

## MEMORANDUM

Date: June 29, 2021  
Client: East Norriton Township  
Project Number: PMENT027  
Re: 2921 Hannah Avenue Drainage

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### **Overview**

A culvert located on the property of 2921 Hannah Avenue has been experiencing erosion issues. The homeowner at 2921 Hannah Avenue has contacted the Township regarding the condition of the culvert and surrounding area. Remington & Vernick Engineers (RVE) visited the site and performed a drainage assessment for the current conditions. This concrete culvert is roughly 92" wide by 96" high. A 30" concrete pipe outlets at the end of the culvert. Adjacent to this culvert is a 42" concrete pipe that also outlets here. A gabion wall bears on top of the 42" pipe. The pipes convey stormwater to a swale that conveys water to a tributary of the commonwealth. The purpose of this memorandum is to document a drainage assessment that details probable causes and remediation recommendations.

### **Location**

The culvert is located at the property of 2921 Hannah Avenue and is located between the intersections of E Germantown Pike and Hannah Avenue, and Kory Lane and Hannah Avenue in East Norriton Township, Montgomery County, Pennsylvania. See Figure 1 for a site aerial.

### **Observations & Notes**

RVE performed a site visit in May 2021 and the following was noted during the site visit:

- The existing gabion wall is starting to buckle and deform. Given time it appears that this wall will eventually continue to deform and will eventually collapse and fail. (Figure 2 & 3)
- The portion of gabion wall above the 42" concrete pipe that outlets to the stream at this location is also beginning to buckle and deform. (Figure 4)
- The concrete culvert wall that abuts the 42" concrete pipe and gabion wall above it has shifted. Erosion has occurred beneath this wall and there is approximately a 1' gap from the bottom of the wall to the ground along one side of the wall. The wall is leaning in that direction and is also slightly leaning from the top and may eventually topple over. (Figure 5 & 6)
- It appears that a concrete floor was attached to the culvert but has broken off. (Figure 7)



Figure 1 – Site Aerial



Figure 2 – Gabion Wall



Figure 3 – Gabion Wall Closeup



Figure 4 – Concrete Outlet Pipe



Figure 5 – Concrete Culvert Wall



Figure 6 – Erosion at Culvert Wall



Figure 7 – Broken Concrete Floor

The site visit conducted has revealed that remediation is needed. It is our recommendation remediation should be performed in order to prevent a failure or further degradation. This culvert outlets to a swale and not a tributary of the Commonwealth.

**Recommendations**

RVE recommends that the culvert headwall be replaced. Rip rap shall be installed to prevent further erosion at the toe. A stabilization mattress shall be installed along the swale's embankment to prevent further erosion. The approximate total project cost estimate is \$100,840.63.

This project is eligible under the ARP ESSER funds, PA Small Water & Sewer, and Liquid Fuels programs.

Should you have any questions, please feel free to contact our office at (610) 940-1050.

Very truly yours,  
Remington & Vernick Engineers

Kelly Goff, PE, CFM  
Township Engineer

cc: Christopher J. Fazio, P.E., C.M.E., Executive Vice President