

June 26, 2023

Dear Honorable Members of the Zoning Board of Appeals:

Re: Cannone Property, 1362 Plandome Road, Plandome Manor, New York

At the request of Eastern LLC, CEA Engineers, P.C. (“CEAPC”) evaluated the potential adverse environmental impacts related to land disturbance, fill material placement, and stormwater and sanitary sewage generation, management, and disposal (“Environmental Impacts”) resulting from the proposed placement of 300 cubic yards of soil at 1362 Plandome Road, Plandome Manor, New York (“Property”), located directly adjacent to Leeds Pond. CEAPC’s evaluation relied upon a June 13, 2023, Site Plan for the Property developed by Northcoast Civil Land Surveying & Civil Engineering (“Site Plan”) and best engineering judgment to evaluate the potential for adverse Environmental Impacts.

Proposed Property Development

The proposed Property development consists of:^{1,2}

- installation of a new subsurface sewage disposal system (“SSDS”)
- land disturbance activities that expose soils
- placement of 300 cubic yards (“cy”) of fill material located on the eastern portion of the property adjacent to Leeds Pond.
- installation in the eastern portion of the property adjacent to Leeds Pond of proposed permanent structural stormwater management practices consisting of drainage swales and three drywells with associated surface drains and a subsurface piping network to collect and convey stormwater to the drywells for subsurface disposal.

Potential Adverse Environmental Impacts

Leeds Pond is a brackish waterbody influenced by tidal flows from Manhasset Bay that has been identified with excessive levels of nutrients (i.e., nitrogen and phosphorus), algal blooms, and fecal coliform bacteria.³

Land Disturbance and Fill Placement

During construction activities at the Property, clearing land of vegetative cover, soil disturbance activities (e.g., grading), and placement of fill material causes exposure of soils to precipitation and stormwater runoff that can result in soil erosion and subsequent sediment transport in

¹ Site Plan.

² NYSDEC, DEC Permit Application Detail, Application ID: 1-2822-01883/00001, Facility: Cannone Property.

³ Gobler, Christopher J., Leeds Pond, Ecosystem at a tipping point, 2023.



stormwater discharges from the Property to Leeds Pond. Sediment-laden stormwater discharges convey pollutants including sediments, phosphorus, nitrogen, and potentially other common construction-related pollutants, such as oil and grease from spills of petroleum based fluids, into Leeds Pond.⁴

Phosphorus and nitrogen in sediment laden stormwater discharges to Leeds Pond are of particular concern considering that excess quantities of phosphorus and nitrogen can result in water quality issues such as eutrophication and harmful algae growth. Soils by weight typically contain 0.6% phosphorus and between 1% and 4% nitrogen. Relatively small increases in phosphorus concentrations in surface water in particular can result in eutrophication and harmful algae growth.⁵

Stormwater Management – Proposed Drywell System

The proposed drywells are infiltration based stormwater management practices that depend heavily for their effectiveness on their proximity to groundwater.⁶ Stormwater containing pollutants that enters drywells that are submerged in groundwater or do not have adequate bottom separation will result in pollutants, including phosphorus and nitrogen, entering groundwater and traveling downgradient into Leeds Pond.^{7,8} Considering the proximity of the three proposed drywells on the Property to Leeds Pond, approximately 40 feet, the concern that pollutants in stormwater will enter groundwater and by conveyed to Leeds Pond are enhanced.⁹

The New York State Department of Environmental Conservation (“NYSDEC”) contains clear guidance on the field investigations required to determine the feasibility and proper design of infiltration stormwater management practices, including drywells, including completion of soil borings or deep test pits to identify proximity to groundwater.¹⁰ Best engineering practice that is reinforced by NYSDEC guidance is to perform on-site field investigations to identify the seasonally high groundwater level in the location where infiltration stormwater management practices, such as drywells, are proposed. Groundwater elevations on a given property or construction can vary greatly, thus providing the rationale for NYSDEC guidance and best engineering practice requiring on-site field investigations when infiltration stormwater management practices are proposed.

