



**Office of  
Energy Projects**

**January 2020**

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**Bluewater Gas Storage, LLC**

**Docket No. CP19-471-000**

# **Bluewater Compression Project**

## **Environmental Assessment**

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, DC 20426

OFFICE OF ENERGY PROJECTS

In Reply Refer To:  
OEP/DG2E/Gas 2  
Bluewater Gas Storage, LLC  
Bluewater Compression Project  
Docket No. CP19-471-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) has prepared this environmental assessment (EA) for the Bluewater Compression Project (Project) proposed by Bluewater Gas Storage, LLC (Bluewater) in the above-referenced docket. Bluewater requests authorization to construct, install, own, operate, and maintain a compressor station in Ray Township, Macomb County, Michigan.

The EA assesses the potential environmental effects of the construction and operation of the Project in accordance with the requirements of the National Environmental Policy Act (NEPA). The FERC staff concludes that approval of the proposed Project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the natural and human environment.

The Project would consist of the following:

- a new 11,150 horsepower (hp) natural gas compressor station and ancillary facilities in Macomb County, Michigan;
- two 105-foot-long, 20-inch-diameter pipeline sections that would tie-in the proposed compressor station to Bluewater's existing 20-inch-diameter pipeline; and
- abandonment in place of approximately 420 feet of existing 20-inch-diameter pipeline.

The Commission mailed a copy of the *Notice of Availability* to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the Project area. The EA is only available in electronic format. It may be viewed and downloaded from the FERC's website ([www.ferc.gov](http://www.ferc.gov)), on the Environmental Documents page (<https://www.ferc.gov/industries/gas/enviro/eis.asp>). In addition, the EA may be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link

(<https://www.ferc.gov/docs-filing/elibrary.asp>), click on General Search, and enter the docket number in the “Docket Number” field, excluding the last three digits (i.e. CP19-471). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at [FercOnlineSupport@ferc.gov](mailto:FercOnlineSupport@ferc.gov) or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

Any person wishing to comment on the EA may do so. Your comments should focus on the EA’s disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this Project, it is important that we receive your comments in Washington, DC on or before 5:00pm Eastern Time on **February 18, 2020**.

For your convenience, there are three methods you can use to file your comments to the Commission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or [FercOnlineSupport@ferc.gov](mailto:FercOnlineSupport@ferc.gov). Please carefully follow these instructions so that your comments are properly recorded.

- (1) You can file your comments electronically using the [eComment](#) feature on the Commission’s website ([www.ferc.gov](http://www.ferc.gov)) under the link to [Documents and Filings](#). This is an easy method for submitting brief, text-only comments on a project;
- (2) You can also file your comments electronically using the [eFiling](#) feature on the Commission’s website ([www.ferc.gov](http://www.ferc.gov)) under the link to [Documents and Filings](#). With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on “[eRegister](#).” You must select the type of filing you are making. If you are filing a comment on a particular project, please select “Comment on a Filing”; or
- (3) You can file a paper copy of your comments by mailing them to the following address. Be sure to reference the project docket number (CP19-471-000) with your submission: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426

Any person seeking to become a party to the proceeding must file a motion to intervene pursuant to Rule 214 of the Commission’s Rules of Practice and Procedures (18 CFR 385.214). Motions to intervene are more fully described at <http://www.ferc.gov/resources/guides/how-to/intervene.asp>. Only intervenors have the right to seek rehearing or judicial review of the Commission’s decision. The Commission

may grant affected landowners and others with environmental concerns intervenor status upon showing good cause by stating that they have a clear and direct interest in this proceeding which no other party can adequately represent. **Simply filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered.**

Additional information about the project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website ([www.ferc.gov](http://www.ferc.gov)) using the [eLibrary](#) link. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to [www.ferc.gov/docs-filing/esubscription.asp](http://www.ferc.gov/docs-filing/esubscription.asp).

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## TECHNICAL ABBREVIATIONS AND ACRONYMS

APE	area of potential effects
ATWS	Additional Temporary Workspace
Bluewater	Bluewater Gas Storage, LLC
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CH <sub>4</sub>	Methane
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	carbon dioxide equivalents
CI	construction inspector
Commission	Federal Energy Regulatory Commission
CWA	Clean Water Act of 1972
dB	decibel
dBA	A-weighted decibel
DOT	U.S. Department of Transportation
EA	environmental assessment
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EI	environmental inspector
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act of 1973
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
GHG	greenhouse gas
HAP	hazardous air pollutants
hp	horsepower
L <sub>dn</sub>	day-night sound level
L <sub>eq</sub>	equivalent sound level
MAOP	maximum allowable operating pressure
MBTA	Migratory Bird Treaty Act
MPSC	Michigan Public Service Commission
MW	megawatt
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGA	Natural Gas Act
NO <sub>2</sub>	nitrogen dioxide
NOI	Notice of Intent to Prepare an Environmental Assessment for the Bluewater Compression Project, Request for Comments, and Notice of Public Scoping Session
NO <sub>x</sub>	nitrogen oxides
NRCS	Natural Resources Conservation Service



NRHP	National Register of Historic Places
NSA	Noise Sensitive Area
OEP	Office of Energy Projects
PGA	Peak Ground Acceleration
PHMSA	The Pipeline and Hazardous Materials Safety Administration
Plan	<i>Upland Erosion Control, Revegetation, and Maintenance Plan</i>
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to 10 microns
Procedures	<i>Wetland and Waterbody Construction and Mitigation Procedures</i>
SESC	Soil Erosion and Sediment Control
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Officer
SO <sub>2</sub>	sulfur dioxide
tpy	tons per year
USACE	United States Army Corp of Engineers
USGS	United State Geological Survey
Vector	Vector Pipeline, L.P.
VOC	volatile organic compound

## **SECTION A – PROPOSED ACTION**

### **1.0 INTRODUCTION**

The staff of the Federal Energy Regulatory Commission (Commission or FERC) has prepared this environmental assessment (EA) to assess the environmental effects of the natural gas pipeline facilities proposed by Bluewater Gas Storage, LLC (Bluewater). We<sup>1</sup> prepared this EA in compliance with the requirements of the National Environmental Policy Act of 1969 (NEPA) (Title 40 of the Code of Federal Regulations [CFR] Parts 1500-1508) and with the Commission's implementing regulations under 18 CFR 380.

On May 23, 2019, Bluewater filed an application with the Commission in Docket No. CP19-471-000 for the Bluewater Compression Project (Project) under Section 7(c) of the Natural Gas Act (NGA) and Part 157 of the Commission's regulations. Bluewater seeks to restore the originally authorized 500,000 million cubic feet per day (Mcf/d) of firm delivery capacity of natural gas at its interconnect with Vector Pipeline L.P. (Vector) through the construction of a compressor station and auxiliary equipment in Ray Township, Macomb County, Michigan. The Project also includes abandonment in place of 420 feet of existing 20-inch-diameter pipeline, which requires Commission authorization under section 7(b) of the NGA. The EA is an important and integral part of the Commission's decision-making process. Our principal purposes in preparing this EA are to:

- 1) identify and assess potential impacts on the natural and human environment that could result from implementation of the proposed action;
- 2) identify and recommend reasonable alternatives and specific mitigation measures, as necessary, to avoid or minimize project-related environmental impacts; and
- 3) facilitate public involvement in the environmental review process.

### **2.0 PURPOSE AND NEED**

Bluewater's stated purpose for the Project is to restore its system's ability to deliver 500,000 Mcf/d to Vector. Bluewater has secured long-term service agreements with three local distribution company customers for the Project; Wisconsin Gas, LLC, Wisconsin Public Service Corporation, and Wisconsin Electric Company. By 2021, the Project customers would hold just over 95 percent of Bluewater's total storage capacity.<sup>2</sup> All of the Project customers have a long-term need to bring natural gas to Vector in order to transport it onto the Guardian Pipeline, L.L.C. system, and onward to each customer's respective service territories in Wisconsin. Although an Order Issuing Certificate would allow Bluewater to operate the compressor station at any time, Bluewater states it would only operate during extremely cold or inclement weather during the winter.

Bluewater's existing interconnect with Vector is designed for 500,000 Mcf/d. However, Vector's 2007 capacity expansion project in FERC Docket No. CP06-29-000 added compression that increased Vector's operating pressure at its interconnect with Bluewater. As a result, the increased operating pressure limited Bluewater's ability to offer firm natural gas service with its interconnect with Vector at the certificated level. In response, Bluewater installed a single 1,350 horsepower compressor at its interconnect with Vector in 2008 to help overcome Vector's increased operating pressure. However, Bluewater's 2008

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<sup>1</sup> The pronouns "we," "us," and "our" refers to environmental staff of the Office of Energy Projects.

<sup>2</sup> Bluewater's total firm storage capacity is 23,200,000 dekatherms (Dth) with a MDQ of 515,556 Dth/day. In the winter season of 2020/2021, the Project Customers would hold 492,000 Dth/d of the MDQ.

project only restored 120,000 Mcf/d of firm deliverability of the interconnect's 500,000 Mcf/d capacity. At that time, customers of Bluewater needed natural gas to be ultimately delivered in varying locations from Bluewater's gas storage facilities. However, Bluewater's customers have present and long-term needs to bring natural gas through Vector to serve loads in Wisconsin.

Under Section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate of Public Convenience and Necessity (Certificate) to construct and operate them. The Commission bases its decisions on financing, rates, market demand, gas supply, environmental impact, and other issues concerning a proposed project. Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment would not negatively affect the present or future public convenience and necessity.

### **3.0 PROPOSED FACILITIES**

The Project would involve the installation of a new compressor facility in Section 1, Township 4 North, Range 13 East, Ray Township, Macomb County, Michigan. The Project would occur 2,300 feet south of the intersection of 32 Mile and Omo Roads. A general location map and aerial photographs of the proposed facilities are provided in appendix A. The station is expected to include a compressor building, electrical control building, parts storage, and air compressor building. A chain linked security fence would surround the perimeter of the station site. Ancillary equipment installed within the compressor station includes, but is not limited to, gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. A 20-foot-wide gravel access road from Omo Road would be used to access the facility during construction and operation, and a temporary access road from 32 Mile Road would be constructed for use during construction. The compressor building would have various noise mitigating features that are further discussed in section B 8.4 of this EA.

Bluewater would construct two 105-foot-long sections of new pipeline to connect the proposed compressor station to the existing 20-inch-diameter pipeline. Approximately 420 feet of the existing 20-inch-diameter pipeline would be abandoned in place during the connection of the new station.

Bluewater would construct two berms to the north and east of the proposed station. The berms would be approximately 15 feet in height. A mix of evergreen and deciduous trees would be planted on top of the berms to further reduce the visual impacts of equipment on the surrounding area. The east berm would be triangular shaped and placed east of the existing tree line, while the north berm would be straight. Appendix C depicts the berm design and landscape plans. The berms are discussed in greater detail in section B.6.4 of this EA.

### **4.0 NON-JURISDICTIONAL FACILITIES**

Non-jurisdictional facilities could include facilities to be built and owned by other companies that are not subject to FERC jurisdiction. Non-jurisdictional facilities may include laterals or other pipeline-related facilities that may be constructed to allow Project interconnections for the receipt or delivery of the proposed natural gas volumes, or electric distribution systems that may be constructed to provide electricity or other services to Project facilities. Non-jurisdictional facilities associated with the Project include the following facilities:

- a 0.5-mile electric powerline on Omo Road; and
- an 80-foot communication tower.

Power to the compressor station would be provided by the local electric distribution company, DTE Energy. The service is expected to originate at the intersection of 32 Mile Road and Omo Road. An approximate 0.5-mile, 4.8 kilovolt, electric powerline would be constructed onto the existing poles in the Omo Road right-of-way. The new service line would extend to the site from Omo Road along the new permanent access road. It would be owned by DTE Energy until it reaches the site and is terminated at a transformer, at which point the powerline would be owned by Bluewater. Bluewater states that no federal or state permits are required to construct the needed electric distribution line. However, DTE Energy would require a local permit if the facility is ultimately to be constructed in the road right-of-way. DTE Energy would acquire such a permit if and when the Project is authorized.

Bluewater would construct a telecommunications free-standing monopole, with a 24-inch-diameter communications dish, that would connect to the existing control room at the Bluewater Gas Storage Site – Columbus Station. The tower would be approximately 80 feet in height and would be installed inside the station fence line. It would be light in color and would not require lights or guy wires. No federal permits would be required for the tower, including authorization from the Federal Aviation Administration, nor would state or local permits be required.

## 5.0 PUBLIC REVIEW AND COMMENT

On July 5, 2019, the Commission issued a *Notice of Intent to Prepare an Environmental Assessment for the Proposed Bluewater Compression Project, and Request for Comments on Environmental Issues* (NOI). The NOI was published in the Federal Register and mailed to 158 entities, including federal, state, and local government representatives and agencies; elected officials; Native American tribes; environmental and public interest groups; newspapers and libraries in the Project area; and affected landowners and interested parties.

We received a total of 30 comments prior to issuing the NOI and 16 comments in response to the NOI. However, many commenters filed multiple letters, adding to a total of 30 commenters. Commenters included 2 federal agencies, 3 state agencies, 2 local officials, 21 landowners, 1 tribe, and 1 consulting firm. The comments raised include a wide variety of environmental concerns, including purpose and need, wildlife, land use, visual resources, socioeconomics, air quality, noise, public safety, cumulative impacts, and alternatives. The primary issues and concerns raised in the comments are addressed in this EA in the appropriate resource section discussions, as identified below in table 1.

<b>Table 1</b> <b>Summary of Scoping Comments</b>	
Comment Summary	Section Where Comment is Addressed
Purpose and need	A.2.0
Noise impacts on wildlife and humans	B.4.2, B.8.4
Visual impacts and aesthetics	B.6.4
Socioeconomics- Property values	B.7.5
Increased Traffic and Road Damages	B.7.2
Safety – general safety concerns; risk of failure/explosion; pressure increase concerns; concerns with inadequate emergency infrastructure to handle an incident	B.9.0
Air quality, noise	B.8.0
Alternatives	C

Some comments address procedural issues, but others are addressed in the appropriate sections of the EA. We received comments from landowners that Bluewater has not performed adequate outreach, and one landowner claims, in particular, that they were excluded from particular meetings regarding the Project. Bluewater indicated in its September 5, 2019 filing that it initiated outreach on November 7, 2018,

attempting to meet door-to-door with all landowners within 0.5 mile of the Project. Bluewater held open houses on December 4, 2018 and August 7, 2019 and met with multiple landowners. Bluewater also mailed affected landowners project information after the FERC Notice of Application was issued. Bluewater stated in its December 19, 2019 filing that 22 calls were made to stakeholders in mid-September regarding additional features incorporated into the October 21, 2019 revised Project, including a berm design, and additional information was sent to all nearby landowners,

To ensure that affected landowners and stakeholders have the opportunity to participate in the NEPA review, the Commission issued an NOI as discussed above, and staff attended an open house and performed a site visit on August 7, 2019. With the issuance of this EA, the Commission is seeking additional comment from landowners and stakeholders on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts.

## **6.0 PERMITS, APPROVALS, AND REGULATORY CONSULTATIONS**

Bluewater would obtain all necessary permits, licenses, clearances, and approvals related to construction and operation of the Project. Bluewater would provide all relevant permits and approvals to the contractor, who would be required to adhere to applicable requirements. Table 2 displays the major anticipated federal and state permits for the proposed Project. Bluewater would be responsible for obtaining the permits and approvals necessary to construct its Project, regardless of whether they appear in the below table.

## **7.0 CONSTRUCTION, OPERATION, AND MAINTENANCE**

The Project would be constructed, operated, and maintained in accordance with the United States Department of Transportation (DOT) regulations in Title 49 CFR Part 192, (*Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*), applicable requirements of the Occupational Safety and Health Administration, and other applicable federal and state regulations. The requirements set forth in the aforementioned acts have been or would be provided to Bluewater's employees engaged in the planning, construction, maintenance and operation of the Project and would be provided to Bluewater's construction contractors and third-party inspectors. These employees and contractors have been or would be instructed to follow these requirements, as applicable, when installing and operating the facilities.

Bluewater would implement FERC's *Upland Erosion Control, Revegetation and Maintenance Plan* (Plan), and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures)<sup>3</sup> for the Project. Bluewater would also implement a project specific *Soil Erosion and Sediment Control* (SESC)<sup>4</sup> and *Spill Procedures*<sup>5</sup>, and a *Winter Construction Plan*<sup>6</sup> to minimize sediment impacts outside of the Project

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<sup>3</sup> The Commission's Plan and Procedures include best management practices for pipeline facility construction to minimize resource impacts and can be found online (<http://www.ferc.gov/industries/gas/enviro/guidelines.asp>).

<sup>4</sup> Bluewater's SESC can be found in appendix 7B of its application filed on May 23, 2019 (accession number 20190523-5182).

<sup>5</sup> Bluewater's updated Spill Procedures can be found in Bluewater's August 6, 2019 response to our July 17, 2019 data request (accession number 20190806-5154).

<sup>6</sup> Bluewater's Winter Construction Plan can be found in its September 27, 2019 filing (accession number 20190927-5169).

<b>Table 2</b> <b>Permits, Approvals, and Consultations Applicable to the Project</b>		
<b>Responsible Agency</b>	<b>Permit or Clearance Required</b>	<b>Status of Permit/Clearance</b>
<b>Federal</b>		
FERC	Certificate for construction and operation of interstate natural gas transmission pipeline facilities	Application filed May 23, 2019 Pending
U.S. Fish and Wildlife Service (FWS) – East Lansing Ecological Services Field Office	Endangered Species Act, Section 7	No effect determination received February 11, 2019
	Migratory Bird Treaty Act consultation	No effect determination received February 11, 2019
Natural Resources Conservation Service (NRCS)	No permit required – consultation for restoration and seeding recommendations	Consultation completed November 15, 2018
Michigan State Historic Preservation Office (SHPO)	Section 106 consultation, National Historic Preservation Act (NHPA)	No historic properties affected concurrence received January 18, 2018
U.S. Army Corp of Engineers (USACE) – Detroit District	Section 404 permit – Nationwide Clean Water Act (CWA) and Section 10 Rivers and Harbors Act	USACE delegated authority to Michigan Department of Environment, Great Lakes, and Energy (EGLE); notification of no impact submitted November 30, 2018
<b>State – Michigan</b>		
Michigan Department of Natural Resources	Potential impacts on sensitive species (e.g., state-listed and species of special concern), game species and important habitats	no effect determination received December 12, 2018
EGLE – Water Resources Division	Joint Permit Application for Work in Inland Lakes and Streams, Wetlands, Floodplains, Dams, High Risk Erosion Areas and Critical Dune Areas	Notification of no impact letter submitted November 30, 2018
EGLE – Air Quality Division	Rule 201 Permits to Install/New Source Review	Air permit submitted January 4, 2019; Pending
EGLE – Construction Storm Water Program	Notice of Coverage if disturbing more than five acres, automatic coverage under Part 91 Permit if less than five acres	To be obtained prior to construction
EGLE – Construction Dewatering	Permit MIS110000	To be obtained prior to construction
<b>Local</b>		
Macomb County, Michigan	Right-of-way Construction Permit and Driveway Permit	To be obtained prior to construction
Macomb County, Michigan Soil Conservation Office	Part 91 Soil Erosion and Sediment Control Permit	To be obtained prior to construction

area and ensure proper handling of lubricants, fuel, or other potentially toxic materials and prevent spills, respectively, during construction.

## 7.1 General Construction Procedures

If the Project is approved, Bluewater proposes to begin construction in June 2020. Project construction would take approximately 12 months. Construction activities would take place during daylight hours on Monday through Saturday for approximately 10 hours per day. Nighttime work may occur for discrete activities that require extended hours of uninterrupted work and cannot be limited to daytime hours, such as commissioning, pipeline tie-ins, and hydrostatic testing. Bluewater would require all contractors to utilize sound control devices no less effective than those provided by the manufacturer and maintain equipment in accordance with manufacturer's recommendations. The average construction workforce

would consist of approximately 40 workers including construction and inspection personnel. The workforce would peak at approximately 80 construction workers and decrease to 4 workers at lowest activity. No new permanent employees would be added.

Construction would generally include surveying and staking, clearing and grading, foundation installation, erection of above-grade facilities, installation of piping equipment, testing of equipment, clean-up, and restoration of the Project area. General construction activities for the Project are described below.

