Mountain Valley Pipeline Boost Project

Docket No. CP26-__-000

Resource Report 10 – Alternatives

October 2025

Resource Report 10 Filing Requirements per 18 CFR § 380.12	
Information	**Location in Resource Report**
Minimum Filing Requirements	
1. Discuss the "no action" alternative and the potential for accomplishing the proposed objectives through the use of other systems and/or energy conservation. Provide an analysis of the relative environmental benefits and costs for each alternative. (Sec. 380.12(l)(1)).	Sections 10.1. 10.2, and 10.3
2. Describe alternative routes or locations considered for each facility during the initial screening for the project. (Sec. 380.12(l)(2)). (i) For alternative routes considered in the initial screening for the project but eliminated, describe the environmental characteristics of each route or site, and the reasons for rejecting it. Identify the location of such alternatives on maps of sufficient scale to depict their location and relationship to the proposed action, and the relationship of the pipeline to existing rights-of-way. (Sec. 380.12(l)(2)(i)). (ii) For alternative routes or locations considered for more in-depth consideration, describe the environmental characteristics of each route or site and the reasons for rejecting it. Provide comparative tables showing the differences in environmental characteristics for the alternative and proposed action. The location of any alternatives in this paragraph shall be provided on maps equivalent to those required in paragraph (c)(2) of this section. (Sec. 380.12(l)(2)(ii)).	Section 10.4
Minimum Filing Requirements – Appendix A to Part 380 [Note: May overlap with requirements above.]	
1. Address the "no action" alternative. (§ 380.12(l)(1))	Section 10.1
2. For large projects, address the effect of energy conservation or energy alternatives to the project. (§380.12(l)(1))	Section 10.2
3. Identify system alternatives considered during the identification of the project and provide the rationale for rejecting each alternative. (§ 380.12(l)(1))	Section 10.3
4. Identify major and minor route alternatives considered to avoid impact on sensitive environmental areas (e.g., wetlands, parks, or residences) and provide sufficient comparative data to justify the selection of the proposed route. (§ 380.12(l)(2)(ii))	Not Applicable
5. Identify alternative sites considered for the location of major new aboveground facilities and provide sufficient comparative data to justify the selection of the proposed site. (§ 380.12(l)(2)(ii))	Section 10.4

RESOURCE REPORT 10
ALTERNATIVES
TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

RESOURCE REPORT 10
ALTERNATIVES

LIST OF ACRONYMS AND ABBREVIATIONS

AEP	American Electric Power
Dth/d	dekatherms per day
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
HV	high voltage
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hours
MP	milepost
MVA	megavolt amperes
MVP	Mountain Valley Pipeline, LLC
MVP Mainline	the existing Mountain Valley Pipeline mainline
MW	megawatt
NSA	noise-sensitive area
Project	Mountain Valley Pipeline Boost Project
Transco	Transcontinental Gas Pipe Line Company, LLC

RESOURCE REPORT 10 - ALTERNATIVES

Introduction

Mountain Valley Pipeline, LLC (MVP) is seeking a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission (FERC) pursuant to Section 7(c) of the Natural Gas Act authorizing MVP to construct and operate the proposed Mountain Valley Pipeline Boost Project (Project) located in Wetzel, Braxton and Fayette Counties, West Virginia and Montgomery County, Virginia. MVP plans to expand three existing compressor stations and construct one new compressor station to provide timely and cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users, and power generation in the Mid-Atlantic and Southeastern markets, as well as potential markets in the Appalachian region.

The Project will include a total addition of approximately 265,750 horsepower of compression at isometric conditions from the proposed modifications and operation at the existing Bradshaw, Harris, and Stallworth Compressor Stations, and the construction of the new Swann Compressor Station, including ancillary facilities required for safe and reliable operations. The Project will create approximately 600,000 dekatherms per day (Dth/d) of incremental natural gas capacity on the existing Mountain Valley Pipeline mainline (MVP Mainline).

Environmental Resource Report Organization

This Resource Report contains a discussion of the various alternatives to the Project that were evaluated to achieve all or some portion of the Project objectives. The range of alternatives considered includes the no-action alternative (Section 10.1), other energy alternatives (Section 10.2), MVP system design alternatives (Section 10.3), compressor station site alternatives (Section 10.4), and electric motor-driven compressor station alternatives (Section 10.5). References are included in Section 10.6.

Purpose and Need

The purpose of the Project is to add compression to the existing MVP Mainline infrastructure to expand system capacity and delivery capabilities in order to meet the specific requests for natural gas transportation service of Project shippers. The Project will provide firm natural gas transportation services for the shippers to meet growing supply and resiliency needs via existing interconnections on the MVP Mainline.

10.1 No-Action Alternative

Under the No-Action Alternative, the Project would not be constructed and the short-term and long-term environmental impacts resulting from Project activities, as discussed in other Resource Reports, will not occur; however, the MVP Mainline would not be able to deliver the quantities of natural gas requested by Project shippers. The Project is intended to expand the MVP Mainline system capacity and delivery capabilities. The proposed Project will increase the MVP Mainline's capability to deliver natural gas volumes to take-away transmission pipelines by approximately 600,000 Dth/d, which will ultimately serve the need for additional volumes of natural gas in the Mid-Atlantic and expanding Southeast U.S. markets. Although selection of the No-Action Alternative would avoid potential environmental and other impacts, the beneficial impact of implementing the Project (providing reliable, cost-effective access to expanding markets) would not occur. The expansion of existing facilities will minimize the environmental impact associated with the Project. If the purpose and need of the Project are to be met without construction of the

Project facilities, other projects and activities would be needed, resulting in their own environmental impacts. This would result in the transfer of environmental impacts from one project to another but would not necessarily eliminate or reduce impacts and would not meet the purpose and need of the Project. The No-Action Alternative is not considered a viable option because it does not meet the stated purpose and need for the Project.

10.2 Energy Alternatives

10.2.1 Alternative Fuels

Use of certain alternative fuels to supply the needs of the market served by the Project could potentially be an alternative to the Project. The energy equivalent of the proposed 600,000 Dth/d of natural gas added to the MVP Mainline is 175,842 megawatt-hours, assuming all the natural gas is used to generate electricity. In general, potential alternative energy sources to the Project could include renewable energy sources (wind, solar, hydropower, geothermal, and biomass), other fossil fuels (coal and petroleum), and nuclear. The Project will transport natural gas to meet the demands of existing and future electric generation plants, where the primary existing alternative fuel for such plants is coal. The Project will also provide natural gas for heating and potentially industrial uses.

In 2023, renewable energy sources contributed 894 million megawatt-hours to the United States' electricity generation (21.4 percent of the total electricity generation), while other fossil fuels contributed 691 kilowatt-hours (kWh; 16.6 percent), and nuclear contributed 775 kWh (18.6 percent) (EIA 2024). In that same year, natural gas contributed 1,802 kWh to the United States' electricity generation, about 43 percent of the total electricity generation. In 2022, the U.S. Energy Information Administration projected that by 2050, up to 44 percent of the United States' electricity generation would be from renewable energy sources, while electricity generation from natural gas would be at 34 percent (EIA 2022). While other alternative fuels, including from renewable sources, make up a component of the existing United States electricity generation and their contribution to the total energy generation is projected to increase in the future, other alternative energy sources are not expected to replace the need for natural gas in the mix of United States electricity generation. Therefore, the use of alternative fuels is not considered a reasonable alternative to the proposed Project.

