
March 18, 2022

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

**Re: Stormwater Management & Notice of Intent Peer Review #3
“Interstate Towing” 150 Charlton Road Sturbridge, MA DEP # CE 300-1115
CMG ID 2021-254**

Dear Rebecca,

CMG is providing this letter report detailing our third engineering peer review of the stormwater management system design and Notice of Intent (NOI) Submission for the commercial development project entitled “Interstate Towing 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 includes a proposed 7,000 +/- s.f. commercial building, associated parking, utilities, and stormwater system. The proposed project limits are within the 100-FT Riverfront Zone, 200-FT Riverfront Zone, 100-FT State wetlands buffer zone, and Town of Sturbridge 200-FT buffer zone of a bordering vegetated wetlands.

CMG is in receipt of the following documents:

- Comment / Response Letter “Re: Peer Review #2 “Interstate Towing” 150 Charlton Road Sturbridge, MA DEP #300-1115” prepared by Summit Engineering & Survey, Inc., date 2/28/22.
- 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 #2 date 2/24/22.
- 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 2/28/22.
- “150 Charlton Road, Sturbridge - Alternatives Analysis Narrative” Letter prepared by EBT Environmental Consultants, Inc., date 3/01/22
- “Sketch Plan #2 and #3 150 Charlton Road (Route 20) Sturbridge, MA” prepared by Summit Engineering and Survey, revised date 2/28/22.

CMG’s original comments are provided in *italics* followed by Summit’s 2/28/22 responses and CMG’s current responses in **bold** text for consideration by the Conservation Commission:

General Engineering & Stormwater Management Design Comments

8. *The site plans should include a traffic rated guardrail located on the edge of the paved area and top of proposed slopes.*

CMG Comment #2: A timber guardrail detail is now included in the revised plan set on Sheet C-9.0. The site plan does not clearly depict the location of the guardrail as the label appears to be pointing to the proposed chain link fence. Plan should also provide a level snow shelf between the edge of pavement and guardrail and provide appropriate dimensions.

Summit Response (2/28/22): The label has been revised to point to guardrail. A level snow shelf has been provided in front of the guardrail.

CMG Comment #3: Comment Addressed

9. *Sub drain locations with outlets to daylight or on-site drainage structures must be shown on the plan for proposed retaining walls and along edge of all pavement and roadway cut sections.*

CMG Comment #2: The proposed subdrain outlets should contain a riprap apron to deter scouring and erosion.

Summit Response (2/28/22): riprap aprons have been added at end of all subdrain outlets.

CMG Comment #3: Comment Addressed

10. *Building footing drain and outlet locations should be shown on the plan.*

CMG Comment #2: CMG recommends footing drain locations be shown as they will most likely be required as portions of the slab foundation frost wall footings will be within estimated seasonal high groundwater elevation.

Summit Response (2/28/22): footing drain has been added to the plans

CMG Comment #3: Comment Partially Addressed. CMG recommends the proposed footing drain invert be specified on the plans on Sheet C-6.0. Engineer should also clarify the type of pipe, and FES invert shown on the uphill end of the retaining wall.

11. *Snow storage areas should be noted on the Site Layout Plan.*

CMG Comment #2: Snow storage areas are now shown on the site plan. However, snow storage locations may impede vehicle maneuverability during winter months based on the Truck Turning Plan.

Summit Response (2/28/22): Snow storage areas have been added to the Truck Turning Plan

CMG Comment #3: Comment Addressed. A snow shelf is also provided along the edge of the parking area between the pavement and guardrail.

12. *Manning pipe sizing calculations table using the rational method must be provided for all drainage pipes and designed for the 25-year storm event. Catch basin inlet capacity must also be evaluated for each catch basin structure.*

CMG Comment #2: Pipe sizing calculations appear to be using a different rainfall intensity than the HydroCAD model. Additionally, the invert elevations for multiple structures are not consistent with the HydroCAD model or the site plans.

Summit Response (2/28/22): the invert elevations have been checked and revised as needed. I did not use Hydrocad to calculate the pipe sizing. I used Q-cia and performed hand calculations.

