



DANA F. PERKINS, inc.
Consulting Engineers & Land Surveyors

October 12, 2022

Town of Andover
Community Development and Planning Offices
36 Bartlet Street
Andover, MA 01810

Re: Major Non-Residential Project
Proposed Self Storage Facility
43 River Road
Andover, Massachusetts
Assessors Map #148 ~ Lot #1-E

Dear Members of the Board,

On behalf of our client, 3P Properties, LLC., we have submitted the following revised engineering plans and supporting documentation for the subject project:

1. Proposed Self Storage Facility, Andover, Massachusetts (11 sheets), dated July 11, 2022 and last revised October 11, 2022, as prepared by our firm.
2. Revised hydrological analysis stormwater calculations.

These plans and documents and the accompanying response to comments below address the stormwater peer review letter received from Horsley Witten Group dated October 5, 2022.

On behalf of our client, we provide the following responses to the October 5, 2022 letter from Horsley Witten Group (original comments in standard text, applicant's comments in bold text).

1. Standard 1 states that no new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.
 - a. The existing and proposed site topographic discharges stormwater to four separate design points (DP):
 - DP-1: collects stormwater from the majority of the site flowing towards the southern property boundary.
 - DP-2: collects stormwater flowing towards the western property boundary and the Greater Lawrence Regional Vocational Technical High School.

- DP-3: collects stormwater flowing towards the northern property boundary and the Andover Park Development L.P.T.
- DP-4: collects stormwater from a small portion of the site flowing towards Riverside Drive.

It appears that the project site does not directly discharge towards any wetlands or waters of the Commonwealth, therefore the Applicant complies with Standard 1.

October 5, 2022: HW has no further comment.

No further comment.

2. Standard 2 requires that post-development runoff does not exceed pre-development runoff off-site.

- a. In the Proposed HydroCAD model, the Applicant includes subcatchments PR-1A, PR-1B, and PR-1C. However, these subcatchment areas are not delineated on the Proposed Drainage Divide figure. To avoid confusion, HW recommends that the Applicant indicate the individual subcatchments on the Proposed Drainage Divide figure.

October 5, 2022: The Applicant has delineated the Proposed Drainage Divide Map. HW has no further comment.

No further comment.

- b. HW recommends that the Applicant confirm the catchment area to DP-4 under proposed conditions. It appears that the top of the berm, approximately elevation 81, associated with Infiltration Basin #2 should be a divide and the catchment area towards Riverside Drive should be larger.

October 5, 2022: The Applicant has revised the Proposed Drainage Divide Map. HW has no further comment.

No further comment.

- c. In accordance with the Section IX. E.4. of the Andover Stormwater Regulations, Flooding Protection, HW recommends that the Applicant adjust the Curve Number (CN) value for Post Construction grass to be 79 instead of 61 as listed in Table 1.

October 5, 2022: The Applicant has revised the curve number values for the Post Construction condition. HW has no further comment.

No further comment.

- d. HW recommends that the Applicant provide the flow paths and confirm the time of concentration (Tc) values provided under existing conditions. The Applicant has included a direct entry of 5 minutes for each catchment area which may be fast through this naturally wooded area.

October 5, 2022: The Applicant has revised the Tc values for the existing conditions as suggested. HW has no further comment.

No further comment.

- e. The Applicant has noted that test pits have been conducted and therefore are using Hydrologic Soil Group (HSG) B. HW recommends that the Applicant provide the test pit logs.

October 5, 2022: The Applicant has provided Test Pit logs to supplement the Test Pit Plan. HW has no further comment.

No further comment.

3. Standard 3 requires that the annual recharge from post-development shall approximate annual recharge from pre-development conditions.

- a. The Applicant has provided two infiltration basins that appear to provide greater than the required recharge volume. HW recommends that a detail be provided for the Infiltration Basins to clarify surface material, stone sizes, side slopes, and peak elevations for the various storm events.

October 5, 2022: The Applicant has provided details for the Infiltration Basins on the Plan Set. HW recommends a detail for the Riprap Spillway be provided and include stone sizing and dimensions.

A detail has been provided within the plan set.

- b. As noted above, HW recommends that the Applicant provide the test pits to confirm the soil type and depth to seasonal high groundwater. If the separation between the bottom of the basins and seasonal high groundwater is less than 4 feet, HW recommends that the Applicant provide a mounding analysis in accordance with the MSH Volume 3, Chapter 1, page 28.

October 5, 2022: The Applicant has provided a Test Pit Log. Based on the Soil Test Pit Plan and logs, it does not appear that groundwater was observed. HW has no further comment.

