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July 26, 2018

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100 GROVE ST. | WORCESTER, MA 01605

Joseph Laydon
Town Planner
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

PLANNING BOARD
GRAFTON, MA

Maria Mast
Conservation Agent
Grafton Municipal Center
30 Providence Road
Grafton, MA 01519

T 508-856-0321
F 508-856-0357
gravesengineering.com

**Subject: Knowlton Farms Solar Development – Phase 3, 44 Estabrook Ave.
Special Permit, Site Plan, Stormwater Management Regulations and
Wetland Regulations Review**

Dear Joe and Maria:

EXHIBIT 14

We received the following documents on June 18, 2018:

- Correspondence from Meridian Associates to Grafton Planning Board dated June 12, 2018 re: "Special Permit and Site Plan Approval Application, 44 Estabrook Avenue [Phase Three], Grafton, MA."
- Plan set entitled Knowlton Farms Solar Development, 44 Estabrook Avenue [Phase Three] dated June 12, 2018, prepared by Meridian Associates, Inc. for BlueWave Capital, LLC. (12 sheets)
- Bound document entitled Applications for Special Permit and Site Plan Approval, 44 Estabrook Avenue (Phase III) dated June 12, 2018, prepared by Meridian Associates, Inc. for BlueWave Capital, LLC.
- Bound document entitled Stormwater Analysis & Calculations Report, 44 Estabrook Avenue, Grafton, Massachusetts dated June 12, 2018, prepared by Meridian Associates, Inc. for BlueWave Capital, LLC.

Graves Engineering, Inc. (GEI) has been requested to review and comment on the plans' conformance with applicable "Grafton Zoning By-Law" amended through May 14, 2018; Massachusetts Department of Environmental Protection (MassDEP) Stormwater Handbook and standard engineering practices on behalf of the Planning Board. GEI has also been requested to review and comment on the documents' conformance with applicable Conservation Commission "Regulations Governing Stormwater Management" dated May 2013 and "Regulations for the Administration of the Wetlands By-Law" dated May 2014 on behalf of the Conservation Commission. GEI was authorized to proceed with this review on July 5, 2018. As part of this review GEI visited the site on July 18, 2018.

Our comments follow:

Zoning By-Law

1. The Board may wish to inquire about the applicant's intentions for employee parking during the construction phase of the project. Estabrook Avenue is a narrow road; on-street parking could affect vehicular traffic, especially for larger vehicles such as

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emergency vehicles. No vehicle parking should occur along Estabrook Avenue. (§1.3.3.1)

2. The plans were prepared at a scale of 1" = 50' instead of 1" = 40'. The plans were legible, and we were able to read them and have no issue with the plan scale. However, we defer to the Planning Board if the scale of 1" = 50' is acceptable to the Board. (§1.3.3.3.d)
3. The locus map on the cover sheet needs to identify the site's location. (§1.3.3.3.d.8)

Regulations Governing Stormwater Management

4. The hydrology computations must be prepared using precipitation amounts from the NRCC Cornell data. Data for a 24-hour storm event (not a one-day storm event) must be used. (§6.B.3.b)
5. The plans do not show the locations for construction-phase parking. (§7.B.2.f)
6. Pertinent information in the "Construction Sequencing" section of the project narrative should be inscribed on the plans for the benefit of the contractor. Particular consideration should be given to limiting the discharge of runoff to exposed soils. (§7.B.2.h & §7.B.2.i)
7. The plans don't address the storage of construction-phase waste materials. Of particular concern is the storage of waste packaging material and the potential for windblown trash. (§7.B.2.j)

Regulations for the Administration of the Wetlands Bylaw

8. The width of the top of the berms for the sedimentation basins is six feet as measured between the highest proposed topographic contours. Furthermore, if the berms are constructed to the elevations presented in the hydrology computations (416.5 and 418.5 feet) then the tops of the berms will only be three feet wide. The minimum width of the embankments is ten feet. (§V.B.5.h.2)
9. The discharge-ends of the two culverts at the eastern sedimentation basin are proposed where the existing ground is at elevation 414; the pipe inverts at the culvert ends will be approximately 0.75 feet to 1.0 feet below the ground surface. Excavation of the areas down-slope of the pipe ends would be required so the pipes could be free-draining. Such excavations may extend into the 25-foot "No Disturb Zone." (§V.B.5.h.7 & §V.C.5.a)
10. The design team may want to evaluate whether there is an area suitable for replication that is closer to the impacted wetland areas. There are two areas of wetland impacts – adjacent to Flags 2 – 10 and adjacent to Flags 156 – 161. The replication area is proposed adjacent to Flags 167 – 173. The replication area is removed from the stream reach where the impacts will occur, but it is not clear that there is a better location for the replication area than the currently-proposed location.

Hydrology Review & MassDEP Stormwater Management

11. GEI reviewed the hydrology computations and found them to be in order except as noted in the following comment.
12. Considering the estimated seasonal high groundwater at test pit TP-3, sedimentation basin 21P needs to be modeled with a starting water surface at the lowest outlet pipe elevation to account for times when the storage below the lowest outlet will not be available for a storm event.
13. In the post-development hydrology computations, the sedimentation basins were modeled as having storage one-foot below their lowest proposed topographic contour and a half-foot higher than their highest proposed topographic contour; the elevation information on the plans needs to be consistent with that in the hydrology computations.
14. The scales (1"=100') and scale bars on the Pre- and Post-development Drainage Plans are incorrect and need to be revised.
15. Compliance with the MassDEP Stormwater Standards and Stormwater Handbook is reasonable except as noted in the following two comments.
16. The riprap aprons at the pipe ends are proposed to be five feet long by five feet wide. Calculations need to be provided to demonstrate that the riprap aprons were adequately sized.
17. The hydrology computations show that during a 100-year storm event there will only be 0.6 to 0.7 feet of freeboard (distance between the peak water surface and the top of the berm) in the sedimentation basins during a 100-year storm event. At least one foot of freeboard needs to be provided.

General Engineering

18. On Sheet 4, the vehicle turnaround is located within the fenced area. Consideration should be given to providing a turnaround outside of the fenced area or relocating the fence to allow emergency vehicles to turn around without having to open the gate if they don't otherwise enter the fenced area. If not already done, the Planning Board may wish to solicit comments from the Grafton Fire Department.

General Comments

19. More than one acre of land will be disturbed. Per the National Pollutant Discharge Elimination System (NPDES) Phase II administered by the Environmental Protection Agency (EPA), preparation of a Storm Water Pollution Prevention Plan (SWPPP) and filing of a Notice of Intent (NOI) with the EPA (different than a MADEP Wetlands Protection Act NOI) will be required prior to the start of construction.

We trust this letter addresses your review requirements. Feel free to contact this office if you have any questions or comments.

Very truly yours,
Graves Engineering, Inc.



Jeffrey M. Walsh, P.E.
Vice President

cc: David Kelley, P.E.; Meridian Associates