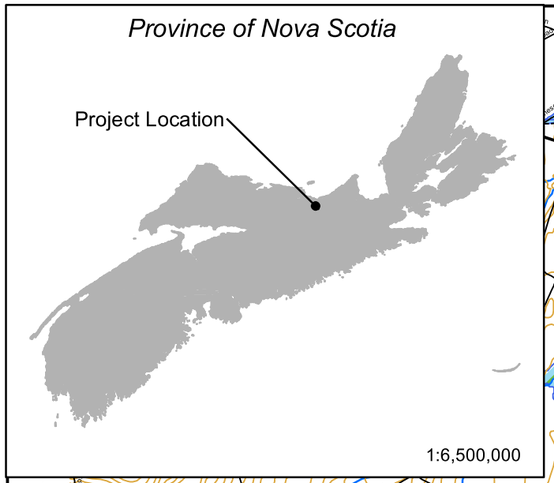

Figure 4-5

Significant Habitat and Species of Conservation Concern

Pictou County Natural Gas Pipeline

Legend

- Contour Interval (5m)
- Road
- Collector
- Expressway / Highway
- Preferred Route and Michelin Connector
- Maritimes and Northeast Pipeline
- Railroad
- Utility
- Watercourses
- Waterbody
- NSDNR Wetlands
- Field Delineated Wetland
- Abercrombie Wildlife Management Area
- Park Area

Significant Wildlife Habitats (DNR)

- Deer Wintering Habitat
- Migratory Bird Habitat
- Other Habitat*
- Species at Risk Habitat

* Significant Habitats (NSDNR)

Site ID	Common Name
PI140	Wood Turtle
PI185	Greater Scaup
PI191	Bald Eagle
PI193	Bald Eagle
PI194	Bald Eagle
PI197	Bald Eagle
PE204	Bald Eagle

Field Observations

- Black Duck Nest Observation
- Osprey Nest Observation
- Potential Rare Plant Habitat*

Priority Species Observations

- Weigand's Sedge
- Canada Warbler
- Olive-sided Flycatcher

* All riparian areas surrounding watercourses and wetlands are potential rare plant sites

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0 0.5 1 2 km

SCALE 1:50,000 STATUS: DRAFT DATE: 06/27/13

Data Sources: NSDNR, GeoNova, Heritage Gas, NRC, 2012-2013 field surveys

Projection: NAD_1983_CSRS_UTM_Zone_20N

4.2 Social-economic

4.2.1 Community and Land use

The primary economic activities along the preferred alignment are forestry and agriculture, accounting for over 60 percent of the land use throughout the broad study area (**Figure 4-6**). Productive or potentially productive forest comprises approximately 50% of land use in the vicinity of the alignment, while agriculture accounts for nearly 15% of the land use. Much of the forested areas is being actively harvested or appears to have been harvested in the past. Agricultural lands are located primarily in the many hills and valleys between Limerock and Alma, with additional areas of agriculture near Mount William. The protection of land with existing or future forestry or agricultural productivity is an important issue whenever linear corridors are created. Although this land is not specifically protected by provincial or federal statutes, it is nonetheless considered as an issue of concern by landowners.

From consultation with landowners, no issues arose regarding the impact of the project on agriculture and forestry activities along the alignment.

By routing the alignment adjacent to and along existing linear corridors (i.e., utility corridors and former railway beds) the likelihood of disturbances of high quality timber stands is greatly reduced. Heritage Gas will also implement a number of mitigation measures to maintain access across the easement including: improvements to access roads crossing the easement and the provision of temporary pipeline crossings (plated steel/movable structures) when landowners do not require a permanent crossing.

Effects on agricultural productivity can be caused by: construction workspace requirements; access for construction; dust generation onto adjacent sensitive crops; and effects on livestock from equipment noise. Where agricultural lands are excavated or used by heavy equipment, soils may be mixed or compacted, which reduces crop productivity.

In general, the proposed pipeline alignment avoids lands with sensitive crops or has been aligned outside productive agricultural lands, and along existing utility corridors. The short duration of construction limits the potential disturbance effects on livestock. Impacts on agriculture are also not significant as productive lands will be avoided and there is no impact from proposed pipeline construction on pasture lands. Specific measures have been identified for pasture lands for topsoil preservation as noted in Section 2. The need for additional mitigation and the specific mitigation measures for these lands will be developed in consultation with the affected landowners and will be incorporated into the ECPs.

Various communities exist throughout the region covered by the proposed pipeline alignment. Future residential developments are considered to be compatible with pipeline operations, as shown in Figure 4-6. Pipeline systems are also compatible with light industrial uses, such as power transmission and communications towers.

The Abercrombie Wildlife Management Area is located in Abercrombie Point. This area also includes the Double–crested Cormorant colony between Abercrombie Point and the causeway.

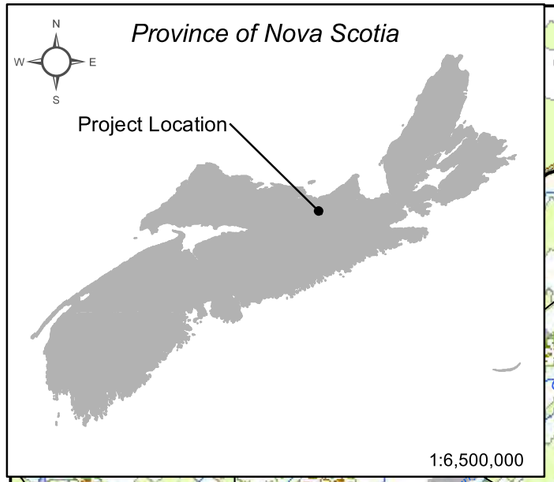


Figure 4-6

Land Use

Pictou County Natural Gas Pipeline

Legend

- Road
- Collector
- Expressway / Highway
- Utility
- Railroad
- Preferred Route and Michelin Connector - June 2013
- Maritimes and Northeast Pipeline
- Watercourses
- Waterbody
- NSDNR Wetlands

Land Use

- Plantation/Forestry
- Cut Over/Clear Cut
- Agriculture
- Built Up Area
- Mine Site, Landfill or Brownfield
- Gravel Pit
- Rails to Trails
- First Nations Lands (Pictou Landing)
- Cemetary
- Crown Land

Heritage Gas

DILLON CONSULTING

0 0.5 1 2 km

SCALE 1:50,000 STATUS: DRAFT DATE: 06/27/13

Data Sources: NSDNR, GeoNova, Heritage Gas, NRC, 2012-2013 field surveys

Projection: NAD_1983_CSRS_UTM_Zone_20N

The management area is regulated by NSDNR under the Nova Scotia Wildlife Act which regulates hunting, vehicle access and trapping within the area.

Recreational activities exist throughout the study area, such as hunting, fishing, hiking, swimming, ATV use, and other outdoor activities.

4.2.2 Cultural Resources, Heritage Sites and Archaeological Sites

Construction of the proposed pipeline may disturb cultural heritage resources as a result of construction related activities associated with the following: construction within the proposed pipeline easement itself, entry and exit points for horizontal directional drilling, stockpiling areas, marshalling yards, temporary work areas, and access roads and bridges, either temporary or permanent.

Nova Scotia's cultural heritage resources are protected under the terms of The Special Places Protection Act, The Heritage Property Act, and An Act to Provide for the Protection of Cemeteries. Public/stakeholder interest in cultural heritage resources in relation to the proposed pipeline construction project has been clearly expressed by the local Mi'kmaq band.

In order to minimize these impacts and mitigate those that cannot be avoided, Cultural Resource Management (CRM) Group Limited has undertaken a cultural heritage impact assessment on behalf of Heritage Gas **(Appendix B)**. This assessment was used to identify areas of archaeological potential and design strategies for the pre-construction field verification of archaeological potential. The assessment has validated the presence or absence of cultural resources within the identified high potential areas and has established appropriate mitigation measures for addressing previously unidentified cultural heritage resources encountered during construction.

The archaeological impact assessment designed to address archaeological resource potential within the proposed pipeline route study area is comprised of three components: an archaeological screening and high-level reconnaissance of the four proposed routes; a focused reconnaissance and screening of the preferred pipeline route; and, a shovel testing program of four locations of high archaeological potential within the preferred pipeline easement. CRM Group will be retained by Heritage Gas to provide emergency response services during the construction phase of the project.

The archaeological screening and high-level reconnaissance was designed to explore the land use history of the study area and provide information necessary to evaluate the area’s archaeological potential. To achieve this goal, CRM Group utilized documentary resources available through various institutions including the Nova Scotia Archives, Nova Scotia Land Information Centre, the Department of Natural Resources Library and the Nova Scotia Museum.

The background study included a review of relevant historic documentation incorporating land grant records, legal survey and historic maps, as well as local and regional histories. Topographic maps and aerial photographs, both current and historic, were also used to evaluate the study

area. This data facilitated the identification of environmental and topographic features that would have influenced human settlement and resource exploitation patterns. The historical and cultural information was integrated with the environmental and topographic data to identify potential areas of archaeological sensitivity.

The goals of the high-level field reconnaissance were to conduct windshield and focused pedestrian surveys within each of the four proposed study corridors, to evaluate areas exhibiting high archaeological potential, to document archaeological sites identified during the course of the background research and visual inspection, and to design and recommend strategies for the protection and preservation of those resources.

The high-level field reconnaissance, conducted on November 22, 2012, resulted in the identification of 11 areas of high archaeological potential, both Precontact and historic, within two of the four proposed pipeline routes **(Figure 4-7)**. For the two other proposed pipeline routes a desktop-only study was conducted. However, due to the similarities with the other proposed routes, a number of the areas identified in-field also apply to these routes. Two of the areas of high archaeological potential identified during the archaeological screening and high-level reconnaissance are located along the proposed pipeline routes to New Glasgow that are still in the planning phase by Heritage Gas and were not included in the remainder of the assessment to date.

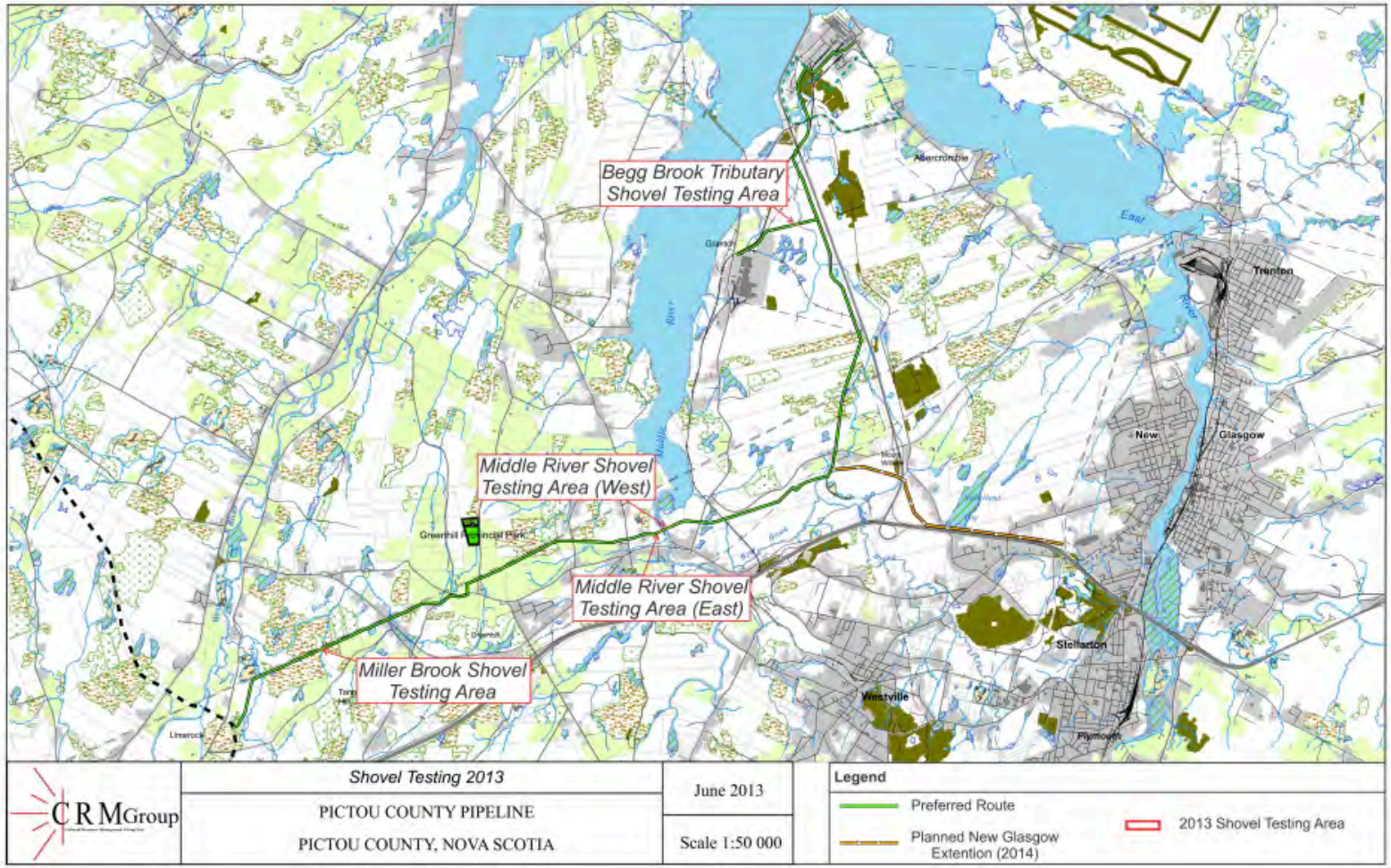
Based on the results of the high-level reconnaissance, a focused field reconnaissance of the nine areas of high archaeological potential was conducted on April 22-23, 2013. This represented a total of approximately 11 kilometres of alignment. The goal of the reconnaissance was to identify and document specific locations of high archaeological sensitivity or archaeological sites during the visual inspection. The reconnaissance resulted in the identification of four specific locations of archaeological sensitivity including: the west bank of Miller Brook; the west bank of Middle River, the east bank of Middle River; and, the west bank of a tributary of Begg/Hebb Brook.