10.2.2 Energy Conservation

The purpose of the Project is to increase the transportation of natural gas, and the potential gains realized from increased energy efficiency and/or energy conservation are not transportation alternatives. Therefore, energy conservation is not considered a reasonable alternative to the proposed Project.

10.3 MVP System Design Alternatives

MVP evaluated other potential modifications to the existing MVP Mainline as alternatives to the proposed Project, as described below.

10.3.1 Pipeline Looping Alternative

MVP evaluated looping the existing MVP Mainline as an alternative to adding the additional compression as proposed. In general, the advantage of pipeline looping alternatives is that they would eliminate or reduce the need for additional compression at new or existing compressor stations. The general disadvantage is

they would require construction of essentially a second pipeline parallel and adjacent to segments of the existing MVP Mainline.

MVP ran a hydraulic model to determine pipeline looping requirements to accomplish the proposed natural gas throughput under three different scenarios that would eliminate some or all of the additional proposed compression. Results of the hydraulic modeling are summarized in Table 10.3-1.

Table 10.3-1

Pipeline Looping Alternatives

Alternative	Objective	Length of 42-inch Diameter Pipeline Looping Required (miles)	Approximate milepost (MP) Locations of Pipeline Looping	Approximate Land Disturbance (acres) a/
Looping Option 1	Eliminate proposed new Swann Compressor Station	90	MP 154 – MP 244	1,364
Looping Option 2	Eliminate proposed new Swann Compressor Station, reduce new compression added at Stallworth Compressor Station	149	MP 154 – MP 303	2,258
Looping Option 3	Eliminate proposed new Swann Compressor Station and all proposed modifications to existing stations	200	MP 25.4 – MP 135.2 and MP 154.4 – MP 244.4	3,030

Note:
a/ Approximate land disturbance is based on a conceptual 125-foot-wide construction right-of-way of which 25 feet would overlap the existing MVP Mainline right-of-way. Approximate land disturbance does not include off-right-of-way areas such as staging or contractor yards, or extra right-of-way width that may be required for side slopes, waterbody crossings, highway crossings, etc., or areas with reduced right-of-way width at wetland crossings.

As shown in Table 10.3-1, the smallest of the looping alternatives (Option 1) would require approximately 90 miles of new pipeline loop constructed adjacent to the existing MVP Mainline, with an estimated 1,364 acres of land disturbance. This alternative would begin at the Stallworth Compressor Station at milepost (MP) 154 and continue south to approximately MP 244 in Roanoke County, Virginia, and would include crossings of the George Washington and Jefferson National Forest, the Appalachian National Scenic Trail, and the Greenbrier River. Looping Option 2 would also begin at the Stallworth Compressor Station and would include 149 miles of new pipeline loop installed adjacent to the MVP Mainline from Stallworth to the southern end of the MVP Mainline at the Transco Interconnect. Looping Option 2 would result in an estimated 2,258 acres of land disturbance. Looping Option 3 would include 200 miles of pipeline looping in two segments, from MPs 25.4 to 135.2, and from MPs 154.4 to 244.4, and would result in an estimated 3,030 acres of land disturbance. MVP determined that, because of the significant area of land disturbance and potential for environmental impacts compared to the proposed Project, none of the pipeline looping alternatives are reasonable.

10.4 Compressor Station Site Alternatives

10.4.1 Existing Compressor Stations

The Project includes the expansion of three existing compressor stations on the northern section of the MVP Mainline: the Bradshaw, Harris, and Stallworth Compressor Stations, each located in West Virginia. The

original siting of these stations began with the use of a hydraulic model to determine the required spacing along the MVP Mainline to meet compression requirements. The model identified a 10-mile zone (+/- 5 miles from target MP) along the MVP Mainline, and within that zone MVP selected sites that would optimize constructability and site accessibility, minimize environmental impact, and minimize visual and noise impacts on area residences to the extent possible. The final selected sites underwent environmental review, including National Environmental Policy Act analysis and alternative site review as documented in the EIS for the MVP Mainline (FERC 2017).

Expansion of the existing facilities at the Bradshaw, Harris, and Stallworth Compressor Stations allows for shared use of existing infrastructure, including compression buildings, offices, warehouses, suction and discharge facilities, and access roads, which results in significantly less environmental impact than constructing new compressor stations nearby to meet the same hydraulic and compression requirements. Therefore, MVP did not evaluate alternative sites for the proposed expansions of the Bradshaw, Harris, and Stallworth Compressor Stations.

10.4.2 Swann Compressor Station

The proposed Swann Compressor Station site is located on land currently owned by MVP at MP 236 of the MVP Mainline off U.S. Route 460/11 (also called Lee Highway or Roanoke Road) in Elliston in Montgomery County, Virginia (Figure 10.4-1). The site lies adjacent to the MVP Mainline, providing immediate operational integration and minimizing the need for additional permanent easements. Access infrastructure at the site is also favorable; the proposed site is immediately accessible via existing paved public roads and existing MVP access roads.

This location was selected following a comprehensive hydraulic analysis conducted by MVP, which concluded that the proposed Swann Compressor Station site offers optimal system performance within the practical siting buffer, with a favorable balance of pressure support and pressure drop characteristics.

From an environmental perspective, the proposed site avoids mapped flood hazard zones and National Register of Historic Places-listed or -eligible properties. The Lafayette Historic District is located 0.5 mile north of the proposed site; however, viewshed analysis indicates that impacts from views of the Swann Compressor Station at the proposed site are expected to be negligible or none (Section 8.4 of Resource Report 8). The proposed site will require approximately 25 acres for operation, plus an additional 0.4 acre of temporary workspace, and the proposed site's development footprint maximizes use of previously cleared and disturbed land by siting the compressor station in the central and northern portion of the site that was formerly used as a surface/strip mine for shale and/or clay in support of brick manufacturing by the Old Virginia Brick Company in Salem, Virgina.

Land use compatibility is another key advantage. The proposed site's surrounding land uses are primarily low-density residential, forested, and commercial. MVP's ownership of the parcel further simplifies the development process by eliminating the need for additional land acquisition.

Utility services and construction laydown areas can be efficiently accommodated within the MVP-owned parcel or within previously disturbed areas used for construction of the MVP Mainline, streamlining permitting and minimizing off-site impacts. The electrical utility at that location is operated by Appalachian Power, a unit of American Electric Power, which will feed the compressor station from the existing Kumis substation, located directly across U.S. Route 460/11 and the Norfolk Southern Corporation railroad tracks. Minimal vegetation clearing will be required to bring power to the compressor station.

The nearest noise-sensitive area (NSA) to the proposed site is a fire station along Enterprise Drive approximately 1,445 feet northwest of the site. NSAs near the proposed site are shown in the noise assessment included in Resource Report 9, and detailed operational noise analysis for the proposed site and potential impact on NSAs is included in Resource Report 9.

Based on the collective evaluation of constructability, environmental compatibility, land use, permitting efficiency, and hydraulic optimization, the proposed Swann Compressor Station site is the most practicable and environmentally preferable location for the proposed facility. It satisfies both technical and regulatory criteria while minimizing disturbance and stakeholder impacts, and therefore is MVP's preferred and recommended site.

