

HERITAGE GAS

**ARCHAEOLOGICAL IMPACT ASSESSMENT
STEEL GAS PIPE ALIGNMENT IN AMHERST,
CUMBERLAND COUNTY**

ARCHAEOLOGICAL IMPACT ASSESSMENT REPORT

Submitted to:
Heritage Gas
and the
Nova Scotia Museum

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**ARCHAEOLOGICAL IMPACT ASSESSMENT OF
STEEL GAS PIPE ALINEMENT FOR HERITAGE GAS IN AMHERST,
CUMBERLAND COUNTY**

1.0 INTRODUCTION

In 2002, Heritage Gas was awarded the franchise rights to build and operate a natural gas distribution system serving the urban areas of the Halifax Regional Municipality, as well as the urban centres in Pictou, Colchester, Cumberland and Hants counties. When required by the specific requirements of the Nova Scotia *Environmental Assessment Act*, Heritage Gas is to register and undertake environmental assessments for its proposed high pressure steel pipe alignments connecting those urban areas to the main gas pipeline operated by Maritimes & Northeast Pipeline (M&NP).

Cultural Resource Management (CRM) Group has been retained by Heritage Gas through Dillon Consulting Limited to conduct an archaeological impact assessment of the proposed 18 kilometre (km) steel pipe alignment between Amherst Head and the proposed site of the Amherst Town Boarder Station (TBS).

The objectives of the archaeological impact assessment were to evaluate the archaeological potential within the proposed study corridor, identify cultural heritage constraints to be avoided in selecting the final alignment, and recommend appropriate management strategies to avoid or mitigate impact to significant cultural heritage features.

The archaeological impact assessment was conducted under the terms of Heritage Research Permit A2004NS62 (Category AC@), issued by the Nova Scotia Museum to W. Bruce Stewart, CRM Group President and Senior Consultant. This report describes the process followed in developing the archaeological potential model, reviews the field verification of resources and identifies resource management recommendations.

2.0 PROJECT DESCRIPTION

Heritage Gas proposes to construct a steel pipeline between the M&NP mainline and the town of Amherst. Figure 1 illustrates a preferred pipeline route plus alternate alignments.

The physical project consists of:

- < approximately 18 kilometres (km) of underground 122 millimetre (mm) high-pressure steel pipeline, and above ground facilities related to managing the transfer of gas through the system;
- < the above ground facilities include a town border station and pressure reducing stations where the pressure is regulated down to the operating pressure of the distribution piping; and,
- < for environmental assessment purposes the project also includes areas and facilities used during construction of the high-pressure pipeline which include, rectifying beds, temporary work spaces and marshalling yards.

The eastern end of the pipeline will connect to the M&NP mainline near its crossing of Beecham Road, north of Amherst Head, and extend southwest cross-country to a municipally-owned property west of Willow Street. The eastern portion of the cross-country corridor transects forested lands being harvested for pulp while the western portion transects or skirts active agricultural lands. The only road crossings associated with the proposed corridor are Beecham Road north of Amherst Head and Highway 6 at Warren.

Two pressure-limiting stations within the system will regulate the flow of natural gas and reduce pressures where gas is transferred from the M&NP mainline (the Tap Station) to Heritage Gas and at the Amherst Town Border Station (TBS). At the Tap Station, custody is transferred from the M&NP system, odour is added to the gas (for consumer safety), and the pressure will be regulated to the Heritage Gas operating pressure. The Tap Station is the responsibility of M&NP, and is not within the scope of this undertaking. Heritage Gas will also construct and operate service lines and medium-pressure distribution pipes that are not within the scope of the registered undertaking to deliver natural gas from the high-pressure pipelines. These service lines and distribution pipes will carry gas to the customer service regulators and service metres attached to the outside of the buildings serviced by gas.