A program of pre-construction shovel testing of these four locations was conducted on June 17-19, 2013. The objective of the shovel testing program was to identify the presence or absence of archaeological resources at each of these four locations of archaeological sensitivity. In total, 110 shovel tests were conducted at the four locations. No Precontact artifacts or soil deposits were identified.

At location 3, the east bank of Middle River, 34 of the 42 shovel tests conducted contained small amounts of historic cultural material, primarily pieces of coal and coal clinker. Twelve shovel tests (35%) contained fragments (one or two pieces) of iron nails, while three shovel tests (9%) contained small unidentifiable iron fragments. Five shovel tests (12%) contained a single piece of undecorated white refined earthenware. Two shovel tests (6%) contained a piece of window pane glass. One shovel test (3%) contained a piece of a colourless glass milk bottle finish. None of the recovered ceramics or glass was considered archaeologically significant. No distinctive soil deposits were encountered. There was no evidence of structural remains during shovel testing and the soil profile was indicative of a ploughed field. The wide distribution of the material over a large field, the type of pottery and glass recovered and the proximity to an existing residence suggests that the material, in its context, is not considered to be archaeologically significant.

It is the recommendation of CRM Group that the proposed pipeline alignment be cleared of the need for further archaeological investigation. Should previously unidentified cultural resources be encountered during construction, CRM Group will respond on an emergency basis.

Figure 4-7 Shovel Testing 2013 (CRM Group)



4.2.3 Land and Resources Used for Traditional Purposes by Aboriginal Persons

The proposed pipeline route is located entirely within private land holdings. The closest portion of the proposed pipeline route (Abercrombie Point) is located over 2 km west of Pictou Landing First Nations ("PLFN"). A portion (approximately 200 m) of the route runs along the abandoned railway easement north of Mount William, which is adjacent to a parcel of land owned "in trust as fee simple" for the PLFN.

These properties are not part of the federal lands of the PLFN but are owned privately by individuals on behalf of PLFN, i.e., "fee simple". These lands were actively harvested in the past; it is understand that their use for active forestry is under review by PLFN to augment their existing sustainable forestry practices on PLFN land.

Heritage Gas has engaged the Mi'kmaq of Nova Scotia throughout the planning process to discuss project specifics and proposed route locations, including PLFN and Kwilmu'ku Maw-klusuaqn ("KMK"). Section 5.0 provides an overview of Aboriginal consultation to date.

CRM performed desktop research and analysis into the potential for Precontact and historic aboriginal, as well as early Euro-Canadian influences within the study area. The land within the study area was once part of the greater Mi'kmaq territory known as *Agg Piktuk*, meaning 'The Explosive Place'. Within this larger area, the numerous lakes and rivers, particularly the West, Middle and East Pictou Rivers would have been important transportation routes from the Northumberland Strait inland, as well as trade corridors and a source of salmon and other fish species. There are historical records of strong Mi'kmaq presence in the general area including a village at the mouth of the East River and evidence of Precontact and early historic indigenous habitation sites along the rivers throughout.

A review of the Maritime Archaeological Resource Inventory (MARI), a provincial archaeological site database maintained by the Nova Scotia Museum, determined there are no registered Precontact or early historic indigenous archaeological resources identified within the proposed pipeline route. The closest registered Precontact site is BjCq-1 from the Ceramic Period (3,000 – 500 BP), is located immediately north of Northern Pulp at the northern end of the study area.

There were initially several locations based on the high level background review in the vicinity of the study area that were considered to have high potential for encountering Precontact and/or historical archaeological resources. These locations were refined based on field truthing and narrowed down to four locations of high potential (**Figure 4-7)**; Middle River both sides, west bank of Miller Brook and, west bank a tributary to Begg Brook into the Michelin plant. These sites were shovel tested in June 2013 with no archeological material was found in 3 of the sites, and no Precontact material identified at any of the sites.

The CRM report is provided in **Appendix B**.

4.2.4 Economic development

Based on the 2011 Census of Population, Pictou County has a population of 21,745, whereas Nova Scotia has a population of 913,465. The County covers an area of approximately 2845 square km and includes the Towns of New Glasgow, Trenton, Stellarton, Westville and Pictou, as well as several other villages and hamlets. The County is also home to several significant industries that are very important to the region's as well as the Province's viability. The availability of efficient and economical natural gas to these various energy depended industries will support strong economic stability in the world market, as well as significantly reduce their environmental footprint, an aspect of business in today's marketplace that has become extremely important throughout product supply chains.

Heritage Gas is also committed to using local contractors, as well as hiring staff locally, whenever it is commercially reasonable to do so, and where suitable resources exist.

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5.0 CONSULTATION

5.1 Development and Business Stakeholders

Governmental agencies, including elected and staff representatives of the various municipalities, as well as the business community have been actively engaged in this Project for the past eight years.

In October 2005, Heritage Gas made presentations to the newly-formed Pictou County Energy Committee, which included several invited business and municipal leaders. This committee's mandate was "to provide a forum of community stakeholders to educate and disseminate energy awareness to the business community and the community at large" and to "be a voice for Pictou County on energy matters". Following this initial presentation, Heritage Gas participated in regular meetings held to discuss energy opportunities for Pictou County including natural gas, coal bed methane, geothermal heat and wind power.

In 2009, a number of communications were exchanged between the Pictou Regional Development Commission ("PRDA") and Heritage Gas with a view to facilitating the evaluation of the economic feasibility of developing a natural gas system in Pictou County. A confidential Market Report was presented to Heritage Gas by the PRDA in April 2009. This report has formed the basis of subsequent economic evaluations.

In the fourth quarter of 2011 and first quarter 2012, Heritage Gas participated in an extensive business consultation process involving several meetings with a number of provincial and Pictou County business community leaders including former Premier Dr. John Hamm, the Empire Company Limited, Nova Scotia Power Corporation Inc. ("NSPI"), Northern Pulp, Michelin, the Pictou County Health Authority, DSTN:DSME Trenton, Nova Forge and others. Heritage Gas provided specific proposals for bringing natural gas to the Trenton Generating Station (a NSPI 310 MW coal-burning electricity-generating power plant). At the conclusion of these discussions, in March 2012, then NSPI President, Rob Bennett, confirmed that it was uneconomic to consider converting the Trenton power plant to natural gas in the near term, and NSPI would not be pursuing this option at this time.

In April 2012, Heritage Gas was invited to provide an update to the Mayor of New Glasgow, Chamber of Commerce, and PRDA's gas committee. On May 1, 2012, Heritage Gas was invited to a meeting convened by the CEO of the Aberdeen Hospital to discuss the potential to approach the Government of Canada for a loan to support a natural gas infrastructure expansion to Pictou County.

Further to these initiatives, Heritage Gas renewed direct conversations with Northern Pulp and Michelin and focused its effort on serving natural gas to these two industrial customers as the first phase of the natural gas expansion in Pictou County. Numerous meetings have been held with both parties, both jointly and separately, which culminated in the signature of an agreement with Northern Pulp in April 2013. Michelin continue to actively consider a service offer.

5.2 Community

Heritage Gas believes that consultation with the community is an important means of providing information on the Project and soliciting input into pipeline routing.

Since October 2012, Heritage Gas representatives have communicated with local residents for the purpose of gaining access to property for field studies, to obtain feedback on pipeline routing options, and discuss land easements as appropriate. To directly engage with members of the public, Heritage Gas held an Open House on June 20, 2013.

The Open House was held at the Pictou County Wellness Centre. Ads were placed in the New Glasgow Evening News on the Saturday and Monday of the week prior to the Open House. Also, in the week prior to the Open House, direct invitations were sent to landowners along the proposed pipeline route, as well as other stakeholders and the Pictou Landing First Nation. There was also a media article in the New Glasgow Evening News on the day prior to the Open House.

Open House displays and information included:

- Nine storyboards with an introduction to the Project, information on natural gas benefits, approaches to route planning, environmental constraints mapping, pipeline design and approvals, construction activities, use of HDD to minimize effects, operation and maintenance activities, and mapping of the preferred pipeline route;
- A double-sided fact sheet on the Project written in plain language for attendees to take away which summarizes the Project with topics used in the storyboards; and
- A copy of a press release related to the Project dated April 5, 2013.

Copies of the invitation and supporting materials are located in Appendix A.

A Heritage Gas representative greeted the attendees, asked attendees to sign in, and explained the format of the Open House. Heritage Gas representatives for engineering, construction, environment and marketing were present to answer questions and discuss issues in an informal setting. Upon exit, attendees were encouraged to complete a comment form to share their views on the information presented. Completed comment forms were requested to be returned the day of the Open House in an envelope provided; in two cases, Heritage Gas contact information was provided to the attendees for comments forms to be submitted at a later time.

A total of 54 people signed in during the Open House; all those who attended the session signed in as a guest. In this total, two landowners attended who have both been or are currently in discussions with Heritage Gas on land easements. Also two members of the media attended (New Glasgow Evening News and Pictou Advocate). It is estimated that approximately 13% of attendees were from the list of 80 stakeholders directly invited while the balance were informed of the Open House via the advertisement, local media or word of mouth in the community. Most of the attendees were interested individuals; some attendees attended on behalf of their official capacity. These included but are not limited to: Pictou Centre MLA, Ross Landry; Dan MacDonald, Director of Land/Environment of Pictou Landing First Nation; Mayor Barrie MacMillan, Town of New Glasgow; Earl MacKenzie, New Glasgow Town Engineer and Ebon MacMillan, Pictou County – Director of Public Works.

No comment forms were left in the envelope at the exit during the Open House. At the time of writing, no additional comment forms were submitted to Heritage Gas. All comments summarized in this report were expressed verbally to Heritage Gas representatives during the Open House. General themes of attendees' questions were written on a flip chart during the event to roughly track broad topics.

Many of the area residents that attended the Open House expressed support for natural gas in Pictou County. General support was articulated in terms of both:

- immediate economic benefits to the area, including strengthening and retaining the employment at industrial sites; opportunities for increased industrial competitiveness; and
- future economic benefits and development from the potential for extension of natural gas delivery to New Glasgow, Stellarton and Trenton.

Several attendees were interested in employment opportunities.

Two landowners were represented at the Open House. They discussed general issues with Heritage Gas representatives and reviewed information presented. (Heritage Gas has been in discussions with landowners since October 2012.)

There were also general comments and questions regarding current and potential natural gas customers associated with the proposed Project (i.e., Northern Pulp and Michelin) and potential future expansion (e.g., Aberdeen Hospital, etc.). A number of attendees inquired specifically about conditions for getting access to natural gas. Two attendees had questions on Heritage Gas' approach to engage other potential customers in the area of New Glasgow, Stellarton and Trenton. Timing and feasibility of possible expansion beyond the initial Project was a very common theme of discussion.

Additional comments and questions from attendees that were voiced less frequently and were specific to the Project included:

- Route selection options and considerations, such as use of abandoned rail;
- Approach in accessing land and negotiating easements with land owners;
- Safety of the natural gas pipeline in terms of pipeline integrity in its operation;
- Technical questions including valves locations, gas supply issues, and pipeline diameter;
- Findings from field work including archaeology and rare plants;
- Potential ATV or snowmobile use along restored alignment; and
- Use of HDD to minimize watercourse and wetland impacts during construction.

Heritage Gas was able to address all comments and questions related to the Project via the display information and discussions at the Open House with Heritage Gas representatives. The comments received did not identify alterations to the preferred route and as such, the preferred route remains unchanged subsequent to the Open House. In the event that further information would be required, business cards were available for attendees interested in contacting Heritage Gas staff.

Following the Open House, Heritage Gas reviewed the comments and questions to ensure that they are addressed in the remaining details of the pipeline route and Project design.

5.3 Aboriginal People

Heritage Gas has engaged and continues to engage the Mi'kmaq of Nova Scotia including, Pictou Landing First Nation ("PLFN") and Kwilmu'kw Maw-klusuaqn Negotiation Office ("KMKNO").

Communication with the identified Aboriginal communities is typically undertaken through the planning process. To promote a successful consultation process, Heritage Gas has undertaken the following activities:

- Provide letters summarizing up-to-date Project information and sharing maps as appropriate;
- Advise that Heritage Gas representatives were available to meet one-on-one to discuss the Project;
- Follow up with PLFN through telephone calls and emails;
- Gather and take into account information provided by Aboriginal communities and other organizations, specifically PLFN and KMKNO; and
- Engage Aboriginal communities/organizations during the planning process.

To introduce the Project and start an open engagement with the closest Aboriginal community, i.e., Pictou Landing First Nation, Heritage Gas sent an introductory letter to Chief Andrea Paul, Pictou Landing First Nation on December 3, 2012. The letter and the information package included:

- Project introduction and overview;
- Regulatory framework;
- Description of preliminary routing options;

- Project activities, proposed schedule, environmental considerations; and
- Project maps and figures.

During December and January, follow up communication via email and phone was completed to:

- Confirm receipt of the letter and documentation;
- Answer any questions PLFN may have about the Project;
- Solicit any input on the Project from PLFN;
- Have open discussions on land lease potential related to different routing options; and
- Determine if PLFN would like to meet to discuss the above and answer any questions.

