December 19, 2014

BY COURIER & RESS

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
Suite 2700, 2300 Yonge Street
Toronto, Ontario
M4P 1E4

**RE: EB-2014-0261 – Union Gas Limited ("Union") – Dawn Parkway 2016 Expansion Project**
**Interrogatory Responses - additional attachments to Exhibit B.GAPLO.22**

Dear Ms. Walli,

Please find attached the following documents requested in Exhibit B.GAPLO.22;

Attachment 1
Hamilton to Milton Environmental Assessment (February 2005) - 2006 Trafalgar Facilities Expansion Program (EB-2005-0201)

Attachment 2
Hamilton to Milton Interim Monitoring Report (May 2007) – 2006 Trafalgar Facilities Expansion Program

Attachment 3
Hamilton to Milton Final Monitoring Report (May 2008) - 2006 Trafalgar Facilities Expansion Program

Due to file size, these will be filed separately in RESS. Paper copies and a CD containing the Environmental Reports will be sent by courier to the Board and are also available on Union's website. The links are provided in the interrogatory response.

If you have any questions with respect to this submission please contact me at 519-436-5473.

Yours truly,

*[original signed by]*

Karen Hockin
Manager, Regulatory Initiatives

Encl.

cc: Zora Crnojacki, Board staff
Mark Kitchen, Union Gas
Crawford Smith, Torys

UNION GAS LIMITED

Answer to Interrogatory from
Gas Pipeline Landowners of Ontario ("GAPLO")

Reference: Stantec EA Report, Section 2.4, Page 2.4

Preamble: The EA Report states:

"Union Gas has determined that over 40% (12m of the 28m total) of the required permanent easement for the project could be overlapped with the existing, previously disturbed pipeline easement."

"It would enable Union Gas and Stantec to make use of the knowledge gained from the 2006 construction of a 48 inch pipeline from Hamilton to Milton."

a) Please provide a copy of the EA Report for the 2006 Hamilton to Milton pipeline.

b) Please provide the interim and final monitoring reports for the 2006 Hamilton to Milton pipeline.

---

**Response**:

a) Please see Attachment 1 for the EA report for the 2006 Hamilton to Milton pipeline.

b) Please see Attachment 2 and Attachment 3 for the interim and final monitoring reports for the 2006 Hamilton to Milton pipeline.

Due to the size of the document files, Attachments 1, 2 and 3 can be found on Union's website at the following link:

Attachment 1

http://www.uniongas.com/~/media/aboutus/regulatory/regulatory-projects/eb-2014-0261-dawn-parkway-expansion-project/BGAPLO22%20Attachment%201.pdf

Attachment 2

http://www.uniongas.com/~/media/aboutus/regulatory/regulatory-projects/eb-2014-0261-dawn-parkway-expansion-project/BGAPLO22%20Attachment%202.pdf

Attachment 3

http://www.uniongas.com/~/media/aboutus/regulatory/regulatory-projects/eb-2014-0261-dawn-parkway-expansion-project/BGAPLO22%20Attachment%203.pdf

Paper copies will be provided to the Board and a CD is available upon request.

# Hamilton To Milton Pipeline
# Environmental Assessment Update

**File No. 160963928**
**January 2005**

Prepared for:

**Union Gas Limited**
50 Keil Drive North
Chatham ON N7M 5M1

Prepared by:

**Stantec Consulting Ltd.**
361 Southgate Drive
Guelph ON N1G 3M5

Stantec

## EXECUTIVE SUMMARY

Union Gas Limited (Union Gas) is proposing to construct a 17 km, NPS 48 pipeline from their Hamilton Valve Site to their Milton Tie-In along the Dawn – Trafalgar system to meet increased demand for natural gas transmission capacity. In 1991 Acres International Limited (Acres) prepared an Environmental Assessment (EA) for this pipeline loop. In 2002, an EA update document was also prepared by Acres and Associated Environmental (A&A). In 2004, Union Gas reactivated the Hamilton to Milton pipeline project and retained Stantec Consulting (Stantec) to re-evaluate and update the1991 and 2002 EA's. Stantec conducted public and agency meetings, landowner surveys and updated resource data to produce the "Hamilton to Milton Pipeline Environmental Assessment Update - 2004".

Stantec's 2004 EA Update incorporates the planning and information requirements of the Ontario Energy Board's (OEB) *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario Fifth Edition (2003).* It also outlines key changes made to the Guidelines and merges the new and old information in a Guideline compliant EA document. The EA Update will be filed as part of Union Gas's application to the OEB for leave for construction permit for the Hamilton to Milton line. If the application is approved construction is scheduled to commence in the spring of 2006.

A study area was established, based on a general review of the area and an assessment of the routing opportunities and constraints between the project endpoints. The study area generally encompasses the lands East of highway 6 and West of Highway 25, South of Kelso and North of Mount Nemo (see Study Area Map, Figure 1). Three potential routes with one route deviation were considered based on information collected at the time of the original report (1991).

The Hamilton to Milton pipeline EA Update (2004) confirms the previously preferred route based on public and agency input and Stantec's analyses of the collected information. Stantec undertook a review of the comparative evaluation process and further categorized the potentially affected features into four broad factor groups: easement; agricultural; socio-economic; and biophysical environment. The preferred route remains the same as identified in the 1991 EA and the 2002 EA Update.

A total of 55 homes were identified within 100 m of the preferred route. Residents may experience a temporary disruption in the enjoyment and use of their property during pipeline construction. Temporary impacts may be related to dust, noise, vibration or disruption of use. In this most recent report, each impact has been addressed and a mitigating action is assigned to each.

The preferred route crosses 20 smaller watercourses and one lake. Each of these crossings will be constructed in a manner consistent with the Ministry of Natural Resources Generic Sediment Control Plans (Ontario, Ministry of Natural Resources, 1993) except for the crossing of Islay Lake. A more detailed construction plan has been developed for the Islay Lake crossing based on geotechnical, engineering, environmental and landowner considerations.

The 1991 EA and EA Updates (2002 and 2004) identified a potential for significant archaeological finds on the preferred route. A Stage III archaeological assessment, conducted in 1992, identified two significant sites. Avoidance is the preferred method of dealing with an archaeological site. These sites will be salvaged prior to construction and methods to avoid excessive site disturbance will be implemented.

One of the main changes to the fifth edition of the OEB Guidelines is a more in-depth analysis of cumulative effects (CE). It focuses on four distinctive effects pathways when analyzing and assessing CE. Stantec undertook a review of the cumulative effects assessment completed as part of the EA Update (2002) to ensure that each pathway was identified. Through the implementation of financial compensation, environmental rehabilitation, and follow-up monitoring programs, the cumulative effects associated with the proposed pipeline are not predicted to be significant.

This EA Update contains the most current and vital information available. There are a number of mitigating and monitoring programs recommended that would localize and minimize the unavoidable effects of pipeline construction. The pipeline construction will not require unique or complex mitigation techniques since the preferred route avoids the sensitive environmental features to the extent possible.

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Appendix D 2002 EA Update Report

# 1 INTRODUCTION

In order to meet increasing demands for natural gas transmission capacity, Union Gas Limited (Union Gas) is proposing to construct a 17 km, NPS 48 (i.e. nominal pipe size 48 inch diameter) pipeline from their Hamilton Valve Site to their Milton Tie-In along the Dawn – Trafalgar System. The proposed pipeline is approximately 17 kilometres in length and traverses the City of Hamilton, the City of Burlington and the Town of Milton (**Figure 1**). The Hamilton Valve Site is located in Lot 12, Concession IX, City of Hamilton (formerly Township of Flamborough). The Milton Tie-In is located in Lot 10, Concession 1 N.S., Town of Milton, Regional Municipality of Halton.

Stantec Consulting Ltd. (Stantec) was retained by Union Gas to prepare an *Update Report* for the proposed pipeline to supplement an *Environmental Update Report* prepared in 2002 by Acres & Associated Environmental Limited (A&A) **(Appendix D)**. The Environmental Update Report was prepared as a supplement to the original *NPS 48 Hamilton to Milton Pipeline Route Selection and Environmental Assessment* (EA) prepared by Acres International Limited (Acres) in 1991. It is the intent of Union Gas to submit these three reports to the Ontario Energy Board (OEB) for environmental approval, as part of Union Gas's *Leave to Construct* application for the proposed pipeline.

## 1.1 ONTARIO ENERGY BOARD

In May 2003 the OEB provided companies under its regulatory jurisdiction with a revised edition of their *Environmental Guidelines for Locating, Construction, and Operation Hydrocarbon Pipelines in Ontario, Fifth Edition* (2003 Environmental Guidelines). This Update Report is an addendum to the 2002 Environmental Update Report that was completed under the OEB's 1995 *Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario, Fourth Edition* (1995 Environmental Guidelines) and incorporates the requirements of the 2003 Environmental Guidelines.

The 2002 Environmental Update Report was prepared as an addendum to the Original EA that was completed under the OEB's 1989 *Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario, Third Edition.*

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Base Map Source: Ontario Ministry of Transportation

## INDEX MAP OF SOUTHERN ONTARIO




| REVISION NO. | REVISION DATE | DESCRIPTION | REVISED BY |
|---|---|---|---|
| | | | |

PROJECT NAME:
**HAMILTON-MILTON PIPELINE**

CLIENT NAME:
**UNION GAS**

DATE INITIATED:
**JANUARY, 2005**

FILENAME:
**60963928_01.cdr**

FIGURE NO. **1**

# STUDY AREA

| SCALE: | | PROJECT NO.: | | |
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| 1:250,000 | | 60963928 | | |
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Stantec

# 2 SCOPE OF WORK

In the fall of 2004, Union Gas reactivated the Hamilton to Milton pipeline project. As a result, Stantec followed a study process that included:

- re-notification of directly affected landowners, regulatory agencies, and interested stakeholders of project start-up;
- an information open house to respond to any questions raised by those affected by/interested in the proposed pipeline;
- a field survey to confirm the presence of any new structures or land-uses along the preferred route for the proposed pipeline;
- collection and review of any new environmental features data along the preferred route as well as any new legislation influencing pipeline construction and operation;
- review of the route selection process implemented in the Original EA; and
- use any new information collected to review the potential impacts and proposed mitigation options.

## 2.1 METHODOLOGY

This EA Update has been prepared in an effort to incorporate the planning and information requirements of the 2003 Environmental Guidelines. The key changes made between the 1995 and 2003 Enviornmental Guidelines are provided in **Table 2.1**.

**Table 2.1. Key Changes to the Environmental Guidelines (1995 to 2003)**

| Topic | Change |
|---|---|
| Cumulative Effects Assessment | • The applicant is required to consider four distinctive cumulative effects pathways when delineating the study area and analysing and assessing the cumulative effects.<br>• The ER should include a tabular summary of causes of cumulative effects, a cumulative effects description (e.g. temporal, spatial extent), recommended mitigation measures, all residual effects and approaches to deal with residual effects. |
| Monitoring Reports | • Post-construction Report should:<br>a) compare the predicted impacts (including cumulative impacts) and mitigation measures with the actual ones;<br>b) discuss the reasons for any deviations which may have occurred;<br>c) describe the success of the restoration;<br>d) identify opportunities for improvement in mitigation for future pipeline projects;<br>e) log landowner complaints with an explanation of any outstanding landowner concerns; and<br>f) detail any instances where the provisions of a local by-law have not been complied with and the reasons for such non-compliance. |

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# 3 STAKEHOLDER CONSULTATION

Consistent with the direction provided by the fifth edition of the OEB Guidelines (2003) a stakeholder consultation program was completed as part of the EA Update. The stakeholder consultation program incorporated several components to ensure that stakeholders would be fully informed of the EA Update process. All stakeholder consultation materials are included in **Appendix A**.

## 3.1 LANDOWNER NOTIFICATION

Union Gas delivered an information package to directly and indirectly affected landowners on November 8, 2004. Directly affected landowners were sent addressed information packages mailed via Canada Post. Indirectly affected landowners were sent unaddressed information packages through a door-to-door delivery service. Each information package contained a map illustrating the location of the pipeline, a brief letter summarizing the project, as well as an invitation to attend a public open house scheduled for November 23, 2004.

Stantec defined directly affected landowners as landowners whose property will be traversed by an easement required for the proposed pipeline. Indirectly affected landowners were defined as landowners with property adjacent, or in close proximity, to the proposed pipeline.

Copies of the landowner information package are included as **Appendix A1**.

## 3.2 AGENCY NOTIFICATION

Municipal and provincial agencies and various stakeholders were notified of the EA Update by direct mail dated November 8, 2004. Each agency was advised that the EA Update had commenced and was requested to identify any new or modified environmental features or designations along the preferred route since completion of the 2002 EA Update. The response each agency gave to the previous EA Update (A & A 2002), and the Original EA Report (Acres 1991), was also provided for the agencies information. The 2004 agency correspondence included a request for information pertaining to new policies or guidelines that may affect the routing of the proposed pipeline and advised agencies of the public open house scheduled for November 23, 2004. Copies of all agency correspondence are provided in **Appendix A2.** Agencies contacted are listed below:

- Ontario Pipeline Coordination Committee Member Ministries;
- Ontario Ministry of Agriculture, Food and Rural Affairs;
- Ministry of Culture;
- Ministry of Environment;
- Ministry of Natural Resources;
- Ministry of Municipal Affairs and Housing;
- Technical Standards and Safety Authority;
- Ontario Real Estate Corporation;
- Ministry of Energy, Science and Technology;
- Ministry of Transportation;
- Regional Municipality of Halton;
- City of Hamilton;
- City of Burlington;
- Town of Milton;

- Conservation Halton;
- CN Rail;
- CP Rail;
- Bruce Trail Association; and
- Niagara Escarpment Commission.

The Ministry of Culture indicated that they were familiar with previous archaeological investigations of the proposed pipeline alignment. They also advised that portions of the alignment not previously assessed, or any modifications or changes to the alignment, need to be reviewed by a consultant archaeologist for archaeological concerns. In addition, the Ministry will need to review the results of any further archaeological work, to ensure the fieldwork conducted, report generated and resource conservation recommendations meet heritage conservation and technical guideline standards.

The Ontario Ministry of the Environment provided general comments pertaining to surface and ground water, ecosystem protection, contaminated soils, dust/noise/vibration, mitigation and monitoring. The recommendations and considerations of the Ministry of Environment should be implemented by Union Gas through construction, planning and operation of the pipeline.

The City of Hamilton Planning and Development Department indicated that the Environmentally Significant Areas Impact Evaluation Group (ESAIEG) will not review the EA Update as they are satisfied that the nature of the undertaking has not significantly changed since ESAIEG's review of the project in 2002. ESAIEG advised that the recommendations from the 2002 review remain applicable. In its reply the City also provided information concerning Hamilton's tree-cutting bylaw, biological information with respect to updated nature counts, and a City contact for archaeology.

The Regional Municipality of Halton directed Stantec to three information sources to be considered in the 2004 EA Update: the Draft Ontario Greenbelt Plan, the proposed Halton Region Official Plan and the Halton Region website.

The City of Burlington advised that comments previously submitted in 1991 and 2002 are still pertinent. Burlington requested information regarding the incremental width of the existing easement and confirmation to which side (north or south) of the easement would be expanded within the City of Burlington.

The Ministry of Natural Resources provided preliminary comments, confirming that the existing pipeline corridor is located within a highly sensitive ecological area and that construction will result in potential impacts upon terrestrial and aquatic resources or interests. Additionally, the Ministry of Natural Resources identified requirements to complete field studies prior to construction to evaluate the presence of rare, vulnerable, threatened and endangered (RVTE) species and breeding assessments for birds and amphibians.

Replies from the Ministry of Municipal Affairs and the Ministry of Transportation were received but did not identify any concerns.

The Canadian National Railway identified a representative for Union Gas to contact with regard to obtaining consent to traverse the railway tracks.

The Bruce Trail Club identified concerns relating to potential impacts to trail infrastructure such as bridges and footpaths, as well as potential impacts on Bronte Creek. The Bruce Trail Club also identified concerns relating to trail access during construction.

The Niagara Escarpment Commission (NEC) requested assurance that all alternatives have been considered and that the need for the pipeline is 'essential'. The NEC recommended that the route evaluation process should be validated since more than 10 years had lapsed since the original route selection had been completed.

The Technical Standards and Safety Authority indicated that comments provided in 1991 and 2002 remain valid.

### 3.3 PUBLIC OPEN HOUSE

A Public Open House was held on November 23, 2004 from 5:00 to 9:00 pm at the Carlisle Community Centre in Carlisle, to further inform landowners, local residents, and agencies of the EA Update. A notice of public open house was placed in local newspapers on Friday, November 19, 2004: these included the *Milton Champion; Flamborough Review*; and *Burlington Post*. The public notice is included in **Appendix A3**.

The purpose of the Open House was:

- to continue the dialogue with the community about Union Gas's plans for the proposed pipeline;
- to update the community on Union Gas's Preferred Pipeline Route; and,
- to solicit comments on routing, construction, mitigation measures for the proposed pipeline.

Representatives from Stantec and Union Gas were present throughout the Public Open House to provide project information, answer questions, and receive comments. A project newsletter summarizing the project activity to-date was available to all attendees **(Appendix A4)**.

Thirty-four (34) people registered their attendance at the Public Open House; each attendee was requested to complete an exit questionnaire. Of the 34 attendees, 16 completed and returned the exit questionnaire. Attendees to the Open House indicated that the material provided to them through the consultation was useful and informative. Concerns raised included the proximity of the proposed pipeline to residential homes, potential impacts of noise, dust, and vibration during construction, removal of mature trees, potential trespassing due to easier access along cleared pipeline route, as well as potential for the pipeline to decrease property value. One landowner did not want the pipeline under any circumstances. Several attendees also inquired about the function, design, and safety aspects of the proposed pipeline. A copy of the exit questionnaire, as well as a summary of all responses is provided in **Appendix A5**.

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# 4 ROUTING

In light of the time lapse between the identification of the pipeline route in 1991, the minor fine tuning of the route in 2002, and the 2004 EA Update, Stantec completed a thorough analysis of the 1991 Original EA and the 2002 EA Update to confirm the validity of the route selection process. This analysis involved: reviewing the criteria for generating route alternatives; reviewing the route alternatives for environmental acceptability; confirming the route evaluation process; and confirming the final route alignment. In addition, Stantec also reviewed the 1991 route selection process for compliance with the 2003 Environmental Guidelines.

## 4.1 CRITERIA FOR GENERATING ALTERNATIVE ROUTES

The Original EA (1991) considered the 1989 Environmental Guidelines to establish alternative pipeline routes between selected terminal points (Hamilton Valve Site to Milton Tie-In). The EA Update (2002) was prepared in accordance with the 1995 Environmental Guidelines. One of the key changes made between the 1995 and 2003 Environmental Guidelines was the requirement to consider a broader spectrum of baseline environmental features during route selection. Accordingly, Stantec reviewed the EA Update (2002) to confirm that this broader spectrum of environmental features in the generation of alternative routes was fully considered.

The 2003 Environmental Guidelines does not identify any revisions to the route selection process presented in the 1995 Environmental Guidelines. The criteria applied for generating alternative routes in the Original EA (1991) and the EA Update (2002) meets the routing criteria set out in the 2003 Environmental Guidelines.

## 4.2 ROUTE ALTERNATIVES

The Original EA (1991) considered three alternative routes: 1, 2 and 3, sub-routes extended from alternatives 1 (Route 1A) and 3 (Routes 3A and 3B) **(Figure 2)**. Alternative routes 1 and 2 were generated at the commencement of the route selection process in 1991; to the extent possible these alternative routes paralleled existing linear facilities. Sub-route 1A was generated in order to avoid potential impacts to a natural feature, specifically Islay Lake.

Alternative route 3, as well as sub-routes 3A and 3B, were generated in response to a suggestion from the public that a route to the north of the existing Union Gas pipelines should have been evaluated. As no existing utilities occur north of the Union Gas pipeline, alternative route 3, as well as sub-routes 3A and 3B, paralleled the rear lot lines of properties.

As part of this EA Update (2004), Stantec reviewed the rationale for alternative route generation as well as the location of each alternative route, including deviations. This review confirmed that, within the confines of the study area boundaries, the alternative routes generated and the preferred route selection process were reasonable and environmentally acceptable.

One attendee to the November 23, 2004 open house suggested that an alternative route within the road allowance of Concession X Flamborough would be preferable to the preferred route. Road allowances were not considered during the generation of alternative routes. Generally, road allowance is not an appropriate route alternative for a 48" diameter pipeline due to potential socio-economic impacts associated with the necessity to completely close the road to the public for the duration of construction. In addition, the width of most rural road allowances (20 m) could not accommodate the workspace required to construct a 48-inch diameter pipeline.

## 4.3 EVALUATION OF ALTERNATIVE ROUTES

The Original EA (1991) incorporated a comparative evaluation of the alternative routes. To confirm the findings of the 1991 route evaluation process Stantec undertook a review of the comparative evaluation data and further categorized the potentially affected features into four broad evaluation groups: easement; agricultural; socio-economic; and biophysical. The objective of confirming the route evaluation process in this manner was to provide an opportunity to balance the potentially adverse effects of pipeline construction and operation among the four, sometimes conflicting, evaluation groups.

The primary goal of the 2004 route segment comparison was to confirm the transparency of the 1991 route evaluation process. Stantec's review of the 1991 route evaluation process confirmed the selection of Alternative route 1 as preferred with regard to potential impacts upon easement; agricultural; and biophysical features. However, the potential impact of each alternative route upon socio-economic features, such as proximity of residents within 100m, was not fully assessed in the 1991 evaluation. Alternative route 1, which is the preferred route, has the greatest number of residents located with 100m of it's' alignment. This factor alone results in alternative route 1 being the least preferable route from a socio-economic perspective.

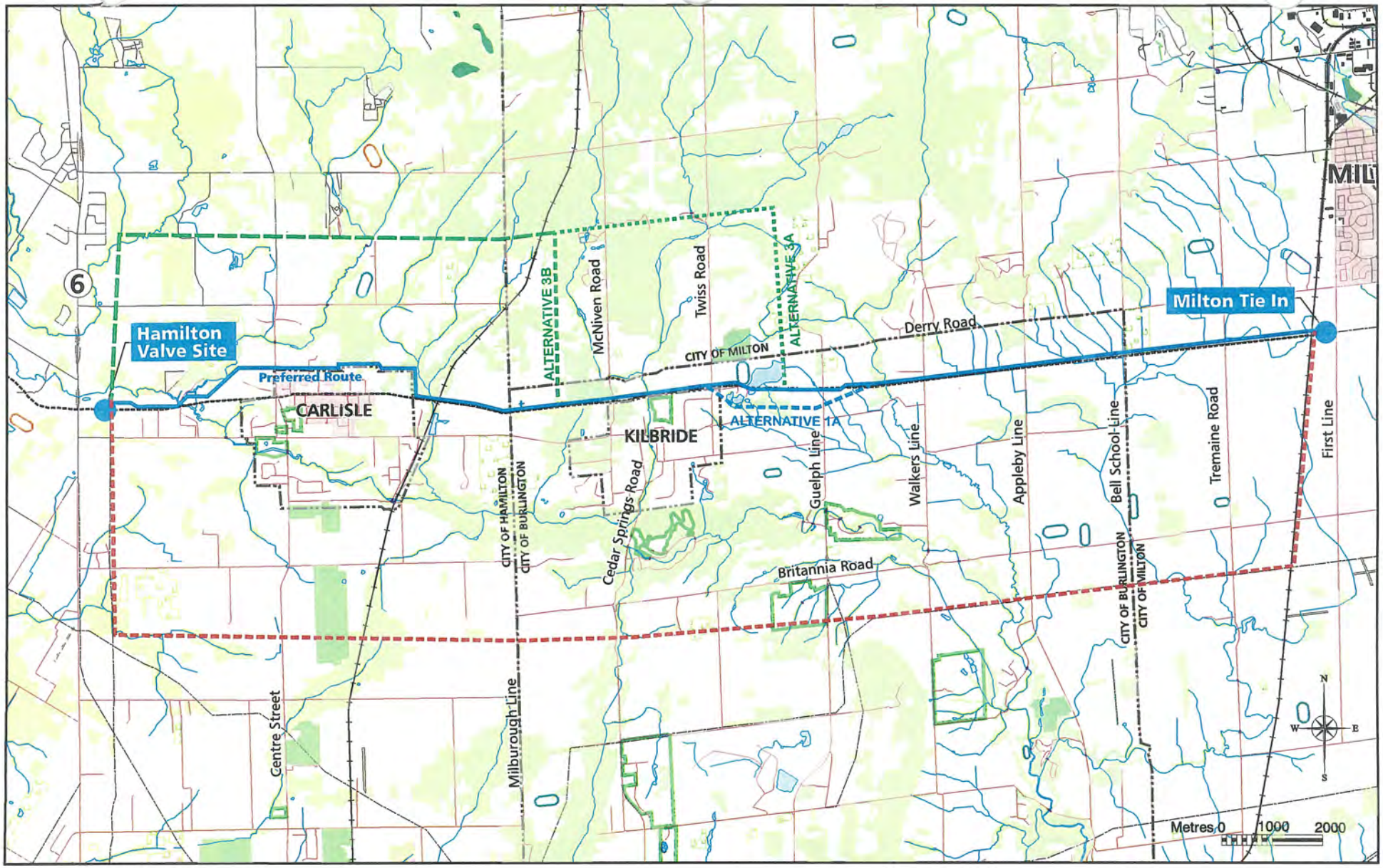
Despite not measuring residents within 100m, alternative route 1 remains the preferred route since the potential impacts of alternative routes 2 and 3 upon easement; agricultural and biophysical features greatly exceed the potential impacts of route 1 upon these factors. Socio-economic impacts to residents within 100m typically include impacts such as noise, dust and vibration that affect the enjoyment and use of a property. Such impacts are short-term and are limited to the construction period only.

## 4.4 ALIGNMENT OF THE PREFERRED ROUTE ALTERNATIVE

Stantec presented the alignment of the preferred route at the November 23, 2004 public open house. The pipeline route follows the alignment presented in the EA Update (2002), which incorporated two minor modifications to the alignment selected in 1991.

The alignment of the proposed pipeline is preferable with the exception of one location that requires further consideration and evaluation. Several attendees to the November 23, 2004 public open house expressed concern with the location of the proposed pipeline in proximity to the rear property line of residential lots on the north side of Woodend Drive and Blackberry Place, in the Village of Carlisle. The attendees suggested that the alignment of the pipeline be shifted slightly north in this location so as to provide a buffer between the rear lot line and the proposed easement. This buffer would maintain the vegetation screen that presently abuts the rear lot line of these residential properties. The residents claim that removal of this vegetation will affect the enjoyment of their properties as well as decrease their property values. Stantec has determined that this modification would result in an equal or lesser amount of vegetation removal, and may avoid an area of undulating topography, depending on the alignment of the final modification.

It is recommended that Union Gas and Stantec work with directly and indirectly affected landowners and interested agencies regarding the final alignment of the proposed pipeline across Lots 5 and 6, Concession IX, Former Township of Flamborough. The final alignment should be located within a 100m corridor north of the Carlisle Settlement Boundary. Further assessment is required by Union Gas and Stantec from an environmental, engineering and construction perspective in order to determine the final alignment.




Base Map Source: Ontario Ministry of Transportation

ALTERNATIVE 1 (Preferred Route)
ALTERNATIVE 2
ALTERNATIVE 3

Stantec

PROJECT NAME: HAMILTON-MILTON PIPELINE
CLIENT NAME: UNION GAS

| REVISION NO | REVISION DATE | DESCRIPTION | REVISED BY |
|---|---|---|---|

DATE INITIATED: JANUARY, 2005
FILENAME: 60963928_03.cdr
FIGURE NO. 2.0

# ALTERNATIVE ROUTES

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# 5 UPDATE TO POTENTIAL IMPACTS AND PROPOSED MITIGATION

This section updates and supplements the information provided in the 2002 EA Update and the 1991 Original EA regarding the potential impacts and proposed mitigation measures recommended for the proposed pipeline. For the most part, the mitigation, inspection, and monitoring recommendations and contingency program outlined in the EA Update (A & A 2002) and the Original EA (Acres 1991), are appropriate for implementation during the 2006 construction year. Recommendations that supplement mitigation proposed in 1991 and 2002 are presented in the following sub-sections. Specific mitigation recommendations are presented in an updated photomosaic of the preferred route assembled from 2004 aerial photography **(Appendix B)**.

With the implementation of the recommended mitigation measures and related programs in conjunction with on-going landowner and agency communication and consultation, no significant, net adverse environmental effects are anticipated as a result of pipeline construction, operation and maintenance.

## 5.1 AQUATIC RESOURCES

The proposed pipeline traverses 20 watercourses and one lake. Permits are required for 16 of these crossings (not including the lake). As noted in the EA Update (2002), the Ministry of Natural Resources has developed Generic Sediment Control Plans for implementation at watercourse crossings (Ontario Ministry of Natural Resources, 1993) **(Appendix C)**. These documents should be reviewed and considered for implementation at all watercourses traversed by the proposed pipeline; with the exception of Islay Lake.

Adherence to the MNR Generic Sediment Control Plans for Watercourse Crossings will protect the watercourses and associated habitat and fisheries from impacts during and after construction **(Appendix C)**. It is recommended that all flowing watercourses traversed by the preferred route be crossed using the "dam and pump" dry crossing technique.

Equipment must utilize access roads to traverse watercourses at all times. Access roads should be constructed of clean gravel underlain by filter fabric as shown in the MNR *Generic Sediment Control Plan for Vehicular Crossings* **(Appendix C)**. The culvert installed in the gravel base should be of adequate size to maintain any flows anticipated over the construction period.

Golder and Associates completed an on-site geo-technical assessment of the proposed water-crossing location of Islay Lake. The assessment was undertaken to evaluate crossing options and determine a preferred water-crossing technique based upon the site's geological, biological, and physical attributes and constraints. The preferred method of crossing Islay Lake incorporates an open cut crossing, supplemented by a temporary cofferdam located between the two existing pipelines that will provide an access road. Prior to construction a specific sediment control plan will be developed for the crossing of Islay Lake.

An Environmental Inspector (EI) should be on-site through the duration of each water crossing, including drains and streams, to ensure adherence to specifications and site plans. In particular, the EI should ensure that pre-construction preparation is complete prior to commencement of in-stream work and that bank, bed, and floodplain conditions are restored to pre-construction conditions.

At the river crossings in particular, the EI should ensure that detailed pre-construction profiles of the floodplain, banks, and bed are determined prior to construction. The EI should also be responsible for monitoring weather forecasts prior to all crossings.

In conjunction with the general pre- and post-construction monitoring activities, Union Gas may conduct random water quality monitoring of standard parameters that could be affected by pipeline construction activities (e.g., turbidity and suspended and total solids) in the various watercourses traversed by the proposed pipeline.

Follow-up inspections, a year after construction, following spring run-off, should be completed to review the effectiveness of the bank and slope re-vegetation program, to check bank and slope stability, and to ensure floodplain drainage has been maintained. Where appropriate, remedial measures and additional follow-up monitoring should be implemented.

## 5.2 SOCIO-ECONOMIC

The preferred route generally avoids urban areas. However, the route does travel in relatively close proximity to homes within the Village of Carlisle and the Village of Kilbride. A concern expressed by public meeting attendees was the proximity of homes to the preferred route. Dust, noise, vibration or disruption related to construction can be expected to dissipate within 100 m of the construction area; consequently, a 100 m distance was used as the environmental and socio-economic inventory boundary within which most features were identified. A total of 55 homes were identified to be within 100 m from either side of the preferred route.

Residents may experience a temporary disruption in the enjoyment and use of their property during pipeline construction. Short-term impacts associated with disturbance, disruption or loss of use may occur during construction as a result of noise, dust, or additional traffic volumes.

Construction activity and construction crews may pose an undesirable presence during pipeline construction. Furthermore, increased traffic along municipal roads may increase potential for vehicle accidents. Residents may experience occasional inconveniences where local purchases and pipeline purchases are from the same retail outlet.

Residents with appropriate skills may be able to secure direct or indirect employment as a result of the pipeline construction. Hiring opportunities should be extended to local residents, if practical, through postings at local union hiring halls and publishing employment opportunities in local newspapers.

Public safety is a primary focus of Union Gas. Safety issues, both perceived and real, can be mitigated by implementing proven safety measures during construction, ensuring that the pipeline is constructed and operated in accordance with all applicable codes and regulations, and monitoring pipeline integrity once it is in service.

According to the Technical Standards and Safety Authority (TSSA, 1998) *Guidelines*, a pipeline can be constructed within 20m of a residence, depending on certain engineering factors. No residences are situated within 20m of the proposed pipeline. The pipeline will be constructed and operated safely, allowing mitigation of perceived risks by implementation of risk communication strategies during construction and operation.

Traffic safety planning, barriers to public access to construction sites and other construction safety measures should be in place during construction. Signs indicating a buried pipeline should also be placed at all road and watercourse crossings.

Union Gas' Land Relations Agent (LRA) should be present to assist in maintaining good relations throughout construction and operation of the proposed pipeline. Concerns expressed during construction by residents neighbouring the proposed pipeline should be addressed in an expeditious and courteous manner. Prior to construction, all residents should be provided with a contact telephone number for Union Gas' LRA, a description of construction activities, and a construction schedule.

To minimize inconveniences brought on by excessive noise, all engines associated with construction vehicles should be equipped with mufflers. Noise levels arising from equipment should be below the maximum acceptable limits at the nearest residence as recognized by the MOE. .

Construction activities that could create noise should be restricted to daylight hours and adhere to any local noise by-laws. If construction activities must be carried out which cause excessive noise outside of these time frames, adjacent residents and the appropriate municipality should be notified.

Nuisance dust can be minimized by proper maintenance of the work-side of the easement and access roads. Topsoil piles, spoil piles, and the easement may need to be kept moist through the use of tackifiers during excessively dry and/or windy conditions. Road surfaces at construction access points should be cleaned of debris at least once a day.

Occasional disruptions at construction access locations can be minimized by providing advance notice to the Ontario Provincial Police, posting construction signs to warn oncoming motorists of construction activity, assigning a traffic control duty officer to assist truck entry and exit where possible, and providing proper training, safety attire and equipment to the traffic control officer.

## 5.3 ARCHAEOLOGY

A Stage III archaeological assessment, completed by Poulton and Associates (1992), identified that the alignment of the proposed pipeline traverses two significant archaeological sites: the Pipeline Site (a pre-historic Neutral village dating ca. 1400 – 1425 A.D.) and the Borscok site (a historic Neutral village dating ca. 1624 -1651 A.D.).

The preferred technique to mitigate the impacts of pipeline construction upon significant archaeological finds is avoidance. Avoidance involves shifting the route alignment around a feature of interest. Changing the alignment of the pipeline in these two locations was reviewed and dismissed. In these two instances attempting to reroute the pipeline to avoid known archaeological sites could easily impact a yet unknown, but equally significant site. This is due to the extremely high archaeological potential throughout the study area.

Consistent with the recommendations of the Original EA (1991) and the EA Update (2002) a Stage IV salvage must be completed prior to construction through the two Neutral village sites. Union Gas should consider methods to minimize the extent of disturbance at both sites through construction such as reduced workspace and restricted vehicle access. The Stage IV salvage operations should commence as soon as ground conditions permit in 2005 to ensure the consulting archaeologist can complete the salvage prior to construction.

Should deeply buried archaeological resources be found during construction anywhere within the preferred route, the Ministry of Culture should be notified immediately. If deemed necessary by the Ministry, a licensed archaeological consultant may be required to develop site-specific mitigative measures and oversee site salvage operations.

As is possible on virtually any property in southern Ontario, unmarked Aboriginal or Euro-Canadian burials could be encountered during construction. In the event that human remains are encountered before or during construction, Union Gas should stop all work immediately and contact both the Ministry of Culture, and the Registrar or the Deputy Registrar of the Cemeteries Regulation Unit of the Ontario Ministry of Consumer and Commercial Relations, as well as the appropriate municipal police, and local medical officer of health.

## 5.4 HYDROCARBON SPILLS

During construction an accidental spill of construction fluids may occur. Fluids may include fuels, lubricating oil and grease, as well as hydraulic fluids. Upon release of a hydrocarbon-based construction fluid, Union Gas should immediately determine the magnitude and extent of the spill and take immediate measures to contain it. Release of sediment should also be treated as a potential spill depending on the magnitude and extent.

All spills should be immediately reported to the Chief Inspector, Environmental Inspector, and Union Gas's environmental department. Where appropriate, the Ministry of Environment Spills Action Center should be notified at 1-800-268-6060.

A Spills Response Plan should be developed by the Construction Contractor, reviewed with construction personnel, and posted in the contractor's on-site office. Appropriate spill containment and absorbent materials should be available on-site, especially near water or sensitive wells, and personnel trained in their proper use.

## 5.5 LANDOWNER AND COMMUNITY RELATIONS PROGRAMS

Social impacts should be monitored through a communications program. As part of this program, all residents and absentee landowners on and within 100 metres of construction activity should be notified in advance of the proposed construction dates in their area. The notification should indicate the name and contact number of Union Gas's representative responsible for construction and should invite the resident/landowner to contact the LRA should concerns arise.

Union Gas should implement the Union Gas LRA program and complaint tracking system. The LRA should file a report detailing time and date of any call, the nature of the concern, the corrective action taken where appropriate, and the time and date of follow-up contact.

Union Gas should establish contact with local road authorities indicating the nature of the work to be undertaken, traffic management plans, and the size and origins of the workforce. In this manner, any traffic and security concerns will be brought directly to the attention of Union Gas for corrective action and a report filed.

Following completion of construction, Union Gas representatives should contact all residents along the easement to continue ongoing communications. During the first two years, particular attention should be paid to monitoring and documenting any impacts associated with construction and operation of the pipeline.

## 6 CUMULATIVE EFFECTS

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions (Hegmann et al, 1999). Individual projects may cause small, relatively insignificant impacts, however, when these are combined with impacts from other existing or approved projects, they may become significant (OEB, 2003). These cumulative effects may include both biophysical and socioeconomic effects, the fourth edition of the OEB Guidelines (1995) recommended that these effects be identified and discussed as part of the environmental assessment. Accordingly, the EA Update (2002) included a cumulative effects assessment that complied with the 1995 Environmental Guidelines.

The 2003 Environmental Guidelines focuses the applicant on consideration of four distinctive cumulative effects pathways when analysing and assessing cumulative effects:

- additive effects of pipeline construction occurring slowly over time (e.g. erosion of the easement due to inadequate grading);
- interactive or magnifying effects from pipeline construction (e.g. soil fertility loss and soil drainage degradation due to compaction during construction);
- additive effects of pipeline construction and other existing and future projects in the area (e.g. additive forest cover losses due to tree clearing for pipeline construction and subdivision development);
- interaction of pipeline construction with other existing and future projects in the area (e.g. coldwater fish habitat degradation as an interactive effect of increased erosion and sedimentation due to pipeline stream crossing and floodplain development downstream).

Stantec undertook a review of the cumulative effects assessment completed as part of the EA Update (2002) to ensure that each of the four distinctive pathways noted above were incorporated into the assessment. Table 2 of the EA Update (2002) includes a detailed assessment of each of these pathways, with the exception of addressing any development proposed post 2002. The Cumulative Effects Assessment completed in 2002 is included as Chapter 6 of the 2002 EA Update that is attached in **Appendix D**.

As part of this EA Update (2004) Stantec requested agencies to identify projects that may occur in the foreseeable future, but which had not yet been implemented. Four projects were identified that have the potential to interact with construction and operation of the proposed pipeline.

Union Gas is planning to replace a section of the 26" and 34" pipelines on the Dawn-Trafalgar system. The section is located approximately 200m west of Tremaine Road to approximately 200 m west of Highway 25. The replacements will be completed at the same time as the Hamilton to Milton pipeline. The replacements involve a pipe class change associated with urban growth in the Town of Milton.

The eastern part of the Study Area is situated within the Town of Milton Urban Expansion Area Boundary– Residential Lands, Phase Two. The Town of Milton Planning Department provided specific information regarding urban growth within the Town of Milton. The Sherwood Residential Development is planned north and south of the proposed pipeline, east of Tremaine Road (Concession 1, Lots 9 & 10). Construction activities are scheduled to occur between 2006-2010, this residential development proposes low and medium density housing with a final housing capacity of 40,000 people.

Two concessions north of the pipeline Study Area, a rock quarry is proposed in part Lot 1, Lots 2 and 3, Concession 11, (former Township of East Flamborough) City of Hamilton. Lowndes Holdings Corp. has acquired 154 ha (380 acres); the proposed excavation area is about 62%, an estimated 96 ha (238 acres), of the site. The site comprises several large properties, in an area of high lot fragmentation and contains a

Provincially significant Amabel dolostone deposit, up to 40 m thick. After the quarry resources have been depleted the site will be rehabilitated to an after use concept compatible with the area, this will include rural uses and enhancement to the wetland and surface water resources in the vicinity.

A quarry presently operated by Dufferin Aggregates is planning an expansion. This quarry expansion is located two concessions south of the proposed pipeline route on Sideroad 2, Part of Lots 17 and 18, Concession II north of Dundas (Hwy.5), City of Burlington (former Township of Nelson), Regional Municipality of Halton. This quarry is currently operational; the proposed expansion includes 83 ha and will extend the active life of the site.

Although it is unlikely that each of these projects will proceed simultaneously with pipeline construction, the conservative assumption has been made that they will. This assumption allows for the additive and interactive effects of the projects (noted above) to be assessed during their maximum intensity. For example, dust from subdivision development could interact with loss of agricultural land from quarry construction. These effects could then be added to the impacts associated with construction of the proposed pipeline.

The recommended construction and post-construction monitoring and rehabilitation programs are important project components towards minimizing the potential for significant adverse cumulative environmental effects. Additionally, these programs will be a useful mechanism for providing data on cumulative environmental effects for future pipeline projects in southern Ontario.

The Cumulative Effects Assessment component of this EA Update considered historical land-use alterations, present and future development activities, considered the pathways in which cumulative environmental effects can occur in the environment, and addressed the effects that the Union Gas pipeline facilities have on the environment within the study boundaries. As a result of this assessment, the cumulative effects identified as a result of this pipeline development are not anticipated to be significant.

Through the implementation of financial compensation, environmental rehabilitation, and follow-up monitoring programs, the cumulative environmental effects associated with the proposed pipeline are not anticipated to be significant. Rather they appear to of low significance, but persistent over both time and space.

# 7 MONITORING, INSPECTION, REPORTING

Monitoring serves several purposes. First, it will ensure that the mitigation employed has been successful in restoring the disturbed working area both in the short term following construction and in the long term so additional restoration can be provided if necessary. Knowledge gained in monitoring the effects of construction activities on specific environmental features can be used to better understand potential issues and avoid or minimize similar problems in subsequent projects.

Environmental inspection should be provided throughout the duration of construction to ensure the mitigation techniques and monitoring measures are effectively implemented. Environmental inspection should focus on potential impacts to tile drainage, soils, streams and rivers, and woodlots. All inspectors should be trained prior to construction regarding environmental issues.

In accordance with the recommendations of the 2003 Environmental Guidelines, post construction monitoring reports should compare the predicted impacts (including cumulative impacts) and mitigation measures with the actual ones; discuss the reasons for any deviations which may have occurred; describe the success of the restoration; identify opportunities for improvement in mitigation for future pipeline projects; log landowner complaints with an explanation of any outstanding landowner concerns; and detail any instances where the provisions of a local by-law have not been complied with and the reasons for such non-compliance.

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## 8 UPDATE TO PROVINCIAL LEGISLATION/PERMIT REQUIREMENTS

There are no updates or corrections to the environmental list provided in the Original EA (1991) as amended by the EA Update (2002) other than the recent Greenbelt Draft Plan.

The Government of Ontario has recently drafted the Greenbelt Plan for the vast area stretching from Rice Lake in the east, and all the way through the "Golden Horseshoe" to Niagara Falls. The Greenbelt Plan Area encompasses a wide swath of land, essentially from the Lake Ontario shoreline (excluding presently urbanized areas) some twenty to fifty kilometers inland, up to southern Lake Simcoe and, additionally extending along the Niagara Escarpment to Georgian Bay. If the Greenbelt Draft Plan is implemented by the Ontario Legislature, it will have far reaching consequences on many development plans within its area of jurisdiction.

According to the preamble of the Greenbelt Draft Plan, it "identifies where urbanization is not to occur in order to provide permanent agricultural and environmental protection". The Greenbelt is comprised of the present Niagara Escarpment Plan (NEP) area, the Oak Ridges Moraine Plan (ORMCP) area, and new areas extending beyond these two plans, which are referred to as "Protected Countryside".

The Protected Countryside is made up of an "Agricultural System" and a "Natural System", in combination with a system of settlement areas. The first is made up of specialty crop, prime agricultural and rural settlement areas. The second identifies lands that support natural heritage and water resource features and functions that are connected to the broader natural systems in southern Ontario.

Development proposals must conform to the relevant geographical specific policy (i.e. NEP, ORMCP or Protected Countryside) in which they are located. Infrastructure, such as natural gas pipelines, are considered essential and are permitted developments in Protected Countryside, but are subject to the following:

Planning, design and construction practices will minimize adverse effects and disturbance of the existing landscape;

Proposals will seek, where practicable, to maximize existing capacity and coordination with different infrastructure services so that new urban development is not encouraged within the Protected Countryside;

New or expanding infrastructure should avoid *key natural heritage or key hydrologic features* unless it has been established that no practical alternative exists; and

Where infrastructure does cross *key natural heritage or key hydrologic features*, planning, design and construction practices will minimize adverse effects and disturbance of *key natural heritage features, key hydrologic features* and landform features or their related functions, and where reasonable, maintain or improve natural and recreational connections.

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# 9 CONCLUSIONS AND RECOMMENDATIONS

Construction of the proposed pipeline does not require any unique or complex mitigation techniques since the initial routing in 1991 avoided sensitive environmental features to the extent possible. Further, the combination of the recommended mitigation and monitoring programs (i.e., 1991, 2002, and 2004) will serve to both localize and minimize the unavoidable effects of pipeline construction. These programs, utilized in conjunction with Union Gas's construction specifications, will ensure that project related effects are limited to the short-term (i.e., one-two years following construction).

**STANTEC CONSULTING LTD**

David Wesenger, BES
Project Manager

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## 10 REFERENCES

Acres and Associated Environmental Limited, 2002. Hamilton to Milton Pipeline Environmental Assessment Update.

Acres International Limited, 1991. NPS48 Hamilton to Milton Pipeline Route Selection and Environmental Assessment.

Ontario Energy Board, 2003. Environmental Guidelines for Locating, Constructing, and Operating Hydrocarbon Pipelines in Ontario, Fifth Edition. Toronto, Ontario.

Ontario Energy Board, 1995. Environmental Guidelines for Locating, Constructing, and Operating Hydrocarbon Pipelines in Ontario, Fourth Edition. Toronto, Ontario.

Ontario Ministry of Natural Resources, 1993. Generic sediment control plans for implementation at water crossings. Ontario Ministry of Natural Resources. Toronto, Ontario.

The Technical Standards and Safety Authority, 1998. Guidelines for development in the vicinity of oil and gas pipeline facilities. Fuel Safety Division. Toronto, Ontario.

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A

# Appendix A

## Stakeholder Consultation Materials

# Appendix A1

## Landowner Information Package

November 8, 2004

«FirstName»
«LastName»
«Address1»
«address2»
«Address3»
«City» «PostalCode»

«Attention»

**Subject:** **Proposed Union Gas Pipeline Project – Open House**
File Number: «Filenumber»

Dear : «Salutation»

In response to the growing demand for natural gas, Union Gas is seeking to expand its existing natural gas transmission pipeline system in the Hamilton-Milton area.

The proposal is to construct a pipeline primarily adjacent to Union Gas's existing transmission pipelines in the area.

This additional pipeline would begin at a point just east of Hwy 6 and north of Carlisle Road in the Town of Flamborough and proceed 17 km northeast to a location just to the west of First Line in the Town of Milton. The proposed pipeline route is shown on the attached map.

An environmental assessment on this proposal is being updated and would be a part of an Ontario Energy Board application expected early 2005. The Ontario Energy Board is the body that regulates the energy sector in the province and whose review and approval is required before this project can proceed. If approved, construction would begin in 2006.

Copies of the environmental assessment reports completed to date are available for reviewing at the following locations:

Carlisle Library
1496 Centre Road
Carlisle, ON
L0R 1H0
905-689-8769

Kilbride Library
6611 Panton Street
Kilbride, ON
L0P 1G0
905-335-4011



unionGas
A Duke Energy Company

**November 8, 2004**

**Dear Landowner:**

**PROPOSED UNION GAS PIPELINE PROJECT - OPEN HOUSE**

In response to the growing demand for natural gas, Union Gas is seeking to expand its existing natural gas transmission pipeline system in the Hamilton-Milton area.

The proposal is to construct a pipeline in 2006 primarily adjacent to Union Gas's existing transmission pipelines in the area.

This additional pipeline would begin at a point just east of Hwy 6 and north of Carlisle Road in the Town of Flamborough and proceed 17 km northeast to a location just to the west of First Line in the Town of Milton. The proposed pipeline is shown on the attached map.

An environmental assessment on this proposal is being updated and would be a part of an Ontario Energy Board application expected early 2005. The Ontario Energy Board is the body that regulates the energy sector in the province and whose review and approval is required before this project can proceed. If approved, construction would begin in 2006.

Copies of the environmental assessment reports completed to date are available for reviewing at the following locations:

Carlisle Library
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Carlisle, ON
L0R 1H0
905-689-8769

Kilbride Library
6611 Panton Street
Kilbride, ON
L0P 1G0
905-335-4011

To learn more about this project and to provide an opportunity for community input, an Open House will be held.

**Carlisle Community Centre**
**1496 Centre Road**
**Carlisle, ON,**
**Tuesday November 23, 2004**
**5:00 pm – 9:00 pm**

At this session, Union Gas staff and an independent environmental consultant, Stantec Consulting will be available to explain the project, construction procedures and specific mitigation measures along the pipeline route.

P.O. Box 2001, 50 Keil Drive North, Chatham, ON, N7M 5M1 tel. 519 352 3100 www.uniongas.com
Union Gas Limited


CAMPBELLVILLE
MOUNTSBERG
MANSEWOOD
KELSO
PERU
MILTON
TOWN OF MILTON
CITY OF HAMILTON
(FORMERLY TOWNSHIP
OF FLAMBOROUGH)
STRABANE
CARLISLE
PROGRESTON
HILBRIDE
LOWVILLE
CEDAR SPRINGS
CITY OF BURLINGTON
BOYNE
OMACH
ZIMMERMAN
MT. NEMO
TIE-IN LOCATION
PROPOSED NPS 48 GAS PIPELINE
LENGTH APPROX. 17200 METRES
HAMILTON TAKE-OFF
10W-50 LV
CAMPBELLVILLE ROAD
MOUNTSBERG ROAD
12TH CONCESSION E
11TH CONCESSION E
10TH CONCESSION E
9TH CONCESSION E
8TH CONCESSION E
7TH CONCESSION E
6TH CONCESSION E
5TH CONCESSION E
4TH CONCESSION
8TH CONCESSION W
7TH CONCESSION W
6TH CONCESSION W
5TH CONCESSION W
4TH CONCESSION W
3RD SIDEROAD
4TH SIDEROAD
5TH SIDEROAD
6TH SIDEROAD
7TH SIDEROAD
8TH SIDEROAD
2ND SIDEROAD
STEELES AVE
MAIN STREET
DERRY ROAD
CARLISLE ROAD
PROGRESTON ROAD
KILBRIDE STREET
EAST STREET
BRITANNIA ROAD
COLLING ROAD
MILLGROVE ROAD
WILLOUGHBY ROAD
WHITE ROAD
GARDEN LANE
WYATT ROAD
ROBSON MEREDITH ROAD
CENTRE ROAD
TOWN LINE
WILLOUGHBY LINE
MILBURN LINE
APPLEBY LINE
BRONTE ROAD
BELL SCHOOL LINE
CEDAR SPRINGS ROAD
SIXTH LINE
FIRST LINE
THIRD LINE
FOURTH LINE
I N.S.
II N.S.
III N.S.
IV N.S.
V N.S.
VI N.S.
VII N.S.
LOWER BASE LINE
SPEIGHT CREEK
FLAMBORO CREEK
BOYNE RIVER
SIXTEEN MILE CREEK
CP RAIL
GUELPH JCT
KELSO LAKE
BEAN LAKE
GUELPH LINE (TUPPER) STN. 189+101
MILTON GATE STN. 193+301
REVISIONS
NO. DATE BY APP'D REMARK
HAMILTON – MILTON
NPS 48
KEYPLAN
LEGEND:
PROPOSED GAS PIPELINE

# Appendix A2

# Agency Correspondence

**ncy Contacts – Union Gas: Hamilton-Milton**
**Project Number: 160963928**
**November 4, 2004**

| Agency | Title | First Name | Last Name | Position | Street Address | City | Prov | Postal | Phone | Fax |
|---|---|---|---|---|---|---|---|---|---|---|
| PROVINCIAL | | | | | | | | | | |
| Ontario Pipeline Coordinating Committee | Mr. | Oscar | Alonso | Technical Standards and Safety Authority | 3300 Bloor Street West 4th Floor | Etobicoke | ON | M8X 2X4 | 416-325-1650 | 416-326-8248 |
| Ontario Pipeline Coordinating Committee | Ms. | Donna | Mundie | Land Use Policy Specialist, Ministry of Agriculture and Food | 1 Stone Road West | Guelph | ON | N1G 4Y2 | 519-826-3120 | 519-826-3259 |
| Ontario Pipeline Coordinating Committee | Mr. | Michael | Johnson | Manager, Heritage Operations Ministry of Culture | 400 University Avenue 4th Floor | Toronto | ON | M7A 2R9 | 416-314-7144 | 416-314-7175 |
| Ontario Pipeline Coordinating Committee | Mr. | Doug | Peeling | Ministry of Transportation | 301 St. Paul Street 2nd Floor | St. Catharines | ON | L2R 7R4 | 905-704-2916 | 905-704-2030 |
| Ontario Pipeline Coordinating Committee | Mr. | Ernie | Hartt | Ministry of the Environment Supervisor APEP, Central Region | 5775 Yonge Street 8th Floor | North York | ON | M2M 4J1 | 416-326-4835 | 416-325-6345 |
| Ontario Pipeline Coordinating Committee | Mr. | Derryk | Renton | Environmental Assessment Coordinator Ministry of Natural Resources | 300 Water Street 5th Floor North Tower PO Box 7000 | Peterborough | ON | K9J 8M5 | 705-755-1820 | 705-755-1971 |
| Ontario Pipeline Coordinating Committee | Mr. | Usman | Ahmed | Senior Planner, Ministry of Municipal Affairs and Housing | 777 Bay Street 14th Floor | Toronto | ON | M5G 2E5 | 416-585-7181 | 416-585-6882 |
| Ontario Pipeline Coordinating Committee | Mr. | Graham | Martin | Acquisition Manager Ontario Realty Corporation | 77 Wellesley Street West 11th Floor | Toronto | ON | M7A 1N3 | 416-326-9792 | 416-327-4194 |
| Ontario Pipeline Coordinating Committee | Mr. | Sing-Gin | Louie | Advisor, Natural Gas Distribution, Ministry of Energy | 880 Bay Street 3rd Floor | Toronto | ON | M7A 2C1 | 416- 325-6836 | 416-325-6981 |
| APEP | Mr. | Ernie | Hartt | Supervisor | 5775 Yonge Street 8th Floor | North York | ON | M2M 4J1 | 416-326-4835 | 416-325-6345 |
| Ministry of Environment-Halton Peel District Office | Mr. | John | Budz | District Manager | 4145 North Service Road | Burlington | ON | L7L 6A3 | 905-319-1389 | 905-319-9902 |
| Ministry of Natural Resources-Aurora | Mr. | Warren | May | Biologist – Halton Region | 50 Bloomington Road West, RR#2 | Aurora | ON | L4G 3G8 | 905-713-7390 | 905-713-7361 |
| Ministry of Natural Resources – Guelph | Mr | Ian | Thornton | District Planner | 1 Stone Road West | Guelph | ON | N1G 4Y2 | 519-826-4928 | 519-826-4929 |
| Ministry of Transportation-Central Region | Mr. | Roger | Hanmer | Regional Director | 1201 Wilson Avenue, 2nd Floor Atrium | Downsview | ON | M3M 1J8 | 416-235-5400 | 416-235-5266 |
| Ministry of Agriculture Food and Rural Affairs | Ms. | Carol | Neumann | Rural Planner – West Central Ontario | Wellington Place RR 1 | Fergus | ON | N1M 2W3 | 519-846-3393 | 519-846-8178 |

**Agency Contacts – Union Gas: Hamilton-Milton**
**Project Number: 160963928**
**November 4, 2004**

| Agency | Title | First Name | Last Name | Position | Street Address | City | Prov | Postal | Phone | Fax |
|---|---|---|---|---|---|---|---|---|---|---|
| Ministry of Culture | Mr. | Malcolm | Horne | Heritage Planner | 400 University Avenue, 4th Floor | Toronto | ON | M7A 2R9 | 416-314-7146 | 416-314-7362 |
| Ministry of Energy, Science and Technology | Mr. | Doug | McCallum | Manager-Energy Markets | 880 Bay Street 3rd Floor | Toronto | ON | M7A 2C1 | 416-325-6546 | 416-325-6981 |
| Ministry of the Environment - Central Region Technical Support Section | Ms.<br>Mr. | Lori<br>Shawn | Byers<br>Carey | ResourcePlanner<br>Resource Planner and EA Coordinator | 5775 Yonge St., 8th Floor | North York | ON | M2M 4J1 | 416-326-6700 | 416-325-6345 |
| Ministry of the Environment – Hamilton Office | Mr.<br>Ms. | Carl<br>Lou-Ann | Slater<br>Cornacchio | -<br>Supervisor, APEP | 119 King St. W., 12th Floor | Hamilton | ON | L8P 4Y7 | 905-521-7640 | 905-521-7820 |
| Ministry of Municipal Affairs and Housing – Central Municipal Services Office | Ms. | Diane | McArthur-Rodgers | Manager | 777 Bay St., 14th Floor | Toronto | ON | M5G 2E5 | 416-585-7041 | |
| Ministry of Municipal Affairs and Housing – Golden Horseshoe Greenbelt Group | Ms. | Marcia | Wallace | Senior Planner | 777 Bay St., 14th Floor | Toronto | ON | M5G 2E5 | 416-585-6635 | |
| Technical Standards and Safety Authority – Fuel Safety Division | Mr. | Oscar | Alonso | Fuel Safety Engineer | 3300 Bloor St. West, 14th Floor, Centre Tower | Toronto | ON | M8X 2X4 | 416-734-3353 | |
| **MUNICIPAL** | | | | | | | | | | |
| Regional Municipality of Halton | Mr. | Brock | Criger | Senior Planner | 1151 Bronte Rd | Oakville | ON | L6M 3L1 | 905-825-6000 | 905-825-8839 |
| City of Hamilton – Planning and Development Department | Mr.'s | Jason<br>Simon | Thompson<br>Deiaco | Planner<br>ESAIEG Coordinator | 71 Main St. West, Hamilton City Hall | Hamilton | ON | L8P 2Y5 | 905-546-2424 Ex.6288 (planning) Ex.2822 (engineering) | |
| City of Burlington – Planning Department | Mr. | John | Conn | Planner, Policy | 426 Brant St | Burlington | ON | L7R 3Z6 | 905-335-7642 | 905-335-7880 |
| Town of Milton | Ms.<br>Mr. | Susan<br>Bill | O'Brian<br>Mann | Senior Planner<br>Planner | 43 Brown St., Victoria Park Square | Milton | ON | L9T 4B6 | 905-878-7252 | 905-878-6995 |
| Conservation Halton | Mr.<br><br>Ms. | Bob<br><br>Brenda | Edmondson<br><br>Axon | Director, Watershed Management Services.<br>Manager, Watershed Planning Services. | RR#2 | Milton | ON | L9T 2X6 | 905-336-1158 | 905-336-7014 |

**ncy Contacts – Union Gas: Hamilton-Milton**
**Project Number: 160963928**
**November 4, 2004**

| Agency | Title | First Name | Last Name | Position | Street Address | City | Prov | Postal | Phone | Fax |
|---|---|---|---|---|---|---|---|---|---|---|
| OTHER | | | | | | | | | | |
| CN Rail – Regional Engineering Technical Services | Mr. | Tom | Goldsmith | UMA Engineering Ltd. | 5080 Commerce Blvd. | Mississauga | ON | L4W 4P2 | 905-238-0007 | 905-238-0038 |
| CP Rail | Mr. | Kevin | Anderson | | 655 Richmond St., North | London | ON | N6A 3G9 | | |
| Bruce Trail Association | Ms. | Beth | Kummling | Acting Executive Director (Until November 30th, 2004) | P.O. Box 857 | Hamilton | ON | L8N 3N9 | 905-529-6821 | 905-529-6821 |
| Niagara Escarpment Commission | Mr.<br>Mr. | Michael<br>David | Baran<br>Wells | Planner<br>Landscape Architect | 232 Guelph St. | Georgetown | ON | L2G 4B1 | 905-877-5191 | 905-837-7452 |

Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5
Tel: (519) 836-6050 Fax: (519) 836-2493
stantec.com

Stantec

November 8, 2004

«Agency»
«Street_Address»
«City» «Prov» «Postal»

**Attention: «First_Name» «Last_Name», «Position»**

Dear «Title» «Last_Name»:

**Reference: Hamilton to Milton Natural Gas Pipeline**

In response to the growing demand for natural gas, Union Gas is seeking to expand its existing natural gas transmission pipeline system in the Hamilton-Milton area.

