July 29, 2022

Rebecca Gendreau
Conservation Agent
Sturbridge Conservation Commission
301 Main Street First Floor
Sturbridge, MA 01566

Re: **Stormwater Management & Notice of Intent Peer Review #4**
150 Charlton Road Sturbridge, MA DEP # CE 300-1115
CMG ID 2021-254

Dear Rebecca,

CMG is providing this letter report detailing our civil engineering peer review #4 of the revised stormwater management system design and Notice of Intent (NOI) submission for the commercial development project entitled "Definitive Site Plan at 150 Charlton Road, Sturbridge, MA" (the "Site").

The project is located on the 6.18 +/- Acre parcel within an "Industrial" zoning district and is revised to include a proposed 8,000 +/- s.f. light industrial building, associated parking, utilities, and stormwater system. The proposed project limits are within the 100-FT State wetlands buffer zone and Town of Sturbridge 200-FT buffer zone of a bordering vegetated wetlands. The Applicant's current set of plan revisions appears to have eliminated all prior proposed disturbances within the 200 ft. Riverfront Zone.

CMG is in receipt of the following documents:

- Site Plan entitled "Definitive Site Plan at 150 Charlton Road (Route 20), Sturbridge, MA" plans, prepared by Summit Engineering & Survey, Inc., dated 9/13/21, Revision #5 date 6/22/2022.
- Stormwater Management Report entitled "Hydraulic / Hydrologic Calculations - Site Plan 150 Charlton Road, Sturbridge Massachusetts" prepared by Summit Engineering & Survey, Inc., date 10/12/21, revised 6/06/2022.
- "WPA Form 3 (NOI) - 150 Charlton Road (Route 20) Sturbridge, MA" prepared by EBT Environmental Consultants, Inc.
- "Sketch Plan Showing Erosion Control & Building Stake Out Points", prepared by Summit Engineering & Survey, Inc., dated 7/11/2022.

CMG is providing the following technical comments for consideration by the Conservation Commission based on general good engineering practice, MA DEP Stormwater Management Standards, the Town of Sturbridge Stormwater Management Regulations (revised date 9/12/17), Town of Sturbridge Wetland Regulations (Section 365 of Sturbridge Town Bylaws), and the Wetlands Protection Act (310 CMR 10.00).

General Engineering & Stormwater Management Design Comments

1. Summit Engineering's (Summit) Hydrologic Calculations Report includes a Rational Method Pipe Sizing Worksheet as part of the Appendices. The following pipe lengths are undersized and not adequate for the 25-year storm event:
    - *8" pipe between CB-3 & DMH-2*
    - *8" pipe between CB-4 & DMH-2*
    - *12" pipe between DMH-2 & SC-1*
    - *12" pipe between SC-1 & UG Basin*
2. Catch basin and Stormceptor grate inlet capacities are not adequate to handle the 25-year storm event for the following structures: CB-3, CB-4, and SC-2 based on the information shown on the Rational Method Pipe Design Worksheet.
3. Proposed Catch Basins are designed with an approximate 3' depth to outlet invert. The pipes appear to be shallow and may not be constructable with a standard catch basin structure (construction detail shown on Sheet C-11). The Applicant's engineer shall evaluate the constructability of the drainage pipes and evaluate if slab-top catch basin structures are necessary.
4. The proposed boulder retention wall located in the northeastern portion of the site should include a subdrain surrounded by free-draining material. The Applicant's engineer shall show the location of the subdrain on the plan and also revise the construction detail shown on Sheet C-9.0.
5. An interceptor drain detail is shown on Sheet C-10.0. It is unclear where the drain is proposed on the site plans.
6. The Applicant is proposing a stepped underground infiltration basin, using two (2) different chambers from different manufacturers. Applicant's Engineer needs to provide additional information as to the constructability of this drywell system and interconnection details between the Stormtech Chambers and Cultec Chambers.
7. Grading associated with the dumpster enclosure is not shown on the Grading Plan Sheet C-4.0

Stormwater Standard #1: *No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or water of the Commonwealth.*

8. CMG requests the Applicant's engineer provide more detail and a source reference for the Rip Rap Apron sizing calculations to verify it is adequate for the 25-year storm event.