This introductory package sent on December, 3, 2012, was copied to the KMKNO (Twila Gaudet, Consultation Liaison), as well as OAA for information (Justin Huston, Director of Consultation).

As the Project planning progressed and after the Project was confirmed by Heritage Gas, an update package was sent to Chief Paul, Pictou Landing First Nation on June 13, 2013. This Project Update contained:

- Key information on the preferred route;
- Revised figure showing preferred route;
- Listing of field work completed to date and planned; and
- Invitation to the Open House planned for June 20, 2013.

This update was also copied to the KMKNO (Twila Gaudet, Consultation Liaison), as well as OAA for information (Justin Huston, Director of Consultation). On June 18, 2013, the KMKNO was also updated via email of the ongoing archaeological field work and provided with another invitation to the Open House planned for June 20, 2013.

The Open House on June 20, 2013, was attended by Dan MacDonald, Director of Lands / Environment, Pictou Landing First Nation. Mr. MacDonald inquired about property information related to boundaries of the land owned in trust for PLFN in relation to the proposed Project. Information was provided to Mr. MacDonald to confirm that the proposed alignment is not within land owned in trust for PLFN.

Subsequent to the Open House, a meeting was held on June 24, 2013 with PLFN. The meeting objectives were to:

- Introduce Heritage Gas as a company and staff to open lines of communication with PLFN Chief and Council;
- Present Project information including route planning, environmental studies and approvals, and proposed Project activities as presented at the Open House;
- Share larger maps on preferred routing and environmental constraints as presented at Open House;
- Share copies of the fact sheet that were presented at the Open House to allow Chief Paul to share with her community; and
- Answer any questions.

After introductions, an overview of the Project was presented with a dialogue to answer questions. Topics included:

- Access point between two properties owned in trust for PLFN which will be determined in consultation with PLFN;
- Project details including route and size of pipe;
- Construction techniques, including the use of HDD under wetlands and watercourses;
- Environmental approvals and compensation for loss of habitat, if any;
- Schedule and logistics of construction;
- Monitoring and testing for safety, e.g., corrosion protection, etc.; and

- Opportunity for community member(s) to play a role on the Project.

In terms of potential mentoring or employment opportunities within the Project, Heritage Gas has committed to exploring this potential through further discussions. Heritage Gas staff will be connecting with the PLFN Employment Officer and Economic Development Officer to discuss specific opportunities.

As the Project moves forward, Heritage Gas will continue to engage PLFN, as well as the KMKNO. The objective is to share information about the Project and to keep open lines of communication to address concerns as they arise. Opportunities for future engagement include updates on Project construction schedule, information on future expansion potential, and answering questions or concerns of the Pictou Landing community. Specifically, Heritage Gas commits to:

- Engaging PLFN on a regular basis as the Project proceeds;
- Providing a hard copy of EA Registration Document at the PLFN Band Office upon Registration;
- Organizing a site tour for interested members of the PLFN; and
- Continuing further discussions with staff of PLFN on opportunities for having community member(s) play a role on the Project.

5.4 Regulators

In order to understand the regulatory framework at federal, provincial and municipal levels, Heritage Gas believes in engaging regulators early in the project planning process and maintains open lines of communication as the Project design evolves. Regulators provide valuable advice on environmental planning and consultation approaches that can often assist a proponent as a project moves forward.

Heritage Gas engaged with numerous regulatory agencies as part of planning this Project, including:

- Federal: Department of Fisheries and Oceans (“DFO”), Transport Canada (“TC”), Navigable Waters Protection Program and Aboriginal Affairs and Northern Development Canada (“AANDC”);
- Provincial: Nova Scotia Environment (“NSE”), NS Department of Natural Resources (“DNR”), Office of Aboriginal Affairs (“OAA”), and NS Transportation Infrastructure Renewal (“NSTIR”), and NS Department of Energy (“DOE”);
- Municipal: Municipality of Pictou County; and
- Nova Scotia Utility and Review Board (“NSUARB”).

At the initial planning stage, (September 20, 2012), Heritage Gas met with OAA to introduce the proposed Project and better understand approaches to aboriginal consultation. Project mapping and introductory routing descriptions, as well as a summary of associated Provincial approvals, were provided to OAA. Through subsequent meetings, correspondence and additional information sharing, including a follow up meeting on November 26, 2012 (Justin Huston and Beata Dera), Heritage Gas came to an understanding of the Project requirements.

On November 22, 2012, Heritage Gas attended a meeting with NSE EA Branch (Helen MacPhail) to introduce the Project and discuss triggers for EA under the Environmental Assessment Regulations. Prior to the meeting, Heritage Gas forwarded a preliminary Project Description (November 16, 2012).

In the first and second quarter of 2013, numerous regulatory meetings were held to introduce the Project, provide updates and seek direction from regulators on regulatory requirements and specific environmental protection and consultation approaches, including site visits with staff of Pictou NSE office. Meetings and/or correspondence occurred with: NSE (Helen MacPhail, Kathleen Johnson, Charlene Beanish); DNR (Mark Elderkin, Shavonne Meyer, Mark Saywood); OAA (Justin Huston, Beata Dera); DFO (Rugi Jalloh, Jack MacNeil); and TC (Stan Myers).

Heritage Gas held a meeting on June 10, 2013 with the NSE EA Branch, NS DNR, OAA and NS Department of Energy. The purpose of the meeting was to provide additional information on the Project and the field work and consultation completed to date and discuss the scope of an EA should the Minister determine registration is required, as well as to solicit input on issues to be addressed during the design, construction and operation of the pipeline.

Representatives of Heritage Gas communicated with regulators in June as part of verifying the scope of the EA and to inform regulators of extent and purpose of field studies completed; these included DNR (Mark Elderkin, Mark Pulsifer), NSE (John Brazner), and Environment Canada (Suzanne Wade).

As part of ongoing community consultations, Heritage Gas met with representatives from Pictou County and the Town of New Glasgow. Both municipalities are highly supportive of the Project.

5.5 Other Stakeholders and Landowners

During the course of the preparatory work for this EA, other stakeholders were identified. These stakeholders were contacted by Heritage Gas to provide information on the Project and to solicit input specific to the stakeholder. A presentation was made by Heritage Gas on May 7, 2013 to the Pictou County Rivers Association, who in addition to the Pictou County Naturalists, were invited to the Open House.

Heritage Gas has been maintaining frequent communication with landowners starting with access permission. Concerns related to Heritage Gas from the landowners generally include:

- Routing of pipeline through centre portion of a property is generally not preferred option. Some landowners suggested routing along property boundary lines.
- In a few cases, local routing alternatives were brought to Heritage Gas' attention.
- Depth of cover of the pipeline may be of concern if it brings about restrictions in the crossing of the easement by landowners, especially in forestry resource areas.
- Restricting access to skidoos and ATVs.
- Impact of pipeline on property value, especially in the context of areas with potential for residential development . (But no concerns expressed over pipelines routed through such areas.)

5.6 Integration of Consultation into Environmental Planning

The comments, issues and concerns raised during the consultation process have been addressed through the planning for the Project (see Section 2.0) and the selection of the final alignment. Inclusion of specific provisions in the landowner agreements, the ECPs and construction specifications will be used as a means to integrate consultation input into Project planning documentation. Issues have largely been addressed as the Project planning has proceeded. As many possible concerns were anticipated, these were mitigated during the route selection process.

Heritage Gas will continue to consult with the community through business leaders, the Mi'kmaq, regulators, land owners, and other stakeholders throughout the Project as appropriate. Future information sessions will be held on natural gas in Pictou County, as appropriate.

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6.0 ANALYSIS

6.1 Interaction of the Project and the Environment

Identifying those VECs and socio-economic aspects that may be subject to environmental effect from Project activities is the keystone of the EA process. Following the presentation of the Project activities as described in Section 2.0, the environmental and socio-economic setting in Section 4.0, and the review of issues arising from consultation as per Section 5.0, the interaction of the project activities with the VECs can be completed.

The interaction matrix is presented in Table 6-1. This graphically shows the potential interaction between Project activities and each biophysical VEC or socio-economic aspect.

Table 6-1 Potential Interactions of Project and the Environment

	Site Preparation and Construction								Operation and Maintenance			Decommissioning		
	Clearing, Grubbing and Grading	Preparation of Equipment Access	Horizontal Directional Drilling	Trenching, Stringing and Backfill	Clean up and Stabilization	Station Construction	Commissioning and Activation	Accidents and Malfunctions	Pipeline and Facilities Operation	Inspection and Maintenance	Accidents and Malfunctions	Infrastructure Decommissioning	Site Reclamation	Accidents and Malfunctions
Physical Components														
Ground and surface waters	●	●		●	●	●		●			●		●	●
Ambient noise and light	●		●			●			●				●	
Air quality	●						●		●		●			
Ecological Components														
Wetlands and watercourses	●	●			●			●						
Fish and fish habitat	●	●						●						
Migratory and breeding birds	●	●												
Flora and fauna	●	●			●									
Species at risk & of concern	●	●												
Socio-economic Aspects														
Land use					●	●	●		●			●		
Archaeological resource	●	●				●								

Submitted on behalf of Heritage Gas Limited

	Site Preparation and Construction								Operation and Maintenance			Decommissioning		
	Clearing, Grubbing and Grading	Preparation of Equipment Access	Horizontal Directional Drilling	Trenching, Stringing and Backfill	Clean up and Stabilization	Station Construction	Commissioning and Activation	Accidents and Malfunctions	Pipeline and Facilities Operation	Inspection and Maintenance	Accidents and Malfunctions	Infrastructure Decommissioning	Site Reclamation	Accidents and Malfunctions
Aboriginal resources / uses	●	●				●								
Health and safety				●				●			●			●
Economic development	●	●							●					

Accordingly, thirteen VECs and socio-economic aspects have been identified as potentially being affected by the proposed Project. These interactions are presented in the following sub-sections in terms of potential environmental effects of Project activities including accidents and malfunctions, as well as proposed mitigations, cumulative effects, and finally the level of significance of residual effects. This assessment is completed in accordance with the methodology presented in Section 3.0.

6.2 Assessment of Physical VECs

6.2.1 Ground and Surface Waters

Maintenance of ground and surface water regimes is important to support ecological systems. Flora, fauna and fish are all directly supported by ground and surface waters. Groundwater is directly related to human health as residents in the rural area of the pipeline route have private wells. The towns of New Glasgow and Westville are supplied by the Forbes Lake Watershed and the Town of Stellarton obtains its drinking water from the East River. Both these water supplies are avoided by the pipeline route. For the purpose of assessing this VEC, the primary focus has been placed on hydrology and hydrogeology pertaining to watercourses.

Quality and quantity of both ground and surface water have been identified as a VEC. A significant environmental effect would result if a substantive change attributable to the Project could be identified in water quality or quantity in tributaries that lead to West River, Middle River or East River, or in groundwater immediate to the pipeline route including the residential wells.

- *Boundaries* –

  Spatial boundaries include the local area, i.e., watercourses within the Project site and down gradient toward West River, Middle River or East River, as well as groundwater

wells for domestic water supply that are local to the pipeline route. The temporal boundary focuses on Project construction but includes all phases of the Project with respect to unplanned releases.

- *Potential Project Impacts* –

Interactions that may adversely affect surface water during construction include:

- Erosion and sedimentation during the construction activities, including clearing and grubbing, trenching and station construction;
- Preparation of equipment access to facilitate access across watercourses, including installation of temporary bridges and culvert installation, plus installation of culverts in roadside or drainage ditches;
- Potential for accidental release of drilling fluid during HDD operations directly or indirectly to surface water during construction; and
- Potential for accidental release of liquid hazardous materials, such as fuels, oils and lubricants, and pipeline coating materials primarily during construction, but potentially during all phases of the Project; and
- Potential accidental release of odourant in liquid phase.

Interactions that may adversely affect groundwater during all phases of the Project are limited to accidental release of liquid hazardous materials, such as fuels, oils and lubricants, and pipeline coating materials. During operations or decommissioning, accidents and malfunctions include potential for release of odourant. Under certain conditions odourant may be present in liquid phase. As volumes of liquid hazardous materials and odourant are small and contingency planning is in place, no effect is predicted on groundwater or surface water.

- *Proposed Mitigative Measures* –

Related to erosion and sedimentation and facilitating equipment access, these mitigations include:

- Follow EPP protocols for management of erosion, sedimentation and construction drainage (EP-09-3010) and develop site specific measures in the ECP for sensitive areas, e.g., steep slopes, work within 30 m of watercourse or wetland, etc.;
- Plan for wet weather and implement shut downs if an extreme precipitation event is forecasted (EP-09-3050);
- Install and maintain temporary erosion control measures as per EPP prior to grubbing, e.g., sediment fences, etc. as appropriate to the site specifics;
- Responsible storage and handling of excavated materials to avoid erosion;
- Define limits of work associated with construction activities which maintains a suitable buffer zone to watercourses and wetlands, i.e., 30 m unless specific controls as identified in ECP;
- Complete work required for installation of temporary bridges and culverts required for equipment access during low flow conditions (i.e., preferably

between June and September) and in compliance with the conditions of NSE approval under the Activity Designation Regulations, as well as adherence to the Nova Scotia Watercourse Alteration Specification (NSE, 2006) and the EPP (EP-09-3090);
- Install culvert in drainage ditches as required to facilitate drainage using EPP measures (EP-09-3010);
- Both during construction and prior to ongoing stabilization and final restoration , complete visual monitoring to ensure that any resulting turbidity due to suspended solids in surface waters draining from construction is minimal and to provide feedback into mitigation measures upstream;
- Re-vegetate disturbed areas in a timely fashion as the construction sequence progresses with follow up visual monitoring and maintenance until final restoration is completed; and
- Comply with the Heritage Gas EPP, site-specific ECP, approval conditions and pertinent legislation.