The proposal is to construct a pipeline primarily adjacent to Union Gas's existing transmission pipelines in the area.

This additional pipeline would begin at a point just east of Hwy 6 and north of Carlisle Road in the Town of Flamborough and proceed 17 km northeast to a location just to the west of First Line in the Town of Milton.

An environmental assessment on this proposal is being updated and would be a part of an Ontario Energy Board application expected early 2005. The Ontario Energy Board is the body that regulates the energy sector in the province and whose review and approval is required before this project can proceed. If approved, construction for the pipeline would begin in 2006.

Stantec Consulting Ltd. (Stantec) has been retained by Union Gas Limited to update an Environmental Impact Assessment (EA) for this project.

Our role will be to confirm the accuracy and relevancy of the information presented in the previous EA work, and to prepare an updated supplemental report that will accompany Union Gas's application to the Ontario Energy Board.

**Reference: Hamilton to Milton Natural Gas Pipeline**

This letter is to inform you of Union Gas's proposed undertaking and, as an agency with an interest in the area, to ask for your input in providing any comments or concerns regarding the project. In particular, we are looking for any new information, policies or guidelines that might have been implemented in the last two years that this new update should consider. We are also seeking any background environmental or socioeconomic information which may have been unavailable, or was unknown to your agency at the time of the last report in 2002.

Attached a copy of previous correspondence between your agency and Union Gas regarding this project for your information. We have taken note of your previous comments and would like your agency to confirm that they remain relevant.

We are also interested in your agency's knowledge regarding other developments in the study area that are proposed for the next two years. This information will be incorporated into the study update as a component of the cumulative effects assessment.

Your agency's response by November 26, 2004 would be appreciated. For your convenience, an acknowledgement response form is also attached.

An Open House will be held to explain the project, and present an opportunity for any interested parties to provide input:

**Carlisle Community Centre**
**1496 Centre Road**
**Carlisle ON L0R 1H0**
**Tuesday November 23, 2004**
**5:00pm – 9:00pm**

If you have any questions, please do not hesitate to call me (519) 836-6050

Yours truly,

**STANTEC CONSULTING LTD.**

David Wesenger
Senior Project Manager
Tel: (519) 836-6050
Fax: (519) 836-2493
dwesenger@stantec.com

Attachment: Study Area Map
Previous Correspondence (if applicable)

c. Doug Schmidt, Union Gas

PD - 255 - 91

PL-117/91 PLANNING DEPARTMENT June 28, 1991

Chairman and Members of the
Planning and Development Committee

Re: PROPOSED UNION GAS PIPELINE THROUGH NORTHERN BURLINGTON - ROUTING AND ENVIRONMENTAL STUDY
File No: 501-01

RECOMMENDATION: SUPPORT FOR THE PROPOSED UNION GAS PIPELINE FROM THE HAMILTON VALVE SITE TO THE MILTON TIE-IN

THAT Council indicate to the Ontario Energy Board SUPPORT for the proposed Union Gas pipeline from the Hamilton valve site to the Milton tie-in subject to the following conditions:

(a) Implementation of the recommendations in the study prepared by Acres International Limited entitled NPS 48 Hamilton to Milton Pipeline, regarding the preferred pipeline route through northern Burlington, timing of the pipeline construction, impact mitigation measures, inspection, and monitoring of the pipeline and easement;

(b) Prior to construction, Union Gas Limited shall make application and receive Construction and Excavation on Public Property Permits from the City of Burlington for crossings of East Flamborough Town Line, McNiven Road, Walker's Line, Appleby Line and Bell School Line. Applications shall include detailed design drawings for each of the above named crossings to the satisfaction of the Director of Engineering;

and that the City Clerk be instructed to forward a copy of Council's decision to the Ontario Energy Board, Union Gas Limited, the Region of Halton, the Halton Region Conservation Authority, and the Niagara Escarpment Commission.
File: 501-01

PL-117/91 June 28, 1991

REPORT:

Purpose:

The purpose of this report is to inform Council of the proposal by Union Gas Limited to construct a pipeline parallel to an existing Union gas easement through north Burlington and to recommend Council indicate support to the Ontario Energy Board for the proposed pipeline subject to the recommendations contained in the route selection and environmental assessment study, NPS 48 Hamilton to Milton Pipeline, completed by Acres International Limited, and the receipt by Union Gas Limited of permits approved by the City of Burlington for each crossing of a municipal road.

Background and Route Selection Process:

To meet future natural gas service demands Union Gas Limited has proposed to construct a pipeline from its existing Hamilton valve site located in the Town of Flamborough through northern Burlington adjacent to an existing Union Gas Pipeline easement to the Milton Tie-In located in the Town of Milton, identified as Alternative 1, in Sketch No. 1 (page 3). The pipeline will be 1219 mm in outside diameter with a length of 16.9 km, approximately 11 km in Burlington. Construction is tentatively scheduled for the summer of 1993 conditional upon Ontario Energy Board approval.

The Acres pipeline construction study is part of a comprehensive study for Southern Ontario, called "Union Gas Alternate Route Evaluation; Dawn Compressor Station to the Parkway Compressor Station". Union Gas commissioned Acres International Limited to undertake a route selection and environmental impact assessment study in accordance with the requirements of the Ontario Energy Board as described in "Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario, 1989". The major objectives of these guidelines are to ensure the protection of natural and agricultural resources, to minimize conflicts with land-use planning, and to identify and address the concerns of the affected public.

The City of Burlington was first contacted by Acres in November 1989 advising that they had been retained by Union Gas Limited to complete a route selection and environmental impact study. The purposes of the study are:

1. Select a preferred route for the pipeline in accordance with the Ontario Energy Board Guidelines (1989);

2. Assess the probable impact of construction and operation of the proposed pipeline in the area of the preferred route;

3. Develop recommendations for mitigating and monitoring potentially significant environmental impacts.

Acres letter included a map (Sketch No. 1) showing the limits of the study corridor and two main alternative routes which had been generated following an initial data gathering stage and analyses

Sketch No.1
UNION GAS PIPELINE
ALTERNATIVE ROUTES
ALTERNATIVE 1
ALTERNATIVE 1A
ALTERNATIVE 2
OAKVILLE
BELL SCHOOL LINE
APPLEBY LINE
SIDEROAD
NO.4
NO.2 SIDEROAD
WALKERS
LINE
ROAD
CITY LIMITS
GULPH
LINE
BURLINGTON
DERRY ROAD
TWISS ROAD
NO.8 SIDEROAD
LOWVILLE
BRITANNIA
ROAD
COLLING
ROAD
NO.2 SIDEROAD
STREET
KILBRIDE
McNIVEN
ROAD
ROAD
KILBRIDE
CEDAR SPRINGS
LINE
TOWN
THE KINGS HIGHWAY NO.6

- minimizing distance through environmentally sensitive area, conservation areas and spawning areas
- pipeline route should be compatible with existing municipal, regional, provincial government regulations and policies
- avoid residential area
- minimize distance through agricultural lands (particularly specialized areas like nurseries, poultry farms and orchards)
- minimize distance through wetlands
- forested lands (hedgerows and woodlots) should be avoided where possible

In consideration of these criteria Acres was only able to generate two viable alternative routes. Within Burlington, the northern route parallels an existing Union Gas easement (with two pipelines), while the southern route would parallel an existing Sun Oil pipeline for approximately one-third its length.

City staff evaluated the alternative pipeline locations against the policies of the Burlington Official Plan, Kilbride Secondary Plan, Official Plan for the Halton Planning Area, and Niagara Escarpment Plan and responded to Acres' request for comments in detail listing several concerns with regards to designated environmentally sensitive areas, wetlands, agricultural lands, creeks, ponds, residential lands, blasting, and groundwater (Appendix I). In conclusion, staff cautioned that while the northern route appeared to have potentially fewer negative environmental impacts in number and magnitude, the concerns identified by Burlington should be investigated prior to route selection.

On April 30, 1990, the first of two public meetings was held by Acres in the Town of Carlisle to display the alternative routes and inform the public of the project. Following this meeting, analysis of the public and agency comments began towards the goal of route selection.

In July 1990, Acres selected the northerly route paralleling the existing Union Gas pipeline as the preferred route. A number of criteria were examined with respect to each alternative. From this analysis, it is apparent the northern route is superior or equal to the southern route, with the exception of number of significant archaeological sites. The results of the analysis were distributed to the relevant government agencies for their comment.

Acres then began a detailed environmental assessment along the preferred alignment in order that priority concerns could be identified, environmental impacts predicted, and recommendations for mitigation and monitoring developed. The process entailed further data gathering, detailed field investigations and continued consultation with landowners and concerned agencies. A draft report was prepared and distributed to government agencies, municipalities, interest groups and all affected landowners for their review and comment. Burlington staff provided additional comments to Acres regarding wetland impacts, potential impacts of blasting in the Kilbride area on the watertable, and visual impacts along the preferred route.

A second public meeting was held in Carlisle on January 8, 1991. City staff noted that questions from the approximately 60 persons in attendance were directed at easement and loss of crops compensation, construction timing, indemnification, restoration of land, fencing, and tiles, and to a limited extent route selection.

In May 1991, Burlington received the draft final report. Union Gas Limited has requested that any comments pertaining to the study be forwarded to them and the Ontario Energy Board.



9-15198362493 P.05

Potential Environmental Impacts and Recommended Mitigation Measures

The environmental assessment completed by Acres is available in the Planning Department should the ward alderman or others wish to review this material. Staff is satisfied with the thoroughness of the assessment. Specific concerns staff raised in correspondence with Acres regarding the potential impacts of blasting on the aquifer and wells in the Kilbride area, impacts of trenching on the Class 7 Wetlands area just west of Kilbride, and visual impacts have been addressed.

During review of the draft Final Report design concerns were raised by the Engineering Department regarding the crossing of municipal roads. The proposed pipeline will cross five municipal and two regional paved roads in Burlington. To lessen traffic disruptions during crossings the study recommends that all roads be bored with the exception of McNiven Road. Bedrock is close to or at the surface at this location and open cut methods will most likely be required. Although the Acres report states that all local municipalities and regional offices must be informed before construction of the road crossings and the design, Union Gas must be made aware that Construction and Excavation on Public Property Permits are required from the City for crossings of East Flamborough Town Line, McNiven Road, Walker's Line, Appleby Line and Bell Sch[illegible] Line. Receipt of these permits prior to construction has been r[illegible] a condition of Council's support for the proposed pipeline, see [illegible] (b) of recommendation section.

Conclusion:

Staff is satisfied with the route selection and environmental impact assessment study completed by Acres International Limited. It is recommended that Council indicate to the Ontario Energy Board support for the preferred route following the existing Union Gas pipeline easement through north Burlington subject to implementation of the recommendations contained in the Acres study and receipt by Union Gas Limited of permits approved by the City of Burlington for each crossing of a municipal road.

Respectfully submitted,

ZPLRPT552
Attach.

(EXECUTIVE DIRECTOR)
APPROVED BY
MANAGEMENT COMMITTEE ☒
EXECUTIVE COMMITTEE ☐
CITY MANAGER DATE July 18/91

Marilyn Lagzdins
MARILYN LAGZDINS - AUTHOR
- POLICY

M. Hall
ASSISTANT DIRECTOR OF PLANNING
- POLICY

# APPENDIX A2 – RESPONSES TO AGENCY CONTACTS SUMMARY CHART

| | |
|---|---|
| Ministry of the Environment<br>–Central Region<br>Air, Pesticides and Environmental Planning | • Mr. Ernie Hartt, Air, Pesticides and Environmental Planning Supervisor is the MOE contact person (416) 326-4835.<br>From Ernie Hartt's Office:<br>• Discuss the mitigating measures (including crossing techniques) to ensure the protection of Islay Lake, Indian, Limestone and Kilbride Creeks.<br>• MOE Guidelines for Evaluating Construction Activities Impacting on Water Resources should be utilized.<br>• An inventory of water wells within a 500 m radius from the pipeline should be collected.<br>• Any discharge of water should be planned to avoid adverse effects on receiving waters.<br>• Any impacts to wetlands, woodlots and fish habitat should be avoided and the EA should describe mitigation measures and how project planning will protect and enhance the function of these features.<br>• Consultation with the Ministry of Natural Resources, the Department of Fisheries and Oceans and Halton Conservation is advised.<br>• The Region of Halton's and The Region of Milton's OP should be consulted to ensure compliance.<br>• Consultation with the MOE's guideline Environmental Considerations for Gas or Oil Pipelines and Facilities is recommended.<br>• Consult with the NEC.<br>• Refer to the guideline Land Use on or Near Landfills or Dumps.<br>• Soil that is moved or removed should be tested for contaminants resulting from previous land uses or dumping.<br>• Dust, noise and vibration control measures should be addressed and included in the construction plans.<br>• All wastes generated during the construction activities must receive proper disposal in accordance with MOE requirements.<br>• Design and construction reports and plans should be based on best management approach that centres on prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.<br>• Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation work are met.<br>• Recommend post construction monitoring of the pipeline.<br>• Forward a copy of the notice of completion when the project is complete. |
| Ministry of Culture | • All land alterations directly and indirectly associated with the final selected alternative will need to be reviewed by a consultant archaeologist, to determine the extent of archaeological potential, previous disturbances and extent of previous archaeological investigations in the area.<br>• A portion of the corridor was not assessed last time, and as such still requires survey.<br>• Any changes or modifications to the alignment will need to be reviewed for archaeological concerns. |

| | |
|---|---|
| | • All areas to be impacted and determined to be of archaeological concern should be archaeologically assessed. All significant resources located during survey will need to have development impacts mitigated through avoidance or excavation prior to the initiation of construction.<br>• Ministry will need to review the results of any archaeological assessment work to ensure the fieldwork conducted, report generated and resource conservation recommendations provided meet heritage conservation and technical guideline standards. |
| Niagara Escarpment Commission | • The NEC is interested in determining whether or not the proposed pipeline is 'essential'.<br>• The preferred route selection process may need to be redone because additional cultural heritage sites have been identified since 1991.<br>• Address the NEC when they review the EA. |
| Technical Standards and Safety Authority | • Previous comments on this project are still valid. |
| Bruce Trail Club – Iroquoia | • Project will not only impact the environment but also our trail in the Bronte Creek area just East of Derry road.<br>• Concerned about the environmental impact in this sensitive creek as well as any damage to our structures (bridges, stairs).<br>• Concerned about keeping access to trail open. |
| MNR | • The existing pipeline is located in a highly sensitive area and may impact: the cold water fisheries of Limestone Creek, Bronte Creek and tributaries; Kilbride Swamp; Niagara Escarpment; woodlands; habitat of rare, vulnerable, threatened and endangered species (RVTE); Provincial policies and programs.<br>• Document the fisheries resources relevant to the proposed study area and demonstrate how the fisheries resources and their habitats will be protected, enhanced or restored by this project.<br>• Works involving alteration to a watercourse may require a work permit under the Lakes and Rivers Improvement Act or the Public Lands Act. Wherever possible, tunnelling is the preferred method of crossing watercourses.<br>• Appropriate sediment and erosion control devices, structures or measures should be used during and after construction to retain sediment on site.<br>• MNR shall prescribe appropriate timing guidelines to direct works in and adjacent to a watercourse directly or indirectly supporting fisheries resources.<br>• Disruption /destruction of the natural heritage features including significant wildlife habitat, the wetland complex and forested areas are to be avoided.<br>• An evaluation of the presence of RVTE species and their habitat requirements on or adjacent to the Subject Lands should be prepared. Inventory work must be conducted in the appropriate season for breeding assessments.<br>• Mitigative measures must be evaluated and detailed within the Environmental Study Report (ESR). The ESR must demonstrate how these significant natural features will be protected.<br>• A copy of the EIA should be forwarded to this office. |
| City of Hamilton Planning and Development Department | • No proposed works in the area at this time.<br>• Forward a copy of the updated EA to this office.<br>• ESAIEG will not be required to review the updated EA. |

| | |
|---|---|
| | • Satisfied that the project has not significantly changed and the previous notes will be implemented.<br>• Ms. Catherine Plosz can yield nature counts for 2004.<br>• City of Hamilton's tree cutting bylaw must be adhered to.<br>• Mr. Joseph Muller can determine if an archaeological assessment is required. |
| City of Burlington Planning Department | • Inform as to whether the 1991 City of Burlington Council Resolution is in project files.<br>• Is the pipeline going into the existing ROW or will it be expanded and how much? |
| Ministry of Municipal Affairs | • If there is any Ministry interest we will be in contact. |
| Halton Region | • No objections to Union Gas' proposed expansion.<br>• Refer to Ontario Greenbelt Plan, Halton Region Official Plan, Halton website. |
| Canadian National Railway | • Contact for this project is Rui Ribeiro. |

NOV 25 2004

# Ontario

Ministry of the Environment
Central Region
Halton Peel
District Office

Ministère de l'Environnement
Région du Centre
Bureau de district de Halton Peel

4145 North Service Road
3rd Floor
Burlington, Ontario
L7L 6L3

Tel. (905) 319-3847
Fax (905) 319-9902

4145, chemin North Service
3e étage
Burlington (Ontario)
L7L 6L3

November 23, 2004

David Wesenger
Senior Project Manager
Stantec Consulting Ltd.
361 Southgate Drive
Guelph, ON
N1G 3M5

Dear Mr. Wesenger:

**RE: Hamilton to Milton Natural Gas Pipeline**

Thank you for your correspondence dated November 8, 2004 and the facsimile received on November 11, 2004.

We wish to advise you that Mr. Ernie Hartt, Air, Pesticides and Environmental Planning Supervisor for the Ministry's Central Region, Technical Support Section should be the contact person for you regarding the matter. He can be reached at (416) 326-4835. For your information, we have forwarded your request to Mr. Hartt for his attention.

Yours truly,

Tracey Goodwin
Issues/Project Co-ordinator
Halton Peel District

cc: E. Hartt

Ontario

Ministry of the Environment
Central Region
Technical Support Section

Ministère de l'Environnement
Région du Centre
Section d'appui technique

5775 Yonge Street
8th Floor
North York, Ontario
M2M 4J1

Tel. (416) 326-6700
Fax (416) 325-6347

5775, rue Yonge
8ième étage
North York (Ontario)
M2M 4J1

DEC 0 1 2004

November 26, 2004

David Wesenger
Senior Project Manager
Stantec Consulting Limited
361 Southgate Drive
Guelph, ON N1G 3M5

**RE: Hamilton to Milton Natural Gas Pipeline**
**Union Gas Limited**
**Notice of Update to Environmental Impact Assessment**
**Our File EA-04-03-05**

Dear Mr. Wesenger:

This letter is our response to your notice of the initiation of an update to the Environmental Impact Assessment (EA) for the Hamilton to Milton Natural Gas Pipeline. The purpose of the proposed project is to expand the existing natural gas transmission pipeline system in the Hamilton-Milton area.

Please be advised that these comments are only applicable to the portion of the pipeline to be constructed within Central Region MOE jurisdiction (which includes Halton Region). For information on the portion to be built in the Town of Flamborough, please contact the MOE West Central Regional Office at 905-521-7720.

On the basis of our review of the information submitted, we are providing the following general comments to assist you and your project team members in the proposed undertaking:

**Surface and Ground Water**

- Our records indicate that Islay Lake and Indian, Limestone and Kilbride Creeks will be crossed by the proposed pipeline. The impact of crossing these watercourses needs to be discussed thoroughly, including how mitigation measures will ensure the protection and

enhancement of these features. Where possible, please identify the type of watercourse crossing technique proposed to be used, and ensure that practices with the least environmental impacts are used wherever possible.

- Measures should be included in the planning and design process to ensure that sediment discharge from construction activities will be minimized and that there will be no ecological impacts to these watercourses. Construction activities must ensure that groundwater and surface water flows will not be adversely affected. The MOE *Guidelines for Evaluating Construction Activities Impacting on Water Resources* should be utilized during the construction phase of this project. This document and other MOE guidelines are available online on our website at www.ene.gov.on.ca via the publications link. Also, we recommend that a contingency plan be prepared to deal with potential adverse effects on groundwater or surface water.

- Our records indicate a number of water wells within the Study Area. Care should be taken to ensure that those water supplies will not be adversely affected by construction activities. Pre and post construction data should be obtained which defines existing water quality and quantity. We also recommend that an inventory of wells within a 500m radius from the pipeline be collected, to ensure that construction activities will not interfere with existing water use in the vicinity of the pipeline. The principle concerns include contamination and potential interruption of groundwater movement, particularly in the case of shallow wells.

- If dewatering is undertaken as part of construction activities, any discharge of water should be planned to avoid adverse effects on receiving waters. A temporary Permit to Take Water will be required should the taking exceed 50,000 litres per day. Please consult with the *Guide for Applying for Approval of Permit to Take Water* for more information.

**Ecosystem Protection**

- The proposed pipeline route includes the crossings of several watercourses which may contain fish habitat. Further, there are several large wetlands and woodlots which may be impacted by pipeline construction. Any impacts to these types of ecosystem features should be avoided and the EA Report should describe mitigation measures and how project planning will protect and enhance the function of these features. Consultation with the Ministry of Natural Resources MNR, the Department of Fisheries and Oceans, and Halton Conservation is advised.

- The Region of Halton's and Town of Milton's Official Plan policies related to ecosystem protection should be consulted with to ensure that the local environmental protection policies are considered.

- Consultation with the MOE's guideline *Environmental Considerations for Gas or Oil Pipelines and Facilities* is recommended. This guideline provides useful information on the environmental considerations that the Ministry requires to be addressed in pipelines, so that an appropriate level of environmental protection is achieved during the planning, construction and operation of these facilities.

- Our records note that the pipeline route is largely within the *Escarpment Rural Area* and *Escarpment Protection Area* designations of the Niagara Escarpment Plan area. Policies relating to infrastructure within the Escarpment should be referred to, and the Niagara Escarpment Commission should be consulted with.

**Contaminated Soils**

- Our records indicate the proposed pipeline is in proximity to the former Milton Fairgrounds Landfill, located south east of the intersection of Bell School Line and Derry Road. Please refer to the guideline *Land use on or Near Landfills or Dumps*. If construction activities will take place in proximity to this site, we recommend additional analysis be conducted to determine if there will be any measures necessary to ensure adequate environmental protection.

- Since the removal and/or movement of soils may be required, they should be tested for contaminants resulting from previous land uses or dumping. If the soils are contaminated, the Region of Halton must decide how and where they are to be disposed of, consistent with our Ministry's *Guidelines for Use at Contaminated Sites in Ontario*. If contaminated sites are identified, the MOE Halton-Peel District Office in Burlington is required to be contacted.

**Dust, Noise and Vibration**

- Dust, noise and vibration control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the Study Area are not adversely affected during construction and operation of the pipeline. If dust suppressants are proposed to be used during construction, please consider the use of non-chloride based compounds to reduce environmental impacts.

**Mitigation and Monitoring**

- All wastes generated during the construction activities must receive proper disposal in accordance with MOE requirements.

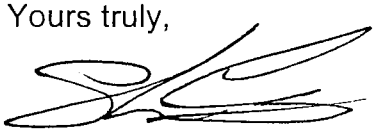
- Design and construction report(s) and plans should be based on the best management approach that centres on prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- Contractors must be made aware of all environmental considerations so that all environmental standards and commitment for both construction and operation work are met. Mitigation measures should be clearly referenced in the EA Report and regularly monitored during the construction stage of the project. In addition, we recommend post-construction monitoring of the pipeline to ensure that mitigation measures have been

effective.

Please forward a copy of the notice of project completion when complete. Should you or any members of your project team have any questions regarding the above, please feel free to contact Ross Lashbrook at (416) 326-4839 or myself at (416) 326-4886.

Yours truly,



Shawn Carey
Environmental Assessment and Planning Coordinator
Air, Pesticides and Environmental Planning

c. J. Budz
A & P File

**Ministry of Culture** **Ministère de la Culture**
Heritage & Libraries Branch
Southwest Archaeological Field Office
900 Highbury Ave.
London, Ontario N5Y 1A4

Tel: (519) 675-6898; Fax: 675-7777

Ontario

January 5, 2005

To: David Wesenger
Stantec Consulting

**RE: Hamilton to Milton Natural Gas Pipeline**

I have reviewed the information you provided in your letter of November 8th for this project. Archaeological sites have been previously documented within and adjacent to this corridor, including as a result of previous archaeological investigations of this alignment. As such, all land alterations directly and indirectly associated with the final selected alternative will need to be reviewed by a consultant archaeologist, to determine the extent of archaeological potential, previous disturbances and extent of previous archaeological investigations in the area. This will include providing an update on the work done previously, whether or not that work was completed to current field standards, and status of all sites documented. As well, I recall that a portion of the corridor was not assessed last time, and as such still requires survey. Lastly, if there are any changes or modifications to the alignment, these will also need to be reviewed for archaeological concerns.

Once done, all areas to be impacted and determined to be of archaeological concern should be archaeologically assessed. All significant resources located during survey will need to have development impacts mitigated through avoidance or excavation prior to the initiation of construction. In addition, our Ministry will need to review the results of any archaeological assessment work, to ensure the fieldwork conducted, report generated and resource conservation recommendations provided meet heritage conservation and technical guideline standards.

I trust that this information has been of assistance. Should you wish to discuss this further, please do not hesitate to contact me.

Sincerely,

Neal Ferris
Regional Archaeologist
Southwestern Region

Ontario's Niagara Escarpment
l'Escarpement du Niagara de l'Ontario

Ontario

Niagara Escarpment Commissic
232 Guelph Stree
Georgetown ON L7G 4B1
Tel. No. (905) 877-5191 - Fax No. (905) 873-7452

Commission de l'escarpement du Niagara
232, rue Guelph
Georgetown ON L7G 4B1
N° de tel. (905) 877-5191 - Télécopieur (905) 873-7452
www.escarpment.org

December 2, 2004

Mr. David Wesenger
Senior Project Manager
Stantec Consulting Ltd.
361 Southgate Drive
Guelph, ON N1G 3M5

Dear Mr. Wesenger:

**RE: Hamilton to Milton Gas Pipeline**

Further to your letter of November 8, 2004, and subsequent to our meeting of December 1st, I offer the following comments with regard to the proposed Environmental Assessment (EA) of the Hamilton and Milton Gas Pipeline. These staff comments are intended to address the questions in your letter as well as to reiterate the Niagara Escarpment Commission's (NEC) position regarding the "update" of the Environmental Assessment.

As I indicated to you, the NEC, is interested in determining whether or not the proposed pipeline is 'Essential'. The Niagara Escarpment Plan (NEP) defines Essential as "...that which is deemed necessary to the public interest after all alternatives have been considered."

This question must be addressed because the Niagara Escarpment Natural Designation through which the pipeline is proposed provides that only Essential Transportation and Utility Facilities are permitted. Need for the pipeline must be demonstrated, especially in view of the supposed need that was previously identified first in 1991 and later in 2001.

Second, the question of 'essential" must be addressed in terms of the location of the preferred route. I understand that the previous EA evaluated alternative routes. As I have indicated, I have not been able to review those documents but over 10 years has past since the original EA was prepared. New information is available on many of the features that were originally evaluated. Furthermore, through the work that was done on the pipeline through the 1990's and through other cataloguing work done by Halton Region, additional cultural heritage sites have been identified. It is important that the question of alternative routes be reevaluated to confirm the preferred route using this and any other additional

information that is available, i.e., the Golder Report you referred in our discussions. For the NEC, the evaluation should involve the natural environment features, the visual impact and the cultural heritage environment. It is not sufficient to identify the percentage of the route in each designation of the Niagara Escarpment Plan (NEP) to evaluate the preferred route. Matters such as the extent of additional disturbed area should, of course, be a factor. In addition, the number of stream crossings, areas where blasting is required, major grading, and tree removal should be considered. In view of the existing work that has been done, we would not object to this reexamination being a compilation/summary and update of the existing information. This should be a documented process.

In general, the alternative which most closely conforms to the intent and policies of the NEP will be the alternative that the Commission will support. The purpose of the NEP is "... *to provide for the maintenance of the Niagara Escarpment and land in its vicinity substantially as a continuous natural environment, and to ensure only such development occurs as is compatible with that natural environment.*" The relevant objectives are:

1. to protect unique ecologic and historic areas;
2. to maintain and enhance the quality and character of natural streams and water supplies;
4. to maintain and enhance the open landscape character of the Niagara Escarpment in so far as possible, by such means as compatible farming or forestry and by preserving the natural scenery;
5. to ensure that all new development is compatible with the purpose of the Plan.

The entire NEP is available on our web site www.escarpment.org. In addition to the policies of the designations which the pipeline will traverse, the development criteria in Part 2 will be relevant to your application.

When the EA document is finalized we will review it and submit a report to the NEC for their comment and recommendation. If you wish, you may chose to address the NEC on that occasion.

Following the approval of the Ontario Energy Board, you will be required to obtain a development permit from the NEC for all construction proposed within the Niagara Escarpment Development Control Area. I have included, for your information, the application process. The review associated with the application can range from eight weeks to 12 weeks. Once a decision has been made, a Notice will be sent to you, all municipal agencies, and Provincial Ministries circulated for comment, and to those property owners residing within 120 m (400 ft) of the pipeline project. All parties receiving a Notice may appeal the decision

within 14 days from its date of mailing. Letters of appeal must be accompanied with reasons. If there is opposition which cannot be resolved, then the matter is referred to a hearing of the Environmental Review Tribunal. The information outlined in the Minutes of the Meeting of November 22, 2001 regarding development permits still applies. Prior to submitting the application, I suggest that you contact David Johnston at extension 243 to discuss the necessary information that will be required for inclusion with the application.

With regard to the boundaries of the Niagara Escarpment Plan and Development Control Areas, I have included two maps showing your proposed and existing pipeline and the Development Control Area boundaries and the Niagara Escarpment Plan Area boundary. Map 1 shows the Development Control Boundaries as they existed prior to November 29th, 2004. Map 2 shows the Development Control Boundaries as of November 29th, 2004.

What I suspect was the problem is that part of your route fell on Map 2 of our old maps but the majority fell on the old Map 3, and at some point you may have been given only Map 3. I have now attached the new (draft) Map 3 which includes that part of Hamilton (formerly Flamborough) that was on Map 2. (This map is a draft only in that it hasn't received formal approval, but with respect to the area you are considering, there are no changes to designations or the boundaries.) The correction that should be made is that the Niagara Escarpment Plan boundary on the air photos –sheet 2 that you left with me goes south on Millburough Line from Derry Road then west on Carlisle Road to the Canadian Pacific Railway and south along the railway.

Should you have any additional questions please contact me at extension 242.

Yours truly,

Kathy Pounder

Kathy Pounder
Policy Planner

Attach.
cc Doug Schmidt Union Gas
David Johnston
David Wells

KP/ EA/Hamilton Milton Gas Pipeline let/Dec 2, 2004
KP/ep 03 01 01/gmm c:\EA\Hamilton\ Hamilton to Milton Gas Pipeline, Cmnt ltr, Dec. 2, 2004

FUELS SAFETY DIVISION

**TECHNICAL STANDARDS & SAFETY AUTHORITY**
4th Floor, West Tower
3300 Bloor Street West
Toronto, Ontario
Canada M8X 2X4
Tel: (416) 325-1650
Fax: (416) 326-8248

DEC 0 6 2004

December 2, 2004

File: PI-11.5

Mr. David Wesenger
Senior Project Director
Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5

Dear Mr. Wesenger:

**Re: Hamilton to Milton Natural Gas Pipeline.**

This is in response to your letter of November 8, 2004, about the referenced project. Our previous comments on this project are still valid.

Should you have any questions, please call me.

Yours truly,

Oscar Alonso, P. Eng.
Fuels Safety Engineer

I\users\fsesb\oa\wesenger 7.esg

**THE IROQUOIA BRUCE TRAIL CLUB**
*A Member Club of the Bruce Trail Association*

**PAUL BENETEAU**
**1268 BURLOAK DR.**
**BURLINGTON, ONT. L7R 3X5**

**Paul Beneteau**
TRAIL DEVELOPMENT CO-ORDINATOR
Tel. **(905) 335-0707**

[redacted] Trail Association
(905) 529-6821

ger;

by learned of the proposed additional pipeline from Hwy "6 to milton planned for construction in 2006.

I am writing to you as the trail development Coordinator for the Iroquia Bruce Trail Club, which is responsible for maintaining the Bruce trail from Grimsby to the 401

Your project will not only impact the environment but also our trail in the Bronte Creek area just east of Derry road. In this area we have stairways descending into the creek Valley and 2 bridges across the tributaries of Bronte Creek.

We are concerned about the environmental impact in this sensitive creek as well as any damage to our structures. In addition during construction our trail would be closed and there is

(over)

PAUL BENETEAU
1208 BURLOAK DR.
BURLINGTON, ONT. L7R 3X5

no practical reroute possible, in this area.
The Bruce Trail is the oldest continuous hiking trail in Ontario and it's 800 Km of hiking trail along the Niagara Escarpment is open year round and must be kept open for hikers traveling from all parts of the World.

I would appreciate the opportunity ~~to~~ meet with you to discuss this project in the near future.

Regards
J Paul Beneteau
905-335-0707

Ministry of
Natural Resources

Ministère des
Richesses naturelles

DEC 20 2004

Ontario

50 Bloomington Road West
Aurora, Ontario
L4G 3G8

Our File: H-02-M/H-003

December 14, 2004

Stantec Consulting Limited
361 Southgate Drive
Guelph, ON N1G 3M5

**ATTENTION:** **David Wesenger, Senior Project Manager**

**SUBJECT:** **Hamilton to Milton Natural Gas Pipeline**
**Class Environmental Assessment Update**

The following letter outlines preliminary comments of the Ministry of Natural Resources (MNR) relative to the subject proposed undertaking.

The existing Union Gas transmission pipeline is located within a highly sensitive ecological area. This project has the potential to impact the following terrestrial and aquatic resources or interests:

- The coldwater fisheries resources of Limestone Creek, Bronte Creek and tributaries of Limestone Creek and Bronte Creek, and the warmwater fishery resources of tributaries of Bronte Creek;
- The locally significant Killbride Swamp Wetland Complex;
- The Niagara Escarpment;
- Terrestrial natural heritage features (woodlands);
- Significant fishery/wildlife habitat including habitats of our Rare, Vulnerable, Threatened and Endangered (RVTE) species;
- Provincial policies and programs

Within the context of this Environmental Assessment update it is important to address the potential impacts of the project on terrestrial and aquatic resources. Accordingly, the following should be addressed to our satisfaction.

MNR is the lead agency responsible for the management of fisheries resources in Ontario. Document the fisheries resources relevant to the proposed study area. Demonstrate how the fish populations and their habitats will be protected, enhanced or restored by this project including any mitigation measures (e.g. fluvial geomorphology,

...2

natural channel design, water quality and quantity, thermal impacts, cumulative impacts, nutrients, baseflows, etc.). Site restoration shall include a native species re-vegetation plan.

Works involving alteration to a watercourse may require a work permit under the Lakes and Rivers Improvement Act (LRIA) or the Public Lands Act (PLA). Wherever possible, tunneling is the preferred method of crossing watercourses.

Under section 36 of the Fisheries Act (Canada) sediment may be defined as a deleterious substance. Appropriate sediment and erosion control devices, structures or measures should be used during and after construction to retain sediment on site. Erosion and sediment control measures should meet or exceed provincial standards. Erosion and sedimentation control measures are outlined in the Ministry of Transportation Ontario's Erosion and Sedimentation Control, Drainage Manual, Chapter F, and Ministry of Natural Resources Technical Guidelines for Erosion and Sediment Control (1989).

MNR shall prescribe appropriate timing guidelines to direct works in and adjacent to a watercourse directly or indirectly supporting fisheries resources. Coldwater timing guideline for work on a coldwater stream is generally July 1 to September 15. Warmwater timing is generally July 1 to March 31.

Disruption/destruction of the natural heritage features including significant wildlife habitat, the wetland complex, and forested areas are to be avoided.

An evaluation of the presence of our RVTE species and their habitat requirements on or adjacent to the subject lands should be prepared, where appropriate. Inventory work is to be conducted in the appropriate field seasons for breeding assessments for both birds and amphibians. Mitigative options for dealing with potential conflicts for these species must be evaluated and detailed within the Environmental Study Report (ESR). Additional timing restrictions may be required to protect any rare, vulnerable, threatened and endangered species or other significant wildlife that are identified within this area.

The ESR must demonstrate how these significant natural features will be protected

During the course of the EA update a copy of the Environmental Impact Assessment (EIA) shall be forwarded to this office for review and comment. This EIA shall document

how the aforementioned comments will be addressed.

Information relevant to a variety of terrestrial and aquatic resources is available from Information Management Section at Aurora District.
Please be advised that any proposed fisheries resources inventory / collections will require a Scientific Collectors Permit, under the Fish and Wildlife Conservation Act and the Federal Fisheries Act.

Any further inquiries or correspondence should be directed to Warren May, Fish and Wildlife Biologist at 905-713-7390.

Sincerely,

Jackie Burkart

Jackie Burkart
Resource Management Technician
Aurora District

Hamilton

Mailing Address:
City Hall, 71 Main St
Hamilton, Ontario
Canada L8P 4Y5
www.hamilton.ca

Planning and Development Department
Development and Real Estate Division
Physical Address: 71 Main Street West, 7th Floor
Phone: 905-546-2424 Ext. 2624 Fax: 905-546-4202

December 16, 2004

Union Gas
P.O. Box 10,
360 Strathearne Avenue North
Hamilton ON
L8N 3A5

Att: Mr. Frank Scremin, P. Eng.
Manager of Operations, Hamilton

Re: Union Gas – Local Pipeline Expansion Project

Dear Mr. Scremin:

In response to your letter of November 5, 2004 to Mr. Glen Peace, City Manager regarding Union Gas's expansion of its natural gas transmission pipeline system in the Hamilton-Milton area, we have no proposed works in the area at this time.

From a Long Range Planning and Design perspective we have the following comments:

1) Would you please forward a copy of the updated Environment Assessment to this office, (Attention Mr. Simon Deiaco). Please note that ESAIEG will not be required to review the updated EA. As per a conversation with Simon Deiaco and David Wesenger (Senior Project Manager, Stantec Consulting Ltd.) on the 14th of December, 2004 staff are satisfied that the nature of the undertaking has not significantly changed and the recommendations from April 2002 ESAIEG meeting notes will be implemented thereby addressing the applicable policies of the Hamilton-Wentworth Official Plan.

2) Ms. Catherine Plosz of this office can be contacted at 905-546-2424, extension 1231 in order to obtain 2004 Nature Counts biological information on the ESA's in the vicinity. In addition, please include Ms. Plosz on the mailing list.

3) The City of Hamilton's tree-cutting bylaw must be adhered to if any removal or destruction of trees is required.

Cont'd...

Cont'd...

From a Heritage and Urban Design perspective we have the following comments:

1) Mr. Joseph Muller of this office can be contacted at 905-546-2424, extension 1214 in order to determine if an archaeological assessment is required as part of the E.A. In addition, please include Mr. Muller on the mailing list.

By copy of this letter, we are informing Ms. Mary Lou Tanner, Manager of Strategic and Environmental Planning of these proposed works and request that she be added to the mailing list and kept informed of all events/activities relating to this project.

Copies of all future correspondence should also be forwarded to the following agencies:

Grand River Conservation Authority
400 Clyde Road
Cambridge ON
N1R 5W6

Hamilton Region Conservation Authority
838 Mineral Springs Road
P.O. Box 7099
Ancaster ON
L9G 3L3

Should you require any further information, please contact me at 905-546-2424, extension 2624.

Yours truly,

Michael P. Sabelli, C.E.T.
Business Facilitator - Engineering

Cc: Mary-Lou Tanner
Cc: Simon Deiaco
Cc: Catherine Plosz
Cc: Joseph Muller
Cc: David Wesenger, Senior Project Manager, Stantec Consulting Ltd., 361 Soutgate Drive, Guelph ON N1G 3M5

## Wesenger, David

**From:** ConnJ@burlington.ca
**Sent:** Friday, November 12, 2004 4:15 PM
**To:** Wesenger, David
**Subject:** Hamilton to Milton Natural Gas Pipeline

to: David Wesenger

your letter of Nov 8th was received today. Your letter identifies that the EA for this proposal is being updated. I was not involved in the 1989 initial Gas Pipeline 'request for comments' but did provide in 2002 comments relating to any 'new developments' in relation to the pipeline route thru Burlington.

I note that my 2002 comments and letters dated November 29, 1989 from Doug Dalgarno, Manager of Design, November 29, 1989 from Gary Goodman, Executive Director Planning and Development and December 15, 1989 from Marilyn Lagzdins, Planner were included with the Nov 8th letter from your offices.

Not included with the Nov 8th letter was the Burlington Council Resolution dated August 12, 1991. The resolution amongst other items identifies the need for Construction and Excavation on Public Property Permits. Please inform me as to whether this 1991 City Council information is within your files.

Could you tell me if the existing pipeline r-o-w is to utilized for the additional pipeline and if not, how much additional easement width location either to the north or south of the current easement thru Burlington is involved in the proposal being discussed at this time.

look forward to discussing this further with you, regards

This message, including any attachments, is privileged and intended only for the addressee(s) named above. If you are not the intended recipient, you must not read, use or disseminate the information contained in this email/fax. If you have received this email/fax transmission in error, please notify the sender immediately by telephone, fax or email and permanently delete this email from your computer/shred this fax, including any attachments, without making a copy. Access to this email/fax by anyone else is unauthorized. Thank you.

## Wesenger, David

**From:** Usman.Ahmed@mah.gov.on.ca
**Sent:** Wednesday, November 10, 2004 3:44 PM
**To:** Wesenger, David
**Cc:** Bruce.Singbush@mah.gov.on.ca; Howard.Barton@mah.gov.on.ca
**Subject:** Environmental Assessment (EA) Impact Update- Hamilton to Milton Natural Gas Pipeline

Dear Mr. Wesenger:

Thank you for your letter of November 5th., 2004 regarding your firm's involvement in Union Gas's project to expand its existing natural gas transmission pipeline system in the Hamilton-Milton area and requesting us for information regarding developments in the study area that are proposed for the next two years as well as any comments or concerns we might have regarding this project.

I have forwarded your letter to Mr. Bruce Singbush, Manager, Central Municipal Services Office, for his attention. If there is a ministry interest in this project his office will contact your directly. Mr. Singbush can be contacted at (416) 585-6564.

Thank you, again, for giving us an opportunity to participate in this project.

Usman Ahmed
Provincial Planning and Environmental Services Branch
Ministry of Municipal Affairs
Tel: (416) 585-7181
Fax: (416) 585 4006/4245
Email: usman.ahmed@mah.gov.on.ca

THE REGIONAL MUNICIPALITY OF HALTON
1151 BRONTE ROAD
OAKVILLE, ONTARIO, CANADA L6M 3L1

PLANNING & PUBLIC WORKS DEPARTMENT
Tel: (905) 825-6000 Fax: (905) 825-8822
Toll free: 1-866-4HALTON (1-866-442-5866)

HALTON REGION 30th ANNIVERSARY

November 25, 2004

Mr. David Wesenger
Senior Project Manager
Stantec Consulting Ltd.,
361 Southgate Drive
Guelph, Ontario
N1G 3M5

DEC 07 2004

Dear Mr. Wesenger

**Re: Hamilton to Milton Natural Gas Pipeline**

I am pleased to advise you on behalf of the Regional Municipality of Halton that we have no objection to Union Gas' proposed expansion to their natural gas pipeline system.

In response to your question regarding any new information, policies or guidelines that we have implemented in the last two years, I would direct you to three main sources. The first of these is the Province of Ontario's Draft Greenbelt Plan, October 2004. This Plan contains new land use planning policies that are additional to the Provincial policies contained in the Niagara Escarpment Plan. The Draft Greenbelt Plan can be accessed from the Government of Ontario's website.

The second source is Halton Region's proposed Regional Official Plan Amendment No. 25. This Amendment resulted from our five-year review of the Regional Official Plan. It can be found on our website at http://www.region.halton.on.ca/ppw/OPReview/adoptedOPA.pdf.

Third, I note that information on individual Regional roads and other Regional infrastructure projects can also be found on our website at http://www.region.halton.on.ca/ppw.

I would be pleased to provide additional comments or information at your request.

Yours truly,

Brock Criger, M.C.I.P.,
Senior Planner

Cc: Rui.Ribeiro@cn.ca; John.Mactaggart@cn.ca
Subject: Hamilton to Milton Natural Gas Pipeline

Hi David -

We received your notice of an "Open House" for this project and can advise you that utility crossings of CN lines are now handled in-house at the CN Concord facility.

Your contact for this project is now Rui Ribeiro who may be reached at 905-669-3184. Please update your records accordingly.

Regards

T.G.

Appendix A3

Notice of Public Open House

# UNION GAS PIPELINE PROJECT OPEN HOUSE

In response to the growing demand for natural gas, Union Gas is seeking to expand its existing natural gas transmission pipeline system in the Hamilton-Milton area.

The proposal is to construct a pipeline primarily adjacent to Union Gas's existing transmission pipelines in the area.

This additional pipeline would begin at a point just east of Hwy 6 and north of Carlisle Road in the Town of Flamborough and proceed 17 km northeast to a location just to the west of First Line in the Town of Milton.

An environmental assessment on this proposal is being updated and would be a part of an Ontario Energy Board application expected early 2005. The Ontario Energy Board is the body that regulates the energy sector in the province and whose review and approval is required before this project can proceed. If approved, construction would begin in 2006.

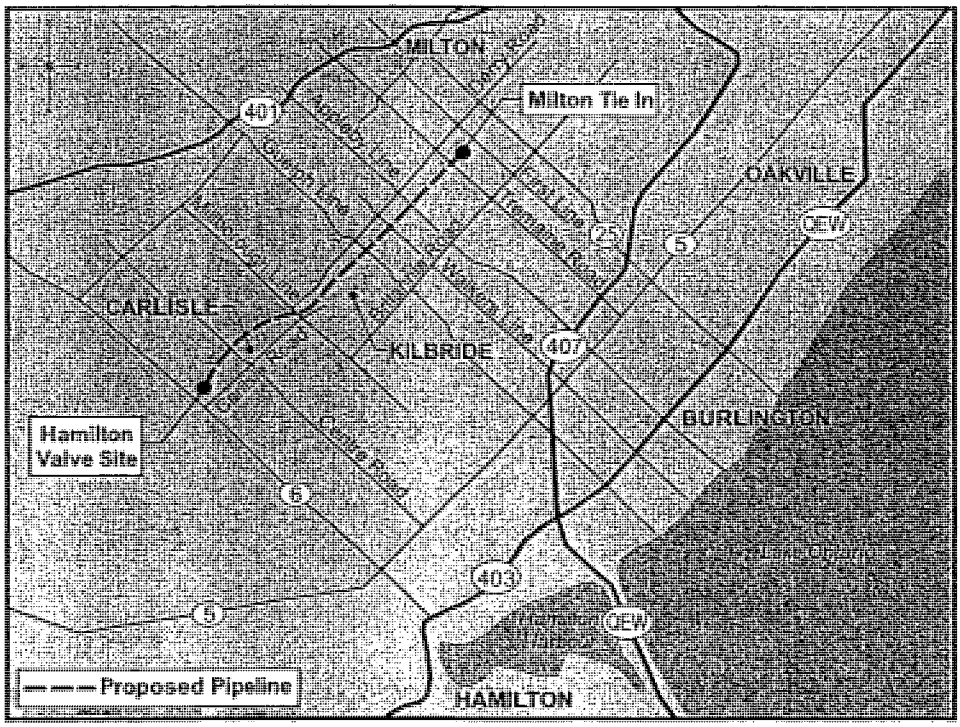
Copies of the environmental assessment reports completed to date for this project are available for review at the following locations:

Carlisle Library
1496 Centre Road
Carlisle, ON
L0R 1H0
905-689-8769

Kilbride Library
6611 Panton Street
Kilbride, ON
L0P 1G0
905-335-4011

To learn more about this project and to provide an opportunity for community input, an Open House will be held.

**Carlisle Community Centre**
**1496 Centre Road**
**Carlisle, ON**
**L0R 1H0**
**Tuesday November 23, 2004**
**5:00 pm - 9:00 pm**




At this session, Union Gas staff and an independent environmental consultant, Stantec Consulting will be available to explain the project, construction procedures and specific mitigation measures along the pipeline route.

Input received at the Open House will also be used to help develop or confirm site specific protection and mitigation measures.

Anyone having an interest in this study is encouraged to submit their questions or comments to:


Doug Schmidt
Environmental Planner
Union Gas
50 Keil Drive North
Chatham, Ontario N7M 5M1
dschmidt@uniongas.com

David Wesenger
Senior Project Manager
Stantec Consulting Ltd.
361 Southgate Drive
Guelph ON N1G 3M5
dwesenger@stantec.com

Appendix A4

Project Newsletter

# Hamilton to Milton Natural Gas Pipeline Project

Information Newsletter - November 23, 2004

## THE PROJECT

Union Gas operates a number of natural gas transmission pipelines in southwestern Ontario.

There is a growing demand for natural gas in our economy. Natural gas helps heat our homes and fuel our growth and economic expansion. It also fuels gas-fired power plants, which in turn bring much needed electricity to Ontario homes and businesses.

In order to meet this growing demand for natural gas, Union Gas needs to expand its natural gas pipeline system. One such proposed expansion is in the Hamilton-Milton area.

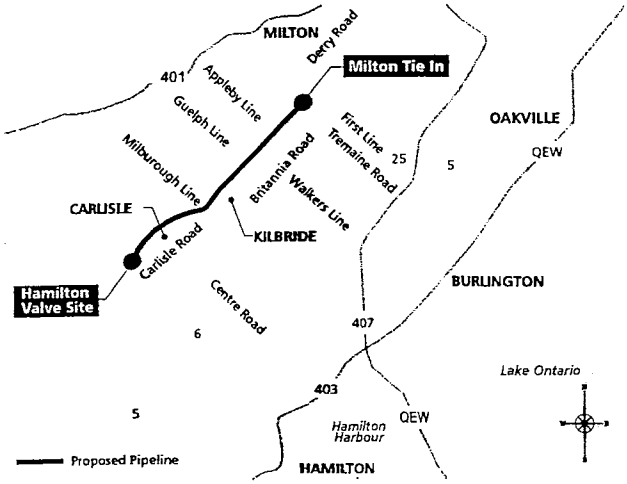
Union Gas's major gas transmission corridor, called the Trafalgar System, runs from the Dawn Compressor Station near Sarnia to the Trafalgar Compressor Station in Mississauga. The Trafalgar System consists primarily of four pipelines (26, 34, 42 and 48 inches in diameter) running parallel to each other along most of this corridor. Sections of the 48-inch pipeline are not complete along the system, including a section between Hamilton and Milton.

The section of the Trafalgar System between the Hamilton valve site and the Milton tie-in presently consists of a 26 and 34 inch pipeline.

The proposed project involves the construction of 17 km of 48-inch diameter natural gas pipeline between a point east of Highway 6 and north of Carlisle Road in the Town of Flamborough, to a location just to the west of First Line in the Town of Milton. The connection to the pipeline in Milton will not require above ground structures. If approved, construction will likely commence during the summer of 2006. The preferred route for the proposed pipeline is illustrated on the map (see inset).



**Bronte Creek at Courtcliffe Park**
Looking northeast along existing route.

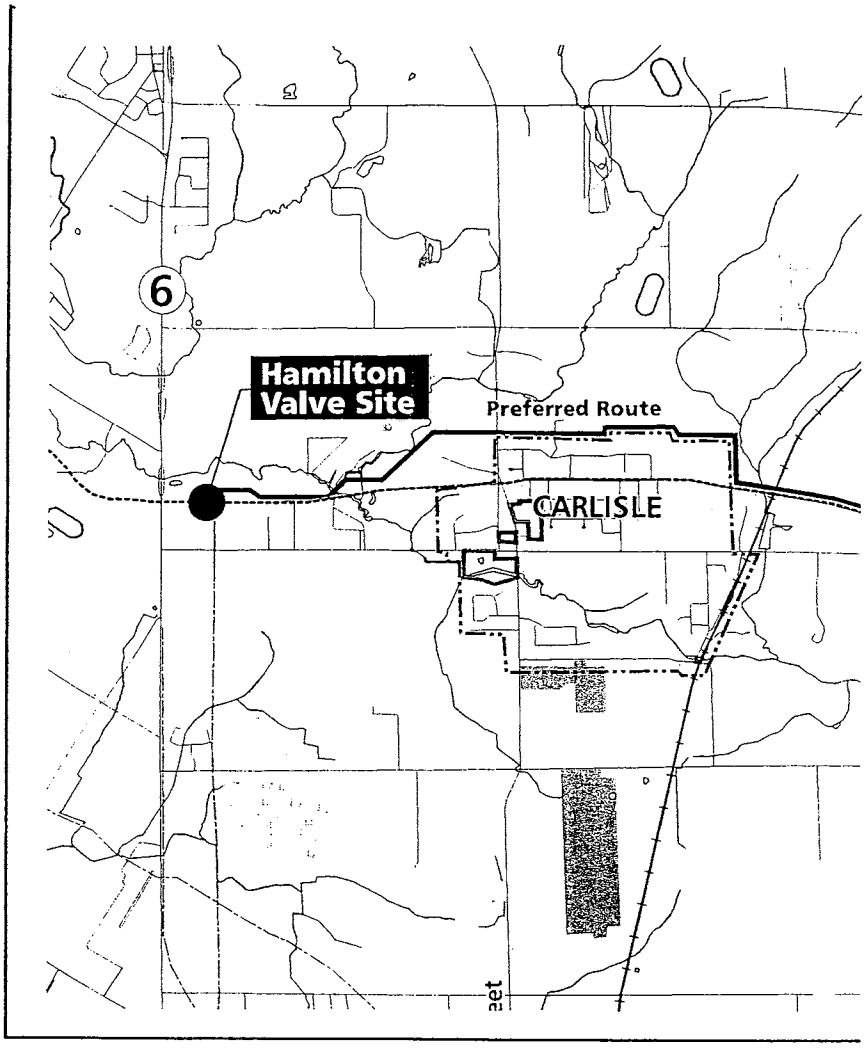


## REQUIRED APPROVALS

The Hamilton to Milton pipeline requires construction approval from the Ontario Energy Board (OEB), the body that regulates the energy sector in this province. Union Gas will meet all the requirements of the OEB through its commitment to build safe and environmentally sound facilities. To request more information on public involvement and the regulatory and approvals process, please contact the OEB:

Ontario Energy Board
2300 Yonge Street, Suite 2601
P.O. Box 2319
Toronto, Ontario M4P 1E4
1-877-632-2727 (1-877-OEB-ASAP)
http://www.oeb.gov.on.ca

An application to the OEB for the required approval called a Leave-to-Construct is proposed for early 2005. Union Gas has retained Stantec Consulting Ltd. (Stantec) of Guelph, Ontario to assist in preparing an environmental assessment update for filing with the OEB as part of the application to construct the pipeline.




## STUDY PROCESS

The original environmental assessment (EA) for the Hamilton to Milton pipeline commenced in 1989. Several pipeline routes and alternatives were evaluated and route changes were made in response to stakeholder input from open houses and public consultations. Due to changes in natural gas demand the project was put on hold in 1993.

In the fall of 2004, Union Gas reactivated the Hamilton to Milton project. Union Gas retained Stantec to update the previous EA reports. The EA update presently being completed is following a study process designed to:

**Confirm** the accuracy of the information presented in the previous EA reports that were generated in both 1991 and 2002.

**Determine** whether there are any changes to land use along the proposed route.

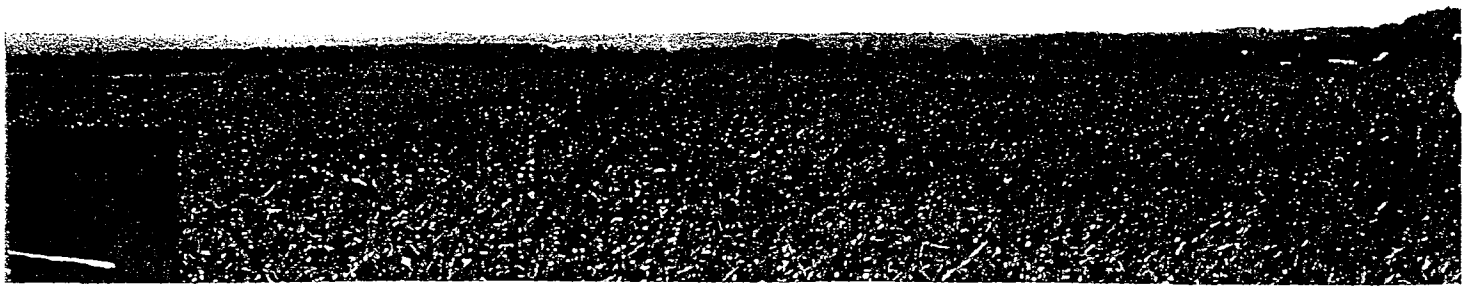
**Consult** with directly affected landowners and stakeholders to ensure awareness of the project and to address issues.

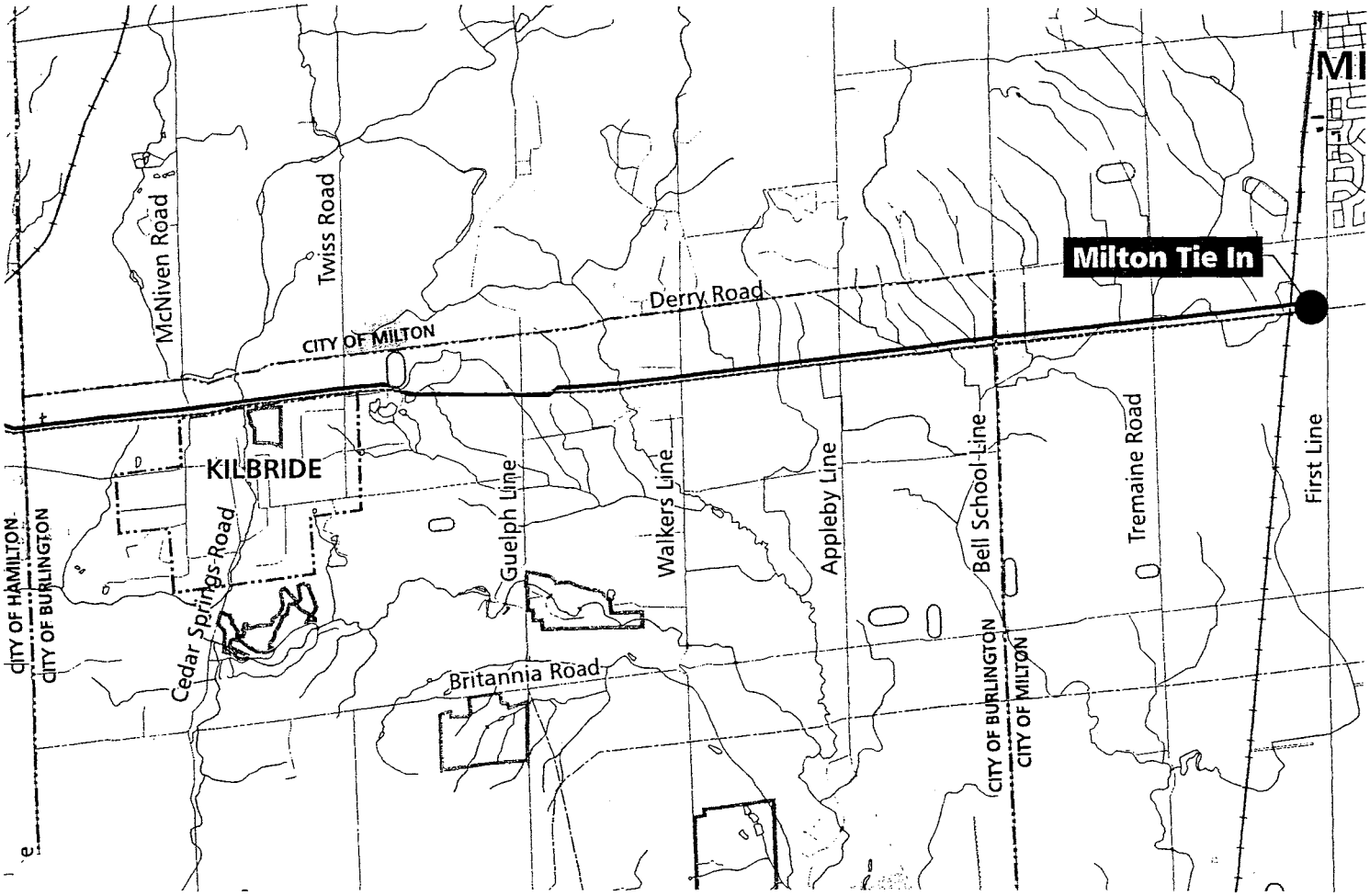
**Consult** with all relevant provincial and municipal agencies for additional or updated information or comments.