- Surveying and Staking – The crews would survey and stake the outside limits of the additional temporary workspace (ATWS), the location of the compressor station, proposed pipeline segments, and all known underground facilities. Bluewater and its contractors would abide by the regulations of the local One Call notification system to allow utilities with facilities in the Project area to locate and mark utility lines prior to the survey. Affected landowners would be notified prior to the preconstruction survey.
- Clearing and Grading – The temporary workspaces would be cleared of vegetation and graded. Topsoil would be removed and stockpiled separately from subsoil. Tree clearing would not begin until after October 16, 2020.
- Erosion and Sediment Control – Soil erosion and sedimentation control measures would be installed along the perimeter of the compressor station work space as necessary to intercept overland flow at the site in accordance with the Project SESC plan. Bluewater would implement generally accepted Best Management Practices such as reduced speed in the Project workspace and inspections of erosion control measures to limit wind erosion during construction and restoration activities.
- Piping – Two 105-foot-long trenches would be excavated to install station piping headers at the construction station, to install the new pipe sections, and to abandon the existing pipeline. A rotary trenching machine, a track-mounted backhoe, or similar equipment would be used for the excavation. A hydro-vac excavator would be used to confirm the depth of the existing pipeline. Subsoil would be removed and stockpiled next to the topsoil during the trench excavation. Stringing trucks would deliver steel pipe to the ATWS north of the compressor station. The pipe joints would be welded together and transported to the pipeline right-of-way via backhoe or other similar equipment. Before lowering the pipe, the trench would be inspected to ensure that it is free of rocks and other debris that could damage the pipe or the coating. Trench dewatering may be necessary at certain times during the lowering-in process. Trench dewatering would be accomplished in accordance with the applicable permit conditions and the Plan and Procedures.
- Foundation Installation – After site preparation is complete, reinforced concrete foundations would be constructed as appropriate for the compressor station facilities. Concrete foundation installation includes placement of forms and rebar followed by the concrete pour and cure. The concrete would be tested to ensure minimum strength requirements.
- Building Aboveground Facilities – Above-grade facilities would be installed after foundations are completed. The proposed facility would include station recycle control valve, gas cooling system, blowdown silencers, unit inlet air filters and exhaust systems, a backup generator, a fuel gas heating skid, a fire/gas detection system, an air compressor and dryer system, a compressor building, an auxiliary building with office space and a control room, a microwave tower, associated above-grade and below-grade piping, valves

and instrumentation. The compressor building would contain noise-attenuating panels, insulation and air inlet/exhaust hoods.

- **Testing of Equipment** – All pipe welds would be visually inspected and non-destructively tested in accordance with American Petroleum Institute and Bluewater’s standards for defects. Buried welds would be coated with field-applied liquid-epoxy coatings to protect against corrosion. Any damages would be repaired. After the below-grade piping installation and inspection, the areas would be backfilled with previously excavated subsoil. Where the previously excavated subsoil contains large rocks or other materials that could damage the pipe or coating, clean fill and/or protective coating (i.e., padding material) would be placed around the pipe prior to backfilling. Once backfill with subsoil is complete, the topsoil would be returned. Excess soil and rock would be disposed of in an upland location onsite or taken to an approved off-site upland location for disposal. Hydrostatic pressure testing would then be conducted in accordance with DOT regulations Title 49 CFR Part 192 to verify the integrity of the pipeline and equipment.
- **Clean-up and Restoration** – Original land contours would be restored, as near as practicable to preconstruction conditions. Disturbed land would be reseeded per the Plan’s requirements and in accordance with individual landowner agreements. Construction debris would be removed for proper disposal. Cleanup would include restoring the slope, contour, grade and drainage of the right of way as near as practicable to preconstruction conditions. The trench may be crowned to allow for anticipated settlement of the backfill. Non-graveled areas within the fence of the permanent compressor station would be allowed to revegetate and would be maintained/mowed during operation. Non-operational land would be reseeded in accordance with the Commission’s Plan and Bluewater’s specifications. All construction equipment would be removed following final clean-up activities.

## **7.2 Special Construction Procedures**

Special construction techniques necessary to complete the Project would be limited to the activities described below.

- **Access Roads** – To access the abandonment ATWS and new pipeline right-of-way, Bluewater would use a 2,000-foot section of their existing right-of-way as a temporary access road from 32 Mile Road. Improvements to the right-of-way would not be required. Bluewater would use a 340-foot-long temporary approach from 32 Mile Road to the existing right-of-way to access the work area. This temporary access road would be restored to previous conditions after the completion of construction. A new 20-foot-wide permanent access road would be used to access the facility from Omo Road during construction and operation (appendix A). It would be graveled and installed in accordance with state and county regulations.
- **Residential Areas** – No residences occur within 50 feet of the compressor station construction workspace. A residence occurs approximately 30 feet east of the temporary access road. Bluewater would fence the edge of the temporary access facing the residence for 100 feet to ensure that construction equipment remains in the approved temporary access area.
- **Active Croplands** – Most of the active cropland would be owned by Bluewater, with the exception of the construction access within Bluewater’s existing easements. Construction



in agricultural areas would be conducted in accordance with the Plan and Procedures and topsoil would be conserved in areas that would resume agricultural use after construction. If drain tiles are found within the compressor station workspace owned by Bluewater, the drain tiles would be abandoned. If drain tiles are found in the pipeline right-of-way or abandonment total workspace then they would be either temporarily repaired or removed. Permanent drain tile repairs in the right-of-way and ATWS would be completed during restoration and include scoping and snaking to determine if the existing tile is damaged. Damaged drain tiles in this area would be replaced with new tile supported by a secondary method such as perforated corrugated steel pipe and inspected. During restoration, a minimum of 48 inches of cover over pipes in actively cropped areas would be installed. Topsoil and subsoil would be tested for compaction and Bluewater would decompact the subsoil as necessary. Bluewater would conform to the Plan in ensuring that at restoration, the size, density, and distribution of rocks is similar to adjacent areas not disturbed by construction.

- Earthen Berms – After the area is cleared and graded, borrow material would be placed and compacted into lifts to build up the berms. The berms would be topped with contaminant free topsoil from a third-party seller, fertilized and seeded with a seed mix appropriate to the sight and slope. The berms would have an approximately 10 to 15-foot-wide plateau at the top that is moderately sloped. For the triangular shaped berm on the east side of the property, the side slopes would be 3:1 or flatter, while the berm on the north side of the property may have steeper side slopes due to space restrictions. Side slopes that are 2:1 or flatter would be sprayed with hydro-mulch and/or tackifier or covered with erosion control blanket until the seed is fully established. If the side slopes are steeper than 2:1, a biodegradable mat combined with earth anchors or soil pins would be utilized to stabilize the side slopes.
- Abandonment – 420 feet of existing 20-inch-diameter pipeline would be abandoned in place. Bluewater would lower the pressure in the existing pipeline, cut the pipe, purge it with a nitrogen blanket, then pressurize and cap the abandoned segment. Bluewater would weld a lug on the abandoned pipe to address the requirements for the cathodic protection system.

For purposes of quality assurance and compliance with mitigation measures and other applicable regulatory requirements and specifications, Bluewater would employ a Construction Inspector (CI). The CI would be assisted by one Environmental Inspector (EI). The EI would have a regular presence during construction, would have stop-work authority, and would report directly to Bluewater's environmental personnel. The EI's duties would be consistent with those contained in section II.B (Responsibilities of the EI) of the Plan and would include ensuring compliance with the FERC environmental regulations, Bluewater's environmental designs and conditions attached to other permits or authorizations. Pursuant to 18 CFR § 157.208(c)(10), the EI will prepare a weekly report that will be filed with FERC. If a contractor's performance is unsatisfactory, the terms of the contract will allow Bluewater to stop work in progress and require a contractor to begin remedial work. FERC staff would monitor compliance with any Commission Order and would conduct period field inspections of the Project facilities.

### **7.3 Operation and Maintenance**

Bluewater would operate and maintain the proposed facilities in compliance with Title 49 CFR Part 192, Commission regulations in 18 CFR § 380.15, and the maintenance provisions of the Plan and Procedures. In addition, the facility would be maintained in accordance with Bluewater's existing

Operations, Maintenance and Engineering Manual, Control Room Management, Integrity Management Program, and Emergency Response plans for its Columbus III and Kimball facilities.

No additional full-time staff personnel would be required to accommodate the additional workload associated with the operation of the Bluewater compressor station. The compressor station would be a remotely-operated facility. The remote operation at the compressor station includes 24/7 monitoring by Bluewater's Control Center at the Columbus facility. The Control Center would monitor pressures, temperatures, flows and compressor status as well as safety systems (fire and gas detection, emergency shutdowns). A camera system would be installed to assist with remote monitoring. In addition, a qualified Bluewater employee would continue to visit all operating compressor sites at least once a day.

## **8.0 LAND REQUIREMENTS**

The Project would require 11.9 acres of land for construction, 9.0 of which would be required for operation. Most of the land disturbance would occur within the 10 acres of land Bluewater purchased on March 20, 2019. The exception would be the 2.2 acres used for the temporary access road and the 0.7 acre required for the additional temporary workspace for the pipeline abandonment. No permanent impacts would occur outside of Bluewater's property line. A summary of the land requirements for construction and operation of the facilities is provided in Table 3.

Access to the construction area would be obtained from a new temporary access road connected to 32 Mile Road and one permanent access road located connected to Omo Road. The permanent access road would remain the primary access to the station at the conclusion of construction. During construction of the compressor station, berms and other associated facilities, Bluewater would utilize 8.9 acres of ATWS. Bluewater would add fencing around approximately 3.2 acres of land for operation of the compressor station. Permanent berms would permanently impact 4.7 acres and would be constructed outside of the fence. The total permanently graveled area for the compressor station site, including the permanent driveway, would occur on approximately 1.5 acres of land. None of the compressor station workspace or operational footprint overlap with existing pipeline right-of-way.

Bluewater is proposing to use 3.0 acres of construction right-of-way, ATWS and the temporary access road to accommodate construction activities for the new pipe segment installation and pipeline abandonment. Bluewater would use a 40-foot-wide construction right-of-way for installation of the new pipelines, all of which would be maintained as permanent right-of-way. ATWS centered over the existing 20-inch-diameter pipeline would be used for abandonment activities. Access to the construction area would be gained from a temporary access road connected to 32 Mile Road. Approximately 2.3 acres of the construction footprint overlaps with existing pipeline right-of-way. Roughly 0.1 acre would be maintained during operation of the new pipe segments. Approximately 0.04 acre of the operational footprint overlaps with existing pipeline right-of-way.

<b>Table 3</b> <b>Land Requirements for the Project</b>		
<b>Facility</b>	<b>Land Affected During Construction (acres)</b>	<b>Land Required During Operation (acres)</b>
Macomb County, MI		
Pipeline Right-of-Way	0.14	0.14
ATWS - Pipeline Abandonment	0.74	0.00
Temporary Access	2.15	0.00
ATWS - Bluewater Compressor Station <sup>1</sup>	8.88	8.88
<b>Total</b>	<b>11.91</b>	<b>9.02</b>
<sup>1</sup> Includes Permanent access road		

## **SECTION B – ENVIRONMENTAL ANALYSIS**

### **1.0 GEOLOGY**

The Project would be within the Maumee Lake Plain region of the Central Lowland physiographic province. The Maumee Lake Plain region is comprised of plains associated with glacial Lake Maumee and is characterized by low relief, sandy to clayey surface textures, deltas, and numerous beach ridges (Michigan Geological Survey, 2009).

The Project overlies Mississippian age shale bedrock, which is at least 180 feet below grade throughout the compressor station area (Milstein, 1987; Michigan Department of Environment, Great Lakes, and Energy [EGLE], 2018a). Bedrock is overlain by glacial deposits consisting of lacustrine, outwash, and till deposits (Apple, 2007). Topography within the Project area is relatively level with an average elevation of 680 feet above mean sea level.

Bluewater completed nine geotechnical borings within the Project area to depths between 35 and 40 feet below grade. Based on the results of these investigations, site soil conditions vary from granular soils (sands and silts) to clays, but the general soil profile consists of 4 to 12 inches of topsoil overlying very loose to very dense natural sands and medium to hard native clays. Hard/extremely dense hardpan/glacial till soils were encountered at depths of about 23.5 to 29.5 feet below the ground surface. During geotechnical boring installation, shallow groundwater was encountered at depths of 3 to 12.5 feet below the ground surface.

#### **1.1 Mineral Resources**

Sand and gravel are the principal non-petroleum mineral resource in Macomb County, Michigan (U.S. Geological Survey [USGS], 2019a). No active, inactive, abandoned, or permitted surface or subsurface mines were identified within 0.25 mile of Project area (EGLE, 2019a, USGS, 2011).

Three dry holes, one test hole, and three active gas storage observation wells were identified within 0.25 mile of the Project workspace. The closest of these features would be a dry hole located approximately 260 feet from Bluewater's proposed temporary access road. The Project is adjacent to the Consumers Energy Ray natural gas storage field and the portion of the proposed temporary access road that parallels Division Road would overlie the permitted area of this storage field.

Based on the distance to mineral resources, and because Project areas that overlie the subsurface natural gas storage field are temporary and surficial, we conclude that impacts on fuel and non-fuel mineral resources would not occur during Project construction and operation.

#### **1.2 Geologic Hazards**

Geologic hazards are natural, physical conditions that can result in damage to land and structures or injury to people. Such hazards are typically seismic-related, including earthquakes, surface faulting, and soil liquefaction; landslides; and ground subsidence hazards. These hazards are discussed below.

The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake expressed in terms of g. USGS National Seismic Hazard Probability Mapping shows that for the Project area, within a 50-year period, there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of 4 to 6 percent g; and a 10 percent probability of an earthquake with an effective PGA of 1 to 2 percent g being exceeded (USGS, 2014). For reference, PGA of 10 percent g (0.1g) is generally considered the minimum threshold for damage to older

structures or structures not constructed to resist earthquakes. Even under much higher ground vibrations, the main risk to pipelines and aboveground facilities would be a fault that displaces laterally during an earthquake. Project facilities are not underlain by this type of feature (USGS, 2019b). Given these conditions, we conclude that there is a low potential for damage due to prolonged ground shaking or ground rupture to occur within the Project area. Further, because the Project is in an area with low seismicity, the potential for soil liquefaction to occur is negligible.

Project area topography is generally flat or gently sloping. As such, the potential for landslides to occur during construction or operation of the Project is negligible.

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst formation due to limestone or gypsum bedrock dissolution; sediment compaction due to groundwater pumping and/or oil and gas extraction; and underground mining. Subsurface mines do not occur in the Project area. The Project is not within mapped karst terrain areas and the lithology that could lead to bedrock dissolution and karst development do not generally occur in the Project vicinity (Michigan State University, 2019). Further, incidences of subsidence from groundwater or oil and gas extraction in Macomb County were not identified (Michigan Department of State Police, 2019).

Based on Bluewater's construction methods and mitigation measures, we conclude that the impact from geologic hazards on the Project facilities during construction and/or operation would be minimal and that the Project would not significantly impact geologic resources.

## **2.0 SOILS**

Soil characteristics in the Project area were assessed using the Natural Resources Conservation Service (NRCS) Soil Survey geographic database (2018). Soils were grouped and evaluated according to the characteristics that could affect construction or increase the potential for soil impacts during construction (refer to table 4). Soils are not characterized as having a shallow depth to bedrock (bedrock within 60 inches of the ground surface).

Typical soil impacts that may occur during construction include mixing of topsoil and subsoil layers, compaction, rutting, erosion, and alteration of drainage characteristics. Clearing, grading, trench excavation, backfilling, heavy equipment traffic, and restoration have the potential to adversely affect natural soil characteristics such as water infiltration, storage and routing, and soil nutrient levels, thus reducing soil productivity. Clearing also removes protective vegetative cover and exposes soils to the effects of wind and water which increases the potential for soil erosion.

<b>Table 4</b> <b>Soil Characteristics and Limitations (Construction Impacts)</b>					
<b>Facility Name</b>	<b>Prime Farmland<sup>1</sup></b>	<b>Hydric<sup>2</sup></b>	<b>Low Revegetation Potential<sup>3</sup></b>	<b>Highly Compaction Prone<sup>4</sup></b>	<b>Highly Erodible<sup>5</sup></b>
<b>Temporary Access Road (acres)</b>	2.2	0.4	1.2	1.2	0.9
<b>Pipeline Right-of-Way (acres)</b>	0.1	0.0	0.1	0.1	0.0
<b>ATWS (pipeline abandonment) (acres)</b>	0.7	0.0	0.7	0.7	0.0
<b>ATWS – Bluewater Compressor Station (acres)</b>	8.9	4.5	8.9	8.9	0.0
<b>Total (acres)<sup>6</sup></b>	11.9	4.9	11.0	11.0	0.9
<b>Percent of Total Project Area<sup>7</sup></b>	100.0	41.2	92.4	92.4	7.6
<sup>1</sup> As designated by the NRCS, includes prime farmland, farmland of statewide importance, and farmland of local importance. <sup>2</sup> As designated by the NRCS. <sup>3</sup> Based on NRCS potential for seedling mortality rating class. <sup>4</sup> Includes soils with a rating of “very limited” based on “shallow excavation” classification, per the NRCS. <sup>5</sup> Includes soils in wind erodibility groups 1 and 2 (highly wind erodible); soils are not highly water erodible. <sup>6</sup> Due to rounding, total may not equal sum of addends. <sup>7</sup> Totals may not equal 100 percent as not all soils are classified with limitations and certain soils are classified as having multiple limitations.					

### *Prime Farmland*

The U.S. Department of Agriculture defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops. Unique farmland is land that is used for production of specific high-value food and fiber crops. In addition, soils may be considered of statewide or local importance if those soils are capable of producing a high yield of crops when managed according to accepted farming methods.

The construction workspace would temporarily disturb approximately 11.9 acres of prime farmland and farmland of local importance, of which all but less than 0.1 acre are in current agricultural use. Approximately 8.9 acres (comprising the compressor station footprint and berms) would permanently convert to industrial use.

Impacts on agricultural soils would be minimized and mitigated in accordance with the FERC Plan. These include measures to conserve and segregate the upper 12 inches of topsoil, alleviate soil compaction, protect and maintain existing drainage tile and irrigation systems, prevent the introduction of weeds, and retain existing soil productivity. Implementation of proper topsoil segregation, soil decompaction, drainage, and weed controls would help ensure post-construction revegetation success and productivity, thereby minimizing the potential for long term impacts on agricultural lands. Therefore, we conclude that the majority of impacts on prime farmland and farmland of local importance would be temporary and minor.

Permanent impacts quantitatively represent less than 0.01 percent of the total area of prime farmland and farmland of local importance within Macomb County.<sup>7</sup> Therefore, impacts on the availability of prime farmland and farmland of local importance would not be significant.

<sup>7</sup> Per the NRCS (2018), there is approximately 254,650 acres of prime farmland, unique farmland, and farmland of statewide or local importance in Macomb County.

### *Soil Erosion and Revegetation Potential*

To minimize or avoid potential impacts due to soil erosion, Bluewater would implement controls in accordance with the Plan. Temporary erosion controls, including sediment filter devices (e.g., hay bales, wattles or silt fence) would be installed immediately following land disturbing activities. Bluewater would inspect these devices on a regular basis and after each rainfall event of 0.5 inch or greater to ensure proper function. Bluewater would additionally utilize dust-control measures, including routine wetting of the construction workspace as necessary. Temporary erosion control devices would be maintained until the Project area is successfully revegetated or permanently stabilized with gravel surfacing. Within the compressor station, land contours would be restored as near as practicable to preconstruction conditions. Non-graveled areas within the fence of the compressor station would be allowed to revegetate and would be maintained/mowed during operation. On Bluewater-owned property, Bluewater would determine the seed mix and seed rates; on land not owned by Bluewater, seed mixes and rates would follow recommendations of state and local regulatory agencies. Active agricultural areas would not be seeded or mulched and would be planted by the landowner unless the landowner requests otherwise.

Excess soil disturbed during construction activities would be utilized to construct earthen berms on the northern and easterly ends of the property. Any additional soils would be stored on-site. Bluewater does not plan on using topsoil as fill material to create the berms. However, to stabilize the berms, Bluewater plans to spread topsoil on the berm surfaces from areas that would be covered with permanent structures. Reusing the topsoil in this manner would aid in efficient revegetation of the berms. In addition, straw mulch or an anchored mulch netting would be applied to minimize erosion until vegetation is established.

The U.S. Environmental Protection Agency (EPA) states a concern that the abandoned pipeline would become exposed due to erosion. The soil unit where abandonment would take place does not have high wind or erosion potential. Furthermore, due to lack of any significant slope or waterbody crossings, and the fact that it would revegetate over time, it is unlikely that this abandoned pipeline would become exposed in the future due to erosion.

Given Bluewater's proposed mitigation measures and that disturbed areas would be returned to pre-construction conditions, maintained in an herbaceous state, or stabilized with gravel cover, we conclude that significant impacts due to soil erosion or poor revegetation potential are not anticipated.

### *Soil Compaction*

Soils underlying permanent aboveground facility foundations would be permanently affected by compaction; however, these effects would be highly localized and minor. Bluewater would de-compact soils in temporary workspaces in accordance with the FERC Plan. In agricultural areas, soils may be de-compacted with a paraplow or chisel plow, and compaction testing would be conducted on the subsoil to verify levels are comparable to adjacent undisturbed areas. Once decompaction of the subsoil is complete, segregated topsoil would be returned to the right-of-way. Decompaction would be completed on the restored topsoil using shallow-ripping tools. Based on these measures, we conclude that significant impacts due to soil compaction are not anticipated.

### *Inadvertent Spills or Discovery of Contaminants*

Bluewater reviewed the EGLE Environmental Mapper (2019a), the EPA Cleanups in My Community Map (2019a), and the Michigan Waste Landfill Facilities Map (2017). Within 0.25 mile of the Project area, one contaminated site, the Ray Compressor Station, was identified. Additional information on this site was not publicly available, however, given the distance to this site (approximately 0.2 mile) and

Project area land use as agricultural and forested land, Project construction is unlikely to encounter pre-existing soil contamination.

During construction, contamination from accidental spills or leaks of fuels, lubricants, and coolant from construction equipment could adversely impact soils. To minimize impacts, Bluewater would implement measures contained in its Spill Procedures which specifies cleanup procedures in the event of inadvertent spills during Project construction. We have reviewed this plan and find it to be acceptable.

Based on these measures, we conclude that the Project's impacts on soils would be minor and not significant.

