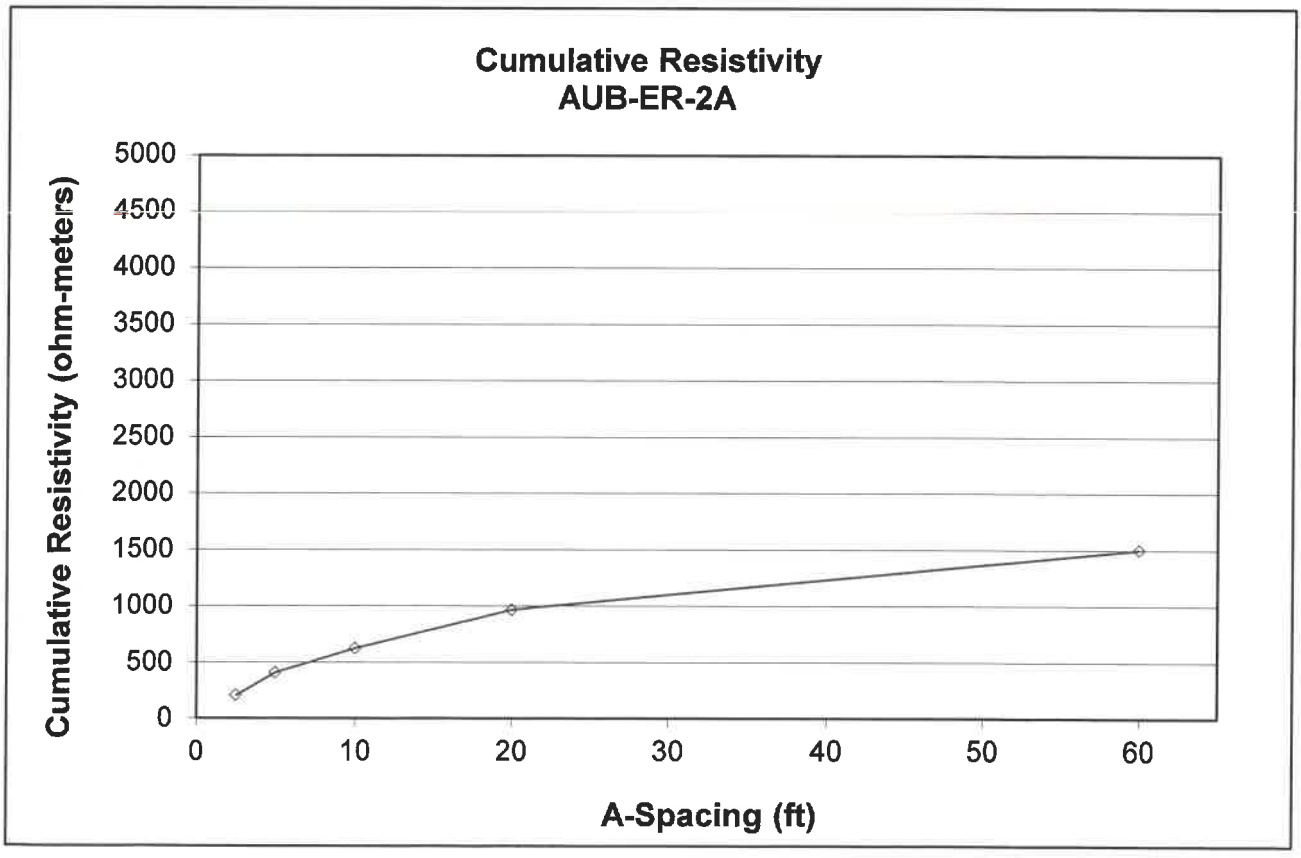
A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	V mV	Resistance (v/I) Ω	Apparent Resistivity (ohm-meters)	% Error
2.5	1.3	3.8	9.9	423	42.7	204	0.0
5	2.5	7.5	10.3	218	21.1	202	0.0
10	5.0	15.0	9.3	106	11.4	218	0.1
20	10.0	30.0	9.9	88	8.9	341	0.1
60	30.0	90.0	8.3	39	4.7	536	0.1



Cumulative Resistivity Sheet

AUB-ER-2A

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	Apparent Resistivity (ohm-meters)	% Error	Cumulative Resistivity
2.5	1.3	3.8	9.9	204	0.0	204
5	2.5	7.5	10.3	202	0.0	406
10	5.0	15.0	9.3	218	0.1	624
20	10.0	30.0	9.9	341	0.1	965
60	30.0	90.0	8.3	536	0.1	1500



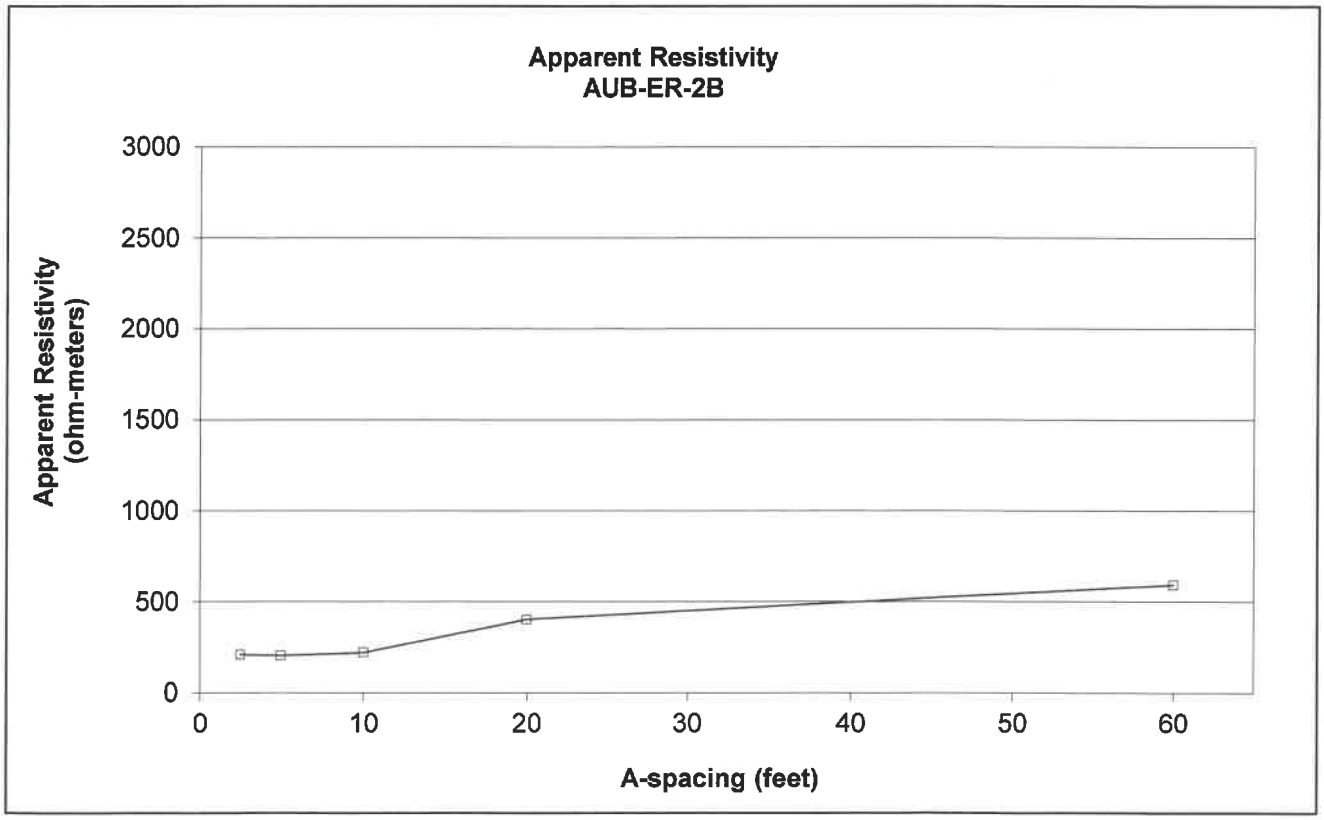
S.W.COLE ENGINEERING, INC.

RESISTIVITY COMPUTATION DATA SHEET
Wenner Configuration
Fixed Center

Project #: 24-0434
Site: Proposed Penley Corner Solar, Auburn, ME
Spread No.: AUB-ER-2B
Orientation: 155° Magnetic

Date: 11/19/2024
Mid point GPS Coordinates: See Exploration Location Plan
Instrument: AGI SuperSting R1