In addition to the proposed site, MVP evaluated four alternate sites for this station, Swann Alternative Sites 1, 2, 3, and 4 (Figure 10.4-2). The main criteria used for selection of the proposed site were as follows:

- A location along the existing MVP Mainline that falls within or just outside of the zoned of desired hydraulic pressure support and pressure drop;
- Vicinity to the existing MVP Mainline;
- Topography;
- Site access; and
- Surrounding land use including population density and distance from the nearest residences.

Other features and resource impacts for the proposed site are listed in Table 10.4-1 along with features and resource impacts for each alternative site for comparison. A summary of each alternative site is below.

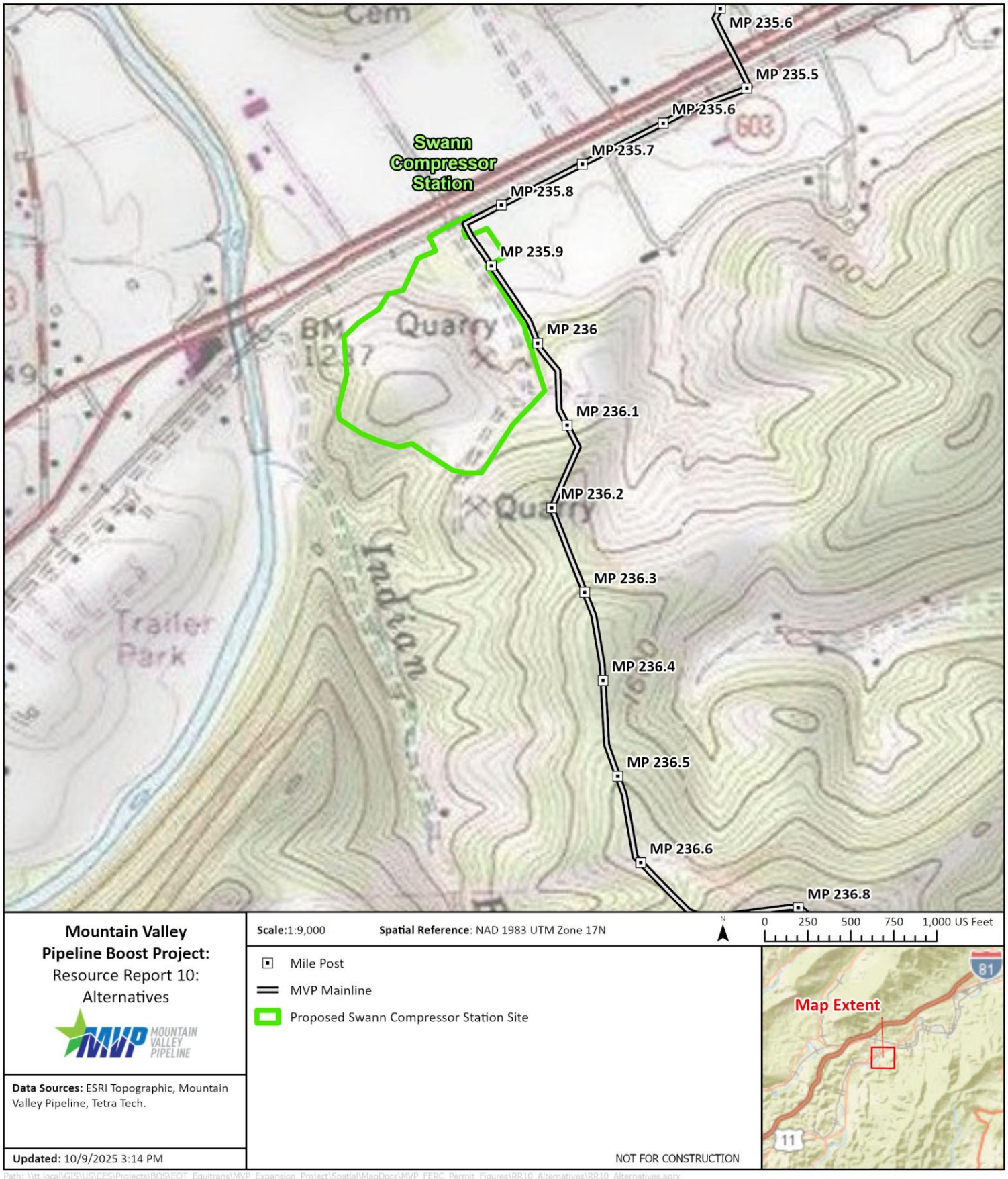

Figure 10.4-1 Swann Compressor Station Proposed Site

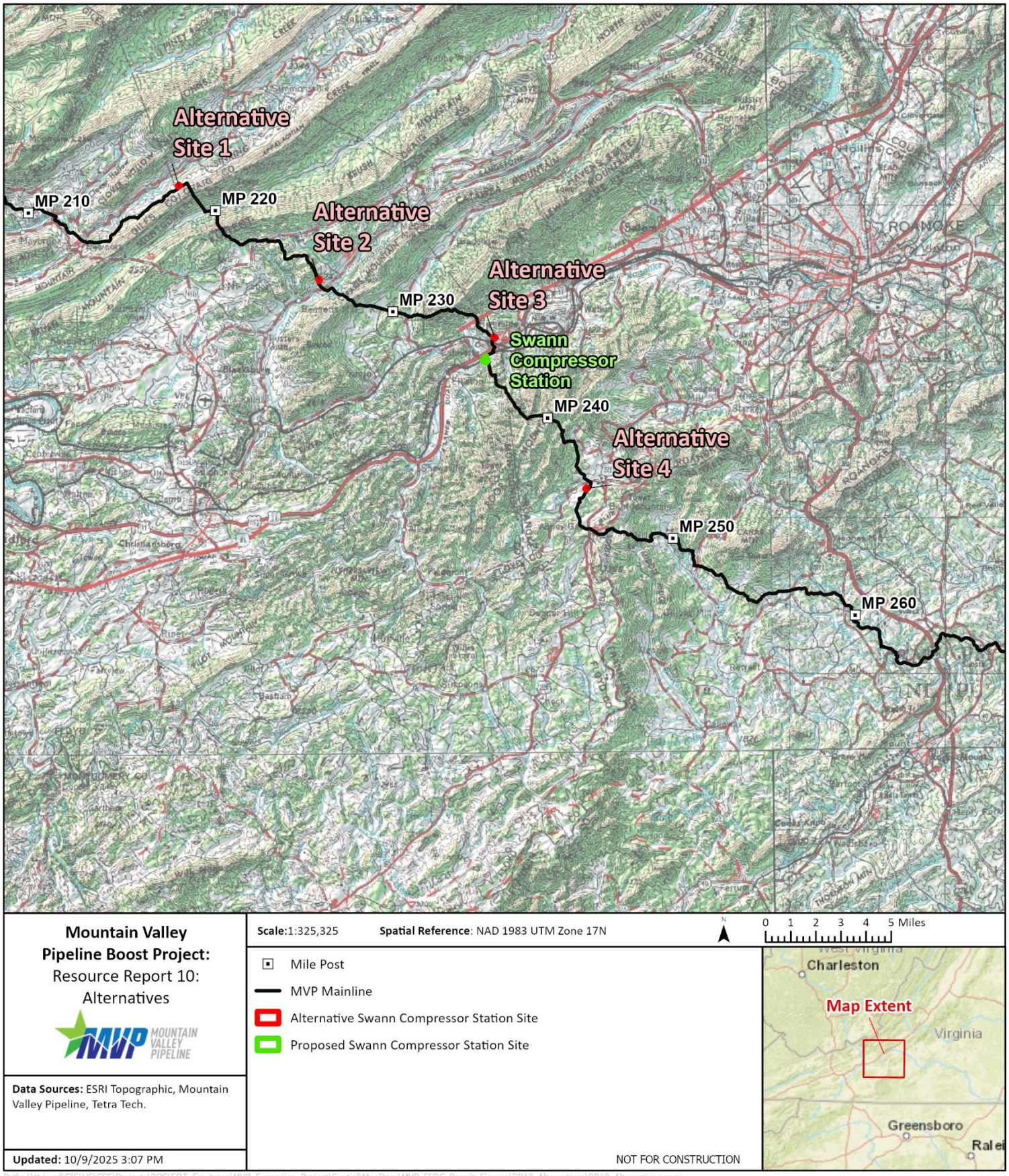

Figure 10.4-2 Swann Compressor Station Site Alternatives Overview

Table 10.4-1

Comparison of Proposed Swann Compressor Station Site and Alternative Sites

Feature	Swann Alternative 1	Swann Alternative 2	Swann Alternative 3	Swann Alternative 4	Proposed Swann Compressor Station
General					
Construction footprint (acres) a/	25.1	24.2	15.7	19.0	25.0
New access road length, approximate (feet) b/	3,600	3,455	100	1,130	0
Land Use					
Land use	Agricultural	Forest	Agricultural, forest	Agricultural, forest	Forest, scrub, barren
Nearest NSA (feet/direction) c/	1,900/SW	850/SW	700/N	1,160/NW	1,445/NW
NSAs within 0.5-mile (number) c/	9	8	95	52	136
Resources and Constraints					
Forested land affected by construction (acres)	1.7	20.3	4.4	4.5	13.8
Wetlands (NWI) within site (acres) d/	0	0	0	0	0
Waterbodies within site (number) d/	0	0	0	0	0
Prime Farmland or Farmland of Statewide Importance present	Yes	Yes	Yes	Yes	Yes e/
Critical habitat for federally listed species	No	No	No	No	No
Within 0.5 mile of NRHP Historic District	No	Yes f/	No	No	Yes f/
Potential to encounter karst	Moderate	Moderate	Moderate	No	Moderate g/
Predominant slope (percent)	5-20	5-20	5-25	15-35	0-25

Table 10.4-1

Comparison of Proposed Swann Compressor Station Site and Alternative Sites

Feature	Swann Alternative 1	Swann Alternative 2	Swann Alternative 3	Swann Alternative 4	Proposed Swann Compressor Station

Notes:
a/ Construction footprint of alternative sites is based on roughly estimated cut and fill requirements. Suction and discharge facilities would be within cut and fill footprints for compressor stations.
b/ The proposed Swann Compressor Station site would not require new access roads but would require upgrade to up to 2,700 feet of existing access roads.
c/ NSA locations and numbers are estimated from review of aerial imagery.
d/ NWI and NHD data used in order to provide a common comparison between alternative sites since field surveys were not conducted for the alternative sites.
e/ Farmland of statewide importance is mapped within the proposed site, however since issuance of the most recent soil survey the site has been extensively mined for its soil for brick production and is highly disturbed.
f/ Alternative Site 2 is within the North Fork Valley Rural Historic District; the proposed site is 0.5 mile southeast of the Lafayette Historic District.
g/ Geologic mapping indicates the potential to encounter karst at the proposed site; however site-specific geotechnical analysis shows that karst geology is not present at the proposed site.
NHD = U.S. Geological Survey National Hydrography Dataset
NWI = U.S. Fish and Wildlife Service National Wetland Inventory
NRHP = National Register of Historic Places

10.4.2.1 Swann Alternative Site 1