CMG Comment #3: Proposed pipe invert elevations don’t match Utility and Drainage Plan or Detail Sheet for all pipes. Actual pipe inverts for DDMH2 (Io=605.85) to Basin 2 (Ii=605.97) indicate reverse flow. Actual pipe inverts for DMH2 (Io=606.25) to DMH3 (Ii=606.0) show less than minimum recommended pipe slope = 0.002 ft/ft (0.2%).

27. *Stage-storage tables, generated by the HydroCAD model, need to be provided to verify the submitted stage-storage worksheets.*

CMG Comment #2: Comment remains, HydroCAD generated Stage-Storage table should be included to document each of the underground infiltration chambers storage capacity.

Summit Response (2/28/22): Stage Storage table for both basins have been added to the drainage report.

CMG Comment #3: Comment Addressed

28. *Drawdown analysis calculations consistent with MA DEP Stormwater Management Standards Volume 3: Chapter 1 are not provided.*

CMG Comment #2: The bottom area of Basin #2 depicted in the Drawdown calculations is not consistent with the bottom area depicted in the mounding calculation.

Summit Response (2/28/22): Drawdown calculation has been revised per request.

CMG Comment #3: Comment Addressed

32. *A mounding analysis is not provided for Basin 1P and Basin 2P, as the bottom of each basin appears to be within 4’ of the estimated seasonal high groundwater elevation.*

CMG Comment #2: The mounding analysis should use a horizontal hydraulic conductivity (K) of 0.27 in/hr (0.54 feet/ day).

Summit Response (2/28/22): The mounding calculations have been revised per request using the 0.27 in/hr.

CMG Comment #3: Mounding analysis should demonstrate the “required recharge volume” instead of the “provided” recharge volume to evaluate if the mound beneath the drywell will break out above the land surface. CMG recommends the Applicant’s Engineer revise the current analysis using the appropriate required recharge volume based on the Type C soil and 0.54 ft / day infiltration rate for each drywell system.

34. *The TSS Removal Sheet for Basin #1 uses a 50% TSS removal credit for the proposed grass channel. Per Volume 2, Chapter 2 of the MassDEP Stormwater Management Manual, the channel will require the following design criteria to take credit for 50% TSS removal:*

- *Velocity within channel shall not exceed 1 ft/sec during the 24-hour storm associated with the water quality event.*
- *Water depth shall not exceed 4 inches during the storm associated with the water quality event.*
- *The selected storm event shall provide at least 9 minutes of HRT within the channel.*

Applicant’s engineer shall include HydroCAD modelling and other associated material to ensure the grass channel’s design criteria are met to take credit for 50% TSS removal.

CMG Comment #2: Some of the submitted TSS calculation worksheet labels are not readable but appear to represent pre-treatment prior to each infiltration drywell. A fifth TSS worksheet (Basin #1, P-3) is provided which incorrectly accounts for deep sump catch basins twice.

Summit Response (2/28/22): Catch Basin#3 has been converted to a hydroworks unit.

CMG Comment #3: Utility and Drainage Plan C-6.0 notes a “Hydroworks Catch Basin” which differs from the Stormceptor 450i water quality unit shown on Detail Sheet C-11.0. The Stormwater Report should also include the manufacturer sizing calculations to confirm the chosen water quality units’ actual TSS removal efficiency.

35. *The above mentioned TSS removal treatment train does not appear to include oil storage as required for sites categorized as a LUHPPL.*

CMG Comment #2: All on-site stormwater catch basins must be routed through an off-line oil / grit separator in accordance with the LUHPPL standards. Catch Basin #3 does not appear to be connected to an oil / grit separator. Recommend Applicant’s Engineer consider plan adjustments to route all catch basins through one (1) centralized oil / grit separator to provide adequate pre-treatment prior to discharge to the subsurface recharge system, if practicable.