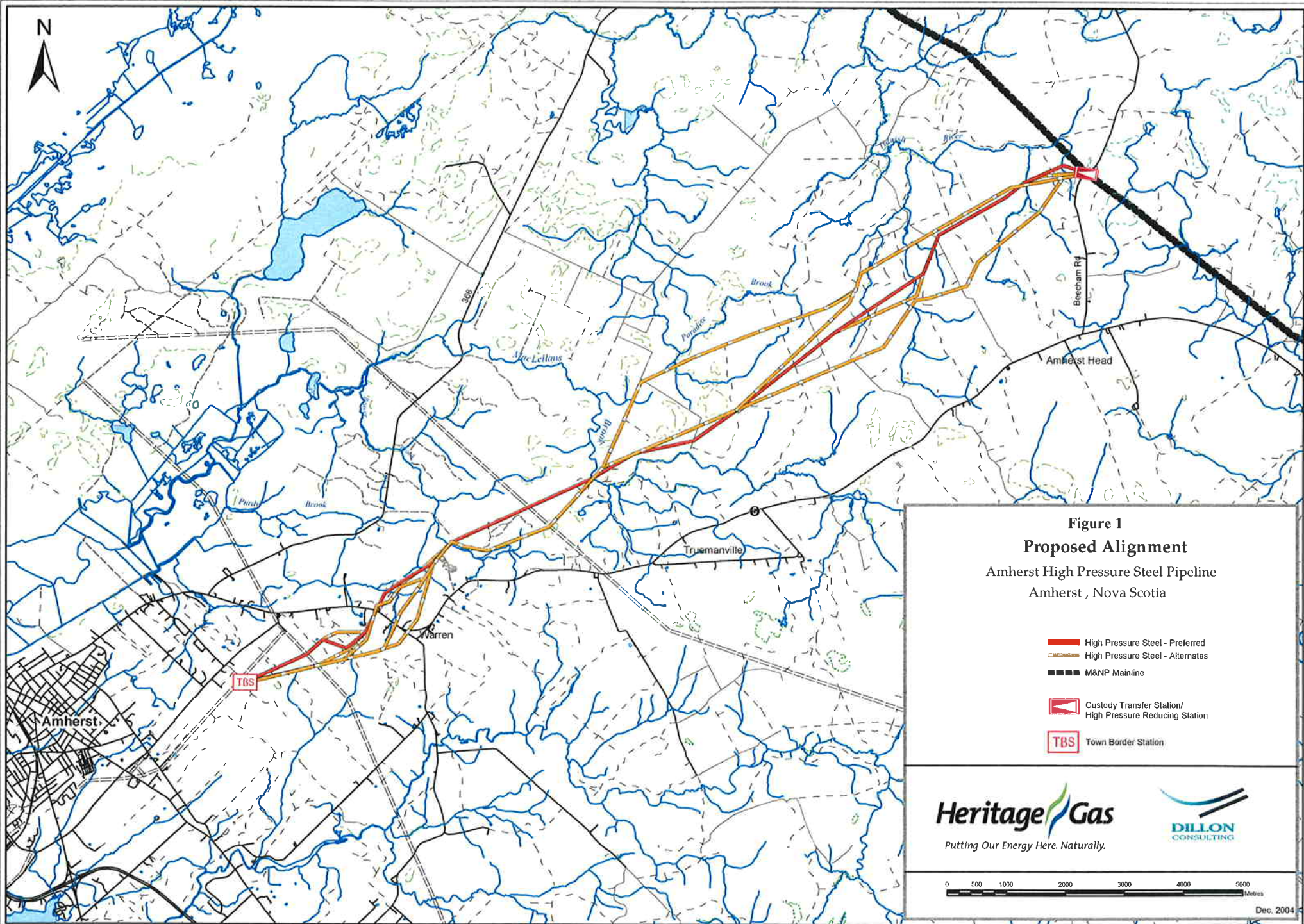





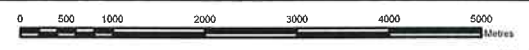


Figure 1
Proposed Alignment
 Amherst High Pressure Steel Pipeline
 Amherst, Nova Scotia

-  High Pressure Steel - Preferred
-  High Pressure Steel - Alternates
-  M&NP Mainline
-  Custody Transfer Station/
High Pressure Reducing Station
-  TBS Town Border Station

Heritage Gas
 Putting Our Energy Here. Naturally.

DILLON
 CONSULTING



Dec. 2004



PLATE 1: Typical View of Forested Portion of Pipeline Corridor.



PLATE 2: View Northeast along Portion of Pipeline that Crosses Active Agricultural Lands.

