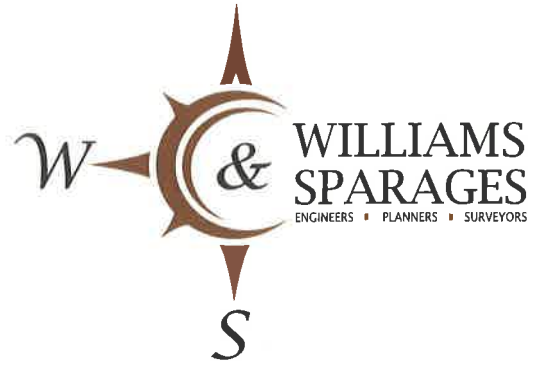


Project No. LYNF-0017

January 4, 2021

Lynnfield Conservation Commission
C/o Emilie Cademartori, Conservation Administrator
55 Summer Street
Lynnfield, MA 01940



Subject: Request for Certificate of Compliance
Windsor Estates – DEP File No. 209-0422
Response to Linden Engineering Partners (LEP) peer review

Dear Commission Members:

The purpose of this letter is to address comments made by Linden Engineering Partners (LEP) regarding the submitted plan and request for a certificate of compliance for Windsor Estates Condominium. LEP's comments are shown below in italics, and, our responses are shown in the bold text that follows.

I. Williams and Sparages Engineers (WSE) to provide the Certification listed under Item #3a of the Linden engineering letter dated February 7, 2020 along with a list of differences or deficiencies;

3. Condition 79 of the OOC (regarding information to be filed with any request for a COC) states, "Upon completion of the project, the applicant shall request in writing a Certificate of Compliance from the Conservation Commission and shall submit the following information with the request:"

a. "certification from the professional engineer stating that construction complies in all respects with this Order of Conditions and setting forth deviations, if any exist". A letter was provided with the filing and the letter does not contain a certification nor does the letter set forth any deviations in the site, as built, from the approved design plans.

The following is a list of deviations from the approved design plans:

- 1. A landscape area has been added to the as built plan that has been brought to our attention. The landscape area is located to the north of units 36-38 and is within the 25' No Disturb Area.**
- 2. Stormwater management areas have partially been converted from open ponds to subsurface areas. These ponds are located behind units 36-38 (RES 02), & 34-35 (RES 03).**
- 3. The outlet control structure at RES 09 has been modified from its original design. Field inspections have been performed and the structure in place has been deemed suitable.**

A certification is provided at the end of this letter.

II. WSE to provide a revised and updated as-built plan with the additional/missing information listed in Item #3b of the Linden engineering letter dated February 7, 2020 as discussed at the meeting;

3.

- b. *“two set of field surveyed as-built site plans prepared, signed and stamped by a Commonwealth of Massachusetts Registered Land Surveyor or registered Professional Engineer. The as-built plan shall include, at a minimum, and as applicable to the project, elevations of all pipe inverts and outlets, pipe sizes, materials, and slopes; all other drainage structures, limits of clearing, grading and fill; all structures, pavement and spot elevations and 2 foot contour elevations within 100 feet of wetlands boundaries; locations of wetlands boundaries; all alterations within wetland resource areas; all wetland replication areas; and all dates of fieldwork”. The As Built Plan does not show elevations of all pipe inverts (some are shown but not all) and outlets, all pipe sizes (not all pipes are shown), materials (not shown), and slopes (not shown); all other drainage structures (underground roof recharge systems with elevations are not shown on the As Built Plan) Pavement and spot elevations and 2 foot contour elevations within 100 feet of wetlands boundaries are not all shown as required.*

The plan has been revised to show additional contours and elevation details as requested. Labels for all the stormwater management areas have been added. The slopes of the drain pipes that remain missing are unobtainable through field survey. The omitted elevations of the underground basins and roof recharge systems are also unknown to our firm, as we did not locate the structures in the field.

III. WSE to prepare a revised Operations and Maintenance manual for the project conforming to the requirements of the 2008 Massachusetts storm water regulations. This revised O&M shall include a plan of the storm water elements of the projects and shall specifically address those elements installed as part of the project along with snow storage areas (see Items 4 & 7 of the Linden engineering letter dated February 7, 2020;

4. *Condition 87 of the OOC states, “The applicant and his successors in ownership shall file written reports of the inspections, cleaning and stormwater maintenance of the stormwater management system with the Lynnfield Conservation Commission on an annual basis, by November 1st of the year the binder course of pavement is first installed. This condition shall survive the Order of Conditions and shall run with the title of the property in Perpetuity”. Is the project in compliance with this condition?*

