

**133 Keyes Road
Concord, MA 01742**

**DATE: March 2, 2020****MEMORANDUM**

TO: Elizabeth Hughes, Town Planner
VIA: Alan Cathcart, Acting Director of Public Works
VIA: Steve Dookran PE, Town Engineer
FROM: Valerie Doerrer, Public Works Engineer-Water Systems
FROM: Justin Richardson, Assistant Town Engineer
SUBJECT: 246 Old Road to Nine Acre Corner: Concord Country Club Earth Removal Special Permit

Concord Public Works has reviewed the application submitted for a Special Permit dated January 31, 2020, prepared by Stamski and McNary, Inc., for the construction of an irrigation pond at the Concord Country Club and offer the following:

Engineering Division Comments:

1. Because of the extent of the alteration please provide a Stormwater Pollution Prevention Plan (SWPPP)
2. A revised plan is required that identifies more existing contour label on the plan especially on the easterly side of the site. The revised plan dated February 14, 2020 does not label any existing contours.
3. It appears from the plan that some surface water will flow into the pond from the east. Please provide more survey data on the east side of the pond so that the total area generating stormwater runoff to the pond can be determined. The overflow device is considered a new point discharge where one did not previously exist, and measures should be taken to spread the overflow so that it is not a point discharge.
4. Please provide stormwater calculations, including pre and post development plans showing the extent of the drainage area, to prove that this development does not increase stormwater runoff to the resource area and does not affect downstream properties or infrastructure. The Pond is considered new impervious area that is added to the site. Please update the Special Permit Application to include the existing and proposed total impervious coverage for the site.
5. Soil testing was performed on the west side of the pond embankment, but no testing was performed inside the pond or on the east embankment at the higher ground elevations. A minimum of six (6) additional soil tests shall be performed in the areas indicated on the attached plan to ensure that groundwater is not affected by the new pond. The soil testing shall go down four (4) feet deeper than the bottom elevation of the pond, be performed on soil in its natural state (undisturbed), and be observed by a Town representative. Pursuant to Zoning Bylaw Section 7.6.6.11, removal of soil, loam, sand, gravel, or any other mineral substance within four feet of the historical high groundwater table elevation is prohibited within the Groundwater Conservancy District.

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6. The Cut/Fill Report shows cut and fill factors of one (1). Please provide information on whether this volume of soil is in its natural state. Additionally, the volume of material that will be hauled (loose-measure volume) should have a swell factor applied to it based on the soil classification. Please verify that this factor was applied when determining the amount of material that will be hauled, and if a swell factor was not applied, please provide additional cut/fill calculations showing the swell factor included for the hauling volume.
7. The plan and documents do not show inflow pipes. Please provide information on how the pond will be filled and continually fed with inflow pipe locations and details.
8. The plan and documents do not provide any shut off devices for the inflow pumping system, and this could significantly affect the groundwater levels in the Groundwater Conservancy District. Please provide information and details of how the inflow pumping system will shut off and at what water elevation this will occur.
9. The plans and the application do not provide any information on what measures will be taken to ensure that the inflow does not cause internal erosion of the pond or cause issues with the liner.
10. If the Special Permit is approved, prior to resuming hauling the Applicant shall submit a performance bond acceptable to Concord Public Works to secure the condition of the haul roads from any identifiable damage due to construction vehicles associated with the earth removal.

Water/Sewer Division Comments:

The applicant is advised that the property is located in the Groundwater Conservancy District within the recharge zone of one of the Town's drinking water supply wells, as such the Water/Sewer Division is requesting additional information be submitted regarding the proposed pond and the planned operation of the irrigation system.

1. Provide a site plan showing existing and proposed irrigation infrastructure.
2. Provide an estimate of the proposed daily water withdrawals of the irrigation system including peak and average day demand. Estimates should be based on data from historic metered irrigation use at the site, if available.
3. Provide information on the operation, use, and maintenance of the irrigation pond that can be incorporated into a "Pond Management Plan", or similar, demonstrating the following:
 - a. Effective management of the water level within the irrigation pond to avoid having groundwater obtained from onsite irrigation wells being released through the overflow as part of overall irrigation system operation, and precipitation events.

CONCORD PUBLIC WORKS

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- b. Best Management Practices associated with irrigation system usage, irrigation system maintenance, and pond maintenance (i.e. algae management).

4. Upon approval of the proposed irrigation pond, the property owner will be required to submit daily irrigation water pumping totals to Concord Water on an annual basis.