3.0 METHODOLOGY

The archaeological impact assessment designed to address archaeological resource potential within the proposed Amherst steel pipeline alignment is comprised of four components: archaeological potential modelling; field reconnaissance; pre-construction assessment; and, construction monitoring. Prior to formal identification of the actual alignment, only the modelling and field reconnaissance components have been completed. The pre-construction assessment and construction monitoring will be conducted at subsequent stages of the project.

Archaeological Potential Modelling

Archaeological potential modelling focuses on the identification of environmental, cultural and historical factors which shape the pattern of human land use and resource exploitation. In the preparation of a model for the Amherst area, many sources were consulted.

Heritage conservation in Canada involves all three levels of government, as well as a number of non-governmental agencies and organizations. Federal agencies consulted included the Federal Heritage Building Review Office, the Historic Sites and Monuments Board of Canada, the National Historic Sites Directorate and Parks Canada - Atlantic Region. Through these agencies access was gained to the following inventories: National Historic Sites; Canadian Inventory of Heritage Buildings; National Heritage Railway Stations; Canadian Heritage Rivers; and, National Historic Canals. Consultation with staff of the Nova Scotia Museum of Natural History, the Heritage Property Program and the Provincial Archives of Nova Scotia provided crucial access to the Nova Scotia Archaeological Sites Data Base, the inventory of Provincially Registered Heritage Properties and historic maps and related documents. Municipal registries of heritage properties were accessed through the Planning Office of the Municipality of the County of Cumberland.

Historic map analysis was conducted at the Public Archives of Nova Scotia, the Nova Scotia Museum of Natural History and the Cumberland County Museum. Three series of province-wide maps were used to produce a consistent framework within which to identify heritage features, age of historic route and historic settlement. The earliest of the three series was the Map of Nova Scotia including the Island of Cape Breton also known as The Great Map of Nova Scotia published by William MacKay in 1834. The mid-nineteenth century is well represented by the Cumberland County topographical map published by A. F. Church & Co. in 1873. The final series was geological maps published around the turn of the twentieth century. This initial framework was expanded to include other maps specific to the study area.

Field Reconnaissance

Field reconnaissance consisted of the visual inspection of various areas within the study corridor.

Site visits were conducted on six different occasions between September 9 and October 30, 2004. The visits were used to field-truth historic features identified as a result of background research and to evaluate areas identified as having high archaeological potential.

Access to the study corridor was gained by means of public roads, private lanes and logging roads. In areas of identified heritage features such as the mill sites, site investigation was expanded through the documentation of observable features, the pedestrian survey of surrounding terrain and the examination of associated logging roads. The ground search did not involve sub-surface testing, but did include close inspections of existing soil exposures, such as those along roadsides and at the bases of uprooted trees. The researchers were also watchful for topographic or vegetative anomalies that might indicate the presence of buried archaeological resources. The process and the results were documented in field notes and photographs.

Pre-Construction Assessment

Once the steel pipe easement has been selected, but prior to the initiation of construction, Heritage Gas will commission a licensed archaeologist to undertake a program of archaeological field testing. The program will incorporate visual inspection and limited shovel testing within the pipeline easement so as to evaluate the results of the potential model.

The specific pipeline alignment will be walked and subjected to visual inspection and shovel testing as required. Shovel test pits, averaging 40 cm in diameter, will be dug through the topsoil into subsoil. All soil removed from the test pits will be screened in order to recover any artifacts within the excavated soil. If artifact clusters are identified as a result of testing, additional excavations will be required in order to assess the significance of the discovery.

All artifacts recovered from excavations will be processed and catalogued in accordance with standards set by the Heritage Division - Nova Scotia Museum. In addition, all field activities will be recorded and maintained for future interpretation.

Any archaeological resources identified in the course of the site survey will be properly documented and registered at the Heritage Division - Nova Scotia Museum. The discovery of any resources of particular significance or sensitivity will be immediately reported to Heritage Gas and the Heritage Division - Nova Scotia Museum.

Construction Monitoring

During construction, a licensed archaeologist will conduct a limited program of archaeological monitoring in any areas of high archaeological sensitivity to verify the results of the archaeological testing program. In addition, a sample of areas considered to exhibit low archaeological potential will also be monitored in order to test the validity of the model.

Cultural resource monitoring will consist of visual inspection of trenching/excavation activities, as well as other construction related activities (grubbing, clearing, drilling, blasting, filling and grading) within areas of high archaeological potential, which will result in the disturbance of the ground surface either within the pipeline easement or the ancillary facilities.