7. *Condition 90 of the OOC states, “The applicant shall comply with all requirements of the Operation and Maintenance Plan filed with the Order of Conditions. The applicant shall maintain and repair the detention basin and stormdrain collection system and*

appurtenances in order to ensure that the design capacity, the storm water treatment and pollution abatement capacity, and structural integrity of these facilities are maintained. The applicant shall maintain all stabilized surfaces as designed including maintenance and repair of pavement and maintenance of landscaped area maintaining a vigorous growth of all plant materials. Catch basins shall be inspected and cleaned and driveways and sidewalks shall be swept at intervals specified in the O&M Plan. Snow shall be plowed onto vegetated areas to encourage infiltration during subsequent thawing periods. Sediments shall be removed from snow storage areas in the early spring. Accumulated sediments shall be removed from sumps and floatable wastes shall be removed from the surface of every catch basin at intervals specified in the O&M Plan. All drain pipes shall be inspected and sediment and debris removed at intervals specified in the O&M Plan. Sediments and wastes shall be disposed of in accordance with all applicable federal, state, and local laws. The forebay and detention basins shall be inspected and cleaned at intervals specified in the O&M Plan. Vegetation in detention basins, forebays, and swales shall be mowed at intervals specified in the O&M Plan to prevent the growth of woody species". Is the project in compliance with this requirement?

The Operations and Maintenance manual has been revised and an accompanying plan has been provided to clearly show the location of all storm water system components. Proposed snow storage areas have also been added to this plan.

IV. WSE to provide the information and answers to the questions and issues outlined under Item 10 of the Linden engineering letter dated February 7, 2020;

10. From a comparison of the information on the As-Built Plan vs the approved design plans for these two basins (RES 02 & RES 03), it appears that at least Res03 has not been graded as proposed. This grading may have created pockets in the basin where silt has settled and created conditions favorable to the growth of hydromorphic vegetation.

To resolve this issue, we suggest the following:

- *The Engineer should obtain As-Built elevation information for the Brentwood StormTank Units for Res02 & 03;*

This information was not provided to our firm. However, it is important to note that the installation of both ponds were overseen and inspected by Deb Colbert, P.E. of Vari-Tech, LLC(the supplier of the infiltration units) from start to finish as she was on-site full time during installation.

- *Using this information along with ground contours, the Engineer should prepare a table of storage vs elevation for each of these basins and compare the available storage vs the storage shown on the information submitted to and approved by the LCC when the design of these basins was revised;*

A spreadsheet has been attached to this response to compare the as built and proposed volumes of the basins.

- *The Engineer should prepare a revised HydroCAD model for these two basins and compare the results of this model with the results of the model that was approved for the design;*

We ran the HydroCAD model with our as built survey information for both ponds. Our comparison with the proposed result in Pond RES 02 equalling approximately 81% of the design volume and Pond RES 03 equalling approximately 84%.

It is important to note that these ponds were designed with additional capacity so that they will still function as intended even though they are slightly smaller.

As you can see from the results below, the peak water levels in the ponds are negligibly different from the proposed designs for all three design storms, 0.1'± for RES 02 & 0.2'± for RES 03. The 1' of freeboard minimum requirement will be provided for both ponds.

As Built RES 02

As Built Top of Berm=132.3± (Average)	132.5 (Proposed)
AS Built Bottom of Berm=129.0± (Average)	129.0 (Proposed)
8' long emergency spillway @ 131.2± (Average)	131.16 (Proposed)

Storm Event	Proposed Peak Water Level (ft)	<i>As Built Peak Water Level (ft)</i>
2 Year	129.72	<i>129.62 (-0.10)</i>
10 Year	130.32	<i>130.24 (-0.08)</i>
100 Year	130.91	<i>131.03 (+0.12)</i>

As Built RES 03

Top of Berm=130.5± (Average) (130.6 Proposed)
Bottom of Berm=126.0± (Average) (126.5 Proposed)
8' long emergency spillway @ 129.7± (Average) (129.05 Proposed)

Storm Event	Proposed Peak Water Level (ft)	As Built Peak Water Level (ft)
2 Year	127.81	128.03 (+0.22)
10 Year	128.31	128.43 (+0.12)
100 Year	128.80	128.95 (+0.15)

- *The Engineer should prepare an enlarged exhibit showing any necessary changes to the basins resulting from the analysis and identifying the localized low points.*

It is our opinion that the system is in substantial compliance with the approved design and no further remedial actions are necessary at this time.

We trust that you will find the above responses adequately address the concerns of the peer review to your satisfaction and will allow the project to receive a certificate of compliance.

By signing below, I certify that the proposed project has been completed in substantial compliance with the originally filed Notice of Intent and subsequent Order of Conditions. Several modifications have been made to the project through communications and hearings with the commission and a list of deviations from the original design has been provided above.

Very truly yours,



Richard Williams, P.E.
Principal

Enclosure

cc: Windsor Court, LLC
Linden Engineering
Lynnfield Board of Health