Kiley Associates, LLC
Surveyors & Engineers

June 5, 2014

Moosic Lakes Club
25 Beach House Road
Jefferson, PA 18436
Attn: John Kubash, President

RE: Existing Culvert Analysis

Mr. Kubash:

On Monday May 12, 2014, our office performed the requested analysis of the existing culvert along the "S" Curve of Old Lake Road just north of the intersection with Sunset Drive within the Moosic Lakes development.

The existing culvert is approximately 29 feet long and is a combination of riveted steel plate and rolled steel pipe. The diameter of the existing culvert changes from the upstream end of 42" rolled steel pipe for approximately 15 feet, changes to a 60" riveted steel plate culvert for the next 9 feet and changes again to a 70" riveted steel plate culvert for the remaining 5 feet. As can be seen in the attached photographs, the bottom of the steel culvert has eroded at the downstream end and no pipe is evident at the bottom of the upstream end of the culvert. The rolled steel portion of the upstream culvert has deformed over time. The streambed has silted in what remains of the invert of the existing culvert and the pipe currently has no slope which restricts the capacity of the existing pipe. The existing culvert acts as the downstream release point of Moosic Lake into the West Branch of Wallenpaupack Creek.

Structural failure of the top of the pipe is not currently evident, however continuing failure of the bottom of the pipe has the ability to eventually compromise the roadway and access to the Moosic Lakes Development. The road surface has been overlaid with gravel material numerous times in the past and the height of the guide rail along both sides of the road near the culvert is well below the standard height for guiderail (22" existing height vs. 27" design height).

Without performing a hydraulic analysis of the existing culvert and the entire drainage area, it was not determined if the existing culvert has adequate capacity, however since the outfall of Moosic Lake is only a 24" dia culvert is appears that the capacity of the existing culvert is adequate and a replacement culvert of 60" diameter will increase the capacity that is currently restricted by the existing pipe.

We hope the above information is satisfactory for your current needs. Our office can provide you with the technical assistance to design and permit a replacement of the existing culvert, if required.

If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

Louis J. Cozza, Project Manager
Kiley Associates, LLC

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Upstream end of existing Culvert
(note deformed pipe opening)

Downstream end of existing Culvert

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Note Pipe Size Change Under Roadway

Deterioration of Bottom of Existing culvert

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Existing Roadway over Culvert

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