**Use** the new information to review and confirm the preferred route location, potential impacts and proposed mitigation requirements.

**Prepare** a supplementary report to update the previous EA documents to meet current OEB Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines.

**Milton Tie-In** (no above ground structures)






## Schedule

**Fall 2004 -**
Environmental Report update by environmental consultant, Stantec

**Early 2005 -**
Union Gas files application with the Ontario Energy Board (OEB)

**Spring 2005** - The OEB considers the need and viability of the project, a full public process

**Summer 2005** - Decision on project expected

**Summer 2006** - If approved by OEB, construction begins

**Fall 2006 onward** - Operation and maintenance of pipeline

## LET US KNOW WHAT YOU'RE THINKING

We are interested in hearing your comments, addressing questions and working with the communities and residents along the preferred route to ensure smooth and orderly development of the project.

Our approach to public communications and consultation includes a mix of providing information on the project plans and receiving input from interested people through a public open house, exit questionnaires at the public open houses and newsletters. One on one meetings will be held with individual property owners or groups who may be directly affected by the proposed project. Project details will be discussed and concerns raised will be addressed.

At the public open house, we particularly want your input on the preferred route, the study process, and any other interests you might have regarding this project. You may provide comment at any point in the EA update process.




## WHAT HAPPENS AFTER THE PUBLIC OPEN HOUSE?

After the public open house, Stantec will evaluate the questionnaire results and other input to evaluate the merits of the preferred route. Union Gas will also evaluate the preferred route using this public information and other inputs, as well as financial and technical considerations.

Subsequent to the public open house, Union Gas hopes meetings with directly affected landowners can be scheduled to obtain information about individual property concerns, and to explain the documents and compensation package related to the project.

The 2004 EA update (to be completed in January 2005) will outline plans to reduce and control effects of the pipeline on the environment, identify plans to monitor the project and any other contingencies.

## WHAT'S NEXT?

- Public open house (November 23, 2004)
- Analysis of public input (November/December 2004)
- Confirmation of preferred route (December 2004)
- EA update report completion (January 2005)
- Application to the OEB (Early 2005)
- Land agent contact with directly affected landowners (November 2005 June 2006)
- Construction, subject to OEB approval (Summer 2006)
- Pipeline operation and maintenance (Fall 2006 onward)

## CONTACT THE HAMILTON TO MILTON PIPELINE TEAM

For more information please contact one of the individuals below.

**Doug Schmidt,** *Environmental Planner*

Union Gas Limited

50 Keil Drive North

P.O. Box 2001

Chatham, Ontario N7M 5M1

Ph.: 1-800-265-5230 (Ext. 2895)

Fax: 519-436-4560

Email: dschmidt@duke-energy.com

**Joe VanHamme,** *Lands Agent*

Union Gas Limited

50 Keil Drive North

P.O. Box 2001

Chatham, Ontario N7M 5M1

Ph.: 1-800-265-5230 (Ext. 2449)

Cell: 519-365-0751

Fax: 519 436-5292

Email: jvanhamme@uniongas.com

**David Wesenger,** *Senior Project Manager*

Stantec Consulting Ltd.

361 Southgate Drive

Guelph, Ontario, N1G 3M5

Ph.: 519-836-6050 (call collect)

Fax: 519-836-2493

Email: dwesenger@stantec.com

# Appendix A5

## Exit Questionnaire

# APPENDIX A5 - EXIT QUESTIONNAIRE
# SUMMARY CHART

| Question | Response |
|---|---|
| Q.1 Please describe your interest in this project | • Adjacent Landowner – 10 Responses<br>• Directly Affected Landowner – 6 Responses |
| Q.2 How did you find out about tonight's meeting? | • Letter of Invitation – 13 Responses<br>• Newspaper – 2 Responses<br>• Neighbour – 1 Response |
| Q.3 Please identify any environmental features along the proposed route which are either incorrectly mapped, omitted or that you feel are important to consider during the study (please state your reasons). | • Low area, groundwater concerns<br>• Significant trees behind property, unique topology not to be disturbed. If preferred route illustrated by EA is chosen want easement shifted north to avoid trees and gullies. Amazed that consultants have not walked route north of Carlisle.<br>• High water table<br>• Water supply |
| Q.4 Considering the location of the route as shown on the displays, please indicate whether there are any potential effects to you, your property, or business that Union Gas would need to address prior to, or during construction and operation of the pipeline. | • Rock features, old growth trees<br>• Cropped land<br>• Personal use and property values negatively affected if new line is not setback 25 m behind Blackberry Place<br>• Bents garage move will create an eyesore. Hopefully trees are planted in front of structure so they obstruct view of building. Replant all trees at same or approximate height<br>• Obviously a 48" pipeline with an operating pressure of 950 psi is a potential effect. We would want compensation for this monster running adjacent to our property<br>• We are glad that you are going north of the Flamborough Hills Development instead of going through it<br>• I live on 7 Woodend Drive and back on to Mr. Reg Bents farm. On the back edge of my property, there are approximately 6 trees including a huge maple tree 2-3 feet in diameter 80 to 100 feet tall. I am concerned about the removal of these trees and would like to be involved when you are surveying the area. Also on the other side of the lane there are two very large trees that offer privacy to my property. It would be a shame to remove them.<br>• Close proximity of pipeline to my residence, concern of vibration cracking to walls/foundation. My property line abuts pipeline easement.<br>• Traffic etc. during construction. |
| Q.5 Do you have any other concerns about this proposed project that you would like to bring to our attention? | • It seems to me that you could avoid a lot of people problems by going a bit north. Why not bury it under the 8th or 10th concession?<br>• We want the alternate routes explored fully. Why this cannot be routed north of Carlisle down the middle of the 10th Concession is beyond me. We would also like a copy of the Final EA prior to its' filing with the Ontario Energy Board.<br>• Dust/debris inconvenience due to open in ground pool.<br>• Other questions have been adequately answered<br>• Access to balance of property, loss of crop land, loss of crops<br>• Safety – vibration, blasting etc.<br>• Trees<br>• Compensation<br>• Pipeline will bring more development |

Stantec

# Hamilton To Milton Natural Gas Pipeline Project

## Environmental Assessment Update
## Public Open House Questionnaire

Please complete this questionnaire and return it to a Stantec representative or mail it to Stantec Consulting Ltd. by November 30, 2004. Postage paid, self-addressed envelopes are available at the sign-in table. Thank you for your assistance.

Please read the newsletter and look over the displays before completing this questionnaire. If you require any assistance or clarification while completing the questionnaire please contact a Stantec or Union Gas representative.

1. Please describe your interest in this project (please check one).

   Directly Affected Landowner __6__ Adjacent Landowner __10__

   Member of Special Interest Group __0__ Interested Citizen __0__

   Government Official __0__

   Other (please specify) _____

2. How did you find out about tonight's meeting? (please check one)

   Letter of Invitation __13__ Newspaper __2__

   Other (please specify)
   __neighbour__1_____

3. Please identify any environmental features along the proposed route which are either incorrectly mapped, omitted or that you feel are important to consider during the study (please state your reasons).

   - *Low area, ground water concerns*
   - *Significant trees behind property, unique topology not to be disturbed. If preferred route illustrated by EA is chosen want easement shifted north to avoid trees and gullies. Amazed that consultants have not walked route north of Carlisle.*
   - *High water table*
   - *Water supply*

4. Considering the location of the route as shown on the displays, please indicate whether there are any potential effects to you, your property, or business that Union Gas would need to address prior to, or during, construction and operation of the pipeline.

   - *rock features, old growth trees*
   - *crosses cropped land*
   - *personal use and property values negatively affected if new line is not set back 25 m behind Blackberry Place*
   - *Bents garage move will indicate an eyesore. Hopefully trees are planted in front of structure so they obstruct view of building. Replant all trees at same or approx. height.*
   - *Obviously a 48" pipeline with an operating pressure of 950 psi is a potential effect. We would want compensation for this monster running adjacent to our property.*
   - *We are glad that you are going north of the Flamborough Hills Development instead of through it*
   - *I live on 7 Woodend and back on to Reg Bents farm. On the back edge of my property, there are ~6 trees including a huge maple tree ~2-3 feet in diameter 80" – 100" tall. These may be right on the property line or 1' – 2' either side of the property line. I'm very concerned re the possible removal of these trees (when you are surveying the area, I would like to be involved). Also, on the other side of the lane are 2 very large trees that offer privacy to my property. These are large trees that would be a shame to remove.*
   - *Close proximity of pipeline to my residence, concern of vibration cracking to walls/foundation/. My residence property line abuts pipeline easement.*
   - *Traffic etc. during construction.*

5. Do you have any other concerns about this proposed project that you would like to bring to our attention?

   - *It seems to me that you could avoid a lot of people problems by going a bit north. Why not bury it under the 8th or 10th concession?*
   - *We want the alternate routes explored fully. Why this cannot be routed north of Carlisle down the middle of the 10th Concession is beyond me. We would also like a copy of the final EA prior to its' filing with the Ontario Energy Board.*
   - *Dust/Debris inconvenience due to open in ground 20x40 pool*
   - *Other questions have been adequately answered*
   - *Access to balance of property, loss of crop land, loss of crops*
   - *Safety – vibration, blasting, etc.*
   - *Trees*
   - *Compensation*
   - *Pipeline will bring more development*

***Thank you for completing this questionnaire.***

***If you would like someone to contact you about any items identified above please provide us with your name:***

Name: _____



Stantec

Address: _____

Phone: (home) _____ (work) _____

Email: _____

Convenient time you can be reached: _____

**INFORMATION COLLECTED BY THIS QUESTIONNAIRE COULD BECOME PART OF THE PUBLIC RECORD. IF YOU HAVE PROVIDED YOUR NAME, BUT WISH YOUR ANSWERS TO REMAIN PRIVATE, PLEASE INDICATE SO BY SIGNING BELOW.**

Signature: _____

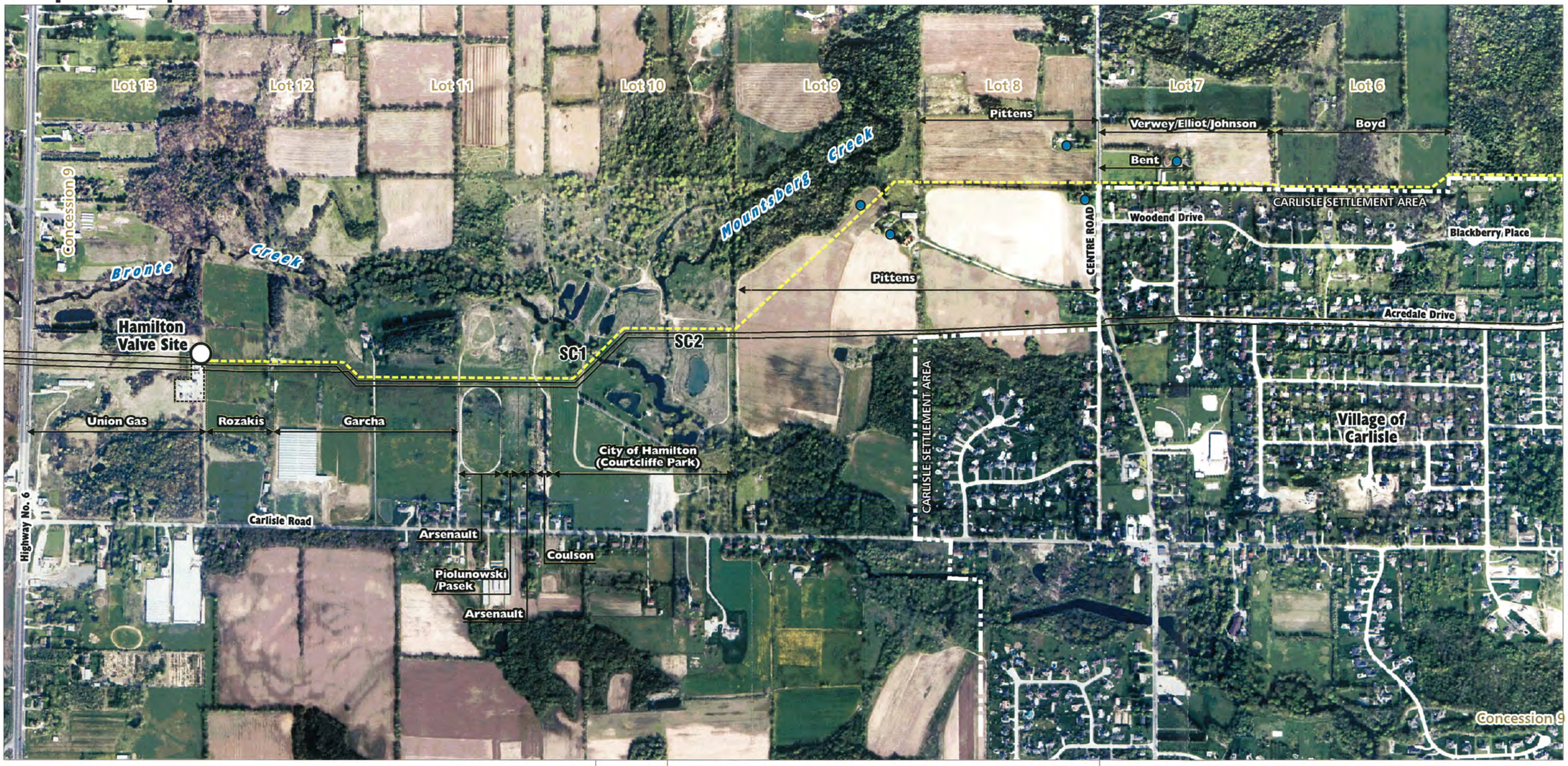
Date: _____

B

# Appendix B

## 2004 Photomosaics

# Proposed Pipeline Route




SC1 - Crossing of Bronte Creek (cold water fishery), SC2 Mounstberg Creek (coldwater fishery). Inform appropriate agencies prior to commencing crossing. Reduce workspace. Dam, Divert and Pump crossing procedures are recommended. No refuelling of machinery or fuel storage, where possible, within 100 m of waterway. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. Refer to Union Gas Construction Specification SP-51-20-08 Water Course Crossing and SP-51-20-02 Soil Erosion and Sediment Control. Cold water fishery work window July 1 - Sept. 15.

Road crossing (Centre Road). Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

Carlisle Settlement Area, residences adjacent to the Right-of-Way. Where possible, restrict construction activity to normal working hours. Minimize nuisance dust and noise. Contact Landowners prior to construction to provide details and discuss schedule, general construction practices and access/safety concerns.

Potential disturbance to agricultural operations and rural residences during pipeline construction. Consult with Landowner to determine precise tile drainage locations, location and characteristics of water wells, property access requirements, topsoil handling and pre-construction specs. Refer to Union Gas Construction Specifications SP-51-20-18 Tile repairs, SP-51-20-04 Topsoil stripping and conservation, SP-51-20-05 Grading, SP-51-20-06 Trenching, SP-51-20-07 Backfill, SP-51-20-19 Clean-up and SP-51-20-01 Fencing.

Stantec

**Note:** Location of proposed and existing pipelines are approximate. Air Photo base was taken in 2004. Site photos were taken in 2002

Legend

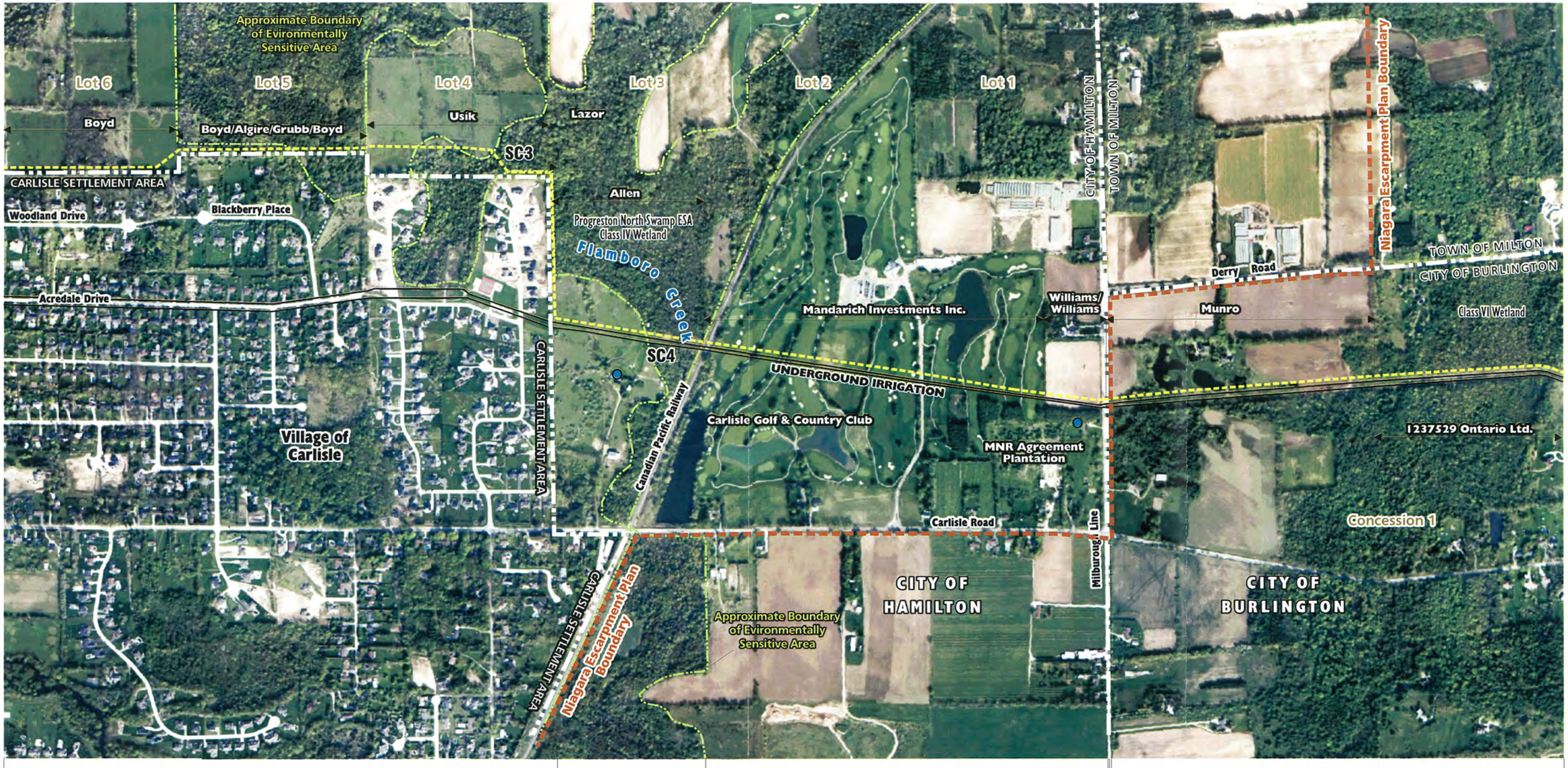
- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- Property Limit
- SC1 — Stream Crossing

200m



FILE: 60963928 IM_02.CDR DATE: DECEMBER, 2004

# Proposed Pipeline Route




Carlisle Settlement Area, residences adjacent to the Right-of-Way. Where possible, restrict construction activity to normal working hours. Minimize nuisance dust and noise. Contact Landowners prior to construction to provide details and discuss schedule, general construction practices and access/safety concerns.

SC3 and SC4 - Crossing of Flamboro Creek (warm water fishery). Inform appropriate agencies prior to commencing crossing. Reduce workspace. Dam and Pump Crossing methods are recommended. No refuelling of machinery or fuel storage, where possible, within 100 m of waterway. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. Refer to Union Gas Construction Specifications SP-51-20-08 Watercourse crossing and SP-51-20-02 Soil Erosion and Sediment Control.

Crossing of Canadian Pacific Railway (CPR) Line. Horizontally bore or directionally drill. Contact CPR prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specification SP-51-20-10 Highway, Railway and Roadway Crossings.

Crossing of Carlisle Golf and Country Club. Minimize Right-of-Way width where possible. Consult with the owner/superintendent prior to construction to determine timing and to discuss methods to minimize impact wherever possible.

Road crossing (Milburough Line). Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

Wood lot clearing. Restrict construction activity to ROW and minimize vegetation removal to greatest extent practical. Refer to Union Gas Construction Specifications SP-51-20-03 Clearing and Grubbing.

Wood lot clearing. Restrict construction activity to ROW and minimize vegetation removal to greatest extent practical. Refer to Union Gas Construction Specifications SP-51-20-03 Clearing and Grubbing.

Wood lot clearing. Restrict construction activity to ROW and minimize vegetation removal to greatest extent practical. Refer to Union Gas Construction Specifications SP-51-20-03 Clearing and Grubbing.

Potential disturbance to agricultural operations and rural residences during pipeline construction. Consult with Landowner to determine precise tile drainage locations, location and characteristics of water wells, property access requirements, topsoil handling and pre-construction specs. Refer to Union Gas Construction Specifications SP-51-20-18 Tile repairs, SP-51-20-04 Topsoil stripping and conservation, SP-51-20-05 Grading, SP-51-20-06 Trenching, SP-51-20-07 Backfill, SP-51-20-19 Clean-up and SP-51-20-01 Fencing.

Stantec

**Note:** Location of proposed and existing pipelines are approximate
Air Photo base was taken in 2004. Site photos were taken in 2002

Legend

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- Property Limit
- SC1 — Stream Crossing

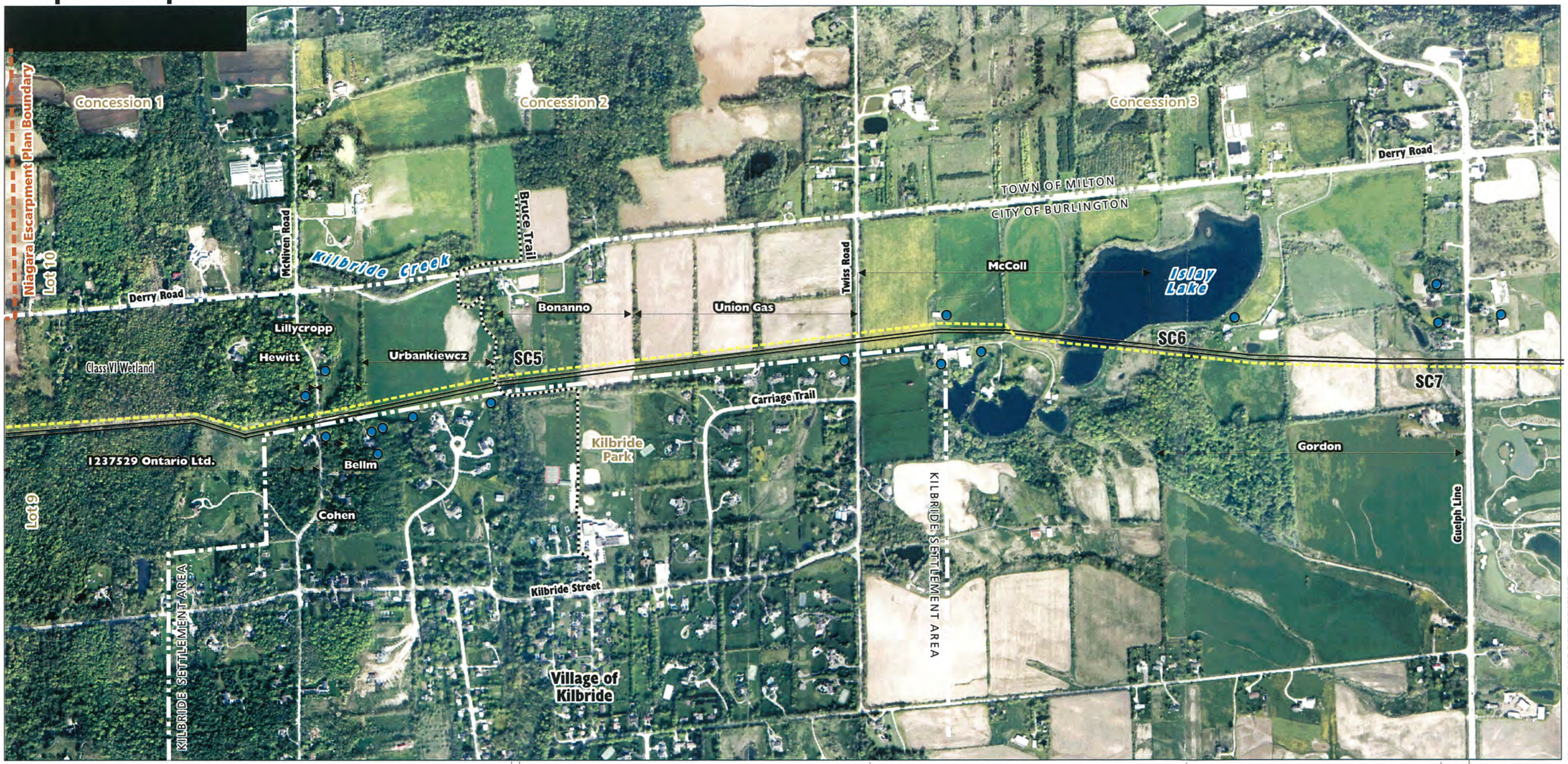
200m

N W E S



FILE: 60963928_IM_02.CDR DATE: DECEMBER, 2004

# Proposed Pipeline Route




SC5 - Crossing of Kilbride Creek (cold water fishery). Inform appropriate agencies prior to commencing crossing. Reduce workspace. Dam and Pump crossing techniques are recommended. No refuelling of machinery or fuel storage, where possible, within 100 m of waterway. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. Refer to Union Gas Construction Specifications SP-51-20-08 Watercourse crossing and SP-51-20-02 Soil Erosion and Sediment Control. Cold water fishery work window July 1-Sept. 15.

Bruce Trail Crossing - Access to trail must remain open. Trail infrastructure must be maintained or repaired as necessary.

Road crossing (Twiss Road). Horizontally bore or directionally drill. Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

SC6, SC7 - Unnamed watercourses. Inform appropriate agencies prior to commencing crossing. Reduce workspace and requirement. Dam and Pump crossing techniques to be used. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. No refueling of machinery or fuel storage, where possible, within 100 m of waterway. Refer to Union Gas Construction Specifications SP-51-20-08 Watercourse crossing and SP-51-20-02 Soil Erosion and Sediment Control.

SC6, SC7 - Unnamed watercourses. Inform appropriate agencies prior to commencing crossing. Reduce workspace and requirement. Dam and Pump crossing techniques to be used. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. No refueling of machinery or fuel storage, where possible, within 100 m of waterway. Refer to Union Gas Construction Specifications SP-51-20-08 Watercourse crossing and SP-51-20-02 Soil Erosion and Sediment Control.

Road crossing (Guelph Line). Horizontally bore or directionally drill. Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

Wood lot clearing. Restrict construction activity to ROW and minimize vegetation removal to greatest extent practical. Implement standard industry protection measures for dust and noise. - refer to Union Gas Construction Specifications SP-51-20-03 Clearing and Grubbing.

Road crossing (McNiven Road). Horizontally bore or directionally drill. Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

Undercrossing of existing pipeline - Locate pipelines prior to construction.

Crossing of Islay Lake. Inform local CA and MNR prior to commencing crossing. To isolate construction area from the greater lake, a granular B containment dyke will be built between the two existing pipelines. No refuelling of machinery etc. within 100m of the lake. A siltation screen will be installed on the north (water) side of the dyke. Refer to Union Gas Construction Specifications SP-51-20-08 Watercourse Crossing and SP-51-20-02 Soil Erosion and Sediment Control.

Potential disturbance to agricultural operations and rural residences during pipeline construction. Consult with Landowner to determine precise tile drainage locations, location and characteristics of water wells, property access requirements, topsoil handling and pre-construction specs. Refer to Union Gas Construction Specifications SP-51-20-18 Tile repairs, SP-51-20-04 Topsoil stripping and conservation, SP-51-20-05 Grading, SP-51-20-06 Trenching, SP-51-20-07 Backfill, SP-51-20-19 Clean-up and SP-51-20-01 Fencing.

Stantec

Note: Location of proposed and existing pipelines are approximate
Air Photo base was taken in 2004. Site photos were taken in 2002

Legend

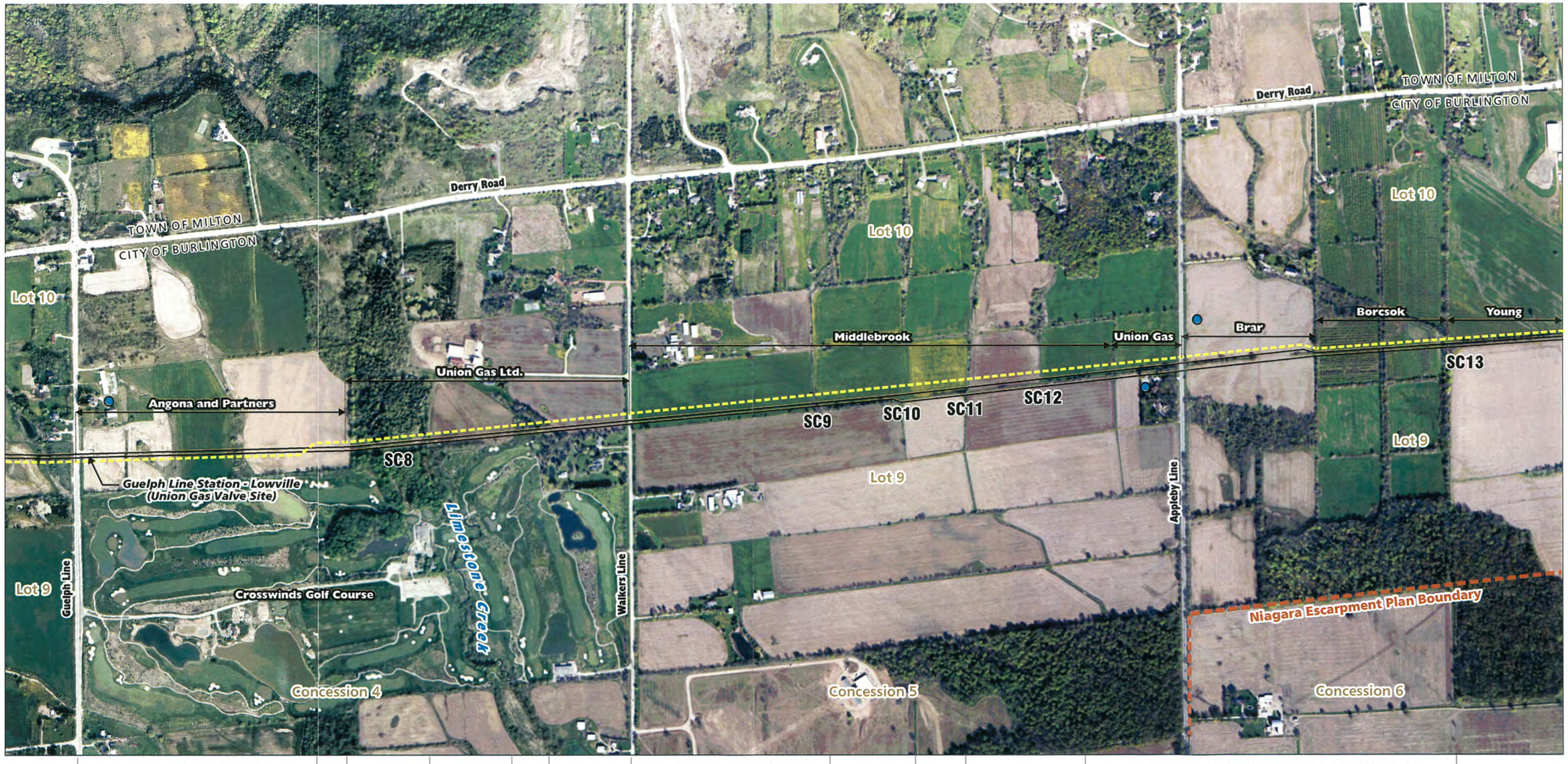
- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- Property Limit
- SC1 — Stream Crossing

200m

SHEET 3 OF 5

FILE: 60063928_M_02.CDR DATE: DECEMBER, 2004

# Proposed Pipeline Route




Undercrossing of existing pipeline. Locate pipelines prior to construction.

Road crossing (Guelph Line). Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

Removal of Trees. Reduce workspace. Avoid specimen trees wherever possible. Woodlot edge clearing - refer to Union Gas Construction Specifications SP-51-20-03 Clearing and Grubbing.

Removal of Trees. Reduce workspace. Avoid specimen trees wherever possible. Woodlot edge clearing - refer to Union Gas Construction Specifications SP-51-20-03 Clearing and Grubbing.

SC8 - Crossing of Limestone Creek (cold water fishery). Inform appropriate agencies prior to commencing crossing. Reduce workspace. Dam and Pump crossing procedures are recommended. No refuelling of machinery or fuel storage, where possible, within 100 m of waterway. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. Refer to Union Gas Construction Specifications SP-51-20-08 Water Course Crossing and SP-51-20-02 Soil Erosion and Sediment Control. Cold water fishery work window is July 1 - Sept. 15.

Road crossing (Walkers Line). Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

SC9, SC10, SC11, SC12, SC13 - Unnamed watercourses. Inform appropriate agencies prior to commencing crossing. Reduce workspace and requirement. Dam and Pump crossing techniques to be used. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. No refuelling of machinery or fuel storage, where possible, within 100 m of waterway. Refer to Union Gas Construction Specifications SP-51-20-08 Watercourse crossing and SP-51-20-02 Soil Erosion and Sediment Control.

Road crossing (Appleby Line). Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

Potential disturbance to agricultural operations and rural residences during pipeline construction. Consult with Landowner to determine precise tile drainage locations, location and characteristics of water wells, property access requirements, topsoil handling and pre-construction specs. Refer to Union Gas Construction Specifications SP-51-20-18 Tile repairs, SP-51-20-04 Topsoil stripping and conservation, SP-51-20-05 Grading, SP-51-20-06 Trenching, SP-51-20-07 Backfill, SP-51-20-19 Clean-up and SP-51-20-01 Fencing.

Stantec

**Note:** Location of proposed and existing pipelines are approximate. Air Photo base was taken in 2004. Site photos were taken in 2002.

Legend

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- Property Limit
- SC1 — Stream Crossing

200m



FILE: 60963928_M_02.CDR DATE: DECEMBER, 2004

# Proposed Pipeline Route




Road crossing (Bell School Line). Horizontally bore or directionally drill. Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

SC13,SC14,SC15,SC16,SC17,SC19,SC20 - Unnamed watercourses. Inform appropriate agencies prior to commencing crossing. Reduce workspace and requirement. Dam and Pump crossing techniques to be used. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. No refuelling of machinery or fuel storage, where possible, within 100m of waterway. Refer to Union Gas Construction Specifications SP-51-20-08 Watercourse crossing and SP-51-20-02 Soil Erosion and Sediment Control.

SC18 Crossing of Indian Creek (warm water fishery). Inform appropriate agencies prior to commencing crossing. Reduce workspace and requirement. Dam and Pump crossing techniques to be used. No refuelling of machinery or fuel storage, where possible, within 100 m of waterway. Implement MNR (1993) Generic Sediment Control Plans for Implementation at Stream Crossings Guideline. Refer to Union Gas Construction Spec. SP-51-20-08 Watercourse crossing, and SP-51-20-02 Soil Erosion and Sediment Control.

Road crossing (Tremaine Road). Horizontally bore or directionally drill. Contact Road Superintendent prior to crossing to outline crossing method and timing. Refer to Union gas Construction Specifications SP-51-20-10 Highway, Railway and Road Crossings.

Crossing of Canadian National Railway (CNR) Line. Horizontally bore or directionally drill. Contact CNR prior to crossing to outline crossing method and timing. Refer to Union Gas Construction Specification SP-51-20-10 Highway, Railway and Roadway Crossings.

Potential disturbance to agricultural operations and rural residences during pipeline construction. Consult with Landowner to determine precise tile drainage locations, location and characteristics of water wells, property access requirements, topsoil handling and pre-construction specs. Refer to Union Gas Construction Specifications SP-51-20-18 Tile repairs, SP-51-20-04 Topsoil stripping and conservation, SP-51-20-05 Grading, SP-51-20-06 Trenching, SP-51-20-07 Backfill, SP-51-20-19 Clean-up and SP-51-20-01 Fencing.

Stantec

**Note:** Location of proposed and existing pipelines are approximate
Air Photo base was taken in 2004. Site photos were taken in 2002.

Legend

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- Property Limit
- SC1 — Stream Crossing

200m



FILE: 60963928_M_02.CDR DATE: DECEMBER, 2004

C

# APPENDIX C

# OMNR GENERIC SEDIMENT CONTROL PLANS

## Objective of Generic Sediment Control Plan – Dry Flume Crossings

This plan sets out the measures that will be taken by "The Pipeline Company" and its contractors to control downstream sediment to the lowest level practically achievable during the construction of dry flume type crossings. The conditions and techniques set out on this plan are to be followed unless approved otherwise by the Ministry of Natural Resources Area Office (MNR).

## General Requirements

"The Pipeline Company" must use materials, construction practices, mitigation techniques and monitoring of operations at every water crossing in order to prevent the unauthorized harmful alteration, disruption or destruction of fish habitat or the impairment of water quality. The following requirements apply to any waterbody (stream, river, pond) and areas adjacent to it.

* Prior to removal of the low vegetative cover, effective mitigation techniques for erosion and sediment control must be in place to protect water quality. Limit the areal extent of disturbance to the minimum needed for construction and delay grubbing to immediately prior to grading operations.
* Materials removed or stockpiled during construction (e.g., excavated soil, backfill material) must be deposited and contained in a manner to ensure sediment does not enter a waterbody.
* There must be no fording of any stream.
* Except during construction of the crossing "The Pipeline Company" will not obstruct any watercourse so as to impede the free movement of water and fish.
* All exposed mineral soil must be graded to a stable slope and treated as quickly as possible to prevent erosion and sediment from entering the water.
* "The Pipeline Company" is to adhere to the Generic Sediment Control Plan For Temporary Vehicle Crossings.
* Techniques for erosion and sediment control are to adhere to accepted engineering practice and "The Pipeline Company" Typical Construction Drawings. The MNR publication Environmental Guidelines For Access Roads and Water Crossings (1990) may also be a useful reference source.
* "The Pipeline Company" is to have additional materials (e.g., rip rap and silt fencing) readily available in case they are needed in a hurry for erosion and sediment control.
* Temporary workspaces, in addition to the normal working right–of–way, adjacent to any water crossing must follow the following setbacks:

| | |
|---|---|
| Ground Slope <5% | 10 meters |
| Ground Slope >5% but <14% | 20 meters |
| Ground Slope >14% | 30 meters |

* If flows are in flood stage, work should be delayed if practical.
* "The Pipeline Company" will be held responsible for implementation of this plan.

## Stormwater Runoff Control

Exposed mineral soil near the water poses a potential threat of erosion and sediment entering the water in the event of a rainstorm. The erosion potential is highest on steep slopes (>15%) and where soils are silty or sandy. "The Pipeline Company" is to assess each site and shall use effective measures to keep sediment on land at all times. To the maximum extent reasonably possible, a silt fence is to separate exposed mineral soil from the creek at all times; this includes the travelled portion of the right–of–way during rain events (if necessary). Accumulated sediment is to be removed regularly. The area around water crossings is to be regularly monitored and if erosion problems develop, immediate action is to be taken with appropriate treatments. Additional measures to be considered are:

* Short term erosion control techniques applied over exposed soil, such as erosion control blankets, gravel sheeting, filter cloth, rip rap, seed and mulch.
* Delay construction during wet periods.
* Diversion berms or check dams to channelize flow and filter prior to re–entering stream.
* Dug sediment traps to pass runoff water through a pond and silt fence for settling of coarse particles before spilling into the stream.
* Proceed with the crossing as quickly as possible, to minimize the time from initial grubbing to completed site rehabilitation.

## Contingency Plan

In the event that unforseen events (e.g., bedrock in trench, flume washout) cause the strategies set out in this plan to be insufficient or inappropriate to meet the objective, "The Pipeline Company" is expected to respond in a timely manner with all reasonable measures consistent with safety, to prevent, counteract or remedy any effects on fish or fish habitat that may result. MNR is to be notified as soon as practical.

Existing spill reporting procedures established by MOE shall be used to report any unexpected discharge of silt or sediment or other deleterious substance at the water crossing. The spill shall also be reported to the MNR as soon as possible in these circumstances.

If MNR determines that long term damage to fish habitat has occurred due to failure of this plan to control sediment, a restoration plan will be developed by "The Pipeline Company" in consultation with and approval from MNR and DFO, for implementation by "The Pipeline Company".

## Flume Sizing

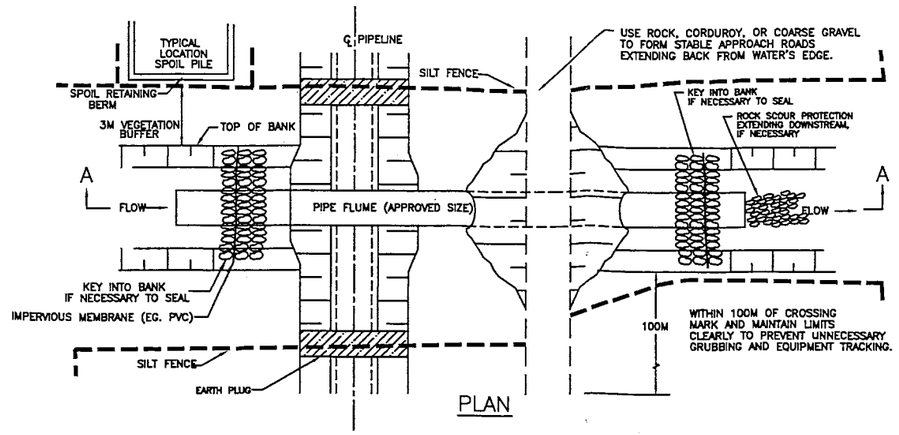
Flumes will be sized initially based on engineering hydrologic calculations. These theoretical sizes will be used as a guide, for confirmation in the field between "The Pipeline Company" and MNR.

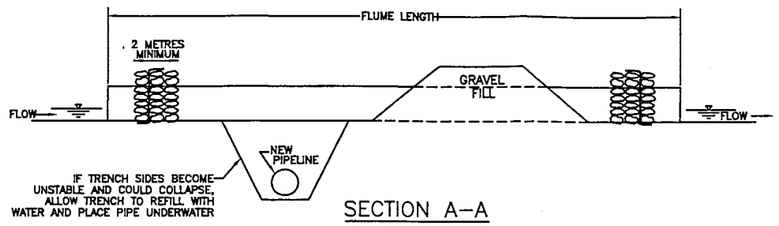
Flumes left in place more than 2 weeks, but not through the spring freshet, must be sized as a temporary vehicle crossing, for the two year flood (Q2). Flumes left in place through the spring freshet must be sized to pass the five year flood, (Q5).

Flumes in place for less than 2 weeks may have their size selected by "The Pipeline Company" based on actual measured flow in the creek at the time of installation plus an additional 50 percent buffer.

For pipe sizing without high tailwater, use the following capacities: for 914 mm pipe Q = 0.9 CMS/pipe; for 1067 mm pipe Q = 1.3 CMS/pipe.

Flume sizes may also be selected to be the same as nearby culverts thot have been in place for many years and have performed satisfactorily. Flume sizes and lengths must be approved by MNR prior to installation, allow three weeks for review and approval. The approved flume size or larger must be installed.




## Detailed Construction Sequence – Dry Flume Crossings

In general terms, the following sequence of construction and mitigation measures will be followed at all "dry flume" type crossings.

1. Mark out and maintain limits of authorized work areas with fencing or flagging tape to avoid unnecessary disturbance of vegetation. Ensure equipment operators working on the crossing have been briefed about this plan and the measures needed to protect water quality. Install prework sediment control measures, including silt fences and measures to contain excavated spoil and backfill. Adequate advanced notice (min. 48 hours) will be provided to MNR prior to commencing in–stream work. All necessary equipment and materials to build the flume must be on site or readily available prior to commencing in–water construction. Pipe shall be strung, welded and coated ready for installation prior to watercourse trenching.
2. Install flumes equal to or larger than the diameter determined by the methods described above. Flume length is to be identified in the permit application. Flume is to set 10 percent of diameter below streambed level where soil conditions permit (otherwise installed at stream grade and slope). Place impervious dams at each end of the flume, upstream first then downstream. Alternative dam materials include coarse gravel with rip rap protection, sandbags, steel plate and rockfill. During placement, install an impervious membrane, if necessary, to prevent leakage. Dams may need keying into the bank and streambed. Dewater the area between dams. All pump water is to be discharged well away from the creek and through a sediment trap or the forest floor for filtering of solid material before entering the creek.
3. Excavate trench through plugs and under flume, then dewater. Lower in pipe by passing under flume and backfill immediately. The top 300 mm of trench backfill is to be clean rock or cobble material. "The Pipeline Company" is to use granular backfill if the native material is not suitable. In this case, the excavated material is to be moved back and deposited behind sediment fences. Work is to be completed as quickly as possible and the maximum time between removal of plugs and trench capping is 3 days.
4. Flumes shall be removed as quickly as possible, when no longer required for pipe laying or for road access, in the following manner: remove the vehicle crossing ramp; surplus gravel is to be removed from the crossing area to a location approved by the Conservation Authority; creek banks are to be restored to a stable angle and protected with corrosion resistant material compatible with flow velocity (e.g., coarse gravel or rip rap) to the maximum extent possible before removing the dams. If rip rap material contains fines, the completed face is to be washed off and the turbid water pumped to land. Then remove downstream dam; remove upstream dam; remove flume; complete bank trimming and erosion protection. If sandbags are used for the dams, place and remove by hand to avoid equipment breaking bags.
5. Site stabilization, which includes control of stormwater drainage using a combination of methods such as silt fences, erosion blankets, diversion berms and check dams etc., is to be completed within 10 days of the removal of the flume. If stabilization is delayed, short term erosion control measures shall be used to prevent sediment entering the water. Material accumulated at silt fences is to be removed or stabilized in place. Silt fences are to be removed when the site is permanently stablized.
6. If post–construction monitoring reveals erosion problems, remedial work is to be undertaken as quickly as possible.

NOTES

| DATE | REV NO | REVISION | BY | APPD |
|---|---|---|---|---|
| JAN 5/94 | 6 | REVISIONS PER DEC 1993 MEETING | GTH | WTW |
| FEB 15/93 | 5 | REVISIONS PER NOV 1992 MEETING | KC | LHC |
| NOV 15/92 | 4 | REVISIONS PER JUNE 1992 MEETING | RBA | |
| FEB 28/92 | 3 | REDRAWN AND GENERAL REVISION | RBA | |

Ministry of Natural Resources
Ontario

January 28, 1994

PROJECT
"THE PIPELINE COMPANY"
CONSTRUCTION PROGRAM

LOCATION (LOT.,CON.,TWP.,DIST.)
ALL DRY FLUME WATER CROSSINGS IN ONTARIO

DRAWING TITLE
GENERIC SEDIMENT CONTROL PLAN FOR DRY FLUME WATER CROSSINGS

| SCALE | DATE |
|---|---|
| NTS | FEB. 28/92 |

FILE G1077 MNR–01D

| DRAWN | CHECKED | DRAWING | REV |
|---|---|---|---|
| RBA | LHC | 1 of 3 | 6 |

APPROVED
BRANCH DIRECTOR

## Objective of Generic Sediment Control Plan – Dam & Pump Crossing

This plan sets out the measures that will be taken by "The Pipeline Company" and its contractors to contral downstream sediment to the lawest level practically achievable during the construction of dam and pump type crossings. The conditions and techniques set out on this plan are to be followed unless approved otherwise by the Ministry of Natural Resources (MNR).

## General Requirements

"The Pipeline Company" must use materials, construction practices, mitigation techniques and monitoring of operations at every water crossing in order to prevent the unauthorized harmful alteration, disruption or destruction of fish habitat or the impairment of water quality. The following requirements apply ta any waterbody (stream, river, pond) and areas adjacent to it.

* Prior to removal of the low vegetative cover, effective mitigation techniques for erosion and sediment control must be in place to protect water quality. Limit the areal extent of disturbance to the minimum needed for construction and delay grubbing to immediately prior to grading operations.
* Materials removed or stockpiled during construction (e.g., excavated soil, backfill material) must be deposited in a manner to ensure sediment does not enter a waterbody.
* There must be no fording of any stream.
* Except during construction of the crossing, "The Pipeline Company" will not obstruct any watercourse so as to impede the free movement of water and fish.
* All exposed mineral soil must be graded to a stable slope and treated as quickly as possible to prevent erosion and sediment from entering the water.
* "The Pipeline Company" is to adhere to the Generic Sediment Control Plan For Temporary Vehicle Crossings.
* Techniques for erosion and sediment control are to adhere to occepted engineering practice and "The Pipeline Company" Typical Construction Drawings. The MNR publication Environmental Guidelines For Access Roads and Water Crossings (1990) may also be a useful reference source.
* "The Pipeline Company" is to have additional materials (e.g., rip rap, filter cloth and silt fencing) readily available in case they are needed in a hurry for erosion and sediment control.
* Temporary workspaces, in addition to the narmal working right–of–way, adjacent to any water crossing must fallow the following setbacks:

| | |
|---|---|
| Ground Slope <5% | 10 meters |
| Ground Slope >5% but <14% | 20 meters |
| Ground Slope >14% | 30 meters |

* If flows are in flood stage, work should be delayed if practical.
* "The Pipeline Company" will be held responsible for implementation of this plan.

## Stormwater Runoff Control

Exposed mineral soil near the water poses a potential threat of erosion and sediment entering the water in the event of a rainstorm. The erosion potential is highest an steep slopes (>15%) and where soils are silty or sandy. "The Pipeline Company" is to assess each site and shall use effective measures to keep sediment on land at all times. To the maximum extent reasonably possible, a silt fence is to separate exposed mineral soil from the creek at all times; this includes the travelled portion of the right–of–way during rainfall events (if necessary). Accumulated sediment is to be removed regularly. The area around water crossings is to be regularly monitored and if erosion problems develop, immediate action is to be taken with appropriate treatments. Additional measures to be considered are:

* Short term erosion control techniques applied over exposed soil, such as erosion control blankets, gravel sheeting, filter cloth, rip rap, seed and mulch.
* Delay construction during wet periods.
* Diversion berms or check dams to channelize flow and filter prior to re–entering stream.
* Dug sediment traps to pass runoff water through a pond and silt fence for settling of coarse particles before spilling into the stream.
* Proceed with the crossing as quickly as possible, to minimize the time from initial grubbing to completed site rehabilitation.

## Contingency Plan

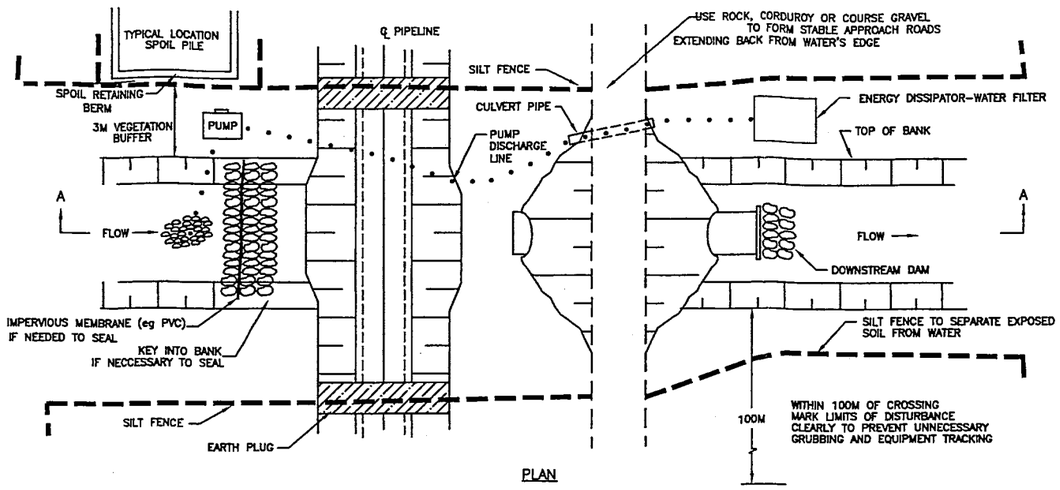
If unforseen events (e.g., bedrock in trench, dam washout) cause the strategies set out in this plan to be insufficient or inappropriate to meet the objective, "The Pipeline Company" is expected to respond in a timely manner with all reasonable measures consistent with safety, to prevent, counteract or remedy any effects on fish or fish habitat that may result. MNR is to be notified as saon as practical.

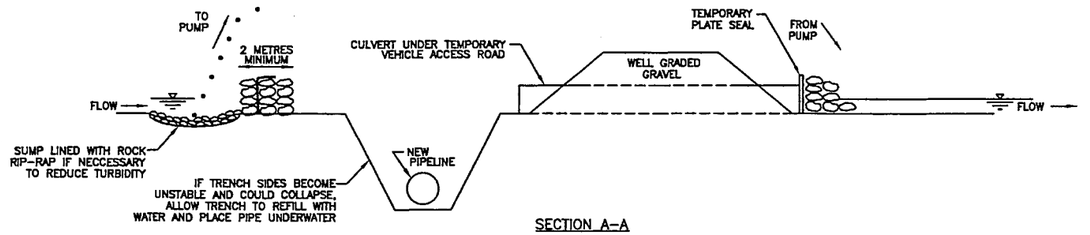
Spill reporting procedures established by MOE shall be used to report any unexpected discharge of silt or sediment or other deleterious substance at the water crassing. The spill shall also be reported to the MNR as soon as possible in these circumstances.

If MNR determines that long term damage to fish habitat has occurred due to failure af this plan to control sediment, a restoration plan will be developed by "The Pipeline Company", in consultation with and approval from MNR and DFO for implementation by "The Pipeline Company".

## Maintenance of Streamflow

If there is any flow in the creek, "The Pipeline Company" is to install pumps to maintain streamflow around the blocked off section of channel. The pump is to have twice the pumping capacity of anticipated flow. A second standby pump of equal capacity is to be readily available at all times. An energy dissipator is to be built to accept pump discharge without streambed ar streambank erosion.




## Detailed Construction Sequence – Dam and Pump Type Crossings

In general terms, the following sequence of construction and mitigation measures will be followed at all "dam and pump" type water crossings.

1. Mark out and maintain limits of authorized work areas with fencing or flagging tape to avoid unnecessary disturbance of vegetation. Ensure equipment operators working on the crossing have been briefed about this plan and the measures needed to protect water quality. Install pre–work sediment control measures, including silt fences and measures to contain excavated spoil and backfill. Provide the MNR with adequate advanced notice (min. 48 hours) prior to in–stream work. All necessary equipment and materials to build the dams and to pump water must be on site or readily available prior to commencing in–water construction. Pipe shall be strung, welded and coated ready for installation prior to watercourse trenching.
2. Dams are to be made of steel plate, inflatable rubber dam, sand bags, cobbles, well graded coarse gravel fill or rock fill. An impervious membrane is to be incorporated into the dam if necessary to control seepage flow. Dams may need keying into the banks and streambed. Install downstream dam only if needed to keep the trench area dry. Dewater the area between dams. All pump water is to be discharged well away from the creek and through a sediment trap or the forest floor for filtering of solid material before entering the creek.
3. Excavate trench through plugs and streambed, re–positioning discharge hase as necessary. Lower the pipe in the trench and backfill immediately. During this operation, try to maintain pumping as much as possible. The top 300 mm of trench backfill is to be clean rock or cobble material. "The Pipeline Company" is to use granular backfill if the native material is not suitable. In this case, the excavated material is to be moved back for disposal away from the crassing. Work is to be completed as quickly as possible and the maximum time between removal of plugs and trench capping is 3 days.
4. When the streambed has been restored, the creek banks are to be trimmed to a stable angle and protected with erosion resistant material compatible with flow velocity (e.g., coarse gravel or rip rap) to the maximum extent possible between dams. If rip rap material contains fines, the completed face is to be washed off ond the turbid water pumped to land. The dams are to be removed – downstream first. Dam material is to be disposed of in an approved location. Keep pump running until normal flow is resumed. Complete bank trimming and erosion protection. If sandbags are used for the dams, place and remove by hand to avoid equipment breaking bags.
5. Site stabilization, which includes control of stormwater drainage using combinations of silt fences, erosion blankets, diversian berms and check dams etc., is to be completed within 10 days of trench backfilling. If stabilization is delayed, short term erosion control measures shall be used to prevent sediment entering the water. Material accumulated at silt fences is to be removed or stabilized in place. Silt fences are to be removed when the site is permanently stabilized.
6. If post–construction monitoring reveals erosion problems, remedial work is to be undertaken as quickly as possible.

NOTES

| DATE | REV NO | REVISION | BY | APPD |
|---|---|---|---|---|
| JAN 5/94 | 6 | REVISIONS PER DEC 1993 MEETING | GTH | WTW |
| FEB 15/93 | 5 | REVISIONS PER NOV 1992 MEETING | KC | LHC |
| SEPT. 28/92 | 4 | REVISIONS PER JUNE 1992 MEETING | WST | RBA |
| FEB 28/92 | 3 | REDRAWN AND GENERAL REVISION | RBA | |

Ministry of Natural Resources
Ontario

January 28, 1994

PROJECT
"THE PIPELINE COMPANY" CONSTRUCTION PROGRAM

LOCATION (LOT.,CON.,TWP.,DIST.)
ALL DAM AND PUMP WATER CROSSINGS IN ONTARIO

DRAWING TITLE
GENERIC SEDIMENT CONTROL PLAN FOR DAM AND PUMP WATER CROSSINGS

| SCALE | DATE |
|---|---|
| NTS | FEB. 10/92 |

FILE G1077 MNR–02D

| DRAWN | CHECKED | DRAWING | REV |
|---|---|---|---|
| RBA | LHC | 2 of 3 | 6 |

APPROVED
BRANCH DIRECTOR

## Objective of Generic Sediment Control Plan — Vehicle Crossings

This plan sets out the measures thot will be taken by "The Pipeline Company" and its Contractors to control downstream sediment to the lowest level practically achievable during the construction, use and removal of temporary vehicle water crossings at creeks and rivers. The conditions and techniques set out on this plan are to be followed unless approved otherwise by the Ministry of Natural Resources Area Office (MNR).

## General Requirements

"The Pipeline Company" must use materials, constructian practices, mitigation techniques and manitoring of operations at every water crossing in arder to prevent the unauthorized harmful alteration, disruption or destruction of fish habitat or the impairment of water quality. The following requirements apply to any water body (stream, river, pond) and the land adjacent to it.

