CITY OF NEWTON
Department of Public Works
ENGINEERING DIVISION

MEMORANDUM

To: Council Rick Lipof, Land Use Committee Chairman

From: John Daghlian, Associate City Engineer

Re: Special Permit – 10 Elberta Terrace

Date: July 12, 2022

CC: Barney Heath, Director of Planning
Jennifer Caira, Deputy Director
Katie Whewell, Chief Planner
Lou Taverna, PE City Engineer
Jennifer Breslouf, Committee Clerk
Michael Gleba, Sr. Planner

In reference to the above site, I have the following comments for a plan entitled:

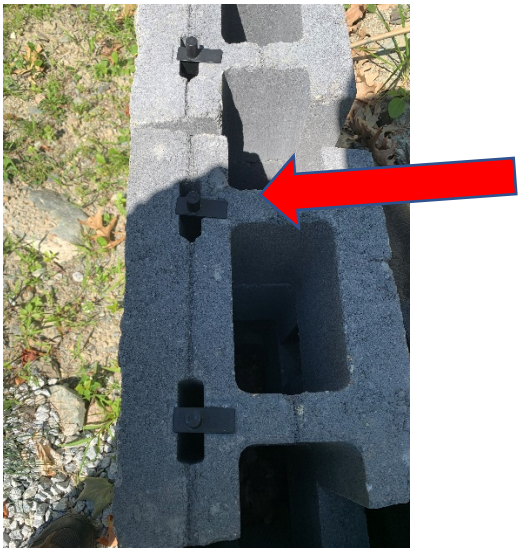
Segmental Retaining Wall
Plan View & Notes Sheet 1 of 2
Elevation View & Sections Sheet 2 of 2
Prepared by: Luna Engineering
Dated: December 23, 2021

Executive Summary:

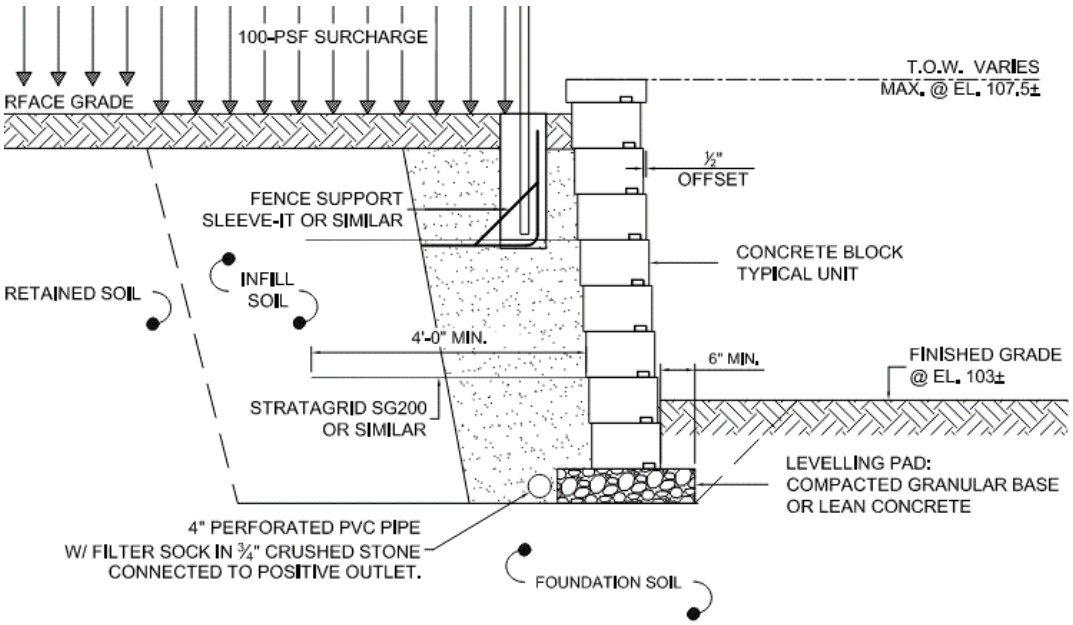
The site plans needs to be stamped by a Professional Registered Land Surveyor (PLS) that will attest to the property lines which should be labeled with compass bearings and distances. The plan is also missing a north arrow. Additionally offset dimension should have been placed on the corners of the wall from the property line to ensure the design intent was followed. Should this permit be approved going forward I would request that the applicant's PLS stakeout the property line with intermediate points along the property line to ensure that no encroachment has taken place, and update the plans.

View of wall constructed to date looking west.

The proposed wall is a typical segmental wall based on a gravity design, the design calls for a level landing pad which acts as the footing or base of the wall. Each consecutive layer of block is placed on the previously laid layer and plastic spikes are placed into each block to interlock them to act as a monolithic wall. The manufacturer has a built in ½" offset in each successive layer so the wall tapers backward into the backfill for additional factor of safety.



