Site Design Associates
Consulting Engineering and Land Planning

July 21, 2022

Kate Burch
Assistant Planner
Town of Topsham
Via email

RE: Augusta Road Subdivision
Preliminary Plan Review

Dear Kate;

Per your request Site Design Associates has undertaken a review of the plans and documentation submitted in support of a subdivision application for the referenced project.

Our review was based on plans and the application materials for the project. Because the project will result in over 1 acre of disturbed area and less than 1 acre of impervious area, we also reviewed the plans based on the requirements of the Maine DEP Chapter 500 Stormwater Law. A project of this nature is required to meet the basic stabilization standards outlined under Chapter 500, as well as the town ordinance requirements for stormwater quantity control (Section 225-34.)

We are aware that the plans are preliminary, and may not contain the detail one would expect in the final documents. Our comments include some items that may be closer associated with final documentation, in order for the applicant to consider them prior to the final plan submission. Some comments are based on our assumption the town will be asked to accept the road.

Based on our review we offer the following comments for your, the planning board's, and the applicant's consideration:

A. General

1. Will the proposed road be offered to the town for acceptance?
2. If the road will be offered to the town, a detailed cost estimate should be included in the final submission.
3. Per section 225-34., a written post-construction inspection plan should be provided. The plan and the construction phase inspection plan should meet the requirements of the attached MDEP checklist.
4. The narrative indicates the 13 ft width of the proposed access drive is based on the Topsham standard for a private way serving 2 lots. In actuality, that standard requires 2-9 ft wide lanes for a total width of 22 ft. NFPA requires a minimum 20 ft wide access. The minimum width is ultimately up to the fire

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chief, who should be consulted. When that is determined, the applicable details should be provided.

5. We have not had the opportunity to review the stormwater management plan for the project, but will do so when final plans are submitted. The applicant should verify that the headwater depth at the proposed culvert inlets is no deeper than one pipe diameter for a 25 year storm event.
6. Will the applicant also be constructing the homes on individual lots?

B. Drawings

1. Drawing C-2.0 - Subdivision Plan

   a. Radii should be shown in the right of way at the turnaround rather than a 90 degree angle.
   b. The stormwater easements from the culver outlets should be 30 ft in width. The westerly easement should extend to the wetland to the south and the easterly easement should extend to a point beyond the lot 6 and 7 drives.

2. Drawing C-3.0 – Site Layout

   a. Sight distances at the proposed intersection with Augusta Road and the speed limit should be shown.
   b. A saw cut and butt joint should be called out at the road intersection.
   c. The mailbox area should be dimensioned. Is the post office requiring this? If it is to be a public road, will they deliver to individual mail boxes? You should check with the Public Words Director to see if there are any issues with the location.
   d. The stop bar should be shown.
   e. The right of way should be located 20 ft off the ends of the pavement at the turnaround.
   f. Depending on the final with of the access drive to lots 6 and 7, the right of way should be widened to encompass the access drive, ditches, and back slopes.
   g. Electric and communication utilities should be shown.

3. Drawings C-4.0 and 5.0 – Grading Plans and Profile

   a. The grading of the road should reflect the typical section, with ditches 6 inches below subgrade in cut sections.
   b. As noted previously, the easement and the ditch outlet from the 15” diameter culvert at station 3+55 should be extend to the wetland.
   c. The extent of the proposed riprap slopes should be shown in plan view.
   d. Steel beam guardrail will be required at the stream crossing.
   e. Why is a 2:1 slope shown at the end of the right leg of the turnaround?
   f. Grading and culverts for the lot 6 and 7 access should be provided.

g. Culvert material should be specified.
h. What is the lining shown in the ditch from sta 1+75 to 3+50 left?

4. Drawing C-6.0 – Erosion Control Details and Notes

   a. Riprap apron stone sizes should be specified.
   b. The construction inspection requirements should be updated per the attached checklist, including identifying the storm which triggers inspections. (0.5" in 24 hours)

5. Drawing C-6.1 – Site Details and Notes

   a. The wetlands/stream crossing detail should be updated to include guard rail. It is not appropriate for an 8 ft high 2:1 slope to begin at the edge of the road shoulder.
   b. The stone size specified for the wetland /stream crossing outlet apron should be verified with a calculation based on flow rates. It seems small and the layer seems thin.
   c. The engineer should consider an alternative to crushed stone under the wetland/stream crossing culvert.
   d. Compaction requirements should be included for the wetland/stream crossing and the minor street access typical section.
   e. Where is the riprap swale detail applicable?
   f. The level spreader detail should be revised per the plan view shown on the drawings. The detail shown would not be applicable to the installation for this project.
   g. The minor street typical section calls for two different materials under the subbase gravel. The material used should be consistent throughout to encourage proper drainage of the road structure.
   h. There are conflicts between the road section and the crossing section regarding the geotextile specifications and locations. This should be reviewed.

If you have any questions, or require additional information, please do not hesitate to contact me.