Alternative Site 1 is located at MP 217.8 of the MVP Mainline approximately 13.8 miles north of the proposed site, off Cumberland Gap Road near Huffman, in Craig County, Virginia (Figure 10.4-3). The alternative site is located directly adjacent to the MVP Mainline. The site can be accessed mostly by an existing private road but would require about 3,600 feet of new road constructed along the MVP Mainline and may require bridge upgrades along the existing road. Preliminary review of topography indicates that substantial cut and fill would be required for this site, and the disturbance area to accommodate the compressor station would be about 25.1 acres.

The nearest source for three-phase power at a distribution voltage would be from an existing substation to the east of the site and would require an additional 26 acres to be cleared. Land cover is primarily hayfield and pasture, and the site contains soil classified as Farmland of Statewide Importance.

The nearest residence and NSA at Swann Alternative Site 1 is about 1,900 feet southwest of the site, compared to 1,250 feet for the proposed location. There are significantly fewer NSAs within 0.5 mile of the alternative site than the proposed site. However, the area between the alternative site and nearest NSAs is open rolling hills with little vegetation screening or shielding, and a compressor station at this site would be visible to several residences located west of the site.

Construction of a compressor station at Swann Alternative Site 1 is technically feasible; however, the site falls just outside (north) of the practical siting buffer based on hydraulic modeling of pressure support and pressure drop characteristics and will not achieve the proposed 600,000 Dth/d of incremental capacity, While the alternative is further from the nearest NSA and there are fewer NSAs within 0.5 mile compared to the proposed site, there is very little topographic or vegetation screening and therefore noise and visual impacts are expected to be greater. Additional land would need to be acquired for the site, access, and construction workspace. For the reasons described above, especially because the site falls outside of the desired hydraulic modeling section of MVP Mainline, MVP does not consider Swann Alternative Site 1 to be environmentally or technically preferable to the proposed site for the Swann Compressor Station.

10.4.2.2 Swann Alternative Site 2

Alternative Site 2 is located at MP 226.4 of the MVP Mainline, approximately 7.2 miles north of the proposed site off State Route 785 northeast of Blacksburg in Montgomery County, Virginia (Figure 10.4-4). The alternative site is located directly adjacent to the MVP Mainline. Use of the site for a compressor station would require about 3,455 feet of new access road including crossing steep terrain. Preliminary review of topography indicates that substantial cut and fill would be required for this site, and the resulting area required to accommodate the compressor station would be about 24.2 acres. The same power source as Alternative Site 1 could be utilized to install utility power to the site, which would require an additional 19 acres of tree clearing. Land cover is forest except for the portion of the site that overlaps the existing MVP Mainline right-of-way. Although primarily forested, the site contains soil classified as Farmland of Statewide Importance.

The nearest residence and NSA at Swann Alternative Site 2 is about 850 feet southwest of the site, compared to 1,250 feet for the proposed location. However, there are significantly fewer NSAs within 0.5 mile of the alternative site than the proposed site. The area between the alternative site and nearest NSAs is forested, which would potentially minimize visibility and noise of a compressor station at this site. Alternative Site 2 is located within the North Fork Valley Rural Historic District.