The proposed oil/ water separator detail shown on Sheet C-10.0 shows a difference of 0.1’ between the inlet and outlet inverts. The typical separation between the inlet and outlet inverts is 3” (0.25’). The difference in elevation will cause the outlet pipe invert to be below the bottom of the proposed infiltration chambers. Sizing calculations in accordance with the MassDEP Stormwater Manual should also be included in the Stormwater Report or the Plan Set.

Diverter manholes are not provided in the HydroCAD model. Applicant’s Engineer must demonstrate the oil/grit separators will provide treatment for the 1” water quality volume.

Summit Response (2/28/22): Catch Basin#3 has been converted to a hydroworks unit. The Inverts have been adjusted so the separator has a 0.25 difference and is not below the underground basin. The separator meet the required volume of 400 cf for the first chamber of the separator. Diverter manhole has been modeled and attached to the drainage report.

CMG Comment #3: Diverter manhole details do not match the actual piping layout and need to be revised to accurately represent the pipe configuration shown on the Site Plan.

38. *CMG believes the project is a LUHPPL due to the outside storage of fleet vehicles and outdoor and indoor storage spaces noted in Interstate Towing’s 9/16/21 letter to the Commission. The applicant’s engineer shall document the required LUHPPL specific BMP’s to be used for the proposed stormwater management system including but not limited to required pre-treatment practices and off-line oil/water separator and storage capacities for potential releases.*

CMG Comment #2: CMG recommends the Applicant provide a site-specific spill prevention, control and response plan documenting standard procedures for cleaning up spilled or leaking petroleum and / or hazardous substances relating to the vehicle towing and storage activities to be conducted on-site.

Summit Response (2/28/22): The Site-Specific Prevention Plan was added to the Erosion Control Plan.

CMG Comment #3: A generic Spill Control Practices is provided within the Long-Term O&M Plan listing seven items. CMG recommends a more detailed site-specific document be provided detailing Interstate Towing’s Spill contact / spill management team, Spill Response Contractor contact information, procedures for spills greater than an incidental quantity, and reporting information for DEP reportable and EPA reportable releases. CMG can provide an example upon request.

51. *CMG recommends the following items are included as inspection and maintenance activities within the O&M Plan:*

- *Rip-rap aprons at all flared end section (FES) pipe outlets*
- *Grass Swale with Stone Check Dams*
- *Underground Infiltration Chambers*

CMG Comment #2: The Long-term O&M Plan should include the underground infiltration chambers and not include the Infiltration Basins.

Summit Response (2/28/22): The Long-term O&M Plan has been revised by adding the underground infiltration basins to it.

CMG Comment #3: Catch Basin #3 / Water Quality Unit is not listed on the long-term inspection forms. O & M Plan should include the manufacturer’s recommended maintenance details relating to the proposed water quality unit. CMG also recommends the nomenclature be changed to reflect the underground drywells or chambers instead of “basins” for clarity.

61. *NOI does not include an Alternatives Analysis narrative describing the alternative study nor descriptions of how the proposed site design accommodates the Riverfront regulations included in the NOI submission.*

CMG Comment #2: Comment Remains

Summit Response (2/28/22): See narrative provided by EBT Environmental Consultants, Inc.

CMG Comment #3: The March 1, 2022 EBT letter provided appears to reference the incorrect restoration to alteration area detailed on the current plan revision 2/24/22.

64. *Riverfront Area Table provided on Sheet C-3.0 numerical values are not consistent with the numbers shown in the labels provided on the plan view. Applicant’s Engineer should provide more detail to illustrate how the restoration and degraded area values are calculated.*

CMG Comment #2: Comment Remains (Also See Comment 70.)

Summit Response (2/28/22): See revised numbers in table.

CMG Comment #3: Comment Addressed

65. *Applicant is proposing to provide off-site mitigation by removing and planting the three (3) existing soil piles on the abutting property located at #174 Charlton Road noted under current ownership as “N/F AlSCO Real Estate, LLC”. NOI provides a May 28, 2021 authorization letter for this work from Mike Jenkins of G5 Enterprises. However, this isn’t consistent with the Owner information shown on the plan and does not reference the address or parcel in question.*

CMG Comment #2: Comment Remains

Summit Response (2/28/22): Plan has been revised to show correct owner information.

