



GARCIA • GALUSKA • DESOUSA

Consulting Engineers Inc.

375 Faunce Corner Road, Suite D
Dartmouth, MA 02747-1217

L#75206
J#640 053 00.00

March 10, 2021

Town of Millbury
Planning Board
127 Elm Street
Millbury, MA 01527

Attn: Mr. Richard G. Gosselin, Jr., Chairman

Re: Site Plan Review
Millbury Fire Station
130 Elm Street

Dear Mr. Gosselin,

As you are aware, Vannary Tan and David Glenn, PE of Stantec Consulting Services, Inc. have reviewed the revised Planning Board Submission plan package, Drainage Analysis and the Site Plan Review Application package, all dated March 1, 2021. In response to the review items noted in their March 5, 2021 letter, we provide the following:

Stormwater Management:

Item 1. Estimated seasonal high groundwater elevation in area of the infiltration chamber system was not provided by LDC. We recommend additional test pits be performed within the footprint of the infiltration subsurface chamber system to verify estimated seasonal high groundwater elevation and soil texture.

GGD Response: While no groundwater was observed at the time the test pits were dug, we have requested confirmation from the geotechnical engineer that no redoximorphic features were observed. We will provide a memorandum upon confirmation.

Stantec Response (3/5/2021): We note test pits performed are not located within the footprint of subsurface detention basin nos. 1, 2 and subsurface infiltration basin No. 1. Stantec recommends additional test pits be performed within the footprint of these subsurface chamber

GGD Response (3/9/2021): Additional test pits will be completed within the footprints of Subsurface Detention Beds #1 and #2 as well as Subsurface Infiltration Bed #1 prior to construction. The additional test pit logs will be provided to the Planning Board and Stantec for review.

Item 2. Provide calculations regarding the average annual load of Total Phosphorus and estimated pollution removal as per the Town's General Bylaw Municipal Code Chapter 13.15 Post-Construction Stormwater Management of New Developments and Redevelopments

GGD Response: The estimated Total Phosphorus removal calculation will be provided upon it's completion.

Stantec Response (3/5/2021): As noted by GGD the estimated Total Phosphorus removal calculation will be provided upon its completion.

GGD Response (3/9/2021): The calculation was delayed due to a technical issue with the specified US EPA Region 1 BMP Accounting and Tracking Tool (BATT) spreadsheet. That spreadsheet has been corrected and the calculation completed. The calculation is enclosed with this letter.

Chapter 13.15 of the Millbury Municipal Code, Post-Construction Storm Water Management of New Developments and Redevelopments regulations require that redevelopment projects remove at least 50% of the average annual load of Total Phosphorus (TP) related to the total post-construction impervious surface area on the site. The site development will result in approximately 1.16 acres of impervious cover, which is estimated to result in approximately 2.07 pounds per year of Total Phosphorus load, resulting in the requirement to remove a minimum of 1.04 pounds per year. The attached calculation shows that the proposed infiltration practices and sand filter with underdrain will remove approximately 1.45 pounds per year.

MassDEP Stormwater Standards:

Item 1.

No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

As identified in the drainage analysis approximately 1.71 acres of the site runoff will be collected and discharged to the municipal drainage system located in Elm Street. We recommend additional documentation regarding the hydraulic capacity of existing catch basin no.1 and drainage system located on Elm Street be provided by GGD and recommend status of review by the Town Department of Public Works (DPW).

GGD Response: A closed pipe analysis for the 25 year storm event has been included in the revised documents. The calculation indicates the existing 12" concrete pipe is capable of conveying 2.5 cubic feet per second. It is estimate that the flow from the site and contributing area to XCB#1 results in a peak flow of 2.2 cubic feet per second.

Stantect Response (3/5/2021): As noted by GGD, the closed pipe analysis for the 25-year storm event indicates the estimated flow from the site results in a peak discharge of 2.2 cfs to the existing catch basin no.1 located in Elm Street, which is less than the estimated hydraulic capacity of the existing 12-inch RCP outlet from catch basin no.1. We recommend status of review by the Town Department of Public Works (DPW) be addressed by GGD.