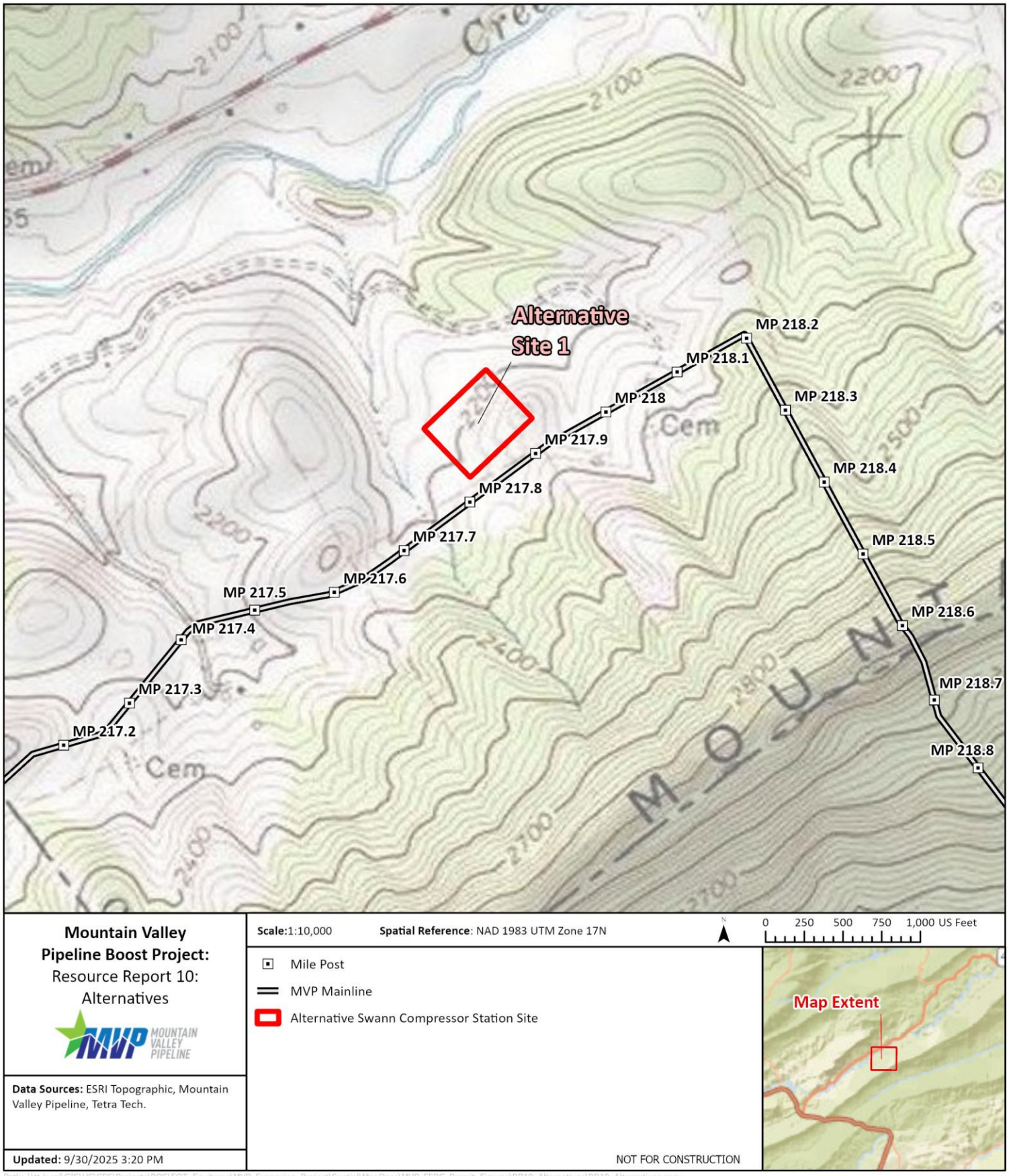

Figure 10.4-3 Swann Compressor Station Site Alternative 1

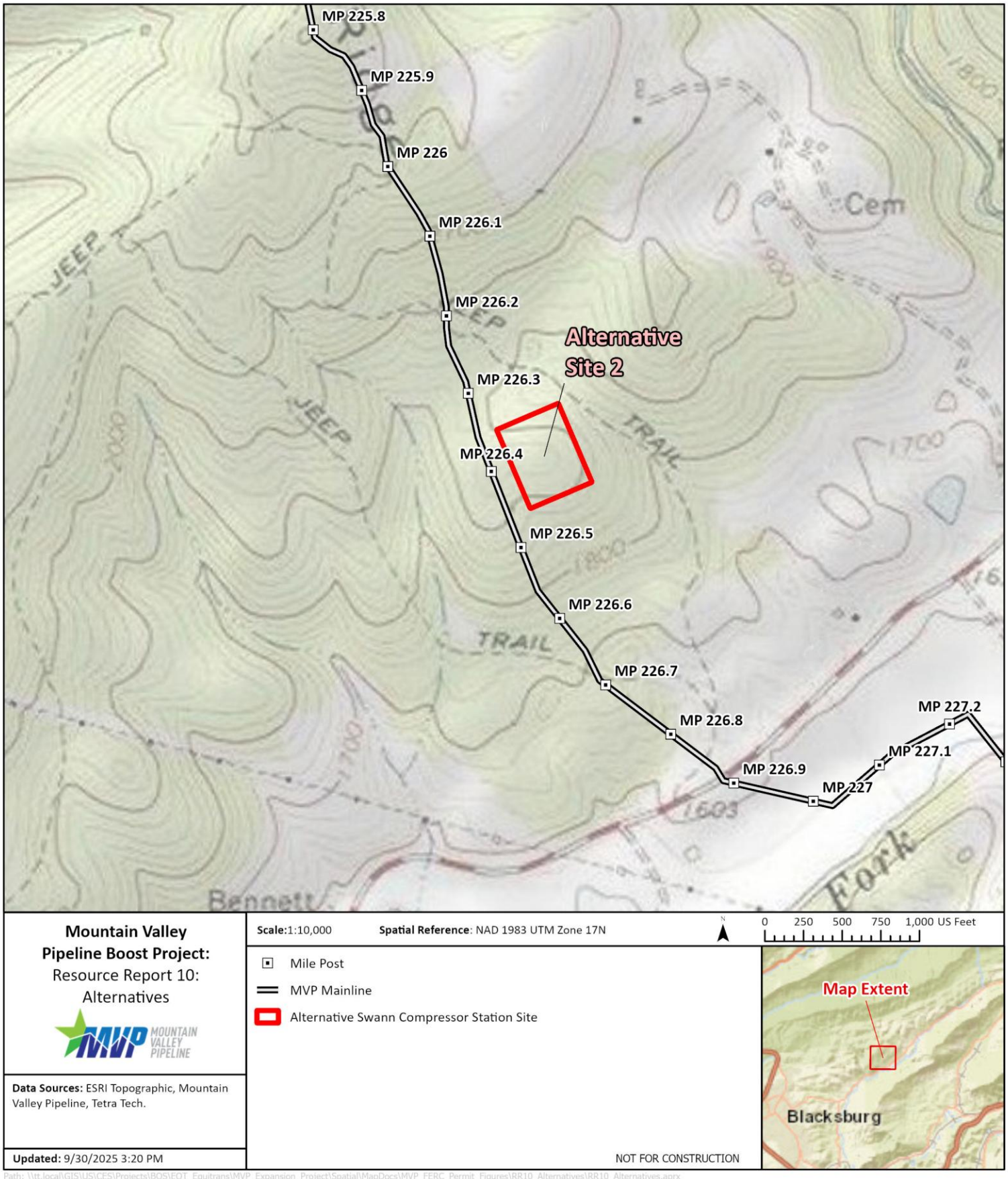

Figure 10.4-4 Swann Compressor Station Site Alternative 2

Construction of a compressor station at Swann Alternative Site 2 is technically feasible; there are fewer NSAs within 0.5 mile of the alternative site than the proposed site, and the site is surrounded by forest, which would potentially reduce visual and noise impacts on surrounding NSAs. However, use of the site for a compressor station would require substantial cut and fill as well as about 0.65 mile of new access road. Compared to the proposed site, the nearest NSA is closer to the alternative site, and the site is located within a historic district. Additional land would need to be acquired for the site, access, and construction workspace. For these reasons, MVP does not consider Swann Alternative Site 2 to be environmentally or technically preferable to the proposed site for the Swann Compressor Station.