4.0 ARCHAEOLOGICAL IMPACT ASSESSMENT

4.1 Archaeological Site Potential Modelling

Cultural heritage resource is the term given to artifacts, buildings, features and landscapes that reflect past human activities. Archaeologically identified resources can take the form of Native campsites, fishing stations, burial sites and other locations of spiritual and/or cultural significance. It also includes the remains of historic farmsteads, residential or commercial buildings and urban infrastructure. Existing historic buildings and culturally modified landscapes are also considered cultural resources.

Construction of the steel pipe from Amherst Head to the Town of Amherst may impact cultural heritage resources. Impacts may be caused not only by construction related activities within the pipeline easement itself, but also by the development of ancillary facilities including the Amherst TBS, stockpiling areas, marshalling yards, temporary work areas, and access roads, either temporary or permanent. In order to minimize these impacts and mitigate those which cannot be avoided, CRM Group has undertaken a cultural heritage impact assessment to identify areas of resource potential, to design strategies for the pre-construction field verification of resource potential, to implement construction period monitoring and to propose appropriate and responsible mitigation strategies to address accidental cultural heritage resource impacts during construction.

4.1.2 Cultural Heritage Constraint Identification

The Amherst steel pipe easement, between the Maritimes & Northeast Pipeline (M&NP) tap station at Amherst Head and the TBS near Willow Street, is being sited to follow an overland corridor that generally avoids known cultural heritage resources and areas of high archaeological potential. Identification of cultural heritage constraints is being performed by CRM Group as part of the overall environmental screening for the easement.

CRM Group's cultural heritage screening for the Amherst steel pipe easement selection process has consisted of background research and strategic field reconnaissance.

The background research component began with a systematic search for heritage resources already known to exist within the study area or its environs. This has involved checking various federal, provincial and municipal heritage site registries, including those for National Historic Sites and Monuments, Federal Heritage Buildings, Canadian Heritage Rivers, National Heritage Canals, National Heritage Railway Stations, Maritime Archaeological Resources, Provincial Special Places, Provincial Heritage Properties, Municipality of the County of Cumberland

Registered Heritage Properties, and Town of Amherst Municipally Registered Heritage Properties. Further research, designed to identify unregistered heritage resources and areas of high archaeological potential, has been conducted at the Public Archives of Nova Scotia and the Cumberland County Museum. Relevant also were the unpublished results of research and archaeological site potential modelling completed by CRM Group in 2000 for Sempra Atlantic Gas= proposed steel pipe ROW into Amherst (Sempra Atlantic Gas 2000). A detailed description of the model is provided in the next section of this report (4.1.2).

The reconnaissance component of the study consisted of pedestrian inspections of areas identified as having high cultural heritage potential based on the results of the background research. These visual inspections are designed to Afield-truth@ evaluations of cultural heritage potential and to identify cultural heritage constraints.

4.1.3 Design of the Archaeological Site Potential Model

Archaeological resources are not randomly distributed across the landscape. Distribution of resources follows patterns of human land use and resource exploitation predetermined by a variety of specific cultural, environmental and topographical factors. Consequently, different areas within a given landscape will exhibit varying degrees of archaeological sensitivity. In the preparation of an archaeological site potential model, researchers attempt to identify the specific cultural, environmental and topographical factors which contributed to the patterning of past human land use and resource exploitation. The model is then applied to identify areas of high, medium and low archaeological potential.

An archaeological potential model was developed and applied during the assessment of Maritimes & Northeast's mainline and laterals (Washburn and Gillis, 1996). The M&NP model was based on an earlier one developed for the assessment of a hydro-electric transmission line in Maine (Cox, 1989). A preliminary review of the M&NP model by the Heritage Division - Nova Scotia Museum suggested two significant shortcomings: the scale of mapping used (1:50 000 NTS mapping); and, a weakness in addressing historic site potential. These problems were both addressed in a model developed by CRM Group for Sempra Atlantic Gas.

The initial step in the preparation of the Sempra archaeological potential model for the Amherst area was the review of background documentation including the following: the archaeological sites data base maintained by the Heritage Division - Nova Scotia Museum; historic maps and documents held by the Public Archives of Nova Scotia, as well as other archives throughout the province; and, modern topographical mapping (scale of 1:10 000).