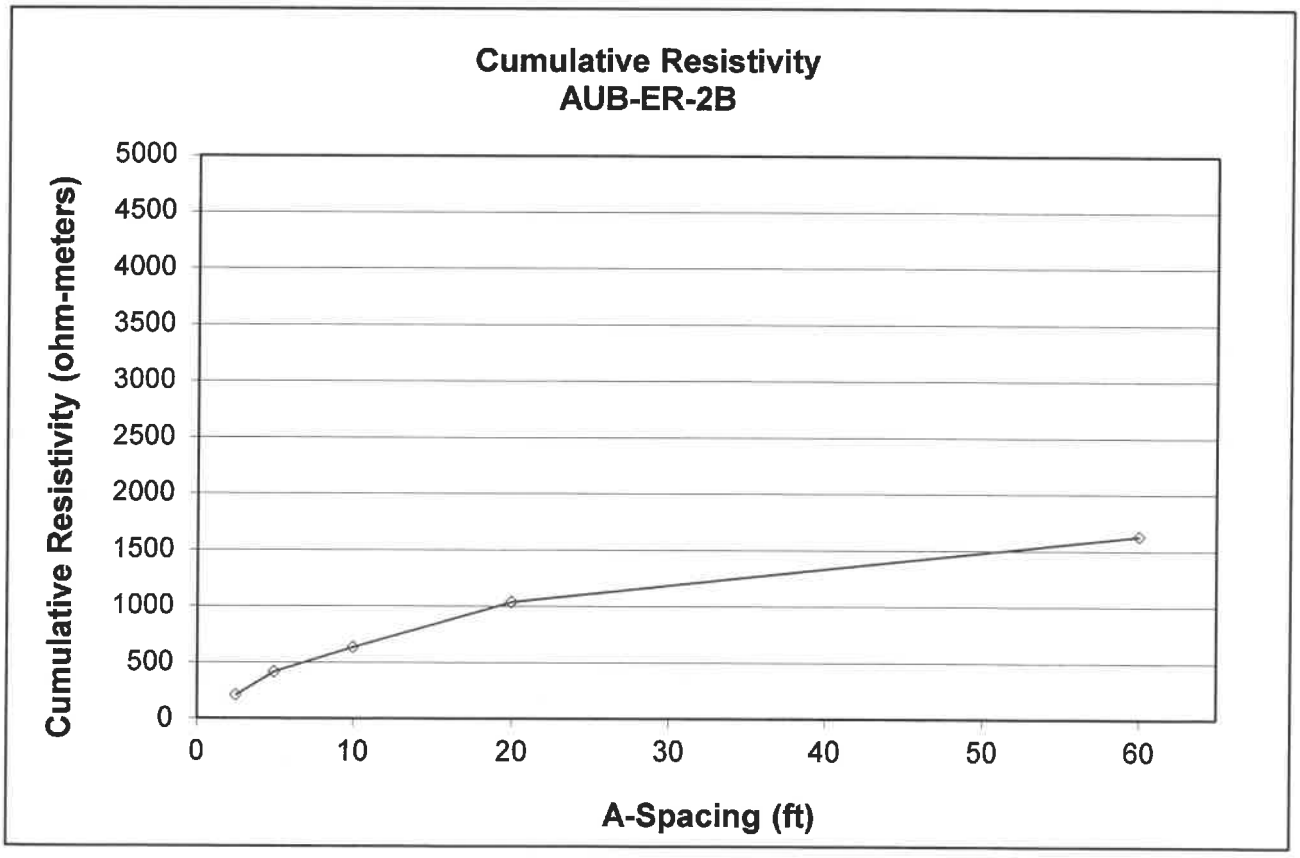
A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	V mV	Resistance (v/I) Ω	Apparent Resistivity (ohm-meters)	% Error
2.5	1.3	3.8	9.9	431	43.7	209	0.0
5	2.5	7.5	10.0	214	21.4	205	0.0
10	5.0	15.0	9.1	105	11.5	220	0.1
20	10.0	30.0	10.0	105	10.5	403	0.1
60	30.0	90.0	8.8	45	5.2	593	0.1



Cumulative Resistivity Sheet

AUB-ER-2B

A - Spacing (distance-feet)	A/2 ft	A+A/2 ft	I mA	Apparent Resistivity (ohm-meters)	% Error	Cumulative Resistivity
2.5	1.3	3.8	9.9	209	0.0	209
5	2.5	7.5	10.0	205	0.0	414
10	5.0	15.0	9.1	220	0.1	635
20	10.0	30.0	10.0	403	0.1	1038
60	30.0	90.0	8.8	593	0.1	1631



City of Auburn, Maine
Office of Planning & Permitting
www.auburnmaine.gov | 60 Court Street
Auburn, Maine 04210 207.333.6601

To: Auburn Planning Board
From: Natalie Thomsen, Planning Coordinator
Re: The Planning Board will host a Public Hearing and act on an application submitted by Salt & Light Community Center for the property located at 29 Hampshire Street (Tax Map: 240-177), within the Downtown Traditional Center (T-5.1) zoning district. The proposed project should be considered pursuant to Chapter 60, Article XVI, Division 2- Site Plan Review, Division 3 – Special Exception,
Date: March 11, 2025



I. PROPOSAL – Salt & Light Community Center has submitted an application for a Special Exception Use to operate a private club at 29 Hampshire Street, within the Downtown Traditional Center (T-5.1) zoning district. The proposed use is categorized under "Halls, Private Clubs, and Indoor Amusement," which is listed as a Special Exception under the zoning ordinance. The applicant proposes to use the space as a community center, hosting civic, social, cultural, and recreational activities for members. This is an existing building, and most renovations will be internal. The applicant is seeking Planning Board review due to the change in use.

II. ZONING CONSIDERATIONS –

The subject property is located in the Downtown Traditional Center (T-5.1) zoning district, which falls under the Form-Based Code. The proposed use is permitted as a Special Exception under Chapter 60, Article IV, Division 14, Section 60-554 of the Zoning Ordinance.

A private club is defined under Section 60-2 as any building or rooms that serve as a meeting place for an incorporated or unincorporated association for civic, social, cultural, religious, literary, political, recreational, or similar activities, operated for the benefit of its members and not open to the general public. The organization provides Christian-based support to inner-city youth and families facing trauma and broken family dynamics. Their services focus on holistic community development, addressing physical, emotional, spiritual, and financial well-being. The primary program currently planned is an after-school program where youth will drop in after school.

The after-school program operates only on Wednesdays at this time. The program is structured as a drop-in for youth living within walking distance of the facility, though volunteers may also transport some participants. Two after-school programs will be held on Wednesdays. The first group will serve Kindergarten through 5th grade, with a goal of 10 youth and five volunteers, operating from after school until 3:30 PM. The second group will include youth from 6th through 12th grade, with a goal of 15 to 20 youth and seven volunteers, running from 4:45 PM to 7:00 PM.

The project is located within a developed downtown area, and as such, minimal setbacks are required. Compliance with frontage and build-to-line requirements per the Form-Based Code must be ensured. The applicant must demonstrate how the proposed use maintains the district's intended urban form and pedestrian-friendly environment.

The applicant is not required to provide any off-street parking, as per Sec. 60-608 – Parking Requirements. The number of staff members on-site at a given time will range between six to nine, depending on the day of the week. Although no parking is required by ordinance, the applicant has included two parking spaces on Hampshire Street and will utilize their existing parking lot, which accommodates approximately two to three vehicles.

The applicant has submitted a plan to add curbing, ensuring compliance with Section 60-1131, which governs access management standards. The applicant and City Engineer have confirmed that the curbing modifications will not impede traffic circulation or pedestrian accessibility in the area.

The facility will initially manage waste by removing trash daily, with a dumpster rental planned once the volume of waste necessitates it. If a dumpster is introduced, it must comply with Section 60-605, which mandates proper screening to minimize visual and environmental impacts. The applicant anticipates producing little waste and will have it removed from the property after activities take place.

VI. DEPARTMENT REVIEW-

a. Police- ✓

b. Auburn Water and Sewer- ✓

c. Fire Department/Code Enforcement – The Auburn Fire Department has requested a Life Safety Inspection prior to occupancy to ensure compliance with safety standards, per Chapter 60, Section 60-1300 – Zoning Amendments and Sec. 60-1200 – Site Plan Review. This inspection will include verification of emergency lighting, exit signs, fire extinguishers, and the fire alarm system. The sprinkler system must also be checked to confirm the completion of quarterly inspections, compliance with the five-year internal inspection requirement, and that sprinkler heads are not over 20 years old. Additionally, the Fire Department Connection (FDC) must be accessible. All exit doors must be operational, and the building address must be properly posted. Emergency contact information must be provided to 911 Dispatch. Furthermore, the Fire Department has noted that there appears to be an elevator in the building. If confirmed, the elevator must be inspected and certified before occupancy is approved.

d. Engineering – ✓

e. Public Services- ✓

f. Airport – ✓

VII. PLANNING BOARD ACTION- The proposed project requires review and findings for approval of Sections 60-1277 and 60- 1336:

A. Site Plan Review, Section 60-1277:

1. Does the site plan protect adjacent areas against detrimental or offensive uses on the site by provision of adequate surface water drainage, buffers against artificial and reflected light, sight, sound, dust and vibration; and preservation of light and air?
2. Is the convenience and safety of vehicular and pedestrian movement within the site and in relation to adjacent areas adequately addressed?
3. Are the proposed methods of disposal for wastes adequately addressed?
4. Does the site plan provide adequate protection of environment features on the site and adjacent areas?

B. Special Exception, Section 60-1336. - The board shall require evidence of the following:

1. That the special exception sought fulfills the specific requirements, if any, set forth in the zoning ordinance relative to such exception.
2. That the special exception sought will neither create nor aggravate a traffic hazard, a fire hazard or any other safety hazard.
3. That the special exception sought will not block or hamper the master development plan pattern of highway circulation or of planned major public or semipublic land acquisition.
4. That the exception sought will not alter the essential characteristics of the neighborhood and will not tend to depreciate the value of property adjoining and neighboring the property under application.
5. That reasonable provisions have been made for adequate land space, lot width, lot area, stormwater management in accordance with section 60-1301 (14), green space, driveway layout, road access, off-street parking, landscaping, building separation, sewage disposal, water supply, fire safety, and where applicable, a plan or contract for perpetual maintenance of all the common green space and clustered off-street parking areas to ensure all such areas will be maintained in a satisfactory manner.
6. That the standards imposed are, in all cases, at least as stringent as those elsewhere imposed by the city building code and by the provisions of this chapter.
7. That essential city services which will be required for the project are presently available or can be made available without disrupting the city's master development plan.