### **3.0 WATER RESOURCES AND WETLANDS**

#### **3.1 Groundwater**

The Project area is underlain by the Coldwater Shale confining unit. This shale formation has sandstone units that yield sufficient supplies of water; however, this aquifer does not contribute a significant amount of groundwater for the region, and the water tends to be mineralized. The majority of wells in Macomb County are completed in glacial deposits rather than in the Coldwater Shale bedrock unit. These surficial deposits are outwash composed of sand and gravel, and yield between 10 and 200 gallons per minute in the Project vicinity (EGLE, 2018b).

The EPA oversees the Sole Source Aquifer Protection Program to protect high production aquifers that supply 50 percent or more of a region's water supply and for which there are no reasonably available alternative drinking water sources should the aquifer become contaminated. The Project area does not overlie any EPA-designated sole-source aquifer(s) (EPA, 2019b).

Wellhead protection areas are defined as designated surface and subsurface zones surrounding public water supply wells or wellfields. Project facilities would not overlie current wellhead protection areas (EGLE, 2019c).

Bluewater reviewed data from EGLE to obtain information on public and private wells within 150 feet of the Project area. Based on this review, one private well is approximately 87 feet east of the temporary access road. Bluewater would complete pre- and post-construction testing of this well and other water supply wells within 150 feet of the construction workspaces (if identified) and would provide temporary sources of potable water until a permanent replacement supply well can be provided if the results of testing demonstrate that the Project adversely impacted a supply well.

Surface drainage and groundwater recharge patterns can be temporarily altered by clearing, grading, trenching, and soil stockpiling activities, potentially causing minor fluctuations in groundwater levels and/or increased turbidity, particularly in shallow surficial aquifers. We expect the resulting changes in water levels and/or turbidity in these aquifers to be localized and temporary because water levels quickly re-establish equilibrium and turbidity levels rapidly subside. The addition of impervious surfaces and berms at aboveground facilities may permanently affect overland flow patterns and subsurface hydrology. However, these effects would be highly localized and minor.

An accidental spill of fuel or hazardous material during refueling or maintenance of construction equipment could affect groundwater if not cleaned up appropriately. Soils impacted from spills could continue to leach contaminants to groundwater long after the spill has occurred. To minimize the risk of potential fuel or hazardous material spills, Bluewater would implement measures within its Spill Procedures



and would prohibit refueling activities and storage of hazardous liquids within a 200-foot radius of all private wells and a 400-foot radius of all municipal or community water supply wells (if any).

Therefore, we conclude there would be no significant impacts from construction and operation of the facilities on groundwater resources.

#### *Groundwater Contamination*

There are no known sources of groundwater contamination in the immediate vicinity of the Project workspaces (EGLE, 2019b; EPA, 2019a; EGLE, 2017). Therefore, the Project is not likely to encounter existing contaminated groundwater during construction.

### **3.2 Surface Water**

The Project is located in the North Branch subwatershed of the Clinton River watershed basin. Based on a review of USGS topographic maps (1:24,000 scale), USGS National Hydrography Dataset, National Wetlands Inventory data, and a wetland delineation, no jurisdictional waterbodies are present within or adjacent to the Project area. However, two non-jurisdictional ditches occur within the Project site east and north of the proposed compressor station. Neither feature connects to jurisdictional waters, and both are considered upland drainage features, although the swale on the east part of the project site conveys stormwater.

The eastern ditch runs parallel and just adjacent to Omo Road and would be crossed by the permanent access road. During construction of the permanent access road off of Omo Road, a 58-foot-long culvert would be installed beneath the permanent access road entrance and the center line of the roadside ditch to maintain drainage and conveyance of stormwater. The maximum dimensions of impact to this ditch would be 76 feet by 12 feet. Bluewater would implement our Plan and Procedures and its SESC Plan to minimize impacts from construction. Temporary erosion control measures would include at least two strips of coconut fiber rolls placed downstream of the proposed access road and perpendicular to the ditch flow line.

The other ditch runs just south of the 320-foot-long portion, running east-west, of the temporary access road from 32 Mile Road. This ditch drains towards a low spot in the agricultural field north of the project area. Water infiltrates at this location and no jurisdictional water of the U.S. or State of Michigan is present. Impacts to this ditch would be minimized by Bluewater using an existing access road in this area.

No sensitive waterbodies occur in the Project area, therefore no impacts on sensitive waterbodies would occur as a result of the Project. Bluewater would utilize erosion control devices in accordance with our Plan and Procedures to minimize erosion and stormwater runoff into nearby waterbodies and wetlands. Therefore, we conclude that the Project would not significantly impact surface water.

#### *Hydrostatic Testing*

Pressure testing would be conducted in accordance with DOT regulations Title 49 CFR Part 192 and Bluewater procedures and standards to verify the integrity of the equipment before being placed into service. Bluewater would obtain 26,000 gallons of water from the Richmond Michigan municipal water treatment facility. No chemicals would be added to the hydrostatic test water. After use, the test water would be extracted using a vacuum truck and returned to Richmond Michigan municipal water treatment facility for disposal. Due to the source and disposal methods mentioned, we conclude that hydrostatic test water would not have a significant impact on water resources.

### 3.3 Wetlands

Wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of wetland vegetation adapted for life in saturated soil conditions, commonly known as hydrophytic vegetation (Environmental Laboratory, 1987). Wetlands can be a source of substantial biodiversity and serve a variety of functions that include providing wildlife habitat, recreational opportunities, flood control, and naturally improving water quality.

No wetlands were observed within the Project area during 2018 field surveys, on National Wetland Inventory maps, or other aerial orthography. Any wetlands that may be present offsite would be protected by Bluewater's implementation of the minimization measures in our Plan and Procedures. Therefore, the Project would have no direct impacts on wetlands. Furthermore, we find that potential indirect impacts to wetlands would be sufficiently minimized and not significant.

## 4.0 VEGETATION, WILDLIFE, AND THREATENED AND ENDANGERED SPECIES

### 4.1 Vegetation

The vegetation types in the Project area are agricultural and forest/woodland (tree lines).

The agricultural fields encompass active cropland and specialty crop production areas. Cropland includes areas that are regularly cultivated and used to grow row crops, including winter wheat, corn and soybeans. Cropland that had recently been tilled occurs in the Project area, as well as areas that had been harvested, and fallow or idle areas that appeared to be regularly used to grow agricultural crops. Soybeans are the most common crop in the Project area. Common plant species in the agricultural area are soybean (*Glycine max*), Kentucky bluegrass (*Poa pratensis*), Johnson grass (*Sorghum halapense*), alkali muhly (*Muhlenbergia asperifolia*), velvet leaf (*Abutilon Theophrastus*), Queen Anne's lace (*Daucus carota*), and red root (*Amaranthus retroflexus*).

The upland forested areas are dominated by woody vegetation. Mixed early successional/second growth deciduous forest habitat is present in small amounts as a tree/shrub line separating agricultural fields within the Project area. Dominant plant species within the forested habitat consists of quaking aspen (*Populus tremuloides*), green ash (*Fraxinus pennsylvanica*), black cherry (*Prunus serotina*), Missouri willow (*Salix eriocephala*), eastern cottonwood (*Populus deltoides*), and bur oak (*Quercus macrocarpa*). Dominant species within the understory include pussy willow (*Salix discolor*), blackberry (*Rubus occidentalis*), Allegheny blackberry (*Rubus allegheniensis*), and white heath American aster (*Symphyotrichum ericoides*).

Table 5 identifies the impacts on each vegetation type. Construction of the Project would impact 11.9 acres of agricultural land and 0.06 acre of forested land while operation would impact 9.0 acres of agricultural land and 0.06 acre of forested land. Approximately 2.9 acres of agricultural land and 0.06 acre of forested land would be reseeded and maintained in an herbaceous state.

We received a comment regarding the location of tree removal. The forest/woodland that would be impacted occurs in the temporary workspace for the two 105-foot-long sections of new pipeline that would connect the existing pipeline to the compressor station. As demonstrated in the aerial figure in appendix A, the existing tree line that bisects the site from south to north would remain in place.

Unique or sensitive vegetation types do not occur in areas that would be affected by the Project. The primary impact on vegetation would be a temporary loss of vegetative cover associated with extra temporary workspace required for construction of the Project and permanent loss of vegetative cover associated with operation of the Project facilities.

<p align="center"><b>Table 5</b> <b>Project Impacts on Vegetation Types</b></p>				
<b>Facility</b>	<b>Agricultural Land</b>		<b>Forest/Woodland</b>	
	<b>Construction<sup>1</sup> (acres)</b>	<b>Operation (acres)</b>	<b>Construction<sup>1</sup> (acres)</b>	<b>Operation (acres)</b>
Pipeline Installation and Abandonment	2.97	0.08	0.06	0.06
Bluewater Compressor Station and Permanent Access Road	8.88	8.88	0.00	0.00
<b>Total</b>	<b>11.85</b>	<b>8.96</b>	<b>0.06</b>	<b>0.06</b>
<sup>1</sup> Construction impacts include temporary and permanent impacts.				

Federal and state listed potential noxious weeds and invasive plants were obtained from the U.S. Department of Agriculture's Federal Introduced, Invasive and Noxious Plants database and the Michigan Department of Agriculture and Rural Development prohibited and restricted weeds list, respectively. During the field survey, Queen Anne's lace, Johnson grass, and velvet leaf were identified within or adjacent to the environmental survey area. These species are listed as restricted or prohibited noxious weeds by the Michigan Department of Agriculture. Velvet leaf was observed primarily outside of the proposed construction footprint. A population of velvet leaf was observed in the southeast corner of the fallow field, east of the eastern tree line, and south of the proposed driveway. Queen Anne's lace and Johnson grass were also observed scattered intermittently throughout the southern half of this fallow field.

The Project would have minimal impacts on forested and agricultural vegetation due to the abundance of similar vegetation in the surrounding landscape. Bluewater would control the introduction of noxious weeds and invasive plants in the Project area through implementation of the Plan and Procedures. In addition, Bluewater would ensure all ground disturbing equipment is clean and free of soil or plant debris prior to arriving onsite and leaving the Project site. Due to the small portion of permanent vegetation conversion and the invasive plant control measures, we conclude that the Project would not significantly impact vegetation.

## 4.2 Wildlife

The primary habitat types in the Project vicinity are active agricultural fields separated by thin lines of forest. Common wildlife species in the Project area include white-tail deer, rabbits, squirrels, opossum, fox, coyote, raccoon and various rodents. The limited forested areas within the Project area may provide nesting habitat and a food source for a variety of songbirds. No significant or sensitive habitat areas, wildlife preserves, or areas of habitat designated for wildlife management occur within the Project area.

Potential impacts on wildlife include loss of vegetation and habitat, as well as species displacement and disturbance of wildlife species due to noise from construction and operation of the Project. Most species would relocate or avoid the construction area; however, construction could result in the mortality of less-mobile animals such as small rodents, reptiles, amphibians, and invertebrates that may be unable to escape the immediate construction area. Artificial lighting could also confuse migratory birds and lead to other changes to their foraging and reproductive behaviors (With, 2002 and Harper et. al, 2005). Noise from construction and operation could also disturb and displace nesting birds in habitat adjacent to the construction work area.

Bluewater's lighting plan includes only white, LED, down-directed, and shielded lights at the compressor station. Motion-initiated lights would be installed at critical access points. A glow or radiating light would only be present at the facility during emergencies and when operational personnel are present.

We received comments regarding noise impacts on wildlife and deer populations near the Project. Effects on wildlife from chronic noise vary by species (Barber et al., 2009; Francis et al., 2011a, 2011b; Francis et al., 2012; Blickley et al., 2012). Noise from construction and the initial operation of the Project could deter deer from the vicinity in the short-term. Species of deer have been found to habituate to loud or alarming stimuli over time. One study indicated habituation occurs after only 10 days of exposure to acoustic stimuli (Ujvári et al 2004).

At the proposed site, Project construction would primarily take place in previously disturbed areas used for agriculture. These existing areas are not considered high-quality wildlife habitat and wildlife density is likely to be low. Due to the existing maintained nature of the site and the amount of suitable habitat outside of the Project area, these effects are expected to be negligible. Operational noise impacts would be reduced to background levels on the outside of the earthen berms and would reduce impacts to deer, birds, and other animals on those sides. Conversely, on the facility sides of the berms, operational noise impacts would increase with the addition of the berm (see section B.8.0 for construction and operational noise impacts). In addition, operational noise from blowdowns could impact wildlife when they occur. As a non-constant noise, blowdown and venting noises have more acute effects and may cause a flight or startle response in animals, as opposed to an avoidance response.

The construction of reinforced precast walls in the compressor building, landscaping on top of the berms, and, on the outside of the berms, the berms themselves, would reduce operational noise from the Project. Bluewater's lighting plan would not impact migratory birds when personnel are not present because lights would be down-directed. Bluewater would implement measures in our Plan and Procedures and fully stabilize construction areas following construction. The Project would not result in any long-term impacts to deer populations due to the noise mitigation measures and the species' ability to habituate to steady noise impacts. Furthermore, as discussed below in section B.4.3, Bluewater would clear vegetation outside of the nesting bird season. Given the reasons discussed above, we have determined that impacts to wildlife would be sufficiently minimized and would not be significant.

#### **4.3 Migratory Birds**

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703-711 (FWS, 2015). Executive Order 13186 (66 Federal Register 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds through enhanced collaboration with the U.S. Fish and Wildlife Service (FWS). Executive Order 13186 states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

On March 30, 2011, the FWS and the Commission entered into a Memorandum of Understanding (FERC, 2011) that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This voluntary Memorandum of Understanding does not waive legal requirements under the MBTA, Bald and Golden Eagle Protection Act, Endangered Species Act of 1973 (ESA), NGA, Federal Power Act, or any other statutes and does not authorize the take of migratory birds.

Construction of the compressor station would involve the permanent removal of 0.06 acres of forested land, as described in section B.4.1 of this EA. Clearing of vegetation can result in colonization or expansion of invasive plant species altering remaining habitat. Tree and vegetation removal can result in the direct loss of nests, eggs, and nestlings if clearing occurs within the nesting season.

Although the provisions of the MBTA are applicable year-round, most migratory bird nesting activity in Michigan occurs between April and July. Tree clearing for the proposed site is scheduled to be conducted between October 16, 2020 and January 31, 2021 outside of the primary migratory bird nesting season. Only a small portion of trees would be cleared, and the agricultural land is not suitable nesting habitat, therefore no impacts to migratory bird nesting habitat would be anticipated.

The Project is located within the FWS North American Bird Conservation Region 23-Prairie Hardwood Transition. The FWS Birds of Conservation and Concern 2008 report identifies 29 birds of conservation concern within this region. However, the FWS Information, Planning, and Conservation list indicated that no birds of conservation concern are located in the Project area. In addition, no Important Bird Areas are located in Macomb County (Audubon 2018).

As discussed above, Bluewater's lighting plan includes downshielded and motion-activated lights, which would reduce bird collisions. Bluewater would remove vegetation between October 16, 2020 and January 31, 2021, which is outside of the primary nesting season of mid-April through mid-July. Therefore, the Project would not impact most nesting birds and there would be no effect on nesting birds in forest habitats. The remainder of the Project area is agricultural land actively cultivated for row crops and does not contain vegetation suitable for nesting habitat, therefore, the Project would have no effect on nesting migratory birds of concern. No raptor nests or eagles were observed during surveys of the Project area. Given these factors, we find that the Project's impact on migratory birds, and birds of conservation concern, would be sufficiently minimized and not significant.

#### **4.4 Special Status, Threatened, and Endangered Species**

##### *Federally Listed Species*

Federal agencies are required under Section 7 of the ESA, as amended, to ensure that any actions authorized, funded, or carried out by the agency would not jeopardize the continued existence of a federally listed endangered or threatened species, or result in the destruction or adverse modification of the designated critical habitat of a federally listed species.

As the lead federal agency for the Project, FERC is required to consult with the FWS and/or the National Oceanic and Atmospheric Administration Fisheries to determine whether federally listed endangered or threatened species or designated critical habitat are found in the vicinity of the Project, and to evaluate the proposed action's potential effects on those species or critical habitats. Bluewater, acting as FERC's non-federal representative for the purpose of complying with Section 7(a)(2) of the ESA, initiated informal consultation with the FWS on November 30, 2018 and February 9, 2019, respectively, regarding federally listed threatened or endangered species potentially occurring in or near the Project area. The federally-listed species that could potentially occur within the Project area in Macomb County, Michigan, are the whooping crane (*Grus americanus*), Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), red knot (*Calidrus canutus rufa*), and eastern massasauga (*Sistrurus catenatus*). Table 6 contains habitat descriptions and determinations for all the federally and state listed species potentially found within the Project area. The Project area only contains suitable habitat for the Indiana bat and the northern long-eared bat. Since there is no suitable habitat for the whooping crane, the red knot, and the eastern massasauga, these species will not be discussed further.

<p align="center"><b>Table 6</b>  <b>Special Status Species that Potentially Occur in the Vicinity of the Project Area</b></p>			
<b>Common Name (Scientific Name)</b>	<b>Status<sup>1</sup></b>	<b>Habitat Description</b>	<b>Project Impacts and Habitat Assessment</b>
Indiana bat ( <i>Myotis sodalist</i> )	FE	Summer habitat includes small to medium river and stream corridors with well-developed riparian woods; woodlots within 1 to 3 miles of small to medium rivers and streams; and upland forests. Caves and mines as hibernacula.	<i>Not likely to adversely affect</i> ; habitat may be present, but tree clearing would be conducted between October 1 and March 31.
Northern long-eared bat ( <i>Myotis septentrionalis</i> )	FT	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.	<i>Not likely to adversely affect</i> ; habitat may be present, but tree clearing would be conducted between October 1 and March 31.
Rufa red knot ( <i>Calidrus canutus rufa</i> )	FT	Coastal areas, bay beaches and mudflats.	<i>No effect</i> ; habitat not present.
Whooping crane ( <i>Grus americanus</i> )	FT <sup>2</sup>	Open wetlands and lakeshores.	<i>No effect</i> ; habitat not present.
Rainbow mussel ( <i>Villosa iris</i> )	SC	Small to medium sized streams with sand and gravel substrates.	<i>No impact</i> ; habitat not present.
Eastern massasauga ( <i>Sistrurus catenatus</i> )	FT	Wetland habitats, including bogs, fens, shrub swamps, wet meadows, marshes, wet prairies, and floodplain forests.	<i>No effect</i> ; habitat not present.
<sup>1</sup> Status: SC = State Species of Special Concern, FE = Federal Endangered, FT = Federal Threatened <sup>2</sup> Non-essential experimental population			

The Indiana bat was listed as federally endangered on March 11, 1967. It is a medium sized dull grayish bat that closely resembles the little brown bat. Its underparts are pink, and its hind feet are smaller than the little brown bat. In Michigan, Indiana bats roost in trees in riparian, bottomland, and upland forests from approximately April through September. Their summer habitat ranges from highly altered landscapes to intact forests and their roosts vary widely in size. During the winter, Indiana bats use large caves and mines that have large passages and entrances, constant temperatures, and high humidity with no air currents.

The northern long-eared bat was federally listed as threatened on May 4, 2015 and is a state-listed threatened species in Michigan. It is distinguished from other *Myotis* species by its long ears. It emerges at dusk to fly primarily through the understory of forest areas, feeding on moths, flies, leafhoppers, caddisflies, and beetles. Northern long-eared bats catch these insects while in flight using echolocation or by using gleaning behavior, catching motionless insects from vegetation and water (Harvey et al., 2011). Northern long-eared bats spend the winter hibernating in caves and abandoned mines. During summer, they roost alone or in small colonies, typically in groups containing less than 100 individuals, with maternity colonies averaging 20 to 30 individuals, underneath bark or in cavities or crevices of both live and dead trees (FWS, 2013). The species was federally listed primarily due to the threat of white-nose syndrome, which is causing bats to disappear completely from many hibernation sites. Other threats to the northern long-eared bat include wind energy development and habitat destruction (e.g., vandalism to hibernacula, and roost tree removal).

Tree clearing for the Project would occur between October 1 and March 31 and there are no caves in the Project area. No roosts or hibernacula were identified for either the northern long-eared bat or the Indiana bat during the October and November 2018 habitat surveys. Therefore, the Project is *not likely to adversely* affect the northern long-eared bat or the Indiana bat. The FWS East Lansing Ecological Services Field Office agreed with these determinations in an email dated February 11, 2019. Therefore, consultation requirements under Section 7 of the ESA are complete for the Project.

## State Listed Species

The rainbow mussel (*Villosa iris*) is the only listed state species of special concern with the potential to occur in the Project area. The rainbow mussel is found in small to medium sized streams with sand and gravel substrates and has been documented in a waterbody 0.6 miles northwest of the Project. There are no waterbodies in the Project area, therefore there is no suitable habitat for the rainbow mussels in the Project area. We conclude that impacts to state-listed species would not be significant.

## 5.0 CULTURAL RESOURCES

In addition to accounting for impacts on cultural resources under NEPA, Section 106 of the National Historic Preservation Act (NHPA), as amended, requires FERC to take into account the effects of its undertakings on historic properties listed, or eligible for listing on the National Register of Historic Places (NRHP),<sup>8</sup> and to afford the Advisory Council on Historic Preservation an opportunity to comment. Bluewater, as a non-federal party, is assisting FERC in meeting our obligations under Section 106 and its implementing regulations at 36 CFR 800.