Related to accidental release of drilling fluid during HDD operations, planning and construction mitigations include:
- Completion and review of geotechnical work to ensure appropriate design and execution of HDD work;
- Establish site-specific measures prior to commencing work which will be dictated by the terrain and local conditions of each drill;
- Size the volume of drilling fluids return pit(s) to accommodate conservative estimate of drill fluids;
- Dewater drill entry or exit pits as necessary with a vacuum truck to manage water;
- Schedule HDD operations and sensitivity of area with consideration of expected rainfall;
- Ensure equipment and materials are available to address accidental release of drilling fluids, e.g., vacuum truck, hay bale or sand bag berms, shovel, etc.;
- Monitor fluid pressure and delivery rate of drilling fluids such that process can be modified or halted should significant variances occur;
- Visually monitor for turbidity upstream and downstream of crossing;
- Proper handling and disposal of drilling fluid safely;
- Reinstate site as soon as practical and maintain sediment control measures until stabilized; and
- Adherence to EPP (specifically EP-09-3090) and DFO's Operational Statement on directional drilling.

Related to accidental release of liquid hazardous materials, these mitigations include:
- All hazardous materials to be used at the site will be labeled and contained according to applicable regulations;
- No hazardous materials will be stored within 50 m of a wetland or watercourse;
- Frequent inspection and maintenance of equipment will be undertaken to identify and repair any fuel leaks;

- Used oil, filters and other products associated with equipment maintenance shall be collected and disposed of in accordance with regulatory requirements;
- Ensure equipment and materials are available to address accidental release of liquid hazardous materials, such as absorbent pads, booms, hay bales, etc.;
- Spills shall be immediately reported as per legislation; and
- Hazardous materials management, emergency preparedness and spill response as identified in the EPP (EP-09-5XXX; EP-09-6XXX).

Related to accidental release of odourant, mitigations include:

- In order to minimize potential spills, odourant will be purchased in sealed containers, typically within pressure vessels that will be filled at the manufacturer's plant; these pressure vessels are then transported to the site and connected to the odourizer to provide 'odourant-free' transfer; when empty, the pressure vessel is resealed and returned to the manufacturer;
- Employees that are working in close proximity to the odourizing equipment must ensure that they do not come in direct skin contact with an odourant spill;
- Odour masking agent or biological digestive agent is stored on site in order to enable releases to be brought quickly under control; and
- Odourant spills will be mitigated like liquid hazardous materials releases, as described above.

- *Cumulative Effects* –

There is some agricultural use and harvesting of wood taking place in and around the Project footprint, as well as industrial activities at Abercrombie Point; these activities have potential to affect ground and surface waters. Given the short-term of construction and considering the mitigative measures in place, it is very unlikely that a significant adverse residual environmental effect on surface water and ground water would result from Project activities acting cumulatively with other activities in the area.

- *Significance of Residual Effects* –

Erosion and sedimentation, if they occur, will be temporary, since areas to be disturbed by construction will be stabilized both during and after construction; however, there is a risk for a moderate release of sediment during an extreme precipitation event. The likelihood of a release of drilling fluid is moderately low given the mitigative measures in place and contingency planning to prevent a release from entering surface water. Should drilling fluid become mobile in surface water, it is most likely a very small volume of bentonite (i.e., clay) that would be released; due to the depth of the drill path (typical 5.0 m below the watercourse), there is a very low risk of a larger release of drilling fluid. Similarly, because odourant is purchased and returned in small sealed containers, there is a very low risk of an odourant spill. The likelihood of an accident or malfunction resulting in a release of liquid hazardous materials or odourant is quite low; should any release occur, the volume is anticipated to be very small, i.e., below reportable levels.

- The Project is not anticipated to have a significant residual environmental effect on the local ground and surface water. While any effect will be negative, it will be small in magnitude, reversible, short duration, and localized; however, there is a very small risk of a moderate release of drilling fluid as part of HDD or a moderate release of sediment from active construction in the event of extreme weather. Accordingly, due to this risk, the environmental effect on ground and surface water is predicted to be minor.

6.2.2 Ambient Noise and Light

Noise is by definition unwanted sound. Perception of noise by a receptor is a function of many factors, including attitude toward to source of the sound. Ambient noise and light levels along the pipeline route are expected to be fairly low in keeping with the rural character of the area. Ambient noise and light levels near proposed above-ground facilities are influenced locally by the immediate land use, i.e., the HPRS is adjacent the existing M&NP station. PRSs are within existing industrial land uses.

Noise and light from construction activities have been identified as an aspect of the VEC. A significant environmental effect would result if a substantive change in baseline sound pressure levels or ambient lighting attributable to the Project could be identified at the nearby residential dwellings or institutional buildings, e.g., school.

- *Boundaries* –

  Spatial boundaries consist of the local area, i.e., neighbouring properties of the pipeline route and above-ground facilities. The temporal boundary is all Project activities.

- *Potential Project Impacts* –

  Interactions that may adversely affect ambient noise levels include sound pressure generated during site preparation and construction by trucks and equipment, including backing alarm, as well as to a similar but lesser extent during decommissioning activities. As distance from the site increases, noise levels will be attenuated. Nevertheless noise from construction activities would likely be heard by the nearby residents. Construction noise may also temporarily disrupt the short term activities of fauna and birds at or in the vicinity of the Project. Noise resulting from construction activities may cause some temporary inconvenience. During operation, sound from the above-ground facilities is not expected to be audible at neighbouring.

  Interactions that may adversely affect ambient light levels include lighting from and for equipment and vehicles during construction, as well as to a similar but lesser extent during decommissioning activities. Light from construction activities may be observed by nearby residents. During operation, lighting of the above-ground facilities is required for safety; however, it is not expected to be intrusive at properties neighbouring the proposed facilities.

- *Proposed Mitigative Measures* –

  Related to effect on ambient noise and light levels during construction, the mitigations include:

  - Timing of pipeline construction activities will be limited to daytime hours wherever possible to minimize nuisance noise and light to nearby properties;
  - HDD construction may require extended hours; should it be required, communications with nearby residents will occur ahead of construction as described below;
  - Communication of construction plan to nearby residents will cover construction activities and schedule, as well as contact information should residents have concerns;
  - Use of only necessary lighting for safety requirements and direction of lighting to minimize nuisance to neighbouring properties; and
  - Maintenance of construction equipment and vehicles to reduce noise emissions.

  The above-ground facilities have been sited within areas of comparable land use; increased noise or light levels are not expected to be observed at neighbouring properties. Hence no mitigative measures are proposed for operations.

- *Cumulative Effects* –

  The baseline ambient noise and light levels in areas immediate to the pipeline route are low in keeping with rural land use; therefore, this is not expected to act cumulatively with the short-term construction activities to create a significant adverse residual environmental effect on ambient noise and light.

  In terms of above-ground facilities, no adverse effect of light and noise is expected from operation; therefore, there are no cumulative effects associated with other activities in the area.

- *Significance of Residual Effects* –

  Nuisance caused by lighting or audible noise during construction, if it occurs, will be temporary and short term. Concerns of residents over lighting or audible noise during Project operation are not expected.

  - The Project is not anticipated to have a significant residual environmental effect on the ambient noise and light levels. While any effect will be negative, it will be small in magnitude, reversible, and local. Relative to construction, any effect is short term; and relative to the operation stage, no effect is expected. Therefore, the environmental effect on ambient noise and light is predicted to be negligible.

6.2.3 Air Quality

The proposed Project will allow two large industrial customers to convert from Bunker C to natural gas. The reduction in GHGs associated with the potential expansion has been estimated by Heritage Gas in Section 2.0. As a rural area with several industries in the region, air quality is important to the local residents. While unrelated to the Project, air quality was a broad issue noted by some community members at the Open House.

Air quality has been identified as a VEC. A significant environmental effect would result if a substantive change in local air quality attributable to the Project could be identified at the nearby residential dwellings or institutional buildings, e.g., high school, or if large volumes of GHGs were emitted annually due to Project activities to require reporting under Environment Canada's Greenhouse Gas Emissions Reporting Program, i.e., 50 000 tonnes of carbon dioxide equivalent (CO_2 eq) per annum.

- *Boundaries* –

  Spatial boundaries consist of the local area, i.e., neighbouring properties of the pipeline route and above-ground facilities, related to construction and decommissioning activities and global GHG levels related to operational activities. The temporal boundary is all Project activities.

- *Potential Project Impacts* –

  During construction, emissions from the Project that may affect local air quality include vehicle emissions (e.g., CO_2, particulate matter ("PM"), sulphur oxides ("SOx") and nitrogen oxides ("NOx") and airborne particulate (i.e., dust) during earth works, as well as emissions of natural gas (i.e., methane) and products of combustion during commissioning and activation.

  During operation and maintenance activities, fugitive emissions from pipes or fittings may be released as well as planned releases. Based on an inventory of GHG emissions from Heritage Gas facilities as of 2010 including existing pipe, stations and its own operations, total GHG emissions were less than 2% of Environment Canada's current mandatory reporting level, i.e., under 1000 CO_2 eq tonnes per annum. As the increase in global GHGs from the operation of this Project is expected to be *de minimis*, no effect is predicted during operation.

  During operations or decommissioning, accidents and malfunctions include potential for release of odourant. Under certain conditions odourant may be present in vapour phase. Once vapourized and dispersed at low concentrations, odourant vapours are of no health and safety concerns to the public; however, public perception may be that a serious incident has occurred. This may lead to undue alarm and a large number of odour calls, since any release of odourant has the potential to be perceived directly by adjacent landowners within a wide radius, depending on dispersion patterns at the time of the incident.

- *Proposed Mitigative Measures* –

  Related to effect on local air quality during construction, mitigations measures include:

  - Dust control as appropriate for the location and weather such as use of water truck, sweeping of tracked sediment on roads and minimizing earth works to extent possible;
  - Prohibition on burning of wood waste as per the EPP requirements; and
  - Maintenance of construction equipment and vehicles to reduce air emissions.

  While no effect is predicted based on *de minimis* GHG emissions during operations of the Project, Heritage Gas does seek to minimize GHG emissions in its operations as part of its EPP, including leak detection surveys.

  Related to accidental release of odourant, mitigations include:

  - In order to minimize potential release, odourant will be purchased in sealed containers, typically within pressure vessels that will be filled at the manufacturer's plant; these pressure vessels are then transported to the site and connected to the odourizer to provide 'odourant-free' transfer; when empty, the pressure vessel is resealed and returned to the manufacturer;
  - Employees that are working in close proximity to the odourizing equipment must ensure that they are not exposed to high vapour concentrations;
  - Odour masking agent or biological digesting agent is stored on site in order to enable releases to be brought quickly under control; and,
  - Heritage Gas responds to all odour calls; public perception and concern that a serious incident may have occurred will be mitigated through direct communication with the public, emergency responders, regulators and the media.

- *Cumulative Effects* –

  There is no other project expected to act cumulatively with the short-term construction activities to create a significant adverse residual environmental effect on air quality.

  In terms of dust during construction, no large earthwork projects are known for the local area during the construction timeline; according, there are no cumulative effects expected related to dust during construction.

  In terms of GHG emitted during operations, effect is *de minimis*; therefore, by definition it cannot act cumulatively with other activities in the area.

  As the objective of the Project is the conversion of two potential large industrial users from Bunker C to natural gas, a consequence of the proposed operation is reduced air emissions, including CO_2, NOx and SOx as well as PM. The resulting effect is beneficial to local air quality in terms of lowered pollutants from transport and combustion of fossil fuels, and net decrease in GHG emissions which is beneficial to global air CO_2 levels.

- *Significance of Residual Effects* –

  Dust and vehicles emissions during construction will be temporary and short term. Extent of GHG produced by the Project activities is expected to be *de minimis*. Because odourant is purchased and returned in small sealed containers, there is a very low risk of an odourant release, and the likelihood of an accident or malfunction resulting in a release of odourant vapour is quite low; should any release occur, the volume is anticipated to be very small. Public perception and concern that a serious incident may have occurred will be mitigated as indicated above.

  - The Project is not anticipated to have a significant residual environmental effect on the local air quality. While any effect during construction will be negative, it will be very small in magnitude, reversible, and local. Relative to the operational stage, no effect is expected; odourant release would have short term impact on public perception but no lasting effects. Considering cumulative effects, there is a significant benefit due to conversion of large industrial customers to natural gas. In terms of the Project as scoped, the environmental effect on air quality associated with the Project is predicted to be negligible.

6.3 Assessment of Ecological VECs

6.3.1 Wetlands and Watercourses

Maintaining ground and surface water quality has been analyzed as a separate VEC in section 6.2.1. The residual environmental effect on surface water was predicted to be negligible considering only potential releases of sediment and hazardous materials during planned Project activities or small unplanned releases; however, the residual environmental effect on surface water was predicted to be minor for an unlikely but higher potential impact events associated with a large volume of drilling fluid release or a large sediment release during construction should an extreme precipitation occur. Beyond impacts to surface water quality, the Project could also interact in terms of direct alteration wetlands and watercourses.

Wetlands and watercourses are both protected by Provincial legislation and are valued by society due to their ecological function. Watercourses themselves hold ecological value by providing habitat for fish and aquatic flora and fauna. Wetlands provide or support a wide range of important ecological, social and economic functions and services in our watersheds. This value is the underlying principle for NSE's Nova Scotia Wetland Conservation Policy (NSE, 2011). Alteration of watercourses or wetlands requires the approval of the Province unless works fall within specific circumstances identified as exceptions by NSE.