10.4.2.3 Swann Alternative Site 3

Swann Alternative Site 3 is located at MP 234.7 of the MVP Mainline, approximately 0.9 miles north of the proposed site off Thomas Drive in Montgomery and Roanoke Counties, Virginia (Figure 10.4-5). The alternative site is located directly adjacent to the MVP Mainline. The site would require about 100 feet of a new access road. Preliminary review of topography indicates that some cut and fill would be required for this site and that disturbance area to accommodate the compressor station would be about 15.7 acres. An additional 0.5 acre would need to be cleared to route utility power to the site from the American Electric Power (AEP) Kumis substation. Land cover is primarily hayfield and forest, and the site contains soil classified as Farmland of Statewide Importance.

The nearest residence and NSA at Swann Alternative Site 3 is about 700 feet north of the site, compared to 1,250 feet for the proposed location. However, there are fewer NSAs within 0.5 mile of the alternative site than the proposed site. While there is some forested area between the site and NSAs, the site is elevated and the vegetation would likely provide minimal visual screening or buffering of noise.

Construction of a compressor station at Swann Alternative Site 3 is technically feasible, would require construction of only about 100 feet of new access road, and there are fewer NSAs within 0.5 mile of the alternative site than for the proposed site. However, compared to the proposed site, the nearest NSA is closer to the alternative site, and because the alternative site is elevated above the NSAs, noise and visual impacts are anticipated to be greater. Additional land would need to be acquired for the site, access, and construction workspace. For these reasons, MVP does not consider Swann Alternative Site 3 to be environmentally or technically preferable to the proposed site for the Swann Compressor Station.

10.4.2.4 Swann Alternative Site 4

Swann Alternative Site 4 is located at MP 243.8 of the MVP Mainline, approximately 6.4 miles southeast of the proposed site in the Bent Mountain area of Roanoke County, Virginia (Figure 10.4-6). The alternative site is located directly adjacent to the MVP Mainline. Approximately 1,130 feet of new access road would be required to reach Alternative Site 4 from Bottom Creek Road. Preliminary review of topography indicates that extensive cut and fill and slope stabilization would be required for this site and that disturbance area to accommodate the compressor station would be about 19 acres. The nearest electric utility connection point is the Bent Mountain Substation, owned by American Electric Power Company, Inc., located approximately 1.9 miles from the site. Therefore, an additional approximately 20 acres of tree clearing would be required to install utility power to the site.

Land cover is hayfield and forested and the site contains soil classified as Prime Farmland. The surrounding landscape is a mix of forest, agriculture, and scattered residential. The site lies approximately 300 feet from Mill Creek located on the other side of the MVP Mainline to the southeast.

The nearest residence and NSA at Swann Alternative Site 4 is about 1,160 feet northwest of the site, compared to 1,250 feet for the proposed location. However, there are fewer NSAs within 0.5 mile of the alternative site than the proposed site.

Construction of a compressor station at Swann Alternative Site 4 is technically feasible and within the practical siting buffer based on hydraulic modeling of pressure support and pressure drop characteristics, and there are fewer NSAs within 0.5 mile of the alternative site than the proposed site. However, the alternative site would require approximately 1,130 feet of new access road, new electric utility service, and extensive cut and fill. Additional land would need to be acquired for the site, access, and construction workspace. For the reasons described above, MVP does not consider Swann Alternative Site 4 to be environmentally or technically preferable to the proposed site for the Swann Compressor Station.

10.4.3 Compressor Station Site Alternatives Conclusion

Following a detailed evaluation of four alternative compressor station locations against the proposed Swann Compressor Station site, MVP concludes that no alternative site is environmentally or technically preferable to the proposed site. Each alternative presents one or more critical deficiencies, including increased cut and fill requirements, proximity to NSAs, and land acquisition.

By contrast, the proposed site is the only location that simultaneously satisfies all key technical, environmental, and regulatory considerations:

- It is located within the hydraulically optimal siting window, providing superior pressure support and pressure drop performance based on MVP modeling.
- It is owned by MVP, eliminating the need for new land acquisition.
- It avoids floodplains, direct impacts to resources listed on the National Register of Historic Places, and mapped sensitive lands.
- It is accessible via existing infrastructure, with minimal road improvements or off-site utility needed.

Under the National Environmental Policy Act and FERC's public interest review under Section 7(c) of the Natural Gas Act, MVP has a responsibility to identify and pursue the most practicable alternative with the least environmental impact. Based on the comprehensive analysis of siting, environmental constraints, permitting risk, stakeholder compatibility, and hydraulic performance, the proposed Swann Compressor Station site clearly meets this threshold.