### 5.1 Area of Potential Effects

The area of potential effects (APE) is the “geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist” (36 CFR 800.16(d)). Bluewater defined the Project APE as the Project area, include the new route of the pipeline which would be located adjacent to an existing pipeline corridor, the new compressor station, and microwave tower. The total area surveyed for the Project was about 14 acres. Approximately 8 of those acres would be disturbed during construction. Due to the Project’s location within an existing right-of-way, the APE is adequate to account for all the potential direct and indirect effects to historic properties by the proposed Project.

### 5.2 Cultural Resources Investigations

In an effort to identify historic properties within the APE and to account for any effects to those properties by the Project, Bluewater conducted a cultural resources investigation which included background research, a Phase I archaeological survey, and a historic architectural survey (Hodgson 2018). During field investigations for the Project area, no prehistoric, or historic period artifacts, or archaeological features, were observed. There were no historic-aged architectural resources identified within the Project viewshed.

On November 30, 2018, Bluewater recommended *no historic properties affected* for the Project. A copy of the Unanticipated Discoveries Plan was submitted to the Michigan State Historic Preservation Officer (SHPO) on December 21, 2018. On January 18, 2019, the Michigan SHPO responded that no historic properties within the APE are affected by the Project. We concur.

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<sup>8</sup> In accordance with 36 CFR 800.16(1)(1), a historic property is any prehistoric or historic district, site, building, structure, object, or property of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization, included in, or eligible for inclusion in, the NRHP. This term includes artifacts, records, and remains that are related to and located within such properties.

### **5.3 Tribal Efforts**

On February 5, 2019, Bluewater contacted the following Native American tribes regarding the proposed Project: Forest County Potawatomi, Menominee Indian Tribe of Wisconsin, Little Traverse Bay Bands of Odawa Indians, Saginaw Chippewa Indian Tribe, Lac du Flambeau Band of Lake Superior Chippewa Indians of the Lac du Flambeau Reservation, Sault Ste. Marie Tribe of Chippewa Indians, Seneca-Cayuga Nation, Forest County Potawatomi Community, Hannahville Indian Community, and the Miami Tribe of Oklahoma. On February 19, 2019, the Saginaw Chippewa Indian Tribe of Michigan provided a response indicating no known traditional properties, sacred sites, or other properties are known in the Project area. On March 13, 2019, the Forest County Potawatomi Community provided a response indicating Bluewater's Project would have no effect on properties of concern. On July 11, 2019, the Saginaw Chippewa Indian Tribe of Michigan provided a response indicating that they did not have any information concerning the presence of any traditional cultural properties, sacred sites or other significant properties within the Project area. On February 21, 2019, the Miami Tribe of Oklahoma indicated no concerns regarding the Project. There have been no additional comments to date.

### **5.4 Unanticipated Discoveries Plan**

Bluewater developed a Project-specific plan titled: *Plan and Procedures for the Unanticipated Discovery of Cultural Resources and Human Skeletal Remains*, which outlines the procedures to follow, in accordance with state and federal laws, in the event that unanticipated cultural resources or human remains are discovered during construction of the Project, including consultation with FERC, the SHPO, and federally recognized tribes regarding discoveries. The plan was submitted to FERC and the SHPO. FERC requested minor revisions to the plan. Bluewater provided a revised plan which we find acceptable.

### **5.5 Compliance with the National Historic Preservation Act**

Bluewater consulted with the SHPO regarding the potential effects to historic properties. The SHPO did not object to the APE and stated that the Project would have no effect on historic properties. Additionally, no traditional cultural properties or properties of religious or cultural importance to tribes have been identified by Bluewater, its consultants, the SHPO, or tribes. The Project would have no potential to affect historic properties. As such, the Project would have no effect on historic properties. FERC has completed its compliance requirements with Section 106 of the NHPA for the Project.

## **6.0 LAND USE, RECREATION, AND VISUAL RESOURCES**

### **6.1 Land Use**

Land use surrounding the proposed site consists of agricultural land, residential buildings, and significant existing natural gas infrastructure, including several above-ground natural gas facilities and well fields. Consumer Energy's Ray natural gas station is located approximately 3,000 feet north of the proposed compressor station. In addition, Consumer Energy's natural gas storage field is located roughly 2,500 feet west of the Project area. The Project would impact 11.9 acres of land during construction and 9.0 acres of land during operation. The Project would affect agricultural and forested land and the total impacts are presented in table 7. The Project would not impact wetlands, residential land, industrial/commercial land or open water.



<b>Table 7</b> <b>Acreage Affected by Operation and Construction of the Project</b>						
Facility	Agriculture		Forested		Total (acres)	
	Construction	Operation	Construction	Operation	Construction	Operation
Temporary Access	2.15	0.00	0.00	0.00	2.15	0.00
Pipeline Right-of-way	0.08	0.08	0.06	0.06	0.14	0.14
ATWS – Pipeline Abandonment	0.74	0.00	0.00	0.00	0.74	0.00
<b>Aboveground Facilities</b>						
ATWS - Bluewater Compressor Station <sup>1</sup>	8.88	8.88	0.00	0.00	8.88	8.88
<b>Total<sup>1</sup></b>	<b>11.85</b>	<b>8.96</b>	<b>0.06</b>	<b>0.06</b>	<b>11.91</b>	<b>9.02</b>
<sup>1</sup> Located outside of existing right-of-way and includes permanent access road.						

The 11.9 acres of agricultural land affected by the Project includes temporary workspace, additional temporary workspace ATWS, berms, access roads and the compressor station. The temporary access road and the additional temporary workspace would be allowed to revert back to agricultural land or seeded. The permanent impacts on agricultural land would include the compressor station, permanent access roads, berms, and pipeline right-of-way. Approximately 0.08 acre would be maintained as right of way and 9.0 acres would be in the operational footprint of the compressor station and new berms. The primary impacts on agricultural land during construction would include temporary reduction in agricultural production areas of cultivated cropland and reduced future crop yields. Construction of the pipeline would cause 0.06 acre of forest to be cleared of vegetation and permanently maintained in an herbaceous state. To reduce the impacts of construction, Bluewater would restore temporary workspace affected by the Project in accordance with our Plan and Procedures.

## 6.2 Existing Residences

There are currently no residences or buildings within 50 feet of the proposed compressor station, new pipelines, or ATWS. The closest residence occurs approximately 320 feet north of the compressor station fence. One residential structure off of 32 Mile Road occurs approximately 30 feet from the temporary access road. There would be no open trench near this residence and construction impacts would be minimized by:

- notifying the landowner via certified mail 14 days prior to starting construction and providing a general timeframe when work near the properties would begin;
- limiting speed within the Project workspace to 10 miles per hour or less;
- mitigating fugitive dust by wetting the temporary access road, when necessary; and
- fencing the edge of the temporary access adjacent to the residence for a distance of approximately 100 feet to ensure that construction equipment remains within the construction work area.

## 6.3 Recreation and Special Interest Areas

The Project would not cross any public land wildlife management areas, conservation districts, or National or State Wild and Scenic Rivers. The nearest recreational area, the Timberwood Golf Course, is approximately one mile southwest of the Project area. The nearest registered natural landmark is approximately 3.9 miles from the Project area. Wetzel State Park is the closest park to the Project and is approximately four miles south of the Project. No public or private conservation easements occur within

the area. The Project would not cross any areas used as landfills, hazardous waste sites or quarries. No sensitive receptors (e.g. churches, schools, cemeteries, or hospitals) occur within 1,500 feet of the Project. Therefore, we conclude that Project would not impact recreation or special interest areas.

#### 6.4 Visual Resources

The Project would result in both temporary and permanent visual impacts. Temporary impacts from construction would include the exposure of bare soils and the presence of equipment, materials, trenches, and spoil piles. Permanent visual impacts from operation include the conversion of 0.06 acre of forest to herbaceous vegetation, and the addition of new structures into the landscape (compressor station, communication tower, and berms). Visual impacts on the north and east side of the compressor station would be minimized by incorporating 15-foot-tall berms that are topped with a mix of young fast-growing native deciduous and evergreen trees. On the east side of the compressor station there would be a triangular shaped berm with evergreen and deciduous trees on top. Surrounding the eastern berm there would be a mix of trees to provide additional screening. The winter screening views in appendix B indicate that in winter, the microwave tower and dish are the only project components visible from some local residences.

We received multiple comments regarding the visual impacts of the Project on the surrounding community. In response, Bluewater updated their visual and landscape plans to include the 15-foot-tall berms on the north and east sides and included mixed evergreens with fast-growing deciduous trees on the tops of the berms. Bluewater states they would plant young trees because the newly constructed berms would not be able to initially support mature trees physically or biologically. Bluewater would also plant trees along Omo Road to obscure the view of the compressor station from residents across the street. Bluewater would mix evergreens with deciduous trees to match the existing landscape. A large forested area associated with the East Branch of Coon Creek occurs approximately 900 feet west of the compressor station, and no residences or public roads occur between this forested area and the compressor station. Bluewater would add an additional tree line south of the compressor station which would sufficiently block the views of the compressor station from the nearest southern residence.

However, a comment stated that the screening proposed would not be sufficient from the residents on the east side of Omo Road given Bluewater proposes to plant young, deciduous trees. The winter views of the facility from this vantage would not be fully obscured given young and deciduous trees are also proposed along Omo Road (see appendix B). It would take years for the trees to obscure views, but in winter, more mature evergreens would more effectively screen views. Therefore, **we recommend:**

**Prior to construction, Bluewater should file with the Secretary of the Commission (Secretary), for review and written approval by the Director of the Office of Energy Projects (OEP), a revised landscape plan that incorporates additional visual screening along Omo Road by replacing deciduous trees with more mature evergreen trees and/or adding more mature evergreen trees throughout the eastern portion of the site at grade level.**

We received a comment requesting that Bluewater file plans for tree replacement if mortality occurs and a maintenance plan of the visual buffer trees. Trees would be planted in the fall by a professional landscaper that would be responsible for watering. Bluewater states that the landscaper would guarantee the trees' survival for the first year and, after the first year, the tree roots would be established to a point where watering would not be necessary for their survival. Once a year, Bluewater would review the berms and trees planted to provide visual mitigation at the same time Bluewater conducts facility security inspections. The inspector would note if the berms are stable (no slumping, sinking, etc.) and any needed maintenance would be scheduled. The inspector would also identify dead trees for removal. At that time, Bluewater would determine if a removed tree should be replaced to maintain the intended visual buffer. Dead trees would be replaced if removal of a dead tree would make the facilities more visible from the

property boundary. In addition, we are recommending that Bluewater develop and implement an environmental complaint resolution procedure, which would provide landowners with clear and simple directions for identifying and resolving any environmental mitigation problems or concerns during construction and restoration of the Project.

We received a comment about the concrete building design and that the appearance of barns would be more appropriate for the landscape. Bluewater states in its September 5, 2019 filing that the building color was discussed with residents during open houses. Several attendees suggested a darker shade for the compressor station building, which was incorporated into the design. Bluewater also states that it asked if a “barn red” façade would be preferable, but that most attendees did not support that approach. We find the proposed building design and color scheme to be acceptable with regard to visual impacts.

We received a comment concerning the impacts of facility lighting. As discussed in B.4, the compressor station would only use white, LED, down-directed, and shielded lights. Motion-initiated lights would be installed at critical access points. A glow or radiating light would only be present at the facility during emergencies and when operational personnel are present. Therefore, we conclude that the proposed facility lighting plan minimizes the visual impacts of the Project.

With the implementation of the proposed mitigation and our recommendation, we find the Project would not result in significant impacts to visual resources or aesthetics.

## **7.0 SOCIOECONOMICS**

The construction of the Project would occur wholly within Macomb County, Michigan and is scheduled to begin in June 2020 and take approximately 12 months. Socioeconomic impacts resulting from the construction and operation of the proposed Project would be related to the number of construction workers that would work in the Project area and their impact on population, public services, and employment during construction. Other potential effects include an increase in local traffic, decreased available housing, and increased tax revenue. During scoping we also received comments regarding property values.

We received multiple comments stating that the local community of Ray Township would not benefit from the Project. Many commenters were concerned that the Project would negatively affect their community in order to provide gas elsewhere. Bluewater has altered visual, safety, and noise features of the Project in response to comments by the local community. The design and mitigation measures are further discussed throughout the EA in the appropriate section.

### **7.1 Employment**

Table 8 provides demographic information for the State of Michigan and for Macomb County, within which any socioeconomics effects would be expected to occur. Macomb County has a population of approximately 864,000 persons with a population density of 1,775 persons per square mile (U.S. Census Bureau 2018). In Macomb County, the major employment sectors are manufacturing, educational and healthcare services, and retail trade. The average unemployment rate in 2017 for Macomb County was 6.6 percent compared to an average unemployment rate of 7.4 percent for Michigan as a whole. The per capita income in Macomb County is \$29,740.

Construction of the Project would require an average workforce of 40 workers, including construction and supervisory personnel. The workforce level would vary throughout the course of construction, fluctuating from between 4 workers at the low point to a peak of 80 construction workers. Bluewater estimates that 50 to 75 percent of the construction workers hired would be local residents. No new permanent personnel would be hired to operation the new facilities.

<p style="text-align: center;"><b>Table 8</b> <b>Project Area Socioeconomic Conditions</b></p>						
<b>Area</b>	<b>2017 Population Estimate</b>	<b>Population Density (per square mile)</b>	<b>Per Capita Income</b>	<b>2017 Civilian Labor Force (1,000)</b>	<b>2017 Unemployment Rate (percent)</b>	<b>Major Employment Sectors</b>
<b>Michigan</b>	9,925,568	174.8	\$28,938	4,886,498	7.4	1. Manufacturing 2. Educational services, and health care and social assistance 3. Retail trade
<b>Macomb County</b>	864,019	1,755	\$29,740	443,512	6.6	1. Manufacturing 2. Educational services, and health care and social assistance 3. Retail trade
Source: U.S. Department of Commerce, Bureau of the Census, 2013-2017 American Community Survey 5-Year Estimates						

Given the population of Macomb County, the size of the civilian labor force, and the relatively short duration of construction, we anticipate that the Project would have a temporary and negligible impact on unemployment rates in the Project area and a negligible impact on the population and services of the local municipalities.

## 7.2 Transportation

Construction of the Project may result in minor, temporary impacts on roadways due to construction and the movement of workers and heavy equipment to and from the Compressor Station site. The Project would generate an average of 10 to 12 construction worker vehicles and up to 10 large construction vehicle trips to and from the site per workday. Most construction workers would access the site before 7:00 am and depart after 7:00 pm, outside of typical commuting periods.

Bluewater would acquire load permits as necessary and adhere to all city and state regulations regarding traffic and truck restrictions and traffic management measures. Bluewater would direct its contractors to: schedule deliveries for large equipment during low traffic times; use ridesharing strategies to reduce vehicle traffic at the compressor station site; not allow parking along Omo Road; and remove any soil or dirt from construction vehicle entrances on Omo Road and 32 Mile Road. Once construction is complete, Bluewater would repair damage to the roads that occurred as a direct result of construction, and roadways would be returned to their preconstruction condition.

Because of the limited size and duration of construction, Bluewater's proposed traffic management strategies, and adherence to applicable permits, we conclude impacts on transportation would be temporary, and not significant.

## 7.3 Housing

Construction of the Project would require an average workforce of about 40 workers, including construction and inspection personnel. Bluewater expects that the workforce would peak at about 80 workers during construction. Bluewater estimates that about 50 to 70 percent of the construction workforce would be drawn from the Project area. The U.S. Census Bureau estimates that there were 8,933 vacant housing units available for rent in Macomb County (U.S. Census Bureau 2010) and 33 hotels and motels, and 1,226 seasonal, recreational, or occasional use sites in the Project area.

Based on the number of available rental units, hotels and motels, recreation vehicle parks, and campgrounds in the Project area, we conclude that, even if all workers were non-local, the presence of the construction crews could cause a minor, temporary impact on the availability of hotels/motels in the direct vicinity of the Project area. Bluewater states that no workers would be hired permanently for operation of the Project. Therefore, we conclude the Project would have a negligible impact on housing in the Project area.

#### **7.4 Public Services**

Bluewater identified the existing inventory of service providers in the Project area, which includes: 6 hospitals, 11 fire and rescue departments, and 16 police departments. Although the need for medical, fire, and police services may increase slightly during construction activities, adequate public services exist in the Project area to handle a civil, criminal, and emergency event.

Given the brief construction period, about 12 months, it is unlikely that families would accompany non-local workers to the Project area. Macomb County has 234 schools in the Project area. We find this inventory of public service providers, schools and other infrastructure sufficient to accommodate the influx of construction workers and their families during the construction period and that the Project would not have a significant impact on public services.

#### **7.5 Property Values**

We received multiple comments about potential adverse effects on property values resulting from the Project's construction and operation. The potential impact of a pipeline on the value of a tract of land is related to many tract-specific variables, including the size of the tract, the current value of the land, the utilities and services that are available or accessible, the current land use, and the value of adjacent properties. Land values are determined by appraisals that would consider objective characteristics of the property such as size, location, and any improvements. While there is recently published literature indicating that there is no identifiable or consistent link between the presence of natural gas pipeline easements or compressor stations and residential property values (Diskin et al. 2011, Foster 2016), valuation is subjective and is generally not considered in appraisals.

The presence of the compressor station could influence a potential buyer's decision to purchase an adjacent property. If a buyer is looking for a property for a specific use that the presence of the compressor station renders infeasible, then the buyer may decide to purchase another property more suitable to their objectives. This would be similar to other buyer-specific preferences that not all homes have, such as close proximity to shopping or access to high quality school districts.

Bluewater would compensate landowners for new easements along the pipeline routes and at the aboveground facilities, where applicable, as well as the temporary loss of land use associated with construction workspaces and any damages. The easement acquisition process is designed to provide fair compensation to the landowner for the right to use the property for facility construction and operation.

#### **7.6 Economy and Tax Revenue**

The Project would contribute to the local and regional economy directly and indirectly through purchases of goods and materials, and from taxes collected on purchases, payroll, and property. Bluewater estimates the total construction payroll for the Project at \$14.75 million. They also estimate that the Project would spend \$9.26 million on construction materials, a portion of which would be purchased locally. When in service, the Project will pay about \$0.37 million per year to Ray Township in property taxes.

A number of commenters stated the Project would not deliver gas to their community, and therefore would not provide a benefit. Whereas a specific location may not benefit from direct connection to a

particular interstate natural gas transmission pipeline, interstate transmission pipelines are necessary to transport natural gas from source areas to demand centers, and end use customers including electric generation facilities, industrial plants, and local distribution companies. The benefits of such actions are often realized on a regional scale. During construction, the Project would benefit the state and local economies by creating a short-term stimulus through payroll expenditures, local purchases of consumables and project-specific materials, and sales tax. Operation of the Project would result in a long-term tax benefit for Ray Township.

## **7.7 Environmental Justice**

Environmental justice considers disproportionately high and adverse impacts on minority or low-income populations in the surrounding community resulting from the programs, policies, or activities of federal agencies. Items considered in the evaluation of environmental justice include human health or environmental hazards, the natural physical environment, and associated social, economic, and cultural factors.

According to the Council on Environmental Quality (CEQ) environmental justice guidance under NEPA (CEQ 1997) and *Promising Practices for EJ Methodologies in NEPA Reviews* (USEPA 2016), minorities are those groups that include American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Minority populations are defined where either; (a) the minority population of the affected area exceeds 50 percent or, (b) the minority population of the affected area is meaningfully greater (10 percent greater) than the minority population percentage in the general population or other appropriate unit of geographic analysis. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. In this EA, low-income populations are defined as those individuals with reported income below the poverty level. Table 9 provides a summary of the minority or low-income percentage of county populations within the Project area.

In Macomb County, minorities comprise 17.9 percent of the total population, slightly less than the state (21.3 percent). All of the 3 block groups within 1.0 mile of Compressor Station have minority populations that are lower than 5 percent of the population nor are the populations meaningfully greater than the general population.

The percentage of low-income individuals living in block groups within 1.0 mile of the Compressor Station range from 3.1 to 9.3. Based on our analysis above, and per EPA guidelines stated above, no environmental justice populations exist within the study area, therefore we conclude that the Project would not result in disproportionately high and adverse impact on any environmental justice populations within the study area.

