

Attachment L

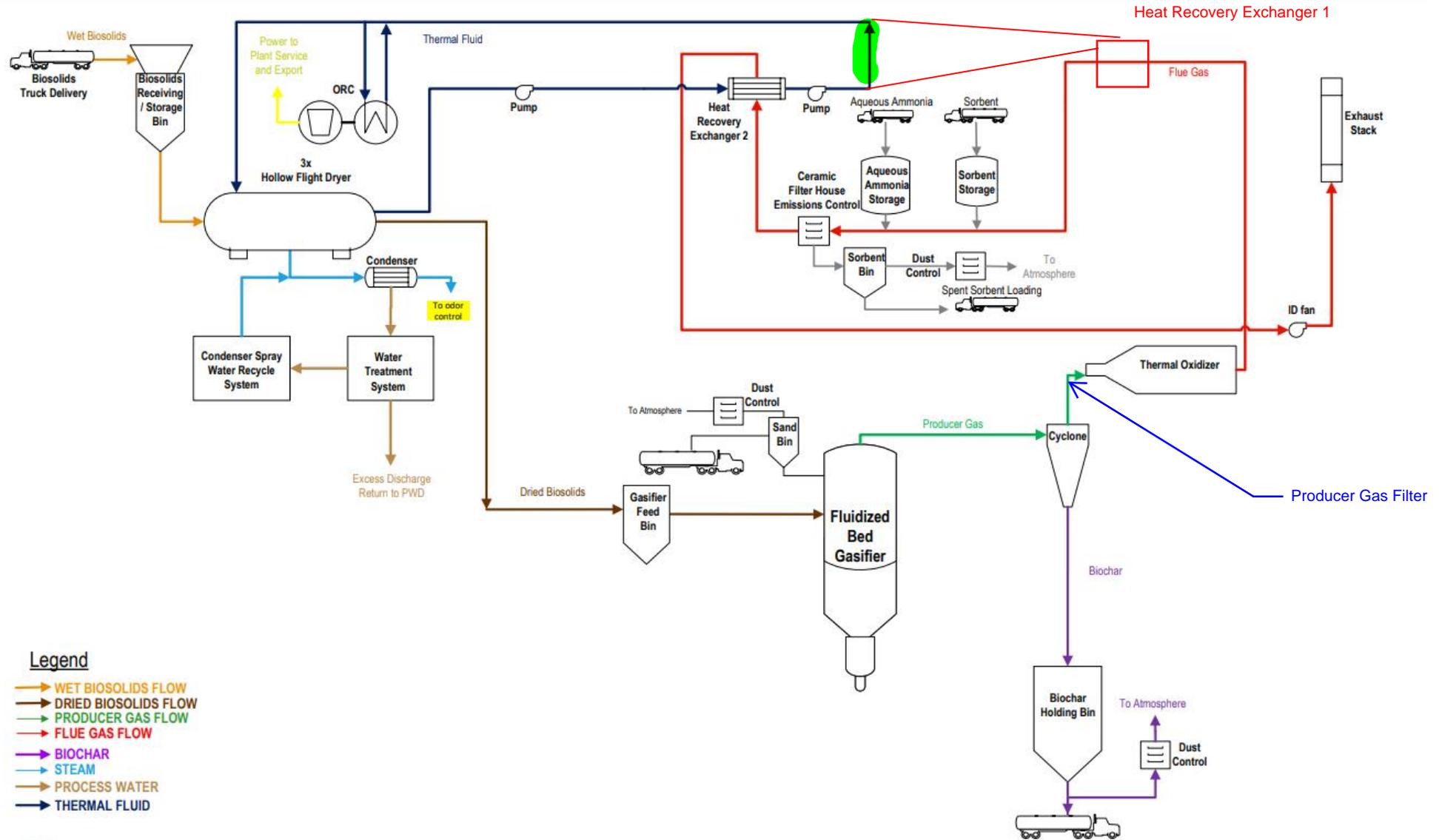
Aquifer Map

Attachment M

Process Flow Diagram



Aries Facility Process Flow Diagram



Legend

- WET BIOSOLIDS FLOW
- DRIED BIOSOLIDS FLOW
- PRODUCER GAS FLOW
- FLUE GAS FLOW
- BIOCHAR
- STEAM
- PROCESS WATER
- THERMAL FLUID



Aries Gasification Facility

Attachment N

Traffic Generation Assessment

Initial Assessment of Traffic Generation

Aries Clean Technologies is proposing to construct a wastewater gasification facility. The facility is expected to process approximately 140,000 tons per year of wastewater and biosolids. The proposed development will access Cyro Road by utilizing a new entrance to the property. A total of 9 new parking spaces are proposed, which will be utilized by on-site employees and contractors. This assessment has been prepared to evaluate the traffic impact of the development on the receiving roadways and public safety.

The development will utilize Cyro Road, an existing dead-end cul-de-sac. This road intersects with Main Street (ME Route 109). The lot is part of a previously approved industrial subdivision in which the intersection was originally reviewed and approved by Maine DOT. The proposed development is in line with the uses that were intended with the approved subdivision. A posted speed limit on Main Street at this location was observed to be 45 mph.

No sidewalks are present on Cyro Road or Main Street.

It is estimated that 75% of traffic entering and leaving the site would be turning left out of the entrance onto Main Street and turning right into the site from Main Street. This is due to the location of US Route 95 to the east.

The public transportation servicing the area is provided by York County Community Action Corporation, with the nearest bus stop in front of Walmart on Main Street roughly 1.3 miles from the subject property. The bus route avoids the intersection of Cyro Road and Main Street, instead travelling parallel to Main Street on Airport Road. This will limit impacts on public transport due to the proposed development.

The following information is provided as an estimate based on the Institute of Traffic Engineer – ITE Trip Generation Manual, 11th Edition, while also considering empirical evidence from the developer based on the capacity of the facility and performance of previously constructed sites. It has been indicated that the facility will accommodate 22 trucks during a normal day of operation. Information that is publicly available from the Maine DOT was utilized to evaluate the expected impact with respect to existing traffic flow and safety conditions.

The estimation of traffic volume was based on the Industrial, 140 - Manufacturing, land use category. Although the specific use proposed is not listed in the manual, this use adequately mimics the predicted 22 truck trips when evaluated for a 100,000 sf facility.

Following this above scenario would result in the following:

ITE Land Use Code 140 – Manufacturing – 100,000 sf (Truck traffic only)

				<u>Total Trucks</u>
Daily Trip Ends Weekday/ 1,000 sf	0.45 ave	(range 0.00 – 5.50)	45 Trip ends	22.5 Trips
Peak Hour AM Trip Ends Weekday/ 1,000 sf	0.03 ave	(range 0.03 - 0.14)	3 Trip ends	1.5 Trips
Peak Hour PM Trip Ends Weekday/ 1,000 sf	0.03 ave	(range 0.03 - 0.14)	3 Trip ends	1.5 Trips
Peak Hour AM Generator Trip Ends Weekday/ 1,000 sf	0.02 ave	(range 0.02 - 0.12)	2 Trip ends	1 Trips
Peak Hour PM Generator Trip Ends Weekday/ 1,000 sf	0.05 ave	(range 0.05 – 0.20)	5 Trip ends	2.5 Trips



ITE Land Use Code 140 – Manufacturing – 9 employees (Passenger vehicle traffic only)

			<u>Total Trips</u>
Daily Trip Ends Weekday/ employee	2.51 ave	(range 0.00 – 5.50)	22.6 Trip ends 11.3 Trips
Peak Hour AM Trip Ends Weekday/ employee	0.32 ave	(range 0.03 - 0.14)	2.9 Trip ends 1.5 Trips
Peak Hour PM Trip Ends Weekday/ employee	0.31 ave	(range 0.03 - 0.14)	2.8 Trip ends 1.4 Trips
Peak Hour AM Generator Trip Ends Weekday/ employee	0.38 ave	(range 0.02 - 0.12)	3.4 Trip ends 1.7 Trips
Peak Hour PM Generator Trip Ends Weekday/ employee	0.40 ave	(range 0.05 – 0.20)	3.6 Trip ends 1.8 Trips

Based upon the above, the highest average traffic generation associated with the site will be 68 trip ends on Weekdays.

Based upon the above, the highest peak hour traffic generation associated with the site will be 9 trip ends for weekdays in the PM.

Adjacent Traffic Safety Conditions:

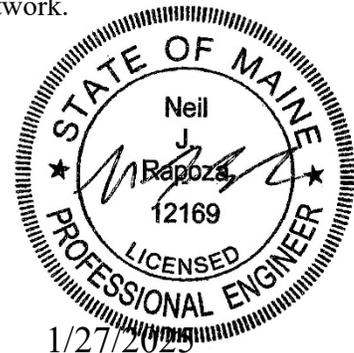
The traffic generated by the project will all travel from Cyro Road to an intersection with Main Street. Maine DOT data indicates that no traffic accidents were reported at this intersection during 2023-2024.

The signalized intersection of Main Street and Jagger Mill Road recorded the highest number of crashes in the area, with 34 incidents in 2023-2024. This is located approximately 1,200 ft east of the Cyro Road intersection. It is not expected that traffic leaving the site will negatively impact the Jagger Mill Road intersection.

The average annual daily trips (AADT) on Main Street past Cyro Drive were recorded as 16,340 in 2022. The addition of 68 trip ends per day is expected to have a negligible impact on existing traffic conditions and represents less than a 0.5% increase in traffic.

Conclusion:

The analysis indicates that Cyro Road, Main Street, and the existing intersection have adequate capacity to support the additional traffic generated by the proposed development. The projected traffic increase is expected to have minimal impact on current traffic conditions. This assumption is reinforced by the intersection’s prior approval by Maine DOT and lack of a significant crash history. This development is not expected to negatively affect public safety or the surrounding roadway network.



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Maine Department of Transportation – Public Crash Query Tool (2023-2024)

The screenshot displays the 'Maine Public Crash Query Tool' interface. At the top, the URL 'mdotapps.maine.gov/mainecrashpublic/PublicQueryMap' is visible. The page title is 'Maine Public Crash Query Tool'. The search criteria are set to 'Sanford' for the year '2023' to '2024', with 'All Types of Crash' selected. The results show 1,041 crashes returned and 1,041 mapped. A map of Sanford, ME, is shown with red pins indicating crash locations, each labeled with a number. The map includes labels for various locations such as 'Sanford Seacoast Regional Airport', 'Sanford Inn', 'Vetted Cannabis', and 'Country Club 1 Rd'. The interface also includes a 'Submit Query' button and a 'Helpful Tips' link.



Maine Department of Transportation – Count Book (2022)

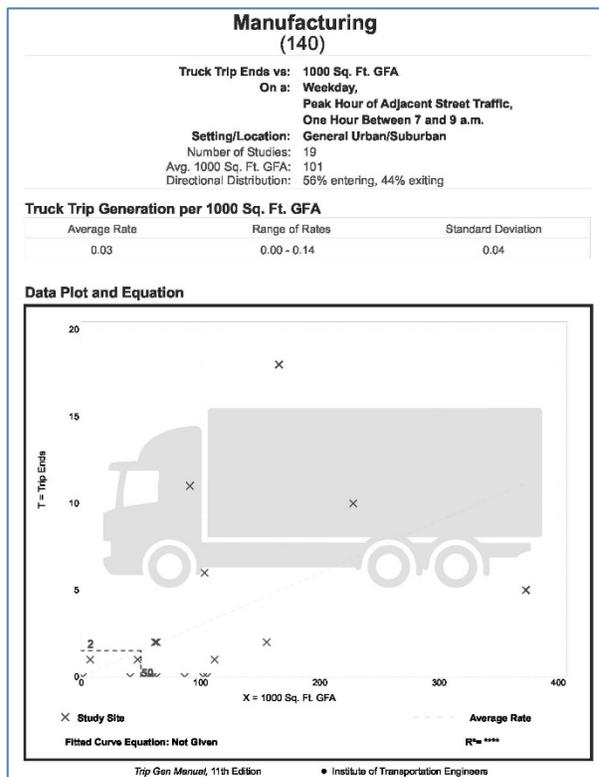
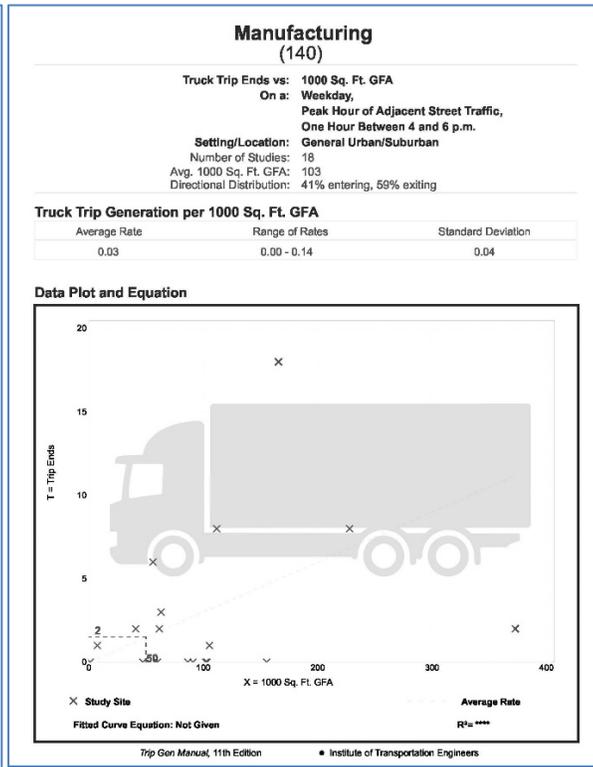
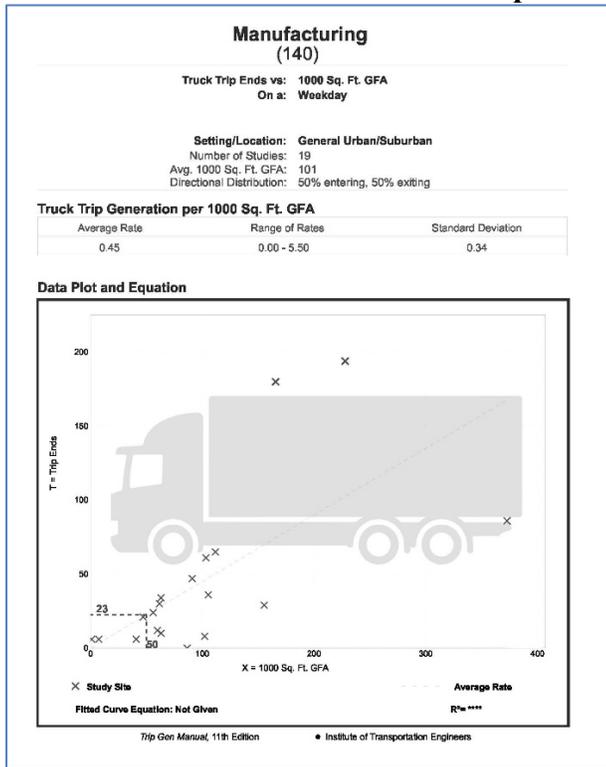
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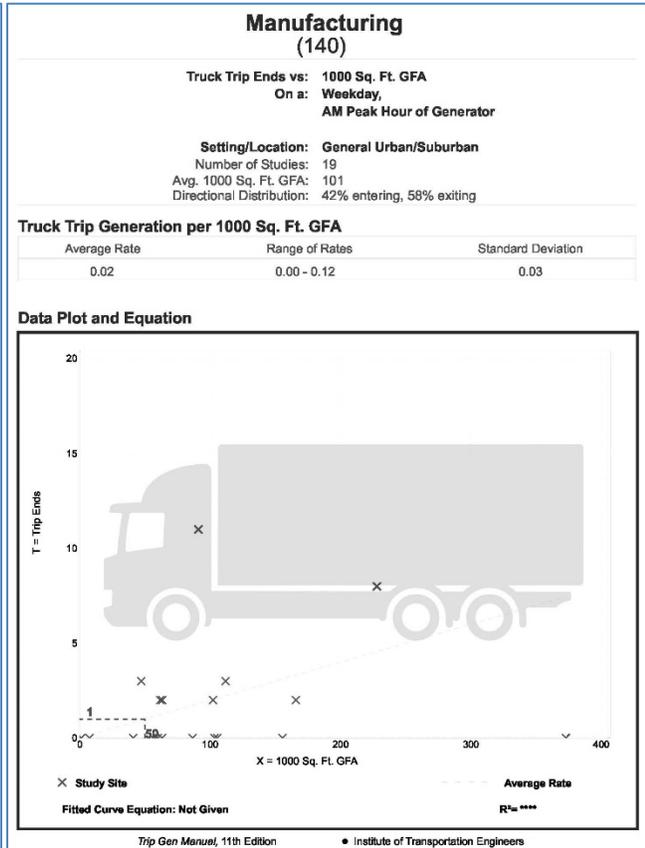
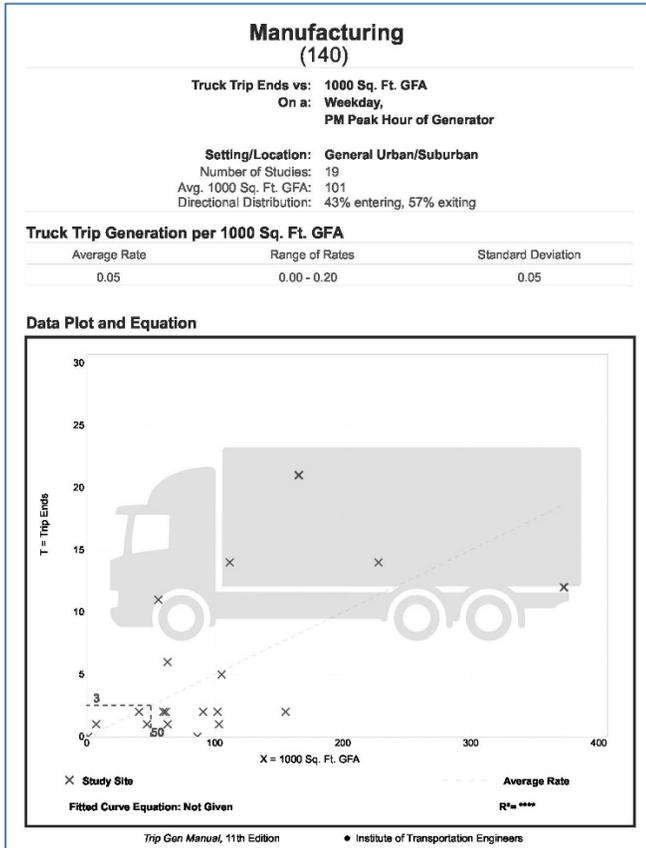
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SANFORD	03702	60106	4	HIGH ST NE/O NORTH AVE	I	-	3,690	-	-	-	-
SANFORD	03904	60106	4	HIGH ST SE/O MADISON ST	I	-	3,150	-	-	3,630	-
SANFORD	11904	60106	4	HIGH ST SE/O OAKFOREST ST	I	-	3,000	-	-	-	-
SANFORD	11607	00788	4	HIGH ST W/O SR 4 (ALFRED RD)	I	-	3,320	-	-	3,600	-
SANFORD	09508	00782	6	HORACE MILLS RD NW/O SAM ALLEN RD	I	-	1,390	-	-	-	-
SANFORD	08505	00769	6	HORACE MILLS RD S/O GRACE LN @ WELLS TL	I	-	850	-	-	-	-
SANFORD	09504	00769	6	HORACE MILLS RD SE/O SAM ALLEN RD	I	-	980	-	-	-	-
SANFORD	02306	01414	6	IR 1414(COUNTRY CLUB#2)(N-JCT) SW/O SR 4	I	-	-	-	-	890	-
SANFORD	03603	01597	4	JAGGER MILL RD E/O SR 4 (ALFRED RD)	I	-	6,470	-	-	7,080	-
SANFORD	04808	60126	6	JUNE ST NW/O SR 4A/US 202 (COTTAGE ST)	I	-	-	-	-	590	-
SANFORD	04804	60126	4	JUNE ST SE/O SR 4/US 202 (COTTAGE ST)	I	-	-	-	-	1,910	-
SANFORD	02403	60130	6	KIMBALL ST E/O SR 11/US 202 (LEBANON ST)	I	-	1,450	-	-	1,510	-
SANFORD	00203	00538	4	MT HOPE RD E/O SR 11/US 202 (LEBANON ST)	I	-	2,080	-	-	2,210	-
SANFORD	04004	60801	6	NEW DAM RD SE/O SR 4 (ALFRED RD)	I	-	2,630	-	-	3,350	-
SANFORD	06407	00801	6	NEW DAM RD W/O WHICHERS MILL RD	I	-	-	-	-	1,430	-
SANFORD	01604	00538	4	OLD MILL RD SE/O TWOMBLY RD	I	-	3,770	-	-	-	-
SANFORD	00506	60285	4	OLD MILL RD SW/O SR 4A/109 (MAIN ST)	I	-	-	-	-	5,520	-
SANFORD	06202	60181	6	PAYNE ST NE/O WATER ST	I	-	-	-	-	1,300	-
SANFORD	01704	60187	6	PIONEER AVE SE/O WASHINGTON ST	I	-	2,140	-	-	-	-
SANFORD	06103	60194	6	RAILROAD AVE E/O SR 224 (SHAW'S RIDGE RD)	I	-	-	-	-	1,630	-
SANFORD	01901	60198	4	RIVER ST N/O HIGH ST	I	-	6,210	-	-	6,760	-
SANFORD	05208	60198	4	RIVER ST NW/O SHAW RD @ BR #1349	I	-	5,630	-	-	6,000	-
SANFORD	03508	60198	4	RIVER ST NW/O SR 4A/US 202 (WINTER ST)	I	-	4,460	-	-	4,950	-
SANFORD	06005	60198	4	RIVER ST S/O SR 224 (SHAW'S RIDGE RD)	I	-	-	-	-	4,580	-
SANFORD	04106	60289	6	RUSHTON ST SW/O HIGH ST	I	-	890	-	-	-	-
SANFORD	09503	00769	6	SAM ALLEN RD E/O HORACE MILLS RD	I	-	840	-	-	-	-
SANFORD	08802	60114	6	SANFORD HS BLVD NE/O SR 11/109 (MAIN ST)	I	-	-	-	-	640	-
SANFORD	01504	60210	6	SCHOOL ST (OW) SE/O WASHINGTON ST	I	-	1,940	-	-	2,050	-
SANFORD	11708	60210	6	SCHOOL ST NW/O SR 4 (ALFRED RD)	I	-	3,110	-	2,950	2,960	-
SANFORD	00304	60210	6	SCHOOL ST SE/O BRETON AVE @ BR#392B	I	-	3,760	-	-	3,780	-
SANFORD	01204	60210	6	SCHOOL ST SE/O EMERY ST	I	-	3,890	-	-	3,810	-
SANFORD	02803	0109X	1	SR 109 (MAIN ST) E/O JAGGER MILL RD	I	-	-	-	-	16,340	-
SANFORD	10904	0109X	1	SR 109 (MAIN ST) SE/O SR 4 (ALFRED RD)	I	-	-	-	-	14,420	-
SANFORD	02907	0109X	1	SR 109 (MAIN ST) W/O JAGGER MILL RD	I	-	14,340	-	-	11,370	-
SANFORD	05800	0109X	1	SR 109 @ WELLS TL	I+II	-	-	-	-	8,610	-
SANFORD	04608	0109X	1	SR 109(MAIN ST) NW/O SR 99(KENNEBUNK RD)	I	-	-	-	-	12,270	-
SANFORD	04604	0109X	1	SR 109(MAIN ST) SE/O SR 99(KENNEBUNK RD)	I+II	-	-	-	-	8,630	-
SANFORD	05701	0011X	2	SR 11/109 (MAIN ST) N/O GOWEN PARK RD	I	-	-	-	-	9,730	-
SANFORD	06801	0011X	2	SR 11/109 (MAIN ST) N/O SR 224 (BRIDGE)	I	-	10,660	-	-	9,900	-
SANFORD	07208	60132	2	SR 11/109 (MAIN ST) NW/O KIRK ST	I	-	8,780	-	-	8,710	-
SANFORD	07308	0011X	2	SR 11/109 (MAIN ST) NW/O S CURVE RD @ TL	II	-	-	-	-	5,780	-
SANFORD	11208	0011X	2	SR 11/109 (MAIN ST) NW/O STANLEY RD	II	-	7,030	-	-	-	-
SANFORD	07405	0011X	2	SR 11/109 (MAIN ST) S/O IRVING ST	II	-	10,390	-	-	9,130	-