Black plastic spikes driven into each block to interlock each layer



To reinforce the wall the designer specificizes a soil reinforcing geogrid (*Stratagrid* or equal) placed on every third row of block, the geogrid is a fiberglass mess placed on the 3rd course and rolled out perpendicular to the wall 4-feet into the back fill and the layers of soil are compacted to a specification this helps stabilize the wall from overturning or sliding failure.

The fiberglass geogrid seen between the 3rd & 4th course of blocks

The back fill directly behind the wall is a free draining crushed stone wrapped with filter fabric to prevent fines soils from clogging the back of the wall, any water that seeps in behind the wall will follow the crushed rock and drain either through the face of the wall or to the 4: perforated PVC pipe that the design calls for a the base of the wall and that is to daylight onto the applicants property this drainage should not be an issue.

The black filter fabric & crushed stone for proper drainage

Based on the site visit was made this morning the soils behind the proposed wall appear to be glacial till (i.e., a mix of stone and sandy material of varying gradation) and stable for now so long as we do not get prolonged heavy rains, and no one walks along the top of the cut face of the embankment. I recommend that the wall construction continue to keep the site as stable as possible.

There were two spots in the wall that need correction a few large stones have pushed out a couple of the blocks that can be adjusted back into proper alignment see following photos.

Multiple stones appear to have fallen and pushed out a couple blocks.

This large stone appears to have pushed out the two blocks

Upon completion of the wall the applicant's PLS and PE shall submit an as built plan to scale showing the alignment of the in relation to the property lines (with offsets dimensioned) and elevations to verify the design heigh of 9-feet at its high point, additionally top & bottom of wall elevations, and verification of the proposed safety fence (height & material). Keep in mind this is a structure so the applicant will have to obtain a Building Permit form inspectional Service and comply with all Inspection requirements by ISD.

Construction Management:

A construction management plan is needed for this project. At a minimum, it must address the following: staging site for construction materials and equipment, parking for construction workers vehicles, phasing of the project with anticipated completion dates and milestones, safety precautions, emergency contact personnel of the general contractor. It shall also address anticipated dewatering during construction, site safety & stability, siltation & dust control and noise impact to abutters.

The site did not have any siltation control in place as there is an established lawn and no danger of soil erosion getting into the City streets, I would not require siltation control provided the wall is completed this year.

General:

1. All trench excavation shall comply with Massachusetts General Law Chapter 82A, Trench Excavation Safety Requirements, and OSHA Standards to protect the general public from unauthorized access to unattended trenches or excavations. Trench Excavation Permit is required prior to any construction. This applies to all trenches on public and private property. *This note shall be incorporated onto the final plans.*

2. All tree removal shall comply with the City's Tree Ordinance.

3. The contractor of record is responsible for contacting the Engineering Division and scheduling an appointment 48-hours prior to the date when the utilities will be made available for an inspection of water services, sewer services and drainage system installation. The utility in question shall be fully exposed for the Inspector to view, backfilling shall only take place when the City Engineer's Inspector has given their approval. *This note shall be incorporated onto the final plans.*

4. The applicant shall apply for a Building Permit with the Inspectional Services Department prior to ANY construction.

5. Before requesting a Certificate of Occupancy, an As Built plan shall be submitted to the Engineering Division in both digital and paper format. The plan shall show all utilities and final grades, any easements and improvements and limits of restoration. The plan shall include profiles of the various new utilities including but not limited to rim & invert elevations (City of Newton Datum), slopes of pipes, pipe materials, and swing ties from permanent building corners. The as built shall be stamped by both a Massachusetts

Registered Professional Engineer and Registered Professional Land Surveyor. Once the As built plan is received the Engineering Division shall perform a final site inspection and then make a determination to issue a Certificate of Occupancy. *This note shall be incorporated onto the final plans.*

6. All site work including trench restoration, sidewalk, curb, apron, and loam border (where applicable) shall be completed before a Certificate of Occupancy is issued. *This note shall be incorporated onto the final plans.*

7. The contractor of record shall contact the Newton Police Department 48-hours in advanced and arrange for Police Detail to help residents and commuters navigate around the construction zone.

8. If any changes from the final approved design plan that are required due to unforeseen site conditions, the contractor of record shall contact the design engineer of record and submit revised design and stamped full scale plans for review and approval prior to continuing with construction.

9. *The engineer of record shall add the following attestation to the plans when applying for a building permit:*

I certify that the construction so shown was inspected prior to backfill and that all work conforms with the Approved Plan and meets or exceeds the City of Newton Construction Standards.

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Signature

Note: If the plans are updated it is the responsibility of the applicant to provide all City Departments [ISD, Conservation Commission, Planning and Engineering] involved in the permitting and approval process with complete and consistent plans.

If you have any questions or concerns, please feel free to contact me at 617-796-1023.