* "The Pipeline Campany" must install an engineered structure having a water opening equal to, or larger than, the size guidelines set out on this drawing.
* Prior to removal of the low vegetative cover, effective mitigation techniques for erosion and sediment control must be in place to protect water quality. Limit the areal extent of disturbance to the minimum needed for construction and delay grubbing to immediately prior to the grading operations.
* Fording can be an accepted form of short term access provided good practices are followed and fording occurs within the construction timing window established to protect fish habitat. Good practices include shallow water depth, stable bottam, stable approaches inside approved construction windows, low banks, clean construction equipment, emergency oil containment equipment available and control of sediment movement.
* Except during construction of the crossing "The Pipeline Company" must not obstruct any watercourse so as to impede the free movement of water and fish.
* All exposed mineral soil must be graded to a stable slope and treated as quickly as possible to prevent erosion and sediment from entering the water.
* The access road and crossing must be built within the "The Pipeline Company" right—of—way and be removed within 2 years of construction. If work on roads and vehicle water crossings is necessary outside the right—of—way, or if a crossing on the right—of—way is to be left in place permanently, a separate Work Permit must be obtained from the MNR.
* Techniques for erosion and sediment control are to adhere to accepted engineering practice and "The Pipeline Company" Typical Construction Drawings. The MNR publication Environmental Guidelines For Access Roads and Water Crossings (1990) may also be a useful reference source.
* If flows are in flood stage, work should be delayed if practical.
* If post—construction monitoring reveals erosion problems, remedial work is to be undertaken as quickly as possible.
* "The Pipeline Company" will be held responsible for implementation of this plan.

## Stormwater Runoff Control

Exposed mineral soil near the water poses a potential threat of erosion and sediment entering the water in the event of a rainstorm. The erosion potential is highest on steep slopes (>15%) and where soils are silty or sandy. "The Pipeline Company" is to assess each site and shall use effective measures to keep sediment on land at all times. To the maximum extent reasonably possible, a silt fence is to separate exposed mineral soil from the creek at all times; this includes the travelled portion of the right—of—way during rain events (if necessary). Accumulated sediment is to be removed regularly. The area around water crossings is to be regularly monitored and if erosian problems develop, immediate action is to be taken with appropriate treatments. Additional measures to be considered are:

* Short term erasion control techniques applied over exposed soil, such as erosion control blankets, gravel sheeting, rip rap, filter cloth, seed and mulch.
* Delay construction during wet periods.
* Diversion berms or check dams to channelize flow and filter prior to re—entering the stream.

## Sizing of Water Opening

It is important that the size of the water opening be selected so the structure can safely pass flood flows that can reasonably be expected to occur during the life of the crossing. Either of the following methods can be followed:

(a) Install a bridge that clear spans the creek from top of bank to top of bank (as shown) and with a clearance of at least 1 metre above the annual high water mark. If this criteria is met, prior approval from MNR is not necessary.

(b) Conduct a hydrology analysis to determine theoretical opening size. The design flow will be the two year flood (Q2), unless the culvert is to be left in place through the spring freshet, in which case the theoretical opening size will be based on the five year flood (Q5). Culvert sizes may also be selected to be the same as existing nearby culverts that have been in place for many years and have performed satisfactorily. Culvert sizes and lengths must be approved by MNR prior to installation, allowing three weeks for review and approval. If culverts are used, the approved size or equivalent multiple culverts must be installed. If a bridge is selected with cribs or piers in the water, the opening must provide the same end area as the culvert, plus 1 metre vertical clearance.

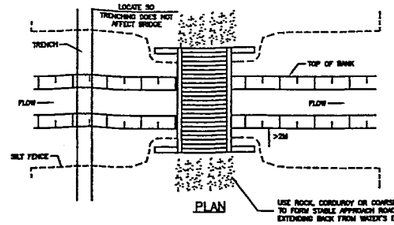
## Pre—Construction Preparations

Temporary swamp mat bridges for crossing streams (spanning bank to bank) may only be utilized during the front end clearing operations. Prior to beginning grading operations within 100 meters of watercourses, mark out and maintain limits of authorized work areas with fencing or flagging tape to avoid unnecessary disturbance of vegetation. Proper crossings as identified on this drawing must be installed during the front end operations. Ensure equipment operators working on the crossing have been briefed about this plan and the measures needed to protect water quality. All necessary equipment and materials to build the crossing must be on site or readily available prior to commencing in—water construction. Adequate advanced notice (min. 48 hours) will be provided to MNR prior to commencing in—stream work.

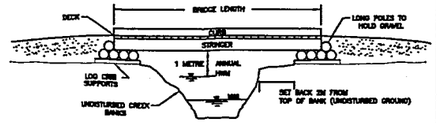
## Detailed Construction Sequence — Temporary Bridges

In general terms, the following sequence of construction and mitigation measures will be followed at all temporary bridges:

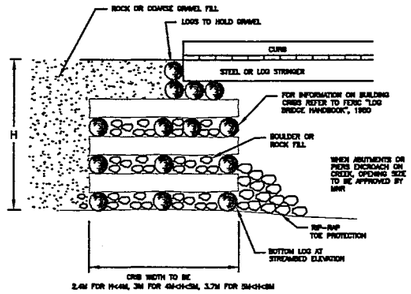
1. Measure up the approximate bridge length required and follow either method a) or b) for determining the opening size. If a) is followed, a minimum 2 metre setback from top of bank must be preserved as a no disturbance area. Daylight must be visible between the ground and underside of stringers in this "no disturbance area". If abutments or piers in the streambed are required, method b) is to be followed, including MNR approval of the proposed opening size.
2. Install the bridge in a manner that will minimize sediment entering the water. Stringers must be engineered to support the loads expected on the bridge. Curbs at least 150 mm high must be installed along the edge of the deck to contain mud on the bridge. Fasteners connecting components must be strong enough to hold them in position during the life of the bridge. Cribs are to be filled with rock or cobble. Rip rap erosion protection is to be placed around the cribs and on the fill slopes projecting into the water.
3. Road approaches leading to bridges and flume vehicle crossings must be raised and stable so equipment loads are supported a sufficient distance back from the water to reduce mud entering the stream from equipment tracks. This may require using materials such as gravel, rock or corduroy. If cuts are needed to obtain a satisfactory grade, they are to be dug with side ditches and stable slopes. Erosion and sediment control measures are to be installed to keep sediment on land (eg., check dams, filter cloth, rip rap, seed and mulch, sediment traps, etc.)
4. While the bridge is in use, any buildup of mud on the bridge deck or approaches that is affecting water quality is to be scraped off and disposed of in a location approved by the Conservation Authority.
5. Temporary crossings shall be removed as quickly as possible when no longer required. Removal shall not occur outside the construction windows as identified on the Work Permit without prior written approval from MNR Area Office. Surplus gravel and bridge materials are to be removed from the crossing area and disposed of in an approved location. The creek bed and banks are to be restored to a stable angle and protected with erosion resistant material compatible with flow velocity (eg., coarse gravel or rip rap) Measures such as berms or logs may be needed to prevent sediment laden water running down the road.



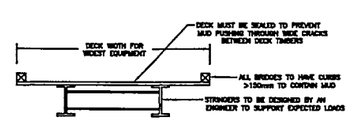
PLAN



BRIDGE PROFILE



TYPICAL TEMPORARY CRIB ABUTMENT

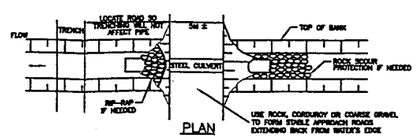


TYPICAL STEEL BRIDGE SECTION

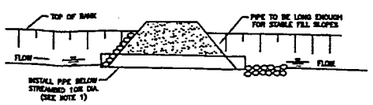
## Detailed Construction Sequence — Temporary Culverts

In general terms, the following sequence of construction and mitigation measures will be followed at all temporary culverts:

1. Install culvert pipe of diameter and length as per approval conditions. Culvert invert is to be set 10 percent of diameter below streambed where soil conditions permit (otherwise at at stream grade and slope). If streambed soils are soft, install coarse gravel or rockfill pad under the pipe. Pipe installation can be done in flowing water unless MNR specifies otherwise in the Work Permit. Culvert backfill and fill for the road is to be coarse granular or rock fill material. Erosion protection may be needed on the upstream road fill slope and if scour is possible, rip rap is to be placed in the streambed downstream of the pipe outlet.
2. The road approach leading to the culvert crossing must be raised and stable so equipment loads are supported a sufficient distance back from the water to reduce mud entering the water from equipment tracks. This may require using materials such as gravel, rock or corduroy. If cuts are needed to obtain a satisfactory grade, they are to be dug with side ditches and stable slopes. Erosion and sediment contral measures are to be installed ta keep sediment an land (eg., check dams, filter cloth, rip rap, seed and mulch, sediment traps, etc).
3. While the culvert is in use, any build—up of mud on the road surface or approaches thot is affecting water quality is to be scraped off and disposed of in an approved locotion.
4. When the temporary crossing is no longer required, it is to be removed as quickly as possible. Removal sholl not occur outside the construction windows as identified on the Work Permit without prior written approval from MNR. Surplus gravel is to be removed from the crossing area and disposed of in a location approved by the Conservation Authority. The creek bed and bonks are to be restored to a stable angle and protected with erosion resistant material compatible with flow velocity (eg., coarse gravel or rip rap). Measures such as berms or logs may be needed to prevent sediment laden water running down the raad.



PLAN



STREAM PROFILE

NOTES

| DATE | REV NO | REVISION | BY | APPD |
|---|---|---|---|---|
| JAN 5/94 | 7 | REVISIONS PER DEC 1993 MEETING | GTH | WTW |
| MAR. 09/93 | 6 | REVISIONS AS PER DISCUSSIONS | KC | LHC |
| FEB 15/93 | 5 | REVISIONS PER NOV 1992 MEETING | KC | LHC |
| NOV 15/92 | 4 | REVISIONS PER JUNE 1992 MEETING | RBA | |
| FEB 28/92 | 3 | REDRAWN AND GENERAL REVISION | RBA | |

Ministry of Natural Resources
Ontario

January 28, 1994

PROJECT
"THE PIPELINE COMPANY" CONSTRUCTION PROGRAM

LOCATION (LOT.,CON.,TWP.,DIST.)
ALL TEMPORARY VEHICLE CROSSINGS (BRIDGES & CULVERTS) IN ONTARIO

DRAWING TITLE
GENERIC SEDIMENT CONTROL PLAN FOR TEMPORARY VEHICLE CROSSINGS

| SCALE | NTS | DATE FEB. 11/92 |
|---|---|---|

FILE G1077 MNR—03D

| DRAWN | CHECKED | DRAWING | REV |
|---|---|---|---|
| RBA | LHC | 3 of 3 | 7 |

APPROVED

BRANCH DIRECTOR

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# APPENDIX D

# 2002 EA UPDATE REPORT

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# 1 INTRODUCTION

Union Gas Limited (Union) is proposing to construct and operate an NPS 48 (i.e., nominal pipe size 48-in. diameter) pipeline from their Hamilton Valve Site in the old Town of Flamborough (now part of the City of Hamilton) through the City of Burlington to their Milton Tie-In located in the Town of Milton as shown in Figure 1 (all figures are located at the end of the report for ease of reference). The pipeline will be approximately 17 km in length.[1]

Acres International Limited (Acres) undertook a Route Selection and Environmental Assessment for this project and issued their report in April 1991. The report was then circulated for review to the Ontario Pipeline Coordinating Committee (OPCC). At that time, there was agreement from the review agencies that the route selected was the preferred corridor. Late in 2001, Union retained Acres & Associated Environmental Limited (A&A) to update the original report. Union plans to submit both the original report and update report to the Ontario Energy Board (OEB) for environmental approval, as part of Union's Leave to Construct application.

The original report was prepared in accordance with the requirements of OEB's 1989 "Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario". A fourth edition of the "Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario" was issued by OEB in 1995. As stated when the new guidelines came into effect, projects which were in progress at that time should make every effort to incorporate the planning and information requirements of the new guidelines into their environmental report. This update report incorporates additional requirements identified in the new guidelines, i.e., the inclusion of a cumulative effects assessment and more detailed monitoring/spills requirements.

# 2 SCOPE OF WORK

On September 19, 2001, Union and A&A undertook a windshield survey of the pipeline route proposed in the Acres, 1991 report. This investigation indicated that the land use along

[1] The pipeline will be placed at least 1 m, and 1.2 m in agricultural areas, below ground surface. A 28-m easement is required for pipeline installation. For approximately 13.5 km of this route the proposed pipeline is adjacent to two existing pipelines. In such situations, the new easement can overlap existing easements such that only a further 16 m of easement will be required for the new pipeline.

the route had not changed significantly. The proposed route location was reviewed and confirmed as the preferred corridor (Figure 1).

The scope of work for the update report involved

- agency consultation to determine whether there were any additional comments or concerns from those received previously and whether there had been any changes in policies or legislation which could affect the preferred route location/construction/ operation of the pipeline

- public consultation, including notification to both the general public and the directly affected landowners of the restart of the project, to ensure that all issues raised by the public were addressed

- incorporating in the updated report any new information gathered/data analysis undertaken since the original report was issued

- using the new information, reviewing and assessing existing route location, fine tuning of the route as necessary, and reviewing the potential impacts and proposed mitigation requirements

- undertaking a cumulative effects assessment of the project

- updating monitoring reporting and emergency response planning.

# 3 AGENCY CONSULTATION

For this update report agency input consisted of two components:

- incorporation of OPCC and local agencies' comments received from their review of the EA report in 1991

- notification and information request/comment regarding the restart of the project in 2001.

A summary of the agencies' responses to the 1991 report is provided in Appendix A1, Table A1. Most of the comments were received from Halton Region Conservation Authority, now called Conservation Halton (HRCA), Ontario Ministry of Natural Resources

(MNR) and the Niagara Escarpment Commission (NEC). The HRCA concern was related to the crossing of a man-made lake (Islay Lake) and the 16 stream crossings which would require permitting (see Section 5.1.1). The specific issues raised by MNR and NEC were mainly related to EA process and corrections/additions to information on the existing environment. Responses to specific issues are addressed in Appendix A1 and incorporated as appropriate into Section 5. NEC also requested that an addendum be provided to the Acres 1991 report to address their issues/concerns. Union supplied the additional information in a letter dated 1992/03/02. The response was accepted by NEC and they had no further concerns with the location of the proposed route. The NEC correspondence is provided in Appendix A2 and as such represents the requested addendum to the original report.

With the restart of the project, in October 2001 all the local agencies and the OPCC member agencies were contacted (Table 1). Each agency was sent a letter explaining the project, and asking for any new information, policies or guidelines that had been implemented in the last 10 years which could affect the pipeline routing (Appendix A3). The response each agency gave to the previous Acres, 1991 report was also provided for the agency's information. A summary of the agencies responses is provided in Table A3, Appendix A3 along with copies of the complete responses.

The Regional Municipality of Halton and the City of Hamilton have environmental advisory committees composed of interested members of the public. A brief information package was developed for each committee (Appendix A4). A short presentation by both A&A and Union personnel outlining the project was given to the Halton Ecological and Environmental Advisory Committee (EEAC) on February 13, 2002. The group then set up a sub-committee of three members to further investigate the project. They conducted a site visit on April 6, 2002 and presented their report back to the main committee on April 10, 2002. The subcommittee report is provided in Appendix A4 and summarized in Table A3. Two members of the City of Hamilton's Environmentally Significant Areas Impact Evaluation Group (ESAIEG) met with Union and A&A personnel for a site visit to the Progreston North Swamp ESA[1] on April 11, 2002, and a short presentation was given to the four members of the group later that evening (Table A3). The ESAIEG comments are provided in Appendix A4 and summarized in Table A3.

[1] See Section 5.1.2.

| Table 1<br>List of Agencies Contacted |
|---|
| **Provincial Government** |
| • Ontario Energy Board<br>• Ministry of Agriculture, Food and Rural Affairs<br>• Ministry of Natural Resources - Aurora<br>• Ministry of Natural Resources - Guelph<br>• Ministry of Energy, Science and Technology, Oil and Gas Office<br>• Ministry of Transportation<br>• Ministry of the Environment, Central Region Technical Support Section<br>• Ministry of the Environment, Hamilton<br>• Ministry of Municipal Affairs and Housing<br>• Ministry of Citizenship, Culture and Recreation<br>• Niagara Escarpment Commission<br>• Technical Standards and Safety Authority, Fuel Safety Division<br>• Conservation Halton |
| **Municipal Government** |
| • Regional Municipality of Halton<br>• City of Hamilton<br>• City of Burlington<br>• Town of Milton |
| **Others** |
| • CN Rail<br>• CP Rail<br>• Bruce Trail Association |

# 4 PUBLIC CONSULTATION

Union informed all directly affected landowners by letter of the restart of the project and indicated that the Acres 1991 report was available at both the Carlisle and Kilbride libraries for review. The letter invited the landowners to attend a public open house to have a better understanding of the project and indicated that, if it was their preference, Union would send a representative to discuss the project privately. The letter and landowner list are provided in Appendix B1. An announcement outlining the project, indicating the location of the 1991 EA report for review and inviting the general public to attend the open house was placed in the Flamborough Post, Milton Champion and Burlington Post on February 22, 2002. These are weekly community newspapers, distributed free and their coverage includes the entire pipeline route. A copy of the advertisement is included in Appendix B2.

The Open House was held at the Ella Foote Hall next to the Kilbride Public School, a location centrally situated along the pipeline route, on March 5, 2002 from 5:00 to 9:00 p.m. A number of information boards (see Appendix B2) were provided for general viewing, along with a video, slides and display panel showing Union's typical construction and rehabilitation techniques. The preferred pipeline route location was shown on aerial photographs and landowners were invited to discuss any new information/concerns with representatives of Union and A&A. The open house was attended by approximately 31 people, 27 of whom signed in (see Appendix B2) and 20 of these were directly affected landowners. Landowners were mainly interested in determining the exact location of the pipeline across their individual properties. General concerns were related to compensation issues, construction schedule, disruption of agricultural activities/crop loss and disturbance to natural areas/loss of mature trees.

Attendees at the open house were asked to complete a questionnaire (see Appendix B2) prior to leaving. Eight questionnaires were returned, with four respondents having property directly affected, three owning property adjacent to the proposed route, and one being a member of the Bruce Trail Association. Issues raised included the following: disturbance to wildlife (including wild turkey and deer) and vegetation, with a request for preservation of as many mature trees as possible; traffic disruption during construction (in particular Twiss Road and Guelph Line); potential trespassing due to easier access along cleared pipeline route; loss of driveway access to property during construction; potential water main to cross easement in future; impact to the Bruce Trail (see Section 5.2.3).

The site specific issues raised above (i.e., access and water lines) will be addressed directly when Union's land agent discusses requirements with each landowner. Union will bore

under most roads in the area and thus there will be minor traffic disruption. Disturbance to wildlife and vegetation has been minimized by the choice of route and the proposed timing of clearing will be scheduled outside the main wildlife nesting/denning and rearing season.

# 5 UPDATE TO PREFERRED ROUTE/ POTENTIAL IMPACTS AND PROPOSED MITIGATION

This section updates and supplements the information provided in the 1991 EA regarding the proposed pipeline route. The original aerial photographs (Figures 9 to 11 of the 1991 report) have been re-issued as Figures 2 to 5 using photography from April 1999. These new figures indicate any changes in land use and ownership in the last 10 years.

From the review and assessment of the 1991 alignment, minor fine tuning of the route has occurred in 2 locations, as outlined below:

- **Jackson to Courtcliffe Park (Town of Flamborough, Lots 10 to 12, Concession IX)**
  In 1995, the two existing pipelines were replaced in this location (see Section 5.2.2). These pipelines were also relocated approximately 40 m to the south (Figure 2) so that there would be more space available to the north, if further pipelines were required. The landowners of Lots 11-12, Concession IX (Jackson) had expressed considerable concern during the initial EA about the placement of the NPS 48 pipeline close to their heritage home and also the potential to impact a grove of black walnut trees and their septic system. The relocation of the existing lines to the south and farther away from the home now removes these issues.

- **Boyd Property (Town of Flamborough, Lot 6, Concession IX)**
  The lot line between Lots 5 and 6, Concession IX Flamborough, through the Boyd property (Figures 2 and 3), is offset. The alignment suggested in the 1991 EA report was to leave the lot line on the west side of Lot 6, rather than following the southern property limit and then swinging north on the east side. This partitioned about a 1.1-ha section of land from the rest property. The alignment originally selected was to minimize the number of trees to be cleared and, in particular, to avoid irregular topography. The landowner requested that the alignment be changed to follow the property line to minimize his loss of development potential. On further examination, the new alignment was considered acceptable and it also conformed to the old Town of Flamborough's recommendations to follow property lines in this location.

## 5.1 Natural Environment

Comments pertaining to the natural environment, impacts and mitigation, along the proposed route provided in the 1991 EA are still valid, with the following supplementary information.

### 5.1.1 Aquatic Resources

The 1991 EA reported that 19 stream/ditch crossings will be required. HRCA identified another crossing at the east end of the route, adjacent to the CNR tracks. This is named Stream Crossing (SC) 20 in Figure 6 and is a drainage collection area for Indian Creek. It was dry when investigated in October 2001. HRCA does not regulate SC 7, 9, 10 or 17 but permits will be required for all other crossings. Since the 1991 EA, MNR (1993) has developed Generic Sediment Control Plans for implementation at stream crossings and Union advises that these will be used as a guide for these crossings.

MNR have undertaken further fisheries assessments in Bronte Creek and adjacent watersheds in the last 10 years and they have a greater understanding of the fisheries requirements in this area. In order to protect both spring bait fish spawning and fall brook trout spawning, MNR has advised that any work within water courses be conducted between July 1 (rather than the June 1 date provided in the Acres 1991 report) and September 15 (May, MNR Aurora, March 2002 personal communications).

HRCA expressed concerns in 1991 regarding routing in the Islay Lake area (Figure 4, Photograph 2). However, the landowners (McColl and Gordon) in this location prefer that all pipelines across their properties follow the same easement. Geotechnical investigations of the Islay Lake dam have been undertaken by Golders and Associates (2002). They have confirmed that the dam can be breached and have provided a methodology for the crossing. A temporary cofferdam will be located between the existing two pipelines. This dam will be used as the access route for pipeline installation. As stated in Acres, 1991, the crossing should be undertaken after July 1 to protect the bass fishery and potential spawning area in this shallow section of the lake. During dewatering of the cut-off lake area, attempts should be made to catch any fish and return them to the main body of the lake. Dewatering of the trench area will be required using well-pointing, and this water must be directed through a filter system (e.g., filter bag/vegetated area) prior to its return to a water

body. Conservation Halton, at a meeting February 13, 2002, is now in agreement with the proposed route in this location.

### 5.1.2 Terrestrial Environment

The wetland in Lot 2/3, Concession X Flamborough (Figure 3) has been upgraded to a Class IV from Class V (Heagy, 1993). This wetland/woodlot is identified as an environmentally significant area (ESA) in the Regional Municipality of Hamilton-Wentworth Official Plan (2000). It is described in the Hamilton-Wentworth Natural Areas Inventory (Heagy, 1993) but had not been evaluated in previous natural areas studies. The area is known as the Progreston North Swamp and is considered as an ESA because it serves important ecological and hydrological functions besides providing habitat for significant species.[1] This area also serves an important function by providing a linkage with other significant natural areas to the south and north. The proposed NPS 48 pipeline will follow/cut through part of the ESA along the northeast edge of the Carlisle settlement area, and near the southern tip adjacent to the existing pipelines. Although the Progreston Swamp ESA was only identified as an ESA in 1993, the area was recognized as ecologically important in the Acres, 1991 report and the selected route minimized the impact to the area, while meeting the restriction of avoiding the Carlisle settlement area. None of the significant plant species[1] were identified during vegetation surveys carried out in May 1992 along the proposed route in this area.

Halton Region commissioned a study to identify ESAs (Geomatics, 1993) in their area. There have been no ESAs added to this listing from those described in the Acres, 1991 report for the study area.

MNR in their OPCC 1991 response, requested that more information be provided with respect to the West Virginia White Butterfly. This butterfly is designated as vulnerable on the Ontario Endangered Species List (MNR, 2001 website). The butterfly habitat consists of upland maple-birch forest associations feeding specifically on two types of toothwort. These are relatively common spring plants with a wide distribution. Field investigations undertaken May 3, 1991, indicated that common toothwort was found in Progreston North Swamp, including next to stream crossings SC3 and SC4. However, it was most abundant along the eastern edge next

[1] Identified highly significant species (Heagy, 1993) include: Lespedeza capitata (Round-headed Bush clover), Hypericum majus (Large Canadian St. John's wort) and Lobelia spicata (Pale-spike Lobelia) and the Aphrodite Fritillary butterfly Speyeria aphrodite.

to the CP Rail tracks and away from the easement. Discussions at that time with local naturalists indicated that they believed the habitat for these butterflies would persist in the area after construction had been completed. The investigations suggested that although habitat existed, it did not warrant a change in pipeline routing. No actual sightings of the butterfly were reported.

### 5.1.3 Bronte Creek Watershed Study

Conservation Halton (2002) has recently completed a watershed study for Bronte Creek. The purpose of the study is to provide a 'watershed' vision which will allow the watershed community to care for its natural heritage and cultural resources within the context of existing and future municipal planning structures'. The study, developed over 3 years, resulted in extensive inventories of the terrestrial and aquatic environment, including natural heritage, stream hydrology and morphology, water quality, hydrogeology and cultural history. The study also involved development of a comprehensive plan to support stewardship, guide development and recommend restoration strategies.

Pertinent to this study are the regeneration plans outlined for various creeks crossed by the pipeline route. These are summarized in Appendix C, Table C1. The strategy for Courtcliffe Park is of particular importance. Courtcliffe Park (as described below) has changed from private to public ownership and an opportunity now exists to restore the area to more natural conditions (see Acres, 1991, Plate 9 and Figure 2). As identified in the watershed study, extensive channel alterations have resulted in degraded water quality. Restoration efforts are proposed to remove on-line ponds and restore natural meander patterns in the water course. This is to be a community initiative commencing in the summer of 2002. Union has agreed to work with the community group to ensure that their restoration efforts are not jeopardized by future pipeline installation.

## 5.2 Socioeconomic Environment

The changes to the socioeconomic conditions from those described in the 1991 EA are described below.

### 5.2.1 Municipal Structure/Official Plans

A major municipal change is related to the amalgamation of the previous Town of Flamborough and Regional Municipality of Hamilton-Wentworth with the City of Hamilton, and Dundas to form the new City of Hamilton. A new Official Plan is being prepared to incorporate the existing plans from the previous municipalities. Discussion with City planners indicated that the 1990 zoning for Flamborough is still being used. Official plan direction is being led by the Hamilton-Wentworth Official Plan developed in December 2000. A pertinent section of this plan discusses development within ESAs. Any development within, or adjacent to ESAs, must be referred to the ESAIEG for review. Information was circulated through the ESAIEG coordinator (Appendix A4) and a site visit and meeting with ESAIEG took place on April 11, 2002 (see Section 3).

The City of Burlington approved a new Official Plan in 1994. Within the study area, the changes in the plan relate to the boundary of the Kilbride Settlement Area (a slight change to the west which has no direct bearing on the proposed pipeline route) and the identification of greenlands. The greenlands follow stream courses and wetland areas. Development on these lands is restricted and landowners are encouraged to keep these areas in their natural state. Along the pipeline route these areas have been already identified as requiring Conservation Halton permits and their restoration will be monitored through that process.

The Town of Milton adopted a new Official Plan in 1996. The plan provided approximately 2000 ha of additional land for new urban growth within the next 20 years. Growth is to be phased, with the first phase of residential development presently underway. There are currently secondary plans being prepared for the next phase of development. The land to the east of Tremaine Road along the pipeline route has been included in this next phase of residential development. The new secondary plan must accommodate both the existing and proposed pipeline easements. The Town of Milton Planning Department is aware of Union's plans and have no concerns (Table A1).

### 5.2.2 Infrastructure

Union Gas, in 1995, replaced the existing NPS 26 and NPS 34 pipelines from the Hamilton Valve site to the Pitten (formerly Fasullo) property (Lot 9, Conc IX, old Town of Flamborough) to meet current code requirements due to increased

population density (Figure 2). The pipelines were relocated approximately 40 m to the south for a distance of about 600 m (from the east part of Lot 12, through to the west section of Lot 10) so that there would be more space available to the north, if further pipelines were required.

### 5.2.3 Land Use/Land Ownership

There have been some changes to land use along and adjacent to the proposed route. Changes in ownership are shown on the updated aerial photographs of the proposed route (Figures 2 to 6). Significant changes are described below moving from west to east along the proposed route.

The Courtcliffe Park campground and residential trailer park in Lot 10 Conc IX Flamborough has been replaced with a sports field for the local community owned by the City of Hamilton (formerly the Town of Flamborough) (Figure 2, Photograph 2). The trailer park residents have been relocated. There is an amendment presently before the City to change the zoning designation from Open Space and Recreation to Agriculture Site Specific Area which would then permit agricultural uses of the land as well as the existing open space and recreation designation. As discussed in Section 5.1.3, there is a proposal to turn the Bronte Creek section of the property into a passive recreation area, and restore the river to more natural conditions.

Development in the Carlisle settlement area has progressed, although not as extensively as might have been anticipated. This area was already zoned as settlement area and the proposed pipeline route had been located to avoid this area (Figures 2 and 3).

The golf course which was under construction in 1991 in Lots 1 and 2, Conc IX Flamborough, has now been completed and is in operation as the Carlisle Golf and Country Club (Figure 3, Photograph 2). Construction timing through the golf course must be arranged through agreement between Union and the owners. The mitigation specified in the Acres 1991 EA report is still valid.

The former Lindley property in Lot 10, Conc 1, City of Burlington, is now owned by Garner and is no longer a garden accent business (Figure 3). The property is used predominantly as a horse farm and new paddocks have been constructed to the east of the house. The field previously used for growing strawberries and tomatoes has

been grassed. A number of small conifers have been planted up to the NPS 34 pipeline between the two ponds (Figure 3, Photograph 3). These trees lie along the easement required for the NPS 48 pipeline. Union should work with the landowner to replace or move these trees, as required.

There have been two changes on the west side of McNiven Road (Figure 4). On the southwest corner, there has been a new house (the Cohen property) constructed within 30 m of the existing NPS 26 pipeline. The well at this home must be monitored during construction. There has been considerable remodelling of the house to the northwest. Marked previously as the Neilson home (Plate 10, Acres, 1991) with a Japanese garden, much of the original glass structure has been removed, as has the Japanese garden. The new landowners (Hewitt) have recently had a septic bed constructed just to the south of the house and they have expressed concern regarding the effect of pipeline construction. The bed location must be surveyed to confirm that it is not on the easement or where temporary space may be required for the McNiven road crossing. Heavy equipment must not cross the septic bed, or if this is unavoidable, the condition of the bed must be monitored. If any damage occurs the bed must be repaired to existing or better conditions. Generally, the working area at this location must be minimized to limit the number of trees requiring removal.

Residential development in the Kilbride Settlement Area has continued in the last 10 years. There is one section of subdivision on the west side of Kilbride Creek and immediately south of the existing pipelines, and another section just to the west of Twiss Road and to the south of the pipelines (Figure 4, Photograph 3). This development had been proposed prior to the completion of the study in 1991 and the preferred location of the pipeline was routed to the north of the existing lines to avoid any conflict. Each of these homes is dependent on their own well and have their own septic systems. It is recommended that the location of all wells adjacent to the pipeline easement within the Kilbride area be identified prior to construction. Union should use its standard well water monitoring program. This involves a review of the hydrogeology of the area and an inventory of the water wells by a consulting hydrogeologist. The hydrogeologist will then determine which wells will require monitoring as part of construction. Dust and noise could be a minor inconvenience to these properties during construction and Union should inform the residents of their schedule just prior to construction in this area.

The Bruce Trail has been relocated in this area (Costley[1] pers. comm 2002). Originally following Twiss Road, within the last 10 years the Association has been able to gain permission from landowners to cross private properties. The trail now crosses through Kilbride Park and proceeds westward along the property line to cross Kilbride Creek in the location of the existing pipeline easements. It then follows the woodlot edge on the west side of the creek to Derry Road (Figure 4). Kilbride Creek flows in two channels at this site and the local Bruce Trail club has constructed bridges across each channel. They have also installed steps down the steep slopes to the creek. The bridge on the west branch of the creek is located within the easement for the new pipeline. The bridge should be removed prior to construction and replaced during clean up. If removal is not practical, a new bridge must be installed after construction. Prior to construction, the local Bruce Trail Club must be informed of the schedule so that hikers can be warned of potential delays/detours. The trail must be posted regarding construction activities.

To the south of the existing lines, between Guelph and Walkers Lines, the Crosswinds Golf Course has been developed in the last year (Figure 5). The preferred pipeline route is north of the course and will have no impact on it, except for a slight inconvenience due to construction noise.

There have been no other major land use changes/developments east of Walkers Line. As discussed above (Section 5.2.1), the land to the east of Tremaine Road is now included within the Town of Milton's urban area expansion boundary (Figure 6).

### 5.2.4 Archaeology

Following the EA submission in 1991, both Stages II and III archaeological assessments have been completed. The Stage II assessment was undertaken following the selection of the preferred route location. This study identified 10 previously unknown archaeological sites. The most important site is a historic Neutral village dating ca 1635 to 1651 A.D. The field investigations included preliminary assessment of the 10 new sites as well as one previously known site: the Pipeline site, a prehistoric Neutral village dating ca. 1400 to 1425 A.D.

[1] Andrew Costley, Trail Maintenance Director, Iroquois Bruce Trail Club.

The 1991 Stage II assessment determined that four of the known sites were of insufficient significance to warrant any further investigation but the other sites were recommended for further investigations. The proposed investigations varied with the nature and potential significance of the site, and ranged from further surface examination to limited or extensive test excavations.

A Stage III assessment was completed in 1992 (Poulton and Associates, 1992), indicating that there are two highly significant archaeological sites along the proposed route: both Neutral villages. While the archaeological finds along the proposed pipeline route are significant, correspondence in July 1993 with Neal Ferris of the then Ministry of Culture, Tourism and Recreation (Appendix A5) indicated changing the route to avoid these sites was not necessarily recommended. The archaeological potential in the entire study area is extremely high. Attempting to reroute the pipeline to avoid known archaeological sites could easily impact a yet unknown, but equally significant site. The mitigation costs for these new sites could well balance out any savings achieved by avoiding the known sites.

A Stage 4 archaeological assessment must be completed prior to construction through the two Neutral village sites. If graves are found, it is recommended that the route be realigned to avoid excavation, otherwise exhumation would need be carried out in consultation with appropriate native band councils and in accordance with appropriate legislation.

Five properties could not be surveyed during the 1992 investigations either due to weather conditions or lack of landowner permission. One of these included the Carlisle Golf Course. During golf course construction, the top soil was stripped and extensive earth moving was undertaken to shape the course. It is anticipated that any significant archaeological finds would have been made at that time. Any site on this property would have been disturbed by the construction activities. The other four properties must have an archaeological assessment prior to construction.

# 6 CUMULATIVE EFFECTS

Cumulative effects are changes to the environment that are caused by an action in combination with other past, present and future human actions (Hegmann et al, 1999). Individual projects may produce insignificant impacts, however, when these are combined with the impacts of other existing or approved projects, they may become significant (OEB, 1995). Such cumulative effects may include both biophysical and socioeconomic effects and

the OEB 1995 Guidelines state that these effects must be identified and discussed as part of the environmental assessment.

## 6.1 Sources of Effects

The following can be attributed to causing cumulative effects in this area.

- **Past Actions:** including previous pipeline installations, residential development (e.g., Carlisle and Kilbride Settlement areas), speciality land uses (Carlisle Golf Course).

- **Present Actions:** including proposed Hamilton to Milton pipeline, continuing residential development, Bronte Creek restoration projects.

- **Future Actions:** including proposed Milton urban expansion.

Cumulative effects can often occur with a new pipeline when it is placed adjacent to existing pipelines (i.e., looping existing systems) (OEB, 1995). Along the proposed pipeline route, approximately 13.5 km of the 17-km route are adjacent to two existing pipeline. An NPS 26 pipeline was constructed in 1957 and a NPS 34 pipeline was installed in 1972. The cumulative effects from these types of looping activities can include the following.

- Soil compaction/structure concerns, leading to reduced crop yields, as similar areas are reworked during repetitive construction activities (e.g., the work area for the first line is often used as the spoil area for the next line). Historically, when the 1957 pipeline was installed, little or no restoration work was carried out after pipe installation. However, construction practices have vastly improved since then (including wet soils shut-down policy, top soil stripping and clean-up practices) and crop reduction has been lessened (ESG, 1998).

- Increase in easement widths can place limitations on the options for which the land can be used (e.g., loss of building potential).

- Ongoing inconvenience to landowners during construction activities by successive pipeline installation and their maintenance.

- Fragmentation/nibbling of woodlots such that the size is reduced to such an extent it has little ecological importance and often there is a loss of the linkage between natural areas.

Cumulative effects in this area must also address the effects between residential development and pipeline routing. Development in the Carlisle and Kilbride areas have limited the options for pipe placement. The future development within Milton could require a return to the easement to maintain compliance with regulatory standards.

## 6.2 Cumulative Effects Assessment Boundaries

Following recent OEB Board Decisions (e.g., RP-200-0110 and RP-2000-0117), the study area boundary for this cumulative effects assessment was taken as the existing and proposed pipeline easements and any adjacent lands where off-easement effects might be experienced. The time boundaries were considered to extend from the installation of Union Gas' first pipeline in 1957 to identified future projects.

## 6.3 Cumulative Effects Assessment

The assessment of the cumulative effects from this project in combination with existing and likely future projects, including predicted residual effects, is provided in Table 2. While some of the effects can be quantified most are a qualitative judgment. It must be noted that the route selection process and the implementation of construction and postconstruction mitigation/monitoring/restoration are all important aspects in reducing cumulative effects.

The final step in the cumulative effects assessment is to determine whether the residual adverse effects are significant. The criteria used to assess significance were those recommended by FEARO 1994, namely

- magnitude of effect (major or minor)
- geographical extent (widespread or localized)
- duration and frequency of effect (long term/frequent or short term/infrequent)
- ecological context (fragility and resistence of natural/social environment).

| Table 2<br>Cumulative Effects Assessment | | | | | |
|---|---|---|---|---|---|
| **Action** | **Location** | **Cumulative Effect** | **Mitigation** | **Residual Effect** | **Significance of Adverse Residual Effects** |
| Pipeline easement acquisition | Looping section (entire pipeline route excluding Carlisle Settlement detour) | - NPS 26 pipeline constructed 1957 with a 18 m (60 ft) easement.<br>- NPS 34 constructed 1972 with 23 m (75 ft) easement (with overlap, easement increased to 29 m).<br>- 2003 construction of NPS 48 pipeline easement is 28 m (with overlap, total easement will increase to 45 m). | - By overlapping new easements total disturbed width requirements are 49 m or 20 m less than if new route location selected. Landowner compensated each time pipeline routed across property. | - Landowner's ability to utilize property restricted to Union's easement requirements. | Small, localized, permanent effect - low overall significance. |
| | Carlisle/ Kilbride/ Milton areas | - Loss of landowners real estate development potential for land because no buildings can be constructed within a pipeline easement. (This was an issue consistently raised by landowners as a perceived concern.) | - Proposed route was selected either adjacent to existing pipelines or adjacent to Carlisle Settlement Area to minimize impact to future development potential. (Note: the only land the pipeline actually passes through which is within a proposed residential area designated by official plans is that east of Tremaine Road.) | - Within the Town of Milton expansion area approximately 7 ha of land will be unavailable for buildings due to the location of the three Union pipelines. There is an opportunity for this area to be incorporated into urban green space.[1]<br>(The easement adjacent to the Carlisle boundary covers approximately 6 ha and adjacent to Kilbride the easement for the three pipelines includes approximately 9 ha.) | Minor, long term, permanent but potentially positive effect - not significant. |

[1] Also, as shown by usage of land within Carlisle, where the existing two pipelines pass through the centre of the settlement area, pipelines can be accommodated within residential settings.

| Table 2<br>Cumulative Effects Assessment | | | | | |
|---|---|---|---|---|---|
| **Action** | **Location** | **Cumulative Effect** | **Mitigation** | **Residual Effect** | **Significance of Adverse Residual Effects** |
| Repetitive construction practices in close proximity when installing each new pipeline | Looping section of pipeline | - Landowner concerns due to previous poor construction/ rehabilitation practices. | - Placement of NPS 48 provides opportunity to rehabilitate any adjacent areas where problems due to previous construction (e.g., removal of compaction, improve local drainage). | - Improved site conditions and potential to assist in better understanding between landowner and Union. | NA |
| | | - Ongoing disruption to landowner's lifestyle due to intermittent construction activity. | - Minimize length of time of construction activities on any one property.<br>- Inconvenience is compensated by cash payment. | - For most landowners short-term inconvenience.<br>- Disruption to cropping activities may continue for a number of years. | Minor, localized, short term, infrequent - low significance. |
| | | - Loss of soil structure/soil compaction/reduced crop yields/increased stoniness. | - Top soil stripping, chisel ploughing, subsoiling (etc see pages 4-8 to 4-11, Acres. 1991).<br>- Postconstruction crop monitoring for following 2 to 5 years, if required.<br>- cash compensation assuming a permanent crop loss of 23%. | - Historical review of Union's crop monitoring reported a permanent crop reduction of 10 to 20% (average crop yields for all crops sampled over trench, spoil pile and work space was 84, 85 and 91% respectively compared with off site control). | Small, localized, permanent effect - low overall significance as farmer provided with cash compensation for loss. |

| Table 2<br>Cumulative Effects Assessment | | | | | |
|---|---|---|---|---|---|
| **Action** | **Location** | **Cumulative Effect** | **Mitigation** | **Residual Effect** | **Significance of Adverse Residual Effects** |
| | | - Repetitive blasting in bedrock areas fractures surrounding rocks, changes to groundwater flow | - Blasting consultant employed as required to ensure controlled blasts, limiting effects to those within close proximity of trench area.<br>- Placement of plugs within trench to maintain present groundwater flow patterns.<br>- Water well monitoring program. Hydrogeologist available for consultation during construction, if conditions warrant. | - Minor changes to rocks adjacent to trench.<br>- Trench area composed of unconsolidated fill materials.<br>- Slight changes in ground water flow. | Minor, localized, long-term effects - low significance. |
| | | - Ongoing interference with archaeological sites | - Stages 1 to 4 heritage assessments along pipeline easements. | - Loss of archaeological site.<br>- Archaeological excavation and recovery of artifacts increases heritage knowledge. | Medium, localized long-term loss to social environment - low to medium significance. |

## Table 2
## Cumulative Effects Assessment

| Action | Location | Cumulative Effect | Mitigation | Residual Effect | Significance of Adverse Residual Effects |
|---|---|---|---|---|---|
| Pipeline easement clearing, farming activities and residential development | Woodlot areas | - Increasing loss of woodlots and their ecological value with pipeline construction and residential/agricultural development.<br>- Loss due to previous pipeline construction estimated to represent 4 ha, loss due the present construction approximately 5 ha. Loss of woodlots due to adjacent farming/residential activities unknown. | - Pipeline routing minimized woodlot losses.<br>- Overlapping easement reduced potential woodlot loss by approximately one third.<br>- Union's compensation policy of 2 for 1 replacement for woodlot area losses. | - Permanent loss of woodlots along easements.<br>- Opportunity for replanting and extension of natural areas in approved local sites. | Minor, permanent, localized ecological loss - low/medium significance. |
| Increase in population density | Carlisle/ Kilbride/ Milton area | - Possible requirement to return to easements to maintain compliance with regulatory standards.<br>- Greater population and opening up of area by pipeline route leads to greater potential for trespassing on private properties. | - Maintain compliance with regulatory standards.<br>- Increased signage may be required to prevent trespassing. | - Pipelines will be maintained in compliance with regulatory standards.<br>- Some ongoing trespassing can be anticipated. | Minor, long term, localized effect - not significant. |

| Table 2<br>Cumulative Effects Assessment | | | | | |
|---|---|---|---|---|---|
| **Action** | **Location** | **Cumulative Effect** | **Mitigation** | **Residual Effect** | **Significance of Adverse Residual Effects** |
| Bronte Creek Watershed Restoration Projects | Courtcliffe Park | - Community group program to restore Bronte Creek in the old Courtcliffe Park area to more natural conditions, depth of existing pipelines could restrict manner of development of meanders and vice versa changes in stream patterns could affect depth requirements for new pipeline. | - Union to work with community group and Conservation Halton to restore area, schedule activities such that construction does not impact areas where restoration activities occurring. Realignment of streams not to change depth requirements of existing pipelines, ensure that any changes in stream channels are known prior to installation of NPS 48 so that depth of cover can be incorporated into detailed engineering. | - Improved natural areas. | NA |
| | Indian Creek subwatershed | - Pipeline location could impede restoration projects. | - Union to work with CA and Town of Milton to ensure plans are compatible | - Improved natural areas/ greenspace allocation. | NA |
| Speciality land uses | Carlisle Golf Course | - Pipeline installation interfering with use of golf course.<br>- Damage to underground irrigation and course landscaping features. | - Schedule construction to minimize loss of playing time.<br>- Repair any cut irrigation pipes and relandscape.<br>- Cash compensation for inconvenience and loss of income to course. | - Some loss of more mature landscaping. | Minor, short term localized effect - not significant. |

For the residual adverse effects identified, while some are persistent in location and in time, and important to individual landowners, they are localized and with appropriate compensation are considered to be of low significance. There are two exceptions, the first is the cumulative loss of woodlots due not only to pipeline construction but from residential expansion and agricultural activities. Union's policy of replanting 2 acres for every acre they remove will more than compensate for this loss in the long term and is a positive initiative. The second is the long-term loss to heritage sites. This loss is balanced to some extent by the increased knowledge gained from the archaeological excavations.

# 7 MONITORING, INSPECTION, REPORTING

The monitoring and inspection requirements outlined in Acres, 1991 are still valid. The contractor must follow Union's most up-to-date construction specifications.

OEB 1995 requires that contingency plans are in place for spills and other emergencies. Union's environmental management manual provides procedures in such situations (see Appendix D).

To ensure that the construction site is restored as quickly as possible, monitoring reports are required as a condition for OEB approval of the pipeline project. An Interim Report is now required within 6 months after final tie-ins (OEB 1989 Guidelines required this report within 6 weeks of tie-in) and the Final Monitoring Report is usually required prior to November 1 following the first complete growing season. The OEB guidelines (pages 65 and 66) provide detailed instructions for the monitoring/reporting requirements. The major change which must be included in the final report is addressing any potential cumulative impacts which may arise.

# 8 UPDATE TO PROVINCIAL LEGISLATION/ PERMIT REQUIREMENTS

The OEB guidelines require that other provincial legislation be examined to determine whether they might affect routing. The Policy Statements documented in Section 6 of the Acres, 1991 report were used as foundations for a Provincial Policy Statement issued under Section 3 of the Planning Act in 1996. The statement set out clear, overall policy directions on matters of provincial interest related to land use planning and development. The statement, while promoting economic development, sets out policies for the protection of environmental resources. A 5-yr review of the policy statement was begun in June 2001

under what is known as the Smart Growth initiative. While cognizant of these new provincial policies, they do not impact directly upon the present pipeline project.

Update/corrections to the environmental permits list provided by Acres, 1991 are as follows.

- NEC Development Permit will be required for the entire pipeline route between Milburough Line and Tremaine Road.

- Conservation Halton permits for crossing all their regulated areas.

- Union Gas should review plans for road crossings, tree clearing, blasting with municipalities.

# 9 CONCLUSION AND RECOMMENDATIONS

Through the update process of discussions/meetings with agencies, the public open house, landowner information letters, updated background environmental data, field investigations, municipal plan reviews, A&A confirms that the route selected in the Acres, 1991 report for the proposed NPS 48 Hamilton to Milton pipeline is still the preferred location (with the minor fine tuning noted in Section 5) and that the pipeline can be constructed and operated in a manner that will not cause significant environmental effects if the mitigation and monitoring recommendations contained in this and the Acres, 1991 report are followed.

Prior to construction a Stage IV archaeological assessment must be undertaken at the sites of the Neutral Indian villages and at least Stage 2 assessments must be completed in those locations which were omitted in the previous investigations.

At least 1 month prior to construction startup, Union should notify all directly affected and adjacent landowners, the Bruce Trail Association, municipalities, CA, NEC, of the proposed construction schedule.

Union must work with Conservation Halton and local community groups to minimize timing conflicts and assist in restoration efforts at Bronte Creek and its tributaries.

# 10 REFERENCES

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# APPENDIX A

# AGENCY CONSULTATION

# APPENDIX A1

# SUMMARY OF AGENCY RESPONSES TO ACRES, 1991 REPORT

| Table A1<br>Agency Responses to Acres, 1991 Route Selection<br>and Environmental Assessment Report | | | | |
|---|---|---|---|---|
| **Agency** | **Responders' Name and Title** | **Date of Response** | **Agency Comments** | **2002 Update Report Action** |
| Regional Municipality of Halton | S. McInnes<br>Planner | June 10, 1991 | No response available at this time. | See Table A3. |
| Ministry of Consumer & Commercial Regulations (MCCR) | P.E. Boisseau<br>Standards Engineer - Pipelines | June 10, 1991 | No comment or concerns. | See Table A3. |
| Regional Municipality of Hamilton - Wentworth Planning Dept. | V.J. Abraham<br>Director, Regional Planning Dept. | June 19, 1991 | - Preferred route alignment is their preferred rout.<br>- Comments should also be obtained from Engineering and Health Services Department. | All information is now directed to City of Hamilton. |
| Town of Flamborough | T. George<br>Deputy Clerk | June 20, 1991 | - The Town supports the proposed pipeline subject to the monitoring recommendations and the mitigation measures proposed by town staff.<br>- Town to approve any temporary construction sites or work camps.<br>- Town to be advised of any local aggregate sources to be used. | All information is now directed to City of Hamilton. |
| CN Rail | M. Schweitzer for<br>P. L. O'Malley<br>Engineer, Projects | July 9, 1991 | Submission of jack and bore installation undertracks. Require 10 detailed drawings in accordance with their General Order E-10. | See Table A3. |
| Ministry of Culture and Communications (MCC) | N. Ferris<br>Development Plans Review, SW Region | July 9, 1991 | If any archaeological sites are found along the corridor which are deemed significant and are threatened with construction disturbances, then the archaeologist should test and/or fully excavate the sites prior to initiation of construction activities. | Stages II and III archaeological assessment have been carried out and Stage IV to be completed 2002. |

## Table A1
## Agency Responses to Acres, 1991 Route Selection and Environmental Assessment Report

| Agency | Responders' Name and Title | Date of Response | Agency Comments | 2002 Update Report Action |
|---|---|---|---|---|
| City of Burlington | H. MacRae, Executive Director, Information Services and City Clerk | August 13, 1991 | Support for project subject to the following conditions:<br><br>(i) implementation of the EA document recommendations as it pertains to northern Burlington<br>(ii) apply for and receive 'Construction and Excavation on Public Property' Permits from the City of Burlington for crossing East Flamborough Town Line, McNiven Road, Walker's Line, Appleby Line and Bell School Line. | UGL to work with City regarding crossing requirements. |
| Ministry of Natural Resources (MNR) | B. DeGunst, Acting District Manager, Cambridge District | August 14, 1991 | MNR is satisfied that the preferred route, with the recommended mitigation, will result in minimal impact upon the interests of MNR. The MNR requested the following information:<br>- nature of investigations with respect to West Virginia White butterfly<br>- provide definition of sensitivity in assessment of woodlot impacts<br>- requirement to clean woody vegetation outside avian nesting/breeding.<br><br>Approvals will be required for stream crossings under Lakes and Improvement Act. Coldwater stream crossing only allowed between June 1 to September 1. | - For information on the West Virginia White butterfly see Section 5.1.2<br>- Sensitivity was used to provide an appraisal of the aesthetic appearance of the woodlot. It was qualitative, term based on the subjective judgment of the biologist undertaking the investigation<br>- Commitment to clear vegetation outside nesting/breeding season<br>- Stream crossing timing now revised, see Table A3. |
| Ministry of Energy | A. Barrett, Advisor, Natural Gas Supply Transportation | May 28, 1991 | No specific comments at this time. | See Table A3. |

| Table A1<br>Agency Responses to Acres, 1991 Route Selection and Environmental Assessment Report | | | | |
|---|---|---|---|---|
| **Agency** | **Responders' Name and Title** | **Date of Response** | **Agency Comments** | **2002 Update Report Action** |
| Ministry of Transportation | R. C. Hodgins, Manager, Environmental Office | June 5, 1991 | No concerns. | See Table A3. |
| Halton Region Conservation Authority | J. D. Hall, Manager, Resource Planning | September 9, 1991 | - Satisfied with route except in location of Islay Lake. Alternate route suggested north of Lake Islay.<br>- Sweet Chestnut identified in Woodlot W12 is nationally, provincially and regionally rare and must not be impacted.<br>- Preferred route crosses 19 regulated areas which will require permits and necessary contract wording with respect to fill disposal.<br>- Dry water crossing method to be used where possible. | See Section 5.1.1.<br><br>No action required. Sweet Chestnut incorrectly identified in woodlot.<br><br>Permit under Regulation 253/89 for regulated areas will be required.<br><br>Follow MNR 1993 Generic Sediment Control Plans. |
| Ministry of Agriculture and Food | H. Gariepy, Land Use Specialist | October 29, 1991 | - No objections east of the Halton/Hamilton-Wentworth boundary line.<br>- Ancaster office will respond west of this boundary. No comments received from Ancaster office. | See Table A3. |

| Table A1<br>Agency Responses to Acres, 1991 Route Selection and Environmental Assessment Report | | | | |
|---|---|---|---|---|
| **Agency** | **Responders' Name and Title** | **Date of Response** | **Agency Comments** | **2002 Update Report Action** |
| Niagara Escarpment Commission (NEC) | C. Louis, Manager, Plan Administration | June 28, 1991 | - Need for pipeline must be identified.<br>- Route evaluation to include cumulative impacts and visual impacts<br>- Justification that pipeline is essential when crossing NEC Natural Area.<br>- Modification to Section 4.2.1.5 to indicate that lower class wetlands are locally significant and that specimen trees to be identified from an ecological perspective.<br>- Change of routing if significant archaeological sites identified within NEC Plan Area. Discussion with MCC to ensure in compliance with their legislation.<br>- Changes required to Table 6.1 to identify the Niagara Escarpment Planning and Development Act.<br>- A number of editorial changes. | UGL responded to this letter in February 1992. See Appendix A2. |
| | | June 6, 1992 | NEC responded to UGL's letter of February 1992:<br>- Commission has no objections to the findings and agrees in principal to the preferred pipeline location.<br>- An addendum to the route selection to include changes based on the NEC comments. | The correspondence provided in Appendix A2 addresses NEC requirement for an addendum to the route selection process. |

# APPENDIX A2

# NEC CORRESPONDENCE REGARDING ACRES, 1991 REPORT

## (a) Comments Received from NEC
## June 28, 1991

Niagara Escarpment Commission
Ontario

Commission de l'escarpement du Niagara

232 Guelph Street
Georgetown, Ontario
L7G 4B1
(416) 877-6181

232, rue Guelph
Georgetown (Ontario)
L7G 4B1
(416) 877-6181

June 28, 1991

W. Wachsmuth
Environmental Planner
Union Gas
50 Keil Drive North
P.O. Box 2001
Chatham, Ontario
N7M 5M1

Dear Sir/Madam:

Re: Union Gas Hamilton to Milton Pipeline
Route Selection and Environmental Impact Report

The Niagara Escarpment Commission, at its meeting of June 27, 1991, resolved to provide Union Gas and the Ontario Energy Board with the following comments regarding the above-noted study report.

1. The need for the pipeline must be identified and addressed in the Introduction of the study.

2. The Commission feels that the route evaluation conducted should have been broader and considered cumulative impacts and visual impacts for both alternatives.

3. Justification that it is "essential" that the pipeline cross the Escarpment Natural Area designation should be provided to the Commission's satisfaction prior to approval of the undertaking.

4. Subsection 4.2.1.5, Terrestrial Environment Vegetation, should be modified to indicate that Class V and VII wetlands are locally significant wetlands, that loss of habitat is a potential impact associated with loss of vegetation, and that the Union Gas Environmental Inspector should identify specimen trees to be protected based on an ecological perspective rather than a commercial perspective.

5. If significant archaeological sites are identified within the Niagara Escarpment Plan Area, along the proposed route, the route may be required to be changed

to provide adequate protection of the archaeological resource.

6. Union Gas should discuss the proposal with the Ministry of Citizenship and Culture to ensure that the appropriate legislation is complied with.

7. Table 6.1, Relevant Legislation and Permits Required for the Proposed Pipeline, requires modification. The Niagara Escarpment Planning and Development Act should be added under Legislation and under Environmental Permits the Permit/Approval required from the Commission is a Development Permit.

8. Editorial changes, provided in Appendix 1, should be incorporated into the report to ensure correct information is provided or to clarify certain information.

A copy of the related staff report is provided for your reference. If you have any questions please contact Carolyn Stewart at the address above.

Yours very truly,

Cecil Louis
Manager
Plan Administration

cc: Neil McKay

CS/cs
Attach.

## Appendix 1

## Recommended Editorial Changes

1. Table 3.1 and Table K-1 should be modified to show the Niagara Escarpment Plan under a separate "Component" heading called "Special Area" rather than being under the "Cultural" Component section. The Niagara Escarpment Plan provides objectives, policies and development criteria associated largely with protecting the natural environment and its identification under Cultural Component is somewhat misleading.

2. Under the Niagara Escarpment Plan section, the amount (km) of Escarpment Rural Area crossed should be added to the calculations, particularly since it is the designation that most of the preferred route falls within in the Niagara Escarpment Plan Area.

3. Page 3-6, point 4. The Plan designations should be Escarpment Natural Area and Escarpment Protection Area.

4. Under Subsection 4.2.2.1, Land Use, paragraph two should be modified to state "The Niagara Escarpment Plan Area extends <u>generally from the CP rail line west of</u> Millborough Road...."

5. Appendix A Table of Initial Correspondence and Meetings with Public Agencies should be revised to show <u>all</u> correspondence and meetings. For instance, the Niagara Escarpment Commission provided comment November 28, 1989, December 13, 1989, September 10, 1990, and February 20, 1991.

6. Under Appendix G, the table Summary of Routing Constraints should be modified as follows:

   Niagara Escarpment Plan Area (km)
   Escarpment Natural Area
   Escarpment Protection Area
   Escarpment Rural Area

7. Figure 3, Natural Environment, under Appendix I, should show all wetlands, including locally significant Class V, VI, or VII.

8. The legend for Figure 6, Land Use and Zoning should be modified to indicate the Niagara Escarpment Plan Area

(rather than Niagara Escarpment Commission Control Area), the two designations are Escarpment Natural Area and Escarpment Protection Area. Also, a note should be added that states all other lands within the Niagara Escarpment Plan Area are Escarpment Rural Area designation (not shown in a separate letratone on the map). Similarly, Figure 8, Major Route Constraints, and Figure K-1 in Appendix K, requires similar modifications to the Legend.

CT

Niagara Escarpment Commission
Commission de l'escarpement du Niagara
Ontario

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Georgetown (Ontario)
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(416) 877-5191

SUB #7329

June 27, 1991

RE: Union Gas
Hamilton to Milton Pipeline
Route Selection and Environmental Impact Report

---

**DATE RECEIVED:** May 17, 1991

**SOURCE:** Union Gas

**PROPOSAL:** To construct a 17 kilometre NPS pipeline from the Hamilton Valve site in the Town of Flamborough to the Milton Valve site in the Town of Milton. Construction is proposed to take place during the summer of 1993.

This report has been submitted to The Ontario Energy Board for approval to construct the proposed pipeline. Union Gas has been made aware that they require a Niagara Escarpment Commission development permit for construction within the Niagara Escarpment Plan Area.

**SUMMARY RECOMMENDATION:** No objection in principle with the study findings, but further information is required.

**BACKGROUND:**

**Union Gas Dawn Compressor Station To Parkway Compressor Station Study:**

In early 1990 the Commission reviewed alternative routes for this 70 km pipeline and indicated a general preferred route through the Niagara Escarpment Plan Area.

The Commission indicated at that time that more detailed analysis of alternative alignments within the preferred route segment would be required. These analyses would have to consider and be based on the Development Criteria in Part 2 of the Niagara Escarpment Plan and minimizing the impact on the natural and visual environment of the Escarpment. The analyses would be required prior to determining the exact route for the pipeline.

**Union Gas-Hamilton to Milton Pipeline:**

The Hamilton to Milton Pipeline study provides a more detailed analysis of the preferred route segment identified in the Dawn Compressor Station to Parkway Compressor Station study.

The Commission has provided input to this study on four occasions. Each time it has indicated that the route selection and analysis section of the report needed to address more than "distance crossed" of various environmental and cultural features. Detailed recommendations were provided in terms of the additional criteria that should be addressed in the study. The route selection section has not been expanded as recommended by the Commission.

In addition, comments have indicated that the need for the pipeline has not been adequately shown. Additional information regarding need has not been provided.

Editorial comments made by the Commission previously have been incorporated into the report.