No further comment.

4. Standard 4 requires that the stormwater system be designed to remove 80% Total Suspended Solids (TSS) and to treat 1.0-inch of volume from the impervious area for water quality.

- a. The Applicant has designed Infiltration Basin #1 to manage the roof runoff from the proposed building. The Applicant has designed Infiltration Basin #2 with a forebay and a water quality unit to capture, treat, and manage the runoff from the parking lot. HW recommends that the Applicant provide the sizing calculations for the forebay in accordance with Section IX.I.1 of the Andover Stormwater Regulations.

October 5, 2022: The Applicant has stated that the intent of the rip-rap in Infiltration basin #2 is not a forebay and to prevent outlet scour only. HW recommends providing rip-rap sizing calculations for the outlet to confirm this is adequately sized to reduce erosion.

Rip-rap sizing calculations have been provided and the plan set has been revised.

- b. HW recommends that the Applicant provide the vendor information for the CDS 2015 water quality unit to verify the size as well as the percentage of TSS removal.

October 5, 2022: The Applicant has provided vendor information for the CDS 2015 water quality unit. HW has no further comment.

No further comment.

- c. HW recommends that the Applicant confirm that the forebay and trench drain at the end of the driveway will provide adequate pretreatment for this catchment area.

October 5, 2022: The Applicant has stated that the area associated with the trench drain has a discharge of less than 1 CFS during the 2-year 24-hour storm and is considered de minimis. Additionally, the Applicant has stated he catch basin proposed has a deep sump. HW has no further comment.

No further comment.

- d. In accordance with Section IX.C. of the Andover Stormwater Regulations, HW recommends that the Applicant provide the applicable calculations to verify that the pre-treatment devices have been adequately sized.

October 5, 2022: The Applicant has provided sizing calculations for the pre-treatment device. HW has no further comment.

No further comment.

5. Standard 5 is related to projects with a Land Use of Higher Potential Pollutant Loads (LUHPPL).

- a. A self-storage facility is a land use that does not produce higher potential pollutant loads, therefore Standard 5 is not applicable.

October 5, 2022: HW has no further comment.

No further comment.

6. Standard 6 is related to projects with stormwater discharging into a critical area, a Zone II, or an Interim Wellhead Protection Area of a public water supply.

- a. The project site does not appear to discharge to a critical area, therefore Standard 6 is not applicable.

October 5, 2022: HW has no further comment.

No further comment.

7. Standard 7 is related to projects considered Redevelopment.

- a. This project is not considered redevelopment, therefore Standard 7 is not applicable.

October 5, 2022: HW has no further comment.

No further comment.

8. Standard 8 requires a plan to control construction related impacts including erosion, sedimentation, or other pollutant sources.

The Applicant has provided a Soil Erosion and Sedimentation Control Plan (Sheet 3 of 10). HW has the following comments regarding this plan:

- a. The Applicant has proposed erosion controls on the southern corner of the site only. HW recommends that the Applicant place erosion controls around the entire site to avoid any soil from migrating onto abutting properties.

October 5, 2022: The Applicant has added erosion controls around the perimeter of the property as part of the Soil Erosion & Sedimentation Control Plan. HW has no further comment.

No further comment.

- b. HW recommends that the Applicant delineate the locations of critical areas for erosion potential as required in the Andover Stormwater Regulations.

October 5, 2022: The Applicant has stated that there are no critical areas onsite. The site is not located near any wetlands. The Applicant has stated additional sediment and erosion control measures have been added to the property as part of the Soil Erosion & Sedimentation Control Plan. HW has no further comment.

No further comment.

- c. HW recommends that the Applicant label the locations of temporary and permanent seeding, vegetative controls, and other temporary and final stabilization measures.

October 5, 2022: The Applicant has provided an updated Landscape Plan to illustrate areas to be grassed as part of the permanent stabilization as well as showing information for temporary stabilization in the SWPPP. HW has no further comment.

No further comment.

- d. HW recommends that the Applicant provide a means to prevent soil compaction on the floor of the basin during construction in accordance with Section IX.I.3. of the Stormwater Regulations.

October 5, 2022: The Applicant has added notes to the Soil Erosion & Sedimentation Control Plan stating there will be no soil compaction on the floors of Infiltration Basins during construction. HW has no further comment.

No further comment.