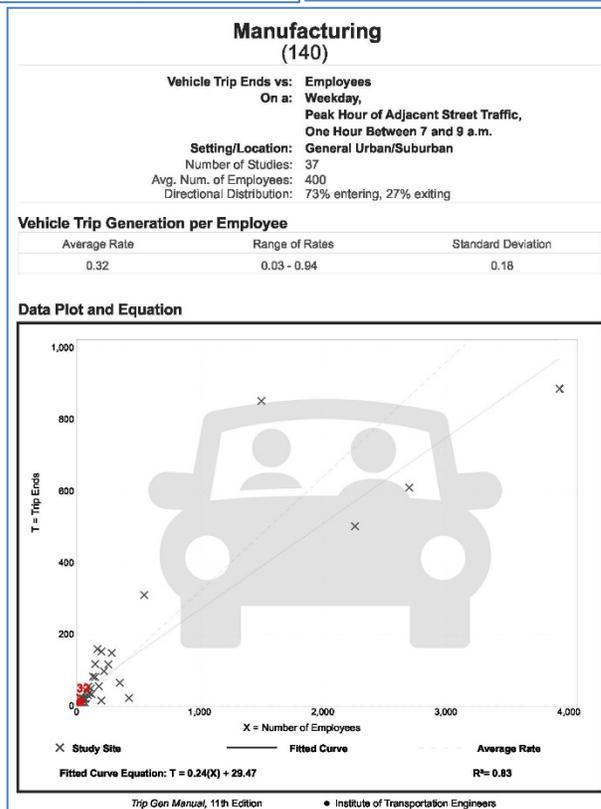
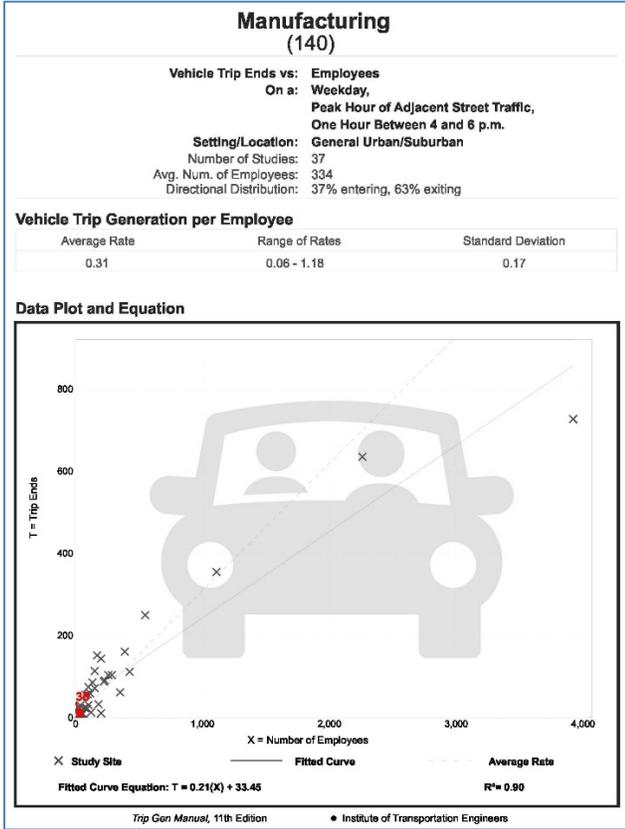
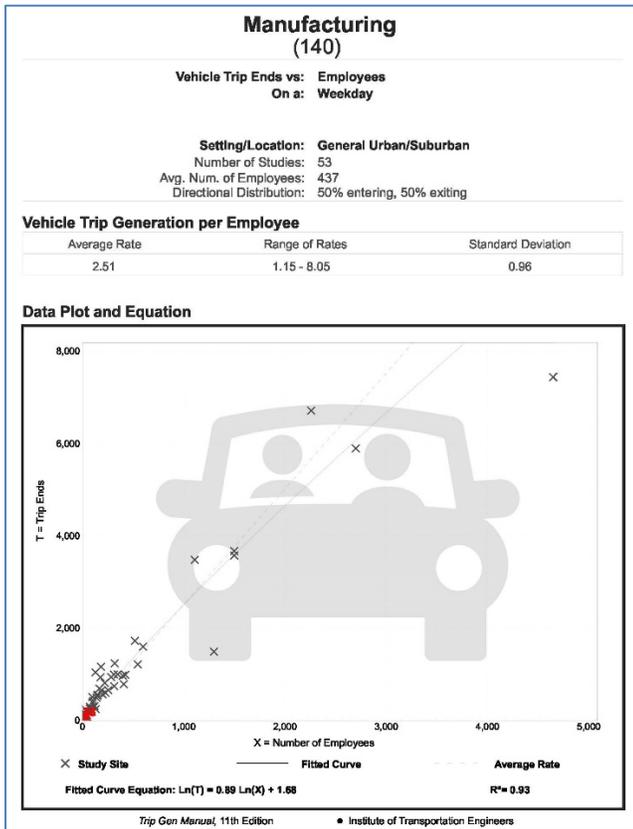
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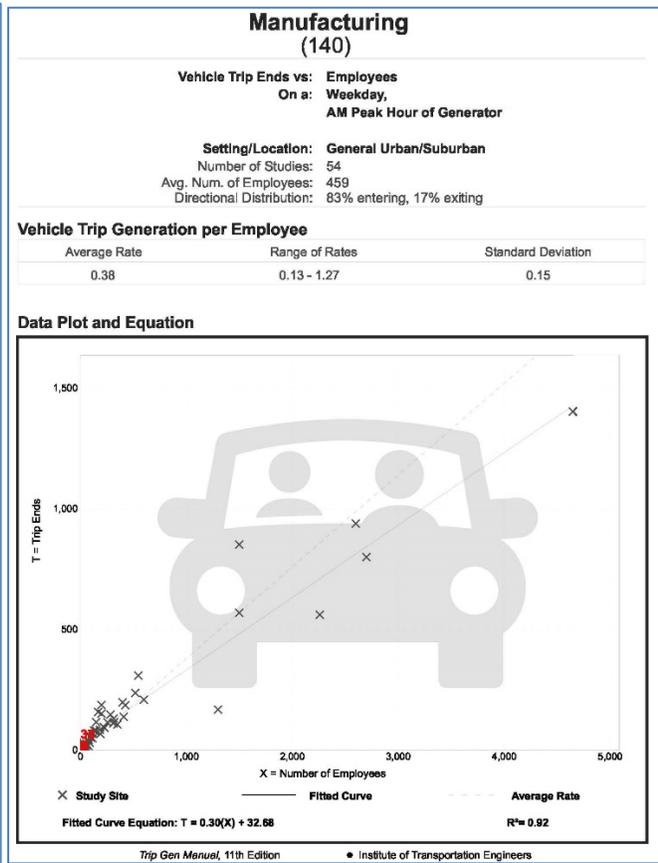
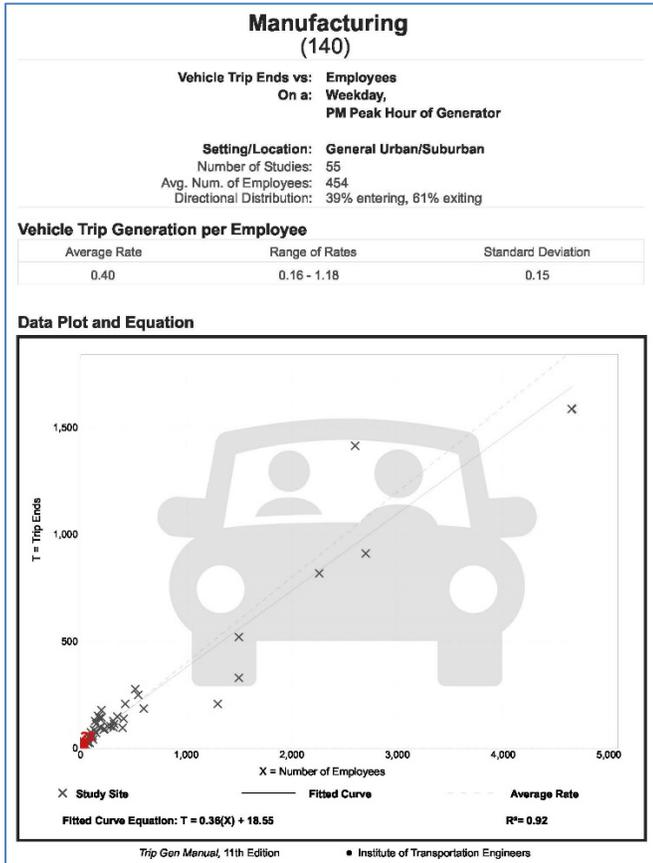


ITE Trip Generation Manual – 11th Edition









Attachment O

Operations Manual

OPERATIONS MANUAL SOLID WASTE PROCESSING



ARIES PINE TREE LLC

JANUARY 7, 2026

Prepared for:

Aries Pine Tree LLC
Cyro Road Lot 4
Sanford, Maine 04073

Prepared by:

Epsilon Associates
3 Mill and Main Place, Suite 250
Maynard, MA 01754

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1.0 INTRODUCTION

This Operations Manual is kept available on site during normal business hours, and is updated as needed to keep current with facility modifications. The revision history is detailed below.

Table 1 Revision History

Revision No.	Date	Comment
1	January 7, 2026	Initial Preparation

1.1 Facility Overview

Aries Pine Tree, LLC is a biosolids gasification facility located on an 11-acre site identified as Lot 4 within the Cyro Road industrial park in Sanford, Maine. In brief: biosolids (sludge) from regional wastewater treatment facilities will be accepted by truck; after being dried; the biosolids are then gasified using a using a proprietary fluidized bed process, which reduces the biosolids to a useful biochar (collected by truck for off-site disposition) and a producer gas (combusted on-site using a thermal oxidizer, which removes pollutants and produces useful heat that is recycled within the facility.)

Aries Pine Tree LLC will be capable of receiving up to 500 wet tons per day of biosolids cake by truck and processing up to ~450 wet tons per day. The facility is expected to process on average about 409 tons per day over the course of a calendar year. No liquid biosolids will be accepted. The facility is equipped to operate 24 hours per day, 7 days per week.

Aries Pine Tree, LLC is a solid waste processing facility subject to Ch. 400 (General Provisions) and Ch. 409 (Processing Facilities) of the Maine Rules of the Department of Environmental Protection. The current rule revisions are available at <https://www.maine.gov/sos/cec/rules/06/chaps06.htm>, and the facility's solid waste processing license (including any amendments/revisions) is included as *Appendix A*. [Note: License application is pending as of this Operations Manual revision.]

Aries Pine Tree LLC does not conduct any of the following operations, therefore, any associated requirements of Ch. 409 are excluded from this Operations Manual.

- Processing of tires
- Processing of wood to be used in biomass fuel or mulch
- Processing of construction and demolition debris
- Stabilization of residuals

Furthermore, since the facility's primary purpose is volume reduction of biosolids, prior to disposal of the resulting waste biochar in a landfill or approved beneficial use, the expanded annual reporting requirements of §409.4(I)(1) and the waste characterization requirements of §409.4(E) do not apply.

1.2 Operations Manual Content

This Operations Manual is prepared in accordance with section 409.4 of the Maine DEP regulations (Operating Requirements). Section 409.4.A states: *The operations manual must include the information that would enable supervisory and operating personnel, and persons evaluating the operation of the facility, to determine the sequence of operation, policies, procedures, monitoring, maintenance, inspection, and legal requirements that must be followed for safe and environmentally sound operation on a daily and yearly basis. The manual must address all items contained in this section.*

The following sections of this Operations Manual correspond to the requirements of section 409.4, which are quoted in *italics*.

2.0 GENERAL OPERATIONS

2.1 Operations

The facility must be operated and maintained in a manner that assures it will meet the approved design requirements, will not contaminate ground or surface water, contaminate the ambient air, constitute a hazard to health or welfare, create a nuisance, and will meet the standards in Chapter 400, section 4. [§409.4.B.1]

Aries Pine Tree LLC has demonstrated compliance with the above standards through completion of a Solid Waste Processing Application and Air License Application to Maine DEP, in addition to various other State and Local approvals. The facility will maintain ongoing compliance with these approvals, in addition to this Operations Manual.

2.2 Personnel

The operation of the processing facility must be under the overall supervision and direction of a person qualified and experienced in the operation of that type of facility or, in the case of an innovative design, be adequately trained by responsible personnel in the operation of the facility. The facility operator must take whatever measures are necessary to familiarize all personnel responsible for operation of the facility with relevant sections of the operations manual. [§409.4.B.2]

Although Aries Pine Tree LLC uses an innovative design, the technology owned by Aries Clean Technologies was used to develop pilot projects in Florida and a commercial scale facility in New Jersey. The facility will therefore be managed by personnel who are experienced in the operation and maintenance of these systems and will provide site-specific initial and ongoing training to any newly employed operations personnel.

2.3 Equipment

Equipment must be sufficient to meet the requirements, and the operator must provide for the routine maintenance of equipment. [§409.4.B.1]

As stated above, the technology owned by Aries Clean Technologies was used in previously developed projects in Florida and New Jersey. This technology with improvements will be used at the Aries Pine Tree LLC facility. Facility managers will therefore be familiar with the required equipment and routine maintenance needs. Where applicable, equipment design will be adapted for cold weather conditions.

2.4 Environmental Monitoring

The operator must implement the approved environmental monitoring program, including any required waste characterization. [§409.4.B.4]

Aries Pine Tree LLC has developed an environmental monitoring plan in consultation with the Maine DEP and as part of the Solid Waste Processing Facility license application. The environmental monitoring plan

is maintained separately from this Operations Manual, and the Facility will comply with all ongoing conditions therein.

2.5 Fire Protection

The operator shall prevent and control fires at the processing facility by complying with at least the following: (a) Arrange for a nearby fire department to provide emergency service whenever called; (b) Develop and implement a plan to prevent spontaneous combustion in wood waste and residual piles, as applicable; and (c) Provide and maintain sufficient on-site equipment, such as detachable fire extinguishers, for minor fires. NOTE: Facilities should develop a fire and rescue plan in conjunction with the local fire department. [§409.4.B.5]

A sprinkler system and complimentary alarm system will be installed inside the occupied building according to the requirements of the local Life Safety Code and NFPA. Other fire systems shall comply with the requirements of the State of Maine building code applicable to the facility and in consultation with the State fire marshal.

Fire water is provided from a dedicated 6" fire water line adjacent to the plant fence line. Firewater is provided by the local water utility. The plant firewater system uses a system of hydrants and/or water cannons through the facility. Occupied buildings will have fire protection in accordance with local, state, and federal requirements.

Prior to commencement of operation, Aries Pine Tree LLC management will meet with the City of Sanford Fire Department to introduce the facility and establish a fire and rescue plan, which will be documented and maintained on site. The facility will also maintain a series of fire extinguishers on site in accordance with best industrial practices. There are no residual piles susceptible to spontaneous combustion, as the incoming biosolids has a high water content, and the end product is non-flammable biochar. Dried biosolids will be stored in tanks which are purged with nitrogen and turned over on a frequent basis to ensure that self-heating does not occur. Additionally, the temperature in those tanks is monitored so that additional nitrogen or water can be used to cool the material prior to a fire occurring.

2.6 Vector Control

The on-site population of disease vectors must be minimized to protect public health. [§409.4.B.6]

The facility heats municipal biosolids in a gasifier with a bed temperature of 1,250 degrees F, sufficient to destroy any biological material. No feasible threat to public health is therefore anticipated, and no such threats have arisen at the existing Aries facility in Linden, NJ which uses a similar process. Should any unforeseen event occur, a case-specific disease vector control plan will be developed accordingly.

2.7 Dust Control

The operator must control dust generated by the facility. [§409.4.B.7]

The facility is engineered such that dust generation is minimal. The access road is paved, biosolids are received within an enclosed building under negative pressure, and the storage silos (for biochar and solid raw materials) are equipped with intrinsic dust controls. An ambient air quality analysis (conducted separately for the facility's air permit application) found that modeled particulate matter emissions are insignificant.

The facility will conduct street-sweeping of paved surfaces as warranted by good industrial practices.

2.8 Storage Practices

(a) Raw materials, wastes, and secondary materials, including processed residuals, must be stored on the site such that they remain suitable for the intended use. (b) Materials with a carbon to nitrogen ratio (C:N) of less than 20:1 or that may contain constituents that may leach into groundwater may not be stored on in situ soils. (c) Wastes and secondary materials may not be stored at the site for more than 2 years. [§409.4.B.8]

All materials are stored within custom-designed vessels (storage bins, dryers, etc.) to minimize any risk of air or water pollution. At no time is any material stored on the ground or exposed to rainwater.

Aries Pine Tree LLC will be capable of processing up to ~450 wet tons of dewatered biosolids per day, and will operate on a continuous basis, except for brief planned and unplanned outages. Therefore no wastes or ancillary materials can feasibly be stored on site for 2 continuous years. If a long-term shutdown occurs for an unforeseen reason a case-specific disposal plan will be implemented, per Section 4.4.

2.9 Litter Control

The operator must provide for routine maintenance and general cleanliness of the entire facility site, including control of windblown litter. [§409.4.B.11]

As stated above, the facility will conduct street-sweeping of paved surfaces to maintain the general cleanliness of the site. Landscaping, lawn mowing, snow removal, and other activities will be performed as required to maintain facility grounds and infrastructure in accordance with good industrial practices. The facility will conduct daily operations rounds, during which any housekeeping needs will be addressed accordingly.

2.10 Leachate

Facilities must contain, collect and treat leachate and runoff mixed with leachate. [§409.4.B.12]

The facility will not be a source of leachate, since waste materials are transferred directly between delivery trucks, storage bins and dryers; all of which are fully enclosed. At no time is any material stored on the ground or exposed to rainwater.

The facility will generate condensate from the biosolids dryer/condenser system, and this will be discharged to the local municipal wastewater treatment system in accordance with applicable regulations.

2.11 Erosion

*The facility must control sedimentation and erosion during construction and operation of the facility.
[§409.4.B.13]*

Construction of the facility will be conducted in accordance with the Maine Construction General Permit (MCGP), which enforces a variety of erosion control techniques. Ongoing operation will be conducted in accordance with the site's Erosion and Sedimentation Control Plan, prepared separately from this Operations Manual as a component of the facility's Solid Waste Processing Facility license application in accordance with §400.4.J. In general: the facility consists of a relatively small and flat area encircled by a paved access road, and no possibility of significant erosion is anticipated.

3.0 FACILITY ACCESS

3.1 Facility Perimeter

The operator must maintain suitable barriers or fencing and gates to prevent unauthorized persons access to the site. The facility gate may be unlocked or open only when an authorized person is on duty. The operator must prominently post limitations and conditions of access at each entrance to the facility, including, if applicable, the hours of operation. [§409.4.C.1]

As required, the Aries Pine Tree LLC facility perimeter will be fenced; the access gate(s) will also be locked at any times when the facility is closed and equipped with informational signs. Typically, the facility will not be closed and operations personnel will be on-site 24 hours per day, seven days per week.

3.2 Access Roads

The operator must provide and maintain in good repair access roads at the facility site. [§409.4.C.2]

The facility is encircled by a paved access road for employees and also truck traffic to deliver biosolids materials and remove biochar and spent sorbent. Aries Pine Tree LLC therefore has an economic interest in maintaining the access road in good working order. In general, the site has a small footprint, and any maintenance needs will be promptly noted during daily operations rounds. Snow removal and any other as-needed repairs will be completed in a timely manner.

3.3 Signage

The operator must post appropriate signs and/or other means necessary to indicate clearly where waste is to be unloaded and where the separate storage areas within the facility are located. [§409.4.C.3]

As required, Aries Pine Tree LLC will be equipped with signage throughout the site, of sufficient size and clarity to direct truck traffic to the appropriate unloading or load out areas.

3.4 Emergency Access

Adequate space must be maintained to allow the unobstructed movement of emergency personnel and equipment to operating areas of the facility. [§409.4.C.4]

Aries Pine Tree LLC is laid out in accordance with operational experience from the similar Aries facility in Linden, NJ, including equipment spacing to allow for emergency response. The facility will also be inspected by local Fire Department personnel prior to commencement of operation (per Section 2.5) to establish emergency response procedures.

4.0 ACCEPTANCE AND DISTRIBUTION OF SOLID WASTE

4.1 Waste Acceptance

The processing facility may only accept wastes for which the facility has been specifically designed and permitted by the Department. Incoming wastes must undergo a visual inspection and, if appropriate, analysis to ensure that only wastes allowed by the facility license are accepted at the facility. All other wastes must be removed and handled at an approved facility. [§409.4.D.1]

Aries Pine Tree LLC is specifically designed and engineered to process only dewatered biosolids from municipal wastewater treatment facilities and will only contract with such waste generators or biosolids service providers as customers. Any deliveries that do not have the appropriate paperwork or are otherwise not characteristic of wastewater treatment biosolids for any reason will be rejected.