VIII. STAFF RECOMMENDATIONS -

Staff recommends the Planning Board find that the Site Plan for the proposed development, meets the requirements of Sec. 60-1277, and further that the application meets the requirements of Special Exception Law, Sec. 60-1336, and APPROVE the project application. Staff recommends the following conditions:

- *No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.*
- *Blasting permit in advance of blasting from the City of Auburn, Planning, Permitting and Code Department.*
- *Prior to the issuance of a Certificate of Occupancy the applicant must pass a Life Safety Inspection from the Auburn Fire Department*

Suggested Motions:

I make a motion that the proposal meets the requirements of Sections 60-1277 and 60-1336 and approve the Salt & Light Community Center for the property located at 29 Hampshire Street (Tax Map: 240-177), within the Downtown Traditional Center (T-5.1) zoning district. The proposed project has met the standards pursuant to Chapter 60, Article XVI, Division 2- Site Plan Review and Division 3 – Special Exception with the following conditions:

A. *No development activity until any bonding or inspection fees are determined by the Auburn Engineering Department.*
B. *Blasting permit in advance of blasting from the City of Auburn, Planning, Permitting and Code Department.*
C. *Prior to the issuance of a Certificate of Occupancy the applicant must pass a Life Safety Inspection from the Auburn Fire Department*

Natalie Thomsen
Planning Coordinator

Natalie Thomsen

From: Mike Rioux <mikerioux7@gmail.com>
Sent: Monday, February 24, 2025 2:47 PM
To: Natalie Thomsen
Cc: Darlene Conant; Dave Cleaves; John Blais; Gisele Guerrette
Subject: [External]Fw: Follow-Up on Staff Plan Review for Salt & Light Community Center

Hi Natalie,
Darlene Conant asked me to respond to your email below. I have modified the formatting of the email so our responses are easier to read. Dave Cleaves from Salt & Light has been working with John Blais and Kris Bennett on the curbing design. The final design will be submitted with the application.

We are planning to submit the application package with all copies by tomorrow.

Please don't hesitate to contact us with any questions.

Thanks,
Mike

---------- Forwarded message ---------
From: **Natalie Thomsen** <nthomsen@auburnmaine.gov>
Date: Fri, Feb 14, 2025 at 10:54 AM
Subject: Follow-Up on Staff Plan Review for Salt & Light Community Center
To: Darlene Conant <saltandlightcommunitycenter@gmail.com>
CC: Kristopher Bennett <kbennett@auburnmaine.gov>, John Blais <jblais@auburnmaine.gov>, Christopher Flynn <flynnsurveys@gmail.com>, Mike Rioux <mikerioux7@gmail.com>, Dave Cleaves <dcleaves74@yahoo.com>

Dear Darlene,
I hope you're doing well. Our Staff Plan Review Group met yesterday (February 13), and we have a few questions that need clarification, particularly for our public safety team.

1. Question: First, we would like to understand how many staff members will be on-site at a given time and whether there are enough parking spaces to accommodate them. While no parking is required by ordinance, the last use in this building had parking-related challenges. Auburn Police is interested in identifying any steps we can take to prevent this from becoming an issue again.

   Answer: The number of parking spaces needed will vary depending on the day of the week, but it should range between 6 and 9 spaces. Dave Cleaves has been working with John Blais and Kris Bennett and have come up with a final acceptable design. This design will be on the revised site plan (2/19/2025) which is being submitted in the application package.

2) Question: Additionally, both the Fire and Police Departments would like more information on the services you will be providing and the expected flow of activity at the site. Would your services fall under the category of a daycare, or are you planning to operate an after-school program?

Answer: We are not a day care facility and do not plan on ever being one. Salt & Light is a Christian-based organization that brings hope to inner-city youth and families facing trauma, broken family dynamics and other challenges. Our emphasis is on building up the community by bringing holistic development addressing physical, emotional, spiritual, and financial well-being to inner city youth. We provide consistent, nurturing support in a way that fosters lasting change. We are planning to have an after-school program where youth will be dropped-in after school.

3) Question: If so, will there be designated pick-up and drop-off times?

Answer: We currently operate our after-school programs on just Wednesdays. Are target audience is youth living at a walkable distance in the neighborhood. We will remain on a drop-in basis.

3) Question: What age groups will you be serving, and how many children do you anticipate being in your care at any given time?

Answer: We will have two afterschool programs, currently operating only on Wednesdays. One group will be for youth from the age of kindergarten through the fifth grade. Our goal is to have 10 youth and five volunteers. This program will begin after school and end at 3:30pm. The other group will be for youth ranging in age from the sixth grade through the 12th grade. Our goal is to have 15 to 20 students and seven volunteers (two volunteers will be riding together). Most of these students will walk and some will be picked up by our volunteers. Our goal is to keep the teacher to student ratio high. This program will begin at 4:45pm and end at 7pm.

4) Question: From a building safety standpoint, are you planning any internal renovations that involve structural changes, such as adding or removing walls?

Answer: No, not at this time.

5) Question: Does the existing building have sprinklers?

Answer: Yes.

Depending on your responses, this use may fall under the definition of a daycare, which could require involvement from the Maine Department of Health and Human Services (DHHS) and review by the State Fire Marshal's Office.

To ensure all departments have sufficient time to review and provide additional feedback, we will need to receive a full, updated digital application packet back as soon as possible. This will allow us to meet the deadline for the March Planning Board meeting. In addition to the digital copy, we will also need paper copies of the absolute final submission by February 28, which should include two full-size copies of the plans, ten 11x17 copies of the plans, twelve copies of

the application, and one digital copy. Please note that the Planning Board is moving away from conditioning items, so even with the February 28 submission, if additional revisions are necessary based on feedback, your application may need to be moved to the April Planning Board meeting. Submitting your updates sooner will allow adequate time for review and any necessary adjustments.
Thank you for your cooperation, and please let us know if you have any questions. We look forward to your response.
Best,

Natalie

Natalie Thomsen | Planning Coordinator
City of Auburn
60 Court Street | Auburn, ME 04210 | 207.333.6601 x1155

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The City of Auburn is subject to statutes relating to public records.
E-mail sent or received by City employees are subject to these laws.
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From: John Blais <jblais@auburnmaine.gov>
Sent: Monday, February 10, 2025 9:01 AM
To: Dave Cleaves <dcleaves74@yahoo.com>; Darlene Conant <saltandlightcommunitycenter@gmail.com>; Mike Rioux <mikerioux7@gmail.com>; Christopher Flynn <flynnsurveys@gmail.com>
Cc: Natalie Thomsen <nthomsen@auburnmaine.gov>; Kristopher Bennett <kbennett@auburnmaine.gov>
Subject: RE: [External]Re: [External]Slat & Light 29 Hampshire St.

Dave,

We will need to get the two-opening closed up to 20' wide or write a request for waiver to the City Engineer, Kis Bennett.

You all are on the March 11 at 6:00pm.

John A. Blais
Deputy Director of Planning & Permitting
60 Court Street | Auburn, Maine 04210 | 207.333.6601 X1334
www.auburnmaine.gov

https://www.surveymonkey.com/r/AuburnCustomerSurvey

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Senders and receivers of City e-mail should presume that messages are subject to release.

From: Dave Cleaves <dcleaves74@yahoo.com>
Sent: Monday, February 3, 2025 5:20 PM
To: Darlene Conant <saltandlightcommunitycenter@gmail.com>; Mike Rioux <mikerioux7@gmail.com>; Christopher Flynn <flynnsurveys@gmail.com>; John Blais <jblais@auburnmaine.gov>
Cc: Natalie Thomsen <nthomsen@auburnmaine.gov>
Subject: [External]Re: [External]Slat & Light 29 Hampshire St.

John thanks for coming out today I marked up the site plan for your engineer to review . please let me know if we need anything else
Thanks Dave

On Wednesday, January 29, 2025 at 11:01:30 AM EST, John Blais <jblais@auburnmaine.gov> wrote:

We had the city engineer look at this option and they are suggesting going with slip form curbing.

John A. Blais
Deputy Director of Planning & Permitting
60 Court Street | Auburn, Maine 04210 | 207.333.6601 X1334
www.auburnmaine.gov

https://www.surveymonkey.com/r/AuburnCustomerSurvey

The City of Auburn is subject to statutes relating to public records. E-mail sent or received by City employees are subject to these laws. Senders and receivers of City e-mail should presume that messages are subject to release.

From: Darlene Conant <saltandlightcommunitycenter@gmail.com>
Sent: Wednesday, January 29, 2025 8:42 AM
To: John Blais <jblais@auburnmaine.gov>; Mike Rioux <mikerioux7@gmail.com>; Christopher Flynn <flynnsurveys@gmail.com>; Dave Cleaves <dcleaves74@yahoo.com>
Subject: [External]Slat & Light 29 Hampshire St.

Hi John,

We are going to bring on a project manager Dave Cleaves. He suggested creating a guardrail from pressure treated wood as a possible solution to the need for curbing.

Would this be a plausible solution to the curbing need? If so, what would be the specifications required?

Thanks for all your help on this project. I appreciate it.