Environmental and topographical factors which had a direct bearing on past human settlement

include proximity to water (for drinking and transportation), character of the land (including the degree of slope), proximity to exploitable resources (hunting and gathering areas, lithic sources, clay sources, etc) and perspective (view planes, high ground, etc). Cultural factors that influenced past human settlement include patterns of existing settlement and land ownership, political and cultural boundaries, aesthetics, spiritual bonds and economics.

Using the background data in combination with the various cultural, environmental and topographical factors, a geographical information system (GIS) was used to divide northern Cumberland County into areas of high and low archaeological potential. This was done by scoring against the following cultural, environmental and topographical factors:

| Table 4.1 Factors in Archaeological Site Potential Modelling | |
|--|-----------------|
| Factor | Score |
| 1. Distance to Water Margin: Crossed by easement Adjacent to easement (<100 m) Distant (>100 m) | 2 1 0 |
| 2. Drainage Order: (Crossed or within 100 m) 5 th order or greater 3 rd or 4 th order 1 st or 2 nd Order | 3 2 1 |
| 3. Water Orientation: (Crossed or within 100 m) Falls/rapids/island/dam Riverbend/wetland/point/cove Undifferentiated | 3 2 1 |
| 4. Proximity to Heritage Feature: Within easement (on easement or within 10 m) Adjacent to easement (<100 m) Distant (>100 m) | 5 3 0 |
| 5. Proximity to Cultural Feature: Within easement (on easement or within 10 m) Adjacent to easement (<100 m) Distant (>100 m) | 5 3 0 |
| 6. Proximity to Archaeological Site: Within easement (on easement or within 10 m) Adjacent to easement (<100 m) Distant (>100 m) | 5 3 0 |
| | |

| | |
|---|----------------------------|
| <p>7. Age of Historic Route: Pre-1800 road alignment 1801-1850 road alignment 1851 to 1910 road alignment Post-1911 road alignment</p> | <p>3 2 1 0</p> |
| <p>8. Association with Historic Settlement: (Historic core/village/hamlet/rural community) 18th century settlement First half of 19th century Second half of 19th century</p> | <p>3 2 1</p> |

While most of the attributes are self-explanatory, their relevance to the question of archaeological potential may not be immediately evident. Consequently, the following discussion of the attributes has been prepared.

As the heading suggests, *Distance to Water Margin* addresses the physical relationship between the pipeline trench and adjacent bodies of water and/or relic shorelines. First Nations and early Euro-Canadian settlement tended to focus in areas readily accessible to water for both sustenance and transportation. The scoring attributed to the various possible relationships between the trench and water margins reflects their respective sensitivities.

Drainage Order was calculated using the Strahler Method in conjunction with current 1:50 000 topographic maps. Drainage Order is characteristically based on 1:50 000 series topographical map sheets. This standard was maintained. According to this method a first order segment of a watercourse is one that has no upstream tributaries. A second order segment is one that lies downstream from the union of two first order segments. It takes the union of two-second order segments to make a third order. Segments below confluences of first and second order streams are still considered to be second order. Likewise, it takes the union of two third order segments to make a fourth order, and so on.

Water Orientation was included to account for the fact that some forms of waterfrontage were traditionally considered to be more desirable for settlement than others. The scoring attributed to the various possible shoreline features reflects their respective sensitivities.

Proximity to Heritage Feature reflects the increased potential for heritage resource impacts in the immediate vicinity of known heritage features. Features considered include: features identified on historic maps; federally, provincially and municipally designated heritage properties and/or sites; Canadian Heritage Rivers; and, National Historic Canals. While in general terms, archaeological significance is considered to diminish after the turn-of-the-century (*i.e.*, 1900), there are circumstances in which the archaeological and historical significance of twentieth

century features would be acknowledged. A case in point could be an early twentieth century industrial complex.

Proximity to Cultural Site reflects the increased cultural sensitivity and concern for impact associated with sites of spiritual significance. Features to be considered include: cemeteries; First Nations burial sites; and, First Nations sacred sites. First Nations burial sites and sacred sites used in the initial application of the model are those which were identified through secondary sources such as the Nova Scotia Archaeological Sites Data Base. The sensitivity of these areas is recognized in that they automatically trigger further review and assessment which could potentially lead to mitigation prior to being released for construction.