**ANALYSIS:**

Although the comment has been made in the past, no additional information has been provided regarding the need for the pipeline beyond the statement that it is "required to meet the projected increases in transmission capacity along the Union Gas Trafalgar system". There is no indication of whether the pipeline will supply a local, regional, international need; or what the projected increases in transmission capacity are and how they were established. This information should be included in the introduction to the report.

As has been stated in previous Commission comments the route evaluation and selection process undertaken is not considered to have included a full assessment of impacts for both alternative routes. The Niagara Escarpment Commission feels that potential cumulative impacts (e.g., the preferred route crosses a smaller area with steep slopes but would the steep slopes, usually associated with watercourses or wooded areas, be impacted more or less if a longer distance of steep slope was crossed in another location where it was no

associated with other sensitive features?). Visual impact should have been addressed.

In addition, justification that the pipeline is "essential" in the Escarpment Natural Area needs to be addressed using the Niagara Escarpment Plan definition of "essential" which is : "that which is deemed necessary to the public interest after all alternatives have been considered". This aspect would relate back to the need for the pipeline addressed previously.

Commission staff have some concern with the fact that "distances crossed" within the Evaluation of Route Alternatives have changed from the draft report. It is hoped that those provided in this final report are in fact correct for both alternatives since this was the only criteria used in the evaluation.

Section 4, Potential Environmental Impacts and Recommended Mitigation Measures Along the Preferred Route, generally provides a good assessment of impacts and mitigation measures. Niagara Escarpment Plan Development Criteria are addressed in the recommended mitigation measures where appropriate. The following modifications are recommended:

- Under Terrestrial Environment (Subsection 4.2.1.5), Class V and VII should be identified as locally significant wetlands rather than just as "the lower classes in the wetland classification". One potential impact that is missing from the list is loss of habitat. Although this is not an impact to vegetation, it is an indirect impact associated with loss of vegetation. It should be stressed that the Union Gas environmental inspector should identify specimen trees to be protected based on an ecological perspective rather than a commercial perspective.

Section 5.1.5, Archaeologic Sites, indicates that test pits and surface collection will identify any significant sites along the proposed route. It also indicates that if these sites cannot be avoided during construction, the archaeologist may request an opportunity to monitor the removal of soil cover during trenching activities. This is inadequate to comply with the Niagara Escarpment Plan policies related to Heritage Resources.

The objective, within the Niagara Escarpment Plan Area, is to "maintain the heritage resources of the Niagara

Escarpment Plan Area". The policies indicate that care shall be taken to preserve known archaeological sites (especially native burial sites) or areas where such sites might reasonably be expected to exist. If significant archaeological sites are identified, within the Niagara Escarpment Plan Area, along the proposed gasline route, the route may be required to be changed to provide adequate protection of the archaeological resource. We suggest further discussion with the Ministry of Culture and Communications in order to ensure their legislation is complied with.

In Table 6.1, Relevant Legislation and Permits Required for the Proposed Pipeline, the Niagara Escarpment Planning and Development Act should be added under Legislation. Under Environmental Permits the Permit/Approval required from the Niagara Escarpment Commission is an Development Permit. Approval of a development permit would be required prior to any development within the Niagara Escarpment Plan Area.

In addition several editorial changes are recommended in Appendix 1, attached.

**RECOMMENDATION:**

The Niagara Escarpment Commission should advise Union Gas and the Ontario Energy Board that it does not object to the findings of the study, in principle, but has the following comments:

1. The need for the pipeline must be identified and addressed in the Introduction of the study.

2. The Commission feels that the route evaluation conducted should have been broader and considered cumulative impacts and visual impacts for both alternatives.

3. Justification that it is "essential" that the pipeline cross the Escarpment Natural Area designation should be provided to the Commission's satisfaction prior to approval of the undertaking.

4. Subsection 4.2.1.5, Terrestrial Environment Vegetation, should be modified to indicate that Class V and VII wetlands are locally significant wetlands, that loss of habitat is a potential impact associated with loss of vegetation, and that the Union Gas Environmental

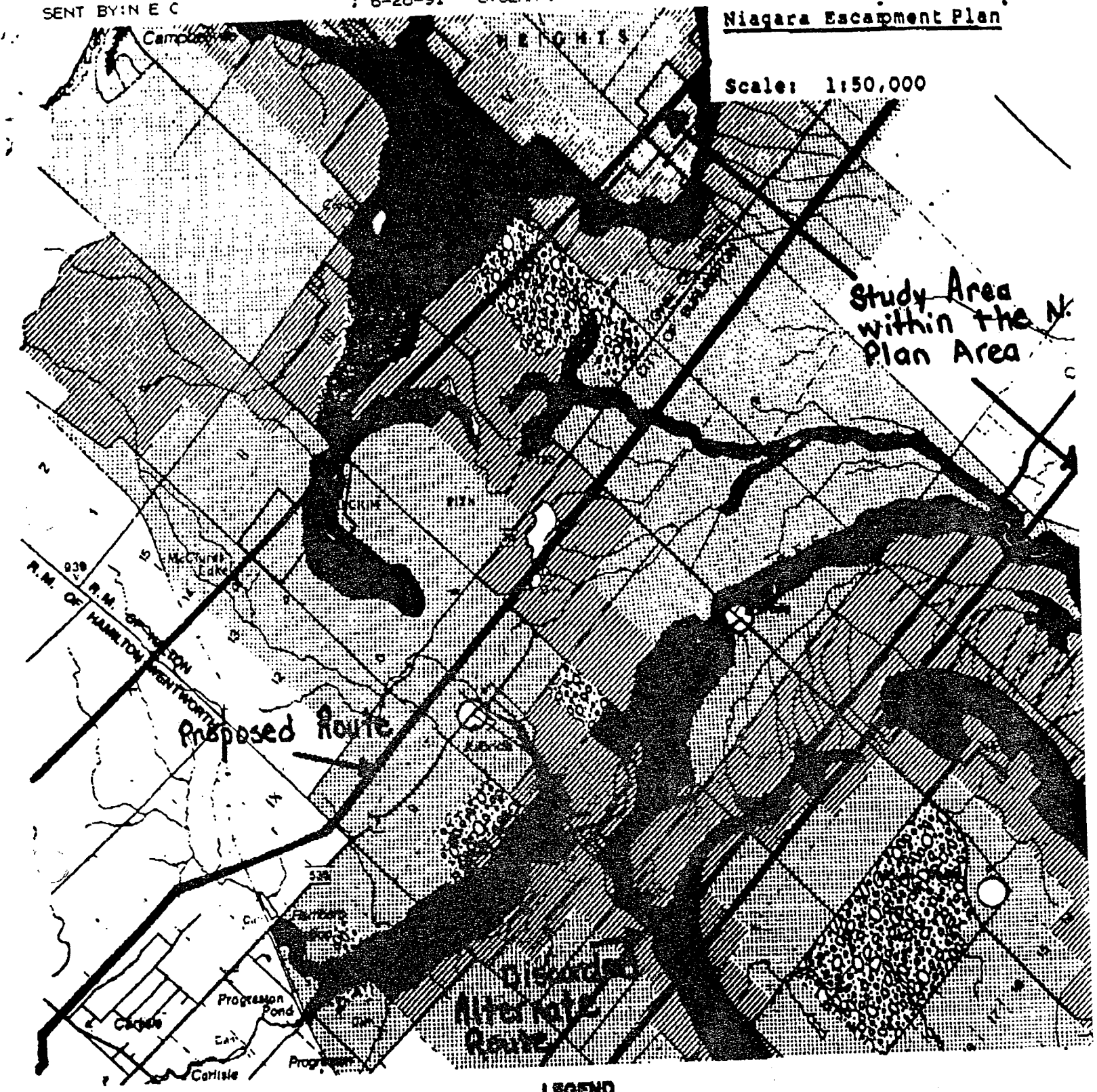
Inspector should identify specimen trees to be protected based on an ecological perspective rather than a commercial perspective.

5. If significant archaeological sites are identified within the Niagara Escarpment Plan Area, along the proposed route, the route may be required to be changed to provide adequate protection of the archaeological resource.

6. Union Gas should discuss the proposal with the Ministry of Citizenship and Culture to ensure that the appropriate legislation is complied with.

7. Table 6.1, Relevant Legislation and Permits Required for the Proposed Pipeline, requires modification. The Niagara Escarpment Planning and Development Act should be added under Legislation and under Environmental Permits the Permit/Approval required from the Commission is a Development Permit.

8. Editorial changes, provided in Appendix 1, should be incorporated into the report to ensure correct information is provided or to clarify certain information.


Niagara Escarpment Plan
Scale: 1:50,000
Study Area within the N. Plan Area
Proposed Route
Alternate Route
Campbellville
McCurdy Lake
Progression Pond
Carlisle
LEGEND
Escarpment Natural Area
Escarpment Protection Area
Escarpment Rural Area
Minor Urban Centre
Urban Area
Escarpment Recreation Area
Mineral Resource Extraction Area
Public Land (in Parks System)
SCALE 1:50,000
2000
3000

## Appendix 1

### Recommended Editorial Changes

1. Table 3.1 and Table K-1 should be modified to show the Niagara Escarpment Plan under a separate "Component" heading called "Special Area" rather than being under the "Cultural" Component section. The Niagara Escarpment Plan provides objectives, policies and development criteria associated largely with protecting the natural environment and its identification under Cultural Component is somewhat misleading.

2. Under the Niagara Escarpment Plan section, the amount (km) of Escarpment Rural Area crossed should be added to the calculations, particularly since it is the designation that most of the preferred route falls within in the Niagara Escarpment Plan Area.

3. Page 3-6, point 4. The Plan designations should be Escarpment Natural Area and Escarpment Protection Area.

4. Under Subsection 4.2.2.1, Land Use, paragraph two should be modified to state "The Niagara Escarpment Plan Area extends <u>generally from the CP rail line west</u> <u>of</u> Millborough Road...."

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   Escarpment Rural Area

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## (b) Responses to NEC

Union Gas Limited
Head Office
P. O Box 2001
50 Keil Drive North
Chatham, Ontario
N7M 5M1
Tel. (519) 352-3100
Fax (519) 436-4566

File HAM-MIL
Environment-NEC.

1992/03/02

**Union Gas**

Niagara Escarpment Commission
232 Guelph Street
Georgetown, Ontario
L7Q 4B1

Attention: Mr. C. Louis
Manager, Plan Administration

RE: Proposed Hamilton to Milton Pipeline

Dear Mr. Louis:

This letter is in response to your letter of June 28, 1991 and the meeting between Carolyn Stewart (NEC), Steve Stone (NEC), Gerry Mallette (Union Gas) and Bill Wachsmuth (Union Gas) on October 8, 1991 regarding the proposed Hamilton to Milton pipeline. The following is Union Gas' response to the concerns addressed by the Plan Administration Section of the Niagara Escarpment Commission.

**"The need for the pipeline must be identified and addressed in the Introduction of the study."**

**"Justification that it is "essential" that the pipeline cross the Escarpment Natural Area designation should be provided to the Commission's satisfaction prior to approval of the undertaking."**

Union Gas Limited's Dawn-Trafalgar transmission system is an important link in the transportation of natural gas from Western Canada to southern and eastern Ontario and Quebec. During the winter months, natural gas from Western Canada is received at the Dawn Compressor Station in Lambton County ("Dawn") and, together with natural gas withdrawn from underground storage reservoirs, is transported easterly to Trafalgar, near Oakville (refer to attached Schedule 1). At Trafalgar, Union Gas delivers natural gas to other natural gas utilities. The Dawn-Trafalgar system consists of parallel 26-inch diameter and 34-inch diameter pipelines from Dawn to Trafalgar. Since 1975, eleven sections (each approximately 18 km in length) of 42-inch diameter pipeline and three sections of 48-inch diameter pipeline have been added along the existing system. The only section of the Dawn-Trafalgar system that consists of the original 26-inch and 34-inch diameter pipelines without any other parallel 42-inch or 48-inch diameter pipeline is the section from the Hamilton Valve Site to the Milton Tie-In. This section creates a bottleneck on the overall system, reducing the ability to flow gas to Trafalgar in much the same way a pinch in a garden hose affects the flow of water at the end.

**Union Gas**

As the proposed pipeline goes in a general east west direction while the NEC lands go in a general north south direction, it is not possible to find a route that does not cut through the Niagara Escarpment Plan Area.

With the Limestone Creek and Calcium Pits Natural Areas also running in a general north south direction through the study area, there are no feasible routes through the study area which do not impact on NEC Natural Areas.

Union Gas is continuing to experience growth in the demand for natural gas service from customers within Union's franchise area and beyond. The number of these "in-franchise" customers served by the Dawn-Trafalgar system is expected to increase from 453,505 in Fiscal 1991 to 520,533 in Fiscal 1995, an increase of 15 percent. In addition, the Dawn-Trafalgar system is used to transport gas from Dawn to Trafalgar for use by other natural gas utilities beyond Union's franchise area such as Consumers' Gas, Centra Gas, Kingston PUC and TransCanada PipeLines. The demand for this transportation service is forecast to increase from 82,880 $10^3m^3$/day in Fiscal 1991 to 100,459 $10^3m^3$/day in Fiscal 1995, an increase of 21 percent. To meet the increased demands of Union's customers within its franchise area as well as the demands for transportation for other utilities, Union must construct several sections of 48-inch pipeline (each section approximately 18 km in length) between Dawn and Trafalgar over the next several years, including the section from the Hamilton Valve Site to the Milton Valve Site.

**"The Commission feels that the route evaluation conducted should have been broader and considered cumulative impacts and visual impacts for both alternatives."**

The Acres report identifies four route alternatives for the Hamilton to Milton proposed pipeline. These routes are evaluated for a number of different factors on an individual basis in Tables 3.1, K-1 and K-2.

It could be expected that the cumulative and visual impacts of the four alternatives would be greatest in the locations where the alternatives cross NEC Natural Areas. The following is a table which identifies where the proposed routes cross Natural Areas.

| | Alt. 1 | Alt. 2 | Alt. 3A | Alt. 3B |
|---|---|---|---|---|
| Calcium Pits | | | X | |
| Limestone Creek | X | X | X | X |
| Bronte Creek | | X | | |
| Mount Nemo | | X | | |

The following is a description of the Natural Areas crossed along the different alternatives.

Calcium Pits

The Calcium Pits are also designated as an ESA and ANSI besides being an NEC Natural Area. This is a very distinctive area from both a life science and earth science perspective, having karst topographic features and also a significant wetland community. Much of this area is in a relatively undisturbed state with few impacts from man (Halton Region Environmentally Sensitive Area Study). The Calcium Pits occupy the slope of a small, low detached mesa of the Escarpment whose southwestern face exposes a number of disjointed cracks and prominent vertical limestone columns (Halton Region, 1978b). An ancient abandoned glacial waterfall approximately 10 m high is located along the Escarpment, near the Bruce Trail. A wide variety of biological communities exist in this area, ranging from an upland escarpment forest to a wet escarpment trench containing a high quality bog, with a variety of orchid species. Nationally rare plants in the Calcium Pits include Black Oak (Quercus velutina) along with such regionally rare species as Black Maple (Acer nigrum). Significant avian species such as the Louisiana Waterthrush (Seiurus motocilla) have also been observed in this area.

By constructing through this area, considerable habitat disruption could be expected. Rock excavation could affect the hydrological conditions. The cutting of a pipeline route through this relatively undisturbed area would have a high visual impact.

Limestone Creek

Limestone Creek has to be crossed by all alternatives. The crossing for Alternative 1, 3A and 3B is the same. Limestone Creek is a cold-water stream flanked by a mature deciduous/ coniferous woodlot. For Alternative 2, the extent of the woodlot is slightly less than for the northern alternative. The pipeline archaeological site has been identified just to the west of Limestone Creek on Alternative 1.

Pipeline construction has occurred at both of these crossings; therefore, some visual impact has already taken place. This is slightly more extensive along Alternative 1 than Alternative 2. The effects of construction would be more visible near Alternative 2 than for Alternative 1, in that Alternative 1 is not as clearly seen from roads.

Bronte Creek

The Bronte Creek crossings for Alternatives 1, 3A and 3B are not within highly sensitive locations; however, the crossing for Alternative 2 is in an NEC Natural Area designation. In this location of Alternative 2, the valley floor is approximately 200 m wide with steep banks almost 15 m high. Bronte Creek has been identified as a spawning area with a mature deciduous woodlot of high quality along its banks. Tree removal could possibly have cumulative effects on the aquatic habitat by changing water temperature and reducing shade conditions.

Pipeline construction has already occurred in this location and therefore some visible effects have already taken place.

Northern Slope of Mount Nemo

Alternative 2 lies on the north flank of Mount Nemo from Walker's Line west to Cedar Springs Road. Much of this area has been designated as an NEC Natural Area. Part of it also lies in the area designated as an ANSI from both an earth and life science significance (the Mount Nemo Escarpment Woods Area and the Lowville Reentrant Valley) and also cuts the very northern extension of the Medad Valley ESA. The general descriptions of these areas are provided on pages 2-10 and 2-11 of the environmental assessment report.

The Mount Nemo area has six major vegetation communities. Alternative 2 would cut through the Sugar Maple/Beech/White Ash community found on the lower slopes of the escarpment. These lower slopes also contain seepage areas.

The Medad Valley area is located adjacent to Cedar Springs Road. Where Alternative 2 crosses, the valley is steep sided and wooded with bedrock near or at the surface. This area is noted for its mature upland deciduous forest of excellent quality. National and provincial rare plants are found in this general location including Black Walnut and Horse Balm. Northern flying squirrels have also been found here. The

Halton Region Environmentally Sensitive Study suggests that further development in this area should be avoided due to the high quality forest. Cutting a new route through this wooded area could also have a detrimental effect on wildlife movement in that it is the only corridor connecting the natural areas around Bronte Creek with those of the Lake Medad ESA.

The land in the area from Walkers Line to Cedar Springs Road generally slope from the south to the north. Alternative 2 would be predominantly on a side slope and would be more clearly visible than the other alternatives.

From the above analysis, Alternative 3B is clearly not preferred due to the cumulative effects that would occur to the relatively undisturbed, highly sensitive Calcium Pits area. The crossing location of Limestone Creek for Alternative 1, 3A and 3B would have more effects than the crossing in the Alternative 2 location. However, Alternative 2 would have cumulative and visual effects to the Mount Nemo and Bronte Creek areas which would not occur with the northern alternatives.

The overall effects in the Mount Nemo and Bronte Creek area of Alternative 2 are considered more significant than the effects in the Limestone Creek area for the northern alternative although that route does cross a significant archaeological site. Alternative 2 from Cedar Springs Road east to Guelph Line does not follow an existing right-of-way. A new route would have to be cleared, increasing the visual impact and leading to possible fragmentation of the habitat, especially in the wooded areas, for example, adjacent to Cedar Springs Road. The more uneven topography and the need for blasting could pose more difficulties to restoration of the original slope and drainage conditions.

From the above discussion, the cumulative and visual effects would be least on Alternative 1 and 3B.

From this point it is possible to go back to Table K-2 to determine that Alternative 1 is the preferred route.

"Subsection 4.2.1.5, Terrestrial Environment Vegetation, should be modified to indicate that Class V and VII wetlands are locally significant wetlands, that loss of habitat is a potential impact associated with loss of vegetation, and that Union Gas Environmental Inspector should identify specimen trees to be protected based on an ecological perspective rather than a commercial perspective."

"Editorial changes, provided in Appendix 1, should be incorporated into the report to ensure correct information is provided or to clarify certain information."

Union Gas accepts the modification and editorial changes suggested in the above points. Union Gas does not propose to revise the entire Environmental Assessment at this time, however, should any revisions or addendum reports be prepared these points will be included. This information and these requirements will be included in the NEC Development Permit application.

"If significant archaeological sites are identified within the Niagara Escarpment Plan Area, along the proposed route, the route may be required to be changed to provide adequate protection of the archaeological resource."

"Union Gas should discuss the proposal with the Ministry of Citizenship and Culture to ensure that the appropriate legislation is complied with."

Union Gas has contracted with the archaeological consulting firm of Mayer Poulton and Associates Incorporated to conduct an archaeological assessment for the area.

At the present time they have completed a stage 1 and 2 assessment of the area. The stage 1 assessment entailed a review of an existing archaeological site in the study area. While the stage 2 involved a field survey of the preferred route.

The field assessment resulted in the discovery of 10 previously unknown archaeological sites and confirmation of 1 previously known site. The current inventory of registered sites along the preferred route includes 2 villages, 3 camp sites and 6 isolated find spots.

Mayer Poulton is currently developing a field program for the summer 1992 season to determine the extent and significance of the above sites. Once this information has been collected and analyzed, mitigation measures will be developed.

In order to ensure that the concerns of the Ministry of Culture and Communications (MCC) are addressed, Mayer Poulton will be sending copies of all their reports to the MCC for their review and comment. Mayer Poulton will also meet with the MCC as required, to ensure the protection of heritage resources.

"Table 6.1 Relevant Legislation and Permits Required for the Proposed Pipeline, requires modification. The Niagara Escarpment Planning and Development Act should be added under Legislation and under Environmental Permits the Permit/Approval required from the Commission is a Development Permit."

Union Gas recognizes that a Development Permit from the NEC will be required for this project.

It is hoped that the above information will address the concerns of the Plan Administration Section. If this is the case and the Plan Administration Section finds Alternative 1 to be acceptable, Union Gas will commence the detailed planning required along this corridor in order to meet the requirements of the Development Permit.

If you have any questions or require additional information, please contact the undersigned.

If this additional information will be going before the Full Commission would you please contact the undersigned so that we may attend the meeting.

Yours very truly,
UNION GAS LIMITED

W.T. Wachsmuth
Environmental Planner

/sld

b.c.c. G. Mallette
T. Vadlja

(c) Response from NEC
July 17, 1992

Ontario

Niagara Escarpment Commission

Commission de l'escarpement du Niagara

232 Guelph Street
Georgetown, Ontario
L7G 4B1
(416) 877-5191

232, rue Guelph
Georgetown (Ontario)
L7G 4B1
(416) 877-5191

July 17, 1992

Mr. William Wachsmuth
Environmental Planner
Union Gas
50 Keil Drive North
P.O. Box 2001
Chatham, Ontario
N7M 5M1

RECEIVED
JUL 21 1992
GAS SUPPLY ENG.

Dear Mr. Wachsmuth:

**RE: Union Gas Hamilton to Milton Pipeline**
**Route Selection and Environmental Impact Report**

The Niagara Escarpment Commission, at its meeting of July 16, 1992, resolved to provide Union Gas and the Ontario Energy Board with the following comments regarding the above-noted study report.

1. That the Niagara Escarpment Commission advise Union Gas and the Ontario Energy Board that it has no objection to the findings of the Union Gas Route Selection and Environmental Impact Report and agrees, in principle, that Alternative 1 presents the least impact Alternative.

2. That the Niagara Escarpment Commission recommend that Union Gas prepare an addendum to the Route Selection and Environmental Impact Report for the Ontario Energy Board, or that the original study be revised, to include the changes made based on the Commission's June 1991 comments.

3. That the Niagara Escarpment Commission advise Union Gas that detailed route location information must be submitted with the Development Permit Application to ensure the proposed route complies with the Development Criteria in Part 2 of the Niagara Escarpment Plan. As per the Development Criteria, information should include, but is not limited to, details on the following:

   - any blasting requirements
   - grading plans
   - tree protection plans (particularly significant tree species such as Sweet Chestnut)
   - site rehabilitation plans

.../2

- proposed screening
- access and construction information
- areas of steep slopes along the proposed route
- changes to natural drainage
- potential impacts on groundwater resources
- proposed setbacks from streams, rivers, lakes and wetlands along the route
- environmentally sensitive areas along the route
- known archaeological sites

If you have any questions please contact Carolyn Stewart at the above address.

Yours very truly,

for Cecil A. Louis
Assistant Director

cc: Neil McKay, Ontario Energy Board

CS/

Ontario
Niagara Escarpment Commission
Commission de l'escarpement du Niagara

B1

SUB # 7557

232 Guelph Street
Georgetown, Ontario
L7G 4B1
(416) 877-5191

232, rue Guelph
Georgetown (Ontario)
L7G 4B1
(416) 877-5191

July 16, 1992

ADDENDUM REPORT

**RE: UNION GAS HAMILTON TO MILTON PIPELINE ROUTE SELECTION AND ENVIRONMENTAL IMPACT REPORT ADDITIONAL INFORMATION REQUIRED BY NIAGARA ESCARPMENT COMMISSION**

---

**DATE RECEIVED:** March 6, 1992

**SOURCE:** Union Gas

**PROPOSAL:** To construct a 17 kilometre pipeline from Hamilton Valve site in the Town of Flamborough to the Milton Valve site in the Town of Milton (see Map 1). Construction is proposed to take place during the summer of 1993.

**SUMMARY RECOMMENDATION:** No objection.

**BACKGROUND**

**Union Gas Dawn Compressor Station to Parkway Compressor Station Study**

In early 1990, the Commission reviewed a broad range of alternative routes for a 70 km pipeline linking the Dawn Compressor Station in Lambton County to the Parkway Compressor Station in Oakville and indicated a general preferred route through the Niagara Escarpment Plan Area.

The Commission indicated that more detailed analysis of alternative alignments, within the preferred route segment, would be required prior to the determination of the exact route for the pipeline.

**Union Gas Hamilton to Milton Pipeline**

The Hamilton to Milton Pipeline study provided the more detailed analysis of the proposed route for the pipeline through the Niagara Escarpment Plan Area, as required by the Commission through the Dawn Compressor Station to Parkway Compressor Station Study.

The original assessment reviewed two alternative routes (Alternatives 1 and 2). Two additional routes (Alternatives 3A and 3B), to the north, were assessed following review and comments on the draft report (see Map 2). The final report

identifies Alternative 1 as the preferred route for the pipeline.

The Commission has provided input into this study on four occasions. Formal Niagara Escarpment Commission comments were provided on the first draft of the report in February 1991 and on the final report, following its submission to the Ontario Energy Board (OEB), in June 1991.

**Commission's Recommendation**

The Commission advised Union Gas and the OEB that:

> The Niagara Escarpment Commission does not object to the finding of the study, in principle, but has the following comments:
>
> 1. The need for the pipeline must be identified and addressed in the Introduction of the study.
>
> 2. The Commission feels that the route evaluation conducted should have been broader and considered cumulative impacts and visual impacts for both alternatives.
>
> 3. Justification that it is "essential" that the pipeline cross the Escarpment Natural Area designation should be provided to the Commission's satisfaction prior to approval of the undertaking.
>
> 4. Subsection 4.2.1.5, Terrestrial Environment Vegetation, should be modified to indicate that Class V-VII wetlands are locally significant wetlands, that loss of habitat is a potential impact associated with loss of vegetation, and that the Union Gas Environmental Inspector should identify specimen trees to be protected based on an ecological perspective rather than a commercial perspective.
>
> 5. If significant archaeological sites are identified within the Niagara Escarpment Plan Area, along the proposed route, the route may be required to the changed to provide adequate protection of the archaeological resource.
>
> 6. Union Gas should discuss the proposal with the Ministry of Culture and Communications to ensure that the appropriate legislation is complied with.
>
> 7. Table 6.1, Relevant Legislation and Permits Required for the Proposed Pipeline, require

modification. The Niagara Escarpment Planning and Development Act should be added under Legislation and under Environmental Permits the Permit/Approval required from the Niagara Escarpment Commission is a Development Permit.

8. Editorial changes, provided in an appendix to the June 1991 staff report, should be incorporated into the report to ensure correct information is provide or to clarify certain information.

Union Gas representatives met with Commission staff in October 1991 to discuss the Commission's comments and requirements for information. In March 1992, the Commission received further information from Union Gas in response to the Commission's concerns of June 1991 and the October discussions.

**Union Gas Response to Commission Comments**

The following summarizes the information received.

1. Need for Pipeline

Union Gas Limited's Dawn-Trafalgar transmission system transports natural gas from the Dawn Compressor Station in Lambton County to the Trafalgar Station near Oakville. At Trafalgar, Union Gas delivers natural gas to other natural gas utilities.

Since 1975, eleven of the twelve sections of the Dawn-Trafalgar pipeline system have been upgraded to handle increased volumes. The only section that has not been upgraded is the Hamilton Valve Site to Milton Tie-In. This creates a bottleneck on the overall system, reducing the ability to flow gas to the Trafalgar Station. The new pipeline is needed to improve the efficiency of the system and meet increased consumer demands.

2. Justification of "essential" nature through Escarpment Natural Areas and Need for Evaluation to address cumulative impacts and visual impacts of both alternative routes.

With respect to the need to cross Escarpment Natural Area, the proposed pipeline goes in a general east-west direction while the Niagara Escarpment Plan Area is generally north-south in direction in this area. In particular, Limestone Creek and Calcium Pits Natural Area also run in a general north-south direction through the study area and no feasible routes exist that do not go through Escarpment Natural Areas.

Since no alternatives exist that do not cross Escarpment Natural Areas, Union Gas reviewed the four original alternatives (see Map 2) to determine the potential impacts and which route would minimize environmental impact within the Escarpment Natural Area.

Alternative Routes 2 and 3A were ruled out because of the impacts associated with crossing the Calcium Pit ESA/ANSI/Escarpment Natural Area, crossing steep banks of Bronte Creek valley (15 metres high and 200 metres wide in the area of Alternative 2), potential impact to cold-water fisheries, amount of tree removal required, impacts to the Medad Valley ESA and Mount Nemo ANSI, the number and potential impact to nationally and provincially significant species, and potential hydrological impacts of rock excavations that would be required.

Of the remaining two routes (Alternative 1 and 3B), the potential impacts on Limestone Creek and Bronte Creek were expected to be similar in nature. In reviewing these two alternatives Union Gas assessed the following:

- total length of route
- length of route not adjacent to existing right of way/easement
- area of route crossing Class 1, Class 2, Class 3 and Class 4 Agricultural lands
- amount of bedrock within 1 metre of the surface
- amount of hazard lands crossed
- length of woodlots crossed
- amount of Class 1-3 wetland and Class 4-7 wetland crossed
- number of cold water streams crossed, number of warm water streams crossed, number of spawning areas disturbed, number of lakes/ponds disturbed
- Provincial and Regional ANSIs crossed
- Municipal ESAs crossed
- deer wintering yard disturbance
- amount of prime mineral resource area crossed
- archaeological sites (known) within 1 km
- visual impact (associated with using already disturbed areas and visibility from roads)

It was determined that Alternative Route 1 would have less impact on the natural environment because it would disrupt less Class 1-4 agricultural lands, crosses less area with shallow soils above bedrock, would disturb less wooded area, would not impact any Areas of Natural and Scientific Interest or Environmentally Sensitive Areas, would disturb less wetland area, and would cross less Escarpment Natural Area, would not disturb any spawning areas, and a greater amount of the route would be adjacent to an existing right

of-way or easement. The Commission agreed that, in general, this route was preferred to Alternative 3B.

3. Editorial Changes

Union Gas has agreed with the editorial changes suggested by the Commission. Union Gas has indicated that if any revisions or addendum reports be prepared related to the Route Selection and Environmental Impact Study these points will be included but, at a minimum, this information will be included in an Environmental Report that will accompany the Niagara Escarpment Development Permit application.

Union Gas has provided a draft outline of the information that will be provided with the Development Permit application. Commission staff find the proposed outline to be acceptable.

Staff recommend that Union Gas prepare an addendum to the Route Evaluation and Environmental Impact Report for submission to the Ontario Energy Board that addresses the revisions made based on the Niagara Escarpment Commission's concerns and comments.

4. Archaeological Resources

Union Gas contracted Mayer Poulton and Associates Inc., a consulting firm specializing in archaeology, to conduct an archaeological assessment of the area. The initial stage included a review of an existing archaeological site and stage 2 included a field survey of the preferred route.

Ten previously unknown archaeological sites were discovered. Archaeological resources include: 2 villages, 3 campsites, and 6 isolated find spots.

Stage 3 will include assessing the extent and significance of the sites. The consultant will develop mitigation measures as necessary. Union Gas has indicated that the Ministry of Culture and Communications will be sent the consultant's report for their review and comment.

Commission staff believe that Union Gas should include pertinent information from this archaeology study with the Development Permit application also.

CONCLUSIONS

Commission staff find that the supplemental information provided by Union Gas addresses the comments provided by the Niagara Escarpment Commission in June 1991.

Union Gas representatives are aware that a Development Permit is required prior to initiating any field work associated with project.

**RECOMMENDATION**

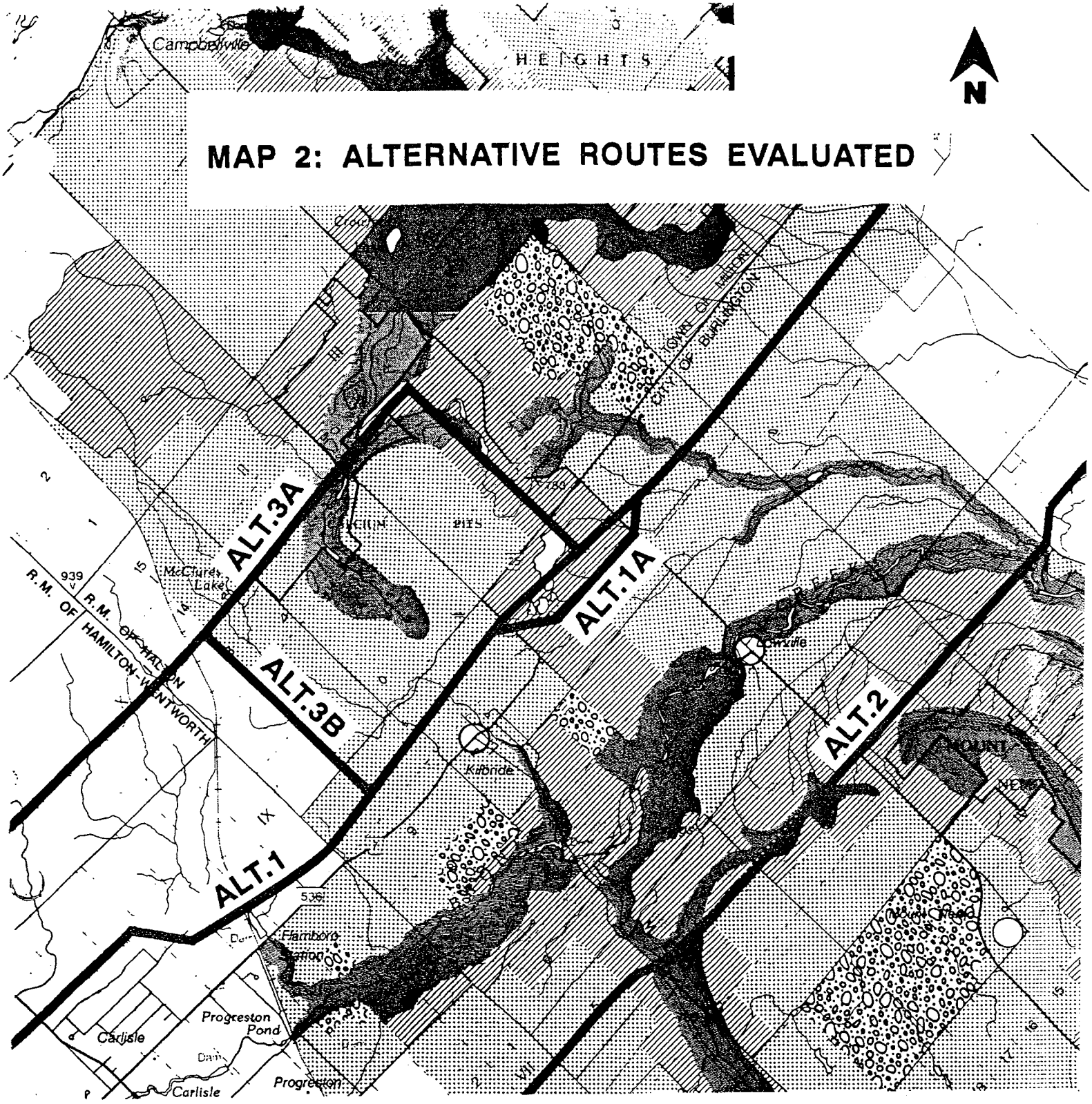
1. That the Niagara Escarpment Commission advise Union Gas and the Ontario Energy Board that it has no objection to the findings of the Union Gas Route Selection and Environmental Impact Report and agrees, in principle, that Alternative 1 presents the least impact Alternative.

2. That the Niagara Escarpment Commission recommend that Union Gas prepare an addendum to the Route Selection and Environmental Impact Report for the Ontario Energy Board, or that the original study be revised, to include the changes made based on the Commission's June 1991 comments.

3. That the Niagara Escarpment Commission advise Union Gas that detailed route location information must be submitted with the Development Permit Application to ensure the proposed route complies with the Development Criteria in Part 2 of the Niagara Escarpment Plan. As per the Development Criteria, information should include, but is not limited to, details on the following:

   - any blasting requirements
   - grading plans
   - tree protection plans (particularly significant tree species such as Sweet Chestnut)
   - site rehabilitation plans
   - proposed screening
   - access and construction information
   - areas of steep slopes along the proposed route
   - changes to natural drainage
   - potential impacts on groundwater resources
   - proposed setbacks from streams, rivers, lakes and wetlands along the route
   - environmentally sensitive areas along the route
   - known archaeological sites

# MAP 2: ALTERNATIVE ROUTES EVALUATED




## LEGEND

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Minor Urban Centre
- Urban Area
- Escarpment Recreation Area
- Mineral Resource Extraction Area
- Public Land (in Parks System)

SCALE 1 : 50,000

METRES 1000 500 0 1000 2000 3000

# APPENDIX A3

# AGENCY LETTER AND RESPONSES TO UPDATE PROJECT 2001/2002

**Table A3**
**Agencies Contacted and Their Responses**

| Agency | Respondent's Name and Title | Date of Response | Comments | Action |
|---|---|---|---|---|
| Ministry of Agriculture Food and Rural Affairs | Carol Neumann Rural Planner - West Central Ontario | November 2, 2001 | In agreement with comments made earlier. Ensure that any proposals affecting prime agricultural lands only are forwarded to the appropriate rural planner. | |
| Ministry of Natural Resources - Aurora | Warren May - Biologist Halton Region | March 4, 2002 | Further fisheries investigations have been conducted in the last 10 years and it is the agreement of the two local MNR offices that the construction window for protection of cool/cold water streams is July 1 to September 15. | Ensure window is included in construction specifications. |
| Ministry of Natural Resources - Guelph | Mitch Wilson - Area Supervisor Ian Thornton - District Planner | | | |
| Ministry of Energy, Science and Technology Oil and Gas Office | Sing-Gin Louie Advisor Gas Distribution | | No response. | |
| Ministry of Transportation | Doug Peeling | | No response. (*Note: pipeline route does not cross any provincial highways.)* | |

**Table A3**
**Agencies Contacted and Their Responses**

| Agency | Respondent's Name and Title | Date of Response | Comments | Action |
|---|---|---|---|---|
| Ministry of the Environment, Central Region Technical Support Section | Marja Gates<br>Planner<br>Air, Pesticide and Environmental Planning | November 20, 2001 | - Testing if any soil contamination.<br>- Potential groundwater contamination from petroleum storage tanks.<br>- Dust and noise control measures to be included in construction plans.<br>- Ensure all waste generated during construction handled correctly.<br>- Limestone Creek is a cold water fishery - ensure sediment control measures prevent contaminates entering water course, including proper discharge of hydrostatic test water.<br>- Protection of any environmentally sensitive features crossed.<br>- Protection of private wells and water supplies including pre and post construction monitoring.<br>- Permit to take water required if greater than 50,000 L/d required. | Follow mitigation outlined in Acres, 1991 report, this report and appropriate Union construction specifications. |
| Ministry of Environment, Hamilton | Neil Buonocore<br>Supervisor, APEP | | No response. | |

**Table A3**
**Agencies Contacted and Their Responses**

| Agency | Respondent's Name and Title | Date of Response | Comments | Action |
|---|---|---|---|---|
| Ministry of Municipal Affairs and Housing | Diane McArthur-Rodgers Manager | | No response. | |
| Ministry of Citizenship, Culture and Recreation | Neil Ferris Licence Office | | No response. | Archaeological consultant will correspond directly with MCCR. |
| Niagara Escarpment Commission | Gary Murphy, Planner<br>David Wells, Landscape Architect | Meeting held November 22, 2001 | Agreement with the comments provided in 1991 and Union's response in 1992.<br>A Development Permit will be required for the pipeline from Milburough Line in the west to Tremaine Road in the east. | Union to apply for Development Permit. |
| Technical Standards and Safety Authority Fuel Safety Division | Oscar Alonso Fuel Safety Engineer | October 24, 2001 | Note that the Ministry of Consumer and Commercial Relations (now known as Ministry of Consumer and Business Services) has transferred to the Technical Standards and Safety Authority the responsibility of ensuring public safety in several areas, one of which is gas pipelines. New regulations making mandatory requirements for pipeline systems. | Follow new Guidelines for Locating New Oil and Gas Pipeline Facilities (copy provided in Appendix A3). |

| Table A3<br>Agencies Contacted and Their Responses | | | | |
|---|---|---|---|---|
| **Agency** | **Respondent's Name and Title** | **Date of Response** | **Comments** | **Action** |
| Conservation Halton | Bob Edmondson<br>Director, Watershed Management Services<br>Brenda Axon, Manager, Watershed Planning Services | Meeting held February 13, 2002 | General agreement with respect to routing. Major concerns focused on reliability of Contractor to execute construction to detailed specifications. | Union retain an environmental inspector who will be on site during the construction of the entire pipeline. |
| | | | With recent completion of draft Bronte Creek Watershed Study, concerns that the regeneration actions outlined in report for Bronte Creek and its tributaries could be jeopardized with pipeline construction | Union will meet with CA and restoration groups to coordinate schedules and where possible assist with rehabilitation. Union will assist with planting materials for bank restoration. |

**Table A3**
**Agencies Contacted and Their Responses**

| Agency | Respondent's Name and Title | Date of Response | Comments | Action |
|---|---|---|---|---|
| Regional Municipality of Halton | Steve Stone Senior Planner/ EEAC subcommittee | January 2002<br>April 2002 | Recommendations from EEAC committee include<br>- undertake water crossings at a time when disturbance minimize aquatic effects, using DFO acceptable mitigation methods<br>- use native plant materials for revegetation<br>- ensure rehabilitation of agricultural areas using appropriate erosion control methods, with removal of sediment barriers after sites stabilized<br>- ensure new information since Acres, 1991 is reviewed (including Bronte Creek watershed study (see Table C1)<br>- re-establish small marsh south of berm on Islay Lake. | Union to follow EEAC recommendations as appropriate.<br>Ensure listing of plant species to be used in revegetation forwarded to EEAC for review. |

**Table A3**
**Agencies Contacted and Their Responses**

| Agency | Respondent's Name and Title | Date of Response | Comments | Action |
|---|---|---|---|---|
| City of Hamilton | Jason Thompson, Planner<br>Frank Kenyeres, Planner<br>Simon Deiaco, ESAIEG Coordinator | November 22, 2001<br>January 7 2002<br>March 13, 2002 | Provided updated ESA information pertaining to Progreston North Swamp.<br>Information circulated to City departments and to the ESAIEG.<br>Planning and Building/Licences departments had no concerns. Possibility that any woodlot removal will be subject to City's Woodlands Conservation By-Law. | New information incorporated into Update Report.<br>Union should review plans for tree clearing with City. |
| | | Presentation/ site visit given to ESAIEG April 11, 2002 | ESAIEG recommendations include<br>- map Progreston North Swamp Boundaries<br>- map location of any significant species as identified in ESA inventory<br>- provide mitigation for such species. | <br>See Figure 3<br>See Section 5.1.2.<br>Although no significant species have been identified in this area, Union to confirm prior to construction and salvage plants if possible. |

**Table A3**
**Agencies Contacted and Their Responses**

| Agency | Respondent's Name and Title | Date of Response | Comments | Action |
|---|---|---|---|---|
| City of Burlington | John Conn Planner, Policy | November 6, 2001 | Agree with response provided previously, with the following additional comments: Crosswinds Golf Course has been constructed subsequent to the previous EA. Site Plan approved for Crosswinds incorporated design requirements as identified to the City by Union. | The comments received from the City of Burlington refer to Union's north-south distribution line which runs along the east side of Walker's Line. Crosswinds Golf course will not be impacted by NPS 48 pipeline. |
| | Jim Dempsey, Engineering Department | March 5, 2002 | Discussion at open house regarding need for City approval for road crossings and possibility of open cutting less busy roads, i.e., McNiven Road | Union should review plans for road crossings with City. |
| Town of Milton | Susan O'Brian Senior Planner, Bill Mann, Planner | March 11, 2002 | No concerns, pipelines are within/adjacent to existing rights of way and incorporated into Town planning requirements. Union should be aware of Town's Urban Phase 2 Development Plan | Union to review plans for development with Town in order to maintain pipeline compliance. |
| CN Rail | Tom Goldsmith UMA Engineering Ltd. | November 30, 2001 | UMA Engineering will represent CNR for any proposed pipeline crossing of its lines. | Follow Gas/Oil Pipeline Crossing Applications requirements. |
| CP Rail | Kevin Anderson | | No response. | |
| Bruce Trail Association | Jacqueline Winters, Executive Director | | See comments from local trail director, Section 5.2.3. | Follow mitigation outlined in Section 5.2.3. |

## Sample - Agency Letter

October 18, 2001
File: 015806

Agency

Attention:

**Re: Hamilton to Milton Gas Pipeline**
**Environmental Impact Assessment Update**

Dear :

Acres & Associated Environmental Limited (A&A) has been retained by Union Gas Limited (Union) to update an Environmental Impact Assessment (EA) for a proposed 1219 mm (NPS 48) natural gas pipeline. The original EA for this study was completed in 1991. The proposed pipeline will begin at the Hamilton Valve Site (just east of Highway 6 and north of Carlisle Road, in the old Town of Flamborough) and proceed north east to the Milton Tie-In (just to the west of First Line in the Town of Milton). The proposed pipeline route is shown on the attached map.

The purpose of this study is to confirm the accuracy and relevancy of the information presented in the previous report and to prepare an updated supplemental report that will accompany Union's application to the Ontario Energy Board. This letter is to inform you of Union's proposed undertaking and, as an agency with an interest in the area, to ask for your input in providing any comments or concerns regarding the project. In particular, we are looking for any new information, policies or guidelines that might have been implemented in the last 10 years which could affect the routing of the proposed pipeline. We are also seeking any background environmental or socioeconomic information which may have been unavailable, or was unknown to your agency, at the time of the last report.

We are providing a copy of previous correspondence between your agency and Union/A&A regarding this project for your information. We have taken note of your previous comments and they will be addressed in the updated report.

We are also interested in your agency's knowledge regarding other developments in the study area that are proposed for the next two years. This information will be incorporated into the study update as a component of the cumulative effects assessment.

We would appreciate a response from your agency by November 9, 2001. We have attached an acknowledgment form, which you are welcome to use for your response if you find it more

convenient If you have any questions, please do not hesitate to call me or Cate Mee at 905-374-4470.

Yours truly,
**ACRES & ASSOCIATED ENVIRONMENTAL LIMITED**

Bruce Bennett
Project Manager

CEM:
Attachment
cc Greg Payne, Union Gas

**Acknowledgment Form**
**Proposed Hamilton to Milton**
**Union Gas NPS 48 Gas Pipeline**

On behalf of _____, we have received the information package from Acres & Associated Environmental Limited regarding the proposed update to the environmental impact assessment study which was undertaken in 1991.

☐ We agree with the response(s) provided by our agency previously and have no further comments at this time.

☐ We agree with the response(s) provided by our agency previously with the additional comments .....
.....
.....
.....
.....
.....

☐ We would like to provide new comments/information, as outlined below/in our attached letter
.....
.....
.....
.....
.....
.....

☐ We have the following information regarding other developments proposed in the area in the next two years which would assist you in your cumulative effects assessment.
.....
.....
.....
.....

Name: _____ Title: _____

Signed: _____ Date: _____

Agency Stamp (if available)

| Mailing List | |
|---|---|
| **Agency** | **Response** |
| Ontario Ministry of Agriculture, Food and Rural Affairs<br>Agricultural Land Use<br>3rd Floor South<br>1 Stone Road, West<br>Guelph, ON<br>N1G 4Y2<br>Attention: Donna Mundie, 519-826-3120 | ✓ |
| Niagara Escarpment Commission<br>232 Guelph St.<br>Georgetown, ON<br>L2G 4B1<br>Attention: Gary Murphy, Planner<br>905-877-5191<br>File No. SUB#7329 | ✓ |
| Conservation Halton<br>RR No. 2<br>Milton, ON<br>L9T 2X6<br>Attention: Bob Edmondson<br>Director, Watershed Management Services<br>905-336-1158<br>Previous PPR-28<br>File No: | ✓ |
| The Corporation of the City of Burlington<br>City Hall, Planning Department<br>426 Brant Street,<br>Burlington, ON<br>L7R 3Z6<br>File No. 501-01<br>Attention: Greg Poole<br>Manager, Planning Development<br>905-335-7638 | ✓ |

| Mailing List | |
|---|---|
| **Agency** | **Response** |
| The Regional Municipality of Halton<br>1151 Bronte Road<br>Oakville, ON<br>L6M 3L1<br>Attention: Brock Criger, Planner<br>905-825-6000<br>Previous File No. EN03 A | ✓ |
| The Town of Milton<br>43 Brown St., Victoria Park Square<br>Milton, ON<br>L9T 4B6<br>Attention: Martin Bateson, Development Engineering Officer<br>Peter Linn, Town Engineer<br>Susan O'Brian, Senior Planner<br>905-878-7252 | ✓ |
| City of Hamilton<br>Planning and Development Department<br>71 Main Street West, Hamilton City Hall<br>Hamilton, ON<br>L8P 2Y5<br>Attention: Charlie McConnell<br>Senior Project Manager<br>Simon Deiaco<br>ESAIEG Coordinator<br>905-546-2809<br>File No. Regional Municipality of Hamilton-Wentworth<br>722.2 08<br>Town of Flamborough E06-GA, DPD 1991-06 | ✓ |
| Ministry of Natural Resources,<br>1 Stone Road West<br>Guelph, ON<br>N1G 4Y2<br>Attention: Linda Barbetti<br>Planner<br>519-826-4928 | Combined with response from MNR Aurora |

| Mailing List | |
|---|---|
| **Agency** | **Response** |
| Ministry of Natural Resources<br>50 Bloomington Road West, RR#2<br>Aurora, ON<br>L4G 3G8<br>Attention: Warren May<br>Biologist, Halton Region<br>905-713-7390<br>905-713-7361 (Fax) | ✓ |
| The Bruce Trail Association<br>Royal Botanical Gardens Arboretum, Raspberry House<br>P. O. Box 857<br>Hamilton, ON<br>L8N 3N9<br>Attention: Jacqueline Winters<br>Executive Director<br>905-529-6821 | |
| CN Rail<br>Regional Engineering Technical Services<br>Suite 404, 27 Front Street, West<br>Toronto, ON<br>M5V 2X7<br>File No. 4715-GEN | ✓ |
| CP Rail<br>655 Richmond Street North<br>London, ON<br>N6A 3G9 | |
| Ministry of Citizenship, Culture and Recreation<br>55 Centre Street,<br>London, ON<br>N6J 1T4<br>Attention: Neal Ferris<br>Licence Officer<br>519-675-7742 | |

| Mailing List | |
|---|---|
| **Agency** | **Response** |
| Ontario Energy Board<br>Licensing and Applications Branch<br>Suite 2601, 2300 Yonge Street<br>Toronto, ON<br>M4P 1E4<br>Attention: Zora Crnojacki<br>OPCC Chairperson<br>416-440-8104 | |
| Technical Standards and Safety Authority<br>Fuel Safety Branch<br>3300 Bloor Street West<br>4th Floor, West Tower Mutual Group Centre<br>Toronto, ON<br>M8X 2X4<br>Attention: Oscar Alonso<br>416- 325-1650 (General Enquiry No.)<br>File No. PI-11 | ✓ |
| Ministry of Energy, Science and Technology<br>Oil and Gas Office<br>880 Bay Street, 3rd Floor<br>Toronto, ON<br>M7A 2C1<br>Attention: Sing-Gin Louie<br>Advisor Gas Distribution<br>416-323-6836 | ✓ |
| Ministry of Municipal Affairs and Housing<br>Central Municipal Services Office<br>777 Bay Street, 14th Floor<br>Toronto, ON<br>M5G 2E5<br>Attention: Ms. Diane McArthur-Rodgers<br>Manager<br>416-585-6662<br>1-800-668-0230 (General Number) | |

| Mailing List | |
|---|---|
| **Agency** | **Response** |
| Ministry of the Environment<br>Hamilton Regional Office<br>119 King St. W., 12th Floor<br>Hamilton, ON<br>L8P 4Y7<br>Attention: Neil Buonocore<br>Supervisor APEP<br>1-800-668-4557 - Toll Free<br>(905) 521-7640<br>(905) 521-7820 - Fax | |
| Ministry of the Environment<br>Air, Pesticides and Environmental Planning<br>5775 Yonge Street, 8th Floor<br>North York, ON<br>M2M 4J1<br>Attention: Ernie Hart<br>Supervisor | ✓ |
| Ministry of Transportation<br>301 St Paul St, 2nd Floor South<br>St Catharines, ON<br>L2R 7R4<br>Attention: Mr. Doug Peeling<br>905-704-2997 | |

RECEIVED
NOV 05 2001

**Acknowledgment Form**
**Proposed Hamilton to Milton**
**Union Gas NPS 48 Gas Pipeline**

**Ontario Ministry of Agriculture**
**Agricultural Land Use**
**Guelph, Ontario**

On behalf of OMAFRA, we have received the information package from Acres & Associated Environmental Limited regarding the proposed update to the environmental impact assessment study which was undertaken in 1991.

☐ We agree with the response(s) provided by our agency previously and have no further comments at this time.

☒ We agree with the response(s) provided by our agency previously with the additional comments
Please forward all documents/proposals affecting prime agricultural lands only to the appropriate Rural Planner as noted in the attached pamphlet. Thank you.

☐ We would like to provide new comments/information, as outlined below/in our attached letter

☐ We have the following information regarding other developments proposed in the area in the next two years which would assist you in your cumulative effects assessment.

Name: Carol Neumann Title: Rural Planner

Signed: CNO Date: Nov. 2/01

Agency Stamp (if available)

**Acknowledgment Form**
**Proposed Hamilton to Milton**
**Union Gas NPS 48 Gas Pipeline**

**Niagara Escarpment Commission**
**Georgetown, Ontario**

On behalf of Niagara Escarpment Commission we have received the information package from Acres & Associated Environmental Limited regarding the proposed update to the environmental impact assessment study which was undertaken in 1991.

☐ We agree with the response(s) provided by our agency previously and have no further comments at this time.

☐ We agree with the response(s) provided by our agency previously with the additional comments .....

☑ We would like to provide new comments/information, as outlined below/in our attached letter

meeting sheduled for Thursday Nov 22/01 with Union Gas to discuss project

☐ We have the following information regarding other developments proposed in the area in the next two years which would assist you in your cumulative effects assessment.

Name: GARY MURPHY Title: PLANNER

Signed: [signature] Date: NOV 16/01

Agency Stamp (if available)

RECEIVED
FEB 1 2002
NIAGARA ESCARPMENT
COMMISSION

Acres & Associated

# Minutes of Meeting

| | | | |
|---|---|---|---|
| **Date of Meeting** | November 22, 2001 | **Project No.** | 015806 |
| **Time** | 11:00 a.m. | **File No.** | 1.6 |
| **Place** | Georgetown | | |

**Present**

**Niagara Escarpment Commission**
David Wells
Gary Murphy

**Acres & Associated**
Cate Mee

**Union Gas**
Greg Payne
Ken Jeans
Joe Van Hamme
Karen Hockin

**Purpose** Information Session

**cc** Bruce Bennett

## Union Gas Limited
## Hamilton to Milton Pipeline

| Item | Discussion | Action by |
|---|---|---|
| 1. | **Introduction**<br>GP made general personnel introductions. He explained Union's pipeline system and that their Dawn compressor station was the market hub. Union's Trafalgar system brings gas from Dawn to the Toronto area. Increased gas demand can be met by either increasing the number of pipelines or by more compression. Market trends indicate there is now demand for a third pipeline in the Hamilton Milton area. Two pipelines run through the present study area - a 26-in. line was built in 1958, and a 34-in. in 1968. A 48-in. was completed up to the Hamilton Take-Off in 1989. The Hamilton to Milton pipeline is the last section of 48-in. left to complete the looping of the third line. GP provided photographs showing typical pipeline construction and rehabilitation | |
| 2. | **Easement Requirements**<br>When pipelines are placed next to existing lines, it is possible to have overlapping easements. The minimum easement requirement for this line is 28 m but if it overlaps only an additional12 m will be required. During construction the entire width of the easement is cleared, however, once installed only a 6 m width need to be kept clear over the centerline of the pipe and trees can regrow over the rest of the area, no buildings are allowed on the easement as a rule. | |

| Item | Discussion | Action by |
|---|---|---|
| | the centre line of the pipe and trees can re grow over the rest of the area, no buildings are allowed on the easement as a rule. | |
| 3. | River Crossings<br>These are typically done within one or two days. MNR developed prescriptive methods for crossings in 1993, these methods are acceptable to DFO. Typically all that is required is for Union to provide DFO with a list of the crossings they are going to do each year. Individual DFO approvals are not usually required.<br><br>There is no need for more working space at a river. The pipe is welded up outside the crossing area where more temporary work area might be required to store the welded pipe.<br><br>DW asked for clarification of the amount of new easement say for Limestone Creek. GP explained that no more than 12 m would be required. | |
| 4 | OEB Requirements<br>KH gave a review of the OEB regulatory requirements. Union makes an application for Leave to Construct to OEB. This application explains the need and economic justification for the pipeline and includes the EA, construction practices etc. Agencies and landowners are informed. The process allows for interveners/interrogatories. OEB will then usually make a Decision with Conditions. Union plans to file it application with OEB Summer 2002 | |
| 5. | NEC Process<br>The pipeline location lies within the NEC Development control area from Millborough Road to Tremaine Road. This entire length of route will require a development permit. GM outlined the NEC requirements. When there is an application for a development permit a Notice of Application (together with a brief statement of the nature of the application) is delivered to all owners of land within 400 ft of the development. They also circulate the information to interested agencies i.e., CA, City of Burlington, Milton, Region of Halton, MNR, Culture and Recreation. Comments are received back wihtin 2-3 weeks, and then the applicant addresses any concerns raised. GM would prepare his report. This is then presented to the Commission which meets the 3rd Thursday of every month. The Commission decision is then circulated to neighbours. There is a 2 week appeal | GM to clarify whether 400ft is from the pipeline or from the outside of the property line over which the pipeline crosses<br><br>JV can assist NEC in providing names of land owners |

| Item | Discussion | Action by |
|---|---|---|
| | period. A decision is made as to whether the reasons for appeals are frivolous or not. If not, a pre-hearing conference is held to determine whether it is possible to work out differences. A hearing is set if mediation fails. A hearing officer is placed in charge, selected from the Environmental Review Tribunal. The outcome is that the hearing officer may confirm the Commission's decision or, if there are radical changes, the decision has to be submitted to the Minister of Natural Resources.<br>Usually the whole Development Permit process should only take about 4 months unless it goes through an appeal and then it would take considerably longer. | |
| 6 | Next Steps<br>GM agreed that the letter received from Union in 1992 addressed NEC concerns and there is no need to restart the process from the beginning. The next step would be to submit an Application for Development. Union would like to apply for this permit concurrently with its OEB application. There should be considerable overlap between the two processes. The Development Permit may require more specific information than the EA, i.e., through wooded areas information required on rehabilitation, plant materials to be used, tree inventory provided etc.<br><br>After GM has received all comments from agencies and landowners regarding the application, he will prepare a report. He will then consult with Union prior to submitting it to the Commission. Only when there is agreement between him and Union regarding conditions that will be imposed would he present his recommendations to the Commission | |

Minutes prepared by

Cate Mee
Project Coordinator

Acres & Associated

# Minutes of Meeting

| | | | |
|---|---|---|---|
| **Date of Meeting** | February 13, 2002 | **Project No.** | 015806 |
| **Time** | 10.00 am | **File No.** | .1.6 |
| **Place** | Conservation Halton (CA) Office | | |
| **Present** | Brenda Axon - CA<br>Robert Edmondson<br><br>Cate Mee - A&A | Greg Payne - Union<br>Brett Groves<br>Ken Jeans | |
| **Purpose** | Information Session and Project Update | | |

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## Union Gas Limited
## Hamilton to Milton Pipeline

| Item | Discussion | Action by |
|---|---|---|
| 1 | Introduction<br>GP made the introductions and outlined the Hamilton to Milton pipeline project. The current activity is to update the Acres 1991 report by addressing any changes along the proposed route and to meet the new OEB 1995 guidelines (the major addition being a cumulative effects assessment). | |
| 2 | Proposed Pipeline Route<br>Air photographs were used to illustrate that the proposed route is predominantly running adjacent to two existing lines. The NPS 48 pipeline requires a 28 m easement, this can overlap the existing easement by 12 m. The temporary work area may be slightly larger near roads and creeks. No buildings are permitted over the easement. When the pipeline is operational a 6 m swath centred over the pipeline is kept cleared for maintenance access. Orchard crops and Christmas trees are permitted over the pipeline. There is no brush cleared at creeks. | |
| 3 | Islay Lake Crossing<br>GP explained that the previous pipelines were installed prior to being flooded by this section of the man-made lake. The landowners have expressed a desire that all pipelines are kept together over these properties. Golder Associates have just completed geotechnical investigation which have shown that it will be relatively straight | |

| Item | Discussion | Action by |
|---|---|---|
| | forward to place a third line to the south of the existing lines cutting through only a shallow part of the lake. The design is to use sheet piling through the dam and construct in the dry behind a coffer dam. RE/BA did not express any concerns regarding routing through the lake. | |
| 4. | Stream Crossings<br>MNR has developed generic sediment control plans since the Acres 1991 report was issued. These have now standardized all smaller stream crossings for pipelines. The plans are approved by DFO. RE explained that the CA reviews all projects with respect to the Fisheries Act. He is concerned that although there are well made plans, these are often not followed through due to poor contractors. GP explained that with a pipeline of this size, there are only about 6 contractors available capable of performing the work. If they do not meet Union's standards, they are not allowed on the bid list. He is very confident that all plans will be followed, furthermore Union has its own environmental inspectors on site to ensure compliance. | |
| 5. | Schedule<br>Union hopes to file for Leave to Construct with the Ontario Energy Board sometime between April and July 2002. There will be a provincial review by OPCC headed by the OEB staff who will track comments from all agencies. Hearings could be sometime in the Fall with construction summer 2003 | |
| 6. | Conservation Halton's Bronte Creek Watershed Study<br>BA gave a description of the watershed study which has been ongoing within Bronte Creek for the last 3 years. She explained the proposed plans for restoration work, especially in Courtcliffe Park. The work in the park will start this July and August and continue the following summer. The plans are to eliminate some of the man-made ponds/channels in the area, introduce new meanders by putting in stream deflectors, revegetate with native species. Constraints to their activities will be with respect to the depth of the existing pipelines and the proposed pipeline. Discussion ensued regarding how Union and CA could work together to assist in restoration. The community restoration efforts in the location where Union plans to construct the new pipeline should be delayed until after the NPS 48 is installed. | Union and CA to work as partners in restoration at all creek crossings. Union and CA to meet with local Union represntative to coordinate 2002 activities within Courtcliffe and establish |

| Item | Discussion | Action by |
|---|---|---|
| | Generally, during construction Union is frequently requiring locations to disposed of the excess material from trenching. This would be available if the CA requires it for filling ponds/abandoned channels. Union has a woodlot replacement policy of providing 2 acres for every 1 acre loss. Landowners are encouraged to plant trees on the property where the trees have been removed but this is often not possible and Union would then ask if the CA has locations for tree plantings. | existing pipeline depths. |
| 7 | Conservation Halton Concerns.<br>BA outlined the issues that would be of concern to the CA. These include:<br>- all creek crossings<br>- wetland crossing (just west of Kilbride), this would be of particular concern as it is much longer than the creek crossings. Winter clearing would be most acceptable as this would avoid avian nesting and would minimize damage as the ground would be frozen<br>- protection of the Bronte Creek watershed projects, particularly loss of riparian cover and changes to stream morphology.<br><br>They would appreciate any assistance Union could provide for their watershed restoration projects, e.g.new planting stock acquisition. | |

Minutes prepared by

Cate Mee
Project Coordinator

CEM

**Issued**
Please advise within 7 days if these notes seem incomplete or contain inaccuracies.

**Acknowledgment Form**
**Proposed Hamilton to Milton**
**Union Gas NPS 48 Gas Pipeline**

**The Corporation of the City of Burlington**
**Burlington, Ontario**

On behalf of City of Burlington Planning Department, we have received the information package from Acres & Associated Environmental Limited regarding the proposed update to the environmental impact assessment study which was undertaken in 1991.