Darlene Conant
Director, Salt & Light Community Center
(207) 376-7245

saltandlightcommunitycenter@gmail.com

City of Auburn, Maine
Office of Planning & Permitting
Eric J. Cousens, Director
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

Development Review Checklist

The following information is required where applicable to be submitted for an application to be complete

PROJECT NAME: Salt & Light Community Center
PROPOSED DEVELOPMENT ADDRESS: 29 Hampshire Street, Auburn
PARCEL #: 240-177

Required Information		*Check when Submitted*		*Applicable Ordinance*
Site Plan	See Attachment A	*Applicant*	*Staff*	
Darlene Conant 88 Goff St. Auburn	Owner's Names/Address			
Salt & Light Community Center	Names of Development			
	Professionally Prepared Plan			
240-177	Tax Map or Street/Parcel Number			
T-5.1	Zoning of Property			
See Site Plan	Distance to Property Lines			
See Site Plan	Boundaries of Abutting land			
See Site Plan	Show Setbacks, Yards and Buffers			
N/A	Airport Area of Influence			
See Site Plan	Parking Space Calcs			
See Site Plan	Drive Openings/Locations			
N/A	Subdivision Restrictions			
See Attachment B	Proposed Use			
N/A	PB/BOA/Other Restrictions			
Internal	Fire Department Review			
N/A	Open Space/Lot Coverage			

Required Information		*Check when Submitted*		*Applicable Ordinance*
Landscape Plan		*Applicant*	*Staff*	
N/A	Greenspace Requirements			
N/A	Setbacks to Parking			
N/A	Buffer Requirements			
N/A	Street Tree Requirements			
Trash removed everyday by staff	Screened Dumpsters			
ask John	Additional Design Guidelines			
ask John	Planting Schedule			

Stormwater & Erosion Control Plan		*Applicant*	*Staff*	
N/A	Compliance w/ chapter 500			
N/A	Show Existing Surface Drainage			
N/A	Direction of Flow			
N/A	Location of Catch Basins, etc.			
N/A	Drainage Calculations			
N/A	Erosion Control Measures			
N/A	Maine Construction General Permit			
N/A	Bonding and Inspection Fees			
N/A	Post-Construction Stormwater Plan			
N/A	Inspection/monitoring requirements			
Lighting Plan		*Applicant*	*Staff*	
No light shining on other	Full cut-off fixtures			
properties.	Meets Parking Lot Requirements			
Traffic Information		*Applicant*	*Staff*	
Curbing will be added to allow for a 32' wide entry.	Access Management			
Not yet purchased but will conform to Sec 60-638(a)&(c)	Signage			
Walk-in center	PCE - Trips in Peak Hour			

Required Information		*Check when Submitted*		*Applicable Ordinance*
ask John for all of these	Vehicular Movements			
	Safety Concerns			
	Pedestrian Circulation			
	Police Traffic			
	Engineering Traffic			
Utility Plan		***Applicant***	***Staff***	
Public water supply	Water			
Public water supply	Adequacy of Water Supply			
N/A	Water main extension agreement			
Public sewer connection	Sewer			
N/A	Available city capacity			
CMP	Electric			
Unitil	Natural Gas			
N/A	Cable/Phone			
Natural Resources		***Applicant***	***Staff***	
N/A	Shoreland Zone			
N/A	Flood Plain			
N/A	Wetlands or Streams			
N/A	Urban Impaired Stream			
N/A	Phosphorus Check			
N/A	Aquifer/Groundwater Protection			
N/A	Applicable State Permits			
N/A	Lake Auburn Watershed			
N/A	Taylor Pond Watershed			
Right, Title or Interest		***Applicant***	***Staff***	
	Verify			
	Document Existing Easements, Covenants, etc.			
Purchase & Sale Agreement (See Attachment C)				

Required Information		*Check when Submitted*		*Applicable Ordinance*
Technical & Financial Capacity		***Applicant***	***Staff***	
Letter from CEI	Cost Est./Financial Capacity			
(See Attachment D)	Performance Guarantee			
State Subdivision Law		***Applicant***	***Staff***	
N/A	Verify/Check			
N/A	Covenants/Deed Restrictions			
N/A	Offers of Conveyance to City			
N/A	Association Documents			
N/A	Location of Proposed Streets & Sidewalks			
N/A	Proposed Lot Lines, etc.			
N/A	Data to Determine Lots, etc.			
N/A	Subdivision Lots/Blocks			
N/A	Specified Dedication of Land			
Additional Subdivision Standards		***Applicant***	***Staff***	
N/A	Mobile Home Parks			
N/A	PUD			
A JPEG or PDF of the proposed site plan		***Applicant***	***Staff***	
Site Plan (See Attachment A)				
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving				

ATTACHMENT A

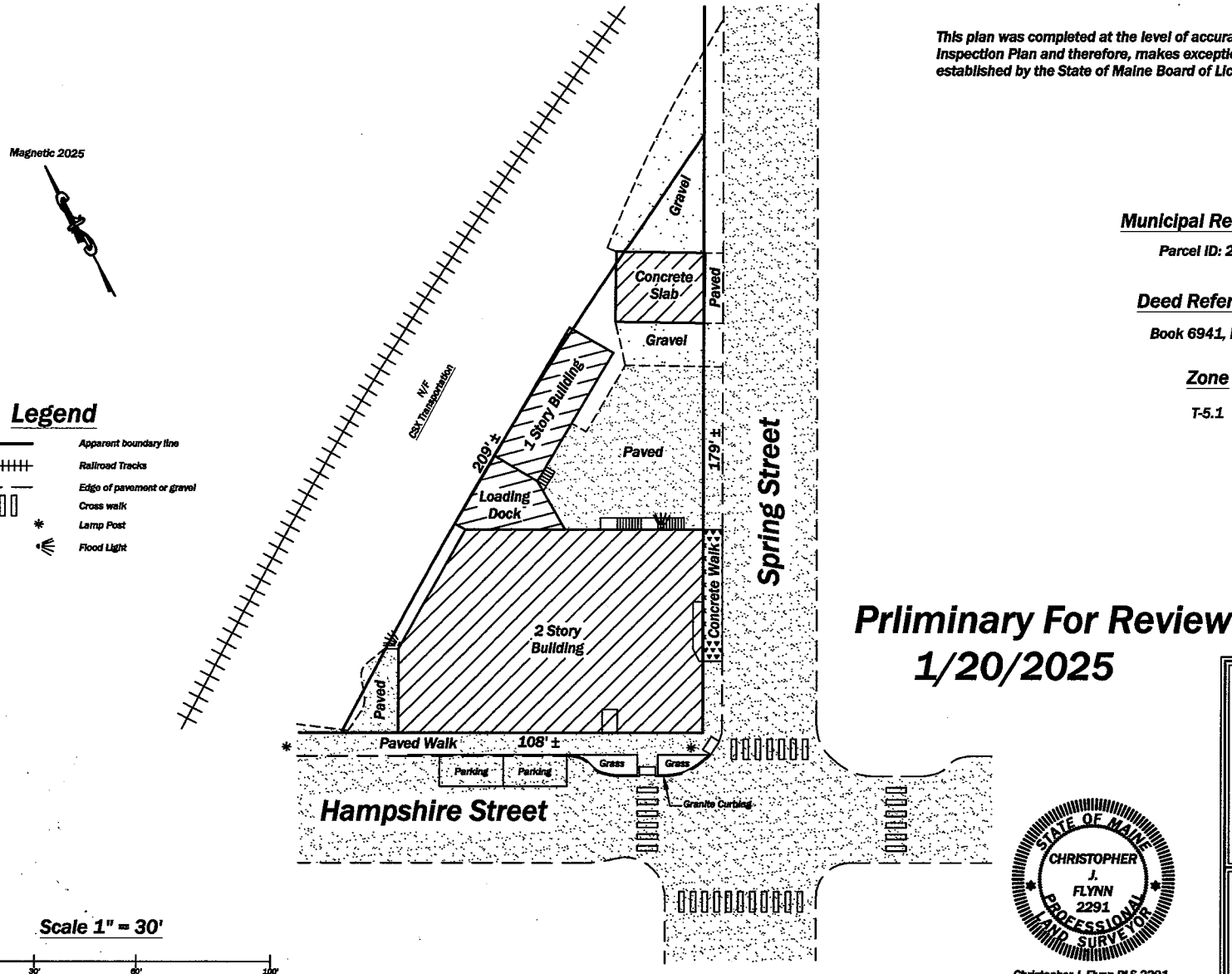
SITE PLAN

29 HAMPSHIRE STREET

AUBURN, MAINE

THIS IS NOT A BOUNDARY SURVEY AND SHOULD NOT BE RECORDED OR USED IN LOCATING BOUNDARIES

This plan was completed at the level of accuracy consistent with a Mortgage Loan Inspection Plan and therefore, makes exception to all the technical standards established by the State of Maine Board of Licensure for Professional Land Surveyors.