Watercourse / Wetland Crossings

Within the Project footprint, wetlands and watercourses have been identified as part of the desktop and field work has been completed; this field work is further described in Section 4.0. and, as per Table 4-1, 17 watercourses have been identified. These range from small seasonal watercourses, to Sweet Brook, a watercourse supporting good fish habitat, to Middle River, which is about 15 m wide at the proposed crossing location and has downgradient estuarine influences. Additional drainage paths with undefined channels occur along the alignment and have been identified for sediment and erosion control but have not been included in the habitat assessment. As per Table 4-2, a total of 22 wetlands have been identified along the pipeline route. These range from a very small treed swamp that is seasonally saturated and likely man made to a moderately sized open bog that is permanently saturated while several of these have been avoided by the project footprint.

As noted in Section 2.0, Heritage Gas has committed to crossing under each watercourse and wetland via HDD technology. There will be no alteration of the watercourses or wetlands to install the pipeline. In locations where the identified channel is clearly not defined as a watercourse, Heritage Gas may install the pipeline with a culvert to facilitate drainage via open trenching during low flow conditions and incorporating sediment and erosion control best practices. In cases where there is uncertainty if the channel is defined as a watercourse, NSE will be engaged to provide an opinion; where a channel is identified as a watercourse, Heritage Gas will avoid by drilling. No pipeline will be installed within a wetland area unless it is less that 100 m2 as per the Nova Scotia Wetland Conservation Policy (NSE, 2011) and is confirmed not to support habitat for priority species or other significant habitat. Where possible, Heritage Gas will avoid identified wetlands in the final design.

There will be no in-stream work associated with pipeline installation though one exception remains under review; this location (WCM2) is under consideration for a culvert installation. It was suggested by NSE as a potential improvement to the existing drainage which now runs overland at the abandoned rail line. This work would require a Watercourse Alteration Approval from NSE. Preliminary discussions with DFO indicate that the water is non-fish bearing in this location.

Heritage Gas will continue to work with NSE as the final design of the Project evolves to ensure that proposed methods and exact locations of crossings meet the intent of Heritage Gas to avoid directly altering watercourses and wetlands or affecting fish habitat or priority species habitat during the implementation of the proposed Project. With respect to wetlands, any exemptions will be reviewed by NSE, as well as DFO and DNR as appropriate. Should the optimized alternative require approval, Heritage Gas will ensure that no work occurs without the requisite approvals under the Activity Designation Regulations or other legislation as appropriate.

Equipment Access Crossings

Logistically, access across watercourses and wetlands is required to facilitate construction. In some locations, Heritage Gas is proposing to erect temporary bridges across watercourses to facilitate equipment access. This will allow equipment to travel over the watercourse without in-stream work. The temporary bridges will clear-span the watercourses by resting on sills placed on the banks of the watercourse (i.e., 1 m or more from the edge of the watercourse). At present, seven locations are proposed (WC1, WC2, WC6, WC8, WCM3, WCM4 and WC9); however, these locations and their specific design will be determined as the Project design becomes finalized, and after the late season rare plant survey is completed in consultation with NSE and DNR.

Installation work will be completed during the designated low flow period from June to September and maintained as appropriate for the duration of the work in each location. Temporary bridges will be designed and installed in accordance with Nova Scotia Watercourse Alteration Specifications (2006). As per these specifications, specific mitigative measures will be as outlined in the final design including sediment and erosion control, stabilization of approaches to the watercourse and restoration upon removal.

As this work will require equipment use within 3 m of the edge of watercourse, it is therefore defined in Nova Scotia as an alteration of a watercourse and requires approval under the Activity Designation Regulations. An application will be made for a Watercourse Alteration Approval; Heritage Gas will meet the conditions of a blanket approval as Heritage Gas construction staff are certified in Watercourse Alteration. Heritage Gas will also consult DFO and DNR as appropriate related to impact to fish and fish habitat and species at risk and of concern.

Staff of TC were consulted to seek clarification on the process for using the Minor Works and Waters Order ("MWWO") under the *Navigable Water Protection Act*. Heritage Gas reviewed each location where a temporary bridge is proposed for navigability; it was determined that each location is considered non-navigable. As per TC's advice, Heritage Gas will keep documentation of the determination on file. Should any additional locations be proposed for a temporary bridge, each location will be reviewed as per the MWWO.

Heritage Gas is currently proposing to construct temporary wetland linear crossings across 12 wetlands to facilitate equipment access (i.e., WT 0A, WT 0B, WT 3(north half), WT4B, WT5B, WTM1, WTM5C, WTM5D, WT5D, WTM7, WTM8, WT6, WT7A). These locations are being finalized as part of the ongoing detailed design and will be confirmed in consultation with NSE and DNR after the late season rare plant survey is completed. The work will be in accordance with the Nova Scotia Wetland Conservation Policy, specifically the exemption of:

> "linear developments that are less than 10 m wide and less than 600 square metres in total area (such as forest access roads, secondary roads, and driveways) through shrub or wooded swamps that are not classified as "Wetlands of Special Significance" (p. 10, NSE, 2011).

Accordingly, several wetlands have been identified as bogs or other wetland types as noted on Table 4-2; in these cases as well as in other cases where construction of a linear access road is not feasible for environmental or technical reasons, the contractor will be required to transport their equipment by road around these wetlands (e.g., WT1, portion of WT3, and W5). Final decisions on such matters will be made in consultation with NSE and DNR as appropriate. As much as possible, crossing location will be selected to minimize the potential environmental effect, for example by realigning the linear access road to cross the wetland at a narrower locations. Where priority plant species have been identified, either in current or late season plant surveys, Heritage Gas will consult with DNR to develop mitigation measures for the protection of habitat.

Confirmed locations of the linear access roads will be included in the construction package as part of final design; within the current Project footprint, these largely parallel existing corridors (utility, roadways, railways, etc.). Mitigative measures will be in place as per the EPP and ECP to minimize effect on the wetland. Discussions have already begun with NSE on best practices for this work. When finalizing location of linear access roads, if additional interaction with rare plants or wetlands is identified, appropriate consultation with DNR and NSE will occur and Heritage Gas commits to meeting the terms of approvals.

Based on the approach of minimizing direct effect to wetlands through siting and designing the linear access roads, alterations are not likely to require an approval as this work will be constructed only under an exemption. Heritage Gas will not complete any work related to wetlands without notifying NSE. In addition, Heritage Gas will liaise with DNR on mitigation of impact to wetlands, as well as avoidance of species at risk and of concern.

Wetlands and watercourses have been identified as a VEC. A significant environmental effect would result if a substantive change in ecological function of watercourses or wetlands in area immediate to the Project site could be identified and attributable to the Project.

- *Boundaries* –

  Spatial boundaries are the limits of work associated with the Project, i.e., watercourses and wetlands within or downgradient of the Project site. The temporal boundary is focused on Project construction activities and to a similar but lesser extent during decommissioning activities.

- *Potential Project Impacts* –

  Interactions that may adversely affect ecological function of wetlands and watercourses are primarily related to their physical alteration during construction, and to a similar but lesser extent during decommissioning activities. Both ground and surface water were assessed separately and residual effect is not predicted to be significant (i.e., minor); therefore, these interactions are not included in the assessment of wetlands and watercourses. Accordingly, no effect is predicted on wetlands or watercourses outside of the Project footprint.

Physical alteration is limited to:

- Temporary bridges over select watercourses to facilitate access during construction; and
- Linear access roads where allowed in shrub or wooded swamps designed to facilitate access.

- *Proposed Mitigative Measures* –

Related to effect on wetlands and watercourses during construction, i.e., temporary bridges and access roads, the mitigations include but are not limited to:

- Complete temporary bridge and culvert installations as follows:
  - This work will occur preferably from June to September during low flow conditions;
  - For temporary bridge installations, no work will occur in the water and sills will be placed in parallel with and a minimum of 1 m separation from edge of watercourse and other mitigations per NSE Temporary Bridge Specifications;
  - For the culvert installation that remains under discussion with NSE, if there is flow in the watercourse, isolation (cofferdam) and pumping will be used as necessary to keep the in-stream work in the dry and other mitigations as per EPP and NSE Pipe Culvert Specifications;
  - Mitigations will include sediment and erosion control and water handling as necessary to protect downgradient water quality in accordance with EPP and ECP;
  - Work will be in compliance with Nova Scotia Watercourse Alteration Specification (NSE, 2006);
  - Liaison will occur with DFO as appropriate related to protecting fish and fish habitat;
  - All necessary notification will be given to and any approvals necessary will be sought from NSE and other regulators if appropriate;
- Complete wetland linear access road installations as appropriate as follows:
  - Final location based upon field work results (e.g., delineations and functionality of wetland, pending late season rare plant survey) to minimize effect on wetland, flora and fauna and species at risk;
  - Utilize swamp mats / corduroy in a manner to minimize rutting and surficial disturbance will providing necessary stability; and
  - Removal of access roads will be determined on a case by case basis in consultation with NSE.
- Specific mitigations for temporary bridges and wetland linear access will be developed in the field based on the EPP and ECP and in consultation with NSE, DNR and DFO as appropriate;
- Limits of work will be defined on construction drawings and in field (i.e., flagging of limits based on Project footprint but also to include buffers sensitive areas and areas of avoidance) to assist the Contractor;

- Education of the Contractor on necessary measures to protect watercourses and wetlands during this work, as well as other mitigative measures to protect ground and surface waters as noted previously; and
- All work will be in compliance with applicable Provincial policy, specifications and regulations.

The mitigative measures associated with ground and surface waters were identified in prior VEC, including maintaining suitable buffers and sediment and erosion control.

- *Cumulative Effects* –

There is ongoing harvesting of wood taking place in and around the Project footprint; this work is assumed to be in compliance with legislation, including the Wildlife Habitat and Watercourses Protection Regulations. With mitigative measures in place in accordance with legislation and given the relative scale of this work, it is very unlikely that a significant adverse residual environmental effect on ecological function of wetlands and watercourses would result from these activities acting cumulatively.

- *Significance of Residual Effects* –

Project planning has aimed to avoid direct alteration of wetlands and watercourses; this has been achieved with the commitment to HDD under the watercourses and wetlands themselves; yet some minor alternation does occur via temporary bridge installations, culvert installation(s) and wetland linear access roads. Any necessary direct alteration to wetlands is expected to be confined to small areas of wooded swamps and will fall under the Wetland Conservation Policy exemption; these locations can be altered depending on outcome of late season rare plant survey in consultation with DNR and NSE.

- The Project is not anticipated to have a significant residual environmental effect on the ecological function of watercourses and wetlands. While any effect will be negative, it will be very small in magnitude, reversible, short term, and local; therefore, the environmental effect on wetlands and watercourses is predicted to be negligible.

6.3.2 Fish and Fish Habitat

The Project site is located within the East/Middle/West Pictou Watershed containing fish habitat that is fished recreationally and supports fish species of conservation concern. Fish and habitat are protected under the *Fisheries Act (2012)*.

The watercourses crossed by the Project footprint vary in terms of fish habitat; some are poor fish habitat or are seasonal water flow, while other have excellent fish habitat (e.g., Sweet Brook, Middle River, Begg Brook, etc.). Fish species expected in these watercourses include White sucker, American eel, Gaspereau, Brook trout, as well as a variety of forage species. Many streams have no fish habitat.

Fish and fish habitat has been identified as a VEC. A significant environmental effect would result if a substantive change in fish and their habitat could be attributed to the Project downgradient of the Project site, including West River, Middle River, and East River.

- *Boundaries* –

  Spatial boundaries include the areas of the three sub-watersheds (West River, Middle River and East River) downgradient from the Project site. The temporal boundary is primarily during construction.

- *Potential Project Impacts* –

  Interactions that may adversely affect fish habitat include release of drilling fluids, sedimentation or hazardous materials, and physical alteration of watercourses during construction as well as to a much lesser extent during decommissioning activities.

  These interactions were considered as part of the assessment of two other VECs, i.e., ground and surface water (physical) and wetlands and watercourses (ecological). Residual effects on both these VECs were predicted to be either minor or negligible; therefore, these interactions are considered to have no effect on fish habitat.

- *Proposed Mitigative Measures* –

  No effect is predicted on fish habitat. Accordingly, no specific mitigations are recommended outside of mitigative measures as proposed for the VECs of ground and surface water and wetlands and watercourses. However, should any change occur to proposed watercourse structures or should DFO determine a potential interaction with fish habitat, additional review of mitigation measures will occur with DFO.

- *Cumulative Effects* –

  As no effect is predicted, by definition, there cannot be other activities acting cumulatively.

- *Significance of Residual Effects* –

  Effect on fish habitat is not expected to occur.
  - The Project is anticipated to have no environmental effect on fish habitat.

6.3.3 Migratory and Breeding Birds

While the majority of the pipeline route is in disturbed areas, many species of birds were observed during a field survey in late May. These included: Northern Watertrush, Yellow-bellied Sapsucker (including nest along the alignment), Oven Birds, Common Yellowthroat, White-

throated Sparrows and Blue-headed Vireos. The birds observed included also two SARA listed birds (Schedule 1 Threatened: Canada Warbler and Olive-sided Flycatcher). As the survey was completed was in early summer nesting period, there was much activity. In addition, a Black Duck nest was discovered in a wetland (WT M8), and an active bald eagle nest and osprey nests were observed within 80 m and 190 m, respectively, along the northern portion of the pipeline route. NSDNR Significant Habitat has identified Bald Eagle habitat along Middle River.

