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November 16, 2020

**22 December 2020 Response to Peer Review Comments
by Anthony Guba, P.E. and similarly highlighted below**

Martha L. Taylor, Town Planner
Town of Newbury
12 Kent Way
Byfield, MA 01922

Re: 23 Central Street
Site Plan & Special Permit
Peer Review Services

Dear Ms. Taylor:

I have received a site plan package (23 sheets dated 12/4/19, 8/20/20 & 10/28/20) for 23 Central Street, prepared by A. L. Prime Energy Consultant, Inc., Engineering Land Services, LLC, and Red Leonard Assoc.; Stormwater management plan and hydrocad reports dated 10/28/20 by A. L. Prime; emergency response plan dated 8/28/20 by A. L. Prime; and a marked-up copy of the response to review comments dated 11/7/20. I have reviewed the submitted material relative to my previous letter dated June 30, 2020, and offer the following comments. The previous comments are in regular type, with the latest comments in bold type.

Existing Conditions, sheet 1 and 2 of 2

1. Abutting lot 29 appears to shed runoff onto the subject parcel. The design engineer may need additional topography in order to adequately delineate the watershed.

Additional topography has been added to the plan.

2. One catchbasin is depicted in Central Street, and one in Fruit Street. Manholes (i.e. DMH, SMH) are shown near the site, but no additional catchbasins. The engineer should verify whether there are any additional catchbasin structures.

Additional structures have been added to the plan.

3. The Zoning Dimensional Data table lists the minimum frontage as 200 feet. The subject parcel appears to have 150.61 feet of frontage.

The response states that this was addressed at the September hearing.

Site Layout, sheet C-1.0

1. Sloped granite curb and vertical granite curb are both labelled as "throughout" the site. The engineer should verify which is correct and provide the corresponding construction detail.

The plan has been corrected to show vertical granite curbing throughout the site.

2. The proposed parking spaces are faded back so as to be barely visible. The engineer should darken these features, similar to other proposed features. The engineer should also verify that grades in parking areas do not exceed 2 percent in any direction, as required.

This issue appears to be addressed.

3. All proposed parking spaces should have dimensions.

Dimensions have been added.

4. The type(s) of curbing around the building should be labelled and detailed as necessary.

These issues appear to be addressed.

5. Any sidewalks around the proposed building should be labelled and dimensioned.

This issue appears to be addressed.

6. Pavement/curb offsets to property lines should be provided on the plan.

This issue appears to be addressed.

7. Curb radii should be provided for all proposed curbing, but especially along the frontage where there appear to be a multitude of curves and angles.

This issue appears to be addressed.

8. Maneuvering aisle widths throughout the site should be provided, as is typical.

This issue appears to be addressed.

9. A “stormwater sediment tray” is labelled on the plan, but the closest detail appears to be a “level spreader” on sheet SD-2. The engineer should address, and provide sizing calculations for the sediment tray as described in the Policy.

This structure has been removed.

10. A “1,000 SF bioretention area” is shown mostly within the Central Street right-of-way. Stormwater BMPs are typically situated on the applicant’s land, not town property. Also, I would not recommend any excavations so close to an existing hydrant and transite watermain. The Board/Town may want to direct the engineer to keep all stormwater BMPs on the subject parcel.

This feature has been removed.

11. “Mountable pavement” is labelled at the entrance, but a detail has not been provided.

A detail has been provided.

12. In addition to the bioretention area, a “stormwater retention area” is labelled at the rear of the site. The only detail for these appears to be on sheet SD-2, and is labelled “retention basins”. Retention basins do not appear to be a BMP listed in the Policy, so the engineer should provide some design reference. The closest BMP would appear to be an infiltration basin. In either case, the detail does not match bioretention area design criteria, and the soil media specified would not typically be used in an infiltration basin. The engineer should adequately address these issues.

This feature has been removed.

13. A retaining wall is proposed along one side of the rear retention area that, to the best of my knowledge, is not waterproof. The engineer should address this issue.

The wall has been removed.

14. The proposed drive-thru occupies one lane of access around the building, leaving one extra lane. The engineer should note whether one-way traffic flow is proposed in the remaining lane, and label any required signage/pavement markings.

This issue appears to be addressed.

Grading, sheet C-2

1. Proposed grading extends onto abutting lot 25B along the north and west property lines. Easements may be required for this work once the ownership changes. The engineer should address this issue.

An easement plan has been added to the plan set.

2. The proposed grading appears to redirect runoff from abutting lot 29 to a proposed low spot in Central Street, where it will apparently overflow across the easterly driveway and into the proposed bioretention area. The bioretention area then appears to have an overflow at elevation 57.55 (swale) which could direct runoff across the westerly driveway. The runoff rates will also tend to be greater than calculated, as the engineer has not quantified the amount of runoff contributed by the abutting lot. In either case, runoff should not be directed across driveways, and it could lead to icing conditions in the winter. The board may want the engineer to address these issues.

This issue appears to be addressed with revised grading and the addition of CB2.