☐ We agree with the response(s) provided by our agency previously and have no further comments at this time.

☑ We agree with the response(s) provided by our agency previously with the additional comments A golf course facility at 6621 Dwalph Line has been constructed subsequent to your previous EIA. The Site Plan approved for the Crosswinds Golf Course incorporated the design requirements identified to the City by Union Gas. Crosswinds Golf Course and the City should be included in your contact list throughout the EIA Update Study.

☐ We would like to provide new comments/information, as outlined below/in our attached letter

☐ We have the following information regarding other developments proposed in the area in the next two years which would assist you in your cumulative effects assessment.

Name: JOHN CONN Title: PLANNER, POLICY

Signed: John Conn Date: Nov. 6, 2001

Agency Stamp (if available)

THE REGIONAL MUNICIPALITY OF HALTON
1151 BRONTE ROAD
OAKVILLE, ONTARIO, CANADA L6M 3L1

PLANNING & PUBLIC WORKS DEPARTMENT
CURRENT PLANNING
Tel: 905 825 6000 Fax: 905 825 8822
Toll free: 1-866-4HALTON (1-866-442-5866)

Halton
a World Class Place To Be

January 11, 2002

Bruce Bennett
Project Manager
Acres & Associated Environmental Ltd.
4342 Queen Street, P.O. Box 1001
Niagara Falls, ON L2E 6W1

Dear Sir:

**Re: Hamilton to Milton Gas Pipeline**
**Environmental Impact Assessment Update**
**Town of Milton**
**File No. EN03 A**

---

Halton Planning staff thank you for the opportunity to comment on the above noted project. Unfortunately due to staff shortages, the Region is unable to meet your deadline as proposed.

However, Halton Region Planning staff wish to assist your efforts and intends to present details of the project and any relevant supporting documentation to the Region's Ecological and Environmental Advisor Committee at its February 13, 2002 meeting. Any observations and recommendations from the Committee will form the basis of our comments on the EA Update. I anticipate that Regional comments can be delivered to you by the end of the third week in February.

I trust this information is sufficient in the interim. If you have any questions, please call me.

Yours truly,

Steve Stone, RPP, MCIP
Senior Planner, Current Planning
Planning & Public Works Department
Ph: 1-905-825-6000-7186
Toll Free: 1-866-442-5866
Email: stones@region.halton.on.ca

c. Kathy Kielt, EEAC Liaison

# The Regional Municipality of Halton

**MEETING NO. 2-02**

| | | |
|---|---|---|
| **NAME OF COMMITTEE:** | | **ECOLOGICAL AND ENVIRONMENTAL ADVISORY COMMITTEE** |
| **DATE OF MEETING:** | | Wednesday, February 13, 2002<br>7:30 p.m. |
| **PLACE OF MEETING:** | | Regional Administration Building<br>1151 Bronte Road<br>Oakville, Ontario<br>Glenorchy/Dakota Room |
| **Delegations:** | Item 4 | Bruce Bennett, Acres and Associated; Greg Payne, Union Gas; Steve Stone, Halton Planning & Public Works |
| | Item 5 | Rob Thun, Town of Oakville; Doug Corbett, Halton Planning & Public Works |
| | Items 5 & 6 | Carolyn Hart, Halton Planning & Public Works |

## AGENDA

| | | |
|---|---|---|
| 1. | **Disclosure of Interests** | |
| 2. | **Confirmation of the Minutes of Meetings No. 1-02 held Wednesday, January 9, 2002 and Summary of Action Arising** | 1 – 8 |
| 3. | **Business Arising from the Minutes** | |
| | **Business** | |
| 4. | Request for Comments – Hamilton to Milton Natural Gas Pipeline, Environmental Update Study | 9 – 15 |
| 5. | Request for Comments – Matters Related to North Oakville<br>• Proposed Oakville Official Plan Amendment 198<br>• Trafalgar Moraine Delineation Report | |
| 6. | Regional Official Plan Five-Year Review:<br>• ESA Update Study<br>• Rationale and Methodology for Determining Significant Woodlands in the Regional Municipality of Halton | |
| 7. | Request for Comments – Bronte Creek Watershed Study – D. Gale | 16 – 19 |

Acres & Associated

# Record of Telephone Call

| | | | |
|---|---|---|---|
| **Project** | Hamilton to Milton Pipeline | **Project No.** | 015806 |
| | | **File No.** | .1.7.1 |
| **Subject** | Responses to Request for Information | **Date of Call** | 8 April, 2002 |
| **Company** | Town of Milton | **Tel No.** | 905-876-7552 ext 2304 |
| **Discussion between** | Bill Mann (Planner) **(of Company)** | **and** | Cate Mee **(A&A)** |

**Copies to**
B. Bennett
G. Payne

**Circulate to**

**Details of Call**

Bill was responding to my follow up call to Susan O'Brian of March 11, 2002. He remembered filling in the acknowledgment form which came with the original letter in October 2001, unfortunately it probably got mislaid as it was at a time when they were moving offices. He understands that the new pipeline is to be placed adjacent to the existing lines and this has been identified in the Town's future plans.

The Town has no overall concerns, Union must be aware of their Urban Phase 2 Development plans and work with the Town to meet all safety/depth etc requirements. The most likely time frame for development in this area is Fall 2004 at the earliest. If Union's construction were completed by then it would obviously be most convenient. Planning for this area is just beginning, there will probably be a need for a sanitary trunk sewer and this might be located to the west of the CPR tracks. Union's pipe thickness will obviously be required to meet urban safety requirements. Neither Bill nor I were sure as to whether the existing lines had been replaced in this area to meet urban codes. I explained that I expected if replacements were required, it would probably be most convenient for Union to undertake the work at the same time as the construction for the NPS 48 line.

**Action Required**

BM identified that this record of phone call should be taken as their response for the update study.

**Record of Telephone Call - 2**

**Details of Call** **Action Required**

I explained that, during discussions at the open house, the landowner to the west of Tremaine Road had thought his land might be used for some type of storm water retention structure for runoff from the development to the east. Bill thought this would be unlikely as their mandate is to ensure that outside the development area the existing water patterns must be maintained. Any storm water concerns must be addressed within the urban development area.

Acres & Associated

# Record of Telephone Call

| | | | |
|---|---|---|---|
| **Project** | Hamilton to Milton Pipeline | **Project No.**<br>**File No.** | 015806<br>.1.7.1 |
| **Subject** | Reponses to Request for Information | **Date of Call** | 11 March 2002 |
| **Company** | Town of Milton | **Tel No.** | 905-876-7552 ext 2312 |
| **Discussion between** | Susan O'Brian<br>**(of Company)** | **and** | Cate Mee<br>**(A&A)** |

**Copies to**
B. Bennett
G. Payne

**Circulate to**

**Details of Call**

I phoned to determine whether the Town of Milton had received our request for information/comments dated 18 October, 2001. Susan remembers the letter and does not believe there is a problem with the proposal. She understands that the new pipeline is to be placed adjacent to the existing lines and this has been identified in the Town's future plans.

Susan asked whether the Region's EEAC committee had been informed of the project and I confirmed that they were currently reviewing the route.

**Action Required**

Sent copy of Oct. 18, 2001 information package Mar 11, 2002.

THE New! CITY OF HAMILTON

**Planning and Development Department**
**71 Main Street West – 7th Floor**
**Hamilton, Ontario L8P 4Y5**

January 7th, 2002

Mrs. Cate Mee
Acres and Associated
4342 Queen Street
P.O. Box 1001
Niagara Falls, ON
L2E 6W1

Dear Mrs. Mee:

**RE: Hamilton to Milton Gas Pipeline Update**

---

To begin, thank you for your letter date December 12th 2001 and materials provided. The City of Hamilton and ESAIEG staff look forward to the opportunity to comment on the proposed undertaking and assist in any way possible. The purpose of this letter is to confirm how the City of Hamilton and ESAIEG staff will be handling your request.

As per our phone conversation December 20th, 2001 a letter has been drafted (copy attached) to various internal departments within the City of Hamilton. We have requested comments on the undertaking by January 31st, 2002, which will then be forwarded to your firm. The ESAIEG group will be provided the December 12th materials as well. Should the group have any initial comments they will forwarded. As for a formal response from ESAIEG, when the updated study is complete copies should be forwarded to the group for review *prior* to the next scheduled meeting (schedule attached). At that time ESAIEG will invite your firm to attend a meeting and give a presentation.

If you have any questions or concerns please call.

Yours truly,

Simon M. Deiaco, BES
*Planner*

Cc Bruce Bennett, Project Manager Acres & Associated

THE New CITY OF HAMILTON

**Planning and Development Department**
**71 Main Street West – 7th Floor**
**Hamilton, Ontario**
**L8P 4Y5**

January 7th, 2002

Mr. T. Redmond, Manager of Engineering and Zoning, Building & Licensing Customer Services
Mr. J. Morgante, Senior Project Manager, Development Engineering, West Team
Mr. R. Lee, Senior Project Manager, Legislative Approvals Team
Mr. C. McConnell, Senior Project Manager, West Planning Team
Mr. P. Mason, Director, Long Range Planning

Gentlemen:

**RE: Proposed Hamilton to Milton Gas Pipeline Environmental Impact Assessment Update**

---

In late December I was contacted by a representative from Acres & Associated Environmental Limited who have been retained by Union Gas Limited to update an Environmental Impact Assessment (EIA) for a proposed natural gas pipeline (letter attached). What the consultant requires is any new or updated information that should be included in their updated EIA. Hamilton's ESAIEG Committee will be advising them on any potential environmental impacts, however, your comments and concerns would be greatly appreciated as well.

Comments would be greatly appreciated by **January 31st, 2002**.

If you have any questions or concerns please call me at (905) 546-2634.

Yours truly,

Simon M. Deiaco, BES
*Planner*

cc: Guy Paparella, Director, Development Division
Paul Mallard, Manager, Development Planning
Bruce Bennett, Project Manager, Acres and Associated

THE New! CITY OF HAMILTON

**BUILDING and LICENSING DIVISION**
Planning and Development Department
71 Main Street West – 3rd Floor,Hamilton, Ontario L8P 4Y5
Phone: (905) 546-2720 Fax: (905) 546-2764

2002 January 18

FILE: 02.5.13
ATTENTION OF: Tom Redmond
TELEPHONE NO: (905) 546-4652

Simon M. Deiaco, BES
Planner
Planning and Development Department

Dear Sir:

**Re: Proposed Hamilton to Milton Gas Pipeline**
**Environmental Impact Assessment Update**

The above subject, under cover of your letter dated January 7, 2002, has been examined and we advise that we have no comments with respect to any potential environmental impacts.

SD

Yours truly

Tom Redmond, P. Eng.
Manager of Engineering and Zoning

TR/zr

THE New! CITY OF HAMILTON

**Planning and Development Department**
**Development Division**
**(West Section)**
**71 Main Street West, 7th Floor**
**Hamilton, Ontario L8P 4Y5**

# MEMORANDUM

| | | | |
|---|---|---|---|
| TO: | Simon M. Deiaco, Planner | | |
| FROM: | Steve Ryan, Planning Technician | | |
| FAX: | (905) 546-4202 | PHONE: | (905) 540-6289 |
| DATE: | January 28, 2002 | | |
| FILE: | Proposed Hamilton to Milton Gas Pipeline Environmental Impact Assessment update | | |

Simon

Please be advised that the West Planning Team has reviewed the location of the natural gas pipeline to be rerouted in Carlisle Area.

The pipeline will start at the Hamilton Valve Site lying immediately east of Hwy. No. 6 and then continue easterly to and parallel with Carlisle Road before branching off in a northeasterly direction across Centre Street and then along the northerly boundary of the Carlisle Settlement Area eventually linking up with the Milton tie-in.

Please be advised that there are no new or pending developments proposed in the Carlisle Settlement Area which will affect this proposal.

We therefore have no adverse comments.

## Deiaco, Simon

**From:** Scanlon, Mary Ellen
**Sent:** January 29, 2002 3:05 PM
**To:** Deiaco, Simon
**Cc:** Bullough, Brent
**Subject:** Hamilton to Milton Gas Pipeline EIA Update

I have just a couple of comments on this matter:

1. The consultants should contact Bruce Duncan at Hamilton Conservation Authority to determine whether information has been added to the H-W Natural Heritage Database for the lands affected by the pipeline route. Bruce will also be able to confirm whether these lands have been visited as part of the ongoing update of the Natural Areas Inventory.
2. Tree cutting associated with the pipeline may be subject to the City's Woodland Conservation By-law which was passed in 2000. The consultants should determine whether this is an issue.

Thank you for the opportunity to comment.

Acres & Associated

# Record of Telephone Call

| | | | |
|---|---|---|---|
| **Project** | Hamilton to Milton Pipeline | **Project No.**<br>**File No.** | 015806<br>.1.4.1 |
| **Subject** | Woodland Conservation By-Law | **Date of Call** | 18 March 2002 |
| **Company** | City of Hamilton | **Tel No.** | 905-643-7250 ext 231 |
| **Discussion between** | Cathy Plosz<br>**(of Company)** | **and** | Cate Mee<br>**(A&A)** |

**Copies to**
B. Bennett
G. Payne

**Circulate to**

**Details of Call**

In response to information provided by Mary Ellen Scanlon through Simon Deiaco (coordinator of the City's ESAIEG), I phoned to determine whether the Hamilton to Milton pipeline would be subject to the City's Woodland Conservation By-Law.

At present it is not clear whether it would be exempt or whether it would be necessary to apply for a 'Minor Exception' (this involves a $600 fee, application is reviewed internally and with assistance from the CA). The first step is to present the proposal before ESAIEG for their comments. The major concerns are with respect to private woodlots in ESAs with woodlot area losses of over 0.8 ha. If ESAIEG agrees to the routing, then the by-law would most likely be applied as a compensation issue rather than presenting a 'no-go' situation. When the Update Report is available, they would like a copy.

**Action Required**

CP sending a copy of by-law

Presentation to ESAIEG Aprill 11, 2002.
If deemed Minor Exception, application only required nearer to the time of construction

Acres & Associated

# Record of Telephone Call

| | | | |
|---|---|---|---|
| **Project** | Hamilton-Milton Gas Pipeline Update | **Project No.**<br>**File No.** | 015806<br>.1.7 |
| **Subject** | Stream Crossing Windows | **Date of Call** | 4 March 2002 |
| **Company** | MNR - Aurora | **Tel No.** | 905-713-7390 |
| **Discussion between** | Warren May<br>**(of Company)** | **and** | Cate Mee<br>**(A&A)** |

**Copies to**
Greg Payne

**Circulate to**
Bruce Bennett

**Details of Call**

Warren May phoned to say that he has been in discussion with Art Timmerman of the Guelph MNR Office to clarify the construction window that is appropriate for the Hamilton to Milton stream crossings. The timing is now different from that provided in 1991. Construction is allowed between July 1 and September 15. This protects the Spring bait fish and the Fall brook trout spawning

**Action Required**

Inform Ken Jeans

• Consulting • Engineering • Construction • Management Services

UMA Engineering Ltd.
5080 Commerce Blvd. Mississauga ON L4W 4P2 Canada
tel (905) 238-0007 fax (905) 238-0038 web www.umagroup.com

# Facsimile

| | | | |
|---|---|---|---|
| To: | Mr. Bruce Bennett | Fax: | 416-622-6249 |
| Co.: | Acres & Associated Env. Ltd. | From: | Tom Goldsmith |
| Date: | 30 November 2001 | No. of Pages: | 2 |
| cc: | | File: | |

☐ Urgent ☐ Confidential ☐ For Review ☐ Please Distribute ☐ Please Reply

**RE: Hamilton To Milton Gas Pipeline**

Hi Bruce – UMA Engineering will represent Canadian National Railway for any proposed crossings of its lines by future Union Gas Pipelines. Enclosed for your ref. are the current submission requirements for Railway Gas/Oil Pipe Line Crossing Applications.

Should you have any questions or concerns, please feel free to call me at 905-206-8104.

Regards

T.G.

**Important Note:**
This communication is intended for the sole use of the person to whom it is addressed and may contain information that is privileged, confidential or subject to copyright. Any unauthorized use, disclosure or copying of this communication is strictly prohibited. If you have received this communication in error, please call us immediately at (905) 238-0007.

# Gas / Oil Pipe Line Crossing Applications

Applicants must submit six (6) copies of an acceptable plan. Plans must meet TC E-10, latest revision of CSA Z662-99 and Railway Standards.

The application must be accompanied by a certified cheque, for $ 695.50 (GST included) made payable to Canadian National which is a non-refundable payment to cover the cost of reviewing the application and plans. The applicant will be charged an additional fee of $ 107.00 (GST included) for each review after the initial application due to inadequate or missing information. **For more complex installations, separate purchase authority will be requested in lieu of the standard review fees.**

The following information is required on application drawings:

- application drawings must be to scale or have all dimensions shown
- site plan showing location of crossing in relation to legal description or road allowance or Railway mileage, and width of Railway right-of-way, and the number of tracks and the angle of crossing
- direction of flow, location of shut off valve on pressure side of Railway right-of-way
- profile showing depth of burial from base of rail and ditch bottom to top of pipe.
- cross-section showing or note stating carrier pipe will be held clear of casing pipe by supports **NOTE:** Every carrier pipe having a diameter of 3 inches or more shall be held clear of the casing pipe by properly designed supports, insulators or centering devices, installed so that no external loads will be transmitted to the carrier pipe . Grouting of the space between the carrier and casing will not be permitted. The casing pipe shall be so constructed as to prevent leakage of any substance from the casing throughout its length except at the ends where free flow must be maintained. The Casing shall be so installed as to prevent the formation of a waterway under the Railway, with an even bearing throughout its length, and shall slope to one end (except for longitudinal occupancy). The ends of the casing pipe must not be sealed by any load transferring material.
- type, wall thickness and pressures (operating and maximum test) of carrier and casing pipes.
- intention to install warning markers at each edge of Railway right-of-way
- type of cathodic protection (if used)
- when casing is used, it must extend the full width of the Railway's core right-of-way
- caption stating "Installation and maintenance to be in accordance with TC E-10 and latest edition of the applicable CSA Standard"
- note stating method of installation (i.e. boring / augering)
- professional engineer's stamp and signature
- contact name, address and phone number of pipeline owner on plan or cover letter
- location of nearest excavation from nearest rail to be identified on drawing

FUELS SAFETY DIVISION

**TECHNICAL STANDARDS & SAFETY AUTHORITY**
4th Floor, West Tower
3300 Bloor Street West
Toronto, Ontario
Canada M8X 2X4
Tel: (416) 325-1650
Fax: (416) 326-8248

October 24, 2001

File: PI-11.05

Mr. Bruce Bennett,
Project Manager
Acres & Associated Environmental Limited
4342 Queen Street, P. O. Box 1001
Niagara Falls, ON L2E 6W1

Dear Mr. Bennett:

**Re: Hamilton to Milton Gas Pipeline.**

This is in response to your letter of October 18 2001 about the referenced project. Please note that the Ministry of Consumer and Commercial Relations (now Ministry of Consumer and Business Services) has transferred to the Technical Standards and Safety Authority the responsibility of enforcing public safety legislation in several areas, one of each is oil and gas pipelines.

A new regulation on natural gas pipelines has been issued, that applies to the design, construction, operation and maintenance of this pipeline. The new regulation make mandatory the requirements of the CSA Z662-99 Standard for Oil and Gas Pipeline Systems, enforced by O. Reg. 210/01. The regulation 210/01 is available from our web site, www.tssa.org.

In addition, the Guidelines for Locating New Oil and Gas Pipeline Facilities (here attached) would be applicable to this project.

Should you have any questions, please call me.

Yours truly,

Oscar Alonso, P. Eng.
Fuels Safety Engineer

Attachments

FUELS SAFETY DIVISION

TECHNICAL STANDARDS & SAFETY AUTHORITY
4th Floor, West Tower
3300 Bloor Street West
Toronto, Ontario
Canada M8X 2X4

August 1998
**PI-98/01**

# GUIDELINES FOR LOCATING NEW OIL AND GAS PIPELINE FACILITIES

## CRITERIA

The following guidelines pertain to the installation of new steel oil and gas pipeline systems designed to operate at hoop stresses of 40% or more of the specified minimum yield strength.

## DEFINITIONS

Category II Pipe means a pipe with requirements for proven pipe body notch toughness in the form of energy absorption and fracture appearance.

Maximum Operating Pressure (MOP) means the maximum operating pressure to which a pipeline system may be qualified in accordance with the requirements of the Canadian Standards Association CSA-Z662 Oil and Gas Pipeline Systems standard.

Notch Toughness means the resistance of the steel to fracture under suddenly applied loads at the notch.

Specified Minimum Yield Strength (SMYS) means the minimum yield strength prescribed by the specification or standard under which the pipe material is purchased.

Yield Strength means the stress at which a material exhibits the specified limiting offset or produces a specified total elongation under load in a tensile test as specified in the specification or standard under which the material is purchased.

## MINIMUM SETBACKS

Pipelines shall be aligned to provide a minimum setback of 20 metres from their centerline to dwellings intended for human occupancy. A 200 metre setback shall be maintained from the centerline of the pipeline to institutions where rapid evacuation may be difficult, such as hospitals, nursing homes, penal institutions, and institutions for the physically and mentally handicapped. Where these distances are not practicable, the following measures shall be implemented to reduce the minimum respective setbacks to 5 metres and 90 metres respectively:

1. The use of Category II Pipe with proven notch toughness characteristics as specified by CSA-Z662, and

2. Minimum cover of at least 1.5 metres over the pipeline or where 1.5 metres of cover is not practicable, suitable means of identifying and protecting the pipeline may be used as an alternative.

**PUMPS AND COMPRESSORS**

Pumps and Compressors shall be situated to provide a minimum setback of 100 metres from dwellings intended for human occupancy.

Ontario

Ministry of the Environment
Ministère de l'Environnement

Central Region Technical Support Section
Région du Centre Section d'appui technique

5775 Yonge Street
8th Floor
North York, Ontario
M2M 4J1

Tel. (416) 326-6700
Fax (416) 325-6347

5775, rue Yonge
8ième étage
North York (Ontario)
M2M 4J1

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NOV 22 2001
ACRES & ASSOCIATED
FILE No.

November 20, 2001

Mr. Bruce Bennett
Acres and Associated Environmental Limited
525-21 Four Seasons Place
Toronto, ON
M9B 6J8

**Re: Proposed Hamilton to Milton Gas Pipeline**
**Union Gas Limited**
**Environmental Impact Assessment Update**

Dear Mr. Bennett:

This letter is in response to your letter of October 18, 2001, regarding the update of the proposed Hamilton to Milton natural gas pipeline by Union Gas Limited. The original EA for this project was completed in 1991. The proposed pipeline would begin at the Hamilton Valve Site and proceed north east to the Milton Tie-In. The site-specific comments relate only to the lands located in our Halton-Peel District. The West Central Region and Hamilton District offices should be contacted for site specific information on lands located west of the City of Burlington.

This ministry reviews pipeline proposals from the perspective of its technical mandate. This mandate is derived from the following pieces of legislation and their respective regulations: The *Environmental Protection Act;* the *Ontario Water Resources Act,* and the *Pesticides Act*. This ministry's general areas of concern include the following: water quality and quantity; erosion and sedimentation; sewage and water systems; waste management; sediment and soil contamination; air quality; noise; vibration, and land use compatibility. In the absence of our previous comments or the ESR report, following are some general comments to assist you in the proposed undertaking.

- Ministry's *Guideline for Use at Contaminated Sites in Ontario* (Feb. 1997) should be used with respect to the removal and/or movement of soils. Soils should be tested for contaminants that may

have been used or dumped along the project route. If the soils are contaminated, a decision from the Region of Peel regarding how and where they are to be disposed of will be required. If contaminated sites are identified in or adjacent to the study area, the MOE District Offices in Burlington and Hamilton should be contacted.

- If gas tanks or any type of petroleum storage sites are encountered during the project undertaking, care should be exercised to ensure that groundwater contamination does not occur. In addition, the Region of Peel should prepare a Contingency Plan which sets out how potentially contaminated soils will be managed.

- Dust and noise control measures should be addressed and included in the construction plans to ensure
that residential and any other sensitive land uses along the proposed project route are not adversely affected by the undertaking.

- All wastes generated during the construction activities must receive proper disposal.

- We note that the project crosses several streams and their tributaries. It should be noted that Limestone Creek is a coldwater fishery. Erosion and sedimentation controls and other practices for managing surface runoff and water crossings, to prevent entry of contaminants into water bodies, including proper discharge of hydrostatic test water and proper siting and disposal of excess fill and excavated material should be addressed.

- The project also crosses two wetlands. A detailed plan should be developed to indicate the distance (or buffer) between the pipeline and any environmentally sensitive features and functions as well as any sensitive landuses.

- If private wells are identified in the area, care should be taken to ensure that those water supplies will not be adversely affected by construction activities. Pre and post construction data should be obtained which define existing water quality and quantity. We also suggest that an inventory is made of the water use and groundwater wells within a 500-m radius from the pipeline to ensure that the construction activity will not seriously interfere with the existing water use in the vicinity of the pipeline. The principle concerns include contamination and potential interruption of groundwater movement, particularly in the case of shallow wells.

- A Permit to Take Water is required if the construction activities necessitate the withdrawal of surface or groundwater at a rate greater than 50,000 liters/ day.

- Any type of design and construction report(s) and plans should be based on a best management approach that centres on prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

- These comments should be used in conjunction with the *Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario* (Ontario Energy Board 1989, as amended)and *Environmental Considerations for Gas or Oil Pipelines and Facilities*.

I trust the above is of assistance. If you would like to discuss this further, I can be reached at (416) 326-4886.

Yours truly,

Marja Gates
Planner
Air, Pesticides and Environmental Planning

c. J. Budz
R. Ryan
A & P File

# APPENDIX A4

# HALTON REGION AND CITY OF HAMILTON ENVIRONMENTAL COMMITTEES INFORMATION

Hamilton to Milton Natural Gas Pipeline
Union Gas Limited

# Environmental Update Study - Information Package

## Halton Region Ecological and Environmental Advisory Committee

January 2002

# 1 INTRODUCTION

Union Gas Limited (Union) is proposing to construct and operate a nominal pipe size (NPS) 48 pipeline from their Hamilton Valve Site in the old Town of Flamborough (now part of the City of Hamilton) through the City of Burlington to their Milton Tie-In in the Town of Milton. The pipeline will be approximately 17 km in length (Figure 1).

Acres International Limited (Acres) undertook a Route Selection and Environmental Assessment for this project and issued their report in 1991. That report was circulated to the Ontario Pipeline Coordinating Committee (OPCC) and comments were received from the committee members. The purpose of the OPCC is to coordinate the Ontario government review of pipeline projects such as this one. There was agreement that the route selected was the preferred corridor, with some possible fine tuning in certain locations.

Due to changes in gas requirements, Union decided not to proceed with the project at that time. With increasing gas demands, there is now a need for the pipeline. Union has retained Acres & Associated Environmental Limited (A&A), the environmental affiliated company of Acres, to update the original report. Union plans to submit both reports to the Ontario Energy Board (OEB) for environmental approval, as part of Union's Leave to Construct application.

The purpose of the update study is to confirm the accuracy and relevancy of the information presented in the previous report. A&A/Union are contacting all potentially affected agencies and landowners to ask for their input in providing any comments or concerns they might have regarding the project. In particular, they wish to determine whether there has been any changes in the last 10 years which could affect the proposed pipeline route.

# 2 PROPOSED PIPELINE ROUTE

In 1991, Acres examined a number of alternative routes for the proposed pipeline before selecting a preferred route that minimized environmental impacts. The preferred route parallels and, for the most part, is on the north side of two existing Union pipelines. The major deviation from the existing pipeline route was made to avoid the Carlisle settlement area (Figure 1). Through Halton Region, the proposed west end of the route begins at Millborough Road, in Lot 10, Concession I, City of Burlington and proceeds northeast on the north side of the existing pipelines. Within Lot 10, Concession III, City of Burlington, the proposed pipeline will cross under the existing pipelines to the south side in order to

provide a better crossing of a large man-made lake (Islay Lake). The proposed route then parallels the south side of the existing pipelines until crossing back to the north in Lot 10, Concession IV, City of Burlington. This under crossing is necessary to avoid a house situated next to the south side of the easement at Walker's Line and to minimize impacts in the Limestone Creek area. The proposed pipeline then parallels the north side of the existing easement until it reaches the Milton Tie-In located in Lot 10, Concession I, Town of Milton.

An easement of 28 m is required for an NPS 48 pipeline. Once installed, a width of only 6 m over the centerline of the pipeline must be kept cleared of trees/shrubs for maintenance purposes. Where the new pipeline is placed adjacent to existing pipelines, there can be an overlap of the new easement with the existing easement, such that only an additional 12 m of new easement is required. Thus, by placing the pipeline adjacent to an existing route, there is considerably less disturbance than if a new route has to be used.

# 3 ENVIRONMENTAL ISSUES ALONG THE PROPOSED ROUTE WITHIN HALTON REGION

The following summarizes the major issues which have been identified along the Halton Region section of the pipeline route.

- **Niagara Escarpment Commission Development Area** - It was not possible to route the pipeline without crossing NEC lands. Through discussions with the NEC, they concur with the choice of the preferred route. An NEC Development Permit will be required.

- **Islay Lake Area (Lot 9, Concession III, City of Burlington)** - The existing pipelines run under Islay Lake. This is a man-made lake with a dam/earthen berm extending all the way along its east side. The lake (at its present size) was flooded after the installation of the previous pipelines. A number of route alternatives were examined in this area. However, the landowners expressed a strong preference that the new line be placed adjacent to the existing lines. Detailed engineering and geological investigations have just been completed and it has been determined that a new line can be installed in this area.

- **Archaeological Sites** - The entire study area was used extensively by aboriginal peoples and has a very high archaeological potential. At least 10 Iroquoian villages have been identified in this general area. It is the opinion of Neil Ferris of the

Ministry of Culture, Tourism and Recreation that any route selected within this area will be passing through an area of equally high potential. Stages 1 to 3 archaeological investigations have been undertaken along the proposed pipeline route. The assessment indicated that there were two significant archaeological sites: the Pipeline Site (Lot 10, Concession IV, City of Burlington) and the Borscok Site (Lot 10, Concession VI, Town of Milton) - both Neutral villages. Detailed investigations of these sites have been completed and valuable information was obtained which was previously unknown. Prior to construction, further investigations will be undertaken at these two sites.

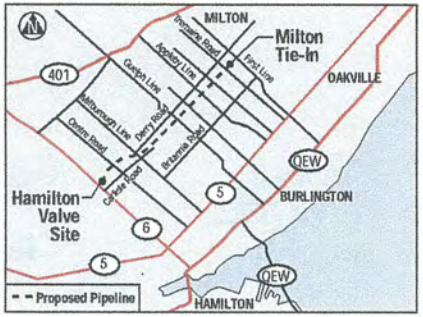
- **Stream Crossings** - A number of streams and drainage ditches, including Kilbride and Limestone creeks, will be crossed by the pipeline route. MNR (1993) has developed Generic Sediment Control Plans for implementation at pipeline stream crossings. These plans ensure that there will be minimum environmental impact from the pipeline installation. The plans are also accepted by DFO as appropriate mitigation methods for pipeline stream crossings.

- **Class 1/2 and Specialty Agricultural Lands** - The pipeline will cross good agricultural lands, in particular from Walker's Line eastward. Pipeline construction practices ensure that the top soil is stripped along the pipeline trench and impacts are minimized. Farmers are paid compensation for any crop losses and crop production is monitored for a number of years following the construction. Speciality crops (e.g., orchard trees) are allowed to be planted over the pipeline.

# 4 SCHEDULE

Union is proposing to apply to the OEB for their approval in the Fall of 2002. Construction of the pipeline is targeted for the summer of 2003.




Legend

- Existing Pipeline
- Terminal Points
- Proposed Pipeline

0 500 1000
metres

Figure 1
Union Gas Limited
NPS 48 Hamilton to Milton
**Proposed Pipeline Route**

**SUB-COMMITTEE REPORT**

---

**To:** Ecological and Environmental Advisory Committee
**Date:** April 10, 2002
**Subject:** Union Gas Pipeline, Milton

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Background

Union Gas Limited is proposing to construct the last phase of a 48" gas pipeline that will connect existing tie-in stations south of Milton to a similar facility west of Carlisle. The route parallels Derry Road and will be immediately adjacent to two existing pipelines. Most of the 17-kilometer route lies within the boundary of Halton.

A Route Selection and Environmental Assessment process was completed in 1991. Due to the economic situation, the pipeline construction was delayed but now the company wishes to proceed with the construction. Because of the delay, the report and work will require necessary updating and approvals.

Environmental Considerations

On Saturday April 6, EEAC subcommittee members met with Brett Groves, Environmental Planner for Union Gas, as well as Steve Stone of Halton Planning. The main concern and focus for this meeting was to visit and discuss sites involving pipeline crossings of water features. This included Indian Creek, Limestone Creek, the crossing at Islay Lake, and Kilbride Creek.

1.) The pipeline route crosses Indian Creek in an open agricultural field setting. The stream here is most likely intermittent and a dry crossing for installing the line is likely during the summer season. No trees should have to be removed to accommodate this.

2.) Limestone Creek at the gas line crossing runs through a shallow ravine that is wooded except for existing crossing location. A large stand of Phragmites had developed in the open area and this species will likely expand onto the open area that will be created by the stream crossing. The woods consisted of Hemlock, Eastern White Cedar, White Pine and willow sp. Some of these trees will have to be removed to accommodate the new pipeline. The stream is likely to have a continuous flow throughout the year. The exact method for making the crossing for the pipeline has not been determined.

3.) At Islay Lake, the pipeline runs under the southwest bay. The bay here is relatively shallow. The means for crossing the bay has not been decided but it would most likely entail the construction of a cofferdam and pumping water from the small part of the lake into the larger part of the lake. Fish will be removed by hand and transferred to the larger part of the lake as the water is being pumped. It therefore seems feasible that the biological integrity of the lake can largely be maintained. A small area of marshy habitat below (south) of the existing berm will likely be greatly disturbed as this lies directly on the pipeline right-of-way. There will need to be some consideration for re-establishing the vegetation on this area after the pipeline is installed, however; if the water level is allowed to equilibrate to near existing levels, cattails and other plants should easily be re-established.

4.) The final stop was made at the crossing of the Kilbride Creek northwest of the Kilbride Public School. The Bruce Trail crosses the creek that is located in a moderate-sized ravine at this point. The steep slopes forming the edges of the ravine will likely be cut back to reduce the depth of the pipeline cut and some trees, mostly Eastern White Cedar, will have to be removed. Details for crossing this constantly-flowing creek have not been decided but the fact that the stream splits into two channels here may influence the choice of procedures. Broken rock, placed in the stream as the result of the earlier crossing had developed into a riffle with a natural appearance.

Conclusions

Because the pipeline will be following the same route as two existing pipes, the amount of disturbance for such a large project will be minimized (the easement width of 28 m will overlap with the existing pipelines). The route does not cross any existing ESAs but does cross two larger creeks (Limestone, Kilbride) as well as several lesser streams (Indian Creek) or drainage courses, as well as the man-made Islay Lake.

Recommendations

The Sub-committee would offer the following comments and recommendations:

1 That the crossings of the streams and lake be undertaken at times when disturbance is likely to be least, following the best available stream-crossing protocols (i.e. DFO acceptable mitigation procedures).

2. That sites that are disturbed (trees removed) be re-vegetated with native plant species appropriate to the habitat in those areas where native vegetation currently exists.

3. In agricultural areas, the conditions on the disturbed site should be left consistent with the surrounding area after the construction is complete using measures to reduce erosion. Sediment barriers should be removed after the site conditions have become stabilized.

4. That the Environmental Report prepared in 1991 be reviewed to ensure that it contains most recent information (i.e. Conservation Halton has carried out some stream quality monitoring as part of the Bronte Creek Watershed planning process).

5. That measures are undertaken to re-establish the small marsh area located south of the berm at Islay Lake.

* 6. That a list of plant species proposed for use in re-vegetation plans be referred back to EEAC for review.

Respectfully submitted,

Stephanie Adams
Amy Maurer
W.D. McIlveen

Adopted by EEAC as amended (*) April 10, 2002

Hamilton to Milton Natural Gas Pipeline
Union Gas Limited

# Environmental Update Study - Information Package

Prepared for
City of Hamilton
Environmentally Significant Areas
Impact Evaluation Group

March 2002

# 1 INTRODUCTION

Union Gas Limited (Union) is proposing to construct and operate a nominal pipe size (NPS) 48 pipeline from their Hamilton Valve Site in the old Town of Flamborough (now part of the City of Hamilton) through the City of Burlington to their Milton Tie-In located in the Town of Milton. The pipeline will be approximately 17 km in length (Figure 1).

Acres International Limited (Acres) undertook a Route Selection and Environmental Assessment for this project and issued their report in 1991. That report was circulated to the Ontario Pipeline Coordinating Committee (OPCC) and comments were received from the committee members. The purpose of the OPCC is to coordinate the Ontario government review of pipeline projects such as this one. There was agreement that the route selected was the preferred corridor, with some possible fine tuning in certain locations.

Due to changes in gas requirements, Union decided not to proceed with the project at that time. With increasing gas demands, there is now a need for the pipeline. Union has retained Acres & Associated Environmental Limited (A&A), the environmental affiliated company of Acres, to update the original report. Union plans to submit both reports to the Ontario Energy Board (OEB) for environmental approval, as part of Union's Leave to Construct application.

The purpose of the update study is to confirm the accuracy and relevancy of the information presented in the previous report. A&A/Union are contacting all agencies and potentially affected landowners to ask for their input in providing any comments or concerns they might have regarding the project. In particular, they wish to determine whether there has been any changes in the last 10 years which could affect the proposed pipeline route. An Open House was held March 5, 2002 in Kilbride which gave the local community an opportunity to comment upon the project.

# 2 PROPOSED PIPELINE ROUTE

In 1991, Acres examined a number of alternative routes for the proposed pipeline before selecting a preferred route that minimized environmental impacts. The preferred route parallels and, for the most part, is on the north side of two existing Union pipelines. The major deviation from the existing pipeline route was made to avoid existing and future development in the Carlisle settlement area (Figure 1). The route section within the City of

Hamilton commences just east of Highway 6 and north of Carlisle Road and runs northeast to cross Millburough Line just south of Derry Road.

An easement of 28 m is required for an NPS 48 pipeline. Once installed, a width of only 6 m over the centerline of the pipeline must be kept cleared of trees/shrubs for maintenance purposes. Where the new pipeline is placed adjacent to existing pipelines, there can be an overlap of the new easement with the existing easement, such that only an additional 16 m of new easement is required. Thus, by placing the pipeline adjacent to an existing route, there is considerably less disturbance than if a new route has to be used. The pipeline is placed at least 1 m below ground surface, with at least 1.2-m cover in agricultural areas. The depth can be greater under roads or creeks depending on specific conditions.

# 3 ENVIRONMENTAL ISSUES ALONG THE PROPOSED ROUTE WITHIN THE CITY OF HAMILTON

Figures 2 and 3 show in more detail the proposed route location within the City of Hamilton. The following summarizes the major issues which have been identified along this section of the pipeline route.

### Creek Crossings/Conservation Halton Watershed Study - Restoration Projects

Within the City of Hamilton, Bronte Creek, Mountsberg Creek and Flamboro Creek (2 times) are crossed along the proposed route. MNR(1993) has developed Generic Sediment Control Plans for implementation at pipeline stream crossings. These plans ensure that there will be minimum environmental impact from pipeline installation. The plans are also accepted by DFO as appropriate mitigation methods for pipeline stream crossings. Union will apply to Conservation Halton for the required permits to cross streams using the MNR plans as guides for the crossings. The streams are characterized as cold/cool water from a fisheries perspective and MNR will only permit working within these streams between July 1 and September 15.

Conservation Halton, over the last 3 years, has been developing restoration plans for certain creeks in the Bronte Creek watershed. The Bronte Creek/Mountsberg Creek confluence within old Courtcliffe Park, a location now owned by the City of Hamilton, has been identified as an area needing restoration. A community lead initiative has been proposed to restore the riparian habitat, improve stream morphology and establish a forest environment. Union plans to work with

Conservation Halton and the community group such that any rehabilitation work along the pipeline easements can be scheduled for a similar time as the proposed pipeline installation. Union will assist with the rehabilitation, supplying fill if required, and ensuring riparian planting materials are compatible with the general rehabilitation plans. Similarly, where the pipeline crosses Flamboro Creek, Union will ensure replanting with suitable native shrubs along the stream banks to rehabilitate the riparian habitat.

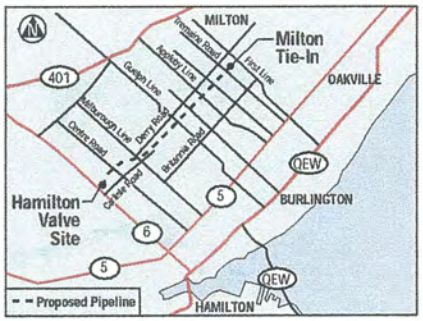
**Carlisle Settlement Area/Progreston North Swamp ESA**

The route selected around the Carlisle settlement area was developed in consultation with the Town of Flamborough's planning department in 1990/1991. The criteria used were to minimize the effects to environmentally significant areas while not limiting the development potential for the future growth of Carlisle. A number of routes were investigated in the area. The final route selected, which follows the northern boundary of the Carlisle Settlement Area, best met the Town's requirements. This route crosses the old Regional Municipality of Hamilton-Wentworth's ESA # 3, the Progreston North Swamp, in two locations. This area has been designated as an ESA and upgraded to a Class IV wetland since the 1991 Acres study. However, the ecological importance of the area was recognized while looking at routing options in 1991. The proposed route cuts through the south boundary of the ESA just to the west of the CPR tracks and is adjacent to the two existing pipelines, thus reducing the amount of new easement required. Discussions were held previously with the Hamilton field naturalist group with respect to this area and in particular, with regard to butterfly habitat. There was agreement that the butterfly habitat would persist after pipeline construction and generally, that routing changes were not warranted. The Progreston North Swamp is also crossed at Flamboro Creek on the Usik property (SC3 in Figure 3). The route selected in this area minimized the length through the woodlot/ESA. No viable routes could be found that avoided crossing the ESA completely. Mitigation in this location will be to reduce the width of easement and avoid specimen trees, where possible.

# 4 SCHEDULE

Union is proposing to apply to the OEB for their approval in the fall of 2002. Construction of the pipeline is targeted for the summer of 2003.




Legend

- Existing Pipeline
- Terminal Points
- Proposed Pipeline

0 500 1000
metres

Figure 1
Union Gas Limited
NPS 48 Hamilton to Milton
**Proposed Pipeline Route**




Figure 2
Union Gas Limited
Hamilton to Milton Pipeline
**Proposed Pipeline Route**




Figure 3
Union Gas Limited
Hamilton to Milton Pipeline
**Proposed Pipeline Route**

Acres & Associated

# Record of Telephone Call

| | | | |
|---|---|---|---|
| **Project** | Hamilton to Milton Gas Pipeline | **Project No.** | 015806 |
| | | **File No.** | 0.1.7 |
| **Subject** | ESAIEG Comments | **Date of Call** | 18 April 2002 |
| **Company** | City of Hamilton | **Tel No.** | 905-546-2634 |
| **Discussion between** | Simon Deiaco **(of Company)** | **and** | Cate Mee **(A&A)** |

**Copies to**
Greg Payne

**Circulate to**

**Details of Call**

CM phoned to determine when the ESAIEG comments would be available for review. SD explained he had drafted a memo regarding the recommendations from their April 11, 2002 meeting and would send them after they had been circulated to the group for approval. The group members at the April 11 meeting included Romeo Palombella, Barry Myler, Rob Dobos and Steve Woodington.

In general, ESAIEG has no objections to the proposed route.

The following are the main recommendations:

- preparation of mapping showing the ESA boundaries. (The CA would usually stake the boundaries.)
- map any of the ESA identified significant species found within the impacted area
- identify the mitigation measures that would be required for any of the significant species

*See attached Final Meeting Notes - received May 1, 2002*

**Action Required**

CM contacted Conservation Halton April 18, they provided approximate ESA boundaries (see Figure 3), explaining that ESAIEG were the arbiters of the boundaries.
See Section 5.1.2 of report - no significant species identified along pipeline route

# *ENVIRONMENTALLY SIGNIFICANT AREAS IMPACT EVALUATION GROUP* (ESAIEG)

## MEETING NOTES

## MEETING OF APRIL 11th, 2002

Members present: Romeo Palombella, Stephen Worthington, Rob Dobos, and Barry Myler

Members absent: James Jackson, Barb Steiner, George Coker, Charles Hostovsky, Anthony Goodban

Staff: Simon M. Deiaco

**Opening Remarks**, Romeo Palombella chaired the meeting.

1. **March 14th 2002 notes were accepted.**

2. **Klass Severance Application (F-6-01) (ESA No. 22 Hyde-Rockton-Beverly Complex)**

George McKibbon (McKibbon Wakefied Inc.) represented the applicant, Mr. Winfried Klass, who was also in attendance.

Mr. McKibbon outlined the Klass application for a 'farm split' severance that was conditionally approved by the City of Hamilton Committee of Adjustment in May of 2001. Prior to final approval of the severance, Mr. Klass was required to consult with, and address all concerns of, the Environmentally Significant Areas Impact Evaluation Group (ESAIEG).

As part of their presentation before ESAIEG Mr. McKibbon and Mr. Klass also requested ESAIEG to forward a clearance letter to the Committee of Adjustment verifying that they have satisfied the relevant condition, provided that ESAIEG agrees that no significant environmental concerns are outstanding.

This application is unique in that no new development or change in land use is being proposed at this time. The severance application will divide a 180-acre farm parcel into two smaller 90-acre parcels that shall continue to be used as a Christmas tree farming operation. Although there is no development or construction proposed on these parcels, at present, Mr. McKibbon undertook supplementary measures to anticipate concerns that subsequent building activities may create environmental impacts in the future. Accordingly, Mr. McKibbon identified potential building lot locations in these parcels, to verify that such development could, if desired, be implemented in the future without negative impacts on the ESA (Figure 1 of the report). Mr. McKibbon's report identified three (3) potential building lots on each of the properties, in locations where it was felt that no ESA impacts would result, in the event that development is proposed in the future. Factors considered in arriving at the selected locations included soil conditions, vegetation, existing uses, and proximity to wetlands.

In summary, based on findings of his current report, and the nature of the application, Mr. McKibbon concluded that there would be no impacts to the ESA, and requested that ESAIEG clear the condition of severance.

ESAIEG noted that, historically and currently the subject property is known to provide a significant habitat for bird species. ESAIEG noted that, beyond the species identified in the Natural Areas Inventory (NAI) summary, additional Regionally significant species have been documented since the NAI summary. Based on additional studies completed in the area, breeding evidence for Prairie Warbler and American Bittern have been documented from this site. In particular, ESAIEG noted that the Prairie Warbler has been observed within the area of one of the proposed building lots shown in Figure 1.,

**ESAIEG Recommends:**

1. The potential building lot fronting onto 6th Concession Road (located east of CUP3 and west of SWD4, Figure 1 of the report) should not be deemed suitable for development, due to the potential impacts on the above significant bird species.

2. If any future development activities proceed, these should be scheduled to avoid the nesting periods of Regionally significant bird species known to use this site.

3. City of Hamilton staff may clear the condition of severance, by notice to the attention of the Secretary-Treasurer of the Committee of Adjustment.

**3. Proposed Union Gas Pipeline Project (ESA No. 5 Progreston North Swamp and PSW)**

Kate Mee (Acres & Associated), Greg Payne, Brett Groves, Grant Strachan (Union Gas) representing the proponent Union Gas Ltd.

Mr. Payne and Mrs. Mee outlined the Union Gas proposal to construct and operate a 48-inch diameter natural gas pipeline, extending from the Hamilton Valve Site (East of Highway No. 6 and North of Carlisle Rd) to the Milton Tie-In (West of First Line and South of Derry Rd). This section of the pipeline will be 17 km in length with a majority of the construction taking place adjacent to two existing pipelines, except for a segment in the Carlisle area where there is no longer sufficient space.

The original project planning and approval tasks (environmental assessment, public meetings, and revisions) began in 1989 and were completed in 1991/1992. However, due to changes in the demand for natural gas, the project was deferred in 1993, and was recently reactivated. In late spring/summer of this year, Union Gas intends to apply to the Ontario Energy Board (OEB) for a "Leave to Construct", and anticipates receiving OEB approval in the winter of 2002 with construction starting in the summer of 2003. A current draft update of the environmental assessment is almost complete.

The construction of the pipeline requires a 28m easement; however, once constructed, only a 6m width from the centreline of the pipeline is required to be cleared for maintenance purposes. As noted previously, the new pipeline will be constructed adjacent to two existing pipelines, allowing an easement overlap that will reduce the additional new easement width to only 16m. Again, in certain sections of the route that detour around the Carlisle area, a full 28m easement will be required, specifically on the north-south section of the pipeline within the Progreston North Swamp ESA and PSW (Allen property, Figure 3). Mr. Payne noted that within the ESA/PSW, the pipeline includes one proposed "dry" creek crossing (SC4, Figure 3) that should be completed within one working day.

In summary, Mr. Payne also noted that the project has included:

- an active consultation program with the Conservation Authority, Niagara Escarpment Commission and landowners,
- a 2:1 tree replacement program,
- on-site environmental inspectors,
- an agricultural mitigation program, and,
- well monitoring.

Furthermore, a field survey/species inventory is planned for the project area this spring and summer.

In general, ESAIEG has no objection to the selected/preferred route, which was noted by Mrs. Mee to present the least amount of impact on the ESA/PSW, landowners, etc. However, there are potential impacts on the ESA/PSW, associated with the construction the stream crossing (SC4) and the north-south section of the pipeline within the Progreston North Swamp ESA/PSW (Allen property, Figure 3). Furthermore, as a species inventory/survey has not been completed to date, sufficient information has not been presented with regarding the potential impacts on significant species and the ESA/PSW. As a result:

**ESAIEG Recommends:**

1. The proponent shall prepare mapping specifically delineating the boundaries of the ESA/PSW, vegetation communities present and significant plant species identified during the species inventory/site survey.

2. The proponent shall prepare mapping specifically identifying the encroachment and/or proximity of the pipeline right-of-way relative to the boundaries of the ESA/PSW, and related potential impacts (if any).

3. The proponent shall provide to ESAIEG the specific mitigation and restoration measures to be implemented, relative to the potential impacts on:
   - the significant species identified in the inventory/survey, and,
   - the ESA/PSW.

**NB:** *ESAIEG notes that the information requested does not require a formal delegation and presentation to ESAIEG, but this is at the proponent's discretion.*

## 4. Draft Grand River Conservation Authority Wetlands Policy

ESAIEG requests that City staff advise on the Conservation Authority's timeline for comments of the draft policy document. Some preliminary opinions were discussed, however ESAIEG would prefer to submit one unified formal response to the draft document. Members' comments will be sent to City staff for compilation.

## 5. Pubic Request for Information Provided to ESAIEG

It is ESAIEG's opinion and recommendation that City of Hamilton staff that staff do not have unilateral authority to release any materials or documents (i.e. reports/studies), to any members of the pubic or any individual, where such materials or documents have been submitted by proponents to the City for ESAIEG's review. Any requests for such information should be referred to:

- either the proponent or their agent, or,
- the City of Hamilton's Freedom of Information process.

## 6. Actions for staff

- ESAIEG requested staff to investigate what specific measures/tools are available to enforce and monitor ESAIEG recommendations.

## 7. Next Meeting May 9th, 2002 (to be confirmed)

# APPENDIX A5

# MCTR RESPONSE, 1993

Ontario

Ministry of Culture, Tourism and Recreation
Ministère de la Culture, du Tourisme et des Loisirs

Cultural Operations & Field Services Branch
(519) 433-8401; Fax: 439-1696

55 Centre Street
London, Ontario
N6J 1T4
July 6, 1993

Your File:

Our File:

To: Cathleen Mee, Acres International Ltd.
5259 Dorchester Road, P.O. Box 1001
Niagara Falls, Ontario L2E 6W1

**RE: Hamilton - Milton Gas Pipeline EA Replacement Study (File #: P09243.04)**

A principal concern of this office is the adverse effects that undertakings such as the above mentioned might have on cultural heritage resources. If the project appears as though it will impact areas of heritage potential, then our office would likely recommend that an assessment survey be conducted as part of the EA. If any significant remains are identified, then any negative impacts would have to be mitigated by either avoidance or excavation.

I have had an opportunity to review the information provided in your May 27th letter. This Ministry would not object to Union Gas modifying their route to avoid environmentally sensitive areas. Obviously, if Alternative routes 1 or 3 are selected, then the Pipeline site will be avoided, and thus Union Gas would minimize the mitigation costs they are currently facing for that site (subject to the extent of disturbance if portions of the older pipeline are removed). However, it should also be obvious that any new route will be passing through an area of equally high archaeological potential (based on a quick review of the information provided, I would say that Alternative Route 1 covers less areas of high archaeological potential than Alternative Route 3). As such, the new alignment will need to be surveyed. And should it be discovered that the new route will impact other archaeological site(s) of significance, then the mitigation costs for these new sites could well balance out any savings of not impacting the Pipeline site. Consequently, I would suggest that Union Gas have their archaeological consultant examine the preferred alternative as soon as possible, to determine what archaeological resources are present and thus will require further mitigation costs. These findings may well have an impact on Union Gas's decision to select one alternative over another.

I trust that this is of some assistance. Please do not hesitate to contact me if you require further information.

Sincerely,

Neal Ferris
Regulatory & Operations
Southwestern Region, MCTR

cc. W. Wachsmuth, Union Gas

# APPENDIX B

# PUBLIC CONSULTATION

# APPENDIX B1

- UNION GAS LETTER TO LANDOWNERS

- STAKEHOLDER LIST

February 7, 2002

«FirstName»
«LastName»
«Address1»
«address2»
«Address3»
«City» «PostalCode»

«Attention»

**RE: NPS 48 Hamilton - Milton Pipeline Project**
File Number: «Filenumber»

Dear : «Salutation»

Recently Union Gas Limited has been reviewing our potential pipeline construction projects for 2003. As a result of this review, Union has proposed a schedule of 2003 for the construction of the NPS 48 (48 inch) Hamilton-Milton pipeline section. It is our intention to make a decision concerning the timing of an Ontario Energy Board "Leave to Construct" application for the project in the near future.

As a landowner along the Hamilton - Milton pipeline corridor, we hope you will join us for an Information Open House we have scheduled to provide update information about this project.

**Landowner Information Open House**

**Ella Foote Hall**
**6611 Panton Street**
**Kilbride, Ontario**

**Tuesday, March 5, 2002**
**From 5:00 p.m. to 9:00 p.m.**

In addition to representatives from the Pipeline Projects, Environmental Planning, and Lands departments of Union Gas, the open house will be attended by Acres and Associated Environmental Limited (Acres) of Niagara Falls, Ontario, the consultants retained to update the Environmental Study (EA) completed for the project in 1991. Acres will be on hand to answer specific questions you may have. Landowners unable to

attend the open house can contact Acres for further information by calling collect at 905-374-4470 or through e-mail at meec@niagarafalls.aae.on.ca

Subsequent to the open house, it is Union's hope that meetings with the landowners can be scheduled to obtain information about individual property concerns, and to explain the documents and compensation package related to the project.

We hope you will attend our open house. Of you are not able to join us, as always, we welcome your call: 1-800-571-8446 (Ext. 2449 - Joe VanHamme) or (Ext. 5403 - Bev Wilton).