Proximity to Archaeological Site addresses the physical relationship between the pipeline trench and identified archaeological resources. Sites incorporated into the model reflect those formally registered in the Nova Scotia Archaeological Sites Data Base.

Age of Historic Route separates routes into temporal groupings based on the route's earliest depiction on historic mapping. The actual cut-off dates for the various periods are approximate since the available mapping varies across the study area. A certain level of consistency has been achieved, however, through the use of three province wide map series: the *Great Map of Nova Scotia* (1834); the *Topographical County Maps of Nova Scotia* published by Ambrose Church (1860s - 1880s); and, *Geological Survey Maps of Nova Scotia* (1890s - 1920s). These sets are supplemented by additional eighteenth and nineteenth century maps specific to all or portions of the study area.

Association with Historic Settlement identifies the historic context of the pipeline relative to historic period settlement, whether that falls within an urban area, a village, hamlet or rural community.

Application of the Sempra Atlantic model created a series of map overlays reflecting the above referenced cultural, environmental and topographical factors as they applied to the proposed route along Highway 6 from Amherst Head to the Town of Amherst. The scores associated with various factors were subsequently tabulated to identify areas of high (≥ 6) and low (< 6) archaeological potential.

Once Heritage Gas finalizes the Amherst steel pipeline easement, CRM Group will review Sempra Atlantic's site modelling results as they relate to the specific easement chosen by Heritage Gas. Similar reviews will also be performed for any additional impact areas, such the TBS, stockpiling areas, marshalling yards, temporary work areas and access roads. The goal of the reviews will be to precisely identify areas of high and low archaeological potential.

4.2 Field Reconnaissance

CRM Group utilized the results of its earlier Cumberland County archaeological site potential modelling conducted for Sempra Atlantic Gas in its identification of heritage constraints in the vicinity of proposed alignments of the Heritage Gas Amherst steel pipe easement. The results minimized the need for new background research and quickly identified areas of high archaeological potential requiring field reconnaissance.

The five areas visited and inspected by CRM Group during constraint identification were as follows:

Highway 6 at Warren

On the basis of archaeological modelling, high archaeological potential was ascribed to the area around Highway 6 in Warren where the Amherst steel pipe easement crossing is currently planned (Plate 3). This attribution was the result of a combination of factors, including the fact that Highway 6 follows an eighteenth century road alignment, the depiction of farmsteads on nineteenth century mapping of the area and the proximity to a small brook. Reconnaissance on September 9 revealed no standing heritage buildings within the proposed easement. Since there are no signs of significant modern ground disturbance, the area is still considered to have high archaeological potential. The final steel pipe easement on both sides of Highway 6 will require archaeological testing prior to construction.

Beaver Brook at Warren

Archaeological modelling ascribed high archaeological potential on either side of Beaver Brook in the area of the proposed steel pipe crossing north of Warren. Archaeological resource potential is elevated in this area because Church's 1873 map of the county depicted an unnamed saw mill in that location (Church 1873). CRM Group conducted reconnaissance in the vicinity of the Beaver Brook crossing on September 16 and September 30, 2004, identifying the mill site at the west end of a mill pond, slightly south of the proposed steel pipe easement. Visible archaeological features included a dam (Plate 4), the mill itself (indicated by a sawdust pile), a stone-lined spillway (Plate 5), a possible stone-filled house cellar (Plate 6), and a linear alignment of stones probably piled up as a result of historic field clearing. This mill site will be registered with the Heritage Division - Nova Scotia Museum as an archaeological site and has been identified by Heritage Gas as a constraint feature (Table 2).

MacLellans Brook

Archaeological modelling ascribed high archaeological potential to the land on either side of MacLellans Brook. Elevated site potential was due to cumulative scoring derived from water-related factors, including proximity to water, drainage order and water orientation. There are no



PLATE 3: View of High Potential Areas Immediately Adjacent to Highway 6 in Warren.



PLATE 4: View Upstream along Beaver Brook through Breech in the Mill Dam.



PLATE 5: Masonry from Northern Portion of Spillway Downstream of Mill Dam on Beaver Brook.