4.2 Handling and Exclusion Plan

All processing facilities must implement a Hazardous and Special Waste Handling and Exclusion Plan developed in accordance with Chapter 400, section 9. [§409.4.D.2]

The facility's Hazardous and Special Waste Handling and Exclusion Plan, following Maine DEP's template, is included in Appendix B of this Operations Manual.

4.3 Secondary Materials

Secondary materials, including processed residuals, must be distributed in accordance with the provisions of Chapter 418 or Chapter 419, or other applicable standards of these rules. [§409.4.D.3]

Secondary materials such as the biochar generated by gasification of the wastewater biosolids. Per the facility's pre-application discussions with Maine DEP, a Beneficial Use Determination (BUD) will be obtained for the biochar when possible once the facility commences operation, allowing the facility to market the biochar for sale as a concrete additive or other approved uses. In the meantime, the biochar will be sent to a landfill in accordance with Maine DEP waste regulations. Spent sorbent from the facility air emissions control system will also be landfilled unless and until a beneficial use for the sorbent is approved by the Maine DEP.

4.4 Waste Disposal

The operator must have procedures in place, prior to the start of operation, for disposal of bypass and other solid waste generated by the processing facility, including contingency procedures for implementation during emergencies and shutdown periods. The operator must also maintain a valid contract with a solid waste facility which has Department approval to accept the waste. [§409.4.D.4]

Routine industrial wastes generated by the facility consist of:

- Biochar generated by gasification of the wastewater biosolids. This will be either sent to a landfill or marketed in accordance with a Beneficial Use Determination (BUD) as described above.
- Spent sorbent material which is no longer usable in the facility's air emissions control system.

Non-routine industrial wastes (hypothetically generated from highly unlikely events such as a lengthy unplanned facility shutdowns) include:

- Bypass waste; i.e., biosolids that were accepted but cannot be processed on site for any reason.
- Unused raw ammonia intended for consumption in the facility's air pollution control system.
- Unused raw sorbent intended for consumption in the facility's air pollution control system.
- Unused raw sand intended for consumption in the facility's gasifier.
- Used sand from the facility's gasifier.

The facility will maintain contract(s) with one or more solid waste facilities to accept all such wastes listed above, by the time of commencement of operation.

5.0 ODOR CONTROL

5.1 Odor Standard

Per the facility's preapplication meeting with Maine DEP: Aries Pine Tree LLC has completed an odor dispersion modeling study to demonstrate that the facility will not cause more than a one-hour average odor impact of 2 dilutions to threshold (2D/T), in any calendar year at any occupied buildings. This modeling will serve as the compliance demonstration with the listed odor standards for facilities that process wastewater treatment biosolids from publicly owned treatment works and facilities that process septage, as stated in §409.4.F.2. This demonstration has been submitted separately with the Solid Waste Processing Facility Application.

5.2 Allowances

Per §409.4.F.2, the Maine DEP may allow temporary exceedances of the standards in Section 5.1 during short-term shutdown and malfunction events of the odor control systems and, with prior authorization, during short-term construction activities provided that all of the following conditions are met:

- Reasonable methods are used to control, reduce or eliminate odor;
- The odor management plan (if applicable) is being implemented;
- Procedures are established to notify the Department and the affected community; and
- Shutdown and malfunction events are corrected as soon as practicable.

5.3 Odor Response Procedures

Per §409.4.F.2, if the Maine DEP identifies the Facility as potentially responsible for a nuisance odor, the Facility must investigate the odor event and report the results of the investigation to the DEP. The investigation must include an evaluation of:

- Facility operations at the time of the exceedance including waste handling and management activities;
- Meteorological conditions such as wind direction, temperature, and humidity at the time of the exceedance;
- Odor monitoring data;
- Potential response actions and/or a summary of response actions performed; and
- Other pertinent site-specific information.

6.0 RECORDKEEPING AND REPORTING

6.1 Routine Recordkeeping

Per §409.4.G, the facility must keep the following records available on site for the duration of facility operation, and a minimum of 2 years after facility closure:

- As-built engineering drawings of the facility, including a schematic showing the relationship of the various subsystems;
- Analytical and characterization data results;
- This Operations Manual (including revisions);
- Records of odor monitoring data, exceedances, response actions and complaints, if any;
- Copies of periodic and annual reports submitted to the Maine DEP.

6.2 Periodic Reporting

Per §409.4.H, the facility must submit periodic reports as stated in the facility license issued by the Maine DEP.

6.3 Annual Reporting

Per §409.4.I, by February 28th of each year, the facility must pay an annual facility reporting fee [as established by the Maine DEP], and submit an annual report to the Maine DEP for the previous calendar year. The annual report must include, at a minimum:

- Types and weights (or estimated weights) by origin, of all wastes accepted at the facility;
- Types and weights (or estimated weights) of all products and secondary materials produced, used on-site, or distributed off-site (by destination and including uses);
- Types and weights (or estimated weights) by destination, of residues leaving the facility for disposal;
- Types and weights (or estimated weights) of wastes, products, secondary materials, and residues stored on site as of December 31 of the reporting year;
- A general summary of the processing operation including problems encountered and follow-up actions, changes to the facility operation, and a summary of complaints received by the facility during the previous year;
- A summary of odor monitoring data, exceedances, response actions and complaints, if any;
- Other alterations to the facility site not requiring Maine DEP approval that have occurred during the reporting year. Minor aspects of the facility site proposed to be changed in the current year may be described in the annual report. Changes handled in this manner are those that do not require licensing under minor revision or amendment provisions of Chapter 400; and,
- A summary and evaluation of the past year's monitoring program results.

7.0 FACILITY CLOSURE

Per §409.4.J, if permanent closure should occur, the facility shall submit a closure plan to the Maine DEP, for review and approval, a minimum of 90 days prior to the proposed date of the permanent closure. The plan must include:

- An outline of the proposed closing operation;
- A schedule for the removal of all stored wastes and secondary materials
- The intended destination of all stored wastes and secondary materials.

The facility must be closed in a manner that minimizes the need for further maintenance; and so that the closed facility will not pollute any waters of the state, contaminate the ambient air, constitute a hazard to health or welfare, or create a nuisance. At a minimum, the facility must remove all wastes and secondary materials from the facility; and broom clean the facility structures and equipment.

Solid Waste Processing License (incl. amendments/revisions)

Appendix B

Solid Waste Exclusion Plan

HAZARDOUS & SPECIAL WASTE HANDLING AND EXCLUSION PLAN

1. **Facility Safety Officer.** (name a person--first selectman, operator, . . .) shall be designated as the "facility safety officer". Annually, the facility safety officer shall work with the Sanford Fire Chief to provide training to the operator's staff on:
 - A. Detection of hazardous and special waste;
 - B. Appropriate notification procedures; and
 - C. Appropriate handling procedures.

2. **Identification/Notification of Unpermitted Wastes.** Unpermitted hazardous and special wastes shall not be accepted at the solid waste facility. To ensure this, the attendant shall check all waste being deposited at the solid waste facility. The type of container and origin of the waste can help identify hazardous wastes and special wastes. People are allowed to deposit normal household quantities of household hazardous wastes with their general refuse. However, larger quantities of household pesticides and hazardous wastes generated by commercial and industrial establishments are not acceptable at this solid waste facility.

The following list will help with the identification and handling of materials of concern.

- A. **Asbestos:** Friable insulation material but can take other forms. Can be combined with other materials to sometimes make non-friable siding, flooring, or other products. If suspected to be or contain friable asbestos, contact Department of Environmental Protection asbestos abatement program personnel at telephone number 207-287-2651. Avoid inhalation of particles.
- B. **Bio-medical Wastes:** May be red bag waste from hospitals, laboratories, clinics, nursing homes and occasionally doctor's offices. Includes blood, body parts, disposable instruments, linens and other soiled items. Keep people away, follow hazardous waste procedures, including notifying the appropriate responder either a qualified fire department or the Department of Environmental Protection (DEP). If accidentally contacted, disinfect contact area with 1:3 bleach to water solution.
- C. **Calcium Hypochlorite:** Used for disinfecting swimming pools but is reactive when wet. **Can release chlorine gas and cause fire when wetted.** Treat as hazardous; prevent wetting or contact with moisture; if wetted, evacuate area. Keep away from petroleum and other organic materials.
- D. **Electrical Capacitors and Transformers:** May be removed from white goods and other electrical equipment by individuals, scrap metal firms, or firms which work on appliances or motors. Avoid skin contact and breathing exposure; follow hazardous waste procedure.
- E. **Industrial Chemicals:** Generally, liquid in five gallon or larger pails or drums of either plastic or steel. Occasionally lined cardboard barrels are used. Also some solids, especially flakes or granular materials, can cause excessive corrosion or be reactive with liquids. Solids may be in any form of container including loose. Avoid skin contact and breathing exposure; treat as hazardous.

- F. Laboratory Chemicals:** Usually in smaller containers of one pint to one gallon, glass or plastic bottles. Can be severe irritants, highly toxic or explosive. Avoid skin contact and breathing exposure; do not open or jar containers. Treat as hazardous.
- G. Sandblast Grit:** Generally fine sand or garnet mixed with paint, brick and/or masonry chips. Avoid breathing; handle as special waste.
- H. Waste Oil:** Includes used motor oils, hydraulic fluid, and other lubrication oils from individuals, farm operations, and vehicle and heavy equipment repair firms. Avoid skin contact; treat as special waste.

Excluded items are not limited to the above specifically listed items.

- 3. Finding and Reacting to an Unknown Waste.** When unknown material is found at the solid waste facility, the attendant shall identify the material to determine whether it is licensed solid waste, special waste, or hazardous waste. If hazardous waste, the attendant shall attempt to identify the person who has left, delivered, or attempted to deliver the hazardous waste and notify the DEP.
 - A. While keeping a safe distance upwind from the material, the attendant may attempt to determine the following, if safe to do so:
 - (1) Look for container or waste labeling;
 - (2) Determine the physical state of the material (solid, liquid, or gas);
 - (3) Estimate container size or amount of waste; and
 - (4) Determine the type and condition of the container or packaging.
 - B. If the material is determined to potentially be hazardous, the attendant shall:
 - (1) Evacuate and secure the area of the facility site around the material;
 - (2) If safely feasible, determine if there is any release of the material to the soil, water, or air;
 - (3) If safely feasible, determine if any release found has been confined or is ongoing.; and
 - (4) Undertake the appropriate notification procedure below.

4. Notification

- A. When hazardous waste or suspected hazardous waste is found left at the solid waste facility, the attendant shall:
 - (1) Notify the DEP anytime at 1-800-482-0777 or the Maine State Police at 1-800-452-4664, or
 - (2) If the attendant knows that the local fire department has received training and is qualified to respond to hazardous materials, notify the fire department at (207) 324-9160.

- B. When unpermitted special waste is found left at the solid waste facility, the attendant shall notify a solid waste staff person at the DEP regional office between 8 a.m. to 5 p.m., Monday through Friday and the appropriate municipal official to authorized qualified removal.
- C. If the attendant cannot identify the material, notify the Sanford Fire Department and DEP at the numbers listed above for assistance in identification. If sampling and further detection of hazardous or special waste is required, a qualified hazardous waste handling firm or solid waste contractor must be used, as appropriate.

5. Clean-up/decontamination

- A. Only trained personnel shall handle hazardous wastes. Such training shall follow the guidelines of 29 CFR 1910.120ⁱ as amended up to April 1, 2014.
- B. Unpermitted special wastes shall be removed from the area where found and transported to a special waste disposal facility licensed to accept that special waste within sixty days.
- C. A hazardous and special waste interim storage area will be designated on site. Because hazardous wastes require special training to handle, and to minimize the area of potential contamination, it is recommended that any hazardous waste found at the solid waste facility be removed by qualified personnel from the solid waste facility directly, without placement and storage in the interim storage area.

6. Emergency Information

- A. The attendant shall have the following telephone numbers available at the solid waste facility to telephone notifications or radio requests for notifications to the dispatchers:
 - (1) DEP, Bureau of Remediation & Waste Management appropriate regional office number during normal business hours and DEP emergency spill number: 1-800-482-0777 for after hours or on weekends.
 - (2) City of Sanford Fire Department: (207) 324-9160
 - (3) York County Sheriff: (207) 324-1113
 - (4) Ambulance: 911
 - (5) Maine State Police: 1-800-452-4664 for reporting hazardous waste, and
 - (6) Maine Poison Center: 1-800-442-6305
- B. The closest location for emergency medical care is the York Hospital. To get there, travel approx. 2 miles west of the facility along Rte. 109 (Main St.)

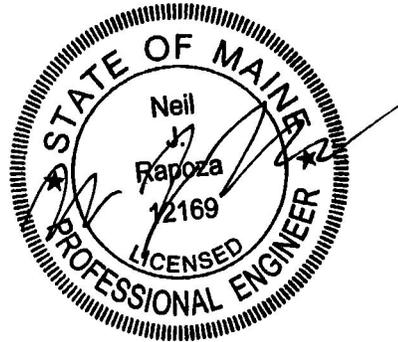
7. **Written reports.** A written spill report shall be filed with the DEP, Bureau of Remediation & Waste Management within 15 days of any incident involving hazardous waste or material. The report must indicate:
- A. Date and time of incident;
 - B. Location;
 - C. Material lost or spilled;
 - D. Amount lost or spilled;
 - E. Amount recovered;
 - F. Cause of the incident;
 - G. Corrective action taken;
 - H. Clean-up methods used;
 - I. Disposition of recovered materials;
 - J. List of agencies notified;
 - K. Time agency responded on site.

29 CFR 1910.120

The full text of the rule can be found at <http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR> and selecting the appropriate year then the appropriate section.

Attachment P

Stormwater and Sediment Control Plan



The seal affixed above applies to this report, Appendices A through F, and Stormwater Plans CVL-100, CVL-101 & CVL-102.

Maine Dept of Environmental Protection
Solid Waste Application
CHAPTER 500
“ARIES PINE TREE – SANFORD
BIOSOLIDS PROCESSING FACILITY”
SANFORD, MAINE

Prepared for
ARIES CLEAN TECHNOLOGIES, LLC

**4037 Rural Plains Circle,
Suite 290 Franklin, TN 37064**

December 2025



CIVIL CONSULTANTS

Engineers

Planners

Surveyors

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Stormwater Management Narrative

MAINE DEP SOLID WASTE Chapter 500

STORMWATER MANAGEMENT PLAN

***“Aries Pine Tree – Sanford
Biosolids Processing Facility”
Cyro Road
Sanford, Maine***

Prepared for:

**ARIES CLEAN ENERGY.
4037 Rural Plains Circle, Suite 290
Franklin, TN 37064**

December 2025 (Rev 2)

INTRODUCTION:

The proposed site is located on Tax Map R18B, Lot 4. The development will consist of the development of an existing lot in a permitted industrial subdivision, with associated driveway, parking and required stormwater treatment and runoff control facilities. The project will create a biosolids processing facility to treat sewage sludge for reuse and/or environmentally sustainable disposal.

The developed area will be approximately 5.1 acres, including about 4.3 acres that were previously cleared and are now covered with scattered small trees and grass. The total property area is 10.9 acres.

The proposed stormwater BMPs will feature three level spreaders directing flow to wooded buffers, along with two paved areas along the perimeter drive discharging to roadside buffers. These measures are designed to treat runoff, lower phosphorus levels, and reduce peak flow rates.

DESIGN REQUIREMENTS:

This modification to the existing approved Site Law project is required to meet basic, general, flooding and phosphorus control standards of DEP Chapter 500.

The flows from the site enter the Mousam River which drains to Estes Lake, and as such requires phosphorus control measures.

The existing subdivision was approved in 1997. Changes to DEP regulations since that time and the presence of a significant sand and gravel aquifer in the area have necessitated a modification to the original treatment plan in order to meet current standards.

The entire developed site will be treated by the proposed BMP's, however, the proposed BMPs will not reduce the phosphorus export to the allowed budget so the project will also pay compensation to York County Soil & Water Conservation District.

Refer to the treatment calculations included in this submittal for additional information regarding the treatment plan and BMP sizing.

The analysis for this report also includes the 2-, 10-, and 25-year event to predict the downstream effects of the proposed site coverage changes.



EXISTING DRAINAGE CONDITIONS:

The site is currently a mixture of woodland, cleared areas with low vegetation and open areas of sand material. There is a wetland associated with the Mousam River at the north and west boundaries of the site. No impact to the wetland is proposed.

Soils in the watershed are a combination of hydrologic soil type A closer to the roadside with A/D and B/D soils closer to the Mousam River (Natural Resources Conservation Service, Web Soil Survey). See sheet D1 for the soil plan and HSG designations.

The project is not located in a flood zone. The western edge of the lot is located within the 100-year flood zone; however, no disturbance is planned in this area. See sheet L1 for flood zone location, and Appendix E for a copy of the applicable FEMA map.

PROPOSED DRAINAGE:

The proposed storm water management system has been designed to treat the developed and impervious area as well as limit flows off site to levels to the greatest extent practicable. This will ensure that the proposed storm water management measures will maintain the runoff to the adjacent wetlands similarly to that which originally existed prior to development.

Discharge from the development will be slowed and treated by level spreaders and wooded buffers, which will also provide a portion of the required phosphorus removal.

The proposed BMP's have been analyzed and designed to meet the treatment and flooding standards as required by DEP

regulations. See the attached calculations for additional information.

ANALYSIS:

The watershed's overall perimeter remained unchanged between the Pre- and Post-Development analyses. For the Pre-Development scenario, three subcatchments were identified and modeled. The Post-Development analysis required four subcatchments to accurately assess the changes to site. The additional subcatchment was necessary to evaluate the distribution and management of runoff in the post-development condition.

The project runoff drains to the Mousam River through a 100+ ft wide lot of conservation land (Sanford Springvale Mousam Way Land Trust, Map R18B, Lot 12). All stormwater from the project is discharged through "Out 1" flowing Northwest to the Mousam River.

For further details regarding subcatchment determination, refer to the project drawings and D1 / D2 included in the appendix of this report.



METHODOLOGY:

All runoff calculations were performed using methods based on USDA-SCS Technical Release No. 20 (also known as TR-20). The 2-, 10-, and 25-year events (Type III rainfall distribution) were used for the site-specific analysis to determine pre- and post-development peak discharge rates and required stormwater treatment & conveyance systems. The 100-year event was also analyzed to confirm the capacity of on-site drainage structures for the extreme event.

Runoff curve numbers (CN) and times of concentration (Tc) were determined by the methods outlined in USDA-SCS Technical Release No. 55 (better known as TR-55). On site watershed areas were determined using two-foot contour data provided by field survey crews and previously compiled topography plans.

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

The attached Pre- and Post Development plans (D1 & D2) show subcatchment boundaries, hydraulic flow lines, existing and proposed roads, and drainage features and facilities. Land cover type boundaries used in the model for on-site areas are also shown on the plan (i.e. tree lines, wetlands, etc).

BMP SIZING:

The proposed spreaders have been appropriately sized to comply with Chapter 500 treatment standards while reducing peak flows to the extent practical.

FLOW RATES:

TWO-YEAR EVENT -

Discharge Point	Peak Runoff (in cfs)		Change
	Pre	Post	
OUT 1	1.89	4.93	+ 3.04 cfs

TEN-YEAR EVENT -

Discharge Point	Peak Runoff (in cfs)		Change
	Pre	Post	
OUT 1	8.08	11.14	+ 3.06 cfs

TWENTY-FIVE-YEAR EVENT -

Discharge Point	Peak Runoff (in cfs)		Change
	Pre	Post	
OUT 1	14.89	17.46	+ 2.57 cfs

HUNDRED-YEAR EVENT -

Discharge Point	Peak Runoff (in cfs)		Change
	Pre	Post	
OUT 1	33.21	32.45	- 0.76 cfs

The analysis shows increases in peak flows (for the smaller storms) to the Mousam River, which is considered a major river segment. The maximum increase is 3.06 cfs for the 10-year storm, and does not represent a detrimental condition for the large receiving waterway and Estes Lake. The only downstream crossing is a clear span bridge on New Dam Road over the Mousam River, which will not be impacted by the increases indicated by the modeling.

Please see Appendix D for the stormwater maintenance and inspection plan.



WAIVER OF FLOODING STANDARD FOR INSIGNIFICANT INCREASE:

As indicated in the previous table, an increase in flows to the Mousam River is expected. This is due to the presence of highly permeable sand material in the developed area, which results in very small amounts of runoff in the pre-developed condition.

The flow from the site runs through wooded area overland into a wetland adjacent to the Mousam River. According to USGS data, the river has a median flow of 62 cfs and a maximum recorded flow of 215 cfs at the nearby Rt 4 observation point (USGS 01068910). The receiving water body, Estes Lake, has an area of 387 acres and maximum depth of 30 ft.

The project flows of the receiving waterways and lake will not be impacted by the proposed minimal increase in runoff from the site.

While it is possible to reduce flows further, the utilization of spreaders and vegetated buffers provides much lower impact than alternative measures and has minimized disturbance of the existing tree line.

For the reasons noted above, it is our opinion that the minimal increase in flows will not have a detrimental effect on the downstream water bodies and associated properties.

LEVEL SPREADERS/BUFFER SIZING:

For general standards and to provide a phosphorus treatment factor of 0.40, stone berm level spreaders located in HSG 'A' soils must discharge to 75-foot buffer flow paths, with the berm length determined by the amount of developed area draining to it (Table 5.5 of the Stormwater Management Manual). For this development, additional buffer flow path lengths and berm lengths have been incorporated in the treatment plan. This adjustment improves the treatment factors to 0.18, 0.38, and 0.16 for treatment areas 'B', 'C', and 'D', respectively.

Areas 'A' and 'F' will be treated by roadside wooded buffers, and will similarly be oversized to achieve a greater treatment factor. These buffers will provide treatment factors of 0.22 and 0.15 for areas 'A' and 'F', respectively.

Refer to sheet D3, and to the Phosphorus Worksheets and calculations included in this submission for additional information.

COMPENSATION:

The proposed BMPs will reduce phosphorus export from the development by 68.51%, however the total phosphorus export will still exceed the allowable budget of 0.85 lbs P/year. The excess phosphorus will be offset by \$15,213 compensation paid to the York County Soil & Water Conservation District.

Further details can be found in Worksheet 4 – Project Phosphorus Export Summary.



CONCLUSIONS:

The proposed site modification will maintain similar flow rates exiting the site for evaluated storm events. Increases in flow to the Mousam River are not expected to have an appreciable adverse effect on the river or the receiving Estes Lake.

