



February 6, 2015

Lisa Davis Lewis, Chair  
Carlisle Board of Appeals  
Town Hall  
66 Westford Street  
Carlisle, MA 01741

Re: 100 Long Ridge Road  
Civil Engineering Response to Nitsch Letter of 12-22-2014

Dear Ms. Lewis and the members of the Board of Appeals:

This office has made relatively minor revisions to the plan for the above referenced project based on comments received from the peer review of Nitsch Engineering of their letter of December 22, 2014.

This correspondence is intended solely to identify the plan changes for the peer reviewer. As many of the changes were simply made as requested or recommended, this correspondence will just note this below. If further commentary is needed to understand the change, then the comment below is elaborated as necessary. The comments are reflective of the numerical sequence within the referenced peer review letter.

5. Plans revised as noted.
11. Operation and Maintenance of the proprietary Stormwater Buffer Zone was added. A diagram of all BMP's was provided as the last page of the Stormwater Report.
17. The gravel base courses have been extended as requested.
22. The plans were revised for clarity and a note added as to the timing of the well change.
24. MassDEP differentiates between snow plowed areas and snow dumps. Snow dumps on the plan are shown as snow storage, not snow plowed areas. The snowplowed areas are intended to be within the shoulders of the road possibly extending into the beginning of the down slope to the swale. There is 5.9 feet available for plowing storage without impacting the required swale depth at the design storm. Additional snow storage areas are now shown between units 4-5, 3-20, and 12-13. The snow dump areas also shown. No snow is intended to be dumped into the rain gardens or bio-retention area.
26. Additional evergreen trees (Pinus Strobus) were added in specific areas on the Landscape Plan for screening of the closest adjacent properties, especially 132 Long Ridge Road.
27. No lighting is proposed.
28. The retaining wall height (2') and type (stone or block) is shown.
29. a. The depth of soil is 30" which complies with the standards. We did not notice a discrepancy.

- b. A trash rack detail and specifications was added.
  - c. The riprap spillway detail was added.
  - d. The subsurface treatment layers are intended to be the same for the bio-retention and rain gardens – 30” sand/topsoil/compost. A full underdrain is now provided as suggested. An exhibit showing the profile view is also provided to show the depth and connection to the proposed hard drain (to be provided on 2-9-15).
30. Plans and tables revised as requested for pipe cover, underground conduit connection (which will be finalized by each of the utility companies after receipt of final, endorsed plans as is their rule).
31. The proposed cistern remains at 31,000 gallons. The porch separation of less than 30 feet is not an issue per fire department regulations or guidelines nor is it an issue in the Building Code.
35. The applicant provided a test in the infiltration system and used a very conservative 24” seasonal high groundwater offset. This area will undergo substantial grade changes which will assure that the system is at least 2 feet above the seasonal groundwater elevation.
36. See 35 above.
39. The HydroCAD model reports of warnings and messages have been completely reviewed. Finer routings have been accommodated and the rain garden top elevation was added which eliminated many of these messages. The remaining messages are more typical of a HydroCAD printout for this type of project – messages are not uncommon.
- Standard 1: The two catch basins at the intersection of the proposed private drive and Long Ridge Road are now specified with the proprietary Stormwater Buffer Zone type for pre-treatment as suggested. The irrigation program will follow MassDEP, NERO recent guidelines with the pump set above the bottom of the holding tank (cistern) and off-season valves. Standard 1 is met.
- Standard 2: The areas were corrected as indicated. The messages were primarily corrected as outlined in 39 above. Standard 2 is met.
- Standard 3: Standard 3 is met.
- Standard 4: The two catch basins at the intersection of the proposed private drive and Long Ridge Road are now specified with the proprietary Stormwater Buffer Zone type for pre-treatment as suggested. Standard 4 is met.
- Standard 5: Not applicable
- Standard 6: Not applicable. There are no critical areas. The potential vernal pool is on the other side of the wetland and over 400 feet from the development.
- Standard 7: Not applicable.
- Standard 8: The erosion control barrier was adjusted as suggested, catch basin inlet protections added by note, other suggested notations added.

Civil Engineering Response to Nitsch Letter of 12-22-2014  
Lisa Davis Lewis, Chair, Carlisle Board of Appeals  
February 6, 2015  
Page 3 of 3

Standard 9: The Operation and Maintenance Plan was amended to add the Stormwater Buffer Zone proprietary device maintenance protocol per MA STEP. A diagram showing all BMP's is included as the last sheet of the plan.

Waiver Comment 3: See 26 above.

Waiver Comment 9: Turning Template provided under separate cover by MDM Transportation.

Waiver Comment 15: See 17 above.

In summary, the plans were revised to address the civil engineering aspects of this project as outlined above and as shown on the plans. I remind the reviewer and the Board of Appeals that the stormwater design fully incorporates and integrates Low Impact Development (LID) practices providing the latest design concepts for treating and conveying stormwater runoff.

Thank you for the opportunity to present these revisions to the Board of Appeals and your peer reviewer consultant, Nitsch Engineering, Inc.

Sincerely,

A handwritten signature in blue ink that reads "Jeffrey A. Brem". The signature is written in a cursive, flowing style.

Jeffrey A. Brem, PE  
Principal Engineer

Cc: Client  
Douglass Deschenes