PLATE 6: Rock Filled Cellar Hole Located North of Unnamed Mill Complex on Beaver Brook.

known historic sites or historic routes in this location. Upon inspection by CRM Group on October 29, 2004, the general area of the brook to be crossed by the pipeline was found to have low archaeological potential. In the area of the proposed crossing, the brook is not navigable (even by canoe) and bounded on both sides by dense alder growth (Plate 7). While areas of elevated, dry and fairly level terrain exist along either bank of the brook, they are unlikely to have attracted past settlement/land use due to the presence of more favourable locations either downstream by the LaPlanche River or upstream at Truemanville. The only cultural feature encountered during the reconnaissance was a former logging road, now an ATV trail, that crosses the brook by means of a log bridge slightly upstream from the proposed pipeline easement. The extant bridge overlies the remains of an earlier and wider log bridge. The trail was walked southwest to where it is crossed by the proposed pipeline easement, but no evidence of archaeological remains was encountered. Bulldozed mounds along the roadsides indicate that the road was upgraded, if not created in twentieth century.

Unnamed Tributary of Chapman Brook

As a result of archaeological modelling, high archaeological potential was ascribed to an unnamed brook northwest of Amherst Head. The attribution of high potential was due not just to the brook, with its links to Chapman Brook and the Tidnish River, but also to the presence of two historic industrial sites. The 1873 Church map of Cumberland County depicts two saw mills on the brook in the area (Church 1873).

The site of the AJ. & B. Saw Mill@ lies on an unnamed tributary of Chapman Brook, immediately south of a major intersection in the local logging road network and approximately 400 metres north of the proposed steel pipe easement. Reconnaissance there on September 14 revealed the remains of a dam (Plate 8), potential borrow pits, and a spillway. This mill site will be registered with the Heritage Division - Nova Scotia Museum as an archaeological site and has been identified by Heritage Gas as a constraint feature (Table 2).

The site of the AR. Mason Saw Mill@ lies on the same tributary, approximately 1.8 km south of the proposed steel pipe easement. Reconnaissance on September 16 and September 30 revealed the remains of a dam (Plate 9), a scatter of metal hardware from the sawmill operation (Plate 10), a stone-lined depression believed to be a well and a relict logging road. This mill site will be registered with the Heritage Division - Nova Scotia Museum as an archaeological site and has been identified by Heritage Gas as a constraint feature (Table 2).



PLATE 7: View Downstream along MacLellans Brook. Note dense Willow Growth along Banks.