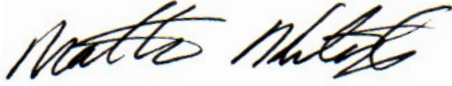
GGD Response (3/9/2021): GGD will follow up with the Town Department of Public Works (DPW) and provide an update at the project's next scheduled hearing with the Planning Board.

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If you should have any comments or questions regarding the above, please contact our office at your earliest convenience.

Very truly yours,

GARCIA • GALUSKA • DESOUSA
Consulting Engineers Inc.



Nathan C. Ketchel, EIT

NCK: sms

Enc.

Cc: Laurie Connors, Town of Millbury
David Glenn, PE, Stantec Consulting Services, Inc.
Vannary Tan, Stantec Consulting Services, Inc.
Angela Campbell, AIA, Context Architecture
Christopher M. Garcia, PE, GGD

Table 1. Project Summary Credit for Millbury Fire Station – 130 Elm Street, Millbury, MA

	Removed Phosphorus Load (lb/yr)	Removed Nitrogen Load (lb/yr)	Removed Sediment Load (lb/yr)
Structural	2.01	17.33	434.36
Non-Structural	0.04	0	0
Land Use Conversion	-0.6	-4.86	-122
Total	1.45	12.46	312.36

Table 2. Structural Project Summary for Millbury

Project ID	BMP Type	BMP Storage Capacity (ft ³)/ Filter Depth (in.)	Phosphorus BMP Efficiency (%)	Nitrogen BMP Efficiency (%)	Sediment BMP Efficiency (%)	Removed Phosphorus Load (lb/yr)	Removed Nitrogen Load (lb/yr)	Removed Sediment Load (lb/yr)	Impervious Area Treated (ac)	Runoff Depth (in.)
SDB#1 - Sand Filter	INFILTRATION TRENCH	1112	100	100	100	0.18	1.56	39.05	0.103	2.97
SDB#3 - Sand Filter	INFILTRATION TRENCH	5159	100	100	100	0.62	5.32	133.15	0.314	3.16
SDB#2 Sand Filter	INFILTRATION TRENCH	3329	100	100	100	0.83	7.06	176.61	0.44	1.61
SIB#1	INFILTRATION TRENCH	1001	92.93	98.42	99.42	0.38	3.38	85.54	0.228	1.21

Table 3. Non-Structural Project Summary for Millbury

Project ID	BMP Type	BMP Storage Capacity	Phosphorus BMP Efficiency (%)	Nitrogen BMP Efficiency (%)	Sediment BMP Efficiency (%)	Removed Phosphorus Load (lb/yr)	Removed Nitrogen Load (lb/yr)	Removed Sediment Load (lb/yr)	Impervious Area Treated (ac)	Runoff Depth (in.)
CBCleaning	CATCH BASIN CLEANING	N/A	2	0	0	0.04	0	0	1.166	N/A
Sweep	ENHANCED SWEEPING PROGRAM	N/A	1	0	0	0	0	0	0.86	N/A

Table 4. Land Use Conversion Project Summary for Millbury

Project ID	Removed Phosphorus Load (lb/yr)	Removed Nitrogen Load (lb/yr)	Removed Sediment Load (lb/yr)	Impervious Area Treated (ac)
130Elm	-0.6	-4.86	-122	1.841



Stantec

Stantec Consulting Services Inc.

65 Network Drive 2nd Floor, Burlington, MA 01803-2767

March 5, 2021
File: 179411004

Attention: Mr. Richard Gosselin, Chairman

MILLBURY PLANNING BOARD
Municipal Office Building
127 Elm Street
Millbury, Massachusetts 01527

**Reference: Millbury Fire Station
130 Elm Street
Millbury, Massachusetts**

Dear Mr. Gosselin:

Pursuant to the Board's request, Stantec Consulting Ltd. has reviewed the revised Millbury Fire Headquarters Site Plan submittal located at 130 Elm Street in Millbury.