CMG Comment #3: Comment Addressed

66. *Off-site mitigation is allowed per 310 CMR 10.58(5)g, however it is unclear if this is necessary as the project appears to meet the requirement of altering less than 10% of the riverfront area within the lot without this off-site work. CMG recommends Applicant’s Engineer discuss this further with the Conservation Commission.*

CMG Comment #2: Comment Remains

Summit Response (2/28/22): EBT Environmental Consultants has discussed the need for the additional work offsite to meet the 2:1 requirement of the local Sturbridge Conservation Regulations.

CMG Comment #3: Comment Addressed

68. *According to Sturbridge Wetland Regulations §365-1.3.C, the following items may be required at the discretion of the Sturbridge Conservation Commission:*

- *Alternatives Analysis – sketches are included in the NOI submittal; however, no narrative was included to the Conservation Commission.*
- *Wildlife Habitat Evaluation*

CMG will defer to the opinion of the Sturbridge Conservation Commission regarding whether or not the above-mentioned submissions are required to meet the local Wetland Regulations.

CMG Comment #2: Comment Remains

Summit Response (2/28/22): See EBT Environmental Consultants Inc. provided response.

CMG Comment #3: CMG defers to the Sturbridge Conservation Commission

70. *According to Sturbridge Wetland Regulations §365-8.2.B(1), 2:1 mitigation must be given and not be within existing undisturbed riverfront resource area; no further disturbance of riverfront resource area will be allowed on the parcel in consideration. According to the Riverfront Area Table, the Applicant is requesting 7,032 s.f. of proposed riverfront alteration (not including the proposed stormwater basin). The proposed 8,098 s.f. combination of on and off-site restoration area does not meet the required 2:1 mitigation requirement =14,064 s.f.*

CMG Comment #2: Revised “Demolition Plan” Sheet C-3.0 now includes a third area noted as “Delta Removal” which appears to identify 4,082 s.f. of sand removal area from the perennial stream. It is unclear what the 9,810 s.f. total restoration credit represents and if Applicant has approval to work on the adjacent property to complete the “off-site” restoration activities. CMG recommends Applicant provide additional detail to clarify this information for further discussion with the Commission.

Summit Response (2/28/22): Table has been revised per new layout.

CMG Comment #3: Comment Addressed

Additional Comments:

71. *The site plans show proposed light poles within the limits of the proposed 1:1 slope. CMG questions the constructability of these light poles to be located behind the guardrail.*

Summit Response (2/8/22): The light poles have been adjusted

CMG Comment #3: Comment Addressed

72. *The grading plan does not clearly label all proposed contours. Additionally, the 609 contour is shown in the vicinity of Catch Basin #2 (Rim = 609.50), which appears to be incorrectly represented.*

Summit Response (2/8/22): Rim elevation has been revised to match grade at catch basin location.

CMG Comment #3: Comment Addressed

73. *It is unclear if the proposed driveway grading will prevent stormwater runoff along the Route 20 gutter from entering the site driveway. This additional offsite runoff will then be collected via Catch Basin #3 and eventually inundate one of the underground infiltration chambers. The site driveway grading should be designed to prevent any off-site stormwater flows from entering the site.*

Summit Response (2/8/22): A proposed 6” asphalt berm will be constructed along the front of the entrance to prevent runoff entering the site from Route 20.

CMG Comment #3: Site Plan does not show the location or construction details for the 6” berm. CMG recommends driveway entrance grading detail be provided to verify the construction feasibility and compliance with MassDOT standards as the work will be within the Rte. 20 highway right-of-way.

74. *CMG recommends additional detail be provided for the piping connections into the subsurface recharge systems to insure they are able to be constructed as shown on the Grading Plan C-5.*

Summit Response (2/8/22): Detail has been added to the underground cross section detail showing the 12” feed pipe.

CMG Comment #3: Comment Addressed

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