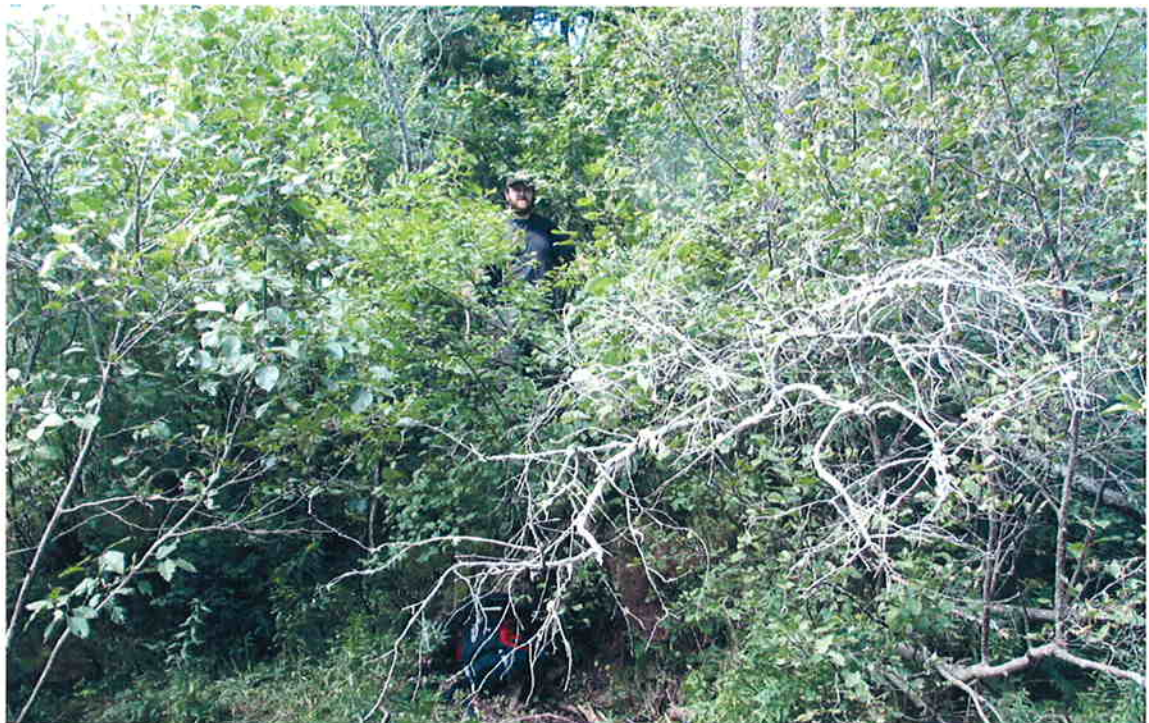


PLATE 8: Thick Vegetation Obscures the Earth and Rock of the J & B Saw Mill Complex.



PLATE 9: Breech Dam at the R. Masson Saw Mill Complex.



PLATE 10: Miscellaneous Hardware Including Saw Blade found on the R. Mason Saw Mill Site

Surveyed Road West of Beecham Road

Archival research conducted in conjunction with archaeological modelling of the study corridor revealed the existence of a nineteenth century “surveyed road” running from Amherst Head northwest toward Tidnish (Church 1873). The alignment of the “surveyed road” corresponds closely to a section of logging road depicted on contemporary mapping. Due to the remoteness of the road, the projected easement crossing of the “surveyed road” was not visited during the initial stage of field reconnaissance. However, the historic road alignment will be checked prior to construction.

Specific constraints identified as a result of the fieldwork are identified below in Table 2

Table 2: Heritage Constraints

| UTM Coordinate | Constraint |
|-----------------------------|--|
| 20 413 560 E 50 78 674 N | Site of historic saw mill (pre-1873) at west end of pond on Beaver Brook; north of Highway 6 at Warren; site includes a dam, a spillway, a sawdust pile, a possible house cellar and a linear stone pile |
| 20 420 834 E 50 84 260 N | Site of historic AJ. & B. Saw Mill@ (Pre-1873) at north end of pond on unnamed brook; north of Highway 6 and northwest of Amherst Head; site includes a dam and a spillway |
| 20 420 913 E 50 82 420 N | Site of historic dam and AR. Mason Saw Mill@ (pre-1873) at north end of a pond on an unnamed brook; site includes a dam, a scatter of sawmill hardware, a possible well and a relict logging road |

5.0 CONCLUSIONS AND RECOMMENDATIONS

The archaeological impact assessment for the Amherst steel gas pipeline alignment has been completed as far as is possible prior to the formal identification of the easement. Archaeological potential modelling and constraint identification components have been completed and incorporated into the easement selection process. Although certain linear constraints cannot be avoided (the “surveyed road” and Highway 6), the preferred route and all alternatives avoid direct impact to any of the historic mill sites identified during the course of background research.

Based on the results of the modelling and field reconnaissance, CRM Group offers the following management recommendations for the study area:

1. Given the sensitivity of the three mill sites identified during the course of archaeological potential modeling, it is recommended that the features continue to be recognized as constraints during the final identification of the pipeline easement. If the features are to be impacted by the final alignment of the pipeline or other related activities, those impacts must be mitigated through a program of archaeological investigation prior to the start of construction.
2. Given the broad approach taken to identifying cultural heritage constraints, it is recommended that, once the final alignment of the easement has been determined, the full alignment be subjected to a program of visual inspection. The goals of the inspection would be to field-truth the archaeological model and identify any gaps in the model.
3. Given the necessity of crossing of the “surveyed road”, MacLellans Brook and Highway 6, it is recommended that these areas be subjected to a program of field testing once the final alignment of the easement has been determined, but prior to the commencement of construction.
4. Given the nature of archaeological testing, it is recommended that a limited program of construction monitoring be undertaken within areas of high archaeological potential to ensure that no significant resources are impacted. It is further recommended that some areas of low archaeological potential are also monitored during construction to further verify the archaeological potential model.
5. In accordance with Heritage Gas protocols, it is essential that, in the event that archaeological deposits or human remains are encountered during construction, all work in the associated area(s) should be halted and immediate contact should be made with the archaeological monitor.

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