Municipal Reference

Parcel ID: 240-177

Deed Reference

Book 6941, Page 145

Zone

T-5.1

Prliminary For Review
1/20/2025

STATE OF MAINE
CHRISTOPHER J. FLYNN 2291
PROFESSIONAL LAND SURVEYOR

Christopher J. Flynn PLS 2291

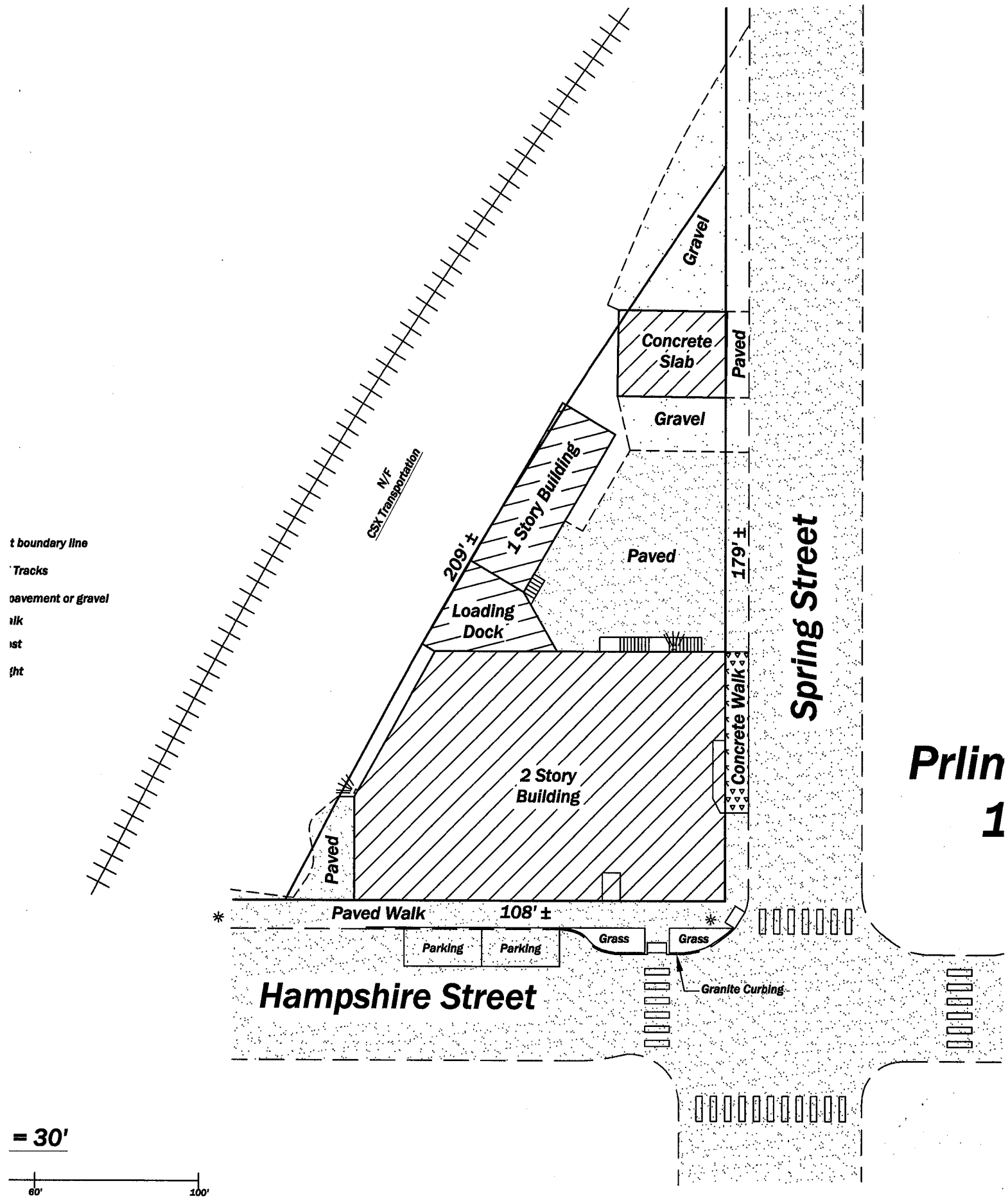
Existing Conditions Sketch
29 Hampshire Street
Auburn, Maine

Record Owner: York- Cumberland Associations for Handicapped Persons
DBA Creative Works System
443 Congress Street
Portland, Maine 04101

Date: January 2025 Scale: 1" = 30'

Prepared by
FLYNN LAND SURVEYING, LLC
136 Plains Road
Raymond, Maine 04071
207 329-9913

NOT A BOUNDARY SURVEY AND SHOULD NOT BE RECORDED



ATTACHMENT B

SUMMARY OF PROPOSED USE OF 29 HAMPSHIRE STREET

Summary of Proposed Use of 29 Hampshire Street, Auburn

The proposed use of 29 Hampshire Street is to establish a dedicated community center that serves as a hub for Salt & Light's mission-driven programs and initiatives. This facility will provide a safe and welcoming space for at-risk youth and families, offering after-school enrichment, youth group activities, parenting support, and community-building events. The building will include designated areas for art, music, fitness, and mentoring programs, fostering creativity, physical well-being, and spiritual growth. By creating a permanent home for these activities, 29 Hampshire Street will enable Salt & Light to expand its outreach, strengthen family relationships, and promote healing and hope in alignment with its mission to serve the community and share the love of Christ.

