

**GRAVEL HILL - 2**  
**ALTERNATIVE ROUTE COMPARISON TO PROPOSED ROUTE**

Table Appendix B-5 Evaluation and Comparison of the Proposed Route to the Gravel Hill-2 Alternative Route (MP 81R2 – MP 82)		
Proposed Route	Alternative Route	Evaluation/Comparison
General Information		
Length: 1.40 miles	Length: 1.54 miles	The construction cost of the Alternative Route is greater than that of the Proposed Route by a factor of 1.5. The construction duration of the Alternative Route is longer by a factor of 6.
Collocated Length: 0.68 miles (u)	Collocated Length: 0.86 miles (r)	
Construction Cost: \$12,963,420	Construction Cost: \$18,853,405	
Construction Duration: 2 weeks	Construction Duration: 3 months	
Regulated Resource Impact: Wetlands		
Wetland Areas Crossed: 4	Wetland Areas Crossed: None	The Proposed Route has greater impacts to PFO wetlands.
Crossing Method: 1 trenchless (bore) 3 open-cut	Crossing Method: N/A	
Impact: PEM Impact = 0.12 acres PFO Impact = 0.15 acres	Impact: N/A	
Regulated Resource Impact: Waterbodies		
Waterbodies Crossed: 4	Waterbodies Crossed: 2	With the implementation of trenchless technology construction along the Proposed Route, the Proposed Route crosses one more waterbody than the Alternative Route.
Classification: 3 Delaware River UNTs (FW2-NT) 1 Spring Mills Brook UNT (FW2-TPC1)	Classification: 2 Delaware River UNTs (FW2-NT)	
Crossing Method: 2 (FW2-NT) dry crossing 1 (FW2-NT) trenchless (bore) 1 (FW2-TPC1) dry crossing	Crossing Method: 2 (FW2-NT) dry crossing	
Regulated Resource Impact: T&E Species		
Habitat Mapping: Bobcat Cooper’s Hawk (nesting) Eastern Meadowlark (breeding) Northern Copperhead (occupied) Veery (breeding) Wood Thrush (breeding) Worm-eating Warbler (breeding)	Habitat Mapping: Bald Eagle (foraging) Bobcat Cooper’s Hawk (nesting) Eastern Meadowlark (breeding) Northern Copperhead (occupied) Veery (breeding) Wood Thrush (breeding) Worm-eating Warbler (breeding)	The Alternative Route includes additional Bald Eagle mapped habitat.
Regulated Resource Impact: Cultural Resources <sup>1,2</sup>		
Architectural Properties: None	Architectural Properties: None	No observed difference in anticipated impacts.
Archaeological Sites: None	Archaeological Sites: None	
Logistics: Traffic Impact		
None	Construction of the pipeline within Riegelsville Milford Road would require closure of the road during construction activities requiring traffic detours. The adverse impacts resulting from the closure and detours are detailed in the Traffic Analysis provided in Appendix C.	Implementation of the Alternative Route would significantly increase project related traffic impacts during construction. The closure and detours would have adverse impacts as detailed in Appendix C.
Logistics: Proximity to Structures and Residences <sup>3</sup>		

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**Evaluation and Comparison of the Proposed Route to the Gravel Hill-2 Alternative Route**  
**(MP 81R2 – MP 82)**

<b>Proposed Route</b>	<b>Alternative Route</b>	<b>Evaluation/Comparison</b>
None	None	No observed difference in anticipated impacts.
<b>Logistics: Emergency Services Impact</b>		
None	When the Riegelsville Road is closed for pipeline construction, emergency services would need to use detour routes. These detours would impact emergency services response times on a localized basis.	The detours required for the Alternative Route construction impact emergency service routes and response times on a localized basis.
<b>Logistics: Impact to Places of Public Assembly</b>		
None	None	No observed difference in anticipated impacts.
<b>Logistics: Constructability</b>		
None	The topography where the Alternative Route departs the Proposed Route to travel cross-country toward the Delaware River exhibits a 30% slope. Steep slope construction activities in such conditions present safety issues for construction workers. The construction of the pipeline within Riegelsville Milford Road would require the temporary or permanent relocation of utility poles and associated utility lines. There are three (3) stone bridges facilitating storm drainage (under Riegelsville Milford Road) along this stretch of Riegelsville Milford Road. Feasibility of pipeline construction at these locations is unknown. Mature trees that parallel both sides of road would require trimming and/or removal.	The Alternative Route has significant construction issues related to utility poles and roadside trees.
<b>Conclusion</b>		
<p>The Gravel Hill-2 Alternative Route does not present a significant reduction in environmental impacts. After taking into consideration its greater construction cost, longer construction duration and its logistical limitations associated with anticipated community impacts and constructability, the Gravel Hill-2 Alternative Route is dismissed as impracticable.</p> <p>PennEast strives to minimize locating the pipeline in areas prone to any amount of an increased operational risk as much as practicable. Implementing the alternative routes within the roadway would substantially increase the linear footage of the project within areas at an elevated operational risk for third-party damage. The probability of third-party excavator accidents, a major cause of natural gas transmission pipeline incidents over the past 20 years, is higher with pipelines located within roadways due to the higher frequency of excavation activities that increase the probability of accidental striking of the pipeline, such as the installation and maintenance of other subsurface infrastructure (e.g. water lines, fiber optic cables, sewers, etc.), building construction activities, and roadway resurfacing.</p>		
<b>Legend:</b> N/A – Not Applicable r – road		rr – railroad u – utility UNT – Unnamed Tributary
<b>Notes:</b>		



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**(MP 81R2 – MP 82)**

Proposed Route	Alternative Route	Evaluation/Comparison
<p>1 Unless otherwise noted, includes only those resources listed on or determined eligible for listing on the National Register of Historic Places (NRHP). Sources: “Historic Districts of New Jersey” and “Historic Properties of New Jersey” datasets, 28 January 2019, available at <a href="http://njogis-newjersey.opendata.arcgis.com/datasets?q=historic">http://njogis-newjersey.opendata.arcgis.com/datasets?q=historic</a>; and/or recorded by AECOM on behalf of PennEast Pipeline Company, LLC, as of June 2019.</p> <p>2 Includes NRHP-eligible and/or listed archaeological sites as well as those that have not been evaluated for NRHP eligibility. Source: archaeological site locations on file at the New Jersey State Museum as of 12 March 2019; and/or recorded by AECOM on behalf of PennEast Pipeline Company, LLC, as of June 2019.</p> <p>3. Close Proximity - In terms of structures and residences is defined as within 50 feet of the workspace</p>		