Stormwater Standard 2: *Stormwater management systems shall be designed so that post development peak discharge rates do not exceed pre-development peak discharge rates.*

9. The proposed grading plan indicates roadway runoff from Route 20 may enter the site via the proposed curb cut. CMG recommends the Applicant's engineer provide additional grading and curbcut details to deter Route 20 stormwater runoff from entering the site and potentially impacting the on-site stormwater system. The proposed curbcut will need to meet all applicable MassDOT design standards.

Stormwater Standard 3: *Loss of annual recharge of groundwater shall be eliminated or minimized.*

10. Summit's recharge calculations and Stage-Area Storage Table use an elevation of 604.50 for the lowest proposed basin outlet. Based on the HydroCAD model and design plans, the lowest proposed outlet is set at 603.50 which does not meet the required 984 c.f. storage volume. The Applicant's engineer shall revise submission to allow design plans, calculations, and stormwater modelling to be consistent.

Stormwater Standard 4: *Stormwater management systems shall be designed to remove 80% of the average annual post construction load of Total Suspended Solids (TSS).*

11. TSS removal worksheets are not included in Summit's Hydrologic Calculations. Applicant's engineer shall include a TSS removal worksheet to document compliance.
12. The on-site stormwater management system utilizes two (2) Stormceptor 450i Proprietary Devices. Manufacturer's stormwater sizing calculations should be provided to document each water quality unit's TSS removal efficiency.

Stormwater Standard 5: *Land uses with higher potential pollutant loads (LUHPPL)*

13. Not Applicable – The revised project use is not considered a LUHPPL. Stormwater checklist should be revised to uncheck the NPDES Multi-sector General Permit box as it does not apply.

Stormwater Standard 6: *Stormwater discharges within a Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area.*

14. Not Applicable – CMG is in agreement the project is not a critical area.

Stormwater Standard 7: *Redevelopment Projects*

15. Not Applicable – Site is not a redevelopment project.

Stormwater Standard 8: *Construction period erosion and sedimentation control*

16. Limits of the erosion control barriers (silt fence and 8 in. straw wattles) are not shown on any of the Site Plan sheets. CMG recommends the erosion control barriers be shown at a minimum on the Grading Plans and Erosion Control Plan.
17. No detail is provided for the North American Green Stabilization Blankets noted for use on the Site's proposed 2:1 and 1.5:1 grading slopes.
18. Sheet C-6.0 shall be revised to also include a catch basin filter bag in CB #1.
19. The Site is > 1 Acre therefore a NPDES SWPPP is required to be submitted prior to construction. CMG recommends the Conservation Commission make this a condition of approval.

Stormwater Standard 9: *Long term operation and maintenance plan*

20. Plan showing the location of all Stormwater BMPs maintenance access areas is not provided.
21. Public safety feature section is not included in the O&M Plan. CMG recommends at a minimum: "All cast iron storm water structure grates and covers shall be kept in good condition and kept closed at all times. Any damaged or broken structures will be replaced immediately upon discovery".
22. Estimated operation and maintenance budget is not included. O&M Plan should note that the Owner shall maintain an adequate annual budget for purposes of maintaining the proposed stormwater management system.
23. CMG recommends the Stormceptor manufacturer's O&M manual also be included within the Site's O&M Plan.

24. The O&M Plan contents are provided as several separate documents split up within the Stormwater Report Appendices. The Long-Term Operation and Maintenance (O&M) Plan should include inspection logs, plan showing the location of all Stormwater BMPs maintenance access areas, Stormceptor O&M manual, illicit discharge statement, etc. as one stand-alone document.

Stormwater Standard 10: Illicit discharges

25. A signed Illicit Discharge Statement is not provided within the O & M Plan.

Town of Sturbridge Wetland Regulations:

26. Per §365-3.7.C of the Town of Sturbridge Wetland Regulations, the stormwater maintenance plans must be submitted to and approved by the DPW Director before the SCC will accept them. DPW approval shall be indicated by signature and date from the DPW Director.

    CMG will defer to the Commission and Town Staff to coordinate review and approval of the proposed stormwater management system by the DPW Director.

Please contact me or Rob Lussier if you have any questions at (774) 241-0901.

Sincerely,
CMG

David T. Faist, PE
Principal Engineer

Robert Lussier
Project Engineer II