Yours very truly,

UNION GAS LIMITED

B. (Bev) Wilton, Manager
Lands Department

cc: Joe VanHamme
Greg Payne

| FirstName | LastName | Address1 | Address2 | Address3 | City | PostalCode | Attention | Salutation | Filenumber |
|---|---|---|---|---|---|---|---|---|---|
| Pieternella Marina Dokter | | 57 Carlisle Road | RR #1 | | Freelton, Ontario | L0R 1K0 | | Mrs. Dokter | T4817-002 |
| Ivan Rufus Carl Jackson | Aino Jackson | 87 Carlisle Rd | | | Carlisle, Ontario | L0R 1H0 | | Mr. & Mrs. Jackson | T4817-003 |
| Louis Norbert Arsenault | Evelyn Margaret Arsenault | RR #1 | | | Freelton, Ontario | L0R 1K0 | | Mr. & Mrs. Arsenault | T4817-004 |
| Jose Fernandes | Charlotte Fernandes | RR #3 | | | Carlisle, Ontario | L0R 1H0 | | Mr. & Mrs. Fernandes | T4817-005 |
| Rodger Coulson | Teresa Coulson | Carlisle Post Office | | | Carlisle, Ontario | L0R 1H0 | | Mr. & Mrs. Coulson | T4817-006 |
| The City of Hamilton | | City Hall, | 71 Main St. W. | | Hamilton, Ontario | L8P 4Y5 | | Sir/Madam | T4817-007,-013 |
| Johannes Antonius Pittens | | RR #6 | | | Cambridge, Ontario | N1R 5S7 | | Mr. Pittens | T4817-008 |
| Johannes Antonius Pittens | Elizabeth Mary Pittens | RR #6 | | | Cambridge, Ontario | N1R 5S7 | | Mr. & Mrs. Pittens | T4817-009 |
| Catherine Elizabeth Kelly | | 194-10th Concession East | RR #1 | | Freelton, Ontario | L0R 1K0 | | Ms. Kelly | T4817-010 |
| Elizabeth Mary Pittens | | RR #6 | | | Cambridge, Ontario | N1R 5S7 | | Ms. Pittens | T4817-011 |
| Henry Sandink | Attie Sandink | 1559 Centre Road | RR #2 | | Hamilton, Ontario | L8N 2Z7 | | Mr. & Mrs. Sandink | T4817-012 |
| Marilyn Helen Bent | | Carlisle Post Office | | | Carlisle, Ontario | L0R 1H0 | | Ms. Bent | T4817-014 |

| FirstName | LastName | Address1 | Address2 | Address3 | City | PostalCode | Attention | Salutation | Filenumber |
|---|---|---|---|---|---|---|---|---|---|
| Verwey Construction Limited | Elliott Management Inc | Rosalind Marjorie Johnson | c/o 11 Sydenham Street | Box 8180 | Dundas, Ontario | L9H 5G1 | | Sir/Madam | T4817-015 |
| Maurice David Boyd | Natalie Jane Boyd | 6460 McNevin Court | | | Kilbride, Ontario | L0P 1G0 | | Mr. & Mrs. Boyd | T4817-016 |
| Maurice David Boyd | Susan Jane Algire | Carol Amanda Grubb | Robert David Boyd | 6460 McNiven Court | Kilbride, Ontario | L0P 1G0 | | Sir/Mada | T4817-017 |
| Lily Usik | Anne Usik | RR #1 | | | Freelton, Ontario | L0R 1K0 | | Ms. Usik | T4817-018 |
| Mary Ann Lazor | Andrew Lazor | 442-10th Concession Road East | RR #1 | | Freelton, Ontario | L0R 1K0 | | Mr. & Mrs. Lazor | T4817-018A |
| 832054 Ontario Inc | | Suite 33, 3455 Harvester Rd | | | Burlington, Ontario | L5H 2C3 | Victor Kidd, President | Mr. Kidd | T4817-019 |
| Lauretta Doreen Allen | | RR #1 | | | Freelton, Ontario | L0R 1K0 | | Ms. Allen | T4817-020 |
| Canadian Pacific Railway | CP Rail Properties Group | 40 University Ave, Suite 807 | | | Toronto, Ontario | M5J 1T1 | Mr. Kevin Anderson | Mr. Anderson | T4817-021 |
| Mandarich Investments Inc | 1370569 Ontario Inc | 8525 Mississayga Rd | | | Brampton, Ontario | L6V 3N2 | Dinko Mandarich, Manager | Mr. Mandarich | T4817-022 |
| Mandarich Investments | 1370569 Ontario Inc | 8525 Mississayga | | | Brampton, Ontario | L6V 3N2 | Eric McKnight | Mr. McKnight | T4817-022 |

| FirstName | LastName | Address1 | Address2 | Address3 | City | PostalCode | Attention | Salutation | Filenumber |
|---|---|---|---|---|---|---|---|---|---|
| Inc | | Rd | | | | | | | |
| Douglas Earl William | Marlene McKirdy | 01521 Milburough Line | | | Carlisle, Ontario | L0R 1H0 | | Mr. William & Ms. McKirdy | T4817-024 |
| Doreen Garner | George Charles Garner | 1094 Derry Road | RR #3 | | Campbellville, Ontario | L0P 1B0 | | Mr. & Mrs. Garner | T4817-026 |
| 1237529 Ontario Limited | | 181 5th Concession | | | Waterdown, Ontario | L0R 2H1 | | Sir/Madam | T4817-027 |
| The Corporation of the City of | Burlington | Box 5013, 426 Brant St. | | | Burlington, Ontario | L7R 3Z6 | Planning Department and Works Department | Sir/Madam | T4817-028, -036 |
| Karen Patricia Hewitt | | 6700 McNiven Road | | | Kilbride, Ontario | L0P 1G0 | | Ms. Hewitt | T4817-029 |
| Lillian Cohen | | 23 Yarmouth Ct | | | Hamilton, Ontario | L8S 3E2 | | Ms. Cohen | T4817-029A |
| John V. Lillycropp | | 6731 McNiven Road | | | Kilbride, Ontario | L0P 1G0 | | Mr. Lillycropp | T4817-031 |
| Peter Michael Bellm | Linda Laurie Bellm | 6711 McNiven Road | | | Kilbride, Ontario | L0P 1G0 | | Mr. & Mrs. Bellm | T4817-032 |
| Walter Urbankiewcz | Anne-Marie Urbaniewcz | 5057 Brady Ave. | | | Burlington, Ontario | L7L 3X5 | | Mr. & Mrs. Urbankiewcz | T4817-033 |
| Carmela Bonanno | | 2130 Derry Road | RR #3 | | Campbellville, Ontario | L0P 1B0 | | Ms Bonanno | T4817-034 |

| FirstName | LastName | Address1 | Address2 | Address3 | City | PostalCode | Attention | Salutation | Filenumber |
|---|---|---|---|---|---|---|---|---|---|
| Ingrid Sylvia Huisson | The Huisson Corporation 1992 | PO Box 1822 | Concession 5 | Mount Joy Township | Timmins, Ontario | P4N 7W9 | | Ms. Huisson | T4817-035 |
| The Regional Municipality of Halton | | PO Box 7000, 1151 Bronte Road | | | Oakville, Ontario | L6J 6E1 | Public Works Department | Sir/Madam | T4817-037, -040 |
| Gwyneth Owen McColl | | 6703 Twiss Road | RR #3 | | Campbellville, Ontario | L0P 1B0 | | Ms. McColl | T4817-038 |
| Anne Zweitse Bert Loopstra | Wilhelmina Cornelia Loopstra | 2576 Derry Rd | RR #3 | | Campbellville, Ontario | L0P 1B0 | | Mr. & Mrs. Loopstra | T4817-038-1 |
| James William Sherwood Coulson | Linda Louise Coulson | 2580 Derry Rd. | RR #3 | | Campbellville, Ontario | L0P 1B0 | | Mr. & Mrs. Coulson | T4817-038-2 |
| Alan Gordon | | 2584 Derry Rd. | RR #3 | | Campbellville, Ontario | L0P 1B0 | | Mr. Gordon | T4817-039 |
| Lewis Dobbie | Diane Dobbie | RR #2 | | | Milton, Ontario | L9T 2X6 | | Mr. & Mrs. Dobbie | T4817-039-1 |
| Arthur E. Ireland | Lillian G. Ireland | 6660 Guelph Line | RR #2 | | Milton, Ontario | L9T 2X6 | | Mr. & Mrs. Ireland | T4817-039-2 |
| Angona et al | c/o Mr. J. Perconti | 1287 St. Clair Av. W. | Unit 10, 2nd Floor | | Toronto, Ontario | M6E 1B8 | | Mr. Perconti | T4817-041 |
| Edward Logan Segsworth | Dianne Mary Segsworth | 6666 Walkers Line | RR #2 | | Milton, Ontario | L9T 2X6 | | Mr. & Mrs. Segsworth | T4817-043 |

| FirstName | LastName | Address1 | Address2 | Address3 | City | PostalCode | Attention | Salutation | Filenumber |
|---|---|---|---|---|---|---|---|---|---|
| Harold Francis Middlebrook | Elva Louise Middlebrook | 6669 Walkers Line | RR #2 | | Milton, Ontario | L9T 2X6 | | Mr. & Mrs. Middlebrook | T4817-045 |
| Limestone Hall Farms Limited | c/o G. Allan Burton | 68 Old Mill Road | | | Toronto, Ontario | N8X 1G8 | Janice Baker, President | Ms. Baker | T4817-047 |
| Paul Borcsok Sr., Paul Joseph Borcsok Jr. | John Peter Borcsok, Joseph Anthony Borscok, | Michael Leslie Borcsok, Stephen Jame Borcsok | 172 Dundas St. E. | | Mississauga, Ontario | L4X 1L5 | | Sirs | T4817-048 |
| Glenn Alexander Young | | RR #2 | 5274 Derry Road | | Milton, Ontario | L9T 2X6 | | Mr. Young | T4817-049 |
| Roy William Bousfield | | 5408 Derry Rd. | RR #2 | | Milton, Ontario | L9T 2X6 | | Mr. Bousfield | T4817-051 |
| Pasquale Mazza, Antonio Mazza | Carmen Mazza, Raffaela Rollo | RR #2 | 5524 Derry Rd. W. | | Milton, Ontario | L9T 2X6 | | Sirs | T4817-052 |
| Sidhu Agriculture Farm Inc | | 6740 Tremaine Rd | | | Milton, Ontario | L9T 2X6 | | Sir/Madam | T4814-053 |
| Milton Four Investments Limited | | 6554 Tremaine Rd | | | Milton, Ontario | L9T 2X6 | | Sir/Madam | T4817-053A |
| Eugene Archibald Lewis | | 669 Vermouth Ave | | | Mississauga, Ontario | L5A 3Y7 | | Mr. Lewis | T4817-055 |

| FirstName | LastName | Address1 | Address2 | Address3 | City | PostalCode | Attention | Salutation | Filenumber |
|---|---|---|---|---|---|---|---|---|---|
| Mary Biason | | RR #3 | | | Bolton, Ontario | L7E 5R9 | | Ms. Biason | T4817-055 |
| Canadian National Railway | | 277 Front St. W., Suite 920 | Engineering Services | | Toronto, Ontario | M5V 2X7 | Boris Koehler | Mr. Koehler | T4817-056 |
| Canadian National Railway | | 277 Front St. W., Suite 920 | Engineering Services | | Toronto, Ontario | M5V 2X7 | Manfred Scheitzer | Mr. Scheitzer | T4817-056 |
| Lily Usik | | 2037 Centre Road | RR #2 | | Hamilton, Ontario | L8N 2Z7 | | Mrs. Usik | T4817-017 |

# APPENDIX B2

## OPEN HOUSE INFORMATION

- Newspaper Notices
- Information Board Presentations
- Sign-in Sheets
- Questionnaire

# NEWSPAPER NOTICES

# Police union heads into final talks

## New city police officers working without a contract since 2000

By Megan Walchuk
• The Post

The Hamilton Police Board (PSB) and the Police Association are heading into the final day of arbitration today (Friday) to solve a long-standing contract dispute.

Hamilton's police officers have been without a contract since Dec. 31, 1999. At that time, negotiations, and wages, were frozen due to amalgamation. But even after the dust settled, the two sides were unable to see eye to eye.

Talks broke down last July when a provincial mediator felt the two sides were "too far apart," said Doug Allan, Administrator for the Hamilton Police Association.

Although a final proposed wage offer was adequate, the benefits package was below that of comparable boards,he added.

But the board felt they were being fair, according to PSB Chair Bernie Morelli.

He noted binding arbitration began Jan. 15. A decision will be made within 90 days.

Both sides are eager to settle the dispute fairly, and the association hopes their concerns will be met.

"We're looking for a fair wage settlement, and some improved benefits," said Allan, who added Hamilton is one of the only associations in Ontario working without a contract.

"Everyone else has settled," he said. "But there's no change in our position. We're not prepared to take something less."

Currently, a first class constable in Hamilton receives $56,883, compared to $62,000 in other forces, said Allan. Also, Hamilton's benefits package allows $50 less for vision coverage than that of the Peel service, and $300 for three years in hearing coverage, compared to $500 in Toronto.

But, according to the police board, regions like Peel are larger than Hamilton. After three years of delays, Morelli is eager to see a new contract emerge from the talks.

"The board is most anxious to see a settlement," he said, adding officers will receive the back pay due to them once the contract is settled.

Should presentations run long, a fourth arbitration hearing may be scheduled. But Morelli expects hearings to wrap up tonight.






### Hamilton to Milton Natural Gas Pipeline Environmental Assessment Update & Open House

Acres &Associated Environmental Limited (A&A) has been retained by Union Gas Limited (Union) to update an Environmental Assessment (EA) for a proposed 1219 mm (48 inch) natural gas pipeline. The original EA for this study was completed in 1991. The pipeline will begin at the Hamilton Valve Site (just east of Highway 6 and north of Carlisle Road, in the old Town of Flamborough) and proceed northeast to the Milton Tie-In (just to the west of First Line in the Town of Milton).

The EA update will accompany Union's application to the Ontario Energy Board (OEB) for approval to construct the proposed pipeline. Union plans to file an application with the OEB in the spring of 2002.

The purpose of this notice is to inform study area residents and interested parties that the EA study is being updated. A copy of the original EA, prepared in 1991, is available for review at the following locations:

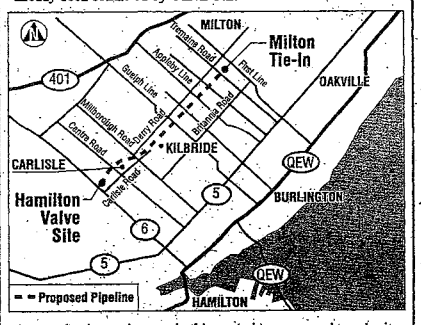
**Carlisle Library**
1496 Centre Road
Carlisle, ON
L0R 1H0
905-689-8769

**Kilbride Library**
6611 Panton Street
Kilbride, ON
L0P 1G0
905-335-4011

An **Open House** to explain the project, and present an opportunity for any interested parties to provide input, is being held at:

**Ella Foote Hall** (behind Kilbride Public School)
6611 Panton Street
Kilbride, ON
Tuesday, March 5th, 2002
5:00 pm - 9:00 pm

All landowners who will be directly affected by this project have already been contacted by Union Gas.




Anyone having an interest in this study is encouraged to submit their questions or comments to one of the following:

**Bruce Bennett**, Project Manager, or
**Cate Mee**, Project Co-ordinator
Acres & Associated Environmental Limited
4342 Queen Street, P.O. Box 1001,
Niagara Falls, ON, L2E 6W1

**Greg Payne**, Senior Environmental Planner
Union Gas Limited,
50 Keil Drive North,
Chatham, ON, N7M 5M1

# So, you want to put on a parade?

Being a member of the Flamborough Santa Claus Parade Committee has given me the behind the scene experience to know exactly what is involved in orchestrating a parade. And yet still I am amazed at the general publics' perception of exactly what is involved. So today, I have taken the opportunity to share with you exactly what is involved in putting on a parade.

Last year's spectacular event was held on November 24th, and by December 12th, we were right back at it... planning for the 2002 Light the Way for Santa Parade. By the time you have read this article, we will have completed our third meeting, one of at least 15 meetings held each year. The Committee consists of a dozen or so core volunteers, from Homemakers, to Youth Workers, to Financial Advisers. We are real people with real jobs and real families who find the time and dedication for an event we are all so passionate about.

In addition to regular meetings, the FSCPC must also coordinate fund-raising events. In 2001, we held only three events (Candy Cane Day, Car Wash, Murder Mystery Dinner) to help generate funding for last year's parade. The committee is extremely thankful to all of you who donated your time, your money, and your gifts in kind. Every cent counts towards making Flamborough's parade so spectacular.

By this time, applications have been submitted to the City of Hamilton for a grant request. Typically we receive $6,000 in grant funding (less than 20 per cent of last year's Parade costs) and must rely on fund-raising and donations to generate the remainder of capital required for the parade. Plaques are hand delivered to prize winners, who also receive a cash donation in their name to the Flamborough Food Bank. Customized plaques are delivered to our corporate sponsors in appreciation of their generous donations.

Editorials must be prepared, and advertising coordinated to raise awareness of the parade and our fund-raising events. The Bands are booked early in the year to ensure availability, and to allow the committee some time to research any new bands we might invite. By mid-summer, we begin the process of obtaining all necessary permits for road closures, and use of public facilities, while we ensure that our parade insurance coverage is adequate.

After a quick summer break it's full steam ahead. In September, participants from previous parades are contacted and are mailed the entrance contracts for this year's parade. The many rentals are booked, including garbage bins, port-o-potties, and two-way radios. Golf carts, flash lights, safety vests, and generators are also things we cannot do without.

By late October, the phones are ringing off the hook. How can I get in the parade? Do you know where I can rent a trailer? Luckily, our float coordinator is on top of things. Flat bed tractor trailers are arranged for those groups who are unable to arrange their own. All groups are assigned an entry number to help minimize the chaos amid the excitement of parade day.

So how can all of this cost over $30,000??? I'm so glad that you asked. Few people realize that the bands are not free. They are actually our largest expense, accounting for almost $13,000 of our total cost last year. Permits and insurance costs were approximately $2,000, while total advertising expenses (including newspaper and radio) were almost $9,000.

Our expenses continue to grow as each parade becomes more extravagant than the one before. In addition to those costs that I mentioned, are others including Police services, equipment rentals, and of course, supplies for Santa's sleigh.

This year's parade will be held on November 23rd, and while you might think it's a long time away, to us, its just around the corner. We have permits to file, fund-raisers to organize, and bands to review. But of course, we expect this year's parade to be bigger and better than the last.

Flamborough's parade has become known as the parade to be in! Last years event drew more than 30,000 spectators, almost 10,000 more than the year before. So, if every person were to donate just one Loonie to the Loonie Bin, we could ensure that the parade is an annual event.



Sincerely,

Rebecca Lamb 905-659-7865
Media Relations Coordinator
Flamborough Santa Claus Parade

*This message is brought to you in part by the Flamborough Post - The Official Media Sponsor of The Flamborough Santa Claus Parade*

# Proposed townhouse development faces oppositic

## *Neighbours raise health and safety concerns at committee meeting*

By RICHARD VIVIAN
*The Champion*

A six-unit townhouse development at 190 Bronte St. moved a step closer to construction Monday, despite calls of opposition from councillors and the public.

While some concerns were raised about fencing and garbage storage, the majority of opposition at the Milton planning and administration committee surrounded the property owner's management of a neighbouring building.

A pair of delegates told the committee of a slew of health and safety problems with John Prezeli's townhouse at 180 Bronte St., including regular flooding, fungus and general cost-cutting — allegations his spokesperson says are inappropriate.

"Our property value is sure to decline considering we will have six more poorly-maintained rental units beside us," said neighbouring property owner Kim Placido.

"The old block six-plex has no basement, is moldy and substandard."

Spokesperson for Mr. Prezeli, Dan Giampuzzi defenc management of the existing townhouse, telling The Champ Prezeli wasn't made aware of any such concerns.

"We've had people in those units (180 Bronte Street) th been there in excess of 11 years. Obviously they like living said Mr. Giampuzzi. "Clearly, if there's anything that need corrected, we're willing to do that."

In moving the motion to approve the development, Cou John Challinor directed town staff to investigate the safet cerns raised.

"There is a difficulty here in that the application clearly se the conditions of bylaws, town planning, etc. That initiative sense has a green light. What we're trying to do is pigg other issues," said Councillor Brian Penman of the comm efforts to include upgrades to the existing building in con tion of the proposed building.

"In providing direction, that's well and good, but I don' we have any teeth in ensuring that."

The committee approved the townhouse with holding prov surrounding approval requirements from Halton Region ar Rail, as the property sits along a CN line.

Fencing and garbage storage issues will be mitigated throu site plan process.

Town council must still address the matter before the proje move forward. It's expected to do so Monday.




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## Hamilton to Milton Natural Gas Pipeline Environmental Assessment Update & Open House

Acres &Associated Environmental Limited (A&A) has b retained by Union Gas Limited (Union) to update an [illegible]me Assessment (EA) for a proposed 1219 mm (48 in [illegible]l pipeline. The original EA for this study was com[illegible]1 The pipeline will begin at the Hamilton Valve Site [illegible]ast eas Highway 6 and north of Carlisle Road, in the old Towr Flamborough) and proceed northeast to the Milton Tie-In ( to the west of First Line in the Town of Milton).

The EA update will accompany Union's application to the Ont Energy Board (OEB) for approval to construct the propo pipeline. Union plans to file an application with the OEB in spring of 2002.

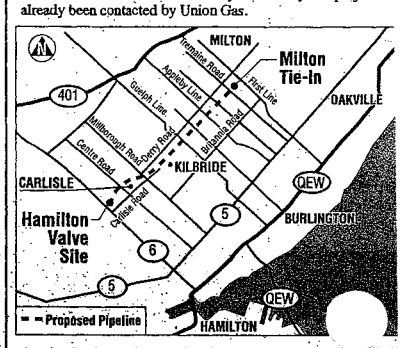
The purpose of this notice is to inform study area residents interested parties that the EA study is being updated. A cop the original EA, prepared in 1991, is available for review at following locations:

| | |
|---|---|
| **Carlisle Library** | **Kilbride Library** |
| 1496 Centre Road | 6611 Panton Street |
| Carlisle, ON | Kilbride, ON |
| L0R 1H0 | L0P 1G0 |
| 905-689-8769 | 905-335-4011 |

An **Open House** to explain the project, and present an opportunity fo any interested parties to provide input, is being held at:

**Ella Foote Hall** (behind Kilbride Public School)
**6611 Panton Street**
**Kilbride, ON**
**Tuesday, March 5th, 2002**
**5:00 pm - 9:00 pm**

All landowners who will be directly affected by this project ha already been contacted by Union Gas.




Anyone having an interest in this study is encouraged to submi their questions or comments to one of the following:

| | |
|---|---|
| **Bruce Bennett**, Project Manager, or | **Greg Payne**, Senior Environmental |
| **Cate Mee**, Project Co-ordinator | Planner |
| Acres & Associated Environmental Limited | Union Gas Limited, |
| 4342 Queen Street, P.O. Box 1001, | 50 Keil Drive North, |
| Niagara Falls, ON, L2E 6W1 | Chatham, ON, N7M 5M1 |

***FIT FOR HEART*** • Exclusively Women's Fitness Centre is inviting the public to "commit to get fit for a healthy heart." That's the theme for the centre's annual *Fit For Heart Aerobathon* to be held tomorrow (Saturday) between 1-4 p.m. Members of the public are welcome to participate and make a donation for the Heart and Stroke Foundation. The centre is located in the Burlington Square building, 760 Brant St. Phone 905-634-6767.


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## Hamilton to Milton Natural Gas Pipeline Environmental Assessment Update & Open House

Acres &Associated Environmental Limited (A&A) has been retained by Union Gas Limited (Union) to update an Environmental Assessment (EA) for a proposed 1219 mm (48 inch) natural gas pipeline. The original EA for this study was completed in 1991. The pipeline will begin at the Hamilton Valve Site (just east of Highway 6 and north of Carlisle Road, in the old Town of Flamborough) and proceed northeast to the Milton Tie-In (just to the west of First Line in the Town of Milton).

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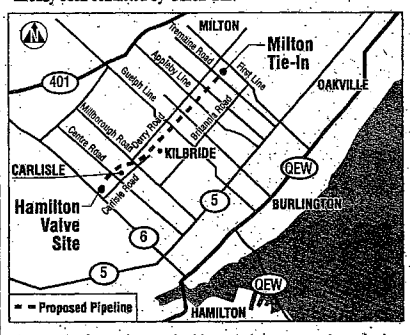
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**Carie Mee**, Project Co-ordinator
Acres & Associated Environmental Limited
4342 Queen Street, P.O. Box 1001,
Niagara Falls, ON, L2E 6W1

**Greg Payne**, Senior Environmental Planner
Union Gas Limited,
50 Keil Drive North,
Chatham, ON, N7M 5M1

# *Ellis' replacement to be appointed board decides*

**BY TIM WHITNELL**
• Burlington Post

Halton public school trustees have accepted the resignation of one of their own and decided to fill the vacancy via appointment.

In a 9-0 vote trustees agreed to accept a letter of resignation from Burlington's Ward 1 representative, Michael Ellis, at Wednesday's Halton District School Board meeting.

Burlington trustee Peggy Russell was not in the room at the time of the vote.

Whether or not Ellis' departure was palatable to the majority of the board was not in question — he has been absent from most board meetings for the past five months, for medical reasons — but the mechanism to be used to replace him wasn't so clear cut.

A philosophical debate ensued about the merits of appointing his replacement or ordering a byelection within the 60 days allotted under the *Education Act* to fill a trustee vacancy.

In the end, the appointment route was accepted in an 8-2 vote with only Russell and Oakville's Drew Currah dissenting.

Board chair Ethel Gardiner, herself a byelection winner in 1995 to replace former board chair Dave Whiting, said a couple of factors, including lack of money and poor voter turnout for the last trustee byelection, convinced her an appointment is the way to go this time.

On an inquiry from Milton trustee Erica Andrew, Education Director Dusty Papke told the board about $81,000 had been spent on an independent investigation and legal fees last year. The audit was performed after allegations by Ellis of improper procedures by the board relating to several policy and public issues. The board was later cleared of any wrongdoing.

Those legal fees, plus a looming $2-million-plus board deficit this year, and the cost of a byelection to be footed by the board, was enough to convince most trustees to appoint Ellis' replacement.

"With $81,000 wasted and a needs budget coming out next week (at public meetings around the region) we cannot afford a byelection," said Burlington trustee Debbie Downs.

Papke estimated the cost of a byelection at $50,000-$60,000 and noted the board does not have that much in its reserve fund.

Currah, though, reminded his colleagues that, "The board voted for a forensic audit."

Russell disagreed with the appointment decision on principle.

"How do we put a price on democracy? This board has a history of byelections," said Russell, alluding to board chair Gardiner and former Oakville trustee Lynn Roberts, both of whom came to the board via that route.

However, Roberts' case was used as an example by some trustees as a reason why not to hold a byelection this time.

Papke said only four per cent of voters participated in the mid-1998 byelection won by Roberts to replace the outgoing Mary Dempster.

"Summer may have contributed to that (low turnout) but, historically, there's been small numbers" for byelections, Gardiner later said.

See WANT • Page 12


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# INFORMATION BOARD PRESENTATIONS
# (Also Included Figures 2 to 6)

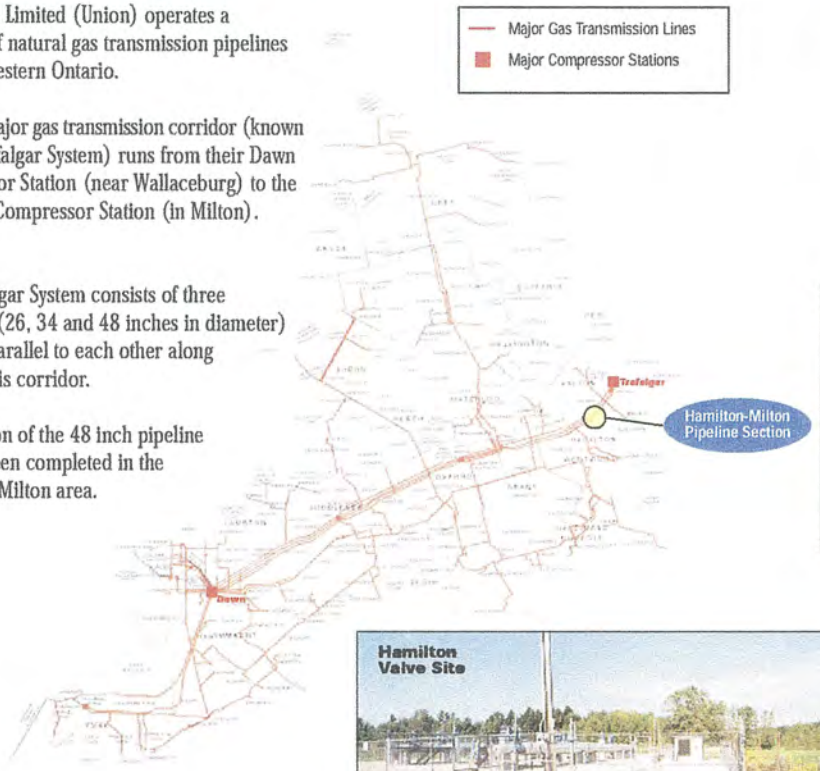
## Union Gas' Pipeline System

Union Gas Limited (Union) operates a number of natural gas transmission pipelines in southwestern Ontario.

Union's major gas transmission corridor (known as the Trafalgar System) runs from their Dawn Compressor Station (near Wallaceburg) to the Trafalgar Compressor Station (in Milton).

The Trafalgar System consists of three pipelines (26, 34 and 48 inches in diameter) running parallel to each other along most of this corridor.

One section of the 48 inch pipeline has not been completed in the Hamilton-Milton area.




## Hamilton to Milton Natural Gas Pipeline Project

Union proposes to complete the Trafalgar pipeline system by constructing and operating a 48 inch diameter pipeline from their Hamilton Valve Site (just east of Highway 6 and north of Carlisle Road) to the Milton Tie-In (just west of First Line and south of Derry Road).

The pipeline will be approximately 17 km in length.

It is proposed to construct the pipeline adjacent to the existing two pipelines except in the Carlisle area where there is no longer sufficient space.













Acres & Associated

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## Project Background

Union retained Acres International Limited (Acres) in 1989 to conduct a Route Selection Study and Environmental Assessment for the proposed Hamilton to Milton Pipeline.

Extensive public and agency consultation was held in 1990/91, with public meetings on April 30, 1990 and January 8, 1991.

The preferred pipeline route was selected after the second public meeting.

April, 1991, Acres submitted their Environmental Assessment Report to the Ontario Pipeline Coordinating Committee (OPCC) and landowners. The purpose of the OPCC is to coordinate the Ontario government review of projects such as this one.

Comments were received from the OPCC and landowners, and minor fine tuning of the preferred route was undertaken to address landowner and agency issues (1991/92).

The project was postponed in 1993 as a result of changes in natural gas demand.

**Lowville Valve Site**
Just east of Guelph Line - the only above ground structure along the pipeline route east of the Hamilton Valve site.



## Update Project

Due to changing conditions, Union determined the need to reactivate the Hamilton to Milton project in Fall 2001. Union retained Acres & Associated Environmental Limited (A&A), the environmental affiliated company of Acres, to update the original environmental assessment report.

The present project includes the following:

- confirm the accuracy of the information presented in the previous report;
- determine whether there any changes to the land uses along the proposed pipeline route which would require changes in the alignment;
- consult with directly affect landowners and the general public to ensure that all are aware of the project and any issues can be addressed;
- consult with all local agencies (provincial and municipal) for any additional/updated information/comments in the last 10 years
- using the new information, fine tune the preferred route location, and review the potential impacts and proposed mitigation requirements;
- prepare a supplementary report to update the Acres 1991 EA document to meet new Ontario Energy Board 1995 Guidelines for the Location, Construction and Operation of Hydrocarbon Pipeline Facilities in Ontario (The Energy Board is the agency which regulates the gas industry in Ontario).

**Existing Pipeline Route**
Looking west from Twids Road marker indicating location of the existing pipeline.




Acres & Associated

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## Schedule

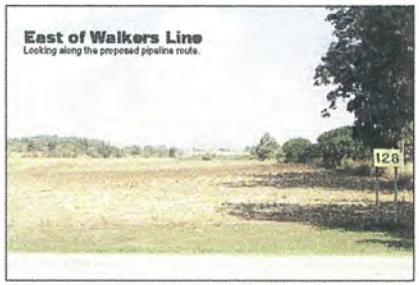
The following is the anticipated schedule for this project:

**Late Spring 2002 - Union files 'Leave to Construct' application with the Ontario Energy Board (OEB)**

**Fall 2002 - OEB hearings to determine need and viability of the pipeline (the public can attend these hearings and present submissions)**

**Winter 2002 - OEB approval to construct**

**Summer 2003 -construction of pipeline.**







## Public Participation

The purpose of this open house is to:

- provide updated information to the public on the proposed project
- provide an opportunity for affected landowners and the general public to discuss the project with representatives of Union Gas and their environmental consultants
- receive input from affected landowners and the general public regarding any issues to be addressed

If you wish to discuss the project privately, we will be happy to meet with you at a convenient time. Please fill out the **EXIT QUESTIONNAIRE** before you leave.




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1



2



3



4

**Figure B.1**
**Union Gas Limited**
**NPS 48 Hamilton to Milton**
**Open House Photographs**

# SIGN-IN SHEETS

# Please Sign In

**Union Gas**

**Hamilton to Milton Natural Gas Pipeline**

**Public Open House**

**March 5, 2002**

| Name | Mailing Address | Phone |
|---|---|---|
| Karen Hewitt | Box 586 6700 McNiven Rd Kilbride LOP 1G0 | 905-336-9054 |
| Bill MacLeod | 233 Simmons Dr. Burlington | 905 333-3590 |
| Richard Hall | 7207 Twiss Rd RR3 Campbellville | 905 878 7915 |
| BERT LOOPSTRA | 2576 DERRY RD. R.R.3 CAMPBELLVILLE LOP 1B0 | 905 3354910 |
| JIM DEMPSEY | CITY OF BURLINGTON CITY HALL | 905 8153338 |
| MARY LAZOR | 442 10TH CONC E. FREELTON | 905-659-0193 |
| Glenn Young | 5274 Derry Rd Milton ONT L9T2K6 | 905 319 2338 |
| Ross Douglas. | Representing Islay Farm | (905) 335 7093 |
| Frank Varga | 41 Clarinda Dr TOR. M2K 2W4 | 416 733-8155 |
| L. Usik | 2037 Centre Rd RR2 HAMILTON L8N 2Z7 | 659 1377 |
| LEW DOBBIE | 6700 Guelph Line | 3362563 |
| PETER BELLM | 6711 McNIVEN ROAD | 335-5845 |
| IVAN JACKSON | 87 CARLISLE Rd 905 | 689 5125 |
| S KAYLOR | 1200 DERRY RD CAMPBELLVILLE | 905 331-0059 |

# Please Sign In

**Union Gas**

**Hamilton to Milton Natural Gas Pipeline**

**Public Open House**

**March 5, 2002**

| Name | Mailing Address | Phone |
|---|---|---|
| Lisa McLean | RR3 2491 Derry Rd | 693-9094 |
| John Tollyapp | 6731 McNiven Rd | 335-7028 |
| Reg Bent | 1566 Centre Rd | 689-5623 |
| Segsworth | Walker's Line | |
| Mark Segsworth | 6666 WALKERS LINE | 336-6521 |
| M E Middlebrook | 6669 walkers Line | 335-9246 |
| Mary Brason | 9229 Healey Rd RR3 Bolton | 857-2565 |
| Scott Purdsock | 79 Wildwood Rd Georgetown | 877-0882 |
| Mark Venney | P.O. Box 73 Carlisle On L0R 1H0 | 905 659 7572 |
| [illegible] | 5408 DERRY Rd MILTON L9T 2X6 | 905 878 6355 |
| ANDREW COSTLEY | IROQUOIA BRUCE TRAIL CLUB 1013 FALGARWOOD DR, OAKVILLE L6H 1N7 | 905 845 8427 |
| George Bobovinac | 6634 McNiven Rd | 905 332 5633 |
| Patrick Hewitt | 6700 McNiven Rd | 9/336.9054 |
| | | |

# QUESTIONNAIRE

# Hamilton to Milton Pipeline Project
# Environmental Report Update
# EXIT QUESTIONNAIRE

**Public Open House**
**March 5, 2002**

1. Do you own property on the proposed pipeline route? Yes ___ No ___
   If not, do you own property adjacent to the proposed route? Yes ___ No ___

2. Do you have any specific concerns related to your property? Yes ___ No ___

   _____
   _____
   _____
   _____

3. Do you have any other concerns? Yes ___ No ___

   _____
   _____
   _____
   _____

4. If you would like a representative of Acres & Associated or Union Gas to meet with you for private discussions, please provide your name, address and telephone number, so we can contact you to discuss these concerns:

   _____
   _____
   _____
   _____
   _____
   _____

5. Additional comments or suggestions. Please use reverse side, if more space is required_____

   _____
   _____
   _____
   _____
   _____

*Thank you for your time and suggestions*

**Under the Freedom of Information Act, the information collected here could become part of the public record and will be available to anyone who requests this information. If parts or all of your questionnaire should not become part of the public record, please indicate by signing below that you wish to have your replies kept confidential.**

*Signature:* _____

# APPENDIX C

# CONSERVATION HALTON
# BRONTE CREEK
# WATERSHED STUDY INFORMATION

## Table C1
## Bronte Creek Watershed Study
## Regeneration Actions Along Proposed Pipeline Route - Potential Impacts and Proposed Mitigation

| Location/ Stream Course | Health of Aquatic Ecosystem[1] | Restoration Opportunities[2] | Proposed Regeneration Actions | | | Potential Impacts | Mitigation |
|---|---|---|---|---|---|---|---|
| | | | Buffer Strips and Reforestation | Stream Morphology, Fish/Wildlife | Water Quality/ Water Quantity | | |
| Old Courtcliffe Park Mountsberg Creek and Bronte Creek | Extensive channel alteration produced poor aquatic health | Project opportunity on public lands by local community initiative | - Rehabilitate riparian habitat<br>- Enhance forest community<br>- Interpretative signage | - Improve cool water fishery habitat and structure<br>- Improve stream morphology (removal of additional channels, reinstate meanders)<br>- Enhance wildlife habitat | - Improve thermal regime by reinstating riparian buffers<br>- Remove on-line ponds to improve base flow and temperature | - Conflict with restoration of riparian habitat plan<br>- Restoration of meanders conflict with depth of existing and proposed pipeline | - Work with community group to schedule rehabilitation work at similar time to pipeline construction.<br>- Meander construction to be developed with due consideration to required pipeline cover.<br>- Planting materials for bank rehabilitation consistent with Watershed Study requirements. |
| Flamboro Creek (at Progreston North Swamp ESA, Class IV wetland) | Cool water stream with high aquatic health | | - No specific regeneration actions identified for this section of Flamboro Creek.<br>- Area designated as an ecological linkage between Progeston North Swamp to north and Bronte Creek Ravine to south. | | | - Removal of riparian cover during pipeline installation could lead to degradation of health of aquatic ecosystem and loss of some linkage capabilities. | - Work with CA to ensure replanting with suitable native shrubs along stream banks. |

## Table C1
## Bronte Creek Watershed Study
## Regeneration Actions Along Proposed Pipeline Route - Potential Impacts and Proposed Mitigation

| Location/ Stream Course | Health of Aquatic Ecosystem[1] | Restoration Opportunities[2] | Proposed Regeneration Actions | | | Potential Impacts | Mitigation |
|---|---|---|---|---|---|---|---|
| | | | Buffer Strips and Reforestation | Stream Morphology, Fish/Wildlife | Water Quality/ Water Quantity | | |
| Kilbride Creek | Cool water stream with high aquatic health | | - No specific regeneration actions identified for this section of Kilbride Creek.<br>- Area is within an ecological linkage zone with linkage enhancement opportunities available. | | | - Removal of riparian cover during pipeline installation could lead to degradation of health of aquatic ecosystem and lower linkage capabilities.<br>- Loss of pool and riffle features within stream. | - Work with CA to ensure replanting with suitable native shrubs along stream banks.<br>- Restoration/ enhancement of stream morphology to be developed in discussion with CA. |
| Limestone Creek Main Branch (ecological linkage opportunity) | Cool water stream of moderate aquatic health | Stewardship opportunities for local landowners | - Generally reestablish riparian habitat to maintain/ enhance fish habitat and improve linkages<br>- Protect existing forest habitat and reforest where opportunities exist. | | - Improve thermal regime through re-establishment of riparian buffers. | - Conflict with restoration of riparian habitat plan. | - Work with CA to coordinate regeneration actions to improve riparian cover. |

## Table C1
## Bronte Creek Watershed Study
## Regeneration Actions Along Proposed Pipeline Route - Potential Impacts and Proposed Mitigation

| Location/ Stream Course | Health of Aquatic Ecosystem[1] | Restoration Opportunities[2] | Proposed Regeneration Actions | | | Potential Impacts | Mitigation |
|---|---|---|---|---|---|---|---|
| | | | Buffer Strips and Reforestation | Stream Morphology, Fish/Wildlife | Water Quality/ Water Quantity | | |
| Indian Creek (all stream crossings east of Appleby Line are tributaries of Indian Creek) | Poor aquatic health | Stewardship Opportunities | - Reestablish riparian habitat<br>- Enhance/ re-establish linkages between forest blocks/and creeks | - Examine opportunities to improve stream morphology<br>- Improve fish habitat through use of riparian buffers | - Improve thermal regime and control sedimentation and nutrient loading through riparian buffers | - Conflict with restoration of riparian habitat plan<br>- Conflict with improvements in stream morphology | - Work with CA to co-ordinate regeneration actions to improve riparian cover.<br>- Work with CA to improve stream morphology, ensure pipe depth meets future stream morphology requirements. |
| | | Milton Phase 2 Urban Expansion | - Reestablish riparian habitat<br>- Increase forest habitat<br>- Increase corridors and linkages<br>- Create trail system along creek blocks | - As part of urban expansion, creeks to be protected in a publically owned creek block<br>- Improve stream morphology<br>- Improve fish habitat by reestablishing riparian buffers | - Improve thermal regime through riparian buffers<br>- Implement storm water management for both quality and quantity (flooding and erosion) and protection of downstream morphology | - Conflict with creek block restoration plan | - Work with CA and Town of Milton to ensure pipeline depth adequate to meet creek improvement requirements.<br>- Incorporate pipeline route into urban green space/linkage plans. |

1. Aquatic ecosystem health was defined as high, moderate or poor on a reach by reach basis through an assessment of the following parameters: water quality, benthic community, fish community, instream temperature regime, instream habitat and riparian cover. Conservation Halton, 2002 Appendix 3.

2. Restoration Opportunities defined as: Stewardship Opportunities to be implemented on private properties: Project Opportunities to be implemented on public lands (Conservation Halton, 2002).

# APPENDIX D

# UNION GAS ENVIRONMENTAL MANAGEMENT MANUAL

# ENVIRONMENTAL MANAGEMENT MANUAL



uniongas

# EH&S & Sustainable Development

## Environmental, Health And Safety Policy Statement

As an integrated energy delivery company, Union Gas Limited is committed to maintaining public and employee health and safety, and protecting the environment throughout all phases and locations of operations and construction activities.

*In meeting this commitment, Union Gas is guided by the following key principles:*

### Sustainable Development

Environmental, social and economic issues will be considered during the processes of planning, construction and operations to ensure that the environment and human needs are supported both in the present and for future generations.

### Environment, Health, and Safety

Environmental protection, health, and safety are considered to be both corporate and personal responsibilities for Union Gas and its employees. It is our firm belief that environment, health and safety incidents can be prevented.

*Further to these principles Union Gas will continuously develop and improve its environment, health and safety management system. The management system will be used to ensure policies, programs and procedures are consistently followed. It is also used as a framework to annually set and review objectives and targets and, at a minimum, will include the following elements:*

**Hazard Recognition and Control: Establish** programs to identify, prioritize, manage and eliminate work place hazards and adverse environmental impacts.

**Policies and Procedures:** Develop, maintain and implement corporate policies and procedures that promote health, safety and environmental protection.

**Compliance:** Maintain and communicate a current understanding of applicable environment, health and safety legislation, and corporate and industry standards, policies and procedures, and comply with, or exceed, these requirements.

**Employee Training:** Provide training to employees regarding their environment, health and safety responsibilities, in response to identified risks.

**Communication:** Maintain regular communications and consultations with employees, government agencies and the public on environment, health, and safety issues, which includes making this policy available to the public.

**Regulatory Consultation:** Consult with government agencies to provide input into environment, health, and safety legislation and policy.

**Pollution Prevention:** Establish programs to prevent, minimize and mitigate adverse effects of operations and construction activities on the environment and local communities.

**Emergency Response:** Prepare for, and respond to, emergencies in a timely and effective manner that protects human health and safety and mitigates any environmental damage.

**Efficiency:** Use energy and resources efficiently and effectively.
Waste Management: Manage wastes in a safe and efficient manner, and reduce, reuse and recycle materials where feasible.

**Research:** Support research to enhance health, safety, and environmental protection.

**Contractor and Supplier Management:** Establish programs to ensure that contractors and suppliers meet applicable environment, health and safety legislation.

**Monitoring and Measuring:** Monitor and measure the achievement of objectives and targets, and programs to manage environment, health and safety impacts and regulatory compliance of company activities.

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# ENVIRONMENTAL MANAGEMENT MANUAL

## 1.0 INTRODUCTION

This manual will describe the policies, practices and procedures that Union Gas follows during the planning, construction, operation, maintenance and abandonment of pipelines within the Union Gas system.

Union Gas (Union) is a member of the Westcoast Energy Inc. (Westcoast) group of companies. Union is a major Ontario corporation and a leader in the natural gas industry. With headquarters in Chatham, Union's interests include: natural gas pipelines, storage, distribution, transmission and other related natural gas services.

Union Gas is committed to environmental protection throughout all phases of its operations. For the Company and its employees, environmental protection is a corporate and personal responsibility.

This document outlines Union's commitment to environmental protection on all pipeline projects. This Manual provides:

- a framework for planning and implementing the environmental management programs;
- a guide for governments and regulatory agencies to Union's environmental management system, programs and commitments;
- a guide for landowners, the public and employees; and
- a foundation for advancing management and employee environmental awareness.

The Manual consists of four sections: Consultation; Planning; Construction, Operations and Abandonment; and Monitoring. Each section provides a general summary of the activities that may take place during the development of a pipeline to ensure environmental protection.

This Environmental Management Manual is based on Westcoast's Environmental, Health, and Safety Policy Statement, which can be found on the inside front cover. Specific details of how these statements will be met are addressed in Environmental Reports, Construction Specifications, Operating Policies and Procedures, the Environmental Inspection Manual, as well as other documents as they are developed. Consultation with affected parties will be encouraged and will take place throughout the Planning, Construction, Operations and Abandonment, and Monitoring phases of the Project.

### 1.1 Environmental Management System

Union will protect the environment by employing an Environmental Management System (EMS). An EMS systematically tracks all activities that have the potential to affect the environment. Documentation and regular reporting of results will provide assurances that environmental and health and safety issues are being addressed.

## 2.0 THE CONSULTATION PROCESS

Union recognizes the significance and value of early, frequent and meaningful public consultation on any project plans and activities. The primary purpose of consulting with various groups, agencies and individuals is to establish a dialogue concerning the project and it's potential environmental and socio-economic impacts. It strives to ensure that the Project Team is informed and understands public concerns and issues. The consultation process

provides the Project Team with the ability to consider public concerns and issues while making decisions regarding the project. Consultation will continue throughout the development and operation of any pipeline project.

The pipeline consultation program may incorporate the following measures:

- Newspaper notices and Newsletters;
- A Toll Free phone number;
- Individual Mailouts
- Public Meetings and Open Houses;
- Questionnaires;
- Individual and group meetings; and
- Landowner relation programs.

## 2.1 Public Consultation

For Transmission Pipelines, Union will begin the public consultation program with a series of Public Notices being placed in local newspapers to announce the project. The second phase of the public consultation program will involve a series of public meetings that show the study area and potential route alternatives for the proposed pipeline. Phase three of the public consultation program also involves a series of public meetings, at which time the preliminary preferred route for the pipeline will be shown. The final phase of public consultation will involve the review of the environmental report. For smaller projects, Phases 1, 2, and 3 may be combined.

All public meetings will be advertised in local newspapers. As well, all landowners along the alternative and preferred routes will receive notification of the public meetings.

At the public meetings, newsletters or fact sheets that explain the purpose and objectives of the meetings may be distributed. Newsletters will also be mailed to people who attended previous public meetings.

For small distribution projects, Union will contact all landowners along the pipeline route.

Beyond the Environmental Public Open Houses, the Project Team will maintain dialogue with the public and landowners. These discussions may include individual or group meetings to discuss various aspects of the Project.

## 2.2 Government and Agency Relations

Government agencies are important stakeholders in all pipeline projects. Their input helps make decisions about where to locate facilities and how to avoid and/or mitigate any impacts.

Federal and provincial agencies may be involved with a pipeline project from the earliest stages. Ontario government ministries, agencies and local municipalities also provide baseline environmental and socio-economic data for the project.

Ongoing consultation by Union will ensure that the views and preferences of the agencies are factored into the decision-making process during the planning of a project. Union is committed to continued consultation with relevant agencies throughout the life of the project including construction, operations, maintenance and the decommissioning or abandonment of the facilities.

## 2.3 Relations with First Nations

For many years, Union Gas and Westcoast Energy have worked extensively with First Nations in all parts of Canada. The Company recognizes and respects traditional aboriginal ways of life, customs and expectations. First

Nation communities near project locations will be consulted during all phases of any Projects.

### 2.4 Non-Government Organization (NGO) Relations

NGOs such as the Ontario Federation of Anglers and Hunters (OFAH) and the Ontario Federation of Agriculture (OFA) have been and will continue to be encouraged to participate in all pipeline projects. Their unique perspectives facilitate better decision-making.

### 2.5 Landowner Relations

Many pipeline projects may occupy privately owned land. Union has found that cooperation from those landowners, whether private individuals, corporations or government agencies, must be earned through the actions of the project and Company employees.

The goal of Union is to build positive relationships based on mutual respect and trust. Union will do this by:

- negotiating for land rights in a fair and equitable manner;
- listening and responding to the unique needs and concerns of each landowner while fostering their understanding of the needs, intentions and the public interest served by Project activities;
- respecting the property of others including timely restoration of lands and compensation for damages;
- having Company representatives available to landowners to discuss issues and concerns;
- being courteous when working with landowners;
- being proactive to ensure that the pipeline project facilities are safely and rationally integrated into existing and planned land uses with as little disruption as possible;
- initiating a formal complaint tracking process to ensure timely resolution of complaints or issues;
- following through on commitments given to landowners;
- mitigation and protection of environmental features; and
- minimizing social impacts.

The consultation process will encourage individual and collective participation by landowners and their representatives. This will ensure that their concerns are addressed. There will be ongoing consultation and dialogue with all parties throughout the planning, construction and operations stages of any project.

## 3.0 PLANNING

Environmental planning strives towards protecting the environment by establishing policies, programs and actions in consideration of physical, biological, cultural and socio-economic values. The environmental goals and objectives are set out in the Company's Environmental Policy Statement.

### 3.1 Environmental Report

An Environmental Report is prepared for major pipeline projects. The specific requirements for the Environmental Report are taken from the appropriate governmental agency, such as the Ontario Energy Board (OEB), or the Canadian Environmental Assessment Association (CEAA). An Environmental Report is normally not completed for small distribution projects. Environmental concerns met on these projects are managed using site specific mitigation

measures or Unions standard construction specifications.

Environmental Reports will provide details on locating and developing of the facilities. The Report will also enable consultation with agencies and the public, in assessing potential environmental impacts, and developing mitigation measures and monitoring plans.

All pipeline projects undergo a standard environmental screening program.

For large projects, a 'Terms of Reference' for the Environmental Report will be prepared. The Terms of Reference may be available for review at public meetings. The document outlines the information to be contained in the Environmental Report

The first step in preparing the Environmental Report is to establish a study area. Then, based on information obtained, alternative routes will be identified. Significant environmental, technical and land use features are mapped. These features are then presented to the public as "constraints" during Environmental Public Open Houses.

Following the Open Houses, a "preliminary preferred" route is identified. This route is also presented to the public during a second Environmental Public Open House.

For smaller projects there may be one open house, at which time the constraint maps and the alternate and preferred route are shown.

Comments from the public, agencies and other groups, as well as a review of environmental and technical features in the field, will be used to finalize the location of the preferred route. Once a preferred pipeline route has been finalized, an assessment of the potential impacts of constructing and operating facilities in this route will be conducted. Measures to minimize and avoid impacts to the environment will also be developed.

In summary, the Environmental Report is a detailed study. It will outline the pipeline route selection process, including a detailed inventory of features along the preferred pipeline route, as well as a description of anticipated impacts and mitigation measures to minimize environmental impact. Additional recommendations to ensure the project is managed in an environmentally responsible manner and a record of the public consultation process will also be included.

### 3.2 Facilities Routing and Siting

The routing of pipeline projects and the placement of the required facilities is an important step in Union's commitment to protecting the environment.

In locating the facilities, accepted environmental protection principles are followed. Wherever possible, any environmentally sensitive or "constraint" features are avoided.

When mitigation is not possible, compensation for unavoidable impacts will also be considered by Union. An example of compensation is the "no net loss" principle followed for fisheries protection. Other areas of fish habitat will be enhanced or created in the event fish habitat is lost.

### 3.3 Regulatory Overview

Regulatory Agencies, such as the OEB and the Canadian Environmental Assessment Agency (CEEA), may have regulatory responsibilities relating to Union Gas pipeline projects. An OEB hearing may be held following the completion of the Environmental Report, for Transmission Pipelines and Franchise And Certificate Applications. The hearing process is public and accessible to all concerned parties.

### 3.4 Environmental Screening

When acquiring land or easements, Union will conduct environmental screenings to assess any potential for disturbing existing environmental contamination before completing the transaction. The screenings will:

- identify previously contaminated land;
- identify potential hazards to on-site employees; and
- determine the need for further site investigation.

Screening will ensure appropriate and effective management of potentially contaminated lands.

## 4.0 CONSTRUCTION, OPERATIONS AND ABANDONMENT

Union will ensure that environmental commitments are implemented throughout construction, operations and abandonment. Union will provide avenues for communication and information. Union will also detail the roles and responsibilities of everyone involved in the development and operations of the pipeline facilities. The management structure will track environmental commitments from "cradle to grave."

Construction or operations and maintenance activities will be conducted using specialized techniques to avoid impacts on features such as fisheries. For example, dry crossing techniques can be used to install the pipeline across a watercourse. These techniques minimize the transport of sediment downstream which can affect fish and fish habitat.

Where routing, siting or scheduling changes are not possible to avoid an environmental feature, Union will use special construction techniques to minimize environmental impacts. Because of its length, a pipeline may cross a variety of environmental features. These features will be identified by both Federal and Provincial government agencies as well as municipalities, non-government oganizations and landowners. This information will be used to develop and apply appropriate environmental protection measures.

This section of the Manual generally describes how the effects on environmental features will be minimized during the construction and operation of a pipeline project. Specific details can be found in the Construction and Maintenance Manual, and the Environmental Report.

### 4.1 Socio-Economic Features

Construction may have potential impacts to the following, including: noise, dust, inconvenience, public safety, local business and recreational activities. These impacts will be addressed during construction and operations. Industry standards and proven construction techniques will minimize impacts. They include:

- minimizing local inconvenience by consulting with local residents and businesses;
- maintaining contact with local residents and directly affected landowners;
- reducing dust by watering or other suppression techniques; and
- implementing standard traffic and public safety procedures, including pre-construction notification, signs and site fencing.

There are also a number of potential economic benefits during construction. These may include:

- employment of local labour to the extent possible;

- purchase of local supplies by contractors; and
- use of local hotels and restaurants by the construction work force.

### 4.2 Agricultural Features

Productive agricultural lands may be crossed by pipeline construction. Union will minimize impacts to agricultural soils and operations using a number of proven techniques. These include:

- consulting with individual farm operators to identify issues and limit disturbance of farm operations;
- stop work on wet soils to reduce compaction and mixing of agricultural soils;
- removing and replacing topsoil in agricultural areas to minimize soil rutting and mixing;
- surveying drainage systems before construction and hiring local tile contractors to repair damaged tiles;
- implementing a pre-construction tile program when required or appropriate;
- utilizing temporary fencing;
- assessing and mitigating compaction; and
- monitoring after construction to determine restoration success.

### 4.3 Environmentally Sensitive Areas and Wildlife Habitats

Union will implement a number of measures to protect environmentally sensitive areas such as wetlands. The objective is to preserve biodiversity and significant ecosystems. In addition, Union will implement wildlife habitat protection measures throughout construction. These may include:

- avoiding Environmentally Sensitive Areas (ESA) and Areas of Natural and Scientific Interest (ANSI's) by routing or use of existing road allowances; and
- developing site specific mitigation plans where vulnerable, threatened or endangered species are identified.

### 4.4 Forested Land

In some areas, trees may be removed to build the pipeline. Construction of the pipeline project will avoid disturbing or removing trees where possible.

Where trees must be removed, to minimize impacts, the following measures will be used:

- a replanting program will be established; based on two (2) acres planted for every acre of woodlot cut;
- merchantable timber will be salvaged wherever practical;
- narrowing the construction work areas where possible to minimize woodlot impacts.

### 4.5 Water Crossings

When Union crosses beneath any watercourses, a number of measures will be developed to protect fisheries and avoid conflict with other water users, before, during, and after construction. Measures during the planning stage include:

- identifying and protecting fish habitats;
- scheduling of construction to avoid fish spawning periods and migratory routes; and

- identifying and avoiding other water users within the impact zone.

During construction watercourses will be further protected by:

- minimizing the extent and duration of construction activities;
- preserving the flow characteristics of the crossing area;
- limiting the disturbance of the floodplain and approach slopes;
- staging the materials and equipment for the crossing in areas that are less sensitive;
- implementing erosion and sediment control measures where appropriate;
- restoring and rehabilitating the bed and banks as soon as possible; and
- following Ontario Ministry of Natural Resources, Department of Fisheries and Oceans, and Conservation Authorities approved construction techniques.

Following construction, water crossings will be monitored to ensure that channel characteristics have been restored. In addition, areas next to watercourses will be immediately restored to minimize sediment run-off into the watercourse, using measures such as hydro-seeding and erosion control mats.

### 4.6 Archaeology

Before construction, potential archaeological resources will be investigated. Areas of high potential will be avoided where possible. If avoidance is not possible, the site will be protected by:

- assessing the site's significance;
- employing a qualified archaeologist to advise on the handling of artifacts;
- suspending construction if buried artifacts are uncovered;
- having a qualified archaeologist assess the significance of uncovered artifacts; and
- having a qualified archaeologist salvage the site or artifacts as per government regulations.

### 4.7 Noise

Noise will be generated during construction and operation of pipeline facilities. Union will strive to reduce noise in the planning, design, construction and operation of facilities. During construction this will be done by:

- minimizing noise disturbance by scheduling construction during daylight hours where practical.

Operational noise will be generated primarily from any compressor stations or valve sites located along the route. Compressor design options will be used to reduce noise to appropriate levels.

### 4.8 Air Quality

Air emissions will result from the construction and operation of the pipeline and utilization of natural gas. Union will reduce emissions by ensuring that natural gas is used efficiently by the Company.

Although the National Action Program on Climate Change considers it "the most benign fossil fuel," natural gas does emit greenhouse gases (GHG). The major sources of GHG emissions from the natural gas industry are methane and carbon dioxide. The combustion of natural gas at the burner tip produces the majority of the GHG emissions.

Natural gas is a preferred energy source from an air quality perspective because:

- natural gas pollutant release per unit of energy is less than other fossil fuels;
- the process of using natural gas is frequently more efficient, thus reducing total energy use;
- natural gas use produces virtually no sulphur dioxide unlike other fossil fuels; and
- natural gas use produces less carbon dioxide per unit of energy.

In Canada, the National Action Program on Climate was established in 1995 by Natural Resources Canada. A key element of the plan is the Voluntary Challenge and Registry (VCR) program. The Canadian Gas Association and its member companies, including Westcoast, are committed to and supportive of the VCR program. Union will follow the Westcoast initiatives relating to GHG.

Westcoast has developed an action plan to deal with GHG. The Plan endorses the following:

- Continuing research by industry associations into new technologies that reduce GHG emissions;
- Continuing the "Call Before You Dig" program to limit third party damage and accidental release of natural gas into the environment; and
- Establishing Demand Side Management programs to further advance energy conservation and efficiency.

## 4.9 Waste Management and Spills

Waste materials may be generated during the construction and operation of a pipeline. Union will develop and implement waste management programs and systems consistent with Westcoast's existing programs, good environmental practices and applicable government regulations.