Environment Canada is responsible for implementing the Migratory Birds Convention Act (MBCA), which provides for the protection of migratory birds, their eggs and nests through the Migratory Birds Regulations. As no clearing is proposed for this Project until September 2013, the risk of disturbing a migratory bird nest is extremely low as most birds have completed nesting at this time.

Migratory and breeding birds have been identified as a VEC. A significant environmental effect would result if a substantive change could be identified in numbers of breeding or migratory birds or their habitat attributable to the Project. Species of birds that are identified as at risk or of special concern are assessed as a separate VEC.

- *Boundaries* –

  The spatial boundaries include the Project footprint and extend to include the areas that are frequented by birds that may be impacted by the Project. The temporal boundary is Project construction.

- *Potential Project Impacts* –

  Interactions that may adversely affect birds during construction include disturbance from clearing activities: direct effects, such as tree removal, and indirect effects, such as noise and lighting. Residual environmental effects of noise and light from construction were predicted to be negligible; therefore, it is not included for additional assessment on birds.

- *Proposed Mitigative Measures* –

  Related to effect on migratory and breeding birds during construction, the mitigations related to clearing include:
  - Any Project deforestation, clearing or grubbing is preferred outside of typical breeding bird season (typically April 1 to August 31) unless a pre-clearing migratory and breeding bird survey is conducted and indicates that no impact is anticipated; and
  - Adherence to EPP related limits on area of work to minimize the cleared area.

- *Cumulative Effects* –

  There is ongoing harvesting of wood taking place in and around the Project footprint; these activities have potential to affect birds in terms of habitat. Given the proposing

timing of construction and relatively small area of clearing, it is not anticipated that a significant adverse residual environmental effect on migratory and breeding birds would result from Project activities acting cumulatively with other activities in the area.

- *Significance of Residual Effects* –

  Disturbance of birds during construction, if it occurs, will be temporary , local, reversible and short term; no disturbance of nests will occur.

  - The Project is not anticipated to have a significant residual environmental effect on migratory and breeding birds. While any effect will be negative, it will be small in magnitude, reversible, short-term and local. The environmental effect on migratory and breeding birds is predicted to be negligible.

6.3.4 Flora and Fauna

The Project footprint primarily includes disturbed areas (utility, railway and roadway corridors and existing land uses of agriculture and forestry). The habitats along the pipeline route include hardwood, mixed and softwood forest, aquatic habitats and riparian floodplains, and wetlands. Significant habitats were identified on the DNR database and include wood turtles and bald eagles.

Flora and fauna has been identified as a VEC. A significant environmental effect would result if a substantive change could be identified in population of a flora or fauna species that was attributable to the Project. Species of flora and fauna that are identified as at risk or of special concern are assessed as a separate VEC.

- *Boundaries* –

  The spatial boundaries include the Project footprint and extend to include the areas that are frequented by fauna that may be impacted by the Project. The temporal boundary is Project construction.

- *Potential Project Impacts* –

  Interactions that may adversely affect flora and fauna primarily include clearing of land during construction; however, this area is relatively small in relation to similar habitat in local area. As the route uses primarily existing corridors, fauna are not expected to be impacted by loss of connectivity of habitat.

- *Proposed Mitigative Measures* –

  Related to effect on flora and fauna during construction, the mitigations include:
  - Adherence to EPP related to minimizing disturbance of wildlife, including no tolerance for harassing wildlife; and

- Limitation on areas cleared as already noted in this document and in the EPP.

- *Cumulative Effects* –

  There is ongoing harvesting of wood taking place in and around the Project footprint; these activities have potential to affect flora and fauna in terms of habitat and its connectivity. Given the relatively small area of clearing and short-time frame for construction, as well as use of paralleling existing corridors, it is very unlikely that a significant adverse residual environmental effect on flora and fauna would result from Project activities acting cumulatively with other activities in the area.

- *Significance of Residual Effects* –

  Disruption to fauna caused during Project construction, if it occurs, will be temporary and short term. Effect on habitat due to the clearing required for this Project is small in size relative to area of similar habitat in the study area .

  - The Project is not anticipated to have a significant residual environmental effect on flora and fauna. While any effect will be negative, it will be very small in magnitude, reversible, local, and short term. The environmental effect on flora and fauna is predicted to be negligible.

6.3.5 Species at Risk and of Concern

Listed species at risk receive legal protection (i.e., Federal *Species at Risk Act* and Provincial *Nova Scotia Endangered Species Act*), and species of concern are valued and a focus of sustainable project planning within an EA. The potential for species at risk and of concern was scoped initially via desktop surveys, including the observations reported by ACCDC, CCH and the study team's general knowledge of habitat on and near the site. This assisted in defining the field studies for species at risk and of concern along with consultation with regulators as appropriate. The results of the field studies are presented in Section 4.0.

During out of season 2012 habitat assessment (November and December 2012) and the early season rare plant survey (June 2013), the following priority plant species were found:

- Hare Figwort (Scrophularia lanceolata), General Status Ranking of Undetermined by NSDNR; in floodplain of Middle River;
- Wiegands sedge (*Carex wiegandii*), General Status Ranking of Red by NSDNR; found in wetland (W4B); and
- Common Hop (*Humulus lupulus var. lupuloides*) – General Status Ranking of Undetermined by NSDNR; found along Middle River floodplain

Based on this work completed to date, it was determined that habitats with a relatively high likelihood of supporting rare species in the study area are floodplains (particularly the Middle River), wetlands (treed swamps in the Mount William area, e.g., W4B) and riparian habitats (e.g., WC3). As well, micro habitats which have high potential for interesting moss and lichen species

included stream banks and an area of steep forested bluff (i.e., Greenhill that is east of Highway 4) indicated potential priority plant species for these areas. Heritage Gas proposes to use HDD under these areas; these proposed HDD under areas of relatively high likelihood of supporting rare species are shown on Heritage Gas sketches (WC3, WC7, WT4B; Appendix G). Further, Heritage Gas has committed to completing late season rare plant surveys and subsequent liaison with NSE and DNR prior to commencing work in these areas to develop avoidance and mitigative measures. The linear nature of pipeline construction allows Heritage Gas to sequence the construction to delay work in areas where regulatory discussions are ongoing.

As identified in Section 4.0, desktop information suggests that several priority bird species habitat have potential to nest in Project footprint. Three priority bird species were observed in the late May survey:

- Canada Warbler (SARA Schedule 1 Threatened);
- Olive-sided Flycatcher (SARA Schedule 1 Threatened); and
- Eastern Wood Pewee (COSEWIC Special Concern).

No priority fauna species were observed during field surveys. A listed species at risk with a potential to use the Project site as habitat is the Wood Turtle (*Glyptemys insculpta*) which is listed by COSEWIC as Threatened and by NSDNR as Vulnerable. NSNDR identified the Middle River habitat as "Species at Risk Habitat" based on the presence of wood turtles and records of siting have been identified by ACCDC. Nesting sites are usually along non-vegetated or sparsely vegetated sandy beaches and banks or sand and gravel bars along river banks, or in exposed sediments in the flood plain. However, disturbed areas such as roadways or railway beds may be used as well. No turtles or evidence of nesting habitat or nest attempts/egg remains were observed in late June 2013 field surveys. According to an expert in Wood Turtle habitat in Nova Scotia, wood turtles are more likely to be found in upper reaches of the East River though there is some potential for presence in the Middle River as the two are connected (pers. comm., J. Gilhen, 2013); this potential was confirmed in discussions with DNR (pers. comm., M. Pulsifer, 2013). Restoration approaches used by Heritage Gas will be selected to not provide potential nesting habitat along the pipeline corridor.

Species at risk and of concern has been identified as a VEC. A significant environmental effect would result if an identified species or their local habitat was irreversibly harmed by an activity that was attributable to the Project.

- *Boundaries* –

  The spatial boundary includes the Project footprint and extends to include the areas that are frequented by species at risk or of concern that may be impacted by the Project. Temporal boundary includes all Project activities.

- *Potential Project Impacts* –

  Interactions that may adversely affect species at risk and of concern include habitat disruption during site preparation and construction of the pipeline, access road construction and HDD set ups areas.

These interactions are as follows:

- *Plants*: Construction activities associated with clearing and grubbing have potential to effect rare plants to the extent of the limits of clearing; Project footprint locations can be avoided via use of HDD and micro-siting of ancillary features like HDD set up areas and access roads.

- *Birds*: Construction activities are not expected to interact due to timing of clearing. Migratory birds were assessed separately and residual effect is not predicted to be significant (i.e., negligible); therefore, this interaction is not included in the assessment of species at risk, and there is no effect predicted.

- *Fauna*: Construction activities generally avoid active Wood Turtle nesting periods; use of corridor as nesting area will be discouraged by restoration techniques.

- *Proposed Mitigative Measures* –

Related to effect on species at risk and of concern during Project construction, the mitigations include:

Plants

- Completion of late season rare plant surveys to supplement prior habitat surveys and early season rare plant surveys;
- Consultation with DNR and NSE prior to construction in areas where rare plant species have been identified in early and late season field work (at pipeline, access roads, or HDD set up locations); the purpose of this consultation will be to determine avoidance, mitigative measures and sequence of construction to protect rare plants species;
- Utilization of HDD to cross the pipeline under all wetlands, watercourses and the bluff at Greenhill for avoidance of rare plant habitat as identified in this EA and confirmed through the late season rare plant surveys; and
- Confirmation of final locations of areas to be cleared (e.g., for pipeline and access road construction, and HDD set up locations) for approval by DNR and NSE.

Wood Turtle

- Develop a management plan for protection of Wood Turtle, including the following measures:
  - Liaison with NSDNR to verify that proposed restoration techniques are not expected to affect nesting locations for Wood Turtle;
  - Education of staff and Contractor on possible presence of Wood Turtle, especially for any Project activity completed around the nesting period; and
  - As per the EPP, notification of NSDNR if Wood Turtle are observed during site works.

General

- Limitation on areas cleared as already noted in this document and in the EPP;
- As per the EPP, education of the Project Contractor on the importance of species at risk and maintaining limits of work; and
- Liaison with NSE and DNR in terms of final design and construction approaches.

- *Cumulative Effects* –

There is ongoing harvesting of wood taking place in and around the Project footprint; these activities have potential to affect species at risk and of concern. Given the size of the Project footprint and use of paralleling existing corridors, it is very unlikely that a significant adverse residual environmental effect on species of risk and of concern would result from Project activities acting cumulatively with other activities in the area.

- *Significance of Residual Effects* –

Effects on species at risk and of concern has largely been avoided by appropriate routing and design of the Project; however, should an impact occur, it would be irreversible. Accordingly, Heritage Gas commits to late season rare plant surveys, implementation of wood turtle protection measures, and subsequent consultation with NSE and DNR as well as other mitigative measures listed above.

- The Project is not anticipated to have a significant residual environmental effect on species at risk or of concern. While any effect will be negative, it will be very small in magnitude, local and generally short term in potential interaction (i.e., construction). While the effect could be irreversible, this is extremely unlikely based on desktop, field work (existing and proposed), proposed liaison with NSE and DNR, avoidance (i.e., use of HDD as noted) and mitigative measures. Hence the residual environmental effect on species at risk and of concern is predicted to be negligible.

6.4 Assessment of Socio-economic Aspects

6.4.1 Land Use

The proposed Project is set in the vicinity of the rural communities of Limerock, Greenhill, Alma, Mount William, Granton and Abercrombie, with ribbon residential development along Highway 4, the Mount William Road and the Granton Road. Resource based activities, such as forestry and agriculture, are the primary economic activities in the community.

The HPRS is proposed to be adjacent to the existing M&NP valve station on West River East Side Road, which is located along a rural residential ribbon development. The HPRS is located over 90 m from the nearest residence. The proposed PRSs at the potential customer facilities are located on their property within the industrial plant limits.

The existing land uses adjacent to the proposed alignment include existing corridors as noted (utility, railway, roadway, including Highway 106), agricultural, forestry, rural residential, as well as other land uses, such as the high school on Alma Road near Highway 4, which is located about 225 m from the proposed pipeline alignment. In the vicinity of Abercrombie Point, the two proposed natural gas customers, Northern Pulp and Michelin, are large industrial uses; across Highway 106 from the proposed alignment are the Pictou County Solid Waste Management Facility and an Ash Management Site owned and operated by NSPI to dispose of ash waste from the Trenton Generating Station.

Recreational use of land in the study area includes hunting, fishing, hiking, swimming, ATV use and other outdoor activities. Evidence of active ATV use, including fording of watercourses, was observed during field reconnaissance.

The land at Northern Pulp is designated by the Province as the Abercrombie Wildlife Management Area under the Abercrombie Wildlife Management Area Designation and Regulations pursuant to the *Wildlife Act*. This designation is in place primarily to control hunting, accordingly, hunting, trapping or possession of firearms are prohibited in the designated area.

The development density is quite low in keeping with the rural character of the area. Along the proposed alignment, there are 42 properties (32 landowners) that require an easement or access agreement with Heritage Gas. 72 percent of these properties have already entered into an agreement. Of the remainder, negotiations are underway with 8 landowners that represent 28 percent of the total alignment length. Land use for these remaining parcels is agricultural (approximately 25 percent), residential (approximately 12 percent) or woodland (approximately 63 percent).

Impact to agricultural land during construction is from the temporary disruption caused by pipeline construction. Possible crop damage and loss of production are considered in the calculations of landowner compensation. There is minimal restriction on farming practices during the operational phase because farming is allowed within the easement.