3. In an effort to contain runoff in the two driveways, the engineer has created “speed bumps” and high/low spots that lead to excessively substantial grade changes in short distances. For instance, assuming an existing edge of pavement grade in Central Street of 56.5’ in line with CB3, the proposed grade rises 0.9’ in 6 feet, then down 0.4’ in 6 feet, before rising 2 feet in 25 feet. Some of the pavement grades end up being 10 percent or greater. If these grades are held, the engineer should verify that vehicle, especially low-bed trailers will not bottom out. Ideally, the grading should be revised to provide for more consistent, reduced slopes in both driveways.

The proposed grading has been revised to address these issues.

4. Top and bottom of wall elevations should be provided for the retaining wall at the rear of the site, as is typical. As mentioned previously, however, this wall is likely not waterproof and may not be suitable for use in a “retention” pond.

The subject retaining wall has been removed.

5. The engineer should address whether the proposed grading at the rear of the site has been based on the preparation of the septic plan. One of the two primary leach areas is located over TP1 and TP2, where the estimated seasonal high groundwater (ESHGW) is 59.4 and 57.0 feet, respectively. Assuming the four foot separation, thickness of the leach area, 12” gravel and 4” of pavement, the finish grades over the leach area would be between 63 and 66 feet. Proposed grades are currently between 61.5 and 63 feet. The engineer should review this issue and revise the proposed grading if necessary.

Proposed grading has been revised accordingly.

6. Relative to the proposed basin at the rear of the site, the engineer should label it according to the current BMPs listed in the Policy handbook. The plans, details and calculations have it listed as “bioretention” area and “retention” area, but it appears to act more like an infiltration basin. The Policy also requires 44% TSS removal prior to any infiltration in this basin, and that is not currently provided.

Further, there are setback requirements for various BMPs to septic systems. The engineer should verify that the final design complies with required setbacks.

The drainage system has been revised to address these issues.

7. Catchbasins 1-3 likely cannot be built with the rim/invert information shown on the plans. CB1 has a 0.3' difference between top of pipe and rim, CB2 has about 0.25', and CB3 has about 0.7'. This assumes a typical 12" diameter outlet pipe from the catchbasin. The engineer should review these issues and make the necessary revisions.

The response states that "all drainage structure rims and inverts were evaluated and adjusted". The catchbasin detail on sheet SD-2 shows a minimum 12" from rim to top of structure, then an 8" slab top, for a total of 20 inches or 1.7 feet. CB1, for example, has a rim of 61.44 feet, and an invert of 59.29 feet. Assuming an 8" SDR pipe (not specified on plan), there is approximately 1.4 feet between top of pipe and rim. The engineer may want to review this.

Plan set revised to adjust grades and elevations so that top of pipe clears inside top of structures

8. The engineer should also review the grit separator invert data to verify that the elevations will work.

The engineer may want to review the rim and invert data to verify adequate clearances.

Plan set revised to adjust grades and elevations to provide adequate clearances.

New comments based on completely revised grading scheme.

9. The site is graded with a high point at the rear of the site at the dumpsters to low points at the front of the site. Runoff from the rear is designed to flow not along the vertical curb, but in the drive-thru lane, and then cross the entire width of the site between the gas pumps and building, before finally entering CB1. Typically runoff is directed to the curb lines where it enters the drainage system. Directing the runoff to vehicle travel lanes and pedestrian travel area is not advisable. The board may want the engineer to look at collecting this runoff along the southerly curb line, and directing it into the P1 underground system.

Added CB3 and OW3 to intercept drainage at SE corner of store and reduce runoff in area in front of store

10. Pipe size(s) and material associated with CB1, OW1 and DMH1 should be provided on the plan.

Information added to plan

11. The plan appears to depict a 10" ADS pipe connecting directly to a 15" RCP pipe. Any change in pipe size, direction or material would typically occur in a drainmanhole. The engineer should look at a drainmanhole at this location.

Added DMH4

12. The plan appears to depict a 15" RCP pipe out of OW2. The standard oil/water separator comes with 8" knockouts. Installing a 15" outlet pipe will reduce the permanent pool to less than the required 4 feet. The engineer should review this.

Piping changed to 8"

13. The plan appears to have the DMH3 bypass pipe routed through OW2. Oil/water separators are required to be offline structures, not junctions. The engineer should look at routing the bypass pipe around OW2, not through it.

Piping routed to DMH4

1. The plan shows overhead electric service with three new poles running along the easterly property line. The board may want the project to run this utility underground, as is typical.

The plan has been revised to show underground electric service.

2. Existing and proposed invert information should be provided for the catchbasin being tied into on abutting lot 25B.

The information has been provided.

3. The basins at the front and rear of the site are labelled 'bio retention area' but are called "retention" areas on other sheets, on the details and in the calculations. The engineer should label them based on the listed BMPs in the Policy.

The subject areas have been removed.