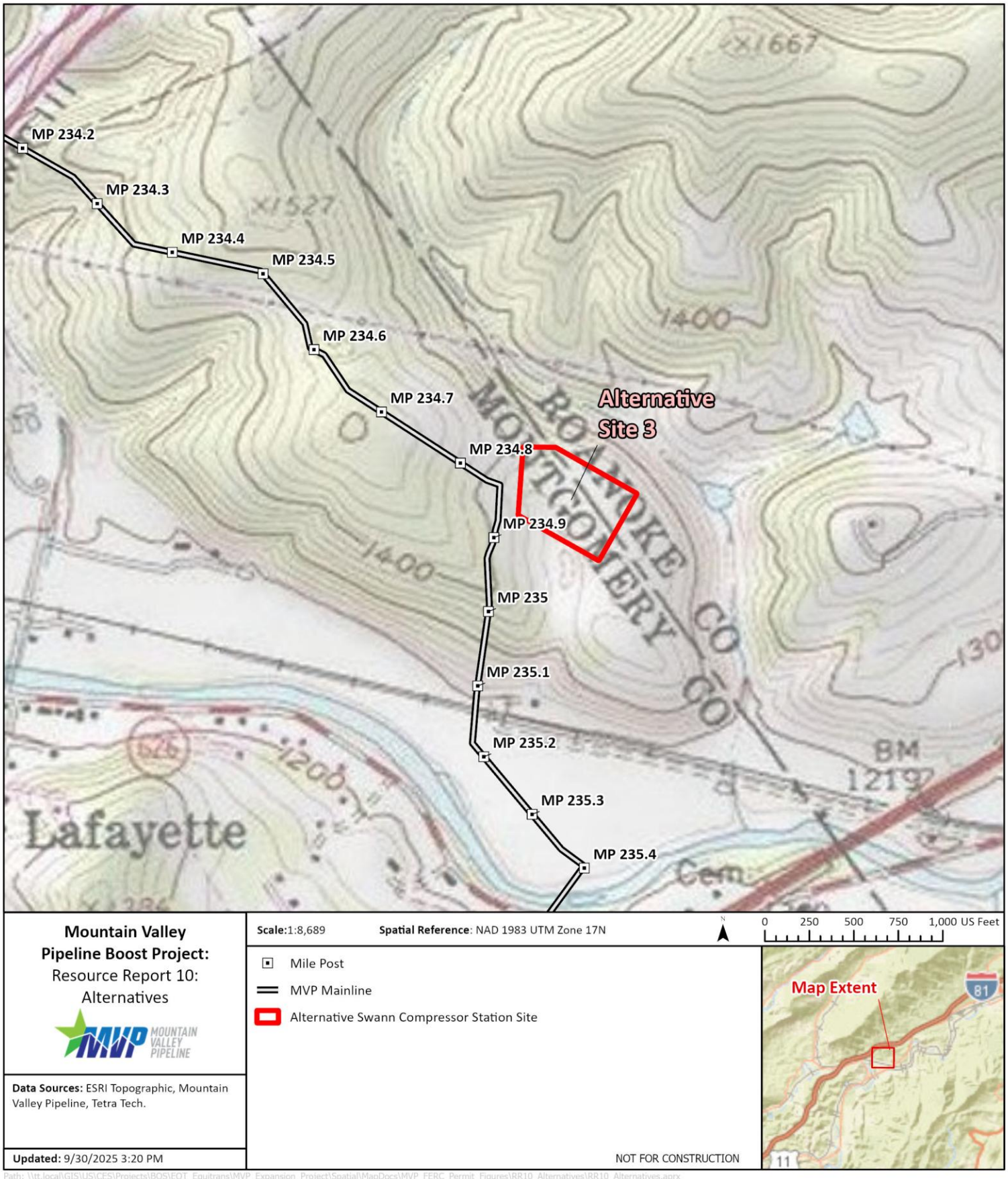

Figure 10.4-5 Swann Compressor Station Site Alternative 3

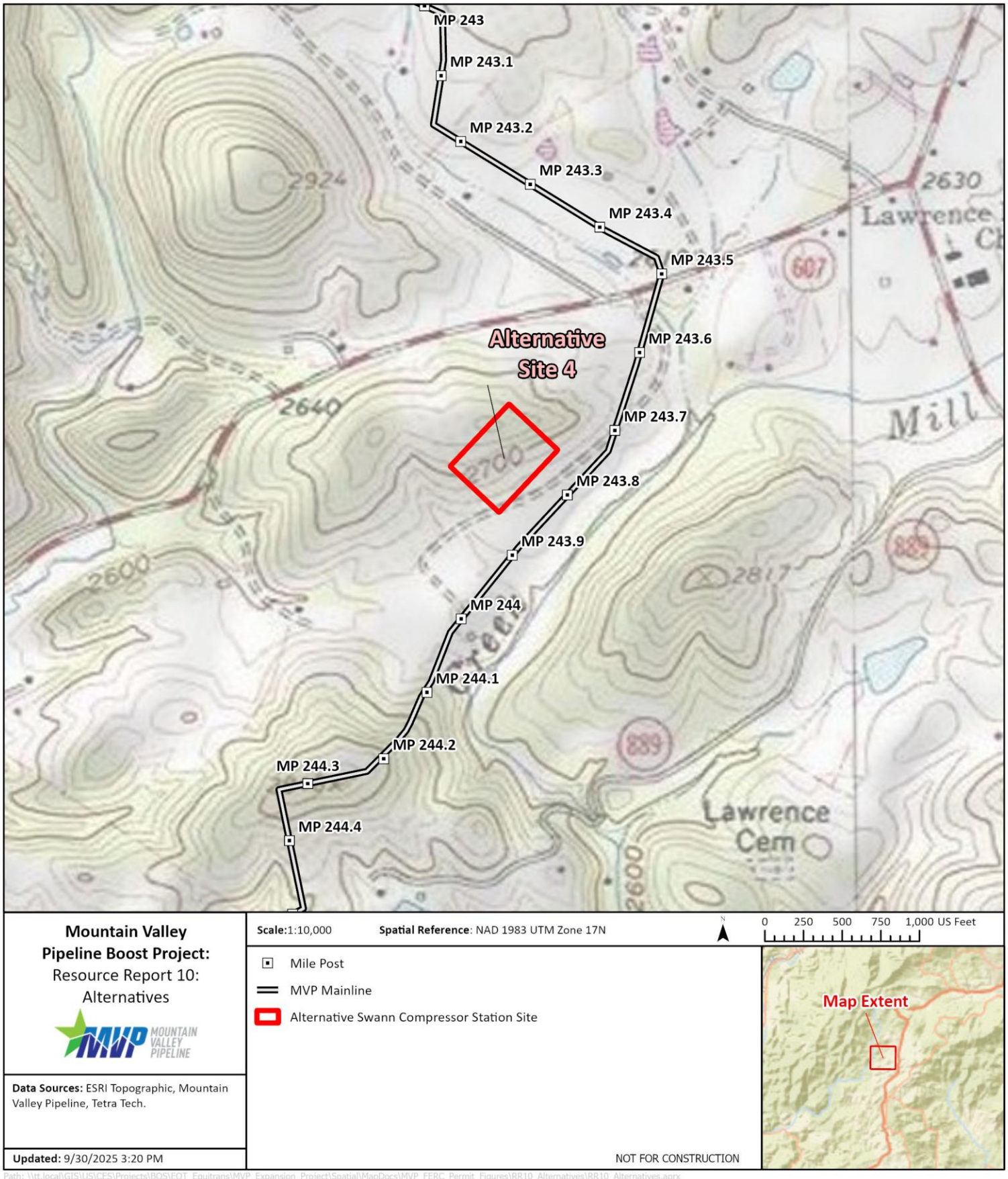

Figure 10.4-6 Swann Compressor Station Site Alternative 4

10.5 Electric Motor-Driven Compression Alternatives

MVP evaluated the feasibility of using electric-driven compressor units in lieu of the proposed natural gas-fired compressor units for the modifications at the existing Bradshaw, Harris, and Stallworth Compressor Stations in West Virginia, as well as the proposed new Swann Compressor Station in Virginia. Electric motor-driven centrifugal compressors produce minimal air emissions, and the potential advantage of electric motor-driven centrifugal compressors over natural gas-driven turbines is a reduction in combustion air emissions at the compressor station site.

Several factors were considered in evaluating the type of unit to install, including: proximity to existing electric power sources; the need for new or modified electric power sources or transmission facilities; the need for additional ancillary facilities such as substations; the ability of power companies to design, permit, and construct new facilities in a timeframe reasonably close to the Project schedule; additional environmental and landowner impacts associated with construction of new facilities; and the ability to comply with emissions standards during operations at each station using natural gas.

10.5.1 Bradshaw Compressor Station

As detailed in Resource Report 1, the proposed modifications at Bradshaw Compressor Station will utilize the existing permanent footprint of the station to accommodate the new Titan 130 turbine-driven centrifugal compressors.