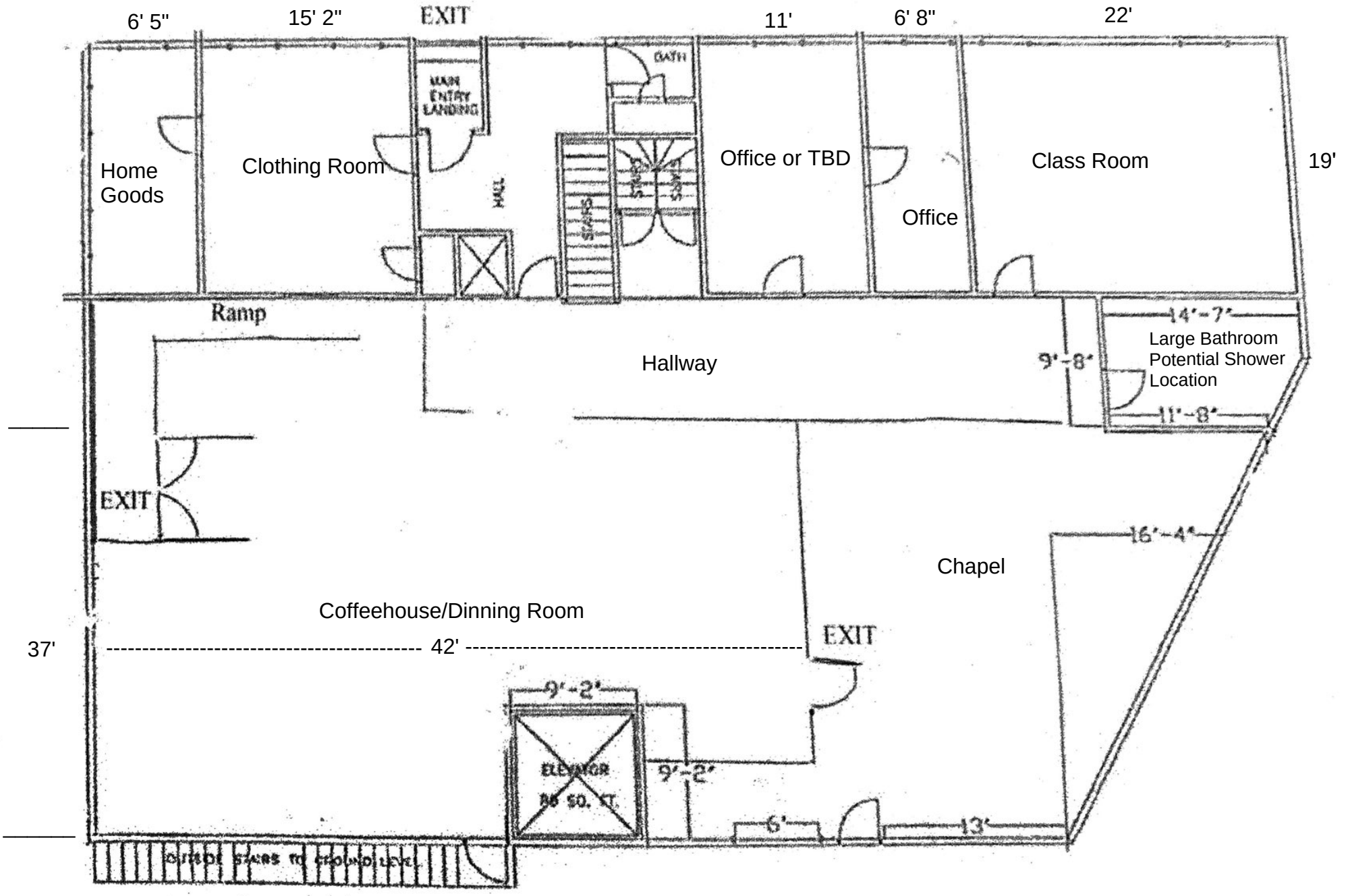


Figure 1 - 1st Floor

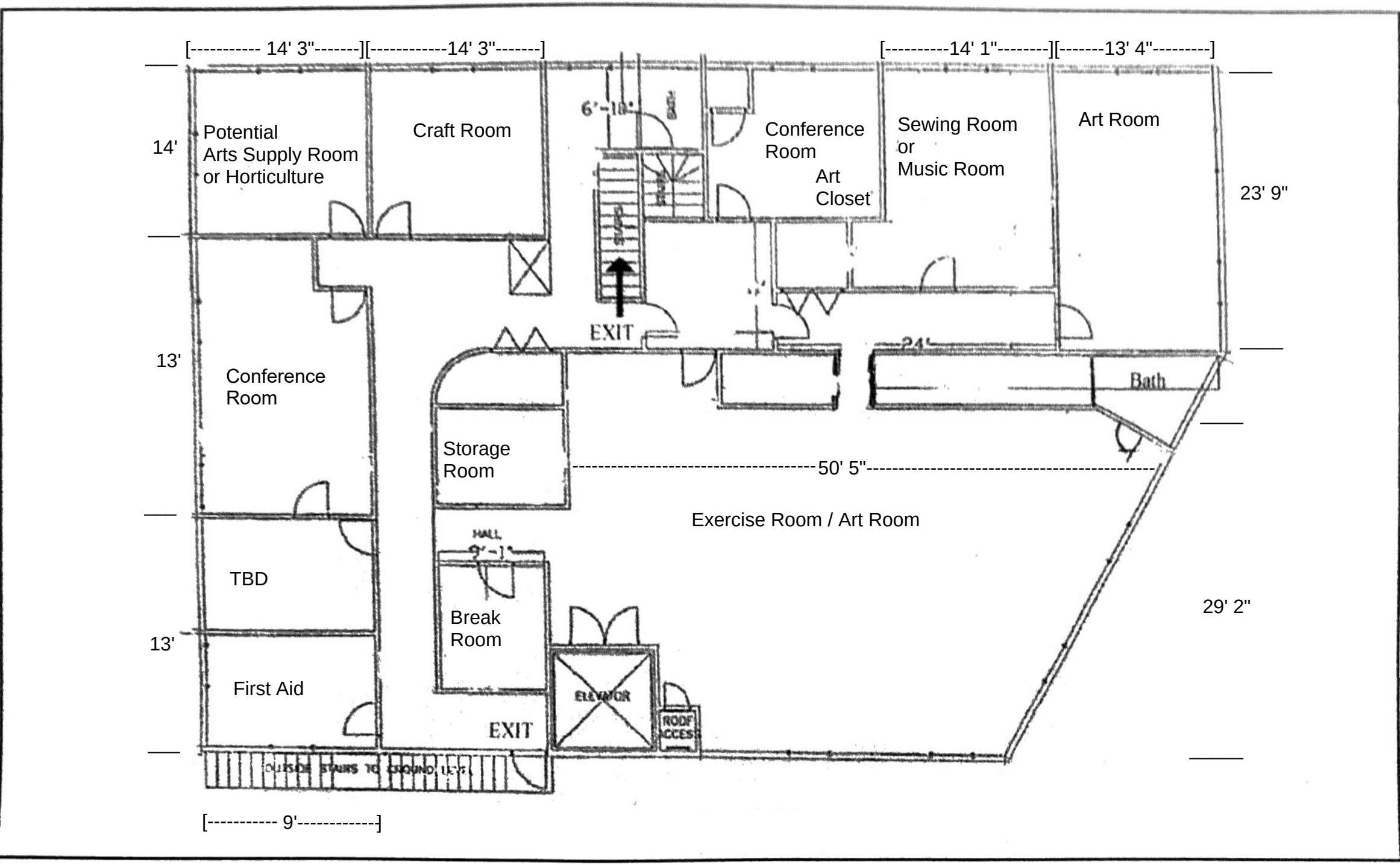


Figure 2 - 2nd Floor

ATTACHMENT C

PURCHASE AND SALE AGREEMENT

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Docusign Envelope ID: 74BE2DA2-B52E-4296-81D2-884BEF9349BD

PURCHASE AND SALE AGREEMENT

("days" means business days unless otherwise noted, see paragraph 23)

January 7 , **2025**
Offer Date

01/17/2025 , _____ Effective Date
Effective Date is defined in Paragraph 23 of this Agreement.

1. PARTIES: This Agreement is made between **Salt & Light Community Center** ("Buyer") and **York-Cumberland Assoication for Handicapped Persons, DBA Creative Work Systems** ("Seller").

2. DESCRIPTION: Subject to the terms and conditions hereinafter set forth, Seller agrees to sell and Buyer agrees to buy [X] all [ ] part of (if "part of" see para. 26 for explanation) the property situated in municipality of **Auburn**, County of **Androscoggin**, State of Maine, located at **29 Hampshire Street** and described in deed(s) recorded at said County's Registry of Deeds Book(s) **6941** **All**, Page(s) **145** **All**.

3. FIXTURES: The Buyer and Seller agree that all fixtures, including but not limited to existing storm windows, screens, shades and/or blinds, shutters, curtain rods, built-in appliances, heating sources/systems including gas and/or kerosene-fired heaters and wood/pellet stoves, sump pump, electrical fixtures, hard-wired generators, landscaping, and **----** are included with the sale except for the following: **none**. Seller represents that all mechanical components of fixtures will be operational at the time of closing except: **all operational**.

4. PERSONAL PROPERTY: The following items of personal property as viewed on **January 7, 2025** are included with the sale at no additional cost, in "as is" condition with no warranties: **all seller owned kitchen appliances**.

5. PURCHASE PRICE/EARNEST MONEY: For such Deed and conveyance Buyer agrees to pay the total purchase price of $465,000. Buyer [ ] has delivered; or [X] will deliver to the Agency within **10** days of the Effective Date, deposit of earnest money in the amount $ **5,000.00**. Buyer agrees that an additional deposit of earnest money in the amount of $ **------** will be delivered **--------**. If Buyer fails to deliver the initial or additional deposit in compliance with the above terms Seller may terminate this Agreement. This right to terminate ends once Buyer has delivered said deposit(s). The remainder of the purchase price shall be paid by wire, certified, cashier's or trust account check upon delivery of the Deed.

DC 01/17/25 8:16 AM EST dotloop verified
DS MH

This Purchase and Sale Agreement is subject to the following conditions:

6. ESCROW AGENT/ACCEPTANCE: **The Dunham Group** ("Agency") shall hold said earnest money and act as escrow agent until closing; this offer shall be valid until 01/20/2025 (date) **12:00** [ ] AM [X] PM; and, in the event of non-acceptance, this earnest money shall be returned promptly to Buyer.

DS MH
DC 01/17/25 8:16 AM EST dotloop verified

7. TITLE AND CLOSING: A deed, conveying good and merchantable title in accordance with the Standards of Title adopted by the Maine Bar Association shall be delivered to Buyer and this transaction shall be closed and Buyer shall pay the balance due and execute all necessary papers on **March 31, 2025** (closing date) or before, if agreed in writing by both parties. If Seller is unable to convey in accordance with the provisions of this paragraph, then Seller shall have a reasonable time period, not to exceed 30 calendar days, from the time Seller is notified of the defect, unless otherwise agreed to in writing by both Buyer and Seller, to remedy the title. Seller hereby agrees to make a good-faith effort to cure any title defect during such period. If, at the later of the closing date set forth above or the expiration of such reasonable time period, Seller is unable to remedy the title, Buyer may close and accept the deed with the title defect or may terminate this Agreement in which case the parties shall be relieved of any further obligations hereunder and any earnest money shall be returned to the Buyer.

8. DEED: The property shall be conveyed by a ~~Warranty~~ Quitclaim w/ covenants deed, and shall be free and clear of all encumbrances except covenants, conditions, easements and restrictions of record which do not materially and adversely affect the continued current use of the property.

DS MH

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Docusign Envelope ID: 74BE2DA2-B52E-4296-81D2-884BEF9349BD

9. POSSESSION, OCCUPANCY, AND CONDITION: Unless otherwise agreed in writing, possession and occupancy of premises, free of tenants and occupants, shall be given to Buyer immediately at closing. Said premises shall then be broom clean, free of all possessions and debris, and in substantially the same condition as at present, excepting reasonable use and wear. Buyer shall have the right to view the property within 24 hours prior to closing.

10. RISK OF LOSS, DAMAGE, DESTRUCTION AND INSURANCE: Prior to closing, risk of loss, damage, or destruction of premises shall be assumed solely by the Seller. Seller shall keep the premises insured against fire and other extended casualty risks prior to closing. If the premises are damaged or destroyed prior to closing, Buyer may either terminate this Agreement and be refunded the earnest money, or close this transaction and accept the premises "as-is" together with an assignment of the insurance proceeds relating thereto.

11. FUEL/UTILITIES/PRORATIONS: Buyer ☐ shall ☒ shall not pay Seller at closing for all fuel in any tanks remaining on the property calculated as of the closing date or such earlier date as required to comply with lender requirements, if any. The amount owed, if any, shall be determined using the most recently available cash price of the company that last delivered the fuel. Metered utilities such as electricity, water and sewer will be paid through the date of closing by Seller. The following items, where applicable, shall be prorated as of the date of closing: collected rent, association fees, (other) **N/A** . The day of closing is counted as a Seller day. Real estate taxes shall be prorated as of the date of closing (based on municipality's fiscal year). Seller is responsible for any unpaid taxes for prior years. If the amount of said taxes is not known at the time of closing, they shall be apportioned on the basis of the taxes assessed for the preceding year with a reapportionment as soon as the new tax rate and valuation can be ascertained, which latter provision shall survive closing. Buyer and Seller will each pay their transfer tax as required by State of Maine.

12. DUE DILIGENCE: Neither Seller nor Licensee makes any warranties regarding the condition, permitted use or value of Sellers' real or personal property, or any representations as to compliance with any federal, state or municipal codes, including, but not limited to, fire, life safety, electrical and plumbing. Buyer is encouraged to seek information from professionals regarding any specific issue or concern.

☐ Buyer's obligation to close under this Agreement is not subject to any due diligence investigations. Buyer is relying completely upon Buyer's own opinion as to the condition of the property.

☒ Buyer's obligation to close under this Agreement is subject to Buyer's satisfaction with the results of any due diligence investigations undertaken. Buyer shall have **30** days from the Effective Date of this Agreement to perform such due diligence investigations as Buyer deems necessary which may include, but are not limited to, any or all of the following:

General Building	Square Footage	Zoning	Survey/MLI	Habitat Review/Waterfowl
Sewage Disposal	Code Conformance	Pests	Lead Paint	Shoreland Septic
Water Quality	Registered Farmland	Pool	Flood Plain	Energy Audit
Water Quantity	Environmental Scan	Insurance	Chimney	Lot Size/Acreage
Air Quality	Smoke/CO Detectors	Mold	Tax Status*	Arsenic Wood/Water (see par. 13)

All investigations will be done at Buyer's expense by persons chosen by Buyer in Buyer's sole discretion. Seller agrees to cooperate with Buyer and shall give Buyer and Buyer's agents and consultants reasonable access to the property and its systems and fixtures in order to undertake the above investigations. Buyer agrees to take reasonable steps to return the property to its pre-inspection condition. If the result of any investigation is unsatisfactory to Buyer in Buyer's sole discretion, Buyer may terminate this Agreement by notifying Seller in writing within the specified number of days, and any earnest money shall be returned to Buyer. If the result of any investigation is unsatisfactory to Buyer, and Buyer wishes to pursue remedies other than voiding the Agreement, Buyer must do so to full resolution within the time period set forth above; otherwise this contingency is waived. If Buyer does not notify Seller that an investigation is unsatisfactory within the time period set forth above, or if any investigation under this paragraph is not performed or completed during the period specified in this paragraph, this contingency and the right to conduct an investigation are waived by Buyer.