The Site Plan fails to include the results of soil borings or deep test pits showing the proximity of the drywells to groundwater. Furthermore, the drywell detail on the Site Plan shows them

⁴ NYSDEC, New York State Standards and Specifications for Erosion and Sediment Control, November 1, 2016.

⁵ United States Environmental Protection Agency, National Aquatic Resource Surveys, Indicators: Phosphorus, July 7, 2017.

⁶ NYSDEC, New York State Stormwater Management Design Manual, January 2015, Section 6.3.

⁷ Gobler, Christopher J., Leeds Pond, Ecosystem at a tipping point, 2023.

⁸ Gobler, Christopher J., Leeds Pond, Ecosystem at a tipping point, 2023.

⁹ Site Plan.

¹⁰ NYSDEC, New York State Stormwater Management Design Manual, January 2015, Section 6.3.



extending up to 25 feet below ground surface; however, the Site Plan and drainage calculations contradict the drywell detail and refer to a 3 feet effective depth for the drywells. Based on the inconsistencies between the drywell detail, the drainage calculations, and the Site Plan and most importantly a lack of field investigation results, it is highly likely that the drywells will fail to properly manage stormwater runoff on the Property and pollutants contained in stormwater will migrate to groundwater and ultimately Leeds Pond.¹¹

As an alternative to the proposed drywell system adjacent to Leeds Pond that could result in more effective stormwater management on the Property, an infiltration trench could be constructed to collect, store, and infiltrate stormwater runoff, contingent upon adequate field investigations and proper design consistent with NYSDEC guidance and best engineering practices.

Stormwater Management – Driveway Drainage

Stormwater runoff in the driveway flows in an eastern direction towards a drain in the eastern corner of the driveway that collects flows for distribution to an existing drywell system. The drain is located adjacent to a stone curb. During precipitation events where the drain fails to adequately capture stormwater runoff due to potential factors such as rainfall intensity and/or blockages resulting from a failure to properly clean and maintain the drain that result in debris accumulation (e.g., leaves and vegetative debris) or ice/snow accumulation, stormwater runoff/snowmelt could accumulate and ultimately overtop the curb. Under such conditions, stormwater flows would discharge downgradient towards the adjacent property located southeast of the Property, potentially resulting in property damage or other adverse impacts.^{12,13}

Sanitary Sewage

Phosphorus, nitrogen, pathogens, (e.g., fecal coliform, E.coli) and other pollutants commonly found in domestic sanitary sewage will discharge to groundwater from the SSDS and can migrate through groundwater flows to Leeds Pond.^{14,15,16}

The Site Plan fails to contain any design details on the SSDS that will be employed at the Property other than to identify the location of the existing SSDS. SSDS are sized in accordance with the maximum number of residents that can reside in a dwelling and the corresponding expected sanitary sewage generation. If the proposed sanitary sewer system and septic system is not properly sized, designed, installed, and maintained, it could fail, leading to an increased risk

¹¹ Site Plan.

¹² Site Plan.

¹³ Please refer to the photos on pages 30 – 32 and 41 of Response Appendix.

¹⁴ New York State Department of Health, Bureau of Water Supply Protection, Residential Onsite Wastewater Treatment Systems Design Handbook, 2012.

¹⁵ Aquafacts, Tucker, Yvonne, Phosphorus in Your Influent, April 2014.

¹⁶ Gobler, Christopher J., Leeds Pond, Ecosystem at a tipping point, 2023.



of pollutants, including phosphorus and nitrogen being discharged to groundwater and ultimately Leeds Pond.¹⁷

Conclusion

As a result of its evaluation of the Environmental Impacts resulting from the proposed development on the Property, CEAPC has determined that the potential for numerous adverse Environmental Impacts to Leeds Pond exists. Furthermore, the Site Plan lacks essential design details and field investigation results and is wholly inadequate to demonstrate how adverse Environmental Impacts will be mitigated if the Property is developed as proposed.

Sincerely,



Kevin Draganchuk, P.E., BCEE

CEA Engineers, P.C., President

¹⁷ New York State Department of Health, Bureau of Water Supply Protection, Residential Onsite Wastewater Treatment Systems Design Handbook, 2012.