<b>Table 9</b> <b>Project Area Demographics</b>											
<b>Area</b>	<b>2016 Total Population Estimate (1000)</b>	<b>White (Percent)</b>	<b>African American (Percent)</b>	<b>Native American and Alaskan Native (Percent)</b>	<b>Asian (Percent)</b>	<b>Native Hawaiian and Pacific Islander (Percent)</b>	<b>Other Race (Percent)</b>	<b>Two or More Races (Percent)</b>	<b>Hispanic or Latino Origin (Percent)</b>	<b>Total Minority (Percent)</b>	<b>Below Poverty Level (Percent)</b>
<b>State of Michigan</b>	9,925,568	78.7	13.8	0.5	2.9	<0.1	1.2	2.8	4.9	21.3	15.6
<b>Macomb County</b>	864,019	82.1	11.0	0.3	3.7	0.0	0.5	2.3	2.5	17.9	11.8
<b>CT<sup>1</sup> 2160, Block Group 1<sup>2</sup></b>	1,539	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3 <sup>3</sup>
<b>CT 2170, Block Group 1</b>	1,965	100	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	5.2 <sup>3</sup>
<b>CT 2120, Block Group 1</b>	2,958	96.2	1.1	0.0	0.1	0.0	0.4	2.2	3.9	3.8	3.1 <sup>3</sup>
<sup>1</sup> CT= Census Tract <sup>2</sup> Compressor station would be located in this block group <sup>3</sup> data include entire CT; block group level data not available											

## **8.0 EAIR QUALITY AND NOISE**

Federal and state air quality standards are designed to protect human health. The EPA has developed National Ambient Air Quality Standards (NAAQS) for criteria air pollutants such as oxides of nitrogen (NO<sub>x</sub>) and carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and inhalable particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>). PM<sub>2.5</sub> includes particles with an aerodynamic diameter less than or equal to 2.5 micrometers, and PM<sub>10</sub> includes particles with an aerodynamic diameter less than or equal to 10 micrometers. The NAAQS are reviewed on a regular basis and are set at levels the EPA determined will to protect human health and welfare. Volatile organic compounds (VOC) are regulated by EPA mostly to prevent the formation of ozone, a constituent of photochemical smog. Many VOCs form ground-level ozone by reacting with sources of oxygen molecules such as NO<sub>x</sub> in the atmosphere in the presence of sunlight. NO<sub>x</sub> and VOCs are referred to as ozone precursors. Hazardous air pollutants (HAP) are also emitted during fossil fuel combustion and are suspected or known to cause cancer or other serious health effects; such as reproductive effects or birth defects; or adverse environmental effects.

Greenhouse gases (GHG) occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. The EPA defines air pollution to include the mix of six long-lived and directly emitted GHG, finding that the presence of the following GHGs in the atmosphere may endanger public health and welfare through climate change: CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs are non-toxic and nonhazardous at normal ambient concentrations, and there are no applicable ambient standards or emission limits for GHG under the Clean Air Act (CAA). The primary GHGs that would be emitted by the Project are CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O.

During construction and operation of the Project, these GHGs would be emitted from construction equipment and fossil fuel combustion equipment like turbines and engines. Emissions of GHGs are typically expressed in terms of CO<sub>2</sub> equivalents (CO<sub>2</sub>e). Operation of the compressor station would be the primary source of long-term air quality impacts associated with the Project. In addition to the turbine-driven compression equipment, Bluewater would be installing certain auxiliary facilities at the new compressor station that are considered ancillary emission sources, including an emergency generator, a small heater, and storage tanks. Additional emissions would result from natural gas venting and fugitive emissions from natural gas equipment leaks. The following section outlines the existing environment; the federal regulations applicable under the CAA; the need for air quality permits; the magnitude and impact of construction emissions, and the magnitude and impact of operational emissions from the Project.

### **8.1 Existing Environment**

The compressor station would consist of a new gas turbine compressor, two buildings, an exhaust stack, microwave tower and other ancillary equipment. Two permanent berms would be constructed to the north and east of the proposed station to provide a visual and noise barrier for the community. The region is generally classified as rural, however there are numerous homes around the compressor station. In addition, the proposed compressor station location is immediately adjacent to a natural gas storage field and within a short distance to other natural gas compression facilities.

Existing, or ambient, background levels of criteria pollutants within the Project region were obtained from the State of Michigan. Ambient monitoring in Michigan is coordinated by EGLE.

If measured ambient air pollutant concentrations for a subject area remain below the NAAQS, the area is considered to be in attainment with the NAAQS. Areas that do not meet the NAAQS are termed “nonattainment areas.” Areas for which insufficient data are available to determine attainment status are termed “unclassified areas.” Areas formerly designated as nonattainment areas that have subsequently



reached attainment are termed “maintenance areas.” Macomb County, Michigan, would be affected by air emissions from the construction and operation of the Project. The county is designated a marginal ozone nonattainment area as part of the greater Detroit area ozone nonattainment area. Macomb County is designated as “attainment” for each of the other NAAQS pollutants.

Federal Air Quality Requirements of the CAA of 1970 (42 U.S.C 7401 et seq., as amended in 1977 and 1990), and 40 CFR Parts 50 through 99 provide the federal statutes and regulations governing air pollution in the United States. With the exception of the new compressor station, there are no federal or state air permitting requirements applicable to the remaining Project components. Title V of the CAA requires states to establish an air operating permit program. The Title V Operating Permit Program, as described in 40 CFR Part 70, requires major sources of air emissions to obtain a federal operating permit. The major source emissions thresholds for determining the need for a Title V operating permit are: 100 tons per year (tpy) of any regulated air pollutant, 10 tpy of any individual hazardous air pollutants (HAPs), or 25 tpy for all HAPs, and 100,000 tpy for GHG (expressed as CO<sub>2</sub>e). More stringent major source thresholds apply for VOC and NO<sub>x</sub> in ozone nonattainment areas, namely 50 tpy of VOC or NO<sub>x</sub> in areas defined as serious, 25 tpy in areas defined as severe, and 10 tpy in areas classified as extreme.

The potential emissions associated with the compressor station are less than the major thresholds established under 40 CFR Part 70. Since the compressor station does not meet the definition of a major source, a Part 70 permit would not be required for this facility.

As previously indicated, Macomb County is designated with attainment status for each of the NAAQS pollutants, except for ozone, where the county is designated as a marginal nonattainment area. Therefore, the Project would be subject to the Nonattainment New Source Review permitting requirements for NO<sub>x</sub> and VOC emissions. The Project would not be considered a major source for the Nonattainment New Source Review; therefore, Lowest Achievable Emission Rate would not be required.

The Prevention of Significant Deterioration regulations are applicable to new major sources located in areas classified as attainment or unclassifiable. The compressor station would not be a major stationary source since the potential to emit one or more regulated criteria air pollutants does not exceed 250 tons per year, therefore, Prevention of Significant Deterioration requirements are not applicable to the Project.

## **8.2 Construction Emissions**

Air quality impacts associated with construction of the Project would include emissions associated with fossil-fueled construction equipment, fugitive dust from land clearing and vehicles traveling on unpaved and paved roads. All air quality impacts would generally be temporary and localized. Large earth-moving equipment and other vehicles that are powered by diesel or gasoline engines are sources of combustion-related emissions including GHGs (as CO<sub>2</sub>e), NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and small amounts of HAPs such as formaldehyde. Construction emissions from the Project are shown in table 10.

During construction, a temporary reduction in ambient air quality may result from criteria pollutant emissions and fugitive dust generated by construction equipment. The quantity of fugitive dust emissions would depend on the moisture content and texture of the soils that would be disturbed. Fugitive dust and other emissions due to construction activities generally do not pose a significant increase in regional pollutant levels; however, local pollutant levels could increase. Dust suppression techniques, such as watering the right-of-way may be used as necessary in construction zones near residential and commercial areas to minimize the impacts of fugitive dust on sensitive areas.

<b>Table 10</b> <b>Project Construction Emissions</b> <b>(tons/year)</b>							
<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>	<b>GHG (as CO<sub>2e</sub>)</b>	<b>Total HAPS</b>
12.3	2.5	0.8	0.0	8.3	1.2	569	0.2

As indicated above, the Project is located in a nonattainment/maintenance area for ozone. The emissions of NO<sub>x</sub> and VOC from construction are below the General Conformity Threshold of 100 tons per year and therefore a General Conformity Determination is not required.

Construction emissions would occur between June 2020 and be completed by June 2021. Impacts would be reduced by adherence to state air quality regulations. In addition, Bluewater would employ fugitive dust suppression measures to reduce nuisances caused by the generation of fugitive dust emissions. In addition, Bluewater would limit equipment idling where feasible, and use ultra-low-sulfur diesel fuel during construction. Based on the short duration of construction activities, and our review of the estimated emissions from construction of the proposed Project, we conclude that there would be no local or regionally significant impacts on air quality.

### 8.3 Operational Emissions

Bluewater would equip the compressor station with the following operational emission sources;

- one natural gas-fired Solar 70 turbine;
- a 0.25-one million British thermal units (MMBtu) per hour natural gas-fired fuel gas heating skid;
- one 750-kilowatt (kW) [100 hp] (Caterpillar G3512) natural gas-fired backup electric generator; and
- facility fugitive VOC emissions (primarily methane).

Table 11 summarizes the average annual (8,760 hours per year) potential emission rates of criteria pollutants, GHGs, VOCs and total HAPs associated with operation of the facility, including fugitive methane emissions. In addition, the compressor station has an emergency venting system called a blowdown to evacuate the gas in the event of an emergency. Bluewater estimates a full station blowdown event would release 95,324 standard cubic feet of natural gas. In addition, Bluewater stated that it would cap the station piping and limit the required annual emergency shut down testing to vent only the compressor unit. Bluewater estimates that 29,500 standard cubic feet of natural gas would be vented per compressor unit blowdown event at the station. Bluewater has estimated the GHG emissions resulting from these blowdown events and they are also listed in Table 11. Note that although Bluewater has stated it would only operate the compressor station continuously during the colder months of November to March, emissions were calculated and modeled based on full time operation of the facility.

<b>Table 11</b> <b>Compressor Station Emissions</b> <b>(tons/year)</b>								
Source	NO <sub>x</sub>	CO	VOC	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	GHG (as CO <sub>2e</sub> )	Total HAPS
Compressor Station	20.3	21.1	12.9	2.3	2.3	2.3	36,583	0.4
Blowdown Emissions	0	0	2.0	0	0	0	577	ND
Total	20.3	21.1	14.9	2.3	2.3	2.3	37,160	0.4
ND = not determined								

Although Bluewater would not become a Member of the Methane Challenger program or other methane reduction organizations, it has indicated that it would install certain technology to reduce methane emissions. The instrument air system will be utilized to drive pneumatic control valves, reducing methane bleed off at the compressor station. In addition, the proposed compressor would be equipped with dry seals designed to help further reduce methane emissions.

To ensure that emissions from the compressor station would not adversely affect local air quality, an air quality dispersion modeling assessment was conducted. The modeling assumed full-time operation of the facility. The modeling was conducted using the latest version of the EPA-approved AERMOD model (version 16216) along with the meteorological data compiled through AERMET. The purpose of the AERMOD model was to evaluate the air impacts of the proposed compressor station. The modeling suggests that the new sources planned for installation at the compressor station would result in impacts well below ambient standards and therefore would not adversely affect local air quality or violate the NAAQS. The results of the modeling are shown in table 12. Therefore, the operational emissions and subsequent ambient concentrations of regulated pollutants planned to be emitted from the compressor station would not significantly affect local or regional air quality.

Pollutant	Averaging Period	Background Concentration ( $\mu\text{g}/\text{m}^3$ )	Modeled Impact ( $\mu\text{g}/\text{m}^3$ )	Total Concentration ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
NO <sub>2</sub>	Annual	5.3	13.1	18.4	100
	1-Hour	54	70	124	188
CO	8-Hour	49	1,972	2,020	10,000
	1-Hour	54	2,436	2,490	40,000
SO <sub>2</sub>	3-Hour	3	121	124	1,300
	1-Hour	3	72	75	196
PM <sub>2.5</sub>	Annual	0.1	8.2	8.3	12
	24-hour	0.3	23	23.3	35
PM <sub>10</sub>	24-hour	0.7	37	37.7	150

## 8.4 Noise

The noise environment can be affected both during construction and operation of pipeline projects. The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetative cover. Two measures to relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level ( $L_{eq}$ ) and day-night sound level ( $L_{dn}$ ). The  $L_{eq}$  is the level of steady sound with the same total (equivalent) energy as the time-varying sound of interest, averaged over a 24-hour period. The  $L_{dn}$  is the  $L_{eq}$  plus 10 decibels on the A-weighted scale (dBA) added to account for people's greater sensitivity to nighttime sound levels during late evening and early morning hours (between the hours of 10:00 p.m. and 7:00 a.m.). The A-weighted scale is used because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise.

The proposed compressor station would be located in Ray Township, Macomb County, Michigan. No applicable regulations were found for Macomb County, Michigan. The township of Ray has an anti-noise and public nuisance ordinance (Ordinance 67). Section 2.B.7 of the ordinance requires a muffler on the discharge of the exhaust of any internal combustion engine vented outside of any enclosed building. Section 2.B.8 of the ordinance requires that construction activities occur between the hours of 7:00 am and sundown on any day, except in the case of urgent necessity in the interest of public health and safety. A permit from the building inspector or ordinance enforcement officer is required for nighttime construction, and the permit

will limit the periods that the construction activity may continue. Section 2.B.12 of the ordinance requires that the operation of any mechanical device cannot emit unreasonably loud noise which is unreasonably disturbing to the quiet, comfort, or repose of any person. An unreasonable noise level is not defined by the regulation. Bluewater has indicated that it would coordinate with the Township of Ray building inspector to obtain this permit/variance prior to the start of construction. The state of Michigan has established a motor vehicle noise regulation under Act 300 Section 257.707 Michigan Compiled Laws that requires all motor vehicles to be operated with a muffler.

The compressor station would be located in a rural area zoned as agricultural residential with a scattering of residences to the north, east, and south. West of the site is undeveloped property and a natural gas well field. Consumer Energy's Ray natural gas station is located approximately 3,000 feet north of the Bluewater compressor station. In addition, Consumer Energy's natural gas storage field is located roughly 2,500 feet west of the compressor station.

Noise would be generated during construction of the Project and would be highly variable over the 12 months of construction. Construction equipment would be operated on an as-needed basis during this period. While individuals in the immediate vicinity of the construction activities would experience an increase in noise, this effect would be temporary and localized. Nighttime noise is not expected to increase during construction because most construction activities would be limited to daytime hours. Although not required, Bluewater provided a construction noise analysis to determine the noise impacts from construction activities at the proposed site.

The construction noise levels at noise sensitive area (NSA) 1, the closest NSA, were calculated to be a maximum of 56 dBA  $L_{eq}$ . The sound level impact of the construction equipment on NSA 1 is detailed in table 13. Note that this does not include the noise reducing barrier/berm that Bluewater has proposed to construction on the East and North sides of the compressor station. Should this berm be constructed prior to construction of the compressor station, noise impacts may be reduced.

<p align="center"><b>Table 13</b> <b>Construction Noise</b></p>			
<b>Parameter</b>	<b>Ambient Background (dBA)</b>	<b>Noise Attributable to Construction (dBA)</b>	<b>Total Noise (dBA)</b>
Ldn	45.2	54.4	54.9
Leq (day)	38.0	56.0	56.0
Leq (night)	38.9	38.9	38.9

Due to the temporary nature of construction activities and the estimated noise level impacts; we conclude that no significant noise impacts are anticipated from construction of the Project.

## **Operational Noise**

The proposed compressor station would generate noise on a continuous basis (i.e., up to 24 hours per day) when operating. The noise impact associated with the compressor stations would attenuate with distance from the compressor stations. The specific operational noise sources associated with the compressor station includes the turbine stack inlet and outlet, gas aftercooler, fuel conditioning skid, fuel filter/separator, HVAC, lube oil cooler, roof vent, piping, as well as unit and full station blowdowns.

The Project would include a backup generator. However, the backup generator's operation is expected to be intermittent. In addition, Bluewater indicated that it modeled the unit blowdown (i.e blowdown of the compressor) was with the compressor station, even though unit blowdown events occur infrequently and are of a short duration. Bluewater has indicated that they anticipate that the compressor station would

only operate continuously during the colder months of November to March. However, if the Project is approved, it would be allowed to operate continuously every day of the year.

Bluewater provided two ambient noise surveys and an acoustical analysis for NSAs nearest to the proposed compressor station, including standard mitigation measures. Its initial acoustical analysis provided in its application did not include a berm or additional mitigation. After local resident's concerns over noise and visual impacts, Bluewater proposed to install an earthen berm to further mitigate visual and noise impacts. Bluewater provided a second acoustical analysis report which outlined the noise mitigation of the earthen berm as well as other noise mitigation.

Bluewater's analysis also indicated that in order to meet our noise criterion of 55 dBA  $L_{dn}$ , the Solar Turbine exhaust stack silencer must be upgraded to one that gives greater noise attenuation. A consequence of installing the berm would be to reduce noise impacts on NSAs to the north and east of the compressor station. A map of the closest NSAs as well as the estimated noise impacts are shown in figure 1. Note that not all nearby residences are identified, only the closest NSAs.

The acoustical analysis also shows elevated C-weighted noise impacts on the NSAs. C-weighted noise takes low frequency noise, commonly felt as vibration, into account more than A-weighted noise. C-weighted noise impacts at NSAs 1, 2, and 3 are estimated to be 63, 59, and 63  $L_{eq}$  dBC respectively. However, Bluewater has committed that operation of its facility would not result in perceptible increase in vibration. The results of the acoustical analysis are presented in table 14.

In addition to the operational noise discussed above, there would also be infrequent blowdowns. The compressor station would have a blowdown silencer to mitigate noise impacts. Bluewater has indicated that these potential blowdown events would be associated with the compressor shut down as well as emergency, full station blowdowns. Although unit blowdowns are modeled above, a full station blowdown may be louder and longer than 1 to 5 minutes and may exceed 55 dBA  $L_{eq}$  at the nearby NSAs. Given the non-routine nature and short-term duration of these blowdown events, we do not believe that blowdown events would be a significant contributor to operational noise from the Project.

<b>Nearest NSA / Type</b>	<b>Distance and Direction to NSA</b>	<b>Existing Ambient Sound Level (dBA)</b>	<b>Estimated Sound Level Attributable to compressor station (dBA)</b>	<b>Total Sound Level (Station <math>L_{dn}</math> + Ambient <math>L_{dn}</math>) (dBA)</b>	<b>Potential Change in Noise Level Attributable to the Station (dB)</b>
NSA #1, (residences)	800, North	45.2	45	48.1	2.9
NSA #2 (Residence)	1,700, East	47.2	40	48.0	0.8
NSA #3 (residence)	1,480, South	47.2	47	50.1	2.9

Noise impacts at the Bluewater compressor station would cause noise increases in the local noise environment, and attendant noise impacts at the NSAs. To verify compliance with the FERC's noise standard

and ensure that the noise from the Bluewater compressor station would not exceed our criterion, **we recommend that:**

**Bluewater should file a noise survey with the Secretary no later than 60 days after placing the compressor station in service. If a full load condition noise survey is not possible, Bluewater should file an interim survey at the maximum possible horsepower load and file the full load survey within 6 months. If the noise attributable to the operation of all of the equipment at the compressor station under interim or full horsepower load conditions exceeds an  $L_{dn}$  of 55 dBA at any nearby NSAs, Bluewater should file a report on what changes are needed, for review and written approval by the Director of OEP, and should install the additional noise controls to meet the level within 1 year of the in-service date. Bluewater should confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.**

The construction and operation of the proposed Bluewater compressor station would result in increased noise levels on local residents during construction and operation. While construction noise levels may be elevated, the overall duration would be short and therefore would not result in significant impacts. Although the noise impacts of the compressor station would be audible at the nearby residential NSAs, the overall, time-averaged noise level would not result in impacts greater than 55 dBA. Thus, based on the analyses conducted, mitigation measures proposed, and our recommended noise condition, we conclude that operation would not result in significant noise impacts on residents.

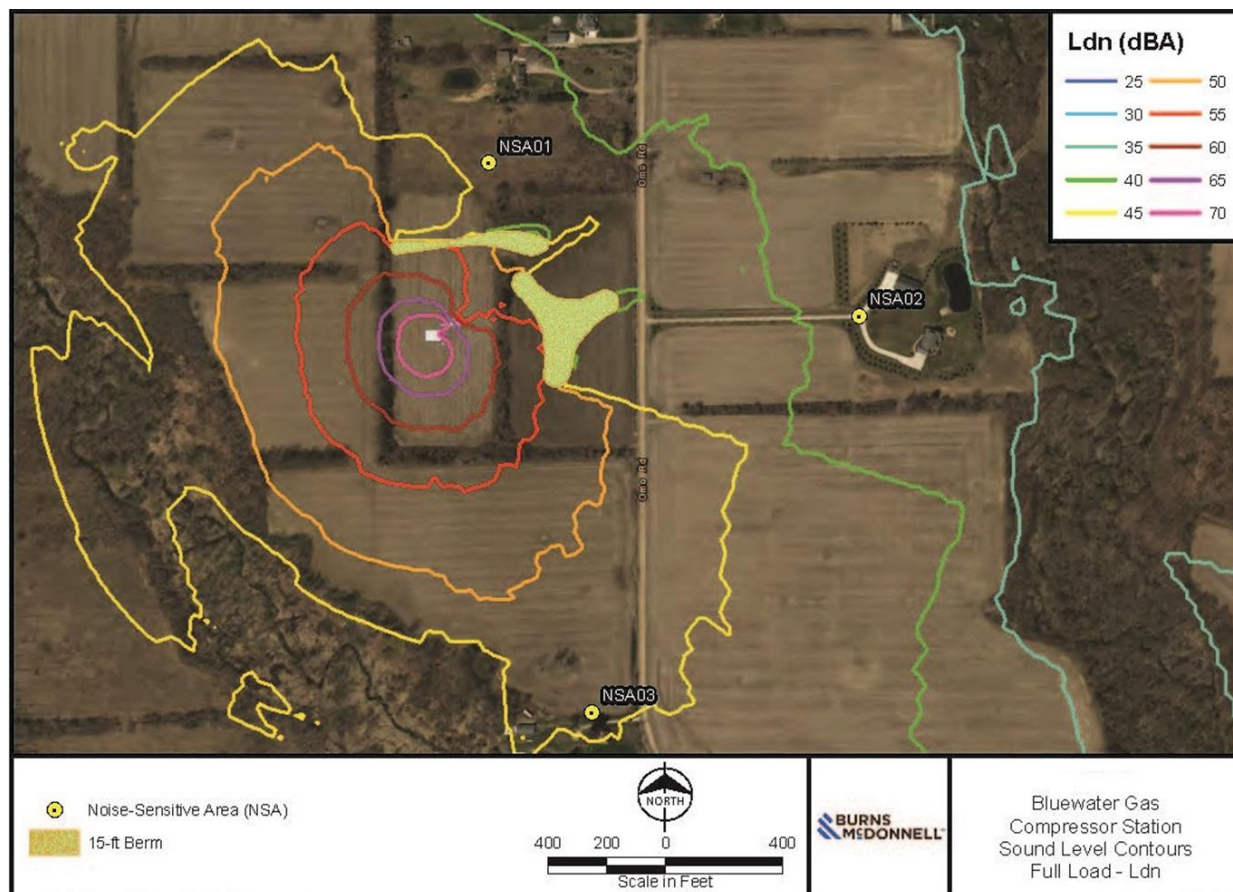


Figure 1: NSA Model

## 9.0 RELIABILITY AND SAFETY

The pressurization of natural gas at a compressor station involves some risk to the public in the event of an accident and subsequent release of gas. The greatest hazard is a fire or explosion following a leak, or rupture at the facility. Methane, the primary component of natural gas, is colorless, odorless, and tasteless. It is not toxic, but is classified as a simple asphyxiate, possessing a slight inhalation hazard. If breathed in high concentration, oxygen deficiency can result in serious injury or death.