Similarly, impact on woodland during construction is from the temporary disruption caused by pipeline construction. Landowners are compensated for the loss of merchantable timber harvested during clearing of the easement. During the operational phase, woodland harvesting is not impacted. Crossing points are installed at selected locations of the easement to promote pipeline safety and to ensure that access is unimpeded for heavy machinery required in timber harvesting.

A small number of landowners have identified potential future residential subdivision development as a factor affecting property value and causing an interaction with the proposed pipeline. In all cases, the lands identified are unserviced and, in the majority of cases, are not fronting on an existing roadway or currently accessible. The presence of the pipeline is compatible with potential residential subdivision development; it is common in Canada to have residential development directly abutting pipeline easements. Land development is allowed to occur anywhere except within the easement. Heritage Gas has estimated that approximately 3.5

percent of the surface area of the identified parcels is occupied by the pipeline easement. Therefore, the presence of the pipeline will minimally reduce the extent of land available for development.

In terms of restrictions on landowners, the Pipeline Regulations require that "no person shall interfere with or disturb a pipeline." The Regulations further require landowners planning to conduct development activities within a 30 m distance from the pipeline to notify Heritage Gas. Heritage Gas typically verifies that precautions are taken to ensure that construction activities will not endanger the pipeline.

Land use has been identified as a VEC. A significant environmental effect would result if a substantive change in current land uses and development trends in the local area that could be attributable to the Project.

- *Boundaries* –

  The spatial boundary is the Project footprint where the pipeline alignment, ancillary features and above-ground facilities extending to adjacent properties define the spatial boundaries related to land use assessment. The temporal boundaries include all Project activities.

- *Potential Project Impacts* –

  Adverse effects on land use may occur from construction activities within the Project footprint. Effects on land use on adjacent properties during construction may occur via the interaction with noise and light from active construction. As these VECs were assessed separately and determined to have negligible effects, no effect on land use of adjacent properties is predicted during construction.

  During operation, effects on land use adjacent to the pipeline are not expected as land use on adjacent property, i.e., beyond the easement negotiated with land owners, is minimally restricted. As described above, Regulations require landowners to call before undertaking construction within 30 m of the pipeline to confirm its location and ensure its protection, i.e., "Call Before you Dig" Program.

  During operation, there is potential to increase use of off-road vehicles, such as ATVs, along the restored pipeline route. This activity is viewed as a negative by some as irresponsible ATV use can negatively affect the environment, e.g., rutting of wetlands and disturbance to watercourses. As the corridor contains many obstacles to linear progression, such as buffer zones either side of watercourses and wetlands, as well as roadway and railway crossings, and because the alignment generally parallels existing corridors, the pipeline is not expected to noticeably increase use of off-road vehicles.

  In terms of operating above-ground facilities, these are proposed in areas of compatible land use. As described in the assessment of ambient noise and light, effects are

predicted to be negligible. Accordingly, no effect on land use of adjacent properties is predicted during operation.

Site specific requirements associated with each property have been under discussion with each property owner and form part of private easement agreements; therefore, this is not further considered as part of this assessment.

Based on the discussion above, no effect is predicted on land use during Project activities.

- *Proposed Mitigative Measures* –

  From a review of the above, none of the identified interactions are predicted to have an effect on land use. Therefore no specific measures are recommended.

  Nonetheless in the event that complaints are received by neighbours on any aspect of construction or operation, Heritage Gas will work cooperatively to address concerns.

- *Cumulative Effects* –

  As no effect is predicted on land use, by definition, there cannot be other activities acting cumulatively.

- *Significance of Residual Effects* –

  Effect on land use is not expected to occur.
  - The Project is anticipated to have no environmental effect on land use.

6.4.2 Archaeological Resources

Nova Scotia's cultural heritage resources are protected under the terms of the *Special Places Protection Act*, *The Heritage Property Act*, and *An Act to Provide for the Protection of Cemeteries*. In order to identify areas of archaeological potential and to complete appropriate pre-construction field verification of archaeological potential, CRM Group Limited ("CRM Group") has undertaken a cultural heritage impact assessment on behalf of Heritage Gas (Appendix B).

Archaeological resources have been identified as a VEC. A significant environmental effect would result if an irreversible loss or destruction of an archaeological resource that resulted from Project activities.

- *Boundaries* –

  The Project footprint defines the spatial boundary. The temporal boundary is primarily the construction phase.

- *Potential Project Impacts* –

  Activities that may adversely affect archaeological resources are limited to direct impact to artefacts or built heritage during construction activities, such as earth works and excavation.

- *Proposed Mitigative Measures* –

  The EPP includes protocols should artefacts or human remains be discovered during construction, including contact information for the Province and the KMKNO in the unlikely event that a discovery is made.

  CRM Group has a Heritage Research Permit from the Special Places Program to allow immediate response to Heritage Gas should a suspected artefact be identified as part of Project construction. This approach is common to all Heritage Gas construction projects.

  Training will be completed to ensure Contractors are aware of the importance of notifying Heritage Gas staff in the event that a suspected artefact is discovered.

- *Cumulative Effects* –

  There are no known earth works taking place in the vicinity of the proposed Project that are expected to affect archaeological resources. There is ongoing agricultural use and harvesting of wood taking place in and around the Project footprint; however, given the relatively small scale of the proposed Project, it is very unlikely that the Project might act cumulatively to increase the likelihood of a significant adverse environmental effect on archaeological resources.

- *Significance of Residual Effects* –

  The potential of artefacts being present within the Project footprint has been identified as low in the archaeological assessment. Accordingly, the potential for residual effect on archaeological resources is extremely low.

    - The Project is not anticipated to have a significant residual environmental effect on the archaeological resources. While any effect will be negative and irreversible, it will be small in magnitude, short term, and local, as well as highly unlikely. The environmental effect on archaeological resources is predicted to be negligible.

6.4.3 Aboriginal Resources / Uses

The traditional lands of PLFN are located within about 3 to 5 km east of the closest portion of the proposed pipeline route. Lands owned in trust for PLFN are adjacent to a small length (less than 200 m) of the proposed pipeline route; this land was historically harvested by others. As per the archaeological report (Appendix B), there are historical records of strong Mi'kmaq presence in the study area, including a village at the mouth of the East River and evidence of Pre-contact and early historic indigenous habitation sites along the rivers throughout.

Based on the archaeological study completed, several locations were initially considered to have high potential for encountering Pre-contact resources; these locations were refined based on field truthing. Four locations of high potential were identified, i.e., both banks of Middle River, the west bank of Miller Brook and the west bank of a tributary to Begg Brook into the Michelin plant. In June 2013, these sites were shovel tested; no Pre-contact resources were identified at any of the sites. As well, the proposed use of HDD minimizes excavation in these areas of high potential. Based on the above, there is low risk for the Project to cause a loss or destruction of an artefact of Pre-contact origin.

The Project does not cross Crown land and is considered relatively low impact. An effect on aboriginal uses would only occur with an effect on ecological VECs (e.g., fish and fish habitat, flora and fauna, etc.) and the socio-economic aspect of land use.

Heritage Gas engaged the Mi'kmaq at early Project stages and has continued to share information. This is in keeping with the Province's requirement to meaningfully consult with the Mi'kmaq on decisions that impact natural resources.

Mi'kmaq resources and traditional uses by the Mi'kmaq have been identified as a VEC. A significant environmental effect would result if: a substantive change occurred in Mi'kmaq access to traditionally used land; if the availability of traditional resources substantively declined; or if a loss or destruction of an artefact of Pre-Contact origin occurred.

- *Boundaries* –

  As activities within the Project footprint could impact aboriginal resources and aboriginal uses on a regional scale, the spatial boundary of the assessment is regional to include water downgradient of watercourses flowing to Pictou Harbour from the West River, Middle River and East River. The temporal boundary is Project construction.

- *Potential Project Impacts* –

  Interactions that may adversely affect traditional Mi'kmaq uses are primarily based upon those ecological VECs including wetlands and watercourses, fish and fish habitat, migratory and breeding birds, flora and fauna, and species at risk or of concern, as well as the socio-economic aspect of land use; of these, all effects were predicted to be negligible and no effect was predicted on fish and fish habitat.

While potential effect during construction could be related to a loss or destruction of Pre-contact resources, the shovel testing completed did not identify Pre-contact resources. While there remains potential for encountering Pre-contact resources, it is very unlikely based on this archaeological assessment. Should Heritage Gas suspects the presence of artefacts, the EPP protocols will be followed (EP-09-2060).

As discussed in Section 5.0, Heritage Gas is committed to ongoing communications with PLFN on opportunities for mentorship / employment opportunities for member(s) of the community as part of Project construction; this activity is included as part of the assessment of economic development.

- *Proposed Mitigative Measures* –

  The same mitigative measures proposed to minimize effect on archaeological resources will also minimize effect on aboriginal resources, including:
  - Engagement of an archaeologist to respond should a suspected artefact be discovered;
  - Use of EPP protocols in the event of a suspected artefact, including contacting the KMKNO if the resource is suspected to be of Pre-contact significance; and
  - Training of the Contractor in EPP protocols and their importance.

  Mitigations specific to the ecological VECs and the socio-economic aspect of land use will be implemented as previously committed to mitigate effects on aboriginal resources.

  To continue the existing dialogue, Heritage Gas commits to follow up with PLFN in accordance with Section 5.0.

- *Cumulative Effects* –

  There are no known earth works taking place in the vicinity of the proposed Project that could affect aboriginal resources. There is ongoing agricultural use and harvesting of wood taking place in and around the Project footprint; however, given the relatively small scale of the proposed Project, it is very unlikely that the Project might act cumulatively to increase the likelihood of a significant adverse environmental effect on aboriginal resources.

  As no effect is predicted on aboriginal uses by the Project, by definition, there cannot be other activities acting cumulatively on aboriginal uses.

- *Significance of Residual Effects* –

  The potential to discover a Pre-contact resource is very unlikely given the low potential identified in the archaeological assessment, including the shovel testing. No effect is predicted on aboriginal uses as discussed above.

- The Project is not anticipated to have a significant residual environmental effect on the aboriginal resources. While any effect will be negative and irreversible, it will be small in magnitude, short term, and local, as well as very unlikely. The environmental effect on aboriginal resources is predicted to be negligible.

6.4.4 Health and Safety

Natural gas has been used in Canada for well over 100 years and is a safe, reliable solution to the country's current and future energy needs. Over those 100 years, stringent safety standards and regulations have been developed to govern natural gas production, transmission, distribution and end use. From an operating perspective, the average gas supply reliability index in Canada was 99.99972 % in 2011 (i.e., customers were out of gas 0.00027% of the time in the year), which demonstrates the extremely high safety and reliability of natural gas systems.

Heritage Gas has a demonstrated commitment to safety. The health and safety of the public and Heritage Gas staff and contractors are of utmost concern in any project. The protection of workers and the public during construction and decommissioning activities is a core priority. Heritage Gas has robust occupational health and safety as well as operations safety programs in terms of pipeline inspections and testing, "Call Before you Dig" program, public education, and emergency response. Pipeline safety protocols are described in Heritage Gas' Integrity Management Plan, Emergency Response Manual, and Operating & Maintenance Manual.

Health and safety has been identified as a socio-economic aspect. A significant environmental effect would result if a substantive increase in risk to human health and safety could be attributable to Project activities.

- *Boundaries* –

  The spatial bounds include the immediate areas of the Project footprint. The temporal boundary is all Project activities.

- *Potential Project Impacts* –

  During any construction project, there are health and safety risks to site personnel. As this Project is not atypical in terms of occupational health and safety and as Heritage Gas has Occupational Health and Safety programs and corporate culture of safety, and works in compliance with legislation, this specific interaction is not further evaluated as part of this assessment.

  Similarly, the very unlikely interaction of Project construction with the general public is not further considered in this assessment. By appropriately managing construction activities, as well as limiting the public's access to the construction site, there is an extremely low level of risk to the public health and safety during the Project construction and decommissioning.

In terms of the ongoing operation and maintenance of the pipeline, safety is a core aspect of Heritage Gas' business. Given the safety record of Heritage Gas and use of natural gas as a fuel source, effect to safety during Project operation is not further evaluated as part of this assessment.

- *Proposed Mitigative Measures* –

  No effect is predicted on health and safety as discussed above. Heritage Gas' established safety programs will be an integral part of the proposed Project.

- *Cumulative Effects* –

  As no effect is predicted, by definition, there cannot be other activities acting cumulatively.

- *Significance of Residual Effects* –

  Effect on health and safety is not expected to occur.
  - The Project is anticipated to have no environmental effect on health and safety.

6.4.5 Economic Development

The proposed Project will contribute to the local economy during the construction and operational phases.

Economic benefits to the region include:

- Capital construction (in-house and contracted), with direct employment and indirect benefits through multiplier effects (e.g., hotels, campgrounds, housing rentals, restaurants, and other support industries);
- Hiring of several local or regional contracting companies to assist with clearing, excavation, access road upgrades, pipe yard preparation, and temporary bridges;
- Purchase of construction vehicles from local dealership;
- Payments to municipal government in terms of property taxes and municipal asset-based taxes.

While many employment opportunities during construction are specialized skills related to natural gas pipeline, there are opportunities for trades and heavy equipment operators, as well as labourers. During construction, it is estimated that approximately 80 to 90 positions will be created, of which approximately 25 percent are specialized skilled personnel from out of province. (Estimated to add up to 96,000 person hours directly employed with the Project.)

It is anticipated that two full-time positions with Heritage Gas will eventually be created during the Project operational stage. In addition to direct employment, there will be significant secondary benefits to the local economy in terms of indirect benefits and contracts.