4. The Policy requires 44% TSS pretreatment prior to any infiltration, for the proposed site use. The two basins do not appear to comply with this standard. The engineer should address this issue.

The two basins have been removed.

5. The engineer should also address whether all of the infiltration BMPs comply with applicable setbacks, especially to the proposed septic system.

The plan has been revised to bring the setbacks into compliance.

6. The recommended inspection/maintenance ports should be shown on the Rainstore3 systems. A detail should also be provided.

The plan has been revised.

7. Complete rim, invert and pipe data should be provided for all catchbasins and grit separators. Invert elevations into the Rainstore3 systems should also be provided.

As noted above, some pipe size/material information appears to be missing on a few structures.

Otherwise, the requested information is depicted on the Grading Plan.

Additional information added to plan

Erosion Control, sheet ER-1

1. Most of the erosion control line is located on abutting land, or in the Central Street right-of-way. Typically erosion controls are located along the limit of work/property lines to contain all work and potential erosion within the project site.

This issue appears to be addressed.

Landscape, sheet L-1

1. The plan is neither stamped nor signed. The board may want to require that a landscape architect prepare, and sign, the plan.

The plan has been stamped and signed by a landscape architect.

2. The plan refers to sheet ER-1, Erosion Control, for seeding requirements in the retention areas, but sheet ER-1 has no such information. The engineer should address this issue.

Although the open basins have been removed from the plans, the landscape plan still labels an infiltration area at the rear of the site. This should be corrected.

Plan has been revised to eliminate references to infiltration area at rear

3. The plan should address which areas will be mulched, and which areas will be turf grass.

This appears to be addressed.

4. The 48"-60" Arborvitae along the easterly property line may not be adequate to screen the abutter from noise and glare. The board may want the engineer to propose a denser/taller landscape screen in this area.

The plan has been revised to show 6-8' Arborvitae in this area.

Lighting Plan, drawing no. RL-6493-S1

1. The board may want the existing residence on the abutting lot to the east to be depicted on the plan for reference. Additional measures (e.g. landscaping, fencing) may be necessary to minimize glare intrusion on the lot.

The response states that the abutter is satisfied with the design and is supportive of the project.

2. The by-law appears to restrict lighting to no more than 10,000 lumens per fixture. The fixtures listed on the plan all appear to exceed this limit. The engineer should review this.

The fixtures have been revised to less than 10,000 lumens.

Site Details, sheets SD-1 and SD-2

1. The "asphalt pavement" detail on sheet SD-1 has a 6" gravel base. Typically a 12" gravel base is used for roadways and parking lots, and a 6" base for sidewalks. The engineer may want to review this.

The details have been revised.

2. The 'deep sump catch basin' detail on sheet SD-2 should specify a minimum 4' sump to qualify for the TSS removal.

The detail has been revised.

3. The "level spreader" detail on sheet SD-2 does not qualify for TSS removal, but can be used in conjunction with a qualifying BMP. The engineer should address this issue, and provide 44% TSS removal prior to runoff entering the rear basin.

This structure has been removed.

4. The "retention basins" detail on sheet SD-2 is not a listed BMP. The plans also label these basins as bio retention basins. The engineer should verify that whichever BMP is chosen complies with the Policy design guidelines and setbacks.

This issue appears to be resolved.

Stormwater Management Plan

1. The TSS removal calculations on page 14 do not address the two "retention" or "bio retention" basins, which do not appear to have the required 44% TSS removal pretreatment. The engineer should address this issue.

The surface basins have been removed from the design.

2. As mentioned previously, the watershed maps should be revised to account for offsite runoff flowing into the property.

The maps have been revised to account for offsite flow.

Hydrocad Reports

1. The pre development Tc calculations should have a maximum sheet flow length of 50 feet, based on the regulations and common practice. The calculations have sheet flow lengths up to 183 feet. The engineer should revise the calculations accordingly.

The calculations have been revised.

New comments based on a completely redesigned Stormwater system.

2. It does not appear that the P1 Rainstore system has enough cover material. The manufacturer appears to recommend 12" minimum of compacted backfill, and then a surface material (e.g. pavement). The detail on sheet 2, however, simply shows a total of 12" of cover, including the pavement. Using the manufacturer's recommendations, the Rainstore system would have a minimum of 16" cover on this site (12" gravel and 4" pavement). The P1 system would appear to have inadequate cover from the 62 contour to CB1. The engineer should review this.

Grading and system bottoms adjusted to provide adequate cover

3. The P1 Rainstore system appears to be built on several levels. The stone bed appears to be at 56.5 feet throughout the system, then 287 units are at 57.5 feet, and the remaining 56 units are at 58.3 feet. This information is not on the plans/details, but has to be retrieved after a thorough review of the Hydrocad calculations. The site contractor should be able to obtain all of this information on the plans, so I would recommend that the engineer provide some type of table/details to make it apparent.

Cross section and area outlines added to clarify infiltration stone bed

Should you have any questions concerning this review, please contact me at your convenience.

Sincerely,

Joseph J. Serwatka, P.E.