The Applicant has also provided a Construction Period Pollution Prevention Plan (CPPP) in the Stormwater Management Permit. HW has the following comments regarding this plan:

- e. HW recommends that the Applicant include maintenance and inspection procedures for each proposed stormwater practice, such as deep-sump catch basins, hydrodynamic separator, and the infiltration basins once installed. HW recommends that the stormwater practices be included in the inspection logs.

October 5, 2022: The Applicant has provided inspection logs for each stormwater practice as part of the CPPP Plan. HW has no further comment.

No further comment.

- f. The proposed land disturbance will exceed 1 acre therefore a NPDES Construction General Permit will be required. The Applicant has noted that a Stormwater Pollution Prevention Plan (SWPPP) will be provided prior to construction. The Planning Board may choose to require receipt of the SWPPP a minimum of 14 days prior to land disturbance as a condition of approval.

October 5, 2022: HW has no further comment.

No further comment.

9. Standard 9 requires a Long-Term Operation and Maintenance (O&M) Plan be provided.

The Applicant has provided a Long-Term Pollution Prevention Plan. HW has the following comments regarding this plan:

- a. HW recommends that the Applicant specify the name of the party(ies) responsible for operation and maintenance, including how future property owners will be notified of the presence of the stormwater management system and the requirement for proper operation and maintenance per MSH Volume 1, Chapter 1.

October 5, 2022: The Applicant has updated the Long-Term Pollution Prevention Plan to include the requested information. HW has no further comment.

No further comment.

- b. HW recommends that the Applicant include an O&M budget per MSH Volume 1, Chapter 1.

October 5, 2022: The Applicant has included a budget cost in the O&M plan. HW has no further comment.

No further comment.

- c. Per Section VI.C.1.b.7 of the Andover Stormwater Regulations, HW recommends that the Applicant include a simple sketch indicating where the stormwater practices requiring inspections are located.

October 5, 2022: The Applicant has provided an exhibit showing where each of the stormwater practices are located. HW has no further comment.

No further comment.

10. Standard 10 requires an Illicit Discharge Compliance Statement to be provided.

- a. HW recommends that the Planning Board requires receipt of an Illicit Discharge Statement signed by the property owner prior to land disturbance.

October 5, 2022: The Applicant has provided a signed illicit discharge statement. HW has no further comment.

No further comment.

11. Additional Comments per Andover Stormwater Regulations:

- a. In accordance with Section IX.D. of the Andover Stormwater Regulations, HW recommends that the Applicant provide the applicable calculations to document that the stormwater management systems have been adequately sized to remove 90% of TSS and 60% of Total Phosphorus (TP) from the post-construction impervious surfaces.

October 5, 2022: The Applicant has listed one treatment train for the project. However, the trench drain to CB to Infiltration Basin 2 is a separate treatment train. HW recommends included the TSS calculation sheet for this separate treatment train for documentation purposes. HW further recommends showing the Phosphorus loading and removal calculations for the site under existing and proposed conditions.

Phosphorus loading and removal calculations, along with a TSS calculation sheet, have been provided, as requested.

- b. In accordance with Section IX.I.4. the perimeter of the basins shall be curvilinear. HW recommends that the Applicant discuss the site constraints with the Planning Board.

October 5, 2022: The Applicant has stated that due to the site constraints, a traditional oval shape was proposed. However, the Applicant stated that each of these ponds were designed to follow the natural landscape to the maximum extent practicable. HW defers to the Planning Board if this design is an acceptable approach.

No further comment.

- c. HW recommends that the Applicant confirm it has provided a minimum of 1 foot of freeboard above the 25-year storm elevation in accordance with Section IX.I.6.

October 5, 2022: The Applicant has shown the 25-year storm event on the details of each basin and confirmed it has provided the minimum 1 foot of freeboard.

No further comment.

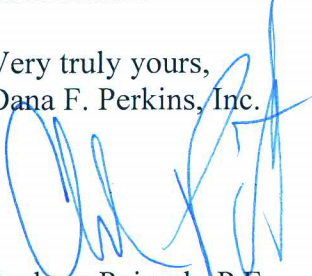
- d. HW recommends the Applicant determine if a low flow outlet is required to prevent clogging in accordance with Section IX.I.9.

October 5, 2022: The Applicant has stated the ponds have been designed to the maximum extent practicable and the only outlets are the overflow spillways. The Applicant has stated a low flow outlet would not apply to this design. HW defers to the Planning Board if this is an adequate approach or if an emergency low flow outlet would be preferred.

No further comment.

Please feel free to contact our office at (978) 858-0680 should you have any questions or require additional information.

Very truly yours,
Dana F. Perkins, Inc.



Andrew Pojasek, P.E.