* If the property is enrolled in the Maine Tree Growth Tax program, Seller agrees to provide Buyer with the current Forest Management and Harvest Plan within --- days. ☐ Yes ☒ No

13. PROPERTY DISCLOSURE FORM: Buyer acknowledges receipt of Property Disclosure Form and the information developed by the Maine Center for Disease Control and Prevention regarding arsenic in private water supplies and arsenic in treated wood.

dotloop signature verification: dtlp.us/6wgN-tfUm-XjI1-u
Docusign Envelope ID: 74BE2DA2-B52E-4296-81D2-884BEF9349BD

14. FINANCING: Buyer's obligation to close:

Not Subject to Financing

☐ is not subject to a financing contingency. Buyer has provided Seller with acceptable proof of the funds.

☐ is not subject to a financing contingency. Buyer shall provide proof of the funds acceptable to Seller within _____ days. If such proof is unacceptable to Seller, Seller may terminate this Agreement no later than _____ days from receipt. If proof of funds is not provided within such time period, Seller may terminate this Agreement which right shall end once such proof is received, however Seller retains the agreed upon time period to terminate if such proof is unacceptable. If Seller terminates in either case, the earnest money shall be returned to Buyer.

☐ Buyer's ability to purchase ☐ is ☐ is not subject to the sale of another property. See addendum ☐ Yes ☐ No.

☐ Seller agrees to pay up to $ _____ toward Buyer's actual pre-paids and/or closing costs.

Subject to Financing

☒ Buyer's obligation to close is subject to financing as follows:

a. Buyer's obligation to close is subject to Buyer obtaining a **Business** loan of **100.000** % of the purchase price, at an interest rate not to exceed **N/A** % and amortized over a period of **N/A** years. Buyer is under a good faith obligation to seek and obtain financing on these terms. If such financing is not available to Buyer as of the closing date, Buyer is not obligated to close and may terminate this Agreement in which case the earnest money shall be returned to Buyer.

b. Buyer to provide Seller with letter from lender showing that Buyer has made application for loan specified in (a) and, subject to verification of information, is qualified for the loan requested within **---** days from the Effective Date of the Agreement. If Buyer fails to provide Seller with such letter within said time period, Seller may terminate this Agreement and the earnest money shall be returned to Buyer. This right to terminate ends once Buyer's letter is received.

c. Buyer hereby authorizes, instructs and directs its lender to communicate the status of the Buyer's loan application to Seller, Seller's licensee and Buyer's licensee.

d. After (b) is met, if the lender notifies Buyer that it is unable or unwilling to provide said financing, Buyer is obligated to provide Seller with the written documentation of the loan denial within two days of receipt. After notifying Seller, Buyer shall have **5** days to provide Seller with a letter from another lender showing that Buyer has made application for loan specified in (a) and, subject to verification of information, is qualified for the loan requested. If Buyer fails to provide Seller with such letter within said time period, Seller may terminate this Agreement and the earnest money shall be returned to Buyer. This right to terminate ends once Buyer's letter is received.

e. Buyer agrees to pay no more than **0** points. Seller agrees to pay up to $ **----------** toward Buyer's actual pre-paids, points and/or closing costs, but no more than allowable by Buyer's lender.

f. Buyer's ability to obtain financing ☐ is ☒ is not subject to the sale of another property. See addendum ☐ Yes ☒ No.

g. Buyer may choose to pay cash instead of obtaining financing. If so, Buyer shall notify Seller in writing including providing proof of funds and the Agreement shall no longer be subject to financing, and Seller's right to terminate pursuant to the provisions of this paragraph shall be void and Seller's obligations pursuant to 14e shall remain in full force and effect.

15. BROKERAGE DISCLOSURE: Buyer and Seller acknowledge they have been advised of the following relationships:

Justin Lamontagne (**012226**) of **The Dunham Group** (**1795**)
Licensee MLS ID Agency MLS ID

is a ☒ Seller Agent ☐ Buyer Agent ☐ Disc Dual Agent ☐ Transaction Broker

Alexander Matthews (**019190**) of **Summit Real Estate** (**3192**)
Licensee MLS ID Agency MLS ID

is a ☐ Seller Agent ☒ Buyer Agent ☐ Disc Dual Agent ☐ Transaction Broker

If this transaction involves Disclosed Dual Agency, the Buyer and Seller acknowledge the limited fiduciary duties of the agents and hereby consent to this arrangement. In addition, the Buyer and Seller acknowledge prior receipt and signing of a Disclosed Dual Agency Consent Agreement.

16. DEFAULT/RETURN OF EARNEST MONEY: Buyer's failure to fulfill any of Buyer's obligations hereunder shall constitute a default and Seller may employ all legal and equitable remedies, including without limitation, termination of this Agreement and forfeiture by Buyer of the earnest money. Seller's failure to fulfill any of Seller's obligations hereunder shall constitute a default and Buyer may employ all legal and equitable remedies, including without limitation, termination of this Agreement and return to Buyer of the earnest money. Agency acting as escrow agent has the option to require written releases from both parties prior to disbursing the earnest money to either Buyer or Seller. In the event that the Agency is made a party to any lawsuit by virtue of acting as escrow agent, Agency shall be entitled to recover reasonable attorney's fees and costs which shall be assessed as court costs in favor of the prevailing party.

17. MEDIATION: Earnest money or other disputes within the jurisdictional limit of small claims court will be handled in that forum. All other disputes or claims arising out of or relating to this Agreement or the property addressed in this Agreement (other than requests for injunctive relief) shall be submitted to mediation in accordance with generally accepted mediation practices. Buyer and Seller are bound to mediate in good faith and to each pay half of the mediation fees. If a party fails to submit a dispute or claim to mediation prior to initiating litigation (other than requests for injunctive relief), then that party will be liable for the other party's legal fees in any subsequent litigation regarding that same matter in which the party who failed to first submit the dispute or claim to mediation loses in that subsequent litigation. This clause [illegible]vive the closing of the transaction.

 Buyer(s) Initials DC 01/07/25 2:36 PM EST _____ _____ _____ Seller(s) Initials DS MH _____ _____ _____

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dotloop signature verification: dtlp.us/6wgN-tfUm-XjI1-u
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18. PRIOR STATEMENTS: Any representations, statements and agreements are not valid unless contained herein. This Agreement completely expresses the obligations of the parties and may only be amended in writing, signed by both parties.

19. HEIRS/ASSIGNS: This Agreement shall extend to and be obligatory upon heirs, personal representatives, successors, and assigns of the Seller and the assigns of the Buyer.

20. COUNTERPARTS: This Agreement may be signed on any number of identical counterparts with the same binding effect as if the signatures were on one instrument. Original or faxed or other electronically transmitted signatures are binding.

21. SHORELAND ZONE SEPTIC SYSTEM: Seller represents that the property ☐ does ☒ does not contain a septic system within the Shoreland Zone. If the property does contain a septic system located in the Shoreland Zone, Seller agrees to provide certification at closing indicating whether the system has/has not malfunctioned within 180 calendar days prior to closing.

22. NOTICE: Any notice, communication or document delivery requirements hereunder may be satisfied by providing the required notice, communication or documentation to or from the parties or their Licensee. Only withdrawals of offers and withdrawals of counteroffers will be effective upon communication, verbally or in writing.

23. EFFECTIVE DATE/BUSINESS DAYS: This Agreement is a binding contract when the last party signing has caused a paper or electronic copy of the fully executed agreement to be delivered to the other party which shall be the Effective Date. Licensee is authorized to fill in the Effective Date on Page 1 hereof. Except as expressly set forth to the contrary, the use of the term "days" in this Agreement, including all addenda made a part hereof, shall mean business days defined as excluding Saturdays, Sundays and any observed Maine State/Federal holidays. Deadlines in this Agreement, including all addenda, expressed as "within x days" shall be counted from the Effective Date, unless another starting date is expressly set forth, beginning with the first day after the Effective Date, or such other established starting date, and ending at 5:00 p.m. Eastern Time on the last day counted. Unless expressly stated to the contrary, deadlines in this Agreement, including all addenda, expressed as a specific date shall end at 5:00 p.m. Eastern Time on such date.

24. CONFIDENTIALITY: Buyer and Seller authorize the disclosure of the information herein to the real estate licensees, attorneys, lenders, appraisers, inspectors, investigators and others involved in the transaction necessary for the purpose of closing this transaction. Buyer and Seller authorize the lender and/or closing agent preparing the closing disclosure and/or settlement statement to release a copy of the closing disclosure and/or settlement statement to the parties and their licensees prior to, at and after the closing.

25. ADDENDA: Lead Paint - ☐ Yes ☒ No ; Other - ☐ Yes ☒ No Explain: _____

The Property Disclosure Form is not an addendum and not part of this Agreement.

26. OTHER CONDITIONS: **Offer is contingent upon the following terms; Approval from City Auburn Planning Board and Auburn Code Department . Loan is contingent upon successful approval from CEI. If either terms are not met, the earnest money will be refunded in full.**

27. GENERAL PROVISIONS:

a. A copy of this Agreement is to be received by all parties and, by signature, receipt of a copy is hereby acknowledged. If not fully understood, contact an attorney. This is a Maine contract and shall be construed according to the laws of Maine.
b. Seller acknowledges that State of Maine law requires buyers of property owned by non-resident sellers to withhold a prepayment of capital gains tax unless a waiver has been obtained by Seller from the State of Maine Revenue Services.
c. Buyer and Seller acknowledge that under Maine law payment of property taxes is the legal responsibility of the person who owns the property on April 1, even if the property is sold before payment is due. If any part of the taxes is not paid when due, the lien will be filed in the name of the owner as of April 1 which could have a negative impact on their credit rating. Buyer and Seller shall agree at closing on their respective obligations regarding actual payment of taxes after closing. Buyer and Seller should make sure they understand their obligations agreed to at closing and what may happen if taxes are not paid as agreed.
d. Buyer acknowledges that Maine law requires continuing interest in the property and any back up offers to be communicated by the listing agent to the Seller.
e. Whenever this Agreement provides for earnest money to be returned or released, agency acting as escrow agent must comply with the Maine Real Estate Commission rules which may require written notices or obtaining written releases from both parties.