The following materials were received by email on March 2, 2021 and hard copy on March 3, 2021.

- Site Plan (16 Sheets), revised January 25, 2021; Written response letter, dated March 1, 2021; Millbury Fire Station Planning Board Narrative, dated March 1, 2021; Drainage Analysis, revised March 1, 2021, and supporting documentation as prepared by Context Architecture (CA) and Garcia-Galuska-DeSousa Consulting Engineers, Inc. (GGD)

The Site Plan submittal was reviewed for conformance with the Town's Zoning Bylaws, the Board's Design Standards, and generally accepted engineering practice. We offer the following comments regarding the *Millbury Fire Headquarters Site Plan* submittal for the Board's consideration.

In general, the revised Site Plan submittal and supporting documentation adequately addresses Stantec's previous comments. We offer the following comments and recommendations on the remaining items in bold text which are cross-referenced to our February 18, 2020 letter report for the Board's consideration.

STORMWATER MANAGEMENT

The Millbury Fire Station Site Plan provides a layout of the proposed drainage system, including Best Management Practices (BMPs) such as deep catch basins, hydrodynamic water quality structures and subsurface detention basins. The Drainage Analysis included under a separate cover of the same name with the Site Plan submission. The applicant has provided information and calculations, including the stormwater checklist to show compliance with the Town of Millbury Stormwater Permit and ten performance standards as per the MassDEP Stormwater Management Handbook.

Stantec offers the following comments and recommendations regarding the Stormwater Permit Application for the Board's consideration:

Design with community in mind



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Mr. Richard Gosselin, Chairman
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**Reference: Millbury Fire Station
130 Elm Street**

1. Estimated seasonal high groundwater elevation in area of the infiltration chamber system was not provided by LDC. We recommend additional test pits be performed within the footprint of the infiltration subsurface chamber system to verify estimated seasonal high groundwater elevation and soil texture.

Stantec (03/05/2021) We note test pits performed are not located within the footprint of subsurface detention basin nos. 1, 2 and subsurface infiltration basin No. 1. Stantec recommends additional test pits be performed within the footprint of these subsurface chamber systems to verify estimated seasonal high groundwater elevation, soil texture and refusal.

2. Provide calculations regarding the average annual load of Total Phosphorus and estimated pollution removal as per the Town's General Bylaw Municipal Code Chapter 13.15 Post-Construction Stormwater Management of New Developments and Redevelopments

Stantec (03/05/2021) As noted by GGD the estimated Total Phosphorus removal calculation will be provided upon its completion.

MassDEP Stormwater Standards

We offer the following comments on the proposed stormwater management system, specifically for compliance with the ten performance standards as outlined in the MassDEP Stormwater Management Standards.

1. No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

As identified in the drainage analysis approximately 1.71 acres of the site runoff will be collected and discharged to the municipal drainage system located in Elm Street. We recommend additional documentation regarding the hydraulic capacity of existing catch basin no.1 and drainage system located on Elm Street be provided by GGD and recommend status of review by the Town Department of Public Works (DPW).

Stantec (03/05/2021) As noted by GGD, the closed pipe analysis for the 25-year storm event indicates the estimated flow from the site results in a peak discharge of 2.2 cfs to the existing catch basin no.1 located in Elm Street, which is less than the estimated hydraulic capacity of the existing 12-inch RCP outlet from catch basin no.1. We recommend status of review by the Town Department of Public Works (DPW) be addressed by GGD.



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Mr. Richard Gosselin, Chairman
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130 Elm Street**

If there are any questions regarding our comments and recommendations, please do not hesitate to call at 1-781-221-1134.

Regards,

STANTEC CONSULTING SERVICES INC.

Vannary Tan

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cc. Ms. Laurie Connors, Town Planner