The compressor station must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192. The regulations are intended to ensure adequate protection for the public and to prevent facility accidents and failures. Within DOT, the Pipeline and Hazardous Materials Safety Administration (PHMSA) is tasked with administering the DOT Minimum Federal Safety Standards for pipeline facilities as well as promulgating new regulations and safety inspections.

Under a Memorandum of Understanding on Natural Gas Transportation Facilities (Memorandum) dated January 15, 1993, between the DOT and the FERC, the DOT has the exclusive authority to promulgate federal safety standards used in the transportation of natural gas. Section 157.14(a)(9)(vi) of the FERC's regulations require that an applicant certify that the pipeline and aboveground facilities will be designed, installed, inspected, tested, constructed, operated, replaced, and maintained in accordance with federal safety standards and plans for maintenance and inspection.

Safety guidelines for the design and construction of aboveground facilities, including compressor stations, are established in 49 CFR 192 Subpart D. 49 CFR 192.163 requires the location of each main compressor building of a compressor station be on a property under the control of the operator. The station must also be far enough away from adjacent property, not under control of the operator, to minimize the possibility of fire spreading to the compressor building from structures on adjacent properties. Under 49 CFR 192.163, it also requires each building on a compressor station site be made of noncombustible materials and have at least two separate and unobstructed exits. The station must be in an enclosed fenced area and must have at least two gates to provide a safe exit during an emergency. Plus, appropriate fire prevention and countermeasures should be implemented to prevent nearby brush and foliage fires. Furthermore, contractors and workers preparing for welding and hot activities at compressor stations must ensure their workspace is safe, gas is contained, no leaks are detected, and the station is blown down.

49 CFR 192.163 requires that each compressor station have an emergency shutdown system (except for unattended field compressor stations of 1,000 hp or less) that must meet several specifications. Most compressor station safety systems are engineered with automated control systems to ensure the station and pipeline pressures are maintained within safe limits and include several additional over-pressure protection systems that provide an additional layer of safety to back-up the primary controls. The automated emergency system would shut down the station to prevent an incident should an abnormal operating condition occur, and, if appropriate, would evacuate the gas from the station piping at a safe location where it would not create a hazard. It is critical that gas control ensures proper procedures are followed when anomalies are detected in gas flow, detection devices go off, or reports are received, as mistakes and failure to follow proper procedure by controllers have been recorded. Therefore, it is critical that crews are dispatched to sites whenever anomalies are recorded to prevent gas emissions, fires, and any further incidents.

Additionally, 49 CFR Part 192.171 requires that each compressor station be equipped with adequate fire protection facilities that are not impeded by the emergency shutdown system.

Additionally, PHMSA requires that each operator establish and maintain a liaison with appropriate fire, police, and public officials to learn the resources and responsibilities of each organization that may respond to a facility emergency, and to coordinate mutual assistance. The operator must also establish a continuing education program to enable the public, government officials, and others to recognize an emergency at the facility and report it to appropriate public officials. Bluewater would provide the appropriate training to local emergency service personnel before the facilities are placed in service.

We received many comments from nearby landowners concerned about compressor station safety given the recent incidents in the area as well as the safety record of Bluewater. We acknowledge those concerns and Bluewater has indicated that they would strictly follow the DOT pipeline safety standards, as applicable, for the compressor station. These standards were developed to limit the risk of pipeline and compressor station incidents. If followed, they significantly reduce the future risk of incidents at this or any other facility. As Bluewater has had three PHMSA significant incidents in the last 16 years, it revised certain practices and operational methodologies to reduce the risk of similar incidents happening in the future. These would be implemented in the design of the Bluewater Compressor station and include:

- the use of carbon steel exchangers instead of aluminum;
- use of third-party inspectors for evaluation of the heat exchangers;
- immediately addressing corrosion deterioration on heat exchangers;
- installing heat and fire eyes in the compressor building that would initiate automatic safety systems;
- installation of larger and additional purge valves for more efficient venting; and



- implementing training for Bluewater personnel on procedures to isolate the pipeline from the compressor station when purging.

The Michigan Public Service Commission acts as an Interstate Agent for PHMSA with respect to natural gas pipeline safety, and they would inspect the compressor station for adherence with the state and federal pipeline safety standards.

The construction and operation of the Bluewater Compressor Station would represent a minimum increase in risk to the nearby public and we are confident that with adherence to the DOT Minimum Federal Safety Standards in 49 CFR Part 192, the compressor station would be constructed and operated safely.

## **10.0 CUMULATIVE IMPACTS**

In accordance with NEPA, we identified other actions located near the Project facilities and evaluated the potential for a cumulative impact on the environment. As defined by CEQ, a cumulative effect is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. CEQ guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions. In this analysis, we consider the impacts of past projects as part of the affected environment (environmental baseline) which was described and evaluated in the preceding environmental analysis. However, present effects of past actions that are relevant and useful are also considered.

Our cumulative effects analysis focuses on potential impacts from the proposed Project on resource areas or issues where the incremental contribution could result in cumulative impacts when added to the potential impacts of other actions. To avoid unnecessary discussions of insignificant impacts and projects and to adequately address and accomplish the purposes of this analysis, an action must first meet the following three criteria to be included in the cumulative analysis:

- affects a resource also potentially affected by the Project;
- causes this impact within all, or part of, the Project area defined by the resource-specific geographic scope; and
- causes this impact within all, or part of, the time span of the proposed Project's estimated impacts.

As described in the environmental analysis section of this EA, constructing and operating the Project would temporarily and permanently impact the environment; however, impacts would not be significant. The Project would impact geology, soils, vegetation, wildlife, socioeconomics, visual resources, air quality, noise, and some land uses. With the exception of air quality, noise, and socioeconomic impacts, we determined that the Project would have only minimal or temporary impacts on most resources and contributions to cumulative impacts would be negligible. Therefore, as summarized below, we have determined that the limited Project impacts would not contribute to adverse cumulative impacts on certain resources, and these resources are therefore not addressed further in this analysis.

- Geology and soils impacts would be primarily contained to the Project footprint based on the mitigation measures contained in the Commission's Plan and Bluewater's SESC Plan, and Project construction would not impact any fuel or non-fuel mineral resources. The only potential project we identified that would overlap the Project footprint is the installation of the non-jurisdictional electric service line that would extend to the site from Omo Road, with the potential for minor and largely temporary soil disturbances adjacent to the new permanent

access road. Therefore, the Project would not result in adverse cumulative impacts on geology or soils.

- Groundwater would not be appropriated for the Project and no known sources of groundwater contamination, sole source aquifers, or wellhead protection areas are in the immediate vicinity. The Project would not affect wetlands. Waterbodies present within the Project area are limited to two upland drainage features and Bluewater would implement our Plan and Procedures and its SESC Plan and Spill Procedures to minimize impacts from construction. Therefore, the Project would not result in adverse cumulative impacts on water resources.
- For vegetation and wildlife, Project construction would primarily take place in previously disturbed areas used for agriculture and would result in minimal forest clearing (0.06 acre). Unique or sensitive vegetation types or habitat areas are not present. Therefore, we conclude the Project would not result in adverse cumulative impacts on vegetation and wildlife.
- Cultural resources investigations identified no prehistoric or historic period artifacts, archaeological features, or historic-aged architectural resources, and the Michigan SHPO states and FERC staff agree that the Project would have no effect on historic properties. Therefore, the Project would not contribute to cumulative impacts on cultural resources.
- The Project would not impact residential land or industrial/commercial land, and would not cross any public land, wildlife management areas, conservation districts, or recreation areas. Permanent impacts would be limited to approximately 0.1 acre that would be maintained as right-of-way and 9.0 acres that would be in the operational footprint of the compressor station and new berms. Agricultural areas not permanently converted for industrial use (i.e., areas that would not contain the aboveground facility or berms) would be allowed to return to previous conditions. Our analysis concluded that visual impacts would be minimal at any discrete location from the Project based on Bluewater's proposed mitigation and our recommendation and no other planned projects were identified that could alter the visual character of the area. Therefore, we conclude that the Project would not contribute to adverse cumulative impacts on land use, recreation, and visual resources.

For the remaining resources of air quality, noise, and socioeconomics, we further analyze potential cumulative impacts below. Consistent with the CEQ guidance and to determine whether cumulative impacts would occur, we reviewed the impact of projects within resource-specific geographic scopes. Table 15 below summarizes the resource-specific geographic scopes that were considered in this analysis. Actions located outside the geographic scope are generally not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

<b>Table 15</b> <b>Resource-Specific Geographic Scopes</b>	
<b>Resource</b>	<b>Cumulative Impact Geographic Scope</b>
Socioeconomics	Macomb County
Air Quality – Operations	31-mile (50km) radius around the compressor station
Air Quality – Construction	0.25-mile radius around the construction areas
Noise - Construction	0.25-mile radius around construction sites
Noise – Operation	Facilities that may affect any NSAs within 1 mile of the Compressor Station

Table 16 identifies present and reasonably foreseeable projects or actions that occur within the socioeconomic and air quality – operations geographic scope. These projects were identified by a review of publicly available information; aerial and satellite imagery; consultations with federal, state, and local agencies/officials and development authorities; and information provided by Bluewater, affected landowners, and concerned citizens. Comments indicate that a new residential subdivision is proposed near the project area. We found no record of the proposed residential development on the east side of Omo Road with any local, county, or other agencies; therefore, this project is not being considered in the cumulative impact analysis.

<b>Table 16</b> <b>Cumulative Impacts Analysis: Past, Present, and Reasonably Foreseeable Projects</b>					
<b>Project Name</b>	<b>Project Proponent</b>	<b>Location</b>	<b>Description</b>	<b>Timeframe</b>	<b>Resources That May Be Cumulatively Affected</b>
23 Mile Road from North Ave. to Card Road	Macomb County Department of Roads	>10 miles south; 23 Mile Road, Macomb County, Michigan	Widen road from 2 to 5 lanes	Begin construction in 2020	Socioeconomics (traffic)
23 Mile Road from Heydenreich to Romeo Plank	Macomb County Department of Roads	>10 miles south; 23 Mile Road, Macomb County, Michigan	Widen road from 2 to 5 lanes	Begin construction in 2020	Socioeconomics (traffic)
AKZO Nobel Coatings		120 Frankling Road, Pontiac, Michigan	Installation of Specialty Marine and Protective Equipment	Unknown	Air Quality
Ameriti Manufacturing		19300 Filer Street, Detroit, Michigan	Investment Casting Operation	Unknown	Air Quality
State Crushing, Inc.		25501 Sherwood Ave., Warren, Michigan	Replacing primary crusher	Unknown	Air Quality
Webasto Sunroofs, Inc.		2700 Product Drive, Rochester Hills, Michigan	5 Poly Urethane Encapsulation Presses	Unknown	Air Quality

## **10.1 Socioeconomics**

As discussed in section B.7, the Project may affect the socioeconomic conditions of the Project area in the short term, when the facilities are under construction and the temporary construction work force relocates to the Project area. The Project would also have an effect in the long term due to increased township revenue collections from taxes levied on the Project facilities. Table 16 identifies two Macomb County roadway projects that may have short term socioeconomic effects within the geographic and temporal scope of the Project. These projects would likely be constructed by workers who either already reside in the Project area, and whose effect on socioeconomic conditions is already accounted for in the baseline housing, economic, public services, and infrastructure conditions; or by workers who would commute into the area on a daily basis for the roadway construction projects.

While an estimate of the number of workers who would commute into Macomb County for the roadway construction projects is not available, it can be conservatively assumed that even if the workforce were to be similar in scale to that constructing the Project facilities (i.e., 40 workers on average), available housing and other public services would be sufficient to accommodate this short term demand without significant impact to the affected counties.

On a long-term basis, the proposed Project facilities would have a minor, positive, cumulative impact on the level of tax collections in Ray Township during the operational life of these facilities. No new workers would be hired to operate the Project facilities, and no impact on township or county public services such as schools and public safety would occur. The Macomb County roadway projects would not result in any cumulative socioeconomic impacts.

As concluded in section B.7, socioeconomic impacts from Project construction and operation are expected to be minimal. No major impacts are expected from any other projects within the defined geographic scope for socioeconomic impacts. Therefore, we conclude that the Project would result in a minimal cumulative impact on socioeconomics within the geographic scope.

## **10.2 Air Quality**

Construction of reasonably foreseeable future projects and activities within the geographic scope may impact air quality. Construction would involve the use of heavy equipment that would generate emissions of air contaminants, fugitive dust, and noise. Construction and operation of the Bluewater Compressor Station would contribute cumulatively to air quality impacts.

CEQ guidance states that an adequate cumulative effects analysis may be conducted by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions. We considered the impacts of past projects as part of the affected air environment (environmental baseline). We note that direct GHG emissions typically do not have a local impact, it's the existing GHG ambient concentrations in the upper atmosphere as well as current climate change impacts (as indicated in the section below) that show the current climate change impacts.

Construction equipment emissions would result in short-term emissions that would be highly localized, temporary, and intermittent. Projects with construction occurring concurrently are located sufficiently far away so as not to result in cumulative air quality impacts during construction. For regional cumulative air quality, we confirmed that the construction emissions from construction activities are far

below the General Conformity Applicability Threshold, as seen in table 10. We conclude that these construction emissions are in compliance with the State Implementation Plan for the maintenance area that contains Macomb County.

For operational emissions, the 50 km radius that we identify for potential cumulative impacts encompasses a significant portion of the Detroit metro area. The geographic scope was determined using the baseline radius of impact for PSD modeling used by the EPA. Virtually the entire northern suburbs of Detroit from about Grosse Pointe, through Hamtramck over to Southfield and includes the city of Pontiac, Michigan. This included several industrial and commercial areas; low to heavy density housing; as well as many main roads and highways. Bluewater was able to obtain a list of existing air emission sources within 50 km of the compressor station; however, it did not provide a list of proposed projects within the northern metro Detroit area. OEP staff consulted the EGLE Air Quality Division Permit Section website for a list of proposed permits in Michigan and determined which of those were located within 50km of the Bluewater Compressor Station. These are listed in Table 16.

As indicated previously, the Detroit metro area is heavily industrialized and has had historically been in nonattainment status for certain of the NAAQS. The state is required, as part of its implementation plan to ensure that the approval of air quality permits does not result in significant deterioration or backsliding of air quality from the current maintenance area into nonattainment. The Project operational emissions, along with those facilities listed in tables 16 would cumulatively result in increases in emissions in the area. However, in considering the magnitude of the current and proposed regional emissions along with the emissions from the Bluewater Compressor Station, we determined that it would not result in a significant cumulative impact on local or regional air quality.

### **10.3 Noise**

The Project could contribute to cumulative noise impacts as a result of both construction and operation of the Project. Noise impacts due to construction would be temporary, highly localized, and attenuate quickly as distance from the noise source increases. There are no projects that are located close enough to the Project to contribute to cumulative noise impacts during construction.

Operation of the existing Ray Compressor Station, as well as operations of the existing storage field have the possibility of cumulatively increasing noise in the area of the Bluewater Compressor Station. There are no new or proposed projects that we found within noise geographic scope to cumulatively add to the noise at the Bluewater Compressor Station.

The noise impact of the existing facilities on NSAs within 1 mile of the Bluewater site should be accounted for within the baseline ambient noise survey that Bluewater provided. In addition, we have included a noise recommendation to limit noise from the Bluewater Compressor Station. Therefore, we conclude that cumulative noise impacts in the area of the Bluewater Compressor Station would not be significant.

### **10.4 Climate Change**

Climate change is the variation in climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time, and cannot be characterized by an individual meteorological event or anomalous weather pattern. For example, a severe drought or abnormally hot summer in a particular region is not a certain indication of climate change. However, a series of severe

droughts or hot summers that statistically alter the trend in average precipitation or temperature over decades may indicate climate change. Recent research has begun to attribute certain extreme weather events to climate change (USGCRP 2018).

The leading U.S. scientific body on climate change is the U.S. Global Change Research Program (USGCRP), composed of representatives from 13 federal departments and agencies.<sup>9</sup> The Global Change Research Act of 1990 requires the USGCRP to submit a report to the President and Congress no less than every four years that “1) integrates, evaluates, and interprets the findings of the USGCRP; 2) analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and 3) analyzes current trends in global change, both human-induced and natural, and projects major trends for the subsequent 25 to 100 years.” These reports describe the state of the science relating to climate change and the effects of climate change on different regions of the U.S. and on various societal and environmental sectors, such as water resources, agriculture, energy use, and human health.

In 2017 and 2018, the USGCRP issued its *Climate Science Special Report: Fourth National Climate Assessment*, Volumes I and II (Fourth Assessment Report) (USGCRP, 2017; and USGCRP, 2018, respectively). The Fourth Assessment Report states that climate change has resulted in a wide range of impacts across every region of the country. Those impacts extend beyond atmospheric climate change alone and include changes to water resources, transportation, agriculture, ecosystems, and human health. The U.S. and the world are warming; global sea level is rising and acidifying; and certain weather events are becoming more frequent and more severe. These changes are driven by accumulation of GHG in the atmosphere through combustion of fossil fuels (coal, petroleum, and natural gas), combined with agriculture, clearing of forests, and other natural sources. These impacts have accelerated throughout the end 20th and into the 21st century (USGCRP 2018).

Climate change is a global phenomenon; however, for this analysis, we will focus on the existing and potential cumulative climate change impacts in the Project area. The USGCRP’s Fourth Assessment Report notes the following observations of environmental impacts are attributed to climate change in the Midwest region (USGCRP, 2017; USGCRP 2018):

- the Midwest region has experienced an increase in annual average temperature of 1.25°F since the first half of the 20th century, with a greater warming of average daily minimum temperature;
- the Midwest has seen increasing rainfall over the past 50 years, with a large increase in heavy rainfall events;
- heavy rainfall events are leading to more flooding, erosion, and runoff into waterways;
- rainfall and humidity have been increasing during spring and early summer;
- an average of 9 additional frost-free growing season days; and

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<sup>9</sup> The USGCRP member agencies are: Department of Agriculture, Department of Commerce, Department of Defense, Department of Energy, Department of Health and Human Services, Department of the Interior, Department of State, Department of Transportation, Environmental Protection Agency, National Aeronautics and Space Administration, National Science Foundation, Smithsonian Institution, and U.S. Agency for International Development.

- a shift of range of about 30 miles of many understory species to the northwest, following the direction of climate shift.

The USGCRP's Fourth Assessment Report notes the following projections of climate change impacts in the Midwest region with a high or very high level of confidence<sup>10</sup> (USGCRP, 2018):

- annual average temperatures in the Midwest are projected to increase by 4.2°–5.3°F by the mid-21st century and by 5.6°–9.5°F by the late 21st century, compared to the average for 1976–2005;
- while days in Midwestern cities over 100°F are rare, they could become increasingly more common by late century;
- winter and spring precipitation are important to flood risk in the Midwest and are projected to increase by up to 30% by the end of this century; and
- unless offset by additional reductions of ozone precursor emissions, climate change will increase ozone levels over most of the Midwest, particularly over already polluted areas.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound extreme events (such as simultaneous heat and drought, wildfires associated with hot and dry conditions, or flooding associated with high precipitation on top of saturated soils) can be greater than the sum of the parts (USGCRP 2018).

The GHG emissions associated with construction and operation of the Project were identified and quantified in section B.8. Construction and operation of the Project would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts.