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28. ELECTRONIC SIGNATURES: Pursuant to the Maine Uniform Electronic Transactions Act and Digital Signature Act, the parties authorize and agree to the use of electronic signatures as a method of signing/initialing this Agreement, including all addenda. The parties hereby agree that either party may sign electronically by utilizing an electronic signature service.
29. Upon acceptance of the offer or counteroffer, Seller agrees to deliver the above-described property at the price and upon the terms and conditions set forth and agrees to pay agency a commission for services as specified in the listing agreement.

Buyer's Mailing address is _____.

Darlene Conant dotloop verified 01/07/25 2:36 PM EST IJLF-6MIC-D9IY-ITZ6

BUYER **Salt & Light Community Center**	DATE	BUYER	DATE
BUYER	DATE	BUYER	DATE

Seller hereby accepts the offer set forth above.

Seller's Mailing address is _____.

DocuSigned by: Matthew Hickey A914741F4E264DE...

SELLER **York-Cumberland Assoication for Handicapped**	DATE	SELLER Matthew Hickey	DATE
SELLER	DATE	SELLER CEO 1/17/2025	DATE

COUNTER-OFFER

Seller agrees to sell on the terms and conditions as detailed herein with the following changes and/or conditions:

The parties acknowledge that until signed by Buyer, Seller's signature constitutes only an offer to sell on the above terms and the offer will expire unless accepted by Buyer's signature with communication of such signature to Seller by (date) _____ (time) _____ ☐ AM ☐ PM.

SELLER	DATE	SELLER	DATE
SELLER	DATE	SELLER	DATE

The Buyer hereby accepts the counter offer set forth above.

BUYER	DATE	BUYER	DATE
BUYER	DATE	BUYER	DATE

EXTENSION

The closing date of this Agreement is extended until _____ DATE.

SELLER	DATE	SELLER	DATE
SELLER	DATE	SELLER	DATE
BUYER	DATE	BUYER	DATE
BUYER	DATE	BUYER	DATE

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ATTACHMENT D

LETTER FROM

COSTAL ENTERPRISES, INC.

City of Auburn, Maine
Planning & Permitting Department
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

TO: Auburn Planning Board
FROM: Natalie Thomsen, Planning Coordinator
DATE: March 11, 2025
SUBJECT: Follow-Up on Election Procedures: Establishing a Subcommittee for Policy Review

Background:

At the request of the Planning Board, Attorney Daniel C. Stockford reviewed and determined that the procedure that the Board followed in electing the Chair and Vice Chair at the January 14, 2025 meeting was consistent with the Board's own Policies and Procedures, in that candidates for the officer positions were nominated from the floor, one nomination was received for each position, and the nominees for each position received majority votes of the membership of the Planning Board. His March 3, 2025 memorandum also provided recommendations in order to better clarify the process that should be followed for officer elections going forward.

Forward. With this in mind, it is recommended that the Planning Board form a subcommittee to review and revise the Board's Policies and Procedures. The goal is to clarify election procedures and ensure consistency with best practices and governing regulations.

Recommendation:

Pursuant to Sec. 2-476[1] - Committees, the Planning Board should establish a subcommittee at this meeting to evaluate the Board's Policies and Procedures. The subcommittee will assess the proposed amendments from the March 3 memorandum, identify any additional necessary revisions, and prepare recommendations for Board review.

Motion:

"I move that the Planning Board form a subcommittee to review and recommend revisions to the Planning Board's Policies and Procedures, including but not limited to officer election procedures, and to present proposed amendments to the full Board for review and approval. The Chairperson shall appoint members to this subcommittee."

Next Steps:

If approved, the Chairperson will appoint members to the subcommittee at this meeting. The subcommittee will establish a timeline for review and present recommendations to the Board at a future meeting.

This subcommittee will ensure the Planning Board's Policies and Procedures are clearly defined, transparent, and aligned with best practices.

1. The chairperson of the planning board may from time to time assign the members of the board to such regular and special committees as may be established by the board. Such committees shall have no final authority but shall assist the board in the conduct of its business by making recommendations to it concerning such specific items as may be assigned to them for study and report.

BRANN & ISAACSON
ATTORNEYS AND COUNSELORS AT LAW

DANIEL C. STOCKFORD | Partner
dstockford@brannlaw.com

MEMORANDUM

TO:	Eric Cousens, Executive Director of Public Services; David Hediger, Director of Planning; John A. Blais, Deputy Director of Planning & Permitting
CC:	Phil Crowell, City Manager
FROM:	Daniel C. Stockford, Esq.
DATE:	March 3, 2025
RE:	Validity of Planning Board Vote for Election of Chair and Vice Chair

This memorandum is in response to the inquiry whether the City of Auburn Planning Board is required to conduct a new election for Chair and Vice Chair of the Planning Board due to a procedural issue in the election for those offices at the Planning Board meeting on January 14, 2025.

Factual Background

In the election of the Chair and the Vice Chair of the Planning Board at the January 14 Planning Board meeting, I understand that one candidate was nominated for each position, and that both nominations were approved by majority votes of the Board. A question has arisen as to whether the elections were valid and whether the Planning Board is required to take additional action with respect to the election

The City of Auburn Planning Board Policies and Procedures provides, with respect to election of officers, that officers "shall be nominated from the floor," and that "[a] candidate receiving a majority vote of the membership of the Planning Board present at the meeting shall be declared elected and shall serve one year or until his or her successor shall take office." The Policies and Procedures further provide that "[i]f more than one member is nominated for the same position, then the Board shall vote by written ballot, which ballots are public records within the meaning of the Freedom of Access Act."

While Robert's Rules of Order are referenced in the Planning Board's Policies and Procedures, the reference to Robert's Rules relates to the duties of the Chair position rather than to the general applicability of Robert's Rules to the proceedings of the Planning Board. Robert's Rules of Order generally provide that when there is no nominating committee for officer positions and nominations are taken from the floor, the chair should invite nominations until all nominations for a vacant office have been made, before a vote on the nominations. Robert's Rules of Order Newly Revised, 12th Edition, at ¶46:8 ("If there is no nominating committee and nominations are to be from the floor, the chair calls for them by saying, for example, 'Nominations are now in order for the office of President.'…The chair repeats each nomination in this way until all nominations for the office have been made…When it appears that no one else wishes to make a nomination, the chair again asks if there are any further nominations; and if there is no response, he normally declares that nominations (for that office) are closed, without waiting for a motion to that effect….After nominations have been closed, they can be reopened by a majority vote…After nominations have been closed, voting for the office takes place…..")

Analysis

The procedure that the Planning Board followed in electing the Chair and Vice Chair was consistent with the Board's own Policies and Procedures, in that candidates for the officer positions were nominated from the floor, one nomination was received for each position, and the nominees for each position received majority votes of the membership of the Planning Board. While it appears that the Chair did not specifically ask for additional nominations and did not specifically state that nominations were closed, I understand that no members of the Planning Board requested or moved to submit additional nominations, nor did any member raise a point of order with respect to the procedure that was followed. In the absence of any request or motion by a Planning Board member to submit additional nominations, and with no point of order raised regarding the process that was followed, the Board is not required take further action regarding the election of officers. Robert's Rules of Order Newly Revised, 12th Edition, at ¶23:5 ("The general rule is that if a question of order is to be raised, it must be raised promptly at the time the breach occurs….Points of order regarding the conduct of a vote must be raised immediately following the announcement of the voting result.")

Recommendation

In order to better clarify the process that should be followed for officer elections going forward, we recommend that the Planning Board consider amendments to its Policies and Procedures to specify the process for soliciting nominations in officer elections. We also

recommend language that makes clear that Robert's Rules of Order shall be looked to as a source of authority when procedures are not determined in the Policies and Procedures. Following are proposed revisions to Articles III and IV of the Planning Board Policies and Procedures to address these issues, with new language underlined and in bold, and deleted language reflected in strikethrough:

ARTICLE III. Officers and Their Duties

A. The Officers and their Duties of the Planning Board shall be defined in the City of Auburn Code of Ordinances under Chapter 2. Article V. Division 4, Section 2-467.
B. The Chairperson shall preside at all meetings and hearings of the Planning Board and shall have the duties normally conferred by parliamentary usage as written in "Roberts Rules of Order."
C. The Chairperson shall have the privilege of discussing all matters before the Board and to vote thereon.
D. In cases where the parliamentary procedures for Planning Board meetings are not determined in these policies and procedures, Robert's Rules of Order, Newly Revised, shall be taken as authority to decide the course of proceedings.

ARTICLE IV. Election of Officers

A. **The Planning Board shall elect officers annually from the Board's own membership** ~~Officers shall be nominated from the floor and elected~~ at the regular February meeting. **The Chairperson shall call for nominations from the floor for each officer position, until all nominations for the position have been made, and the Board shall then vote as provided in Subsection B of this Article.**
B. If more than one member is nominated for the same position, then the Board shall vote by written ballot, which ballots are public records within the meaning of the Freedom of Access Act. **If only one member is nominated for a position, the vote shall be conducted by roll call vote.**
C. A candidate receiving a majority vote of the membership of the Planning Board present at the meeting shall be declared elected and shall serve one year or until his or her successor shall take office.
D. Vacancies in offices shall be filled at the first possible regular meeting after the occurrence of the vacancy in the manner described in the previous Sections of this Article.