Runoff has been treated as required per the general standards of Chapter 500 with vegetated filter BMPs.

The pre-treatment Phosphorus export has been reduced by 67.44% and York County Soil & Water Conservation District will be paid compensation as indicated in Chapter 501.3.C.3, and Table 3.

It is our opinion that there will be no adverse downstream impacts as a result of this project and surrounding natural resources have been sufficiently protected by the proposed stormwater management plan.

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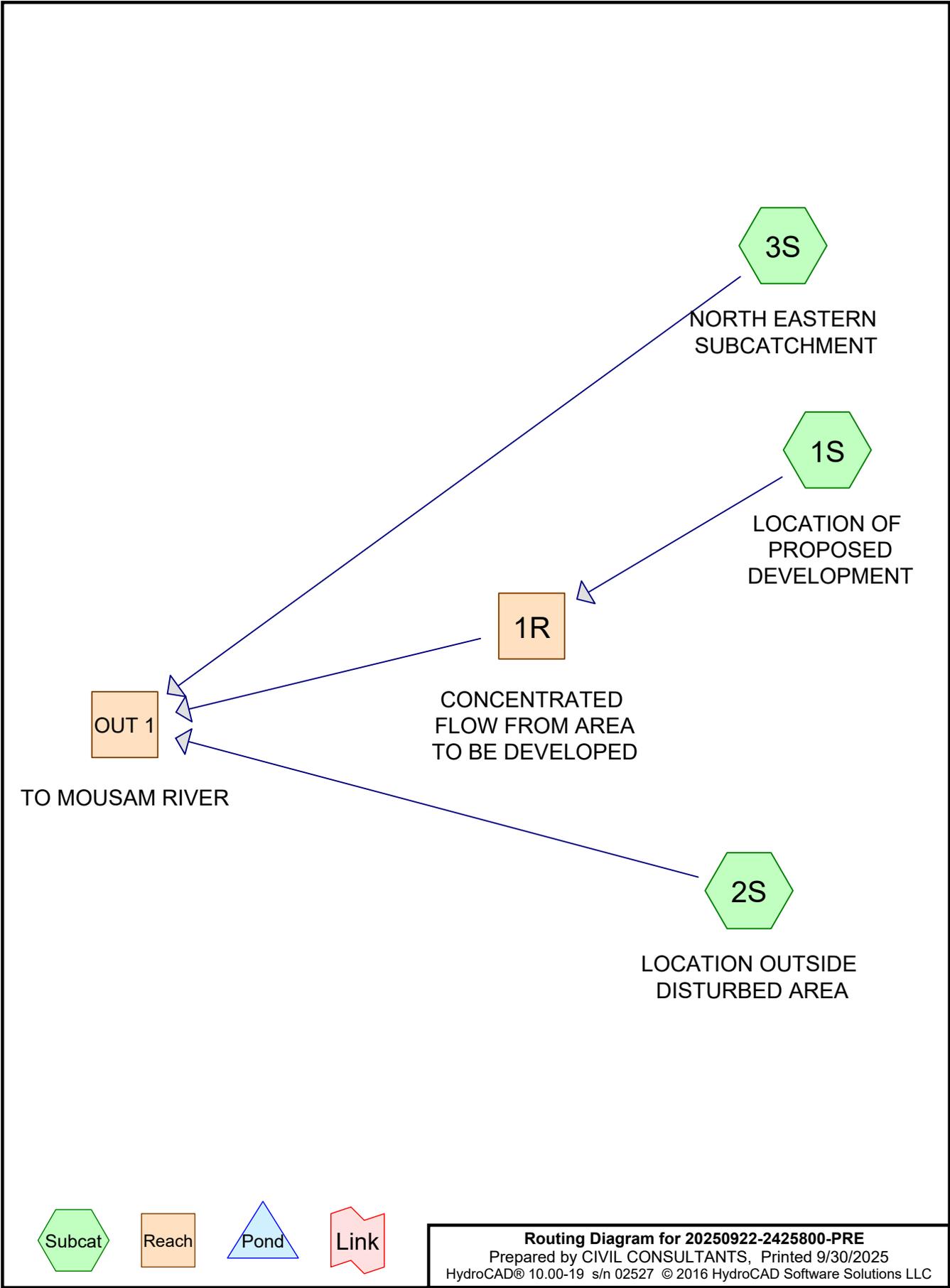
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Pre-Development Calculations



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.029	68	<50% Grass cover, Poor, HSG A (1S)
0.136	98	Paved parking, HSG A (1S)
5.113	36	Woods, Fair, HSG A (1S, 2S, 3S)
0.369	60	Woods, Fair, HSG B (2S)
5.576	79	Woods, Fair, HSG D (2S, 3S)
4.488	43	Woods/grass comb., Fair, HSG A (1S, 2S, 3S)
15.711	54	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
9.766	HSG A	1S, 2S, 3S
0.369	HSG B	2S
0.000	HSG C	
5.576	HSG D	2S, 3S
0.000	Other	
15.711		TOTAL AREA

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.029	0.000	0.000	0.000	0.000	0.029	<50% Grass cover, Poor	1S
0.136	0.000	0.000	0.000	0.000	0.136	Paved parking	1S
5.113	0.369	0.000	5.576	0.000	11.058	Woods, Fair	1S, 2S, 3S
4.488	0.000	0.000	0.000	0.000	4.488	Woods/grass comb., Fair	1S, 2S, 3S
9.766	0.369	0.000	5.576	0.000	15.711	TOTAL AREA	

20250922-2425800-PRE

Type III 24-hr 2-yr Rainfall=3.25"

Prepared by CIVIL CONSULTANTS

Printed 9/30/2025

HydroCAD® 10.00-19 s/n 02527 © 2016 HydroCAD Software Solutions LLC

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: LOCATION OF Runoff Area=4.565 ac 2.98% Impervious Runoff Depth=0.04"
Flow Length=509' Tc=26.9 min CN=44 Runoff=0.02 cfs 0.014 af

Subcatchment 2S: LOCATION OUTSIDE Runoff Area=7.650 ac 0.00% Impervious Runoff Depth=0.39"
Flow Length=364' Tc=20.2 min CN=59 Runoff=1.42 cfs 0.250 af

Subcatchment 3S: NORTH EASTERN Runoff Area=3.496 ac 0.00% Impervious Runoff Depth=0.36"
Flow Length=465' Tc=27.1 min CN=58 Runoff=0.51 cfs 0.105 af

Reach 1R: CONCENTRATED FLOW Avg. Flow Depth=0.01' Max Vel=0.13 fps Inflow=0.02 cfs 0.014 af
n=0.080 L=346.0' S=0.0318 '/' Capacity=336.99 cfs Outflow=0.02 cfs 0.014 af

Reach OUT 1: TO MOUSAM RIVER Inflow=1.89 cfs 0.369 af
Outflow=1.89 cfs 0.369 af

Total Runoff Area = 15.711 ac Runoff Volume = 0.369 af Average Runoff Depth = 0.28"
99.13% Pervious = 15.575 ac 0.87% Impervious = 0.136 ac

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: LOCATION OF Runoff Area=4.565 ac 2.98% Impervious Runoff Depth=0.36"
Flow Length=509' Tc=26.9 min CN=44 Runoff=0.48 cfs 0.135 af

Subcatchment 2S: LOCATION OUTSIDE Runoff Area=7.650 ac 0.00% Impervious Runoff Depth=1.16"
Flow Length=364' Tc=20.2 min CN=59 Runoff=6.01 cfs 0.737 af

Subcatchment 3S: NORTH EASTERN Runoff Area=3.496 ac 0.00% Impervious Runoff Depth=1.09"
Flow Length=465' Tc=27.1 min CN=58 Runoff=2.26 cfs 0.318 af

Reach 1R: CONCENTRATED FLOW Avg. Flow Depth=0.04' Max Vel=0.31 fps Inflow=0.48 cfs 0.135 af
n=0.080 L=346.0' S=0.0318 '/' Capacity=336.99 cfs Outflow=0.38 cfs 0.135 af

Reach OUT 1: TO MOUSAM RIVER Inflow=8.08 cfs 1.191 af
Outflow=8.08 cfs 1.191 af

Total Runoff Area = 15.711 ac Runoff Volume = 1.191 af Average Runoff Depth = 0.91"
99.13% Pervious = 15.575 ac 0.87% Impervious = 0.136 ac

20250922-2425800-PRE

Type III 24-hr 25-yr Rainfall=6.12"

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Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: LOCATION OF Runoff Area=4.565 ac 2.98% Impervious Runoff Depth=0.78"
Flow Length=509' Tc=26.9 min CN=44 Runoff=1.61 cfs 0.298 af

Subcatchment 2S: LOCATION OUTSIDE Runoff Area=7.650 ac 0.00% Impervious Runoff Depth=1.92"
Flow Length=364' Tc=20.2 min CN=59 Runoff=10.76 cfs 1.221 af

Subcatchment 3S: NORTH EASTERN Runoff Area=3.496 ac 0.00% Impervious Runoff Depth=1.83"
Flow Length=465' Tc=27.1 min CN=58 Runoff=4.12 cfs 0.534 af

Reach 1R: CONCENTRATED FLOW Avg. Flow Depth=0.08' Max Vel=0.47 fps Inflow=1.61 cfs 0.298 af
n=0.080 L=346.0' S=0.0318 '/ Capacity=336.99 cfs Outflow=1.39 cfs 0.298 af

Reach OUT 1: TO MOUSAM RIVER Inflow=14.89 cfs 2.053 af
Outflow=14.89 cfs 2.053 af

Total Runoff Area = 15.711 ac Runoff Volume = 2.053 af Average Runoff Depth = 1.57"
99.13% Pervious = 15.575 ac 0.87% Impervious = 0.136 ac

Summary for Subcatchment 1S: LOCATION OF PROPOSED DEVELOPMENT

Runoff = 1.61 cfs @ 12.53 hrs, Volume= 0.298 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (ac)	CN	Description
0.621	36	Woods, Fair, HSG A
0.136	98	Paved parking, HSG A
3.779	43	Woods/grass comb., Fair, HSG A
0.029	68	<50% Grass cover, Poor, HSG A
4.565	44	Weighted Average
4.429		97.02% Pervious Area
0.136		2.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0134	0.06		Sheet Flow, 1S.1 Woods: Light underbrush n= 0.400 P2= 3.25"
3.9	132	0.0130	0.57		Shallow Concentrated Flow, 1S.2 Woodland Kv= 5.0 fps
1.0	56	0.0350	0.94		Shallow Concentrated Flow, 1S.3 Woodland Kv= 5.0 fps
7.6	271	0.0140	0.59		Shallow Concentrated Flow, 1S.4 Woodland Kv= 5.0 fps
26.9	509	Total			

Summary for Subcatchment 2S: LOCATION OUTSIDE DISTURBED AREA

Runoff = 10.76 cfs @ 12.30 hrs, Volume= 1.221 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (ac)	CN	Description
3.174	36	Woods, Fair, HSG A
0.369	60	Woods, Fair, HSG B
3.880	79	Woods, Fair, HSG D
0.227	43	Woods/grass comb., Fair, HSG A
7.650	59	Weighted Average
7.650		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.4	50	0.0134	0.06		Sheet Flow, 2S.1 Woods: Light underbrush n= 0.400 P2= 3.25"
4.5	255	0.0350	0.94		Shallow Concentrated Flow, 2S.2 Woodland Kv= 5.0 fps
1.3	59	0.0875	0.74		Shallow Concentrated Flow, 2S.3 Forest w/Heavy Litter Kv= 2.5 fps
20.2	364	Total			

Summary for Subcatchment 3S: NORTH EASTERN SUBCATCHMENT

Runoff = 4.12 cfs @ 12.43 hrs, Volume= 0.534 af, Depth= 1.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (ac)	CN	Description
1.318	36	Woods, Fair, HSG A
1.696	79	Woods, Fair, HSG D
0.482	43	Woods/grass comb., Fair, HSG A
3.496	58	Weighted Average
3.496		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	50	0.0060	0.04		Sheet Flow, 3S.1 Woods: Light underbrush n= 0.400 P2= 3.25"
3.4	160	0.0250	0.79		Shallow Concentrated Flow, 3S.2 Woodland Kv= 5.0 fps
2.1	145	0.0550	1.17		Shallow Concentrated Flow, 3S.3 Woodland Kv= 5.0 fps
1.8	110	0.0416	1.02		Shallow Concentrated Flow, 3S.4 Woodland Kv= 5.0 fps
27.1	465	Total			

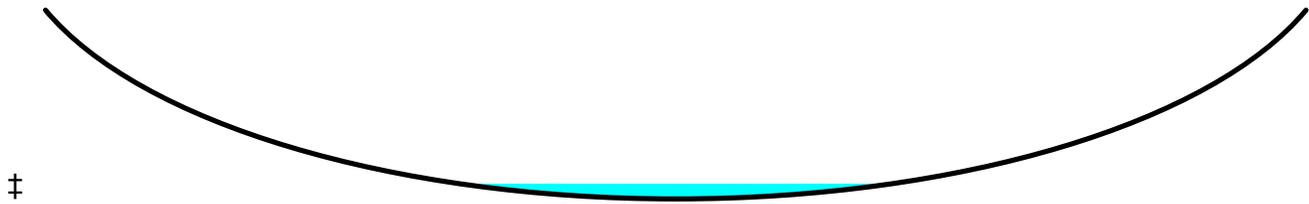
Summary for Reach 1R: CONCENTRATED FLOW FROM AREA TO BE DEVELOPED

Inflow Area = 4.565 ac, 2.98% Impervious, Inflow Depth = 0.78" for 25-yr event
 Inflow = 1.61 cfs @ 12.53 hrs, Volume= 0.298 af
 Outflow = 1.39 cfs @ 12.71 hrs, Volume= 0.298 af, Atten= 14%, Lag= 10.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 5
 Max. Velocity= 0.47 fps, Min. Travel Time= 12.4 min
 Avg. Velocity = 0.22 fps, Avg. Travel Time= 26.3 min

Peak Storage= 1,030 cf @ 12.71 hrs
 Average Depth at Peak Storage= 0.08'
 Bank-Full Depth= 1.00' Flow Area= 133.3 sf, Capacity= 336.99 cfs

200.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 346.0' Slope= 0.0318 '/'
Inlet Invert= 226.00', Outlet Invert= 215.00'



Summary for Reach OUT 1: TO MOUSAM RIVER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	15.711 ac,	0.87% Impervious,	Inflow Depth = 1.57"	for 25-yr event
Inflow =	14.89 cfs @	12.34 hrs,	Volume=	2.053 af
Outflow =	14.89 cfs @	12.34 hrs,	Volume=	2.053 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 5

20250922-2425800-PRE

Type III 24-hr 100-yr Rainfall=8.69"

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Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: LOCATION OF Runoff Area=4.565 ac 2.98% Impervious Runoff Depth=2.00"
Flow Length=509' Tc=26.9 min CN=44 Runoff=5.46 cfs 0.761 af

Subcatchment 2S: LOCATION OUTSIDE Runoff Area=7.650 ac 0.00% Impervious Runoff Depth=3.74"
Flow Length=364' Tc=20.2 min CN=59 Runoff=22.17 cfs 2.384 af

Subcatchment 3S: NORTH EASTERN Runoff Area=3.496 ac 0.00% Impervious Runoff Depth=3.62"
Flow Length=465' Tc=27.1 min CN=58 Runoff=8.62 cfs 1.055 af

Reach 1R: CONCENTRATED FLOW Avg. Flow Depth=0.14' Max Vel=0.69 fps Inflow=5.46 cfs 0.761 af
n=0.080 L=346.0' S=0.0318 '/ Capacity=336.99 cfs Outflow=5.06 cfs 0.761 af

Reach OUT 1: TO MOUSAM RIVER Inflow=33.21 cfs 4.200 af
Outflow=33.21 cfs 4.200 af

Total Runoff Area = 15.711 ac Runoff Volume = 4.200 af Average Runoff Depth = 3.21"
99.13% Pervious = 15.575 ac 0.87% Impervious = 0.136 ac



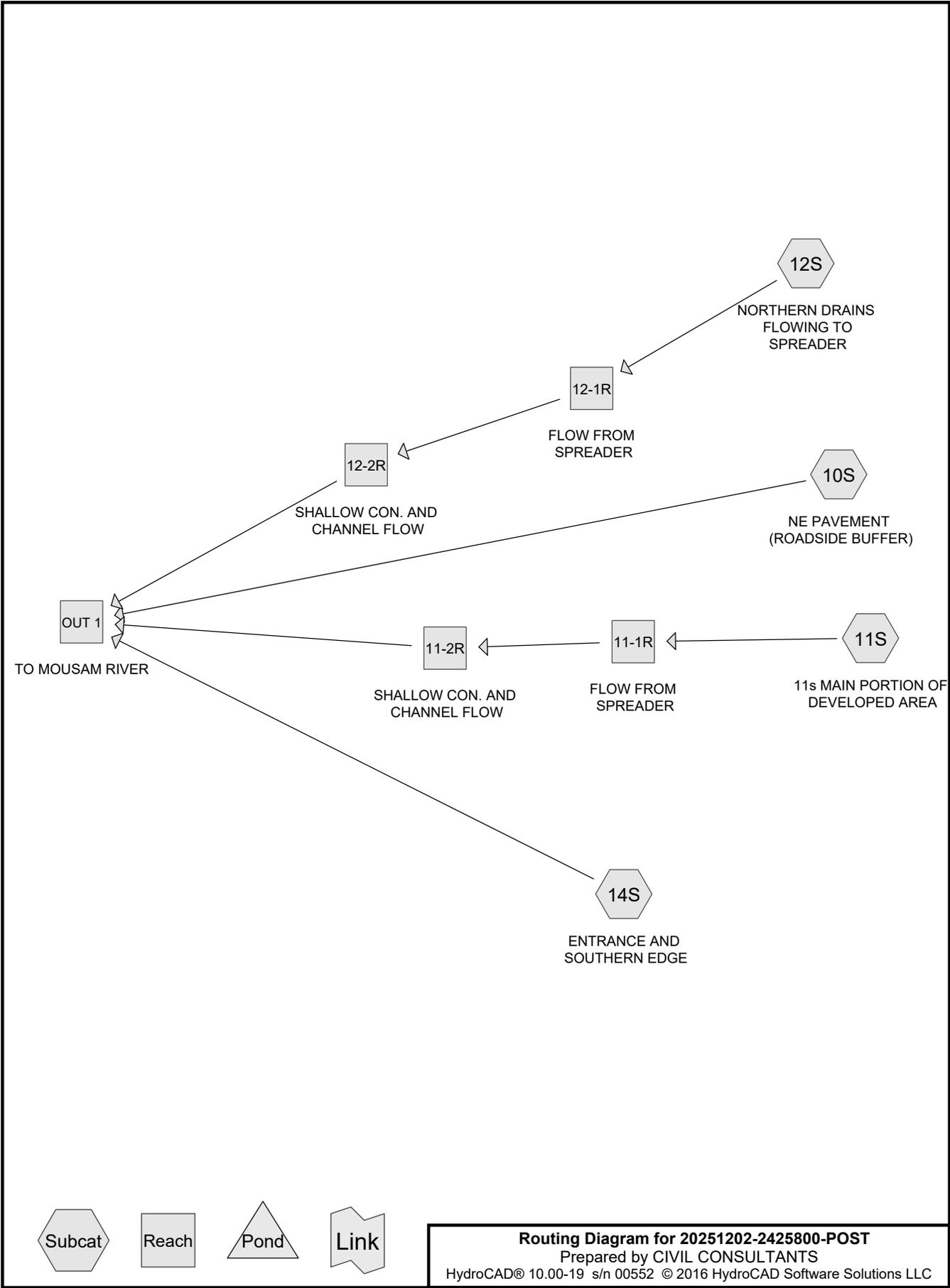
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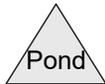
Post-Development Calculations



Subcat



Reach



Pond



Link

Routing Diagram for 20251202-2425800-POST
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.557	39	>75% Grass cover, Good, HSG A (10S, 11S, 12S, 14S)
2.937	98	Paved parking, HSG A (10S, 11S, 12S, 14S)
5.272	36	Woods, Fair, HSG A (10S, 14S)
0.369	60	Woods, Fair, HSG B (14S)
5.576	79	Woods, Fair, HSG D (10S, 14S)
15.711	64	TOTAL AREA

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
9.766	HSG A	10S, 11S, 12S, 14S
0.369	HSG B	14S
0.000	HSG C	
5.576	HSG D	10S, 14S
0.000	Other	
15.711		TOTAL AREA

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.557	0.000	0.000	0.000	0.000	1.557	>75% Grass cover, Good	10S, 11S, 12S, 14S
2.937	0.000	0.000	0.000	0.000	2.937	Paved parking	10S, 11S, 12S, 14S
5.272	0.369	0.000	5.576	0.000	11.217	Woods, Fair	10S, 14S
9.766	0.369	0.000	5.576	0.000	15.711	TOTAL AREA	

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Type III 24-hr 2-yr Rainfall=3.25"

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Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NE PAVEMENT Runoff Area=2.679 ac 8.03% Impervious Runoff Depth=0.54"
Flow Length=423' Tc=19.1 min CN=63 Runoff=0.85 cfs 0.121 af

Subcatchment 11S: 11s MAIN PORTION OF Runoff Area=2.370 ac 87.22% Impervious Runoff Depth=2.21"
Flow Length=599' Tc=3.0 min CN=90 Runoff=6.78 cfs 0.437 af

Subcatchment 12S: NORTHERN DRAINS Runoff Area=0.255 ac 82.75% Impervious Runoff Depth=2.04"
Flow Length=202' Tc=1.3 min CN=88 Runoff=0.72 cfs 0.043 af

Subcatchment 14S: ENTRANCE AND Runoff Area=10.407 ac 4.27% Impervious Runoff Depth=0.33"
Flow Length=720' Tc=42.7 min CN=57 Runoff=1.05 cfs 0.283 af

Reach 11-1R: FLOW FROM SPREADER Avg. Flow Depth=0.13' Max Vel=0.18 fps Inflow=6.78 cfs 0.437 af
n=0.400 L=146.0' S=0.0377 '/' Capacity=43.59 cfs Outflow=4.17 cfs 0.437 af

Reach 11-2R: SHALLOW CON. AND Avg. Flow Depth=0.15' Max Vel=0.66 fps Inflow=4.17 cfs 0.437 af
n=0.080 L=183.0' S=0.0273 '/' Capacity=234.29 cfs Outflow=3.86 cfs 0.437 af

Reach 12-1R: FLOW FROM SPREADER Avg. Flow Depth=0.07' Max Vel=0.14 fps Inflow=0.72 cfs 0.043 af
n=0.400 L=99.0' S=0.0646 '/' Capacity=92.32 cfs Outflow=0.45 cfs 0.043 af