Currently, there is no universally accepted methodology to attribute discrete, quantifiable, physical effects on the environment to the Project's incremental contribution to GHGs. We have looked at atmospheric modeling used by the EPA, National Aeronautics and Space Administration, the Intergovernmental Panel on Climate Change, and others, and we found that these models are not reasonable for project-level analysis for a number of reasons. For example, these global models are not suited to determine the incremental impact of individual projects, due to both scale and overwhelming complexity. We also reviewed simpler models and mathematical techniques to determine global physical effects caused by GHG emissions, such as increases in global atmospheric CO<sub>2</sub> concentrations, atmospheric forcing, or ocean CO<sub>2</sub> absorption. We could not identify a reliable, less complex model for this task, and we are not aware of a tool to meaningfully attribute specific increases in global CO<sub>2</sub> concentrations, heat forcing, or

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<sup>10</sup> The report authors assessed current scientific understanding of climate change based on available scientific literature. Each "Key Finding" listed in the report is accompanied by a confidence statement indicating the consistency of evidence or the consistency of model projections. A high level of confidence results from "moderate evidence (several sources, some consistency, methods vary and/or documentation limited, etc.), medium consensus." A *very* high level of confidence results from "strong evidence (established theory, multiple sources, consistent results, well documented and accepted methods, etc.), high consensus." <https://science2017.globalchange.gov/chapter/front-matter-guide/>

similar global impacts to project-specific GHG emissions. Similarly, it is not currently possible to determine localized or regional impacts from GHG emissions from the Project.

Absent such a method for relating GHG emissions to specific resource impacts, we are not able to assess potential GHG-related impacts attributable to this project. While there is no federal climate or GHG goals<sup>11</sup>, the State of Michigan Department of Environmental Quality published its Climate Action Plan in 2009 that established recommended goals for the state to adopt. Along with recommending that the state advocate for federal cap and trade program, the report recommended two GHG goals. The report calls for a 20% reduction of 2005 GHG levels by 2020 (198 million metric tons), and an 80% reduction of 2005 GHG levels by 2050 (49.5 million metric tons). The Michigan 2017 EIA fossil-fuel combustion inventory was 152.7 million metric tons; however, this does not include certain agricultural and certain industrial emissions. 2018 and 2019 data are not available. Ultimately, there is no widely accepted standard, per international, federal, or state policy, or as a matter of physical science, to determine the significance of the Project's GHG emissions.

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<sup>11</sup> The national emissions reduction targets expressed in the EPA's Clean Power Plan were repealed, Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emissions Guidelines Implementing Regulations, 84 Fed. Reg. 32,520, 32,522-32,532 (July 8, 2019), and the targets in the Paris climate accord are pending withdrawal.



## SECTION C – ALTERNATIVES

In accordance with NEPA and Commission policy, we considered and evaluated alternatives to the proposed action, including the no-action alternative, system alternatives, and compressor station site alternatives. These alternatives were evaluated using a specific set of criteria. The evaluation criteria applied to each alternative include a determination whether the alternative:

- meets the objective of the proposed project;
- is technically and economically feasible and practical; and
- offers a significant environmental advantage over the proposed project.

Through environmental comparison and application of our professional judgment, each alternative is considered to a point where it becomes clear if the alternative could or could not meet the three evaluation criteria. To ensure a consistent environmental comparison and to normalize the comparison factors, we generally use desktop sources of information (e.g., publicly available data, geographic information system data, aerial imagery) and assume the same general workspace requirements. Where appropriate, we also use site-specific information (e.g., field surveys or detailed designs). Our environmental analysis and this evaluation consider quantitative data (e.g., acreage) and uses common comparative factors such as total length, amount of collocation, and land requirements.

The alternatives were reviewed against the evaluation criteria in the sequence presented above. The first consideration for including an alternative in our analysis is whether or not it could satisfy the stated purpose of the project. An alternative that cannot achieve the purpose for the project cannot be considered as an acceptable replacement for the project. Many alternatives are technically and economically feasible. Technically practical alternatives, with exceptions, would generally require the use of common construction methods. An alternative that would require the use of a new, unique or experimental construction method may not be technically practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render the project economically impractical.

Alternatives that would not meet the Project's objective or were not feasible were not brought forward to the next level of review (i.e., the third evaluation criterion). Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. The determination must then balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

One of the goals of an alternatives analysis is to identify alternatives that avoid significant impacts. In section B, we evaluated each environmental resource potentially affected by the Project and concluded that constructing and operating the Project would not significantly impact these resources. Consistent with our conclusions, the value gained by further reducing the (not significant) impacts of the Project when considered against the cost of relocating the facilities to a new set of landowners was also factored into our evaluation.

## **1.0 NO ACTION ALTERNATIVE**

The no-action alternative would result in not implementing the proposed action and would avoid the potential environmental impacts associated with the Project; however, the Project objectives would not be met. The current state of Bluewater's interconnect with Vector does not provide the ability to directly deliver 100 percent of its Project customers' maximum daily withdrawal quantity to Vector. Under the no-action alternative, Bluewater would not construct any component of the Project, the design capacity of the interconnect with the Vector Pipeline would not be restored, and Bluewater's customers would be required to secure firm transportation via other parties. Based, in part, on the limited scope of the Project, we are not recommending the no action alternative.

## **2.0 SYSTEM ALTERNATIVE**

The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with the construction and operation of the Project could be avoided or reduced by using existing, modified, or other proposed facilities rather than constructing new facilities. System alternatives are those able to meet the objectives of the Project but use a different facility (existing or proposed) or are able to otherwise use existing infrastructure to eliminate the need for the proposed facility. However, a viable system alternative must be technically and economically feasible as well as practicable and must satisfy interconnect requirements and the anticipated in-service date to fulfill commitments made to the Project customers. System alternatives would be required to meet the goal of restoring Bluewater's ability to deliver its certificated capacity of 500,000 Mcf/d of firm deliverability to the Vector pipeline.

We considered two system alternatives provided by Bluewater. The first would require replacement of approximately 20 miles of existing 20-inch-diameter pipeline from its Columbus III mainline valve to Bluewater's interconnect with Consumers Energy Ray Station with a 24-inch-diameter pipeline including a higher maximum allowable operation pressure (MAOP). The second system alternative would require a new interconnect with the Vector pipeline system and an additional 12 miles of new 24-inch-diameter pipeline including an increased MAOP from Columbus III to the nearest feasible interconnection point with the Vector pipeline system. Given the amount of land use and landowner impacts associated with the amounts of pipeline in each alternative, we did not consider these alternatives further.

## **3.0 ABOVEGROUND SITE ALTERNATIVE**

We received comments regarding the Project and alternative sites for Bluewater's compressor station. Specifically, commenters stated other locations were more suitable than the location on Omo Road, expressing concern related to property values, noise, safety, improper zoning, and other environmental impacts. Bluewater stated in its July 12, 2019 filing that an alternate location would require either a significant increase in greenfield pipeline construction or a considerable increase to the size and footprint of the proposed compressor station, increasing environmental impacts. However, various sites in the Project vicinity appeared to satisfy the needs of the Project. Therefore, FERC staff requested Bluewater provide information about various alternative sites. Table 17 is a quantitative comparison of the environmental characteristics of the compressor station alternative sites considered. Figure 2 provides a graphic illustration of these 6 alternatives and the proposed site.

<p align="center"><b>Table 17</b> <b>Alternative Analysis for the Bluewater Compressor Station</b></p>								
<b>Environmental Factor</b>	<b>Unit</b>	<b>Site Alternative 1</b>	<b>Site Alternative 2</b>	<b>Site Alternative 3</b>	<b>Proposed Site</b>	<b>Site Alternative 4a</b>	<b>Site Alternative 4b</b>	<b>Site Alternative 4c</b>
<b>Pipeline</b>								
New 20-inch-diameter pipeline required	feet	2,400	3,800	200	210	600	200	700
Temporary pipeline ROW <sup>1</sup>	acres	2.3	8.7	0.0 <sup>2</sup>	0.1	0.0 <sup>2</sup>	0.0 <sup>2</sup>	0.0 <sup>2</sup>
Permanent pipeline ROW <sup>1</sup>	acres	1.2	4.4	0.0 <sup>2</sup>	0.1	0.0 <sup>2</sup>	0.0 <sup>2</sup>	0.0 <sup>2</sup>
<b>Compressor Station</b>								
Primary Land Use	type	agricultural	agricultural	agricultural	agricultural	agricultural	agricultural	forested
Temporary Workspace	acres	3.8	5.0	14.5	11.8	5.2	7.0	5.0
Permanent Facility Size	acres	3.8	5.0	14.5	9.0	5.2	7.0	5.0
Agricultural land impacted <sup>3</sup>	acres	4.4	11.8	14.5	11.9	0.2	7.0	0.0
Forested land impacted <sup>3</sup>	acres	0.1	1.9	0.0	0.1	2.6	0.0	2.7
<b>Wetlands</b>								
Number impacted	number	0	1	0	0	0	0	1
Total length crossed (pipeline)	feet	0	760	0	0	0	0	0
Total wetland impacted (station)	acres	0	0	0	0	0	0	2.7
<b>Waterbodies</b>								
Number crossed	number	0	1	0	0	0	0	0
Total length crossed	feet	0	15	0	0	0	0	0
Known cultural resource sites in construction work area <sup>4</sup>	number	0	0	0	0	0	0	0
Designated floodplain impacted	acres	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Residences within 50 feet of construction work area <sup>3</sup>	number	1	0	0	1	0	0	0

<p align="center"><b>Table 17</b>  <b>Alternative Analysis for the Bluewater Compressor Station</b></p>								
<b>Environmental Factor</b>	<b>Unit</b>	<b>Site Alternative 1</b>	<b>Site Alternative 2</b>	<b>Site Alternative 3</b>	<b>Proposed Site</b>	<b>Site Alternative 4a</b>	<b>Site Alternative 4b</b>	<b>Site Alternative 4c</b>
Residences within 100 feet of construction work area <sup>3</sup>	Number	2	0	0	1	0	0	0
Closest NSA/Residence to compressor station site <sup>5</sup>	feet	400	1,800	600	800	470	1,150	730
NSAs within 0.5 mile of construction work area	number	36	10	27	27	17	23	8
NSAs within 1 mile of construction work area	number	71	95	82	67	57	66	110
<p><sup>1</sup> Assumes 100-foot-wide temporary ROW and 50-foot-wide permanent ROW</p> <p><sup>2</sup> Pipeline would be within station alternative footprint and would not require additional temporary or permanent ROW</p> <p><sup>3</sup> Includes construction work area for compressor station and new pipeline</p> <p><sup>4</sup> Based on National Register of Historic Places data</p> <p><sup>5</sup> The distances for the alternatives are based on a central point within the property since detailed design was not completed for these sites. The distance for the proposed site is an actual, measured distance.</p>								



The criteria used to conduct our alternative aboveground site analysis included the following:

- Compressor station footprint: a minimum of three acres was considered to accommodate the necessary equipment and provide visual buffers and distance from residences.
- Site use/availability: existing infrastructure, indications of whether the site is available for purchase/lease, concentrations of landowners within the vicinity, and presence of High Consequence Areas.
- Access road/lateral pipeline length: site alternatives were limited to properties within one mile of Bluewater's existing pipeline due to the need to connect the new compressor with the existing pipeline facilities. Site proximity to public roads was also considered due to the need to install an access road.
- Engineering constraints: connection at the existing Bluewater pipeline requires an MAOP greater than the operating pressure of the Vector pipeline. Bluewater's pipeline has varying MAOP ratings. The three-mile portion of the existing Bluewater 20-inch-diameter pipeline (west of Omo Road between Bluewater's interconnection with Consumers Energy and the Vector interconnect) has an MAOP greater than the operating pressure of the Vector pipeline where it interconnects with Bluewater. Pipeline replacement or additional compression would not be necessary along this three-mile stretch.
- Environmental: impact to environmental resources such as waterbodies, wetlands, floodplains, forest and agricultural lands, endangered species, cultural resources, noise impacts, and visual impacts.

### **3.1 Site Alternative 1**

Site Alternative 1 is located near the intersection of 32 Mile Road and Omo Road. This site was evaluated because it is adjacent to an existing public road and within one mile of the existing Bluewater 20-inch-diameter pipeline that has an MAOP greater than the operating pressure of the Vector pipeline where it interconnects with Bluewater. The site is in active agricultural land. The closest presumed NSA is located approximately 400 feet north of the site. More than 71 other NSAs were identified within one mile of the site.

This alternative is located approximately 0.3 mile east of the Bluewater 20-inch pipeline and would require construction of 2,400 feet of new 20-inch-diameter pipeline between the compressor station and the existing pipeline. The new pipeline would cross Omo Road and a small residential area.

Site Alternative 1 would have the closest NSA to the compressor station site of any alternative, regardless of compressor location on the property. It would also have had a higher number of residences located within one mile than the proposed site, and two (the highest number) of residences within 100 feet of construction workspace. In addition, the construction and maintenance of a new pipeline would require additional impacts on land uses and landowners. This would also result in additional environmental impacts. Therefore, this alternative did not provide a significant environmental advantage over the proposed site.

### **3.2 Site Alternative 2**

Site Alternative 2 is located on active agricultural land approximately 0.8 mile east of the intersection of Omo Rd and 32 Mile Road. This site was evaluated by Bluewater because the property was for sale when Bluewater was searching for potential property acquisition.

The closest NSA would be located approximately 1,800 feet south of the site. More than 95 other NSAs were identified within one mile of the site.

Site Alternative 2 is located approximately 0.8 mile east of the Bluewater 20-inch-diameter pipeline and would require replacement of 3,800 feet of new 20-inch-diameter pipeline between the new compressor station and the existing pipeline.<sup>12</sup> Additionally, the pipeline would cross Highbank Creek, an associated wetland complex, and a wooded area.

Although site Alternative 2 had the greatest distance from the nearest NSA, utilizing this site would cause increased landowner impacts as well as wetland, waterbody, and land impacts due to the need for a pipeline replacement. The site also has a high number of NSAs within a one-mile buffer. For these reasons, this site does not provide a significant environmental advantage over the proposed location.

### **3.3 Site Alternative 3**

Site Alternative 3 is located on active agricultural land, and it was evaluated because the property owner proposed the location during Bluewater's community outreach efforts.

The closest NSA would be located approximately 600 feet from this alternative. More than 82 other NSAs are within one mile of the site.

This site is adjacent to the three-mile portion of the existing Bluewater 20-inch-diameter pipeline west of Omo Road between Bluewater's interconnection with Consumers Energy and the Vector interconnect. However, Bluewater states that Alternative 3 is further from the ideal location, from a system perspective, than the Project. Bluewater also states that the increased distance would require construction of two compressors to achieve the Project goal instead of one. This would make the alternative less technically and economically feasible and practical compared to the proposed location. In addition, the need for additional compressors would result in increased air emissions, noise, and station footprint.

This alternative site also is located adjacent to a public golf course which meets the definition of a High Consequence Area. Depending on the final layout of the facilities, this could increase the class of the proposed facilities, as defined under DOT regulations. For these reasons, this site does not provide a significant environmental advantage over the proposed location.

### **3.4 Site Alternative 4a**

During scoping, Site Alternative 4a appeared to be a viable option given it was adjacent to the interconnect with Consumers Energy, is viable hydraulically, and the property appeared vacant.

Because of land requirements and a resident as close as 150 feet, Bluewater states that this alternative would require impacts to an area with hydric soils (according to EGLE). Standing water is also evident, in aerial photos, in the hydric soil area just outside of the expected footprint. It appears that

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<sup>12</sup> This information was verified through Bluewater's response, dated November 1, 2019, to the Division of Pipeline Certificates data requests dated August 13, September 4, and September 30, 2019.

wetlands would therefore be impacted by an aboveground facility, which our Procedures prohibit, except where the location of such facilities outside of wetlands would prohibit compliance with DOT regulations.

In addition, aerial photos and other desktop tools show that Consumers Energy is likely using it for operations. Signs of borrow areas and spoil piles can be seen on this property southwest of Bluewater's launcher/receiver as well as excavators, bulldozers and dump trucks working on the property. Finally, Consumers Energy has previously indicated it is not willing to sell land to Bluewater for this Project.

Given these factors, this alternative does not provide a significant environmental advantage over the proposed location.

### **3.5 Site Alternative 4b**

Site alternative 4b was identified during scoping as a potential site because the closest NSA is 1,150 feet away and land uses adjacent to the site appear to be adequate for a compressor station. Therefore, we requested information from Bluewater regarding the feasibility of this site.

The property is owned by Consumers Energy and is not currently for sale. The corresponding access road would also require an additional 400 feet of permanent workspace. Bluewater states this alternative would move the compressor station approximately 400 feet closer to the East Branch Coon Creek and its associated forested wetlands. However, it appears that wetland and waterbody impacts could likely be avoided. Additionally, Bluewater states that this alternative would move the compressor station about 400 feet closer to Consumers Energy's underground natural gas storage field, but Bluewater does not clarify a concern. According to EGLE, a small amount of agricultural land is mapped as hydric soils where the compressor would be situated, and a wetland delineation would need to be conducted to verify wetland presence. Since this property is further from Omo Road, it would also require a longer permanent access road than Bluewater's preferred option. However, Bluewater has not addressed why the existing access road from 32 Mile Road, adjacent to the existing pipeline right-of-way, could not be used for this purpose.

Advantages of this alternative are that there are no residences within 100 feet of project activity, it has the smallest amount of new pipeline required (200 feet), and no tree removal would be necessary. While alternative 4b provides a minor reduction in the number of NSAs within 0.5 mile of the compressor station (four less than the Project) and within 1.0 mile of the compressor station (one less than the Project), these advantages would not be substantial enough to demonstrate a significant environmental advantage. In addition, there are potential issues, such as possible wetland and waterbody impacts, and the land is not currently available for purchase.

### **3.6 Site Alternative 4c**

Site Alternative 4c was identified as a potential alternative site because it would be adjacent to the existing, Bluewater-owned, 29 Mile Compressor Station at the interconnect with the Vector pipeline. It also provides a reduction of 19 NSAs within 0.5 mile of the compressor station site compared to the Project. Based on aerial photos, one farm is in the vicinity of the station and the nearest NSA (730 feet) would be closer to the station compared to the Project (800 feet).

Because Alternative 4c wouldn't share any facilities with the existing facilities at this site, at least three acres would be required. The new facilities would only operate when the existing facilities are not operating; however, we estimate that a minor increase in horsepower would be necessary for this alternative.

Bluewater states multiple siting challenges exist at this facility. Bluewater states that Coon Creek occurs approximately 300 feet to the west of the existing facilities. The land between Coon Creek and



Bluewater's existing facilities is not large enough to accommodate Bluewater's compressor station project. A utility corridor that contains an overhead electric transmission line and multiple underground gas transmission lines borders the site to the north. Similarly, the land to the south is not vacant land, as Bluewater states the landowner has constructed multiple structures. Therefore, construction of the proposed compressor station to the west, north, or south of the existing facilities at the 29 Mile Road site is not practical or feasible without creating new environmental impacts.

Bluewater states that the area to the east of the 29 Mile Road site would pose engineering constraints. The information submitted by Bluewater on November 1, 2019 states it would need to increase the upstream pipe diameter if the compressor was located at this location in order to maintain appropriate natural gas velocities. Bluewater has not filed any statements stating the amount of additional pipeline that would be needed for this alternative. Bluewater has not stated whether the landowner has been approached regarding this option.

Bluewater also estimates that five acres would be needed to accommodate visual mitigation for the landowner immediately to the south of this site. Of this five-acre site, approximately three acres are forested. According to EGLE, this forest is also mapped as a forested wetland. While the remaining two acres are non-forested, the area adjacent to the facility is mapped as having hydric soils. The location to the east, therefore, would result in increased environmental impacts to forested wetlands (2.7 acres) compared to the Project, which avoids forested wetlands.

While alternative 4c would minimize the number of NSAs affected by the Project, it would increase the amount of forested wetlands permanently affected. In addition, engineering constraints may result in the alternative not being technically feasible and practical. Therefore, we have determined that due to the impacts to wetlands and the engineering constraints, this site does not provide a significant environmental advantage over the proposed location.

### **3.7 The Columbus III Gas Storage Facility**

The existing Bluewater Columbus III Storage Field, which is approximately 16 miles northeast of the Project, was examined as a possible alternative. However, based on Bluewater's response to our data requests and verification by the FERC staff, 18.2 miles of existing 20-inch-diameter mainline would need to be replaced with a 24-inch-diameter pipeline. Required horsepower compression would also increase, which would create additional impacts on air quality. Also, replacement of the 1.4-mile-long Columbus III-to-Mainline lateral and 3.4-mile-long Kimball 27-to-Mainline lateral would also be required.

Given the impacts to land use with an additional 23 miles of pipeline, and the increase of horsepower and subsequent air impacts, this site was not considered further.

### **3.8 Compressor Station Site Alternatives Conclusion**

Our analysis of alternative site locations for the compressor station found that several alternatives could reduce the number of NSAs within 0.5 mile of the compressor station. However, with the implementation of measures in the permits that Bluewater has committed to obtain prior to construction, our Plan and Procedures, and our recommendations, the Project would meet or exceed the Federal and state standards and our noise requirements. Therefore, we have found no alternative aboveground facility location that is environmentally preferable, feasible and practical, and capable of meeting Bluewater's stated objectives.

#### 4.0 ELECTRIC-DRIVEN COMPRESSION

As an alternative to the gas-fired compression at the Bluewater Compressor Station, we requested that Bluewater evaluate electric motor-driven compression to reduce local and regional emissions. As indicated in Section B.8.1 Air Quality - Existing Environment, the Project is located in an Ozone maintenance area so we deemed that analyzing an alternative that could reduce emissions from the Project and would reduce noise (electric motors are generally quieter than gas-fired units) should be conducted.

In response to our request, Bluewater stated that using electric-motor-driven compression at the compressor station would require an additional 8,150 kW of power. This additional electric load would require:

- a new substation constructed near the corner of 32 Mile Road and Omo Road, of undetermined size;
- a new 0.5-mile power line to replace the existing power line along Omo road, however, this line would need to be upgraded to feed the Project; and
- additional time to construct of about a year.

