



DEVELOPMENT PLAN REVIEW MEMORANDUM

To: James Lamphere, Town Planner
Town of Hopkinton

From: Steven M. Cabral, P.E.
Crossman Engineering

Date: November 21, 2020

Re: Review of Development Plan Submission for 40 Maxson Hill Road Solar

Since our original DPR Review Memorandum of September 16, 2020, we have been working with the designer, ESS Group, to resolve each item. On November 13, 2020 and November 17, 2020, we received revised Plans for the development and except for items that require Planning Board input and the Decommissioning Cost, our previous comments have been addressed.

For brevity, we have omitted past comments that have been resolved. Following is a listing of the remaining engineering items for Planning Board consideration:

1. Drainage:

- The orientation of the solar panels is perpendicular to the ground slope, therefore the typical sheet flow from the panels onto the grass will not occur. The drip line from the panels will create concentrated flow and an increased erosion potential. The designer agreed to incorporate a series of stone trenches parallel to the contours to assist in discharging the flow non-erosively. **As a condition of approval**, we recommend that the owner's inspector or designer be required to monitor the performance of the stone system and be prepared to incorporate additional measures if channeling occurs or if any downhill erosion results.

The steep slopes leading down to an existing garage and driveway will also need to be monitored for erosion throughout the life of the solar field. **As a condition of approval**, we recommend monitoring downhill slopes be part of the O&M Checklist Reports.

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The watershed of the project area draining into Maxson Hill Road is approximately 15 acres and based upon the existing and proposed stormwater analysis, the project does not increase peak flows into Maxson Hill Road.

We must note that the drainage system within Maxson Hill Road is insufficient to handle the existing flow rates. This deficiency is independent of the proposed solar field and is being noted for the record. The reason being that if future flooding is observed, the solar field area alone is not the primary cause.

- During construction of some solar fields, we have observed “roadway pavement type” rollers and compaction of the field surface. Excessive compaction will impact future runoff rates, therefore **we recommend that a condition of approval** limit rolling to the use of a standard seed roller and that gravel and pavement compaction equipment not be allowed.
2. **Decommissioning Estimate:** The original decommissioning estimate of \$11,200.00 has been increased to a present-day value of \$14,911.00 but remains too low. If the Town funds the work in the future, prevailing wage rates should be used in the estimate. Obvious items that are understated are the resident engineer/inspector’s time duration of one (1) day, the As-Built Survey and Plan cost of \$1,200.00, the disposal cost for solid waste of \$25/ton and the unit cost for trucks and backhoes. The vehicle, equipment and labor rates need to be a fully loaded rate, including all overhead/benefits. The cost to transport 67,500 lbs of racking, 625,000 ft of wire and 35 tons of panels was not evident.
 3. **Emergency Access:** We recognize that determining if the layout is suitable for emergency access is within the jurisdiction of the Fire Marshal.
 4. **Screening:** We recognize that the northern abutter has indicated approval of the proposed buffer but the single row of red cedar appears to be minimalistic. We note that the Planning Board may require a longer and thicker screen to further protect this abutter. For example, a double, staggered row of red cedar would provide a tighter, more effective screen.