Reach 12-2R: SHALLOW CON. AND Avg. Flow Depth=0.06' Max Vel=0.36 fps Inflow=0.45 cfs 0.043 af
n=0.100 L=156.0' S=0.0385 '/' Capacity=148.36 cfs Outflow=0.38 cfs 0.043 af

Reach OUT 1: TO MOUSAM RIVER Inflow=4.93 cfs 0.885 af
Outflow=4.93 cfs 0.885 af

Total Runoff Area = 15.711 ac Runoff Volume = 0.885 af Average Runoff Depth = 0.68"
81.31% Pervious = 12.774 ac 18.69% Impervious = 2.937 ac

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Type III 24-hr 10-yr Rainfall=4.86"

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Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NE PAVEMENT Runoff Area=2.679 ac 8.03% Impervious Runoff Depth=1.42"
Flow Length=423' Tc=19.1 min CN=63 Runoff=2.82 cfs 0.317 af

Subcatchment 11S: 11s MAIN PORTION OF Runoff Area=2.370 ac 87.22% Impervious Runoff Depth=3.74"
Flow Length=599' Tc=3.0 min CN=90 Runoff=11.20 cfs 0.739 af

Subcatchment 12S: NORTHERN DRAINS Runoff Area=0.255 ac 82.75% Impervious Runoff Depth=3.54"
Flow Length=202' Tc=1.3 min CN=88 Runoff=1.22 cfs 0.075 af

Subcatchment 14S: ENTRANCE AND Runoff Area=10.407 ac 4.27% Impervious Runoff Depth=1.03"
Flow Length=720' Tc=42.7 min CN=57 Runoff=5.02 cfs 0.894 af

Reach 11-1R: FLOW FROM SPREADER Avg. Flow Depth=0.18' Max Vel=0.22 fps Inflow=11.20 cfs 0.739 af
n=0.400 L=146.0' S=0.0377 '/ Capacity=43.59 cfs Outflow=7.51 cfs 0.739 af

Reach 11-2R: SHALLOW CON. AND Avg. Flow Depth=0.20' Max Vel=0.80 fps Inflow=7.51 cfs 0.739 af
n=0.080 L=183.0' S=0.0273 '/ Capacity=234.29 cfs Outflow=7.02 cfs 0.739 af

Reach 12-1R: FLOW FROM SPREADER Avg. Flow Depth=0.09' Max Vel=0.17 fps Inflow=1.22 cfs 0.075 af
n=0.400 L=99.0' S=0.0646 '/ Capacity=92.32 cfs Outflow=0.82 cfs 0.075 af

Reach 12-2R: SHALLOW CON. AND Avg. Flow Depth=0.08' Max Vel=0.43 fps Inflow=0.82 cfs 0.075 af
n=0.100 L=156.0' S=0.0385 '/ Capacity=148.36 cfs Outflow=0.71 cfs 0.075 af

Reach OUT 1: TO MOUSAM RIVER Inflow=11.14 cfs 2.025 af
Outflow=11.14 cfs 2.025 af

Total Runoff Area = 15.711 ac Runoff Volume = 2.025 af Average Runoff Depth = 1.55"
81.31% Pervious = 12.774 ac 18.69% Impervious = 2.937 ac

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Type III 24-hr 25-yr Rainfall=6.12"

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Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NE PAVEMENT Runoff Area=2.679 ac 8.03% Impervious Runoff Depth=2.26"
Flow Length=423' Tc=19.1 min CN=63 Runoff=4.70 cfs 0.505 af

Subcatchment 11S: 11s MAIN PORTION OF Runoff Area=2.370 ac 87.22% Impervious Runoff Depth=4.96"
Flow Length=599' Tc=3.0 min CN=90 Runoff=14.63 cfs 0.980 af

Subcatchment 12S: NORTHERN DRAINS Runoff Area=0.255 ac 82.75% Impervious Runoff Depth=4.74"
Flow Length=202' Tc=1.3 min CN=88 Runoff=1.62 cfs 0.101 af

Subcatchment 14S: ENTRANCE AND Runoff Area=10.407 ac 4.27% Impervious Runoff Depth=1.75"
Flow Length=720' Tc=42.7 min CN=57 Runoff=9.33 cfs 1.517 af

Reach 11-1R: FLOW FROM SPREADER Avg. Flow Depth=0.22' Max Vel=0.24 fps Inflow=14.63 cfs 0.980 af
n=0.400 L=146.0' S=0.0377 '/ Capacity=43.59 cfs Outflow=10.19 cfs 0.980 af

Reach 11-2R: SHALLOW CON. AND Avg. Flow Depth=0.23' Max Vel=0.88 fps Inflow=10.19 cfs 0.980 af
n=0.080 L=183.0' S=0.0273 '/ Capacity=234.29 cfs Outflow=9.59 cfs 0.980 af

Reach 12-1R: FLOW FROM SPREADER Avg. Flow Depth=0.11' Max Vel=0.19 fps Inflow=1.62 cfs 0.101 af
n=0.400 L=99.0' S=0.0646 '/ Capacity=92.32 cfs Outflow=1.12 cfs 0.101 af

Reach 12-2R: SHALLOW CON. AND Avg. Flow Depth=0.10' Max Vel=0.48 fps Inflow=1.12 cfs 0.101 af
n=0.100 L=156.0' S=0.0385 '/ Capacity=148.36 cfs Outflow=0.98 cfs 0.101 af

Reach OUT 1: TO MOUSAM RIVER Inflow=17.46 cfs 3.103 af
Outflow=17.46 cfs 3.103 af

Total Runoff Area = 15.711 ac Runoff Volume = 3.103 af Average Runoff Depth = 2.37"
81.31% Pervious = 12.774 ac 18.69% Impervious = 2.937 ac

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Type III 24-hr 25-yr Rainfall=6.12"

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Summary for Subcatchment 10S: NE PAVEMENT (ROADSIDE BUFFER)

Runoff = 4.70 cfs @ 12.28 hrs, Volume= 0.505 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (ac)	CN	Description
0.091	39	>75% Grass cover, Good, HSG A
0.215	98	Paved parking, HSG A
1.351	79	Woods, Fair, HSG D
1.022	36	Woods, Fair, HSG A
2.679	63	Weighted Average
2.464		91.97% Pervious Area
0.215		8.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.4	50	0.0160	0.06		Sheet Flow, 10S-1 Woods: Light underbrush n= 0.400 P2= 3.25"
2.1	126	0.0390	0.99		Shallow Concentrated Flow, 10S-2 Woodland Kv= 5.0 fps
0.6	48	0.0830	1.44		Shallow Concentrated Flow, 10S-3 Woodland Kv= 5.0 fps
1.6	75	0.0260	0.81		Shallow Concentrated Flow, 10S-4 Woodland Kv= 5.0 fps
1.4	124	0.0170	1.48	39.39	Parabolic Channel, 10S-5 W=40.00' D=1.00' Area=26.7 sf Perim=40.1' n= 0.100 Very weedy reaches w/pools
19.1	423	Total			

Summary for Subcatchment 11S: 11s MAIN PORTION OF DEVELOPED AREA

Runoff = 14.63 cfs @ 12.04 hrs, Volume= 0.980 af, Depth= 4.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (ac)	CN	Description
0.303	39	>75% Grass cover, Good, HSG A
2.067	98	Paved parking, HSG A
2.370	90	Weighted Average
0.303		12.78% Pervious Area
2.067		87.22% Impervious Area

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Type III 24-hr 25-yr Rainfall=6.12"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	19	0.0125	0.82		Sheet Flow, 1S.1 Smooth surfaces n= 0.011 P2= 3.25"
0.2	32	0.0130	2.31		Shallow Concentrated Flow, 11S.2 Paved Kv= 20.3 fps
1.0	185	0.0050	3.21	2.52	Pipe Channel, 11S.3 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.4	363	0.0050	4.20	7.43	Pipe Channel, 11S.4 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
3.0	599	Total			

Summary for Subcatchment 12S: NORTHERN DRAINS FLOWING TO SPREADER

Runoff = 1.62 cfs @ 12.02 hrs, Volume= 0.101 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.12"

Area (ac)	CN	Description
0.044	39	>75% Grass cover, Good, HSG A
0.211	98	Paved parking, HSG A
0.255	88	Weighted Average
0.044		17.25% Pervious Area
0.211		82.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	17	0.0160	0.89		Sheet Flow, 12S.1 Smooth surfaces n= 0.011 P2= 3.25"
0.2	36	0.0160	2.57		Shallow Concentrated Flow, 12S.2 Paved Kv= 20.3 fps
0.8	149	0.0050	3.21	2.52	Pipe Channel, 12S.3 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
1.3	202	Total			

Summary for Subcatchment 14S: ENTRANCE AND SOUTHERN EDGE

Runoff = 9.33 cfs @ 12.66 hrs, Volume= 1.517 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.12"

20251202-2425800-POST

Type III 24-hr 25-yr Rainfall=6.12"

Prepared by CIVIL CONSULTANTS

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Area (ac)	CN	Description
4.250	36	Woods, Fair, HSG A
0.369	60	Woods, Fair, HSG B
4.225	79	Woods, Fair, HSG D
1.119	39	>75% Grass cover, Good, HSG A
0.444	98	Paved parking, HSG A
10.407	57	Weighted Average
9.963		95.73% Pervious Area
0.444		4.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	50	0.0135	0.06		Sheet Flow, 1S.1 Woods: Light underbrush n= 0.400 P2= 3.25"
0.7	43	0.0230	1.06		Shallow Concentrated Flow, 1S.2 Short Grass Pasture Kv= 7.0 fps
0.9	313	0.0105	5.70	68.44	Parabolic Channel, 1S.3 W=9.00' D=2.00' Area=12.0 sf Perim=10.1' n= 0.030 Earth, grassed & winding
18.2	130	0.0500	0.12		Sheet Flow, 1S.4 Woods: Light underbrush n= 0.400 P2= 3.25"
8.6	184	0.0204	0.36		Shallow Concentrated Flow, 1S.6 Forest w/Heavy Litter Kv= 2.5 fps
42.7	720	Total			

Summary for Reach 11-1R: FLOW FROM SPREADER

Inflow Area = 2.370 ac, 87.22% Impervious, Inflow Depth = 4.96" for 25-yr event
 Inflow = 14.63 cfs @ 12.04 hrs, Volume= 0.980 af
 Outflow = 10.19 cfs @ 12.11 hrs, Volume= 0.980 af, Atten= 30%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 5
 Max. Velocity= 0.24 fps, Min. Travel Time= 10.0 min
 Avg. Velocity = 0.04 fps, Avg. Travel Time= 54.2 min

Peak Storage= 6,116 cf @ 12.11 hrs
 Average Depth at Peak Storage= 0.22'
 Bank-Full Depth= 0.50' Flow Area= 110.0 sf, Capacity= 43.59 cfs

170.00' x 0.50' deep channel, n= 0.400 Sheet flow: Woods+light brush
 Side Slope Z-value= 100.0 ' / ' Top Width= 270.00'
 Length= 146.0' Slope= 0.0377 ' / '
 Inlet Invert= 226.00', Outlet Invert= 220.50'



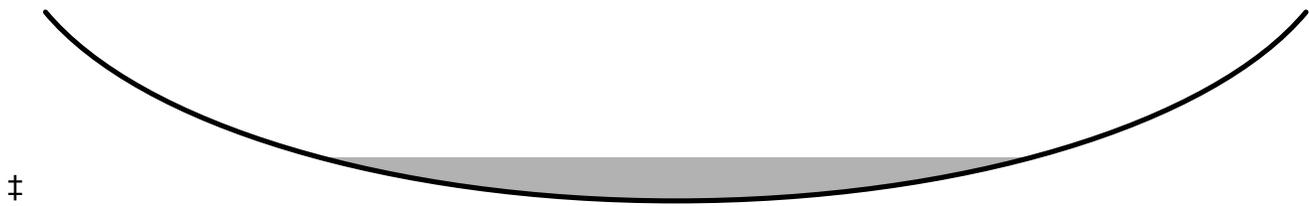
Summary for Reach 11-2R: SHALLOW CON. AND CHANNEL FLOW

Inflow Area = 2.370 ac, 87.22% Impervious, Inflow Depth = 4.96" for 25-yr event
Inflow = 10.19 cfs @ 12.11 hrs, Volume= 0.980 af
Outflow = 9.59 cfs @ 12.15 hrs, Volume= 0.980 af, Atten= 6%, Lag= 2.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 5
Max. Velocity= 0.88 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 13.8 min

Peak Storage= 2,002 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00' Flow Area= 100.0 sf, Capacity= 234.29 cfs

150.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 183.0' Slope= 0.0273 '/'
Inlet Invert= 220.00', Outlet Invert= 215.00'



Summary for Reach 12-1R: FLOW FROM SPREADER

Inflow Area = 0.255 ac, 82.75% Impervious, Inflow Depth = 4.74" for 25-yr event
Inflow = 1.62 cfs @ 12.02 hrs, Volume= 0.101 af
Outflow = 1.12 cfs @ 12.08 hrs, Volume= 0.101 af, Atten= 31%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 5
Max. Velocity= 0.19 fps, Min. Travel Time= 8.5 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 29.2 min

Peak Storage= 574 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 140.0 sf, Capacity= 92.32 cfs

40.00' x 1.00' deep channel, n= 0.400 Sheet flow: Woods+light brush
Side Slope Z-value= 100.0 '/' Top Width= 240.00'
Length= 99.0' Slope= 0.0646 '/'
Inlet Invert= 228.40', Outlet Invert= 222.00'



Summary for Reach 12-2R: SHALLOW CON. AND CHANNEL FLOW

[62] Hint: Exceeded Reach 12-1R OUTLET depth by 0.01' @ 12.59 hrs

Inflow Area =	0.255 ac, 82.75% Impervious, Inflow Depth = 4.74"	for 25-yr event
Inflow =	1.12 cfs @ 12.08 hrs, Volume=	0.101 af
Outflow =	0.98 cfs @ 12.14 hrs, Volume=	0.101 af, Atten= 12%, Lag= 3.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 5
 Max. Velocity= 0.48 fps, Min. Travel Time= 5.5 min
 Avg. Velocity = 0.16 fps, Avg. Travel Time= 16.3 min

Peak Storage= 322 cf @ 12.14 hrs
 Average Depth at Peak Storage= 0.10'
 Bank-Full Depth= 1.00' Flow Area= 66.7 sf, Capacity= 148.36 cfs

100.00' x 1.00' deep Parabolic Channel, n= 0.100 Earth, dense brush, high stage
 Length= 156.0' Slope= 0.0385 '/
 Inlet Invert= 222.00', Outlet Invert= 215.99'



Summary for Reach OUT 1: TO MOUSAM RIVER

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	15.711 ac, 18.69% Impervious, Inflow Depth = 2.37"	for 25-yr event
Inflow =	17.46 cfs @ 12.32 hrs, Volume=	3.103 af
Outflow =	17.46 cfs @ 12.32 hrs, Volume=	3.103 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.01 hrs / 5

Time span=0.00-96.00 hrs, dt=0.01 hrs, 9601 points x 5
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10S: NE PAVEMENT Runoff Area=2.679 ac 8.03% Impervious Runoff Depth=4.22"
Flow Length=423' Tc=19.1 min CN=63 Runoff=9.05 cfs 0.942 af

Subcatchment 11S: 11s MAIN PORTION OF Runoff Area=2.370 ac 87.22% Impervious Runoff Depth=7.49"
Flow Length=599' Tc=3.0 min CN=90 Runoff=21.54 cfs 1.478 af

Subcatchment 12S: NORTHERN DRAINS Runoff Area=0.255 ac 82.75% Impervious Runoff Depth=7.24"
Flow Length=202' Tc=1.3 min CN=88 Runoff=2.41 cfs 0.154 af

Subcatchment 14S: ENTRANCE AND Runoff Area=10.407 ac 4.27% Impervious Runoff Depth=3.50"
Flow Length=720' Tc=42.7 min CN=57 Runoff=19.87 cfs 3.037 af

Reach 11-1R: FLOW FROM SPREADER Avg. Flow Depth=0.28' Max Vel=0.28 fps Inflow=21.54 cfs 1.478 af
n=0.400 L=146.0' S=0.0377 '/ Capacity=43.59 cfs Outflow=15.74 cfs 1.478 af

Reach 11-2R: SHALLOW CON. AND Avg. Flow Depth=0.28' Max Vel=1.00 fps Inflow=15.74 cfs 1.478 af
n=0.080 L=183.0' S=0.0273 '/ Capacity=234.29 cfs Outflow=14.94 cfs 1.478 af

Reach 12-1R: FLOW FROM SPREADER Avg. Flow Depth=0.14' Max Vel=0.22 fps Inflow=2.41 cfs 0.154 af
n=0.400 L=99.0' S=0.0646 '/ Capacity=92.32 cfs Outflow=1.75 cfs 0.154 af

Reach 12-2R: SHALLOW CON. AND Avg. Flow Depth=0.12' Max Vel=0.55 fps Inflow=1.75 cfs 0.154 af
n=0.100 L=156.0' S=0.0385 '/ Capacity=148.36 cfs Outflow=1.56 cfs 0.154 af

Reach OUT 1: TO MOUSAM RIVER Inflow=32.45 cfs 5.611 af
Outflow=32.45 cfs 5.611 af

Total Runoff Area = 15.711 ac Runoff Volume = 5.611 af Average Runoff Depth = 4.29"
81.31% Pervious = 12.774 ac 18.69% Impervious = 2.937 ac

Forested buffer, limited disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _____ day of _____, 20____, by ARIES CLEAN TECHNOLOGIES, LLC., 4037 RURAL PLAINS CIRCLE, FRANKLIN, WILLIAMSON COUNTY, TENNESEE, 37064, (herein referred to as the "Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near CYRO ROAD, SANFORD, MAINE

WHEREAS, the Declarant holds title to certain real property situated in __SANFORD__, Maine described in a deed from _____ to _____ dated _____ (name) (name of Declarant) _____, 20____, and recorded in Book ____ Page ____ at the _____ County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer area location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area.** Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.
 - a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored

or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;

- b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:
 - (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees" is defined as maintaining a minimum rating score of 24 points in any 25 foot by 50 foot rectangle (1,250 square feet) area, as determined by the rating scheme in Table 11:

**Table 11.
Point System for Determining an Evenly
Distributed Stand of Trees**

Diameter of tree at 4½ feet above ground level	Points
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

- (ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;
- c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors, or fence;
- d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;
- e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

- 2. **Enforcement.** The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect.** The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.
4. **Amendment.** Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.
5. **Effective Provisions of Declaration.** Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.
6. **Severability.** Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.
7. **Governing Law.** This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

 (NAME)

STATE OF MAINE _____ County, _____, 20__.
 (County) (date)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