Bluewater has indicated concerns that inclement weather may cause outages of an electric unit and that one of the projected purposes of the Project is to operate during extremely cold or inclement weather during the winter.

In addition, to determine whether the gas-driven compression would result in greater emissions than grid-sourced electricity, we compared the grid-sourced emissions to the gas-fired emissions. Such comparisons are complicated because grid power could be obtained from a variety of power sources (such as fossil fuel and renewable fuels). Further, there would be differences in the contributing fossil fuel-fired generating stations: they may use gas, oil, or coal for fuel; they would have different plant configurations (simple cycle or combined cycle power generation); and the plants would likely have different emission control systems. However, it is possible to provide a generic estimate the emissions of grid power using EPA's emission factors for grid supplied power for the region (EPA, 2018), which is the latest such data available. Current emissions may be lower due to changes in plant operation and fueling as a result of EPA regulatory changes after 2016. Table 18 shows the comparison of available grid-sourced emissions with the proposed gas-fired emissions.

<b>Table 18</b> <b>Gas-fired vs. Electric Generated Compression Alternative Comparison</b>		
<b>Emission Type</b>	<b>Proposed Gas-fired Turbine<sup>1</sup></b> <b>(tpy)</b>	<b>Grid Emissions<sup>2</sup></b> <b>(tpy)</b>
NO <sub>x</sub>	20.3	35.8
SO <sub>2</sub>	2.3	46.4
PM <sub>2.5</sub>	2.3	6.8
CO <sub>2</sub>	36,583	59,470
<sup>1</sup> Entire Bluewater Compressor Station		
<sup>2</sup> Using EPA's AVOIDed Emissions and geneRation Tool (AVERT) v2.3, and the Great Lakes/Mid-Atlantic Regional data (2018). 8,150 kW electric motor compressors run 8760 hours per year		

As table 18 shows, the emissions from the Great Lakes/Mid-Atlantic electric regional grid would be higher than the emissions from the proposed gas-fired turbine. The noise and air quality impacts to local residents could be lower using an electric-motor alternative. However, the overall magnitude of emissions, including GHG may be greater based upon available data on the existing power generation units on the regional grid. The electrical power generation estimates are generic in nature and based on the available data. Based on the available data, the additional construction impacts of a substation, and considering Bluewater's indication that it would delay the Project in-service, we conclude that the alternative of using electric-motor-driven compression does not offer a significant environmental advantage over the proposed use of gas-fired compressors.

We therefore conclude that the proposed Project, as modified by our recommendations, is the preferred alternative to meet the Project objectives.

## SECTION D – CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis in this EA, we have determined that if Bluewater constructs and operates the proposed facilities in accordance with its application, supplements, and the staff's recommended mitigation measures, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Commission Order (Order) contain a finding of no significant impact and include the following mitigation measures as conditions to any Certificate the Commission may issue.

1. Bluewater shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests and as identified in the EA unless modified by the Order. Bluewater must:
  - a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
  - b. justify each modification relative to site-specific conditions;
  - c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
  - d. receive approval in writing from the Director of OEP **before using that modification.**
2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:
  - a. the modification of conditions of the Order;
  - b. stop-work authority; and
  - c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.
3. **Prior to any construction**, Bluewater shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.
4. The authorized facility location shall be as shown in the EA as supplemented by filed alignment sheets. **As soon as they are available, and before the start of construction**, Bluewater shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for the facility approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Bluewater's exercise of eminent domain authority granted under Natural Gas Act section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Bluewater's right of eminent domain granted under Natural Gas Act

section 7(h) does not authorize it to increase the size of its natural gas facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. Bluewater shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area.**

This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;
- b. implementation of endangered, threatened, or special concern species mitigation measures;
- c. recommendations by state regulatory authorities; and
- d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the Certificate and before construction begins,** Bluewater shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Bluewater must file revisions to the plan as schedules change. The plan shall identify:
  - a. how Bluewater will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA and required by the Order;
  - b. how Bluewater will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
  - c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
  - d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;
  - e. the location and dates of the environmental compliance training and instructions Bluewater will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);

- f. the company personnel (if known) and specific portion of Bluewater's organization having responsibility for compliance;
  - g. the procedures (including use of contract penalties) Bluewater will follow if noncompliance occurs; and
  - h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
    - (1) the completion of all required surveys and reports;
    - (2) the environmental compliance training of onsite personnel;
    - (3) the start of construction; and
    - (4) the start and completion of restoration.
7. Bluewater shall employ at least one EI for the Project. The EI shall be:
- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
  - b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
  - c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
  - d. a full-time position, separate from all other activity inspectors;
  - e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
  - f. responsible for maintaining status reports.
8. Beginning with the filing of its Implementation Plan, Bluewater shall file updated status reports with the Secretary on a **biweekly** basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:
- a. an update on Bluewater's efforts to obtain the necessary federal authorizations;
  - b. the construction status of the Project work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally-sensitive areas;
  - c. a listing of all problems encountered and each instance of noncompliance observed by the EI(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
  - d. a description of the corrective actions implemented in response to all instances of noncompliance;
  - e. the effectiveness of all corrective actions implemented;
  - f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
  - g. copies of any correspondence received by Bluewater from other federal, state, or local permitting agencies concerning instances of noncompliance, and Bluewater's response.
9. Bluewater shall develop and implement an environmental complaint resolution procedure, and file such procedure with the Secretary, for review and approval by the Director of OEP. The

procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems or concerns during construction of the Project and restoration of the right-of-way and compressor station site. **Prior to construction**, Bluewater shall mail the complaint procedures to each landowner whose property is crossed by the Project or within 0.5 mile of the compressor station.

- a. In its letter to affected landowners, Bluewater shall:
    - (1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
    - (2) instruct the landowners that if they are not satisfied with the response, they should call Bluewater's Hotline; the letter should indicate how soon to expect a response; and
    - (3) instruct the landowners that if they are still not satisfied with the response from Bluewater's Hotline, they should contact the Commission's Landowner Helpline at 877-337-2237 or at [LandownerHelp@ferc.gov](mailto:LandownerHelp@ferc.gov).
  - b. In addition, Bluewater shall include in its **biweekly** status report a copy of a table that contains the following information for each problem/concern:
    - (1) the identity of the caller and date of the call;
    - (2) the location of the affected property;
    - (3) a description of the problem/concern; and
    - (4) an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.
10. Bluewater must receive written authorization from the Director of OEP **before commencing construction of any Project facilities**. To obtain such authorization, Bluewater must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).
  11. Bluewater must receive written authorization from the Director of OEP **before placing the Project into service**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way, compressor station site, and other areas affected by the Project are proceeding satisfactorily.
  12. **Within 30 days of placing the authorized facilities in service**, Bluewater shall file an affirmative statement with the Secretary, certified by a senior company official:
    - a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
    - b. identifying which of the conditions in the Order Bluewater has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.
  13. **Prior to construction**, Bluewater shall file with the Secretary, for review and written approval by the Director of OEP, a revised landscape plan that incorporates additional visual screening along

Omo Road by replacing deciduous trees with more mature evergreen trees and/or adding more mature evergreen trees throughout the eastern portion of the site at grade level.

14. Bluewater shall file a noise survey with the Secretary **no later than 60 days** after placing the Compressor Station in service. If a full load condition noise survey is not possible, Bluewater shall file an interim survey at the maximum possible horsepower load and file the full load survey **within 6 months**. If the noise attributable to the operation of all of the equipment at the Compressor Station under interim or full horsepower load conditions exceeds an  $L_{dn}$  of 55 dBA at any nearby NSAs, Bluewater shall file a report on what changes are needed, for review and written approval by the Director of OEP, and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. Bluewater shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after it installs the additional noise controls.



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## SECTION F – REFERENCES

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# Appendix A

## Project Maps







**Notes**  
 1. Coordinate System: NAD 1983 StatePlane Michigan South Zone, 1213 Feet  
 2. Data Sources Include: Starline, NAD83, USGS  
 3. Orthophotography: 2018 NADP  
 Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

- Legend**
- Existing Bluewater 20-inch Pipeline
  - Pipeline Abandonment
  - Operational Footprint
  - Compressor Station
  - Fenceline
  - Permanent Access Road
  - Pipeline Tie-In
  - Berm
  - Temporary Access
  - Temporary Workspace
  - Additional Temporary Workspace
  - Parcel Boundary
  - Survey Area
  - National Hydrography Dataset\*
  - Perennial Stream
  - Intermittent Stream
  - Waterbody

\*No Features Within Data Frame

Figure No.  
**2-2**

Title  
**Field Collected Data**

Client/Project  
 Bluewater Compression Project  
 Bluewater Gas Storage, LLC

Project Location  
 T4S, R13E, S1,  
 Macomb Co., MI

Prepared by: JH on 2019-10-02  
 Technical Review by: JH on 2019-10-02  
 Independent Review by: JH on 2019-10-04

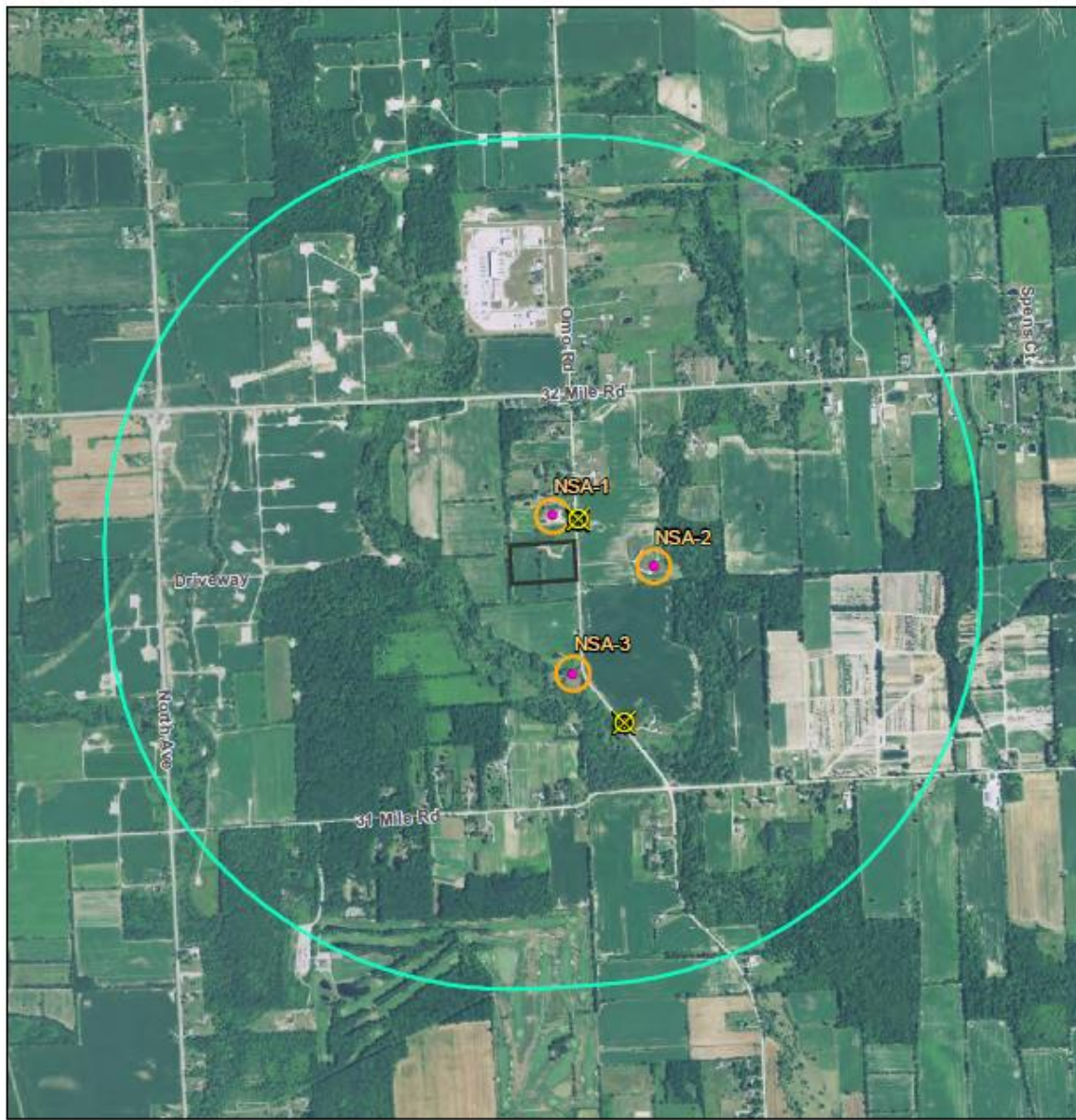
0 100 200 Feet  
 1:2,400 (at original document size of 8.5x11)

North Arrow









**Notes**  
 1. Coordinate System: NAD 1983 StatePlane Michigan South RPS 2113 Feet  
 2. Data Sources include: Stantec, NAD83, USGS  
 3. Orthophotography: 3016 NADP

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- Legend**
- Proposed Compressor Station Property Line
  - 1-Mile Buffer
  - Potential Noise Receptor
  - Noise Survey Measurement Location
  - Noise Sensitive Area

Figure No.  
**1-5**

### Compressor Station NSA Map

Client/Project  
 Bluewater Compression Project  
 Bluewater Gas Storage, LLC

Project Location: 14th, R 13E, S1, Twp. of Kay, Macomb Co., MI  
 Prepared by: JG on 2018-10-04  
 Technical Review by: MP on 2018-10-04  
 Independent Review by: SR on 2018-10-04

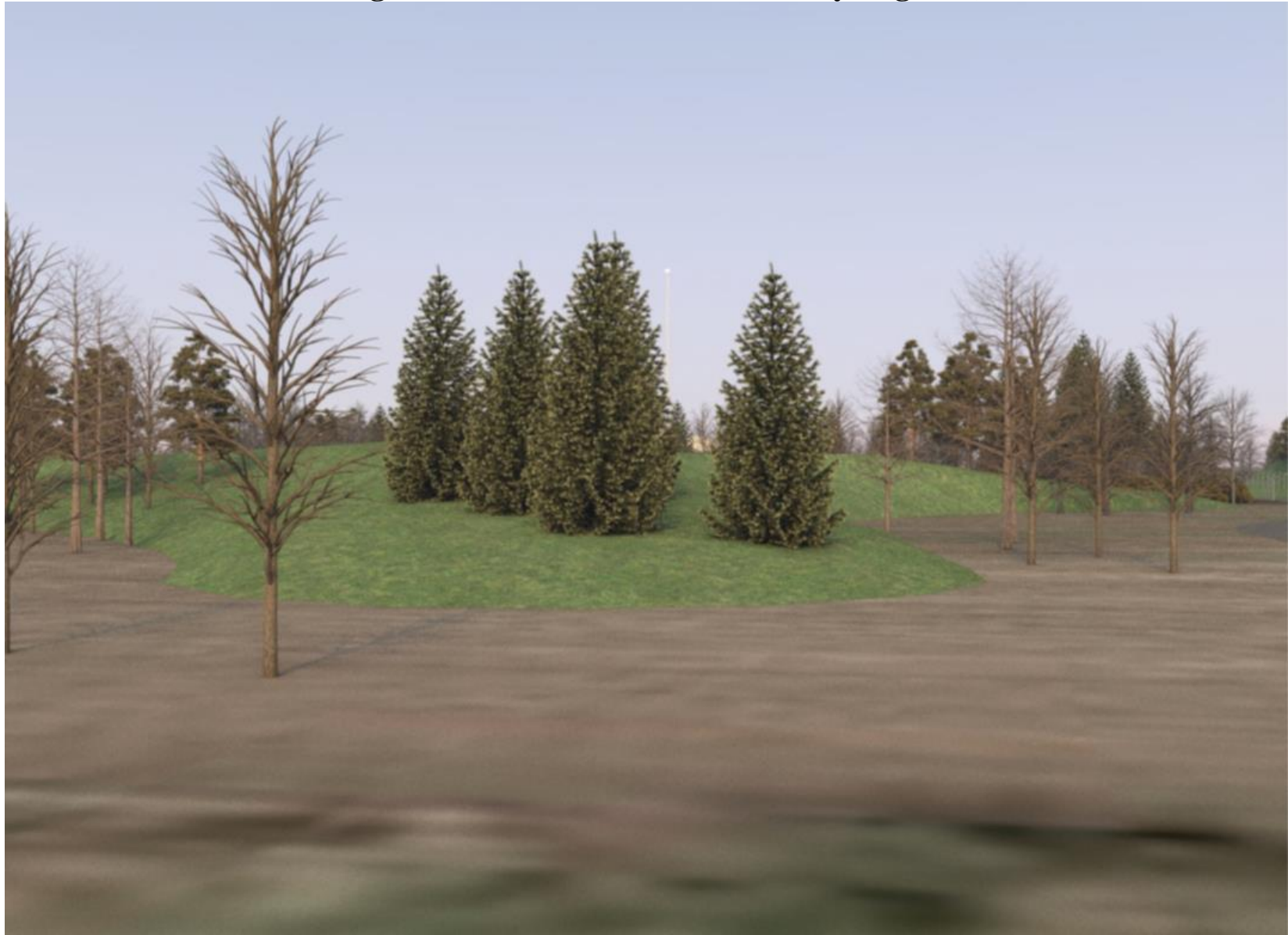
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 1:25,000 (at original document size of 8.5x11)



# Appendix B

## Winter Screening Views

**View from the east looking west (from Omo Road driveway at grade)**

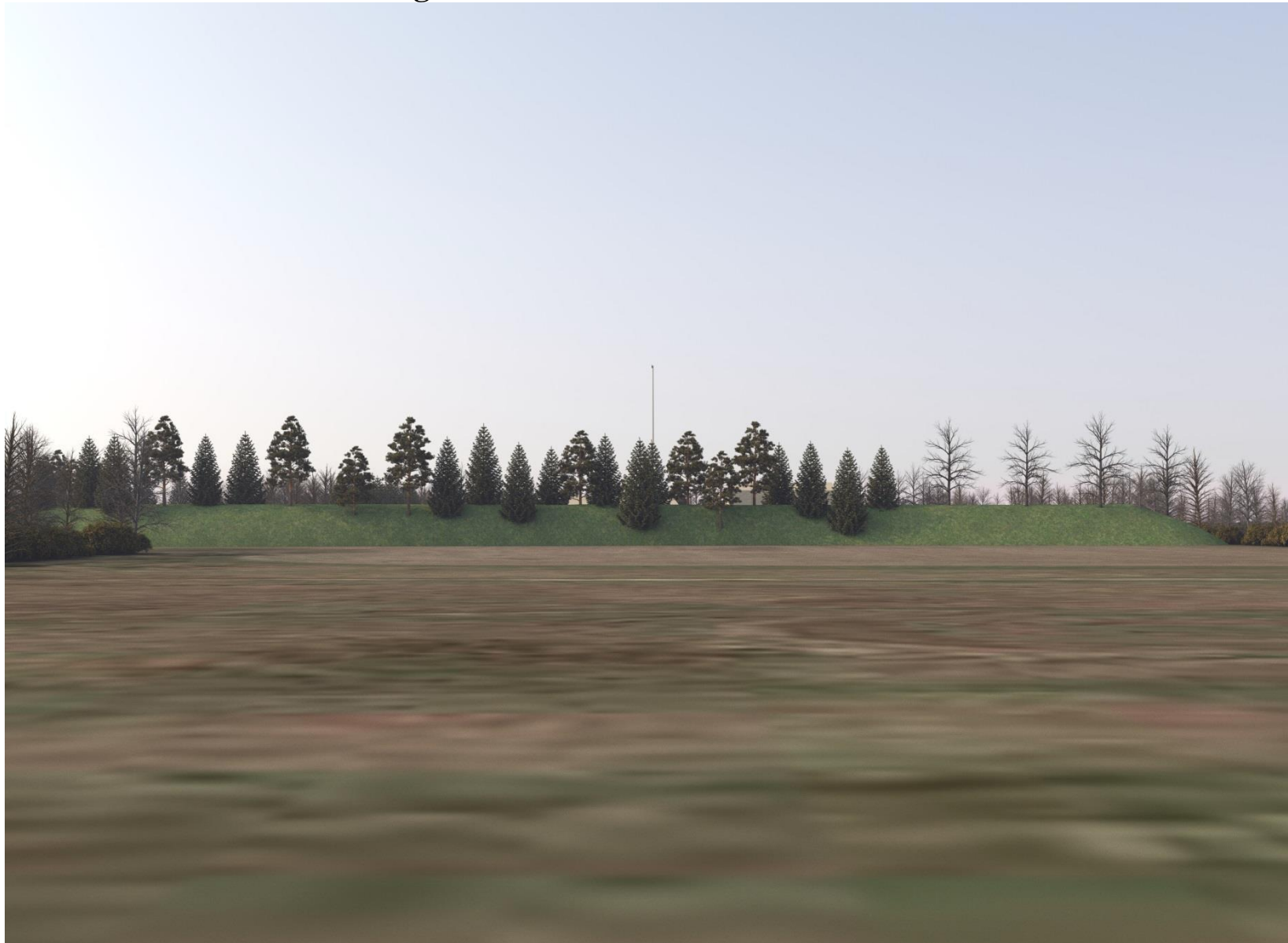


**View from the southeast looking northwest (from Omo Road at grade)**





## View from the North Looking South



## **View from the South Looking North**



# Appendix C

## Berm Design and Landscape Plans

