

## FIELD REPORT

Nitsch Project #:	12808	Date:	1/6/20
Client:	Pine Hill Village, LLC	Time:	9:00 AM
Project:	Pine Hill Development	Location:	Harvard, Massachusetts
Weather:	Cloudy, 25 °F		
Present:	Liz Allard – Conservation Agent, Town of Harvard Peter Cricones – Contractor/Applicant Gavin Graham – Nitsch Engineering Steven Ventresca – Nitsch Engineering		

Nitsch Engineering performed a site visit to observe the stabilization of the intermittent stream after it was made aware by Ms. Allard that the erosion and sedimentation control for the stream had been removed. Ms. Allard observed that the stone culvert and steel plate covering the stream had been removed and that stormwater with sediment was flowing in the stream and flowing over the road. Nitsch Engineering recommended that the Contractor provide a stream diversion around where the culvert installation was proposed to prevent stream sedimentation and sediment transport off site.

Ms. Allard provided photographs of the sedimentation within the stream and just down stream from the proposed culvert. Nitsch Engineering included these pictures in this field report.

- Picture 1 shows a large puddle pooling in the roadway before channeling out to the existing streambed on the other side of the road;
- Picture 2 shows the siltation barrier at the outflow point; and
- Picture 3 shows the siltation barrier at the inflow point.

Nitsch Engineering observed the following:

1. The Contractor provided additional erosion controls (wattles, silt fence, and straw bales) both up and down stream of the proposed culvert (Pictures 5 and 6);
2. The Contractor provided stone settling areas both up and down stream of the proposed culvert. In the upstream settling area, the stream was diverted into a 6-inch PVC pipe and routed to the downstream outlet settling basin (Picture 4);
3. Nitsch Engineering observed that the stream diversion and additional erosion controls significantly reduced the stream sedimentation;
4. Nitsch Engineering recommended that this stream diversion remain in place until the permanent culvert is installed; and
5. Nitsch Engineering and the Conservation Agent discussed with the Contractor that the stream bed under the culvert should be re-established to a sand/loam bed similar to the existing stream bed prior to the existing culvert removal. Nitsch Engineering recommended that the Contractor continue to discuss how the stream bed will be established with the Conservation Agent after the culvert installation is complete.

Nitsch Engineering provided clarification to the Contractor on the type of materials that would be allowed in the pavement section of the proposed roadway:

- The Contractor/Applicant asked if asphalt, brick, and concrete (ABC) would be acceptable as a roadway base instead of gravel and dense grade material. Nitsch Engineering does not recommend that ABC be installed as a substitute to gravel and dense grade material. Nitsch Engineering recommended that the Contractor provide submittals for the gravel and dense grade material for the roadway sub-grade;
- Nitsch Engineering recommended that the Contractor remove any frozen ground under the roadway section if the roadway subbase will be installed during the winter. The Contractor indicated that the installation of the roadway subbase will occur in the spring;
- The Contractor asked if boulders (greater than 3 inches in diameter) that were excavated on the site could be installed under the roadway subbase material at a depth greater than 2 feet. Nitsch Engineering indicated that this would not be acceptable. The Contractor must install stone that is less than 3 inches, under the roadway subbase at a depth greater than 2 feet (below the subbase material);
- Nitsch Engineering indicated that if the Contractor would like to use processed materials from stones and boulders found on site, the Contractor must process the material and provide a sieve analysis and proctor analysis so that the material meets the specifications for dense grade and gravel material per the Massachusetts Department of Transportation (MassDOT);
- The Contractor indicated that excavations for the culvert footings would begin today (January 6, 2020). The Contractor would excavate both footing areas and then install the gravel – about a 1-foot depth, per the plans. The Contractor would then start to install the culvert. Nitsch Engineering will observe the culvert footing stone and culvert installation later this week. The Contractor indicated that stone and gravel will be placed over the culvert to aid in moving construction material over the intermittent stream; and
- The Contractor stabilized the stream banks and eliminated stream sedimentation by placing stilling basins made of gravel on either end of the culvert installation. Picture 4 shows the inlet side of the stream, and Picture 5 shows the outlet side of the stream. The Contractor provided a pipe so that the stream bypasses the culvert installation area. The Contractor provided additional silt fence/erosion controls on the upper side and lower side of the intermittent stream beyond the perimeter erosion control (Picture 6).

Past Recommended Items to be Completed:

1. Completed – Contractor to install additional straw wattle on downstream section of intermittent stream; and
2. Completed – The stabilized construction entrance needs to be replenished with fresh gravel.

New Recommended Items to be Completed:

1. Contractor to provide submittals for the gravel and dense grade material for roadway sub-grade;
2. Remove any frozen ground under the roadway section if the roadway subbase will be installed during the winter;
3. Contractor must install stone that is less than 3 inches in diameter under the roadway subbase at a depth greater than 2 feet below subbase material;
4. If contractor would like to use processed materials from stones and boulders found on site, the contractor must process the material and provide a sieve analysis and proctor analysis so that the material meets the specifications for dense grade and gravel material per MassDOT; and
5. Contractor to maintain erosion and sedimentation control for the temporary stream diversion.

Ongoing Recommendations:

1. Contractor to maintain stabilized construction entrance;
2. Contractor to maintain erosion control barriers; and
3. Developer must provide all parties with weekly updates including construction sequences and a detailed schedule, per conversation with the Town of Harvard. This includes contractors who are working on the site, the Town of Harvard, and representatives of Nitsch Engineering.



Picture 1



Picture 2



Picture 3



Picture 4



Picture 5



Picture 6

If there are any questions, please do not hesitate to contact:

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GNG/ajc