 Notary Public



**CIVIL
CONSULTANTS**

Engineers

Planners

Surveyors

APPENDICIES

A – Location & Topographic Plan

B – Soils Information

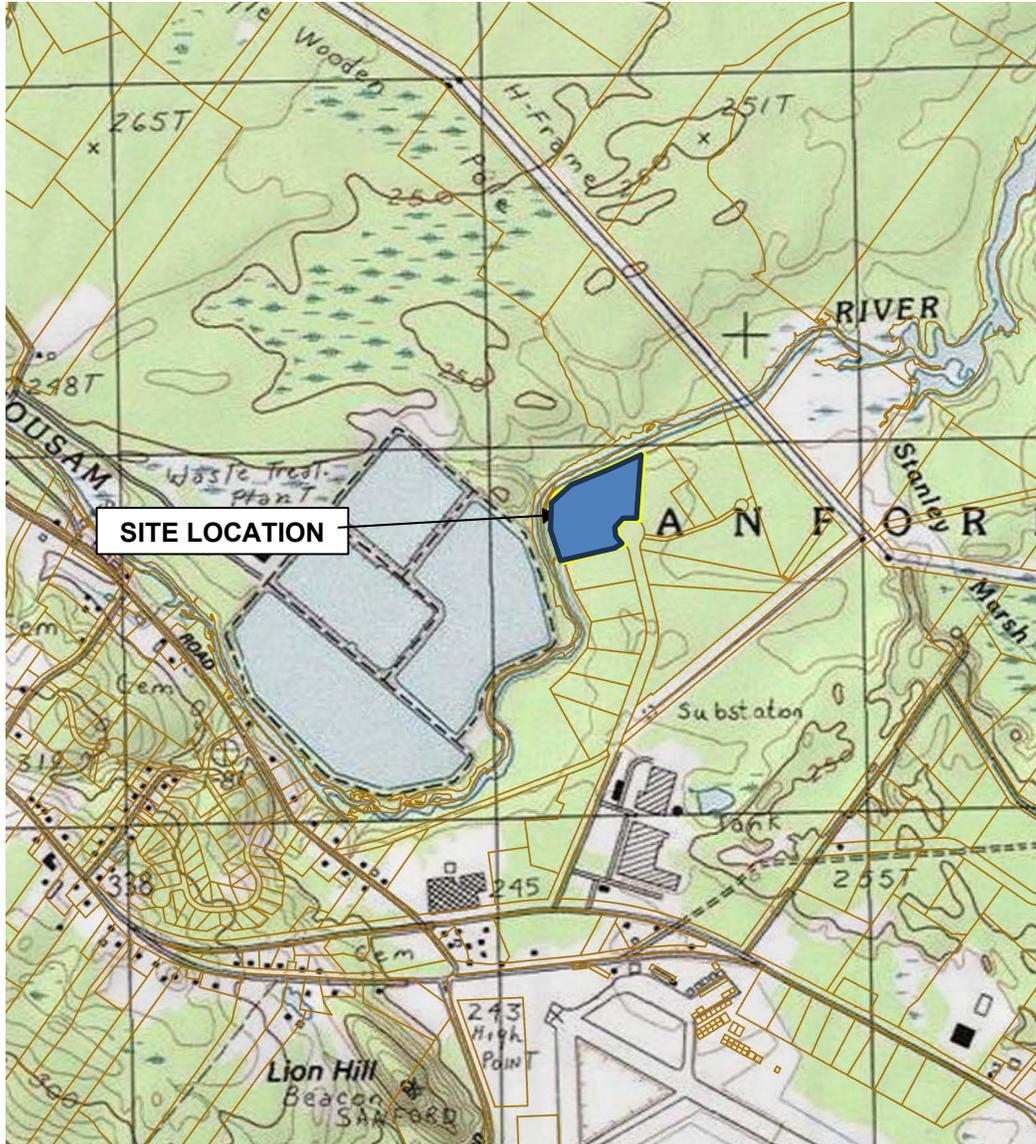
C – Supplemental Calculations

D – Stormwater Maintenance Plan and Inspection Log

E – FIRM Flood Mapping

F – Drainage Plans

APPENDIX A LOCATION AND TOPOGRAPHIC PLAN



Portion of

**USA Topo Maps
Wells, ME GIS**

Not To Scale



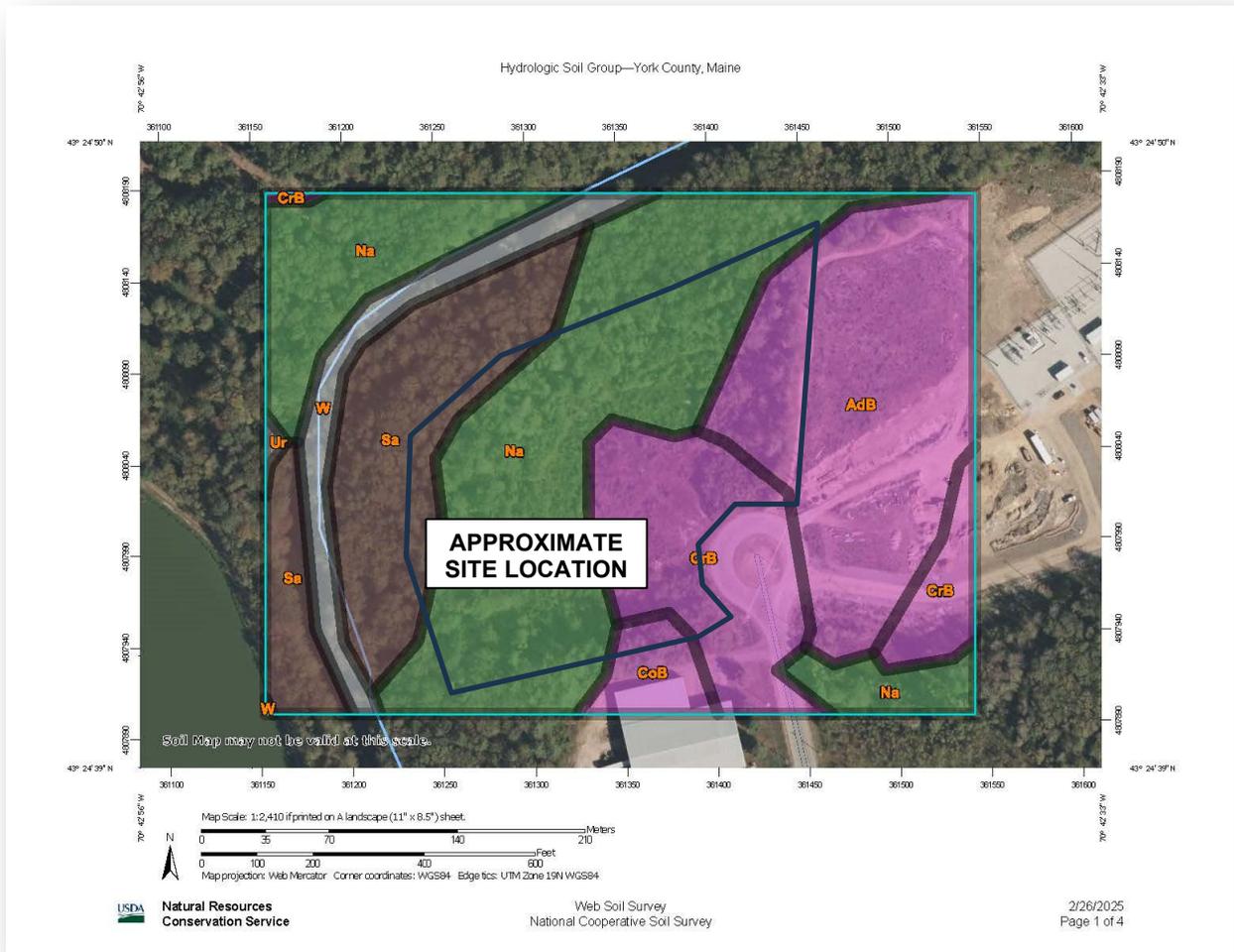
**CIVIL
CONSULTANTS**

P.O. Box 100 South Berwick, Maine 03908 207-384-2550

APPENDIX B

Soil Exploration Results & Medium Intensity Soil Survey Plan

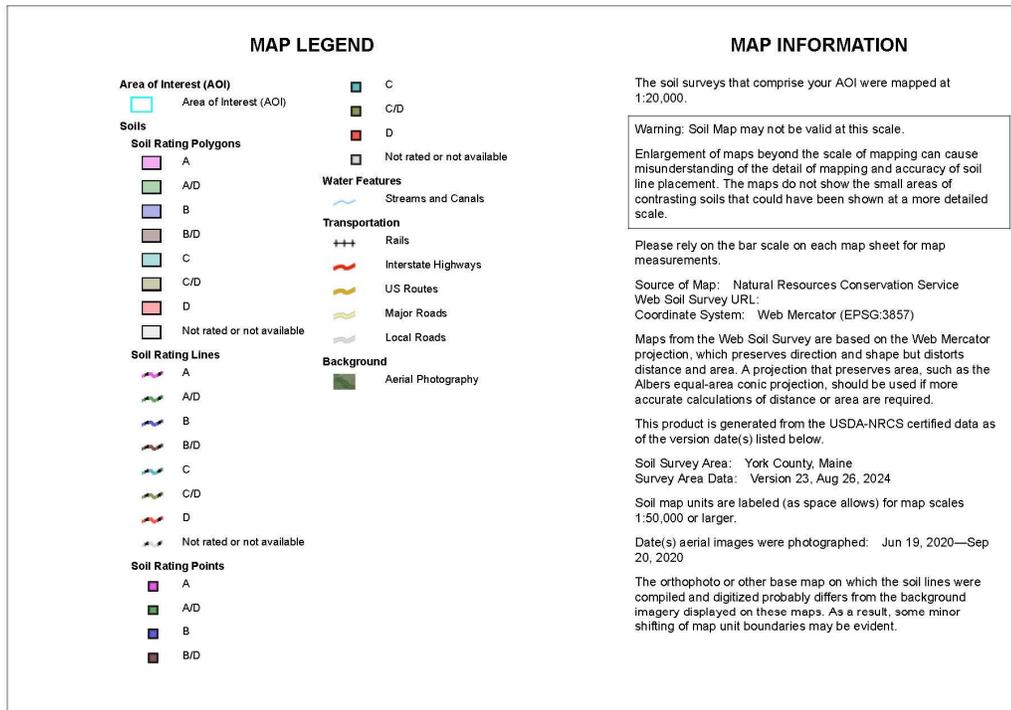
Portions of
USDA Soil Conservation Service – WEB SOIL SURVEY
YORK COUNTY, MAINE



**CIVIL
CONSULTANTS**

P.O. Box 100 South Berwick, Maine 03908 207-384-2550

Hydrologic Soil Group—York County, Maine



Hydrologic Soil Group—York County, Maine

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AdB	Adams loamy sand, 0 to 8 percent slopes	A	6.2	22.4%
CoB	Colton gravelly sandy loam, 0 to 8 percent slopes	A	0.7	2.5%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	4.1	15.1%
Na	Naumburg sand	A/D	10.3	37.7%
Sa	Saco mucky silt loam	B/D	4.6	16.9%
Ur	Urban land		0.0	0.2%
W	Water bodies		1.4	5.3%
Totals for Area of Interest			27.5	100.0%



Hydrologic Soil Group—York County, Maine

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: **Aries Clean Technologies** Applicant Name: **Industrial Dev. Corp. of Sanford** Project Location (municipality): **Cyro Road, Sanford**

Exploration Symbol # 101 Test Pit Boring Probe
2 " Organic horizon thickness Ground surface elev. _____
60 " Depth: of exploration, or to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
A	10YR 3/3	gravelly loamy sand	granular	friable	
Bw	10YR 6/6				no
C	10YR 6/8	gravelly coarse sand	single grain	loose	
2C	2.5Y 5/3	loam	blocky	firm	common

Soil Series/Phase Name: **Colton variant** Limiting Factor: 44 " Depth Groundwater Restrictive Layer Bedrock

Drainage Class: ED SED WD MWD SPD PD VPD Slope: 1 Percent Hydric Soil: No Yes Hydrologic Soil Group: **A**

Exploration Symbol # 102 Test Pit Boring Probe
3 " Organic horizon thickness Ground surface elev. _____
60 " Depth: of exploration, or to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
A	10YR 2/2	loamy sand	granular	friable	
Bw	10YR 5/6				no
C1	10YR 4/4	gravelly coarse sand	single grain	loose	
C2	2.5Y 4/4				
2C	2.5Y 5/3	loam	blocky	firm	common

Soil Series/Phase Name: **Eldridge** Limiting Factor: 36 " Depth Groundwater Restrictive Layer Bedrock

Drainage Class: ED SED WD MWD SPD PD VPD Slope: 1 Percent Hydric Soil: No Yes Hydrologic Soil Group: **C**

Exploration Symbol # 103 Test Pit Boring Probe
3 " Organic horizon thickness Ground surface elev. _____
60 " Depth: of exploration, or to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
A	10YR 2/1	gravelly fine sandy loam	granular	friable	
F	7.5YR 4/2				
Bs	7.5YR 4/6	loam	blocky		
B	10YR 6/8				
C1	10YR 5/6	gravelly coarse sand	single grain	loose	no
C2	2.5Y 5/4				common

Soil Series/Phase Name: **Colton variant** Limiting Factor: 46 " Depth Groundwater Restrictive Layer Bedrock

Drainage Class: ED SED WD MWD SPD PD VPD Slope: 1 Percent Hydric Soil: No Yes Hydrologic Soil Group: **A**

Exploration Symbol # 104 Test Pit Boring Probe
4 " Organic horizon thickness Ground surface elev. _____
60 " Depth: of exploration, or to refusal

Horizon	Color	Texture	Structure	Consistence	Redox
A	10YR 2/1	fine sandy loam	granular	friable	
Bs	7.5YR 4/6				no
B	10YR 6/6	sand			
C	2.5Y 4/4	gravelly coarse sand	single grain	loose	common

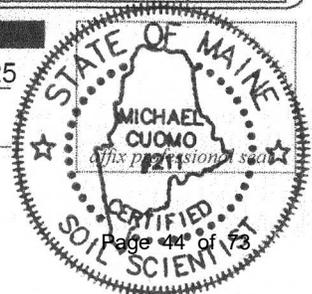
Soil Series/Phase Name: **Sheepscot** Limiting Factor: 26 " Depth Groundwater Restrictive Layer Bedrock

Drainage Class: ED SED WD MWD SPD PD VPD Slope: 1 Percent Hydric Soil: No Yes Hydrologic Soil Group: **B**

SOIL SCIENTIST INFORMATION AND SIGNATURE

Michael Cuomo
 Signature
 Michael Cuomo
 Name Printed

1 August 2025
 Date
 Maine SS211
 SS License No.



SOIL PROFILE / CLASSIFICATION INFORMATION

SOIL SCIENTIST DESCRIPTION OF SOIL CONDITIONS AT PROJECT SITES

Project Name: Aries Clean Technologies Applicant Name: Industrial Dev. Corp. of Sanford Project Location (municipality): Cyro Road, Sanford

Exploration Symbol # 105, 2" Organic horizon thickness, 60" Depth. Soil Series/Phase Name: Colton. Limiting Factor: none. Drainage Class: XED. Slope: 1. Hydric Soil: No. Hydrologic: A.

Exploration Symbol # 106, 1" Organic horizon thickness, 60" Depth. Soil Series/Phase Name: Colton variant. Limiting Factor: none. Drainage Class: XED. Slope: 1. Hydric Soil: No. Hydrologic: A.

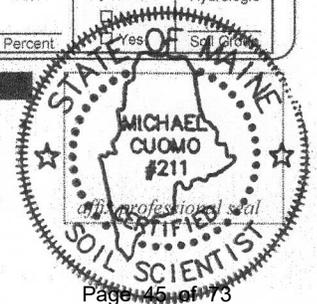
Blank soil profile form with columns for Horizon, Color, Texture, Structure, Consistence, Redox and depth below mineral soil horizon (inches).

Blank soil profile form with columns for Horizon, Color, Texture, Structure, Consistence, Redox and depth below mineral soil horizon (inches).

SOIL SCIENTIST INFORMATION AND SIGNATURE

Signature: Michael Cuomo, Name Printed: Michael Cuomo

Date: 1 August 2025, ME CSS211, SS License No.



Michael Cuomo, Soil Scientist
6 York Pond Road, York, Maine 03909
207 363 4532
mcuomosoil@gmail.com

TEST PIT DATA

Location: Cyro Drive, Sanford, Maine
Date: 8 February 2018 & 9 July 2018

Test Pit Number: MC-1

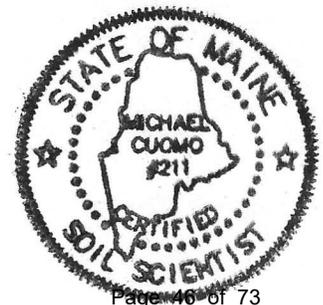
<u>Depth</u>	<u>Description</u>
0-6"	Dark brown loamy sand, granular, friable.
6-18"	Dark yellowish brown loamy sand, granular, friable.
18-84"	Light yellowish brown gravelly coarse sand, single grain, loose.
84-144"	Light olive brown very gravelly coarse sand, massive, loose, with redox.

Depth to Seasonal High Water Table: 84"
Depth to Bedrock: None to 144"
Soil series name: Colton
Hydrologic soil group: A
Permeability rate: 14in/hour in the lower horizons above the water table.

Test Pit Number: MC-2

<u>Depth</u>	<u>Description</u>
0-30"	Dark brown loamy sand with woody debris, granular, friable.
30-40"	Dark yellowish brown loamy sand, granular, friable.
40-96"	Light yellowish brown cobbly coarse sand, single grain, loose.
96-144"	Light gray very cobbly coarse sand, massive, loose, with redox.

Depth to Seasonal High Water Table: 96"
Depth to Bedrock: None to 144"
Soil series name: Colton
Hydrologic soil group: A
Permeability rate: 14in/hour in the lower horizons above the water table.



Michael Cuomo, Soil Scientist
6 York Pond Road, York, Maine 03909
207 363 4532
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Test Pit Number: MC-3

<u>Depth</u>	<u>Description</u>
0-6"	Very dark brown loamy sand, granular, friable.
6-24"	Dark yellowish brown loamy sand, granular, friable.
24-48"	Light yellowish brown gravelly coarse sand, loose, single grain.
48-72"	Light olive brown cobbly coarse sand, single grain, loose.
72-156"	Olive brown very cobbly coarse sand, massive, loose, with redox.

Depth to Seasonal High Water Table: 72"

Depth to Bedrock: None to 156"

Soil series name: Colton

Hydrologic soil group: A

Permeability rate: 14in/hour in the lower horizons above the water table.

Test Pit Number: MC-4

<u>Depth</u>	<u>Description</u>
0-8"	Very dark brown loamy sand, granular, friable.
8-20"	Yellowish brown loamy sand, granular, friable.
20-48"	Light yellowish brown gravelly coarse sand, loose, single grain.
48-72"	Pale brown sand, single grain, loose.
72-102"	Light olive brown cobbly coarse sand, massive, loose, with redox.
102-144"	Olive silt loam, massive, firm, with redox

Depth to Seasonal High Water Table: 72"

Depth to Bedrock: None to 144"

Soil series name: Colton

Hydrologic soil group: A

Permeability rate: 14in/hour in the lower horizons above the water table.



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Test Pit Number: MC-5

<u>Depth</u>	<u>Description</u>
2"	Forest litter
0-7"	Very dark brown fine sandy loam, granular, friable.
7-18"	Yellowish brown fine sandy loam, blocky, friable.
18-39"	Olive yellow gravelly sand, loose, single grain.
39-48"	Olive brown sand, single grain, loose.
48-84"	Pale olive silt loam, massive, firm, with redox.

Depth to Seasonal High Water Table: 39"

Depth to Bedrock: None to 84"

Soil series name: Eldridge

Hydrologic soil group: C

Permeability rate: 14 inches/hour in the upper horizons and less than 1 inch/hour in the lower horizons.

Test Pit Number: MC-6

<u>Depth</u>	<u>Description</u>
2"	Forest litter
0-8"	Very dark brown fine sandy loam, granular, friable.
8-18"	Yellowish brown fine sandy loam, blocky, friable.
18-40"	Olive yellow gravelly sand, loose, single grain.
40-60"	Olive brown gravelly sand, massive, loose, with redox.
60-84"	Pale olive cobbly fine sandy loam, firm, massive, with redox.

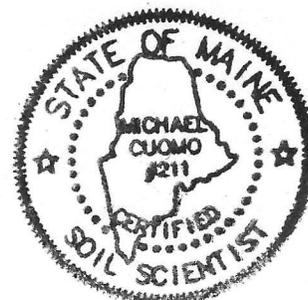
Depth to Seasonal High Water Table: 40"

Depth to Bedrock: None to 84"

Soil series name: Sheepscot

Hydrologic soil group: A

Permeability rate: 14in/hour in the upper horizons and less than 1 inch/hour in the lower horizons.



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Mark Lyons
Aries Clean Technologies
mark.lyons@ariescleantech.com

29 October 2024

Dear Mr. Lyons;

This report is in reference to the vacant lot number 4 on Cyro Drive in Sanford, Maine. On 28 October 2024 I conducted a wetland investigation of this property to assist you in permitting a commercial development.

Wetland characteristics were identified using the technical criteria in the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Northcentral and Northeast Region*. The soil component was classified using the *Field Indicators of Hydric Soils in the United States* and the *Field Indicators for Identifying Hydric Soils in New England*. The wetland status of plants were determined using the *National List of Plant Species that Occur in Wetlands: Northeast (Region 1)*. This is the standard used by State and Federal regulators.

A single wetland was identified which roughly parallels the rear property line along the Mousam River. The wetland/upland boundary was marked on-site with 41 sequentially numbered blue flags. Some of the flags are off-site. The Mousam River is off the property.

This is a forested wetland dominated by red maple trees which is partially within the floodplain of the Mousam River. The soils are the sandy, poorly drained Naumburg series. Using the Cowardin classification system this is a PFO1En: palustrine, broad leaved deciduous forest, seasonally saturated, underlain by mineral soil. The wetland does not appear to have any of the physical characteristics associated with a vernal pool. There is no stream channel or waterbody on this property.

I have attached a rough sketch of the wetland flag line. It is intended to assist your surveyor in locating the flags; it is not accurate enough for planning purposes.

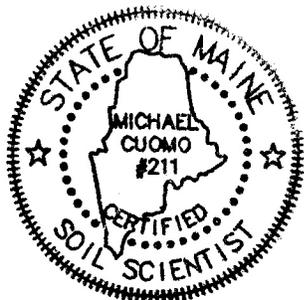
If you have questions regarding this work, please call.

Sincerely,

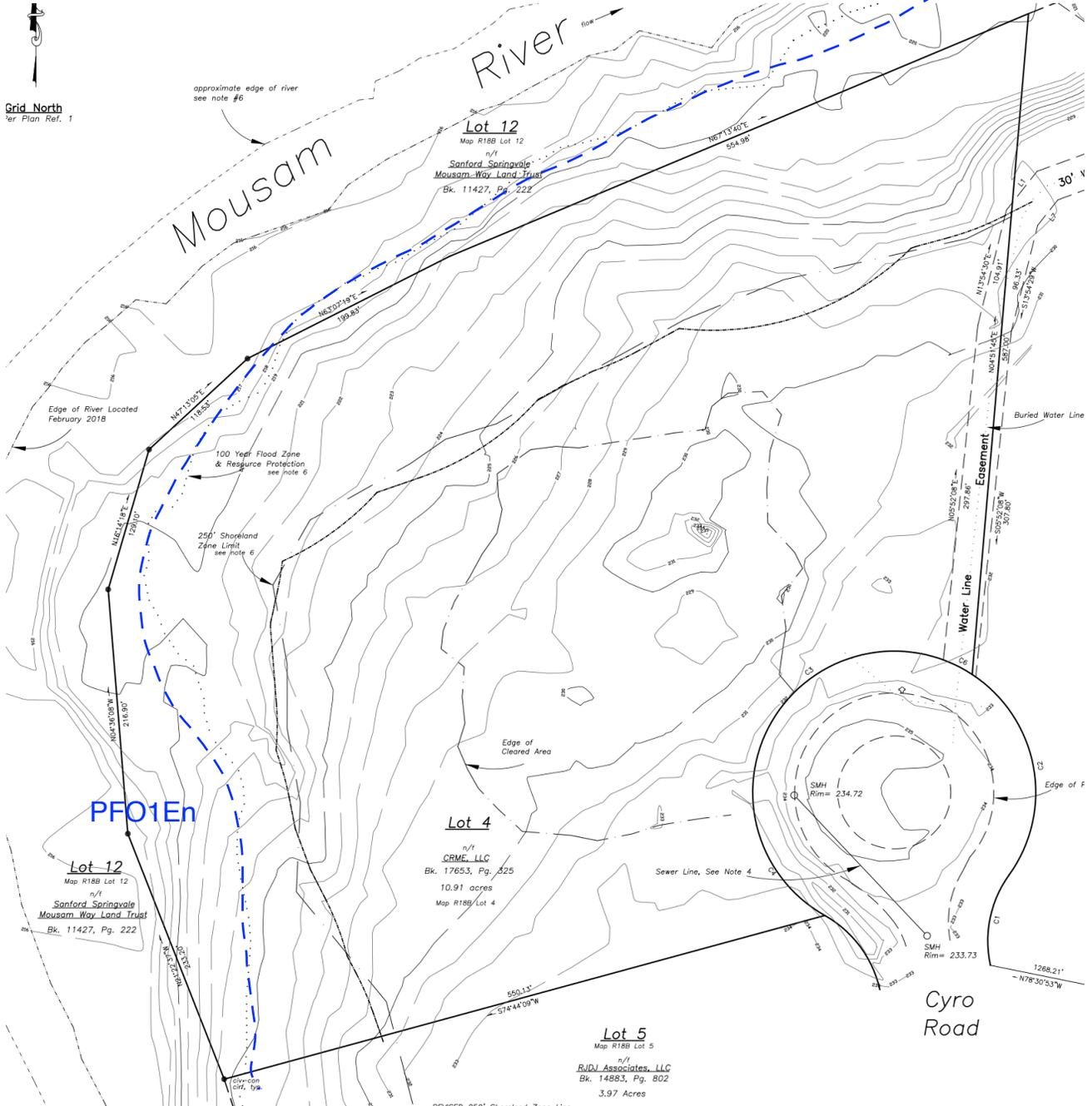


Michael Cuomo

Maine Soil Scientist #211



Blue Flag #1



Blue Flag #41

APPENDIX C

Supplemental Stormwater Calculations

Conveyance Systems. Calculations for sizing on-site conveyance structures, including culverts are included in the HydroCad print outs included in this report. Stabilization calculations are included here. Ditch stabilization is per MDOT Highway design manual. Riprap sizing and erosion control measures are shown and noted on the Site Plans. These plans also show scaled drawings and cross sections of these conveyance systems and associated practices.

