

JANUARY 5, 2024

Planning Board
c/o Mr. Brian Keating, Planning Director
Town of Lancaster
701 Main Street
Lancaster, Massachusetts 01523

RE: Initial Peer Review
Town of Lancaster Planning Board
Proposed Gymnasium Addition – 357 Sterling Road
Lancaster, Massachusetts

Dear Planning Board Members and Mr. Keating,

BSC Group, Inc. (BSC) is pleased to submit this initial peer review for the Lancaster Planning Board relative to a Site Plan Review and Stormwater Management Permit for the proposed gymnasium addition at the existing 7th Day Adventist Church at 357 Sterling Road in Lancaster, Massachusetts. Our peer review evaluated the project's compliance with the applicable requirements of the Town of Lancaster's Subdivision Rules and Regulations (Chapter 301), Stormwater Management Rules and Regulations (Chapter 305), Zoning Bylaw (Chapter 220), Massachusetts DEP's Stormwater Handbook (the Handbook), and standard engineering practices. This letter is provided to outline BSC's findings, comments, and recommendations. The following comments reflect our review of the materials submitted as referenced below.

BASIS OF REVIEW

As part of our peer review, BSC reviewed the following documents:

- *Project Narrative, Site Plan Review, 357 Sterling Road, Lancaster, MA*, prepared by Bobrek Engineering & Construction, LLC, dated June 2023.
- *Site Plans for 357 Sterling Road, Lancaster, MA*, (4 sheets), prepared by Bobrek Engineering & Construction, LLC, dated May 2023.
- *Gymnasium Addition for: Lancaster 7th Day Adventist Church, 357 Sterling Road, Lancaster, MA 01523* (6 sheets), prepared by Mark Schryver, dated June 5, 2023.
- *Enlarged Floor Plan* (1 sheet), prepared by Mark Schryver, dated July 21, 2023.

PROJECT OVERVIEW

The Lancaster 7th Day Adventist Church proposes to construct a 113-foot by 60-foot gymnasium addition to the west of their existing building at 357 Sterling Road in Lancaster. The exiting site consists of an existing religious facility with a paved parking lot and two driveways – one each on Sterling Road and Goss Lane. The gymnasium will be constructed on what is now landscaped areas and will include a paver patio adjacent to it and the exiting building. There are no proposed changes to the existing parking or driveways and an underground infiltration system is proposed to capture and infiltrate runoff from the addition's roof.

PROJECT COMMENTS

Zoning, Site Design, and General Comments

1. The project narrative states that the gymnasium is solely for the owner's use. Will the building be used for any sports leagues or other uses that may exceed the current parking capacity of the site?
2. Notes on the site plans indicate that existing conditions are based on an on the ground survey performed by David E. Ross & Associates. However, the existing conditions plan also includes several items listed as "proposed" such as wheel bumpers, wicks in the landscape, and an area to be reserved for future parking expansion. If this is an existing conditions plan based on survey, only items that currently exist should be included and proposed items that are not a part of this project should not be shown.
3. The Existing Conditions plan (Sheet C-100) does not include any information such as bearings, distances, or monumentation regarding the property line. Please confirm that the property line shown is a surveyed property line to ensure that all setbacks and from the line are accurately shown.
4. The northwest corner of the gymnasium is 17.3-feet from the adjacent property on Goss Lane, which is less than the required 20-foot side and rear yard setbacks.
5. Has a determination been made that the front lot line is along Sterling Road and not Goss Lane? If Goss Lane is a front lot line, then the building would have less than the required front yard setback as well.
6. Has the fire department reviewed the project to ensure that adequate access for firefighting is being provided?
7. The Applicant should provide more information regarding construction staging, material stockpile areas, and other construction phase details to ensure that adequate space is available, and the project construction will not impact adjacent properties or the use of Goss Lane.
8. Does the project include any exterior building lighting? If so, locations and details should be provided.
9. The Applicant should provide more detail on the landscape screening proposed including plant species, sizes, and spacing. Have any renderings been provided showing the future view of the building from the adjacent residence? Would the Applicant consider a denser, more extensive landscape buffer to the north to mitigate the view of the adjacent residence?

Stormwater Management Design and Permit

10. Locations, types, and details of erosion and sediment controls should be shown on the plans. Perimeter controls should be provided, at a minimum, along the downhill edge to the adjacent property to the north and Goss Lane.
11. The architectural plans show a pitched roof with gutters, but no information is shown on the site plans for how these gutters will be routed to the underground infiltration system.
12. Elevations for the underground infiltration system including bottom of stone, bottom of chambers, and pipe inverts should be shown on the site plans.
13. We agree with the overall area included in the project's hydrologic modeling. However, runoff under both existing and proposed conditions appears to flow towards the adjacent property to the north as well as towards Goss Lane and the existing parking area on site. Therefore, we recommend that each of these areas

be designated as a design point to ensure that stormwater flows to the adjacent property and Goss Lane are not increased under proposed conditions.

14. The existing conditions HydroCAD analysis uses a “fair” condition for the existing grass areas. A fair grass represents an area with between 50 and 75% coverage of grass. It appears that that existing grass area has at least 75% coverage and would be better represented as a “good” condition.
15. We request clarification on why a curve number (CN) of 75 is utilized for the paver patio. The detail provided on the plans uses a compacted dense grade gravel base, which will not promote infiltration. Based on this detail, we feel a CN of 98, for an impervious surface, would be more appropriate.
 - a. Additionally, this patio area should be included in the impervious surface when calculating required recharge volume under Stormwater Standard 3 and should be accounted for when determining the project’s weighted average TSS removal under Stormwater Standard 4.
16. The HydroCAD analysis includes a 3-inch by 2-inch vertical orifice/grate primary outlet from the underground infiltration system. No information is provided on the plans as to what or where that outlet is. Please note that this outlet is set more than 2-feet above the top of the system’s storage.
17. The HydroCAD analysis includes 20-feet of 4-inch pipe storage at a 15% slope as part of the underground infiltration system. It is not clear what this pipe is or if it should be included in the system storage.
18. We recommend a soil test pit be performed, as required by Volume 3, Chapter 1 of the Handbook, in the location of the underground infiltration system to verify the project’s assumptions regarding soil type and infiltration rate, and to ensure that a minimum of 2-feet of separation is being provided between the bottom of the system and estimated seasonal high groundwater (ESHGW). Should less than 4- feet of separation to ESHGW be provided, a groundwater mounding analysis should be performed as required by the Handbook.
19. The peak elevation in the underground infiltration system exceeds the top of the system by more than 2-feet in the 25-year storm event. It exceeds the top of the system by more than 8-feet, which is 5 to 7-feet above ground level, in the 100-year event. This design of this system should be reevaluated as water cannot exceed the top of a buried system.
20. The underground infiltration system is modeled in HydroCAD with 1-foot of crushed stone as a base. This should be updated on the system details, which show only 6-inches.
21. If the existing site does not have an operation and maintenance (O&M) plan for stormwater management, this project represents an opportunity to incorporate good O&M practices on the existing site. Elements that can be incorporated into the O&M plan include snow and ice management, parking lot street sweeping, and maintenance of any other stormwater features on the site.

We look forward to discussing this project with you further at the upcoming public hearings on the project. Please feel free to contact me at (617) 896-4386 or drinaldi@bscgroup.com should you have any questions on the information in this report.

Sincerely,
BSC GROUP, INC.

A handwritten signature in black ink, appearing to read 'D. Rinaldi'.

Dominic Rinaldi, PE
Senior Associate