While outside of the scope of the Project, conversion of large industrial customers, such as Northern Pulp, to natural gas will increase the industrial competitiveness of large regional employers. Though not directly a benefit of the Project, expenditures of natural gas customers for conversion, as well as reduction in fuel oil purchases due to conversion, and disposition of savings due to conversion to natural gas all will accrue benefits to the region. As well, potential future expansion to New Glasgow, Stellarton and Trenton in 2014 and beyond would offer many economic development opportunities.

Accordingly, the local economy has been identified as a socio-economic aspect. A significant environmental effect would result if a substantive change employment levels or the local economic base could be attributable to the Project.

- *Boundaries* –

  The spatial boundary is the Municipality of Pictou County and where the local businesses and workers primarily reside in the region. The temporal boundary is all Project activities.

- *Potential Project Impacts* –

  Predicted impacts are positive in terms of the local economy. Interactions that may benefit the local economy include local contracts and short term employment during site preparation and construction, as well as decommissioning activities. Outside of direct contracts or employment, economic spin off is expected in the local area during construction (e.g., accommodation, gasoline, dining, etc.).

  During operation, benefits are primarily related to:
  - ongoing taxes paid to the Municipality of Pictou County
  - contracts or employment related to the operating the natural gas system.

- *Proposed Mitigative Measures* –

  Where practical, Heritage Gas will utilize local labour and businesses. This is often cost-effective for Heritage Gas and it also roots the development in the community.

  As previously noted, Heritage Gas is committed to pursuing mentoring / employment opportunities PLFN via conversations with economic development and training staff.

- *Cumulative Effects* –

  Other than the interacting benefits identified through conversion of customers to natural gas, which will be positive, there are no other known works taking place in the

vicinity of the Project; therefore, the only expected cumulative effects are the positive effects from natural gas conversion and the potential future expansion.

- *Significance of Residual Effects* –

  Local economy is predicted to be positively affected during Project activities over the life of the Project.

  - The Project is anticipated to have a benefit on the local economy; during construction, it will be small in magnitude, reversible, and regional; however, relative to the operating stage, the effect will be long in duration. The benefit on local economy is predicted to be minor.

6.5 Effect of the Environment on the Project

Several environmental factors, e.g., fire and extreme weather, including climate change, could have an adverse effect on the Project.

Fire and extreme weather could adversely affect the construction of the Project and its interaction with the environment. The spatial boundaries for these effects are restricted to the Project footprint and downgradient areas. Temporal boundaries include construction and operation activities.

Fire and extreme weather events could adversely impact the Project construction schedule, but such events are likely to be of short duration. The adverse effect is very unlikely to be significant.

During operation, a fire in the area could be caused by both natural events, e.g., a lightning strike, or by human activity. It is likely that any large fire would be quickly detected and a prompt emergency response instigated. Because it is buried within a cleared easement, the effect of fire on the pipeline would typically be minimal. Above-ground facilities could be affected by fire; Heritage Gas would work with local emergency responders to minimize impact.

Also during operation, extreme weather (e.g., sea level rise, extreme precipitation, high winds, etc.) would not typically have any significant impact on natural gas facilities as the majority of the infrastructure is buried; Heritage Gas has previously experienced severe weather without any adverse effects to its facilities. Therefore, extreme weather events are not expected to unduly affect the Project operation and maintenance activities.

The effects of fire and extreme weather events during project decommissioning are likely to be comparable to those described for Project construction. Such effects are unlikely to be significant.

In summary, fire and extreme environmental events are not anticipated to have a significant residual environmental effect on the Project, i.e., the impact is predicted to be negligible.

6.6 Summary of Residual Environmental Effects

The following table, Table 6-2 Summary of Residual Environmental Effects, presents a qualitative summary of the effect of each VEC and socio-economic aspect that are affected with the following assessment criteria:

- nature of effect, i.e., positive (+), negative (-), or stated as “No impact" where none predicted;
- magnitude of effect on background levels, i.e., small, moderate or large;
- reversibility of the effect, i.e., reversible (REV) or irreversible (IRR);
- timing of effect, i.e., during construction (short) or operation (long) term; and,
- aerial extent of the effect, e.g., area of construction (local) or watershed (regional).

Based on the prior assessment, residual environmental effects were predicted. As summarized below, all interactions are predicted to have negligible effects except: a minor negative (ground and surface waters) and a minor positive effect (economic development). There were no effects predicted for fish and fish habitat, land use, and health and safety. As described in Section 3.0, monitoring and follow up initiatives are normally not required where an effect is predicted to be negligible. Where a minor adverse effect is predicted, monitoring and follow up initiatives should be considered.

Table 6-2 Summary of Residual Environmental Effects

	Nature	Magnitude	Reversibility	Timing	Extent	Predicted Residual Effect
Physical components						
Ground and surface waters	(-)	Moderate	REV	Short	Local	Minor
Ambient noise and light	(-)	Small	REV	Short	Local	Negligible
Air quality	(-)	Small	REV	Short	Local	Negligible
Ecological components						
Wetlands and watercourses	(-)	Small	REV	Short	Local	Negligible
Fish and fish habitat	No effect					
Migratory and breeding birds	(-)	Small	IRR	Short	Local	Negligible
Flora and fauna	(-)	Small	REV	Short	Local	Negligible
Species at risk and of concern	(-)	Small	IRR	Short	Local	Negligible
Socio-economic aspects						
Land use	No effect					
Archaeological resources	(-)	Small	IRR	Short	Local	Negligible
Aboriginal resources / uses	(-)	Small	IRR	Short	Local	Negligible
Health and safety	No effect					
Economic development	(+)	Small	REV	Long	Regional	Minor

In summary, it can be concluded from this EA that the Project can be implemented without significant adverse effects on valued physical and ecological components or valued socio-economic aspects of the environment.

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7.0 FOLLOW UP AND COMPLIANCE

Follow up and compliance after release from the EA process is necessary to:

- Ensure that the predictions about the effects of the undertaking are accurate;
- Allow appropriate adaptive management measures to be applied where adverse effects are unexpected; and
- Verify compliance with applicable regulations and guidelines, both regulatory terms and conditions of EA approval, and Proponent commitments identified in the EA.

Heritage Gas strongly believes that the proposed Project can be undertaken without significant adverse effects on valued physical and ecological components and valued socio-economic aspects of the environment. As part of planning linear pipeline projects and selecting and evaluating alternate routes, Heritage Gas integrates a number of criteria to minimize impact on both the natural, cultural and built environment. Where routing selection cannot avoid a socio-economic or ecological sensitivity, adverse effects are minimized via incorporating mitigative measures in the detailed Project design. Heritage Gas is committed to these mitigative measures and will complete the necessary follow up to ensure compliance with these commitments.

Heritage Gas will honour the commitments made in this EA and will comply with applicable laws and regulations, as well as terms and conditions of approval upon release from the EA process. The Heritage Gas EPP (last updated April 2012) will be adhered to and will be forwarded to regulatory agencies and First Nations upon request. The Heritage Gas Project-specific ECP will be adhered to with the final ECP incorporating the results of additional field work and final design, as well as the EA approval terms and conditions.

To ensure these commitments are transferred to the contractors, employees and other site personnel, circulation of and training on the Heritage Gas EPP and the Project-specific ECP will be completed for all phases of the Project. Heritage Gas is committed to training contractors, employees and other site personnel on environmental sensitivities and their environmental protection requirements in relation to their roles and responsibilities.

Heritage Gas commits to the mitigations and monitoring as outlined in the EA, specifically Section 6.0; however, the main commitments summarized below include but are not limited to:

- Definition of limits of work for Project footprint to include right-of-way for pipeline construction, access roads, HDD set up areas and above-ground facilities to minimize area disturbed;
- Commencement of clearing activities after completion of a bird survey;
- Completion of late season rare plant surveys to supplement prior habitat surveys and early season rare plant surveys and subsequent liaison with NSDNR and NSE prior to construction to determine avoidance, mitigative measures and sequence of construction to protect rare plants species found in surveys;

- Installation of sediment and erosion control measures as per EPP and site-specific ECP until stabilization is complete, as well as completion of visual monitoring of receiving water, and maintenance of erosion control measures;
- Construction of temporary bridges and culverts in consultation with NSE and DFO to facilitate access and maintain or improve existing drainage patterns, and in accordance with the Nova Scotia Watercourse Alteration Specification (NSE, 2006) and conditions of NSE Watercourse Alteration Approval in accordance with the NS Activity Designation Regulations;
- Construction of access roads on wetlands in accordance with the Nova Scotia Wetland Conservation Policy (2011) and in consultation with NSE, and completion of work such that no NSE Wetland Alteration Approval is required in accordance with the NS Activity Designation Regulations as per exemptions in the Policy;
- Use of HDD to cross pipeline under watercourses, wetlands and areas identified with rare plants as per field surveys and subsequent consultation with NSE and DNR;
- Prevention and contingency planning for release of drilling fluids during HDD including adherence to DFO's Operational Statement on directional drilling;
- Stabilization will occur as work is completed with final restoration expected in early spring 2014 to re-vegetate exposed soil;
- Awareness of possible presence of wood turtle and notification of NSDNR if found, and use of restoration techniques to minimize replication of nesting material along the pipeline route;
- Maintenance of vegetated buffer zones at watercourse and wetlands, as well as other natural barriers, and removal of temporary bridges located on the pipeline easement when work is completed to discourage off-highway activity along the restored pipeline corridor;
- Implementation of Heritage Gas' safety program in terms of all Project activities and increased awareness among the public, landowners and Emergency Responders;
- Proper handling, storage and disposal of hazardous and non-hazardous wastes;
- Implementation of protocols should an unplanned event occur, such as discovery of suspected artifacts, structures of cultural significance or human remains, or unplanned release of drilling fluids or hazardous material;
- Commitment to training contractors, employees and other personnel related to the environmental and health and safety responsibilities;
- Discussion with economic development and training staff of Pictou Landing First Nation regarding potential mentoring or employment opportunities; and
- Ongoing liaison with landowners related to Project activities and easement agreements specific to each landowner.

Additional detail on proposed mitigative measures and monitoring can be found in Section 6.0 related to each VEC or socio-economic aspect reviewed.

Beyond the consultation already completed, Heritage Gas will continue to consult with the community, business leaders, the Mi'kmaq, land owners, and other stakeholders throughout the Project as appropriate. The objective is to maintain information flow and open dialogue to ensure that questions or concerns with respect the Project construction and operation are understood and addressed.

The existing relationships with regulators will be maintained to ensure that key staff of the provincial and federal departments with an interest in this Project is aware of Project activities especially during

construction. In particular, the appropriate regulators will be notified if any unplanned events or environmental effects that were not predicted in this EA. In terms of releases to the environment, the Heritage Gas EPP has specific protocols for reporting and notification. It is expected that specific follow up and compliance requirements will be prescribed as part of the Terms and Conditions of EA Approval upon release of this Class I undertaking from the EA process under the Environmental Assessment Regulations.

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8.0 CLOSURE

Heritage Gas is committed to environmental protection through its Environmental Policy, Environmental Management Plan, and Environmental Protection Plan ("EPP"). Environmental planning and route optimization have been completed on the Project, which included the engagement of regulatory agencies, stakeholders, First Nations, discussions with landowners, and engineering and constructability analysis. The proposed route has been optimized considering key ecological, social, cultural, economic and technical factors. In addition to the provisions of the EPP, and included in detailed construction drawings on an as-required basis, Heritage Gas will prepare Environmental Construction Plans ("ECP") to address site specific environmental control and mitigative measures.

Notable significant economic and environmental features of this Project are its purpose of allowing large industrial energy users to convert from oil to cleaner, lower cost natural gas. The result will be a reduction in GHG emissions and more cost competitive industry in Pictou County. The Project also makes possible further expansion to provide natural gas access to homes and business in Pictou County.

As outlined in this EA document, the Project can be executed without significant adverse effects on biophysical VECs and socio-economic aspects. Heritage Gas is committed to undertaking the Project to the mutual benefit of Heritage Gas and its customers, Pictou County and the Province while eliminating or minimizing environment effects to the fullest extent possible. This is achievable by adhering to the commitments as laid out in this document, including those laid out in the EPP, and all pertinent legislation, as well as the future requirements of NSE's conditions of approval and other approvals and permits. Heritage Gas is committed to ongoing monitoring of the facilities and their impact during operations as described in the EA document.

The following may be contacted to provide additional information on the Project:

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Proponent Contact Person:	Michel Sarrouy, P. Eng. Vice President - Engineering & Construction, Heritage Gas Limited Park Place 1, Suite 200 - 238 Brownlow Avenue Dartmouth NS B3B 1Y2 (902) 466-2029 Phone (902) 466-2140 Fax Email: msarrouy@heritagegas.com
EA Contact Person:	Janis Rod, P.Eng. Principal, Verterra Group Environmental Strategies Ltd. 205-6454 Quinpool Road, Halifax, NS B3L 1A9 (902) 431-1077 Phone (902) 453-4670 Fax Email: janis@verterragroup.ca

The contents of this Environmental Assessment Document for the Pictou County Natural Gas Pipeline are the responsibility of the Proponent. They have been prepared in accordance with the *Environment Act*, the Environmental Assessment Regulations, and other associated legislation.

Signature:		
Name:	Jim Bracken	Bill Swan
Title:	President, Heritage Gas Limited	Senior Vice-President, Heritage Gas Limited
Date:	June 28, 2013	June 28, 2013

Note: Mr. Swan will be President of Heritage Gas Limited starting July 2, 2013

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