Sincerely,
Site Design Associates

Tom Saucier, P.E.
President

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STORMWATER APPLICATION CHECKLIST

Applicant:			
Project Name:			
Town:			
Application Type:		☐ Stormwater	☐ Site Law
Watershed Name:			
Watershed Type:	☐ UIS	☐ Phosphorus	☐ Neither

Project Area Information

	Existing to Remain[1]	New / Proposed	Total
Impervious (Im)			
Landscaped (Land)			
Developed (Dev)[2]			

1- If area is not subject to treatment, provide reason and show in a separate column in the Water Quality Calc table.
2- Developed area = Impervious Area + Landscaped Area

A. BASIC STANDARD

1. **Erosion and Sedimentation Controls** (Appendix A, page 32 of Chapter 500: https://www.maine.gov/sos/cec/rules/06/096/096c500.docx:)
   - Guidance in Department ESC BMP Manuals

2. **Inspection & Maintenance** (Appendix B, page 37 of Chapter 500)

   Construction Phase: Show on Plans the following:
   - Responsibility for inspection and maintenance
   - Construction schedule (how long will it take and in what sequence/critical path to build)
   - Inspection frequency
   - Scope of inspection
   - Inspector qualifications
   - Define storm event that triggers a wet weather inspection (0.5” of rain in 24 hours)
   - Documentation (3 years minimum)

   Post-Construction: Include in written I&M Plan the following:
   - Responsibility for inspection and maintenance
   - Inspection frequency for each BMP
   - Inspection form for each BMP
   - Inspector qualifications
   - Define storm event that triggers a wet weather inspection (1” of rain in 24 hours)
   - Documentation (5 years, minimum)
   - Project is subject to Department 5-Year Recertification

3. **Good Housekeeping** (Appendix C, page 41 of Chapter 500**)**
   - Show all seven elements on Plans.

B. GENERAL STANDARD

Must provide the following on WQ Treatment Plan: All BMPs with subcatchments including time of concentration (Tc) lines, flow lengths and flow types.

1. **Soil Explorations** (test pit completed by a certified soil scientist) at each proposed BMP
   - Include test pit summary table on detail plan.
   - If there is potential ledge, address in design.
   - If shallow groundwater, address in design.

2. **Treatment Standards** (modify to fit project): Fill out the following table for the applicable standards that apply.

Applicable Standard	Section in Ch. 500	Required Treatment (Im / Dev)	Area Eligible		Area Treated		Provided Treatment %	
			Im	Dev	Im	Dev	Im	Dev
General Standard	4(C)(2(a)(i)	95% / 80%						
Increased Runoff Treated[1]	4(C)(2)(a)(ii)	90% / 80% min						
% Parcel Developed[2]	4(C)(2)(a)(iii)	90% / 75% min						
Redevelopment[3] (Dev Area)	4(C)(2)(d)	0% min (SW) 50% min (Site)						
Linear	4(C)(5)(c)	75% / 50% min						
Other: Offsite Treatment/Mitigation								
Project Total Area =								

1- If proposing to treat more than the first flush, state why meeting Ch. 500, § 4(C)(2(a)(i) is not practicable.
2- Reduced % based on portion of parcel developed.
3- Include pollutant impact ranking calculations (current and proposed) and a figure showing the Redevelopment window.

3. **Proposed BMPs:** Please provide the following information on the Table below for EACH BMP.

BMPs Proposed	#	Pretreatment	Sizing calcs	Detail on Plans[1]	CPV Draindown Time	HydroCAD

1- BMP details (cross sections, elevation sections, plan view)

Link to Stormwater Design BMP Volumes I, II, III
https://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html

- Provide Construction Oversight Notes.
- If BMP is unlined, review and satisfy (Appendix E Sections 4(b) and 4(c), page 50 of Chapter 500).
- Treatment buffers (Appendix F, page 56 of Chapter 500): must provide sample deed restriction (Appendix G, page 64 of Chapter 500).
- Infiltration must satisfy Appendix D, page 44 of Chapter 500.
- Is conveyance designed to a 10-year, 24-hour storm?
- Is a drainage easement required for any areas to be flooded?
- Discharge to a public storm sewer system: Must provide authorization from the authority.

If proposing Proprietary BMPs, provide:

- Letter from vendor approving sizing and siting https://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html.
- Executed 5-Year I&M Agreement with a provider approved by vendor.
- Narrative section and specific inspection forms in the written I&M Plan.
- Pervious pavement: Must provide Executed 5-Year I&M Agreement and vacuum equipment used.

C. PHOSPHORUS STANDARD

MUST provide on the WQ Treatment Plan: BMPs with subcatchments including time of concentration (Tc) lines, flow lengths and flow types;

Provide export calculations clearly showing distinct BMPs: Phosphorus Table Calculations Worksheet 4 july 2015.xlsx.

D. FLOODING STANDARD

1. Add pre- and post- peak flow rates table to post development plan for storms (2-, 10-, 25-year).
2. Is primary access road passable up to a 25-year, 24-hour storm?
3. If requesting a waiver of the Flooding Standard, must state justification for the waiver.
4. HydroCad or other runoff model
   - If post peak flow rate is > pre-peak flow, a waiver request will be needed with justification Ch. 500, § 4(F)(3)(a) or (b),
   - If discharging to wetland see Chap. 500, § 4(I).

This checklist has been designed by DEP stormwater engineers as a guidance tool to assist applicants and their consultants when preparing stormwater applications. Completing the checklist is recommended and valuable, but it is not a substitute for reviewing Ch. 500, and completing all the items on the checklist does not automatically mean all the Ch. 500 requirements have been satisfied. The contents of Ch. 500 should be reviewed carefully for the applicable requirements that apply to your proposed project.

I have reviewed this checklist and included in my submission all the required elements of this checklist that apply to the proposed project.

Maine Engineer of Record:

_____

Signature **Date**

_____

Name (print)