The Bradshaw Compressor Station is located within the service area of Mon Power, a FirstEnergy Company. The new compressor unit would require an estimated capacity of 22 megavolt-amperes (MVA) for an electric motor-driven compression alternative. The nearest high-voltage (HV) transmission line suitable to supply power at the required power level is a 138-kilovolt (kV) line, located an approximate straight-line distance of 2.5 miles away to the northwest. The motor-driven compressor station would require an additional area of approximately 2 acres to be acquired, cleared, and leveled to accommodate the circuit breakers, transformers, and support infrastructure for the HV substation needed to provide power at a voltage level usable by the compressor station.

Typical required right-of-way for a 138 kV transmission line in a rural area would be 100 feet wide, with 50 feet on either side from the centerline. Land clearing for the 138 kV power line right-of-way would result in an additional 30 acres of cleared land.

The Bradshaw Compressor Station has a local distribution utility source of three-phase power and is currently connected to a local 12.47-kV distribution system with a capacity at the station limited to 1.5 MVA. This line and distribution system are insufficient to provide the power levels for a motor-driven compressor. This line also supports local residential customers of Mon Power.

The Bradshaw Compressor Station generates its own power from two banks of microturbines. The microturbines can provide up to 2 megawatts (MW) of power necessary for operation of the station. The microturbine installation can be expanded to accommodate the power requirements of an additional gas turbine-driven compressor. Expansion of the microturbine capacity can be expanded by the addition of a third 1-MW bank of microturbines.

10.5.2 Harris Compressor Station

The Harris Compressor Station is also located within the service area of Mon Power. The new compressor unit would require an estimated capacity of 33 MVA for an electric motor-driven compression alternative. The nearest HV transmission line suitable to supply power at the required power level is a 69-kV line, located an approximate straight-line distance of 3.4 miles away to the northwest. As with the Bradshaw Compressor Station, the motor-driven compressor station would require an additional area of approximately 2 acres to be acquired, cleared, and leveled to accommodate the circuit breakers, transformers, and support infrastructure for the HV substation to provide power at a voltage level usable by the compressor station.

The right-of-way for a 69-kV transmission line for the rural area surrounding this station is 100 feet wide, and land clearing required for power line right-of-way would result in an additional 41 acres of cleared land.

The Harris Compressor Station, unlike the Bradshaw and Stallworth Compressor Stations, does not have a connection to a local distribution utility source of three-phase power. Because of this, the Harris Compressor Station generates its own power from a bank of microturbines. The microturbines provide 1.6 MW of power necessary for operation of the station. The microturbine installation can be expanded to accommodate the power requirements of an additional gas turbine-driven compressor. Expansion of the microturbine capacity can be achieved by adding an additional generator to each of the two existing 800-kilowatt (kW) banks of generators for an increase to 1,000 kW of generating capacity at each bank. If power demand studies warrant, an additional third bank of microturbines could be added.

10.5.3 Stallworth Compressor Station

The Stallworth Compressor Station is located within the service area of Appalachian Power, a unit of American Electric Power. The new units would require an estimated capacity of 33 MVA for an electric motor-driven compressor alternative to replace the proposed gas turbine-driven compressor. The nearest HV transmission line suitable to supply power at the required power level is a 69-kV line, located an approximate straight-line distance of 6.9 miles away to the west. As with the Bradshaw and Harris Compressor Stations, an additional area of approximately 2 acres would be acquired, cleared, and leveled to accommodate the circuit breakers, transformers, and support infrastructure for the HV substation needed to provide power at a voltage level usable by the compressor station.

The 100-foot right-of-way for the transmission line would result in an additional 84 acres being cleared.

The Stallworth Compressor Station has a local distribution utility source of three-phase power and is currently fed from a local distribution line at 34.6 kV. However, as with the Bradshaw Compressor Station, the load demand for an electric motor-driven compressor cannot be supported on a distribution system, and this line also needs to feed demand from local residential customers.

The Stallworth Compressor Station generates its own power from two banks of microturbines. The microturbines can provide up to 1.6 MW of power necessary for operation of the station. Expansion of the microturbine capacity can be achieved by adding an additional generator to each of the two existing 800-kW banks of generators for an increase to 1,000 kW of generating capacity at each bank. If power demand studies warrant, an additional third bank of microturbines could be added.

10.5.4 Swann Compressor Station

The Swann Compressor Station is located within the service area of AEP and would require an estimated capacity of 90 MVA for electric motor-driven compression. The nearest HV transmission line suitable to supply power at the required power level is a 138-kV line, located an approximate straight-line distance of 2.5 miles away to the south. As with the other compressor stations, an additional area of approximately 2 acres would be acquired, cleared, and leveled to accommodate the circuit breakers, transformers, and support infrastructure for the HV substation needed to provide power at a voltage level usable by the compressor station.

The 100-foot right-of-way for the transmission line would result in approximately 32 additional acres being cleared.

The Swann Compressor Station, as proposed with natural gas turbines, can be fed from a local distribution line at 12.47 kV with no upgrades or additional right-of-way clearing required. This would result in significantly less impact than would result from the AEP upgrades and new service line to the compressor station required for the electric motor-driven alternative.

The Swann Compressor Station is planned to generate its own power from three banks of microturbines. The microturbines can provide up to 3 MW of power necessary for operation of the station.

This station is located in the RFC West subregion on the electric grid. The emissions rates from this region were pulled from the United States Environmental Protection Agency site and compared to the emissions from the gas-fed turbines proposed for this Project. As shown in Table 10.5-1, utilizing electric-driven motor compressors at the Swann Compressor Station and pulling electricity off of the grid actually results in increased emissions to the environment.

The gas-fed turbines also have a higher reliability and fuel security than the electric grid. Relying on gas rather than electricity for the station avoids the risk of nonoperation in the event of a blackout. It ultimately helps the local area to ensure proper function of the compressor station and MVP Mainline.

Table 10.5-1

Comparison of Emissions from Swann Compressor Station Electric Motor-Driven Alternative

Pollutant	RFC West Emission Rate (lbs/MWh)	Compressor Driver Total HP at Site Conditions	Compressor Driver Power Input Required (MW)	Annual Compressor Driver Power Input Required (MWh)	Annual Compressor Driver Emissions Using Grid Power (tons)	Potential to Emit Annual Emissions for Natural Gas Turbines (tons) a/	Emissions Increase Using Grid Power
CO_2	911.4	142,851	139.3	1,220,295	556,088	508,592	9%
SO_2	0.412				251	14.7	1,610%
NO_X	0.422				257	47.8	438%

lbs = pounds, MW = megawatt, MWh = megawatt-hours, HP=horsepower

a/ Emission estimates provided are for the turbines only for comparison purposes and do not include other equipment at the site.

Source: EPA 2025

10.5.5 Conclusion

As described above for each proposed facility, an electric motor-driven alternative would require significantly more clearing for new electric service lines to each facility. For the three existing natural gas-driven compressor stations, the addition of new electric motor-driven components will also require significantly a greater footprint of disturbance within the compressor station facilities. For these reasons, the use of electric motor-driven compression instead of the proposed natural gas-driven compression is not a reasonable alternative.

10.6 References

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