Buffers. A large stone level spreader outletting to a forested buffer is proposed that will provide secondary treatment to achieve the required phosphorus removal. The spreader and receiving buffer have been sized per the requirements of DEP Chapter 500. See the attached calculations and sizing spreadsheets, per requirements of DEP Chapter 500.

Riprap Outlet Calculations.

Based upon guidelines set forth in the 2016 Maine Erosion Control BMPs, the geometry presented in the table on the project drawings will be used for the control structure discharge pipe outlets with the following gradation:

d₅₀ Gradation range for d₅₀ of 6"
100% of weight to be stones smaller than 9"
50% of weight to be stones smaller than 6"



Worksheet 1 - PPB calculations			
Project Name:	2425800 ARIES CLEAN TECH		
Lake Watershed:	Estes Lake		
Town:	Sanford		
Standard Calculations			
Watershed per acre phosphorus budget (Appendix C)	PAPB	0.027	lbs P/acre/year
Total acreage of development parcel:	TA	10.91	acres
NWI wetland acreage:	WA	4.35	acres
Steep slope acreage:	SA	0	acres
Project acreage: $A = TA - (WA + SA)$	A	6.56	acres
Project Phosphorus Budget: $PPB = P \times A$	PPB	0.17712	lbs P/year
Small Watershed Adjustment			
If Project Acreage (A) is greater than the threshold acreage for the small watershed threshold (SWT, from pertinent lake and town info in the table in Appendix C), calculate an alternative PPB using the analysis below and use this value if it is less than the Standard Calculation PPB.			
Small Watershed Threshold (Appendix C):	SWT	381	acres
Project acreage:	A	10.91	acres
Allowable increase in town's share of annual phosphorus load to lake (Appendix C):	FC	41.58	lbs P/year
Area available for development (Appendix C):	AAD	4352	acres
Ratio of A to AAD ($R = A/AAD$)	R	N/A	
Project Phosphorus Budget			
If $R < 0.5$, $PPB = [(FC \times R)/2] + [FC/4]$	PPB	N/A	lbs P/year
If $R > 0.5$, $PPB = FC \times R$	PPB	N/A	lbs P/year

Worksheet 2

Pre-PPE and Post-PPE Calculations

Calculate phosphorus export from development for before and after treatment
 Use as many sheets as needed for each development type (commercial, roads, residential lots, etc.)

Project name: 2425800 **ARIES CLEAN TECH** **Development type:** _____ Commercial **Sheet #** 2

NOTE: To account for potential future modifications, all area within the circular drive have been classified as impervious and are included under the "Paved" category.

	Land Surface Type or Lot #(s) with description	Acres or # of lots	Export Coefficient from Table 3.1 Table 3.2	Pre-treatment Algal Av. P Export (lbs P/year)	Treatment Factor for BMP(s) from Chapter 6	Post-treatment Algal Av. P Export (lbs P/year)	Description of BMPs
A	Road/paved	0.190	1.250	0.238	0.220	0.052	Roadside Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.190	0.200	0.038	0.220	0.008	Roadside Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.220	0.000	Roadside Buffer
	Roofs	0.000	0.500	0.000	0.220	0.000	Roadside Buffer
	Riprap	0.000	0.600	0.000	0.220	0.000	Roadside Buffer
B	Road/paved	0.210	1.250	0.262	0.150	0.039	Spreader/Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.033	0.200	0.007	0.150	0.001	Spreader/Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.150	0.000	Spreader/Buffer
	Roofs	0.000	0.500	0.000	0.150	0.000	Spreader/Buffer
	Riprap	0.012	0.600	0.007	0.150	0.001	Spreader/Buffer
C	Road/paved	1.421	1.250	1.776	0.380	0.675	Spreader/Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.241	0.200	0.048	0.380	0.018	Spreader/Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.380	0.000	Spreader/Buffer
	Roofs	0.643	0.500	0.322	0.380	0.122	Spreader/Buffer
	Riprap	0.064	0.600	0.038	0.380	0.015	Spreader/Buffer
D	Road/paved	0.260	1.250	0.325	0.170	0.055	Spreader/Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.925	0.200	0.185	0.170	0.031	Spreader/Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.170	0.000	Spreader/Buffer
	Roofs	0.000	0.500	0.000	0.170	0.000	Spreader/Buffer
	Riprap	0.012	0.600	0.007	0.170	0.001	Spreader/Buffer
E	Untreated Paved	0.034	1.250	0.043	1.000	0.043	Untreated
	Untreated Grass	0.025	0.200	0.005	1.000	0.005	Untreated
				0.000	1.000	0.000	
F	Road/paved	0.155	1.250	0.194	0.180	0.035	Roadside Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.080	0.200	0.016	0.180	0.003	Roadside Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.180	0.000	Roadside Buffer
	Roofs	0.000	0.500	0.000	0.180	0.000	Roadside Buffer
	Riprap	0.000	0.600	0.000	0.180	0.000	Roadside Buffer
			Total Pre-PPE (lbs P/year)	3.511	Total PostPPE (lbs P/year)	1.105	

Appendix D: Worksheet 3 - Mitigation credit

Project name: 2425800 ARIES CLEAN TECH Development type: Commercial Sheet # 3

Mitigation credit when a pre-existing source is being eliminated

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)	Mitigation Credit (lbs P/year)	Comments
			0.5	0	1	0	0	
			0.5	0	1	0	0	
			0.5	0	1	0	0	
Total source elimination mitigation credit (SEC)							0	lbs P/year

Mitigation credit when a pre-existing source is treated by a new BMP

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)	Treatment Factor for New BMP(s) Chapter 6	Mitigation Credit (lbs P/year)	Comments
Paved Road	0.1362	1.25	0.5	0.08514	1	0.08514	1 - 0.16	0.07152	
Non Restricted Landscaped	0.0874	0.2	0.5	0.00874	1	0.00874	1 - 0.16	0.00734	
Total source treatment mitigation credit (STC)							0.07886	lbs P/year	
TOTAL MITIGATION CREDIT (SEC + STC)							0.07886	lbs P/year	

BMP Sizing: Stone Berm Level Spreaders - Phosphorus Treatment Factor Calculation
 Sizing per Chapter 500 Table 6

Soil Type: Naumburg Sand, 0-8% , A (Not within wetland)

<u>Area (Flow Path)</u>	<u>Impervious (sf)</u>	<u>(acres)</u>	<u>Landscaped(sf)</u>	<u>(acres)</u>	<u>Berm Length per</u> <u>Acre Impervious</u> <u>for Flow path (in ft)</u>	<u>Required (In ft)</u>	<u>Berm Length per</u> <u>Acre Landscaped</u> <u>for Flow path (In ft)</u>	<u>Required (In ft)</u>	<u>Total Required</u>
'B' (95')	9,143	0.21	1,960	0.05	67	14 ft	21	1 ft	15 ft
'C' (75' of A soil)	89,908	2.06	13,286	0.31	75	155 ft	25	8 ft	162 ft
'D' (150')	11,326	0.26	40,816	0.94	50	13 ft	15	14 ft	27 ft
						<u>Required</u>	<u>Provided</u>	<u>% of Required</u>	<u>Resultant TF</u>
					'B'	15	40 ft	267%	0.15
					'C'	162	170 ft	105%	0.38
					'D'	27	65 ft	240%	0.17

BMP Sizing: Roadside Buffers - Phosphorus Treatment Factor Calculation
 Sizing per Chapter 500 Table 7

<u>Area</u>	<u>Soil Type:</u>	<u>Buffer Flow path Required</u>	<u>Buffer Flow path Provided</u>	<u>% Required</u>	<u>Resultant TF</u>
'A'	Naumburg Sand, 0-8% , A (Not within wetland)	55	100	182%	0.22
'F'		55	120	218%	0.18



**CIVIL
CONSULTANTS**

Engineers

Planners

Surveyors

Compensation Fee Calculations

WORKSHEET 4 - PROJECT PHOSPHORUS EXPORT SUMMARY

Summarizing the project's algal available phosphorus export (PPE)

Project Name: 2425800 ARIES CLEAN TECH

Project Phosphorus Budget - Worksheet 1	PPB	0.177	lbs P/year
Total Pre-Treatment Phosphorus Export - Worksheet 2	Pre-PPE	3.511	lbs P/year
Total Post-Treatment Phosphorus Export - Worksheet 2	Post-PPE	1.105	lbs P/year
Total Phosphorus Mitigation Credit - Worksheet 3	TMC	0.079	lbs P/year
Project Phosphorus Export (Post-PPE - TMC)	PPE	1.027	lbs P/year

Is the Project Phosphorus Export \leq the Project Phosphorus Budget? (PPE \leq PPB)

<p><i>If YES, PPE is less than or equal to PPB and the project meets its phosphorus budget .</i></p> <p><i>If NO, PPE is greater than PPB, more reduction in phosphorus export is required or the payment of a compensation fee may be an option</i></p>	NO
<i>The amount of phosphorus that needs further treatment or compensation</i>	0.85 lbs P/year

Has Project Phosphorus Export been sufficiently reduced?

Is (Pre-PPE - Post-PPE)/Pre-PPE greater than 0.60?

<p><i>If YES, in some watersheds the compensation fee is an available option. NO, more treatment must be provided. PPE must be further reduced.</i></p>	YES
<i>The post-treatment phosphorus export must be less than 40% of the pre-treatment export (Post-PPE < 0.4*Pre-PPE)</i>	68.51 %

If the project is located in a watershed that is eligible for a compensation fee (or is a residential subdivision with buffers), a compensation fee may be appropriate as follows:

<i>If Project Export has been reduced by greater than 60% and less than 75%, \$25,000 per pound minus \$833 per 1% Percent Export</i>	\$15,213
<i>If Project Export has been reduced by greater than 75%, \$12,500 per pound minus \$500 per 1% Project Export</i>	

Stormwater Maintenance & Inspection Plan

Prepared by: Neil J. Rapoza, PE, CIVIL CONSULTANTS
(December 2025)

During the construction of the Pine Tree – Sanford - Biosolids Processing Plant, maintenance of all erosion, sedimentation, and stormwater flow control structures and devices will be the responsibility of the contractor on site. Upon stabilization of the completed Development, the developer will assume all responsibilities. The developer will be responsible for the required maintenance of the stormwater treatment system.

The developer will be responsible for the maintenance of all erosion, sedimentation, and stormwater flow control structures and devices within the limits of the development and will retain that responsibility until such time as another individual and/or agency (acceptable to the City and Maine DEP) accepts the responsibility. All post-construction inspections shall be conducted by personnel with knowledge of erosion and stormwater control, including the standards and conditions in the permit.

During and after construction all erosion control devices and structures shall be checked monthly and after each “significant rainfall”**. Necessary repairs will be made to correct undermining or deterioration of the devices and/or structures. Sediment in the pretreatment structures will be removed annually or as needed to maintain functionality of the structure.

The developer shall maintain inspection logs as shown below (or similar) of all stormwater and erosion control measures. The log shall reflect the dates of the inspections and describe actions taken (if any) and be kept on file for a minimum of 5 years. This logbook will be made available to the City upon request.

This development is subject to the Maine DEP 5 Year Recertification requirements.

Where a major storm event is noted in the plan, this is classified as a rainfall exceeding 1.0 inch storm event.

** significant rainfall is ½” in 24 hr



Sweeping

Paved surfaces shall be swept or vacuumed at least annually in the spring to remove all winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events.

Roadways and Parking Surfaces				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Clear accumulated winter sand in parking lots and along roadways	X			
Sweep pavement to remove sediment	X			
Grade road shoulders and remove excess sand either manually or by a front-end loader	X			
Grade gravel roads and gravel shoulders	X			
Clean-out the sediment within water bars or open top culverts	X			
Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	X			

Catch Basins & Culverts

All catch basins, and any other field inlets throughout the collection system, need to be inspected on a monthly basis to assure that the inlet entry point is clear of debris and will allow the intended water entry. These will be cleared, if necessary on a yearly basis or when sediment reaches two thirds of total volume. Catch basins need to be vacuumed and cleaned of all accumulated sediment. This work must be done by a vacuum truck. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

If sediment in culverts or piped drainage systems exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to not flush the sediments into the level spreaders retention area as it will reduce effectiveness and hasten the time when it must be cleaned. All pipes should be inspected on an annual basis.

Catch Basins Systems				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	X	X		
Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	X	X		



Culverts				
	Spring	Fall or Yearly	After a Major Storm	Every 2- 5 Years
Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit	X	X	X	
Repair any erosion damage at the culvert’s inlet and outlet	X	X	X	

Vegetated Swales

Erosion: It is important to install erosion and sediment control measures to stabilize this area as soon as possible and to retain any organic matter in the bottom of the trench.

Routine Maintenance and Inspection: The area should be inspected for failures following heavy rainfall and repaired as necessary for newly formed channels or gullies, reseeding or sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation, and to check the condition and integrity of any stone dams.

Mowing: Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale. The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended.

Fertilization: Fertilizer is not to be used except when establishing new turf or vegetation on bare soil.

Sediment Removal: The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel.

Aeration: The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseeded and mulched prior to any significant rainfall.



	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Vegetated Swales				
Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended		X		
The area should be inspected for failures following heavy rainfall and repaired as necessary for newly formed channels or gullies, sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation, and to check the condition and integrity of the check dams			X	
The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseeded and mulched prior to any significant rainfall				X
The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel				X

Vegetated Areas

All areas of maintained lawn are to be inspected regularly for signs of erosions and channelization. Areas where erosion is occurring or areas of sparse growth shall be replanted and stabilized. Channelized flows from the eroded land shall be diverted to buffers or other areas able to withstand the high sediment load in the erosive runoff.

	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Vegetated Areas				
Inspect all slopes and embankments	X		X	
Replant bare areas or areas with sparse growth	X		X	
Armor areas with fill erosions with an appropriate lining or divert the erosive flows to on-site areas able to withstand concentrated flows. Any materials used to armor/stabilize the affected areas shall be submitted to the Town and Engineer for review and approval prior to installation.	X		X	



Vegetated Buffers

Inspect and remove dead wood and debris with minimal disturbance. Inspect for bypass and channelization; repair as it is occurring and remove sediment build-up to assure sheet flow conditions. Replant trees and bushes if needed. Perform inspection on a semi-annual basis.

Buffers				
	Spring	Fall Or Yearly	After a Manor Storm	Every 2-5 Years
Inspect treatment buffers for evidence of erosion, concentrated flow. Or encroachment by development		X		
Manage the buffers vegetation with the requirements in any deed restrictions		X		
Mow vegetation in non-wooded buffers no shorter than six inches and less no more than twice per year		X		
Repair any sign of erosion within a buffer		X		
Inspect and repair down-slope of all spreaders and turn-outs for erosion		X		
Clean-out any accumulation of sediment within the spreader bays or turn-out pools		X		

Model Maintenance Plan

The following techniques should be followed to maintain the integrity of buffers from initial planning through post-construction:

A. Construction Stage

1. Pre-construction stakeout of buffers to define the Limit of Disturbance (LOD) project.
2. Set LOD based on drip line of the forested buffer as indicated on plans.
3. Conduct pre-construction meeting to familiarize contractors and foremen with LOD and buffer limit.
4. Mark the LOD with silt fence barrier, signs or other methods to exclude construction equipment, as indicated on project plans.

B. Post Development Stage

1. Mark buffer boundaries with permanent signs (or fences) describing allowable uses.
2. Educate maintenance personnel on the purpose, limits and allowable uses of the buffer, as indicated in deed restrictions.

Conduct periodic “buffer walks” to inspect the condition of the buffer network (using volunteers, where possible).



Swales and Level Spreaders

Open stormwater channels and Level Spreaders need to be inspected monthly or after a major rainfall event to ensure that debris or sediments do not reduce the effectiveness of the system. Debris needs to be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the structure and proper functioning.

Roadway Stormwater Channels				
	Spring	Fall or Yearly	After a Major Storm	Every 2– 5 Years
Inspect swales and other open stormwater channels	X	X	X	
Remove any obstructions and accumulated sediments or debris	X	X		
Control vegetated growth and woody vegetation		X		
Repair any erosion.		X		
Mow vegetated areas.		X		
Remove woody vegetation growing through riprap		X		
Repair any slumping side slopes	X	X		
Replace riprap where stones have dislodge	X			X

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Stormwater Maintenance
“Pine Tree- Sanford- Biosolids Processing Plant”
Maintenance Log

This log is intended to accompany the Stormwater Management Facilities Maintenance Plan for the Cyro Drive “Pine Tree – Sanford- Biosolids Processing Plant”. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five years and shall be available for review by MDEP. Qualified personnel familiar with drainage systems and soils shall perform all inspections.



December 2025

Item	Maintenance Required & Frequency					Date Completed	Maintenance Personnel	Comments
	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years				
Sweeping of Drives and Parking Lots	Clear accumulated winter sand in parking lots and along roadways	X						
	Sweep pavement to remove sediment	X						
	Grade road shoulders and remove excess sand either manually or by a front-end loader	X						
	Grade gravel roads and gravel shoulders	X						
	Clean-out the sediment within water bars or open top culverts	X						
	Ensure that stormwater is not impeded by accumulations of material or false ditches in the shoulder	X						



December 2025

	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years
Vegetated Swales Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended The area should be inspected for failures following heavy rainfall and repaired as necessary for newly formed channels or gullies, sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation, and to check the condition and integrity of the check dams The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseeded and mulched prior to any significant rainfall The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel		X		
			X	
				X

CIVIL CONSULTANTS

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Item	Maintenance Required & Frequency					Date Completed	Maintenance Personnel	Comments
	Spring	Fall or Yearly	After a Major Storm	Every 2-5 Years				
Catch Basins and Culverts	Remove and legally dispose of accumulated sediments and debris from the bottom of the basin, inlet grates, inflow channels to the basin, and pipes between basins.	X	X					
	Remove floating debris and floating oils (using oil absorptive pads) from any trap designed for such	X	X					
	Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit	X	X	X				
	Repair any erosion damage at the culvert's inlet and outlet	X	X	X				
Swales and Level Spreaders	Inspect swales and other open stormwater channels	X	X	X				
	Remove any obstructions and accumulated sediments or debris	X	X					
	Control vegetated growth and woody vegetation		X					
	Repair any erosion		X					
	Mow vegetated areas		X					
	Remove woody vegetation growing through riprap		X					
	Repair any slumping side slopes	X	X					
	Replace riprap where stones have dislodged	X			X			



December 2025

Buffers	Inspect treatment buffers for evidence of erosion, concentrated flow. Or encroachment by development			X			
	Manage the buffers vegetation with the requirements in any deed restrictions			X			
	Mow vegetation in non-wooded buffers no shorter than six inches and less no more than twice per year			X			
	Repair any sign of erosion within a buffer			X			
	Inspect and repair down-slope of all spreaders and turn-outs for erosion			X			
	Clean-out any accumulation of sediment within the spreader bays or turn-out pools			X			

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Stormwater Management System
Pine Tree – Sanford - Biosolids Processing Plant

Inspection & Maintenance Checklist

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

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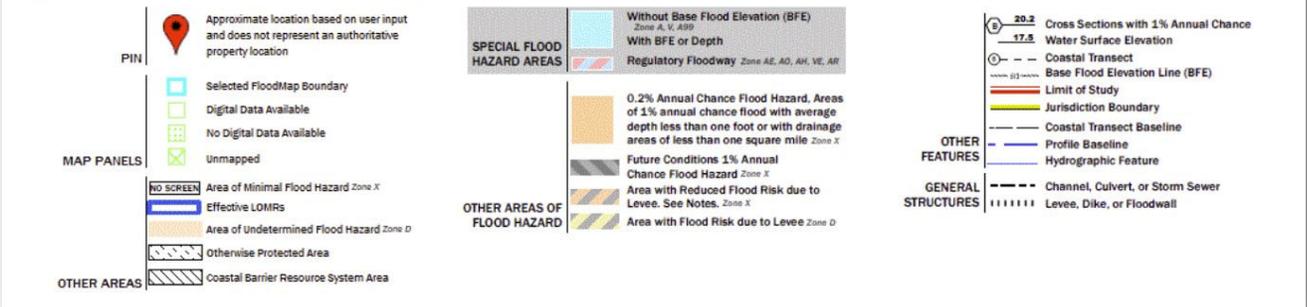
APPENDIX E

NATIONAL FLOOD INSURANCE RATE MAP- FIRM



USGS, USDA, The National Map: Orthoimagery, September 12, 2024.

