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ENGINEERING | ENVIRONMENTAL | SURVEYING

## SITE INSPECTION MEMO

**To:** Mr. Matthew Benoit, Director of Community Development  
**From:** Douglas W. Bush, P.E., Haley Ward  
**Re:** Construction Monitoring – Oak Street Solar, 45 Oak Street, Douglas, MA  
**Date:** December 12, 2023

Haley Ward became aware of some large-scale erosion issues at the subject site on the morning of December 11, 2023. The site had been subject to rainfall amounts in excess of three inches in less than a 12-hour period between the afternoon of December 10<sup>th</sup> and morning of December 11<sup>th</sup>. Douglas Bush of Haley Ward met onsite with Arthur Allen of EcoTec, Inc, Brandon Faneuf of Ecosystem Solutions and Ken Frasier of the Town of Douglas between the hours of 11:00 AM and 12:00 AM to observe erosion conditions specifically in northeast corner of the site. The weather was cloudy with temperatures in the 40's and the rain had stopped. No work activities were in progress at the time of this inspection. In addition, Haley Ward checked the remaining site construction for compliance with the definitive plans and was onsite between the hours of 12:00 PM to 12:45 PM. Our comments are outlined below with recommendations in **bold italics**. Photos of the project site are attached.

The erosion controls in the northeast corner have become completely inundated with silt which has allowed sediment laden runoff to flow into the downstream wooded area unimpeded. The entire site upgradient of this corner has not been stabilized nor has a temporary basin been installed as previously requested which has caused sediment to overwhelm the erosion controls. In addition, discharge was observed entering Manchaug Pond approximately 0.5 miles downstream.

***Immediately install a temporary sedimentation basin as outlined in the construction sequencing note #7 as shown on sheet C-301. Immediately stabilize the upstream surrounding area of this corner to minimize the transfer of additional sediment downstream. The mulch berms upstream of infiltration basin-5 do not appear to be properly removing sediment. Haley Ward suggests that additional erosion controls (i.e. silt fence, mulch berms, straw wattles, straw bales, silt socks, etc.) be placed at all disturbed areas. Spacing of the intermediate erosion controls shall be placed per applicable MassDEP and manufacturer requirements. The phasing plan should be evaluated, and it is likely that smaller areas of disturbance per phase are needed given the issues occurring at the site.***

An erosion control blanket was installed along the majority of the downstream slope for Infiltration basin-2. The slope showed little signs of erosion from the recent rains as described





above. The concrete weir for the emergency overflow spillway has not yet been installed nor has the rip rap slope along the downstream side. The rip rap discharge area for OCS-2 has not yet been installed either. Both these areas remain exposed to potential erosion. A small portion of the upgradient slope of infiltration basin-2 has failed. The unstabilized soil has sloughed into the basin.

***Stabilize all exposed embankment areas immediately with appropriate cover or as shown on the proposed plans. Install the cement concrete weir within the emergency overflow spillway per the requirements of detail EE on sheet C-602. Repair the upgradient slope of infiltration basin-2 and remove any sediment from the basin.***

It was observed that the toe of the embankment for infiltration basin-1 was extremely wet due to a small seep through the toe of the slope. The seepage location was approximately 7 feet to the right rip rap edge of the overflow spillway.

***Evaluate solutions to repair the seepage through the embankment. Flow paths through earthen embankments can cause failure which will release any water and sediment within.***

The temporary basins near the entrance to the site appear to be functioning well. Both basins were partially full of turbid water. Sediment laden runoff appears to be discharging to Oak Street.


***Temporary sediment basins have been installed, but additional temporary measures are needed due to the sediment in Oak Street. Further evaluation is needed at this time. Additionally, Haley Ward suggests that a permanent redesign of this area be done at this time.***


See attached photos from the site inspection below.

<b>Photo No. 1</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Northeast most corner of the site downstream of proposed infiltration basin-5.	
<b>Photo By:</b> DWB	

<b>Photo No. 2</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Sediment laden flow from the northeast corner of the site.	
<b>Photo By:</b> DWB	



<b>Photo No. 3</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Unstabilized area of the northeast corner.	
<b>Photo By:</b> DWB	

<b>Photo No. 4</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Silt fencing inundated with sediment. Photo along northern line upgradient of NE corner.	
<b>Photo By:</b> DWB	



<b>Photo No. 5</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Infiltration basin-2.	
<b>Photo By:</b> DWB	

<b>Photo No. 6</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Erosion control blanket installed on downstream slope of infiltration basin-2.	
<b>Photo By:</b> DWB	



<b>Photo No. 7</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Gravel road between infiltration basin-2 (left) and sedimentation basin (right).	
<b>Photo By:</b> DWB	

<b>Photo No. 8</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Failure of earthen slope between sedimentation basin and infiltration basin-2.	
<b>Photo By:</b> DWB	



<b>Photo No. 9</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Infiltration basin-1.	
<b>Photo By:</b> DWB	

<b>Photo No. 10</b>	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Wet downstream area of infiltration basin-1 caused by seepage through embankment.	
<b>Photo By:</b> DWB	



<b>Photo No.</b> 11	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Seepage through embankment of infiltration basin-1.	
<b>Photo By:</b> DWB	

<b>Photo No.</b> 12	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Seepage through embankment of infiltration basin-1.	
<b>Photo By:</b> DWB	





<b>Photo No.</b> 13	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Temporary basin near site entrance.	
<b>Photo By:</b> DWB	

<b>Photo No.</b> 14	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Temporary basin near site entrance.	
<b>Photo By:</b> DWB	



<b>Photo No.</b> 15	
<b>Photo Date:</b> 12/11/23	
<b>Site Location:</b> 45 Oak Street	
<b>Description:</b> Site entrance at Oak Street.	
<b>Photo By:</b> DWB	

Should you have any questions regarding this memorandum, please feel free to contact me at the office.

*Douglas Bush*

Douglas W. Bush, P.E.  
Project Engineer  
Haley Ward