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**CIVIL
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Engineers

Planners

Surveyors

APPENDIX F

All plans at 1/2 scale 11x17 prints, 22x34 included with application

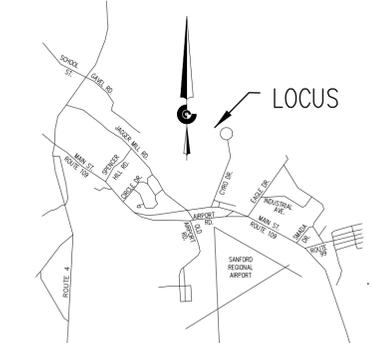
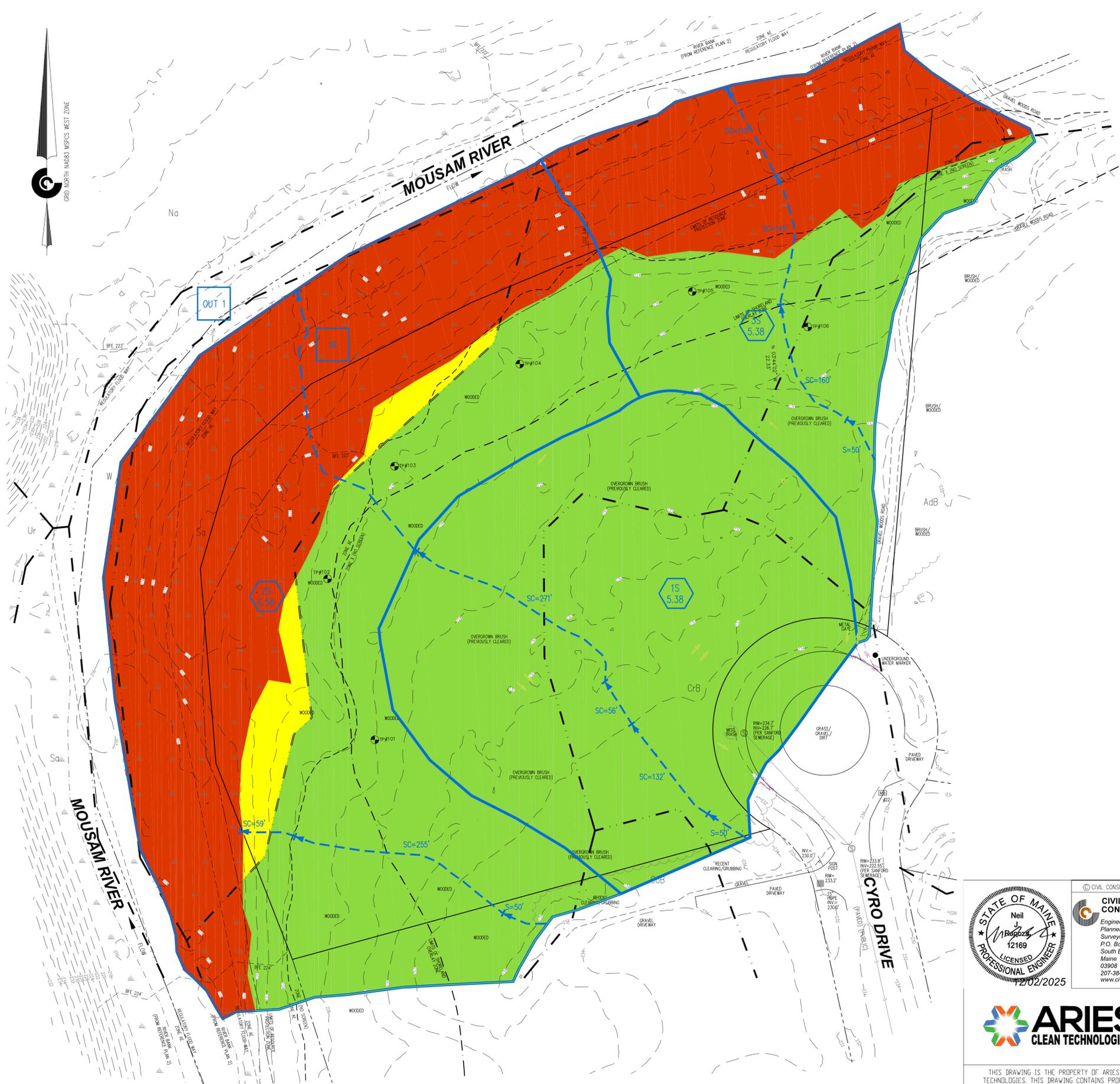
CVL-100 – Pre-Development Stormwater Modeling Plan

CVL-101 – Post-Development Stormwater Modeling Plan

CVL-102 – Stormwater Treatment Plan

LEGEND:

- 19429/340
- HOPE
- INV.
- N/F
- S.F.
- Y.C.R.D.
- DEED BOOK/PAGE NUMBER
- HIGH DENSITY POLYETHYLENE
- INVERT
- NOW OR FORMERLY
- SQUARE FEET
- YORK COUNTY REGISTRY OF DEEDS
- SANITARY SEWER MANHOLE
- APPROXIMATE UNDERGROUND SEWER LINE
- CATCH BASIN
- WATER SHUT OFF
- WATER VALVE
- APPROXIMATE UNDERGROUND WATER LINE
- UTILITY POLE
- GUY WIRE
- OVERHEAD WIRES
- ELECTRIC JUNCTION BOX
- SIGN
- MAILBOX
- TREE LINE
- BUSH
- WETLAND (SEE NOTE 15)
- RIVER BANK
- EXISTING REBAR (AS NOTED)
- EXISTING GRANITE BOUND (AS NOTED)
- 5/8" REBAR W/CAP "CIVIL CONSULT PLS 2362" TO BE SET
- SUBJECT PARCEL BOUNDARY LINE
- APPROXIMATE ADJUTING PARCEL BOUNDARY LINE
- EASEMENT BOUNDARY LINE
- ZONING SETBACK LINE
- BENCHMARK (AS NOTED)
- STATE PLANE COORDINATES
- CHAIN LINK SECURITY FENCE
- EROSION CONTROL FILTER BEERM
- RIP RAP EROSION CONTROL / SPREADER
- CATCH BASIN
- FLOOD ZONE DEMARCATION
- SHORELAND ZONE DEMARCATION
- SOIL DELINEATION



LOCATION PLAN (NOT TO SCALE)

DRAINAGE LEGEND

- SUBCATCHMENT: 11 (SUBCATCHMENT NUMBER), 0.56 (SUBCATCHMENT ACREAGE)
- REACH: 50 (REACH NUMBER)
- Tc COMPONENTS: S = Sheet, SC = Shallow Concentrated, C = Channel
- ROUTING DIRECTION: Arrow pointing left
- SOILS LEGEND (SEE SHEET D1 FOR HATCHING):
 - A Soils: SCS Soils: AdB, CoB, Na (NON-WETLAND); HISS Soils
 - B Soils: SCS Soils: Sa (NON-WETLAND); HISS Soils
 - C Soils: SCS Soils; HISS Soils
 - D Soils: SCS Soils: Na (WETLAND), Sa (WETLAND); HISS Soils
- Subcatchment Boundaries: Pre-Development (dashed blue line), Post-Development (solid blue line)
- SCS Soil Line: Dashed black line
- Tc Flow Path & Direction: Pre-Development (dashed blue arrow), Post-Development (solid blue arrow)



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PRE-DEVELOPMENT STORMWATER MANAGEMENT PLAN
 PINE TREE
 SANFORD, MAINE

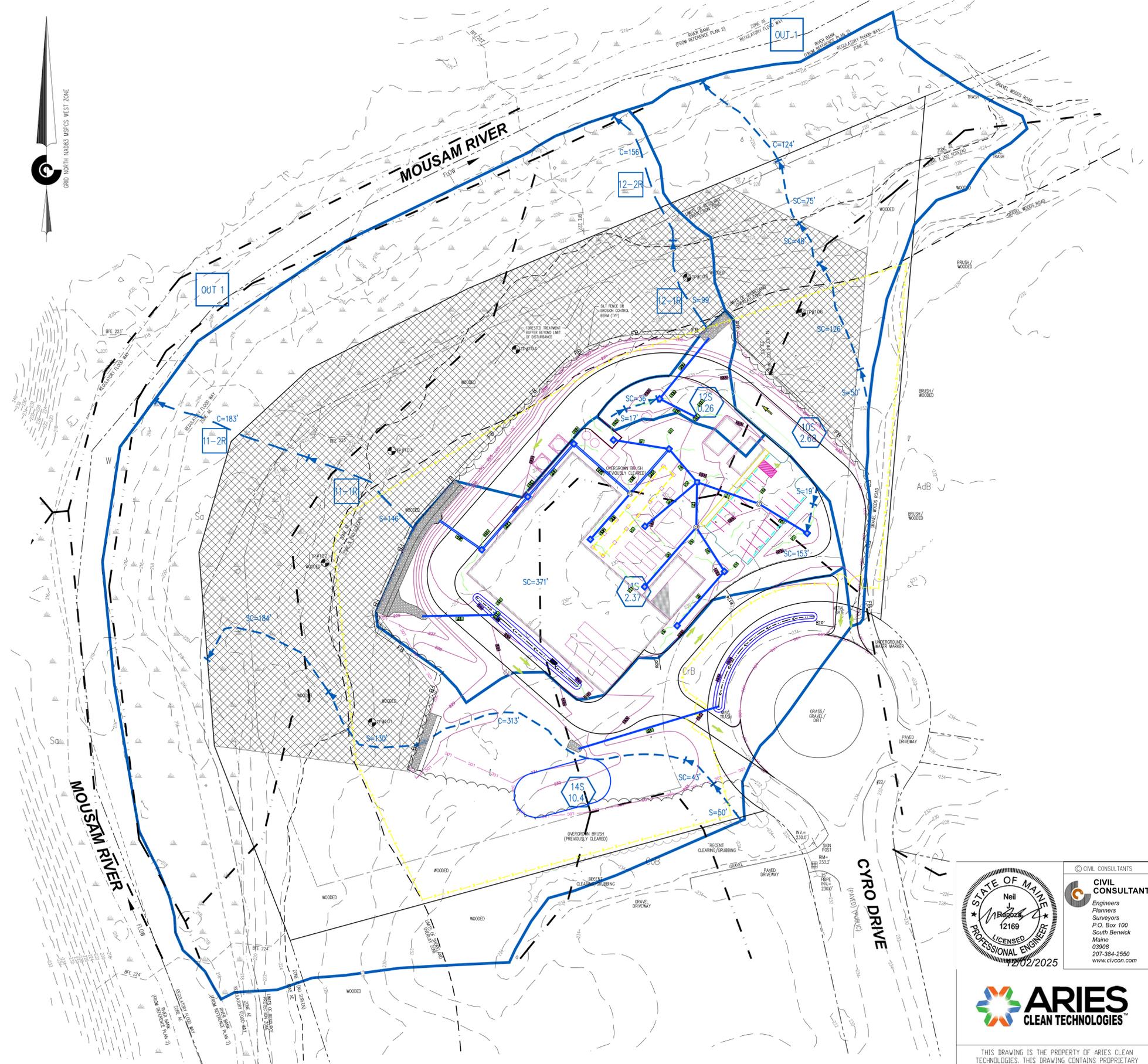
4037 RURAL PLAINS CIRCLE, SUITE 290 FRANKLIN, TN 37064	SCALE: 1" = 60'	DRAWN BY: NJR	DATE: 09/12/2025
		CHECKED BY: LTE	DATE: 09/17/2025
		APPROVED BY: NJR	DATE: 10/22/2025

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SIZE: D	DWG NO: MESA-PLN-CVL-0100	REV: 1
PROJECT#: MESA2401	SHEET: 1 OF 3	

TAX MAP R18B, LOT 4

- LEGEND:**
- 19439/340
 - HDPE
 - INV.
 - N/F
 - S.F.
 - Y.C.R.D.
 - DEED BOOK/PAGE NUMBER
 - HIGH DENSITY POLYETHYLENE
 - INVERT
 - NOW OR FORMERLY
 - SQUARE FEET
 - YORK COUNTY REGISTRY OF DEEDS
 - SANITARY SEWER MANHOLE
 - APPROXIMATE UNDERGROUND SEWER LINE
 - CATCH BASIN
 - WATER SHUT OFF
 - WATER VALVE
 - APPROXIMATE UNDERGROUND WATER LINE
 - UTILITY POLE
 - GUY WIRE
 - OVERHEAD WIRES
 - ELECTRIC JUNCTION BOX
 - SIGN
 - MAILBOX
 - TREE LINE
 - BUSH
 - WETLAND (SEE NOTE 15)
 - RIVER BANK
 - EXISTING REBAR (AS NOTED)
 - EXISTING GRANITE BOUND (AS NOTED)
 - 5/8" REBAR W/CAP "CIVIL CONSULT PLS 2362" TO BE SET
 - SUBJECT PARCEL BOUNDARY LINE
 - APPROXIMATE ABUTTING PARCEL BOUNDARY LINE
 - EASEMENT BOUNDARY LINE
 - ZONING SETBACK LINE
 - BENCHMARK (AS NOTED)
 - STATE PLANE COORDINATES
 - CHAIN LINK SECURITY FENCE
 - EROSION CONTROL FILTER BERM
 - RIP RAP EROSION CONTROL / SPREADER
 - CATCH BASIN
 - FLOOD ZONE DEMARCATION
 - SHORELAND ZONE DEMARCATION
 - SOIL DELINEATION



LOCATION PLAN (NOT TO SCALE)

- DRAINAGE LEGEND**
- SUBCATCHMENT**
- 11 — SUBCATCHMENT NUMBER
0.56 — SUBCATCHMENT ACREAGE
- REACH**
- 50 — REACH NUMBER
- Tc COMPONENTS**
- S = Sheet
SC = Shallow Concentrated
C = Channel
- ROUTING DIRECTION**
- SOILS LEGEND (SEE SHEET D1 FOR HATCHING)**
- A Soils: SCS Soils: AdB, CoB, Na (NON-WETLAND); HISS Soils: [Green]
 - B Soils: SCS Soils: Sa (NON-WETLAND); HISS Soils: [Yellow]
 - C Soils: SCS Soils: [Orange]
 - D Soils: SCS Soils: Na (WETLAND), Sa (WETLAND); HISS Soils: [Red]
- Subcatchment Boundaries Pre-Development (Blue dashed line)
 - Subcatchment Boundaries Post-Development (Blue solid line)
 - SCS Soil Line (Black dashed line)
 - Tc Flow Path & Direction Pre-Development (Blue dashed arrow)
 - Tc Flow Path & Direction Post-Development (Blue solid arrow)



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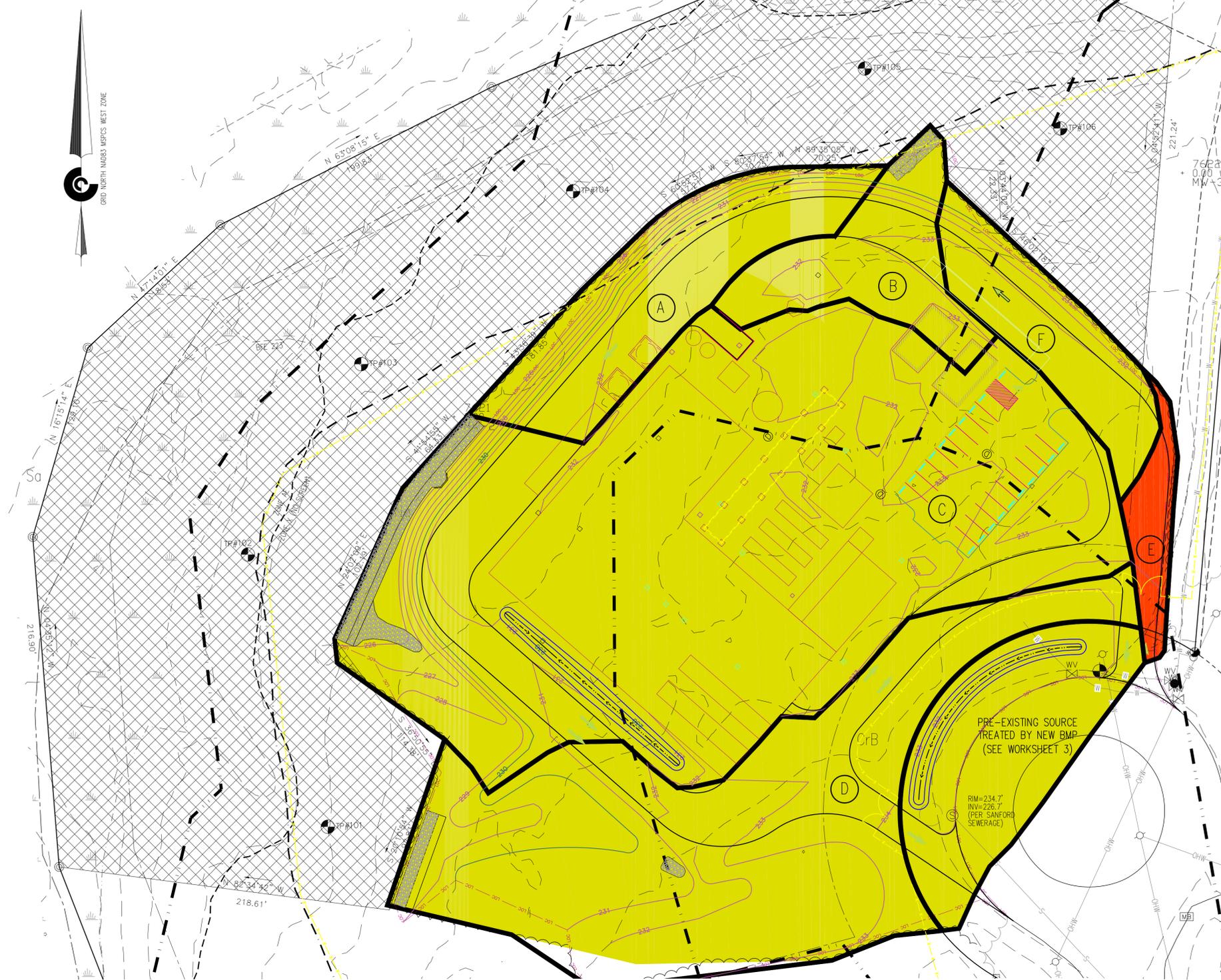
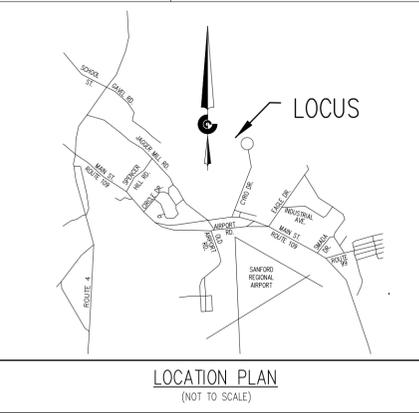
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POST-DEVELOPMENT STORMWATER MANAGEMENT PLAN
 PINE TREE
 SANFORD, MAINE

4037 RURAL PLAINS CIRCLE, SUITE 290 FRANKLIN, TN 37064	SCALE: 1" = 60'	DRAWN BY: NJR	DATE: 12/02/2025
	CHECKED BY: LTE	DATE: 12/02/2025	
	APPROVED BY: NJR	DATE: 12/02/2025	

SIZE: D	DWG NO: MESA-PLN-CVL-0101	REV: 1
PROJECT#: MESA2401	SHEET: 2 OF 3	

TAX MAP R18B, LOT 4



Worksheet 2
Pre-PPE and Post-PPE Calculations
Calculate phosphorus export from development for before and after treatment
Use as many sheets as needed for each development type (commercial, roads, residential lots, etc.)

Project name: 2425800 ARIES CLEAN TECH Development type: Commercial Sheet # 2

NOTE: To account for potential future modifications, all area within the circular drive have been classified as impervious and are included under the "Paved" category.

	Land Surface Type or Lot # (s) with description	Acres or # of lots	Export Coefficient from Table 3.1 Table 3.2	Pre-treatment Algal Av. P Export (lbs P/year)	Treatment Factor for BMP(s) from Chapter 6	Post-treatment Algal Av. P Export (lbs P/year)	Description of BMPs
A	Road/paved	0.190	1.250	0.238	0.220	0.052	Roadside Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.190	0.200	0.038	0.220	0.008	Roadside Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.220	0.000	Roadside Buffer
	Roofs	0.000	0.500	0.000	0.220	0.000	Roadside Buffer
B	Road/paved	0.000	0.600	0.000	0.220	0.000	Roadside Buffer
	Road/paved	0.210	1.250	0.262	0.150	0.039	Spreader/Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.033	0.200	0.007	0.150	0.001	Spreader/Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.150	0.000	Spreader/Buffer
C	Roofs	0.000	0.500	0.000	0.150	0.000	Spreader/Buffer
	Road/paved	0.012	0.600	0.007	0.150	0.001	Spreader/Buffer
	Road/paved	1.421	1.250	1.776	0.380	0.675	Spreader/Buffer
	Landscaping (A-soil, Fertilizer Restricted)	0.241	0.200	0.048	0.380	0.018	Spreader/Buffer
D	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.380	0.000	Spreader/Buffer
	Roofs	0.643	0.500	0.322	0.380	0.122	Spreader/Buffer
	Road/paved	0.064	0.600	0.038	0.380	0.015	Spreader/Buffer
	Road/paved	0.260	1.250	0.325	0.160	0.052	Spreader/Buffer
E	Landscaping (A-soil, Fertilizer Restricted)	0.925	0.200	0.185	0.160	0.030	Spreader/Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.160	0.000	Spreader/Buffer
	Roofs	0.000	0.500	0.000	0.160	0.000	Spreader/Buffer
	Road/paved	0.012	0.600	0.007	0.160	0.001	Spreader/Buffer
F	Untreated Paved	0.034	1.250	0.043	1.000	0.043	Untreated
	Untreated Grass	0.025	0.200	0.005	1.000	0.005	Untreated
	Untreated Grass	0.000	0.000	0.000	1.000	0.000	Untreated
	Road/paved	0.155	1.250	0.194	0.170	0.033	Roadside Buffer
Total	Landscaping (A-soil, Fertilizer Restricted)	0.080	0.200	0.016	0.170	0.003	Roadside Buffer
	Landscaping (D-soil, Fertilizer Restricted)	0.000	0.200	0.000	0.170	0.000	Roadside Buffer
	Roofs	0.000	0.500	0.000	0.170	0.000	Roadside Buffer
	Road/paved	0.000	0.600	0.000	0.170	0.000	Roadside Buffer
Total Pre-PPE (lbs P/year)			3.511	Total PostPPE (lbs P/year)		1.098	

Appendix D: Worksheet 3 - Mitigation credit

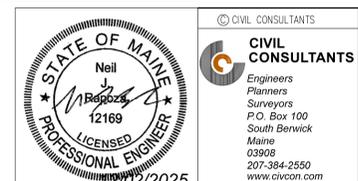
Project name: 2425800 ARIES CLEAN TECH Development type: Commercial Sheet # 3

Mitigation credit when a pre-existing source is being eliminated

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)	Mitigation Credit (lbs P/year)	Comments
			0.5	0	1	0	0	
			0.5	0	1	0	0	
			0.5	0	1	0	0	
Total source elimination mitigation credit (SEC)							0	lbs P/year

Mitigation credit when a pre-existing source is treated by a new BMP

Mitigation Source Area Land Use	Acres	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)	Treatment Factor for New BMP(s) Chapter 6	Mitigation Credit (lbs P/year)	Comments
Paved Road	0.1362	1.25	0.5	0.08514	1	0.08514	1	0.07152	
Non Restricted Landscaped	0.0874	0.2	0.5	0.00874	1	0.00874	1	0.00734	
Total source treatment mitigation credit (STC)							0.07886	lbs P/year	
TOTAL MITIGATION CREDIT (SEC + STC)							0.07886	lbs P/year	



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POST-DEVELOPMENT STORMWATER TREATMENT PLAN
PINE TREE SANFORD, MAINE

4037 RURAL PLAINS CIRCLE, SUITE 290 FRANKLIN, TN 37064
SCALE: 1" = 60'
DRAWN BY: NJR DATE: 12/02/2025
CHECKED BY: LTE DATE: 12/02/2025
APPROVED BY: NJR DATE: 12/02/2025

SHEET 3 OF 3
PROJECT# MESA2401
MESA-PLN-CVL-0102

TAX MAP R18B, LOT 4

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