Classification of wastes as hazardous or non-hazardous is the first step in properly managing waste. Hazardous waste is stored, handled and disposed of with the utmost care, and in a manner that will protect employees, the public and the environment. Union will administer, handle and manage hazardous wastes according to the local regulations. Permits and approvals will be obtained and records kept, as required by law.

Non-hazardous wastes generated by the project will be reduced, recycled, and/or reused wherever possible. The principles of reduced material use are supported by Westcoast.

Spills may occur during the construction and operation of the pipeline project. Construction personnel will be trained in the use of spill containment, clean-up materials and reporting protocols. Should a spill occur, environmental protection measures will be followed. These programs will be designed and developed to be consistent with the comparable programs at Westcoast and applicable legislation.

## 4.10 Emergency Response

The operation of pipelines will be monitored by a centralized computer-assisted control system. By linking the control system to field offices, vehicles and compressor stations, staff will be able to respond quickly to an emergency.

In the unlikely event of a pipeline rupture, natural gas in the pipeline can be isolated by remote controlled valves. Mock emergency drills will be conducted to prepare operators, personnel and community emergency services. Awareness initiatives, such as the "Call Before You Dig" programs and contact with landowners along the pipeline system, also help

to minimize the chances of third party damage to the pipeline.

Union will follow its Emergency Response Plan in the event of an incident. This Plan will include the names and phone numbers of agencies and persons to be contacted in the event of an emergency. The Emergency Response Plan has been developed and filed with the appropriate agencies.

## 4.11 Environmental Training

Environmental training is an integral component of Union's Environmental Management System. Environmental training programs will focus on all phases of facilities development. The Company's policies, programs and commitments, including those in this Manual, will be communicated to all company personnel involved in the construction and operation of the Project.

Union updates environmental training programs on a regular basis to reflect changing regulatory and societal expectations. Retraining and refresher courses ensure that all employees are aware of, and sensitive to, current environmental management requirements.

### Pre-Construction Training

All Company personnel involved with construction, including inspectors and right-of-way agents, will attend environmental seminars before construction commences. These seminars will review in detail the unique features and commitments that have been made to protect the environment along the entire pipeline route. During the seminars, plans and procedures for minimizing impacts on sensitive features and areas will be emphasized. Landowner requests will be summarized and reporting systems will track the implementation of environmental commitments.

Senior contractor staff are made aware by the Company's environmental personnel to ensure that environmental protection measures are identified and understood by all personnel involved in the Project.

### Operations and Maintenance Training

Once pipeline facilities are in service, on-going environmental training programs will be established. Union will provide regular employee training on environmental awareness, spills handling, reporting, clean-up procedures, waste management, easement maintenance activities and hazardous material handling. Training programs provide an excellent source of information and response from employees on what works best in the field.
Emergency response training will be an important component of Union's training program. Company staff will be trained on how to deal with spills, fires, explosions and other emergencies. Training programs will be updated when new information, legislation and technology becomes available.

## 4.12 Decommissioning and Abandonment

Union's facilities are designed and will be operated and maintained to provide safe and efficient service over the long term. However, if the market changes or other unforeseen events occur, some facilities may need to be decommissioned or abandoned. Appropriate technology will be used to ensure that regulatory requirements are met. Decommissioning or abandonment of facilities will be carried out in a safe and efficient manner.

Abandonment plans will be developed after consulting with regulatory authorities, and receipt of approvals where necessary. All environmental and socio-economic issues associated with abandonment or decommissioning options will be considered.

## 5.0 MONITORING

Union will implement three main monitoring programs both during and after construction, and during the operation and maintenance of the pipeline system. These are:

- compliance monitoring;
- effects monitoring; and
- operational monitoring.

These monitoring programs will ensure: that pre-construction commitments are fulfilled; that the pipeline easement is satisfactorily restored; and that public health, safety and the environment are protected during operation and maintenance of the pipeline project. The monitoring programs are described below.

### 5.1 Compliance Monitoring

A compliance monitoring program will ensure that any pre-construction commitments made to landowners, regulatory agencies and other stakeholder groups are fulfilled during construction. Typical examples of pre-construction commitments include: a request for a specific watercrossing technique, a regulatory Condition of Approval to complete pipeline installation across a river during a specific time period, or a stakeholders request to be notified in advance of construction in a particular area. Compliance monitoring programs will ensure that preventive and protective environmental measures are in place throughout construction.

Trained Environmental Inspectors are on-site during construction to ensure that environmental protection commitments are implemented. The Environmental Inspector will advise construction personnel on environmental matters, co-ordinate soil, water and biological sampling and oversee all environmental aspects of construction. The Environmental Inspector will also bring to the immediate attention of the Company any activity that may cause adverse environmental effects or any activities which do not meet environmental obligations. A written report by the Environmental Inspector documents the status of the implementation of environmental commitments. Information recorded in the Environmental Inspector's reports are incorporated into a post-construction monitoring report.

### 5.2 Effects Monitoring

Following restoration of the pipeline easement, the environmental effects of construction are monitored. Effects monitoring programs will be carried out by Union personnel. If special expertise is required, consultants will be retained. A photographic and written record is made of conditions on and next to the pipeline easement at various times after construction.

Effects monitoring will correct any construction related problems; assist in preparing post-construction regulatory reports; and assess the accuracy of any predictions made in the Environmental Report concerning environmental effects.

Effect monitoring is a fundamental part of the ongoing process of upgrading Union's construction specifications and techniques to protect the environment.

The first step in effects monitoring is to visually examine environmental features along the pipeline. Aerial observations and on-the-ground field surveys will be used. The Project Team can then identify recovery trends and sites that need more detailed study. Union may implement the following post-construction monitoring programs: soil and crop monitoring, post-construction review of watercourse crossings, post-construction water well sampling (if requested by landowners), and monitoring drainage tile.

## 5.3 Operational Monitoring

Monitoring of any pipeline facilities will continue during operations and maintenance activities.

Routine inspection during operations will be conducted using aerial and/or foot patrols, leak detection surveys, and corrosion surveys. General environmental conditions on and near facilities will be monitored. If problems such as soil erosion or water ponding occurs, they will be corrected. New developments near facilities will also be monitored to assess any encroachment into the easement.

Maintenance of the right-of-way will be done through a vegetation management program.

Environmental conditions and practices at above-ground pipeline facilities (such as compressor stations) are assessed through comprehensive operational and environmental audits. These audits will protect the environment, the public and employees, while ensuring all legislative requirements are met.

## 6.0 Conclusion

With more than 85 years of successful operations in the natural gas industry, Union Gas has an excellent record for protecting the environment, public health and safety. Union's Environmental Management System is designed to ensure that stakeholders, including our employees, the public, landowners, regulators and other interested parties, have input to, and are aware of our environmental programs and requirements.

Development of any pipeline projects will be consistent with the Environmental Policy Statement and Sustainable Development Guiding Principles that have been successfully proven and applied by the Westcoast group of companies.

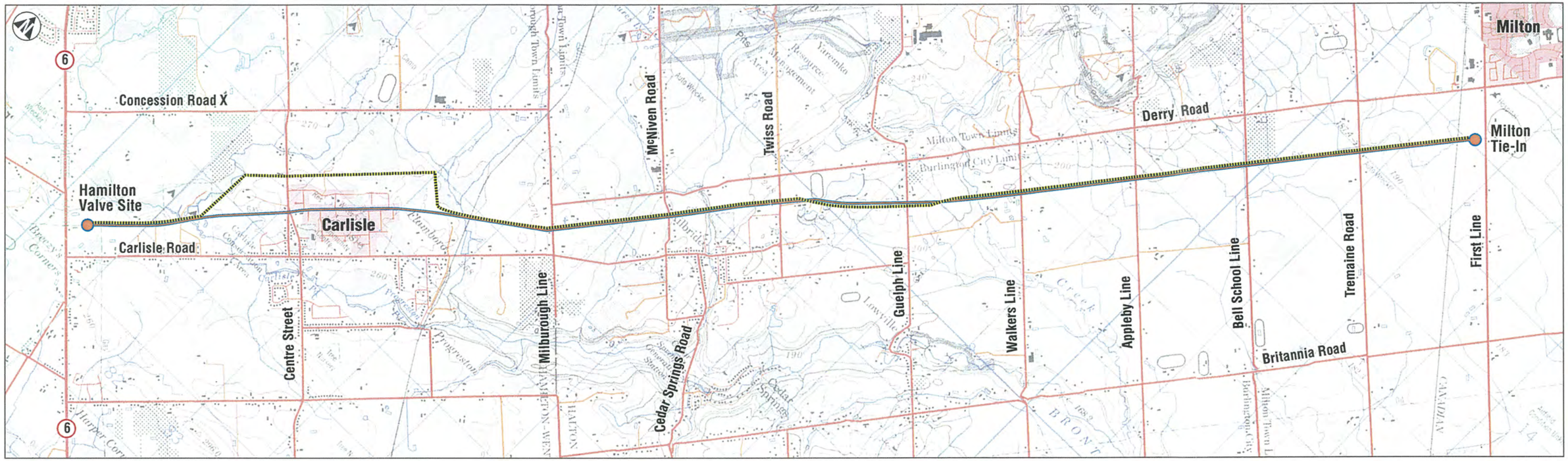
Public safety will be ensured through compliance with, or exceeding of proven engineering design criteria and guidelines as well as legislative requirements.

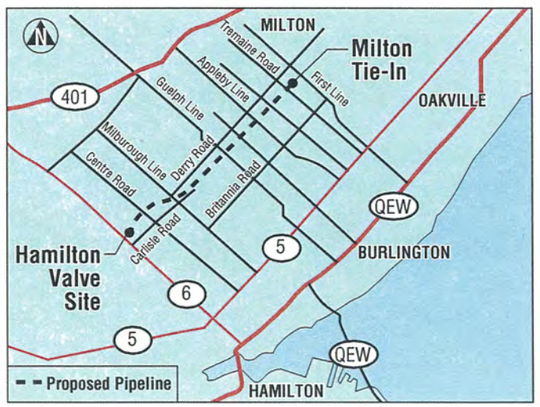
Union appreciates and values the comments of all interested parties.

FOR ADDITIONAL INFORMATION, OR IF YOU HAVE ANY QUESTIONS

OR COMMENTS, PLEASE CALL 1-800-265-5230

# FIGURES




**Legend**

- Existing Pipeline
- Terminal Points
- Proposed Pipeline

0 500 1000
metres

Figure 1
Union Gas Limited
NPS 48 Hamilton to Milton
**Proposed Pipeline Route**




**LEGEND**

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- SC1 — Stream Crossing
- SD — Subsurface Drainage
- 1 — Photograph location and direction of view

Base Aerial Photography: April 1999
Route Photographs: February 2002

0 200m







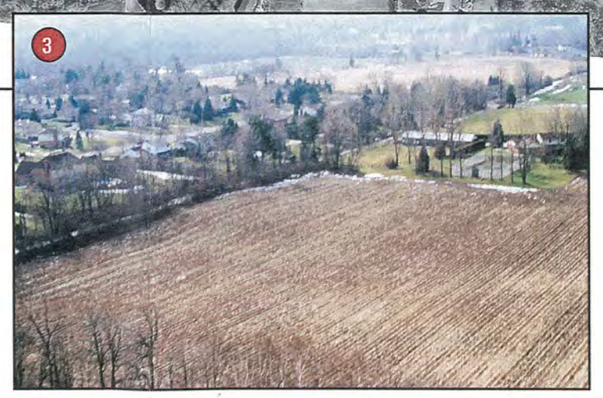



Figure 2
Union Gas Limited
Hamilton to Milton Pipeline
**Aerial Photograph of Proposed Pipeline Route**













**LEGEND**

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- SC1 — Stream Crossing
- SD — Subsurface Drainage
- 1 — Photograph location and direction of view

Base Aerial Photography: April 1999
Route Photographs: February 2002

0 200m

Figure 3
Union Gas Limited
Hamilton to Milton Pipeline
**Aerial Photograph of Proposed Pipeline Route**

Concession I
Concession II
Concession III
McNiven Road
Twiss Road
Bruce Trail
Derry Road
Kilbride Creek
Bonanno
Union Gas
McColl
Water Line
Islay Lake
Dobbie
Ireland
Lillycropp
Hewitt
Urbankiewcz
Class VI Wetland
SC5
SC6
SC7
SD
Lot 10
Lot 9
1237529 Ontario Limited
Carriage Trail
Kilbride Park
Gordon
Cohen
Bellm
VILLAGE OF KILBRIDE
Kilbride Street
Guelph Line
Kilbride Settlement Area Boundary










**LEGEND**

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- SC1 — Stream Crossing
- SD — Subsurface Drainage
- 1 — Photograph location and direction of view

Base Aerial Photography: April 1999
Route Photographs: February 2002

0 200m

Figure 4
Union Gas Limited
Hamilton to Milton Pipeline
**Aerial Photograph of Proposed Pipeline Route**













**LEGEND**

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- SC1 — Stream Crossing
- SD — Subsurface Drainage
- 1 — Photograph location and direction of view

Base Aerial Photography: April 1999
Route Photographs: February 2002

0 200m

Figure 5
Union Gas Limited
Hamilton to Milton Pipeline
**Aerial Photograph of Proposed Pipeline Route**













**LEGEND**

- Existing Pipelines
- Proposed NPS 48 Pipeline
- Water Well
- Name — Landowner
- SC1 — Stream Crossing
- SD — Subsurface Drainage
- 1 — Photograph location and direction of view

Base Aerial Photography: April 1999
Route Photographs: February 2002

0 200m

Figure 6
Union Gas Limited
Hamilton to Milton Pipeline
**Aerial Photograph of Proposed Pipeline Route**

UNION GAS

# NPS 48
# Hamilton to Milton Pipeline

April 1991

ACRES

Acres International Limited

Recycled Paper

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# Executive Summary

# Executive Summary

Union Gas Limited proposes to construct an NPS 48 (1219 mm outside diameter) natural gas transmission pipeline in the summer of 1993. It will begin at the Hamilton Valve Site in the Town of Flamborough (Regional Municipality of Hamilton-Wentworth) and extend through the City of Burlington to the Milton Tie-In in the Town of Milton. It will be approximately 17 km in length and will form part of the existing Union Gas Trafalgar System.

The route selection and environmental impact assessment study was prepared in accordance with the requirements of the Ontario Energy Board "Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario (1989)".

Two alternative routes were considered before selection of a preferred route that minimizes environmental impacts. The preferred route parallels, for the most part, the existing Union Gas pipeline. The required 28 m easement for the proposed pipeline will overlap with the existing easements for approximately 80% of the route.

The preferred route begins on the north side of the Hamilton Valve Site just west of Highway 6 in Lot 12, Concession IX, Town of Flamborough. The route continues northeast running north of and parallel to the existing pipelines until reaching Lot 10, Concession IX, Town of Flamborough. From there the preferred route leaves the existing pipelines and goes north, skirting the Carlisle settlement area. This deviation is necessary to avoid recent residential development in Carlisle. The route chosen minimizes the impact to the possible expansion of Carlisle northwards.

The preferred route rejoins the existing Union Gas pipelines in Lot 3, Concession IX, Town of Flamborough and continues northeast on the north side of the existing pipelines. Within Lot 10, Concession III, City of Burlington, the proposed pipeline will cross under the existing pipelines to the south side in order to provide a better crossing of a large man-made lake (Islay Lake). The proposed pipeline parallels the south side of the existing pipelines until crossing back to the north in Lot 10, Concession IV, City of Burlington. This under crossing is necessary to avoid a house situated next to the south side of the easement at Walker's Line. The proposed pipeline then parallels the north side of the existing easement until it reaches the Milton Tie-In located in Lot 10, Concession I, Town of Milton.

A detailed impact assessment of the proposed pipeline route was carried out using 1:10 000 aerial photographs as base maps. Detailed site investigations were completed along the preferred route. Affected landowners were interviewed to discuss potential impacts, proposed mitigation and any specific details regarding their properties. Predicted impacts and proposed mitigation measures are discussed in detail in Section 4 of this report.

It is recommended that a full-time environmental inspector be on the site during construction to ensure that the mitigation and monitoring recommendations contained in this report are followed. Specific monitoring of wells, agricultural soils, stream crossings and clean-up techniques have been outlined. It is further recommended that an environmental inspector return to the site 1 year after construction to assess the effectiveness of the mitigation.

# 1 - Introduction

# 1 Introduction

Union Gas Limited (Union Gas) proposes to construct an NPS 48 natural gas pipeline from its existing Hamilton Valve Site located in Lot 12, Concession IX, Town of Flamborough (Flamborough), Regional Municipality of Hamilton-Wentworth (Hamilton-Wentworth) to the Milton Tie-In located in Lot 10, Concession I, Town of Milton (Milton), Regional Municipality of Halton (Halton). The pipeline will be 1219 mm ( 48 inches) in outside diameter with an approximate length of 17 km. The proposed pipeline is required to meet the projected increases in transmission capacity along the Union Gas Trafalgar system. Construction is tentatively scheduled for the summer of 1993 conditional upon Ontario Energy Board (OEB) approval.

As part of this proposal, Union Gas commissioned Acres International Limited (Acres) to undertake a route selection and environmental impact assessment study (EIA) in accordance with the requirements of the OEB, as described in their publication "Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario, 1989". The major objectives of these guidelines are to ensure the maintenance of environmental quality and to identify and address the concerns of the affected public.

## 1.1 Study Process

The purpose of the study is

- to select a preferred route for the pipeline in accordance with the OEB Guidelines (1989)

- to assess the probable impact of construction and operation of the proposed pipeline in the area of the preferred route

- to develop recommendations for mitigating and monitoring potentially significant environmental impacts.

The study process followed by the project team is outlined in Figure 1.1. The first step involved delineating a study area. The boundaries of the study area were mainly determined by the location of the tie-in points (i.e., the Hamilton Valve Site and the Milton Tie-In) and the need to include sufficient area to consider a realistic number of practical alternative routes for the proposed pipeline. The boundaries have also been drawn to parallel roadways for ease of definition. The study area is shown in Figure 1.2.

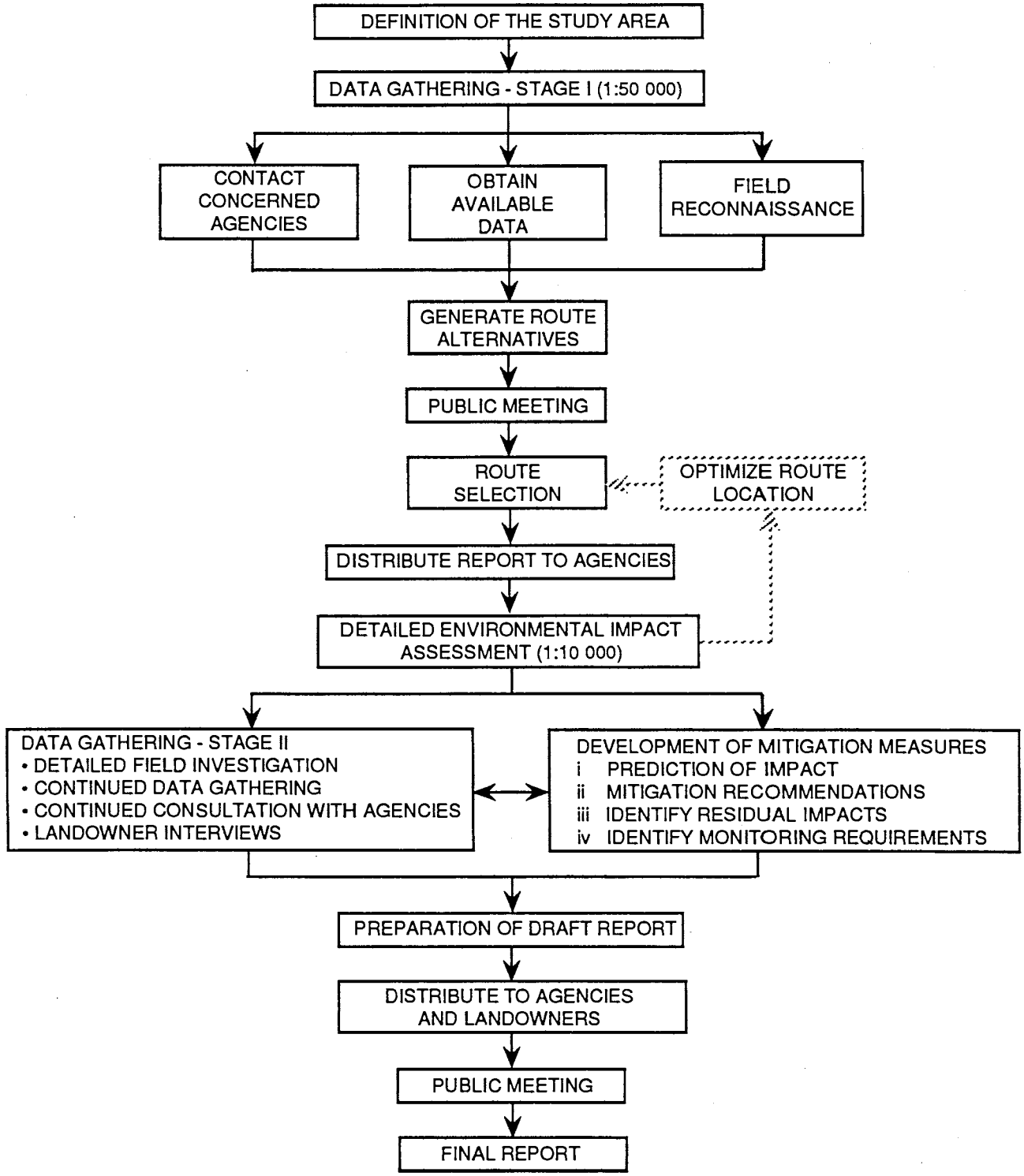



FIG. 1.1

Union Gas Limited
NPS 48 Hamilton to Milton
Study Process

ACRES

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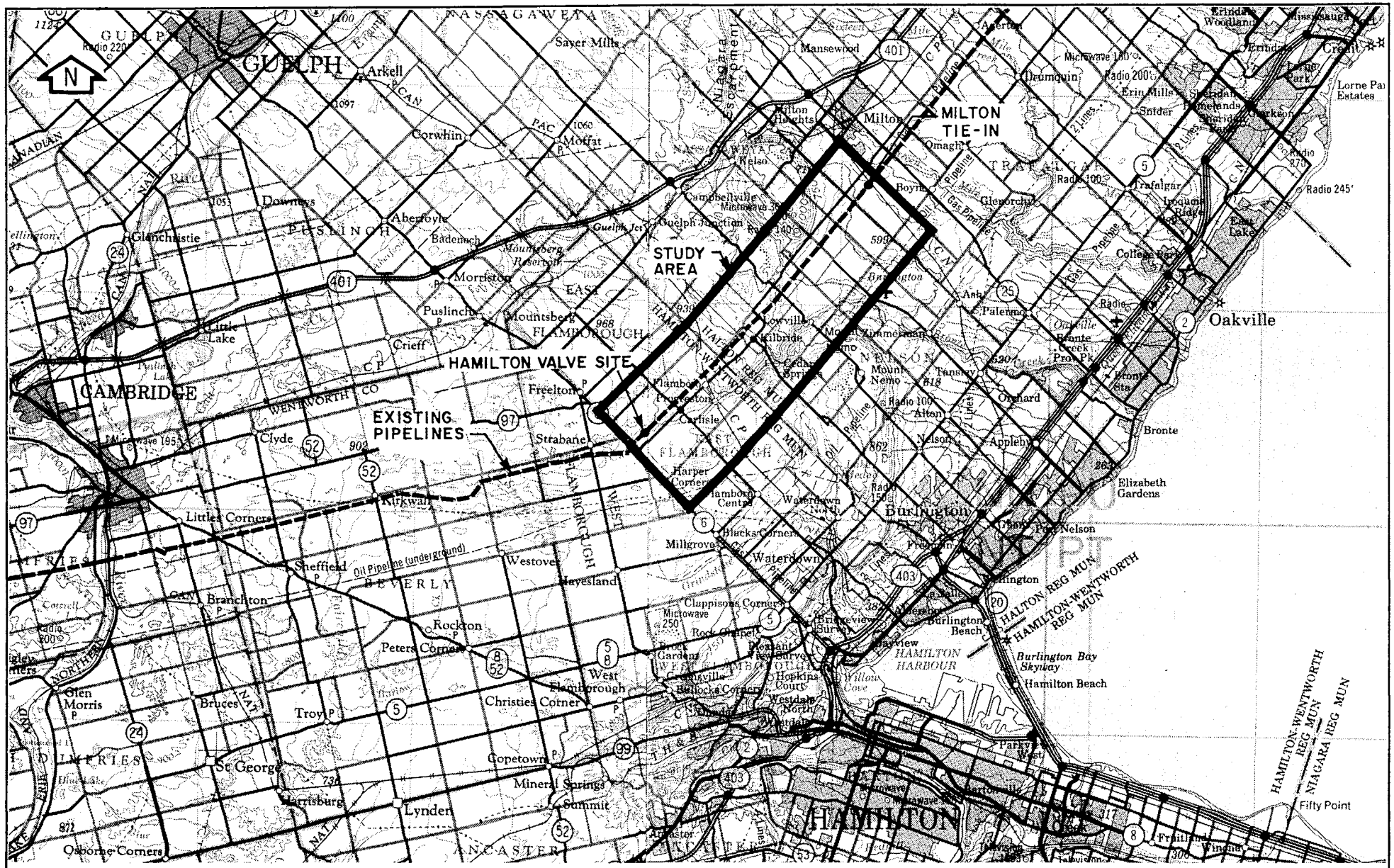



Fig. 1.2

Union Gas Limited
NPS 48 Hamilton to Milton
Study Area

ACRES

The western boundary of the study area runs along Highway 6 in the Town of Flamborough (Flamborough); the eastern boundary is formed by First Line in Milton. The northern boundary begins at Main Street in Milton and then extends west, paralleling Derry Road and then Tenth Concession Road in Flamborough until it intersects Highway 6. The southern boundary is the Seventh Concession Road in Flamborough, continuing eastward parallel to Britannia Road to First Line (Bronte Street) passing through the northern section of the City of Burlington (Burlington).

In carrying out the study, contacts were made with appropriate agencies, special interest groups, and concerned individuals. These included provincial ministries, municipalities, conservation authorities, naturalist organizations, landowners and tenants. The complete list of agencies is given in Table 1.1.

The next step involved data gathering (generally at a scale of 1:50 000) within the study area for the alternate route study. Data were obtained from relevant agencies (i.e., municipal and provincial government), and by preliminary field work. After a satisfactory database and a reasonable familiarity with the study area were obtained, potential route alternatives were generated, to avoid, wherever possible, environmental constraint areas. Once the route alternatives were generated a public meeting was held (April 30, 1990) in Carlisle to solicit the public views on the study approach and the potential routes. Using the input from this meeting and the results from an evaluation of all constraints, a route was selected that would minimize the impact to the environment. The results of this analysis were distributed to the relevant government agencies for their comment.

Once the preferred route selection was made, a detailed environmental assessment was undertaken along this alignment so that priority concerns could be identified, environmental impacts predicted and recommendations for mitigation and monitoring developed. This process entailed further data gathering (generally at a scale of 1:10 000), detailed field investigations and continued consultation with landowners and concerned agencies. If, at this stage, information was discovered which suggested a reevaluation of the location being considered, refinement of the route would occur.

The draft report was prepared and then distributed to the local government agencies, municipalities, interest groups and all affected landowners for their review and comment. A second public meeting was held on January 8, 1991 and pertinent comments or suggestions made at that time were included in this final report.

# Table 1.1

# Agencies Contacted

## Provincial Government Agencies

Ontario Ministry of Agriculture and Food (OMAF)
Ontario Ministry Culture and Communications (MCC)[1]
Ontario Ministry of the Environment (MOE)
Ontario Ministry of Natural Resources (MNR)
Niagara Escarpment Commission (NEC)

## Conservation Authorities

Halton Region Conservation Authority

## Municipal Government Agencies

Regional Municipality of Hamilton-Wentworth
Regional Municipality of Halton
City of Burlington
Town of Milton
Town of Flamborough

## Other Agencies

CN Rail
CP Rail
Museum of Indian Archaeology (London)[1]
Hamilton Naturalists Club
The Federation of Ontario Naturalists
Halton-North Peel Field Naturalists
Bruce Trail Association

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[1]Contacted by Mayer, Poulton and Associates (1990), Archaeological subconsultants.

## 1.2 Organization of the Report

The report consists of 7 sections. Section 2 gives a detailed description of the existing biophysical and cultural conditions in the study area. Section 3 details the route selection process and defines the preferred location for the proposed pipeline. Section 4 describes the predicted environmental impacts and gives mitigation methods for those impacts identified along the length of the proposed pipeline. Monitoring recommendations are put forward in Section 5, Section 6 outlines pertinent Ontario Government legislation and is followed by conclusions, recommendations (Section 7) and a bibliography, glossary and appendices.

## 1.3 Acknowledgments

Acres would like to acknowledge the assistance given by landowners and tenants within the study area who took time to discuss their concerns regarding the proposed pipeline. The assistance of representatives of the many agencies with whom the project was discussed is also appreciated, including Union Gas.

# 2 - Study Area Description of the Existing Environment

# 2 Study Area - Description of the Existing Environment

This section provides a description of the environmental features of the study area. The description is based on information gathered mainly at the 1:50 000 scale and is therefore general in nature. The figures discussed in this section are located at the end of the report in Appendix I.

## 2.1 Natural Environment

### 2.1.1 Topography and Physiography

Relief in the study area is dominated to the south by the Niagara Escarpment (the Escarpment) bluffs of Mount Nemo rising to 290 m above mean sea level, (asl), and the Milton Outlier including Rattlesnake Point, rising to 310 m asl to the north. Bronte Creek and its tributary Limestone Creek flow through the center of the study area. Bronte Creek has cut a deep reentrant valley through the Escarpment just to the south of Kilbride such that the present stream is much smaller than the one which formed the original valley.

The land in the southwest part of the study area rises to 295 m asl dropping at the northeastern end to its lowest elevation of 180 m asl. The east is characterized by flat imperfectly drained land. The relief to the west is broken by a number of drumlins, kames and eskers.

The area can be divided into 2 basic physiographic units, the area above the Escarpment, (in the west portion of the study area) belongs to the Flamborough Plain consisting of a limestone plain with a few drumlins. The area below the Escarpment forms part of the Peel Plain which is a level to undulating tract of clay soils (Chapman and Putnam, 1984).

### 2.1.2 Bedrock and Surficial Geology

#### 2.1.2.1 Bedrock Geology

The bedrock underlying the study area consists of Ordovician age Queenston shale below the Escarpment and Silurian Age Guelph Amabel dolostones above the Escarpment. A succession of shales, sandstones, limestones and dolomites from the Lower and Middle Silurian ages (Ontario Geological Survey, 1982 a, b) is exposed along the Escarpment.

There are bedrock outcrops along the Escarpment at Rattlesnake Point and Mount Nemo. Bedrock is also close, or at the surface in the center of the study area just west and south of Kilbride, southwest of Cedar Springs and near Carlisle. Typical limestone features can be observed including solution hollows and springs, especially in the Calcium Pits area (north of Kilbride). Figure 1 (Appendix I) depicts bedrock within 1 m and 8 m of the surface within the study area.

#### 2.1.2.2 Surficial Geology

Surficial deposits in the study area reflect the complicated glacial history that this area experienced during the late Wisconsin Glaciation between 23 000 and 10 000 years ago (Ontario Geological Survey, 1982 a, b, 1984). There were periods of ice advance when till material was deposited (Wentworth Till above and Halton Till below the Escarpment) and periods of ice retreat characterized by glacial lakes and outwash streams (fluvio-glacial deposits). Kame and esker deposits are also present.

Karrow (1986) has mapped the Quaternary geology of this area. Above the Escarpment, the dominant deposits are lacustrine and outwash sands which can be very shallow. A few drumlins formed of Wentworth till (a stony, sandy, silt till) rise above these sands. Kame and esker deposits are located in the Carlisle area and consist of poorly sorted sands and gravels. Areas of coarse gravel outwash deposits, related to melt water streams when an ice lobe remained near the Escarpment, extend north-south through the center of the study area. Below the Escarpment, a layer of silty clay till (Halton Till) overlies the bedrock (Karrow, 1963). At the northeast end of the study area, these till deposits are covered by shallow lacustrine sediments deposited in glacial Lake Peel. Areas of recent alluvial deposits are found adjacent to creeks in the study area.

#### 2.1.2.3 Mineral Resources

Sand, gravel and bedrock resources are found in the study area (Figure 1). There are no bedrock quarries within the study area but there is a considerable area (where the bedrock is closer than 8 m from the surface) which has been designated of primary resource significance (Ontario Geology Surveys, 1982 a, b, 1984). Sand and gravel resources are relatively extensive and are located in the outwash areas and in the kame and esker deposits. There are 7 licensed and 3 unlicensed pits within the study area (Table 2.1). The largest operations are north of Derry Road in Milton. This deposit is suitable for road building, sub-base aggregates, some concrete sand and asphaltic gravel.

# Table 2.1

## Sand and Gravel Pits in Study Area[1]

| Licensed Owner/Operator | Lot | Conc | Area (ha) | Face Height (m) | % Gravel |
|---|---|---|---|---|---|
| **Flamborough** | | | | | |
| Tibbits Bulldozing | 7 | 9 | Unlicensed | 3-5 | Depleted |
| J. Gibson | 1 | 8 | Unlicensed | 3-5 | Overgrown |
| Beverly | 8 | 9 | Unlicensed | 5 | 45 |
| Coverdale | 2 | 8 | 8.6 | 6 | 40 |
| Posavad | 3 | 8 | 8.4 | 2-5 | 35 |
| **Milton** | | | | | |
| Warner Paving, Materials Group | NE1/2 | 4 | 40.7 | 5-6 | 5-15 |
| Springbank Sand and Gravel Ltd. | NE1/2 | 4 | 52 | 9-14 | 40 |
| David Lloyd George & Co. | 12-13 | 4 | 54.2 | 9-14 | 40 |
| **Burlington** | | | | | |
| King Paving & Materials | 8 | 1 | 40.5 | 6-8 | 35-40 |
| Salco Construction | 8 | 2 | 20.9 | 8 | <5 |

[1] Ontario Geological Survey, 1982 a, b, 1984

In the study area some locations have been designated as having primary mineral resource importance. Conflicts in land use may mean that these resources will not be developed. This is especially the case in locations adjacent to the existing communities and also within the Niagara Escarpment Commission (NEC) Protection and Natural Area zoned lands where new extraction operations are unlikely to be permitted.

### 2.1.3 Soils and Agricultural Capability

A number of soil types are found within the study area reflecting the varying nature of the underlying bedrock and surficial geology. The following description includes only the main soil types and has been extracted from the Ontario Soil Surveys for Halton (Gillespie et al, 1971) and Wentworth counties (Presant et al, 1965).

At the eastern end of the study area on the Peel Plain are the imperfectly drained Chinguacousy clay loam soils. These are usually friable, easily worked soils which are good for agricultural purposes (Class 1 soils). The main crops grown on these soils are hay, oats, barley, winter wheat and corn.

To the west, rising up from the Peel Plain, through the gap in the Escarpment, Oneida and Font are the dominant soil types. Oneida clay loam soils have developed on the fine-textured Halton Till deposits. These are moderately well-drained soils which are again Class 1 soils for agricultural purposes. Font soils are located on the outwash gravel and are a friable, sandy loam normally exploited for construction material.

The other soil types associated with outwash deposits are the Burford loam and Springvale sandy loam soils. These are Class 2 soils for agricultural purposes and although well drained, they can experience droughtiness and stoniness problems.

Above the Escarpment on the drumlins and areas of highest relief, with Wentworth till as the parent material, Guelph Loam soils are found. These are Class 3 soils which can experience erosion problems on the steeper slopes. Where these soils are cultivated, they are mainly under forage crops and winter wheat.

Generally, soils above the Escarpment fall into Class 2 type for agricultural capability. Limitations on their use are related to fertility, moisture and stoniness problems. Localized areas of Class 5 and 6 soils are found related to areas with bedrock close to the surface and areas of steep topography (along Bronte Creek and the Escarpment). Organic soils are found in the wetlands. Below the Escarpment, the soils are predominantly Class 1 agricultural capability. There are small pockets of Class 2 , 3 and 4 soil

related to areas of excessive wetness, low fertility or droughtiness. Soil capability for agriculture is shown in Figure 2.

### 2.1.4 Water Resources

#### 2.1.4.1 Groundwater

The study area contains groundwater aquifers in both the surficial deposits and bedrock formations. As a general rule, the better aquifers are within the bedrock and overburden formations above the escarpment and in the escarpment gap. The bedrock and overburden below the escarpment, at the northeast end of the study area, are significantly less permeable and generally form poor aquifers. Granular outwash deposits occur in the Escarpment gap and at numerous locations on the plain above the Escarpment. These deposits contain variable thicknesses of fairly permeable sand and gravel and host local aquifers. Numerous wells have been drilled throughout the area. Well yields in the outwash deposits are usually in excess of 30 L/min.

The area above the Escarpment is underlain by dominantly carbonate rocks of the Guelph-Amabel formations. These rock units are considered to be a high capacity aquifer (Turner, 1978). The permeability of the aquifer is mainly along bedding planes and fractures which have been enlarged by solution of the dolostone. As this dissolution is variable, the permeability also varies. Usually the aquifer is most permeable in the top 6 m and the majority of the water wells are located in this zone. Well yields are usually excellent (greater than 30 L/min. with some wells in excess of 100 L/min.) and although the water is hard, it is usually described as fresh and of good quality for potable supplies. The piezometric surface is approximately 240 m asl in the Kilbride area and is above 265 m asl to the southwest. A number of springs are found throughout the area above the Escarpment.

Below the escarpment shale bedrock of the Queenston formation underlies the continuous till deposits. The shale is a poor aquifer and well yields are low, usually in the order of 7 L/min. Water quality in the shale is much poorer than the carbonate rocks and excessive chloride and/or hydrogen sulphide levels may be encountered (City of Burlington, 1983).

#### 2.1.4.2 Surficial Water Courses

The study area is primarily drained by Bronte Creek and its tributaries (Figure 3). The headwaters lie to the west and north of the study area. Bronte Creek flows generally northeast through the center of the study area and then east to discharge into Lake Ontario at Bronte Harbour (just south of Oakville). The southwestern part of the study

area drains southwest into Spencer Creek. The south part of Carlisle Swamp drains south into Grindstone Creek. The study area falls under the jurisdiction of the Halton Region Conservation Authority.

The main tributaries of Bronte Creek are shown in Figure 3. Mountsberg Creek enters Bronte Creek just west of Carlisle. This creek is regulated by the Mountsberg dam situated northwest of the study area. Two unnamed streams join Bronte Creek in the vicinity of Cedar Springs. One flows south through Kilbride draining the Calcium Pits area (called Kilbride Tributary in this report) while the other flows north draining Medad Valley. Limestone Creek flows southeast from Nassagaweya Canyon (just west of Rattlesnake Point) to join Bronte Creek south of Britannia Road near Appleby Line. The only other significant stream is Indian Creek which drains the very east end of the study area. It joins Bronte Creek southeast of the study area. The flows in its upper reaches are very low and intermittent during the summer months. There are a number of small intermittent streams in the eastern part of the study area, and several have been straightened and channelized.

A number of artificial ponds have been made either by damming water courses or deepening areas of natural springs. One such lake (Islay Lake) is just south of Derry Road in Lot 10, Concession III, Burlington where a man-made dike 700 m long and in some locations in excess of 5 m high has created a lake of 10.5 ha.

There are a number of dams on Bronte Creek which regulate flow and there is a small power site at Progreston (Flamborough Dam). Two flow gauges operated on Bronte Creek, one at Progreston (Station No. 02HB016) from 1977 to 1985 and one at Zimmerman (Station No. 02HB011) from 1967 to 1987 (Environment Canada, 1980-85). Zimmerman is just south of the study area. Mean discharges at Progreston and Zimmerman were 1.4 $m^3/s$ and 2.6 $m^3/s$ respectively for the 5-year period 1980-1984. Maximum discharges are typically from February to early April while minimum discharges are recorded between July and September.

MOE water quality data are available for 3 stations within or just outside the study area; the stations at Progreston and Zimmerman, as described above, and one on Indian Creek at Tremaine Road. Using MOE historical results for the years 1981, 1988 and 1989, the three stations show average total dissolved solids in the order of 400 mg/L and low total suspended solids (ranging from 2 to 32 mg/L). Indian Creek values were always slightly higher than for the other 2 stations.

The Provincial Water Quality Objectives specify a total phosphorous concentration of <0.03 mg/L (30 µg/L) to control excessive plant growth in rivers and streams (MOE, 1984). MOE historical data indicate that in the above sample years, the three sample stations exceeded these limits.

The specified Provincial Water Quality Objective for pH is a range between 6.5 - 8.5 (MOE, 1984). Historical MOE data for the three sample stations indicate values well within the guideline for all three years. All three sample stations have acceptable ammonia levels as related to pH and temperature in accordance with the Provincial Water Quality Objectives.

#### 2.1.4.3 Fisheries

The watercourses within the study area contain important fisheries. MNR has designated Bronte Creek above the Flamborough Dam and from Flamborough Dam to the Lowville Dam as cold-water fisheries habitat (Figure 3), based largely on the resident brook trout population (MNR, 1989). MNR mapping (1:50 000) indicates a brook trout spawning nursery area occurring directly above the Lowville Dam, with the dam itself preventing any other salmonid migration into this area (MNR, personal communication, 1990).

The creek below Lowville Dam is classified by MNR as a cool-water transitional zone containing such migratory salmonids as pacific salmon, rainbow trout and brown trout. Small-mouth bass are also known to occupy this area of the creek (MNR, 1989). MNR mapping (1:50 000) indicates a spawning nursery directly below the Lowville Dam. MNR staff, Cambridge District, confirmed that this area is utilized by migratory salmonid species (MNR personal communication, 1990). Both these areas of Bronte Creek are utilized extensively by anglers, with sections closed to fishing between the periods of January 1 to April 27 and September 30 to December 31 (MNR, 1990).

A portion of Limestone Creek (above the Escarpment) has been designated by MNR as a cold-water fisheries habitat, based on the resident brook trout population. In addition, this area provides habitat for migratory salmonid species such as, rainbow trout, brown trout and pacific salmon.

Indian Creek and Grindstone Creek are designated as warm-water streams and do not have significant fisheries in the study area. Figure 3 shows whether a stream has a cold- or warm-water fisheries potential.

Some of the larger ponds in the area have been stocked with fish and are used by private angling clubs.

## 2.1.5 Terrestrial Environment

### 2.1.5.1 Vegetation

The study area is located within the Deciduous Forest Region of Canada (Hosie, 1979). Due to extensive clearing for agriculture, typical of southern Ontario, little native forest cover remains. The remaining woodlands in the area have been classified by MNR as high productivity upland hardwoods (1), high productivity lowland hardwoods (3) and low productivity cover types (5) (MNR resource mapping, 1:50 000). Figure 3 maps the woodlots. As well, several areas within the study area have been designated as suitable for tree planting. There are no Crown land stands in this area, however, there is one small MNR Agreement Forest (Figure 3) (MNR resource mapping, 1:50 000).

Woodlands in the study area are comprised of mixed stands containing such species as Sugar Maple, Beech, White Pine, White Ash, White Cedar and Ironwood. Disturbed woodland edges contain species such as Trembling/Largetooth Aspen, Hawthorn and White Elm. Lowland stands support a mixture of Willow species, Dogwood, Hawthorn and Soft Maple. Evidence of recent cutting was observed in many stands during field review.

Homestead conifer/hardwood plantings and field hedgerows are present in the study area. Common conifer species include Red and White Pine which typically exist in a plantation setting. Common species in hedgerows include Basswood, White Ash, White Birch and White Pine. Many hedgerows are discontinuous due to past clearing and agricultural activities.

The remaining natural vegetation consists of abandoned fields undergoing woody succession to White Ash, Elm, and other species.

There are a number of wetlands dotted throughout the study area. Calcium Pits, as described in Section 2.1.5.3, is a Class II wetland. The other wetlands are classes V to VII. There is a Class V wetland located in the extreme southwest draining into the Spencer Creek system (lots 12 and 13, Concession VII, Flamborough) and also one at the headwaters of One Mile Creek in Lot 3, Concession IX (Flamborough). Carlisle Swamp is a Class VI wetland.

### 2.1.5.2 Wildlife

A mixture of active and abandoned agricultural lands, hedgerows and woodlots support a variety of wildlife including songbirds, waterfowl, raptors and mammals.

Hedgerows, fields and woodlots are known to provide summer feeding habitat for white-tailed deer with the larger woodlots providing potential seasonal shelter and feeding sites. Deer wintering ranges have been identified within Concession X, lots 1 and 2 Flamborough, (MNR resources mapping, 1:50 000). There are no hunting preserves, Crown game preserves or MNR-designated Wildlife Management Areas within the study area (MNR resource mapping, 1:50 000).

The most common raptor observed was the red-tailed hawk. Also, the common scavenging turkey vulture was noted on numerous occasions. The numerous wet pockets, ponds and creek channels provide local waterfowl habitat. Mallard ducks and Canada geese were the primary waterfowl species observed in the study area, however, there are no significant waterfowl sites identified by MNR in this area (MNR resource mapping, 1:50 000). Although MNR has not identified any significant heronry sites in the study area, a Great Blue Heron was observed during field work.

There are significant wetlands, Class 2 (Figure 3) in the study area which could support provincially significant herpetofauna. While no endangered wildlife species were observed during field work, the endangered West Virginia White Butterfly has previously been observed within the study area (MNR resource mapping 1:50 000). With the exception of upland maple/beech forests, no critical plants essential for the support of the butterfly were observed (i.e., Cut-leaved Toothwort and Two-leaved Toothwort).

#### 2.1.5.3 Special Policy Areas

Eight natural areas within or fringing the study area have been designated as environmentally sensitive areas (ESAs) and/or areas of natural and scientific interest (ANSIs) from either an earth or life science perspective. These areas and their provincial or regional significance are shown in Figure 4 and are briefly described below. Provincially and regionally significant flora and fauna are discussed in this section.

**Lowville Bronte Creek Escarpment Valley**

*(ANSI Provincial Significance, Regional Significance [Life Science], ESA)*

The Lowville Bronte Creek Escarpment Valley is an excellent example of both upland and incised valley complexes on till moraine. Ten main plant communities exist here, ranging from an upland deciduous forest comprised of such tree species as Red Oak and Sugar Maple, to a marsh ecosystem dominated by Speckled Alder and herbaceous plants such as Cattail and Fowl Manna Grass. As well, 13 regionally significant plants including Indian Cucumber-root *(Medeola virginiana)* and Beard-tongue *(Penstemon hirsutus)* have been identified within the Escarpment Valley (Gould, 1985 b).

**Crawford Lake Rattlesnake Point Escarpment Woods (Milton Outlier Valley)**
*(ANSI Provincial Significance [Life and Earth Science], Regional Significance [Earth Science] ESA)*
Crawford Lake itself constitutes somewhat of an anomaly as it is a meromictic lake (one of only two in Ontario) and offers a valuable opportunity to trace biological, social and climatic history for the area through the use of sediment cores (MNR 1976). As well, this area is rich in both herbaceous and woody plants. Seven main types of natural woody vegetation exist here, ranging from upland hardwoods such as Sugar Maple to Talus and Escarpment slope forests comprised of Hemlock, Beech and Basswood. Several provincially rare herbaceous plants are located in this area including Small-flowered Leafcup *(Polymnia canadensis)* and Goldies Fern *(Dryopteris goldiana)*. Regionally significant plants within this area include Round-leafed Sundew *(Drosera rotundifolia)* and Walking Fern *(Camptosorus rhizophyllus)* (Gould, 1985 a).

**Mount Nemo Escarpment Area ANSI**
*(ANSI Provincial Significance [Earth and Life Science] ESA)*
There are six major vegetational communities within this area, ranging from an upland deciduous forest comprised of Sugar Maple, Red Oak and White Ash to an Escarpment rim mixed forest of Eastern White Cedar and White Birch. Of particular note are the vascular plants occupying cliff faces in this area. Several regionally significant plants occur at the top of the Escarpment face, including Climbing Fumitory *(Adlumia fungosa)* Sandwort *(Arenaria stricta)* and Purple Clematis (*Clematis occidentalis)*. In total, 200 species of vascular plants have been recorded at this site, 15 of which are regionally significant (Gould, 1985 c).

**Lake Medad and Medad Valley**
*(ANSI Regional Significance [Earth Science])*
A large variety of flora and fauna are found in this heavily forested, soft-bottomed valley (Halton Region, 1978 a). The valley floor is lush with small creeks draining north into Bronte Creek and swamp lands draining south into a deep kettle lake (Lake Medad). Five main communities exist in this area ranging from an open-water lake to a conifer bog and to a mature deciduous forest with such regionally rare plants as Rose Twisted Stalk *(Streptopus roseus)*. The avian population in the area is correspondingly diverse, coexisting with such significant wildlife species as the Northern Flying Squirrel (*Glaucomys sabrinus)*.

**Calcium Pits**

*(ANSI Provincial Significance [Earth Science] and ESA)*

The Calcium Pits occupy the slope of a small, low detached mesa of the Escarpment whose southwestern face exposes a number of disjointed cracks and prominent vertical limestone columns (Halton region, 1978 b). An ancient abandoned glacial waterfall approximately 10 m high is located along the Escarpment, near the Bruce Trail. A wide variety of biological communities exist in this area, ranging from an upland escarpment forest to a wet escarpment trench containing a high-quality bog, with a variety of orchid species. Nationally rare plants in the Calcium Pits include Black Oak (*Quercus velutina)* along with such regionally rare species as Black Maple (*Acer nigrum)*. Significant avian species such as the Louisiana Waterthrush *(Seiurus motocilla)* have also been observed in this area.

**Carlisle Swamp**

*(ESA)*

Carlisle Swamp is situated between Carlisle and Flamborough Center in Flamborough and is an area of low, wet forest on surficial sand deposits of lacustrine and outwash origin (Ecologistics, 1976). Wildlife species observed here include the Inornate Ringlet *(Ceononympha tullia inorta)* (rare Canadian Butterfly) for which this is the only known occurrence in the Hamilton Region, and the Red-Headed Woodpecker *(Melanerpes erythrocenphalus)*, for which Carlisle Swamp is only one of three breeding sites in the region.

**Lowville Reentrant Valley**

*(ANSI Provincial Significance [Earth Science])*

This glacial reentrant valley is centered around the village of Lowville about 5 miles southeast of Campbellville and measures 5 km wide and 8 km long (MNR, 1977). This valley bends in a northeast-southwest direction and is flanked by the Milton Outlier in the north and Mount Nemo on the south. The bedrock complex immediately south of Campbellville extending toward Kilbride was subject to both glacial and post glacial erosion and exhibits a variety of karst (solution weathered) features.

Excellent exposures of the Amabel Formation at Rattlesnake Point and Mount Nemo outline the sides of the valley. Within this area a variety of earth science features representing portions of the Paleozoic, Pleistocene and recent geological time intervals, provide a basis for a potentially extensive educational and interpretive program concerning the glacial and geomorphological history of this area.

**Halton Till**

*(ANSI Provincial Significance [Earth Science])*

Major glacial advances and retreats in the Great Lakes Region have been assigned to three substages: Early, Middle and Late Wisconsinan. The Halton Till represents a late Wisconsinan glacial deposit laid down by the Ontario ice lobe during the Port Huron Stadial (between 13 000 - 12 000 years ago) which is exposed in a 16.2-m thick section on the west bank of Bronte Creek (MNR, 1983). The International Union for Quaternary Research had designated the till as a Holostratotype Locality (a section representing the original type section) and is considered to be the principal deposit of the Ontario ice lobe during the Port Huron Stadial.

## 2.2 Cultural Environment

### 2.2.1 Land Use

#### 2.2.1.1 Infrastructure

The study area lies within two regional municipalities; Hamilton-Wentworth in the west, and Halton in the east. Within Hamilton-Wentworth the study area includes part of Flamborough and within Halton, part of Burlington and Milton are included (Figure 5).

The study area is primarily rural in nature. There are 5 villages which provide areas of growing residential development and these include Carlisle and Progreston in Flamborough and Kilbride, Cedar Springs and Lowville in Burlington.

**Transportation Routes--**Major roads in the study area are outlined in Figure 5. The only provincial highway is Highway 6 which forms the west boundary of the study area. There are a number of regional roads including

- Carlisle Road, Hamilton-Wentworth Regional Road (R.R.) 536 changing to Halton R.R. 7
- Derry Road, Halton R.R. 7
- Guelph Line, Halton R.R. 1
- Cedar Springs, Halton R.R. 18
- Tremaine Road, Halton R.R. 22
- Britannia Road, Halton R.R. 6.

Two railways cut north/south across the study area. CP Rail has a line just east of Carlisle and CN Rail is located at the east end of the study area.

**Utilities--**Running southwest/northeast through the center of the study area are two Union Gas pipelines, an NPS 26 pipeline and an NPS 34 pipeline. Running south from the existing Union Gas Hamilton Valve Site is an NPS 20 pipeline which feeds Hamilton.

Sun Canadian operates an oil pipeline which enters the study area in the east, runs parallel and south of Britannia Road and then goes south to the west of Mount Nemo. InterProvincial oil pipelines cut through the very southwest corner of the study area.

There are no major hydro transmission lines.

**Land Ownership Patterns--**Throughout the study area, private land ownership dominates. The lots were originally 40 ha (100 acres) but these have often been split into 20 ha or smaller units. Small residential lots follow ribbon development along the roads. Some distinctive long, thin 40 ha lots are found in Burlington and Milton. Large estate lots of 1/2 to 1 ha are being developed in subdivisions around Kilbride and Carlisle.

**Municipal and Provincial Policy Plans--**The principal features of municipal official plans and zonings are shown in Figure 6. The dominant zoning is agricultural but a number of settlement areas have been designated. These areas determine where future residences can be built and the appropriate size of new building lots. The dwelling must be self-sufficient in terms of water supply and sewage which may require a 1- to 2-ha (2- to 3-acre) lot. Burlington, in particular, has developed a number of these settlement areas as secondary plans to their official plans. Land around existing villages is being purchased by speculators in the hope of developing residential lots. There are a number of applications for zoning changes presently before the various municipalities.

All land adjacent to waterways are regulated by the Halton Region Conservation Authority (Figure 7).

The study area is bisected by land under the control of the NEC. The NEC designates land uses which it will permit in certain areas under its jurisdiction. The NEC's most highly protected zoning is for natural areas followed by protection areas. These areas are shown on Figure 6 (Ontario Provincial Secretariat for Resources Development, 1984). The NEC plan is further discussed in Section 6.2.

#### 2.2.1.2 Agricultural Land Use

The majority of the land through the study area is used for agriculture (OMAF, 1982, 1983). Under the Canada Land Inventory System, much of the land is either Class 1 or Class 2 with areas in the lower classes having restrictions due to excessive relief or stony

soils. The hazard lands along the creeks and the areas where bedrock is near the surface, is not farmed and is often left in woodlots.

The land below the Escarpment is predominantly in mixed grain rotation and corn farming with some apple orchards. The land above the Escarpment has a greater variety of uses including nurseries, orchards, horse farms, hay and pasturing (OMAF, 1982, 1983).

The only area with underground drainage systems is the flat lands (representing glacial Lake Peel) below the Escarpment at the east end of the study area (OMAF, 1982, 1983).

#### 2.2.1.3 Commercial and Industrial Land Use

There is no industrial land use within the study area. Commercial land use is found along Highway 6 and within the small communities. These are mainly service stations, shopping facilities and restaurants. There is also some commercial development at cross roads (i.e., Derry Road and Walker Line) and there are sand and gravel extraction operations, as discussed in Section 2.1.2.3.

#### 2.2.1.4 Residential Land Use

Residential land use is concentrated in the communities of Carlisle, Progreston, Kilbride, Cedar Springs and Lowville. Ribbon development is present along most of the roads in the study area. Many residences in this area rely on individual well water and their own septic-tank systems. Carlisle has a water tower and provides municipal water service and some of the homes at the eastern end of the study area receive water from the Milton supply. Sewage treatment is provided by individual septic tanks. Future development could be restricted due to lack of adequate water supplies and the ability to treat sewage.

#### 2.2.1.5 Parks and Recreational Land Use

Small municipal parks and sports fields are located in the urban centers of the study area. The Halton Region Conservation Authority operates the Rattlesnake Point Conservation Area which provides picnicking and outdoor recreational opportunities. The Bruce Trail crosses the study area following the crest of the escarpment. In the area of the Bronte Creek gap, it follows Twiss Road. There is no information available for trail usage in the area.

There is a commercial campground, Courtcliffe Campground and Trailer Park (Courtcliffe), just west of Carlisle which is home to the Blue Grass Canada festival each year and a number of other musical festivals. This campground also has permanent residential trailer facilities for a population of approximately 600.

There are 2 golf courses (one north of Cedar Springs and one at Britannia Road and Guelph Line) and another presently under construction (just east of Carlisle) within the study area. A skeet firing range is located just north of the Seventh Concession Road within Flamborough.

## 2.2.2 Socioeconomic Structure

The study area is within commuter distance of Toronto and the small rural communities are seeing expansion of exclusive residential dwellings. This increase in population is putting pressure on the agricultural land.

Since specific data relating to the socioeconomic structure of the study area are not readily available, Statistics Canada (1987, 1988) information for the towns and city within the study area was used to obtain a general profile of the area.

### 2.2.2.1 Population

Population data are summarized in Table 2.2. Halton Region is showing a faster expansion generally than the Hamilton-Wentworth Region. Milton is a significant growth area within Halton experiencing a 14% increase in population between 1981 and 1986; however, the limits of the town itself are outside of the study area.

Population data provided by Burlington indicate that over the 5 years prior to 1988, there was no overall change in rural population in Burlington (City of Burlington, Planning Dept. personal communication, 1990). Flamborough showed a 6.8% increase in population from 1981 until 1986. The population effects of recent development around Carlisle are not included in that figure. Flamborough (personal communication, 1990) estimates that the population in the Carlisle Settlement Area is in the order of 1600. There are at present 527 residential units in Carlisle. In the three years following the 1986 census the number of building permits issued in Carlisle was 164, a four-fold increase over the three year period prior to 1986.

### 2.2.2.2 Housing and Employment

Housing data and labor force activities are summarized in Table 2.3. A breakdown of occupations indicates that service industries employ most of the labor force with manufacturing and trades following. Primary industry activities rank fourth and fifth for Flamborough and Milton respectively. It appears that many of the residents are employed in Hamilton, Burlington or the Toronto area.

# Table 2.2

## Population Statistics (1986 Census Data)

| Location | Population Density /km$^2$ 1986 | Population 1981 | Population 1986 | % Change 1981-1986 |
|---|---|---|---|---|
| Halton Regional Municpality | 283.1 | 253,883 | 271,389 | 6.9 |
| Hamilton-Wentworth Regional Municipality | 380.4 | 411,445 | 423,398 | 2.9 |
| City of Burlington | 657.7 | 114,853 | 116,675 | 1.6 |
| Town of Milton | 87.2 | 28,067 | 32,037 | 14.1 |
| Town of Flamborough | 53.4 | 24,470 | 26,142 | 6.8 |

# Table 2.3

## Housing and Employment Data (1986 Census Data)

| | Halton Regional Municipality | Hamilton-Wentworth Regional Municipality | City of Burlington | Town of Milton | Town of Flamborough |
|---|---|---|---|---|---|
| Housing Data | | | | | |
| - occupied private dwellings | 89 835 | 155 575 | 40 120 | 9 730 | 8 220 |
| - average value of dwellings ($) | 131 034 | 87 563 | 121 409 | 128 256 | 120 726 |
| Total labor force | 154 220 | 219 285 | 66 700 | 17 480 | 14 535 |
| Breakdown by employment | | | | | |
| - primary industries | 3 380 | 4 595 | 955 | 990 | 1 580 |
| - manufacturing | 39 530 | 61 580 | 16 810 | 4 015 | 3 185 |
| - construction | 7 135 | 13 200 | 3 130 | 790 | 1 120 |
| - transportation, storage, communication and utility | 10 080 | 11 235 | 3 420 | 1 455 | 860 |
| - trade | 28 675 | 37 610 | 13 235 | 3 360 | 2 445 |
| - finance | 11 555 | 10 370 | 5 160 | 910 | 635 |
| - government services | 7 365 | 8 640 | 3 195 | 1 065 | 585 |
| - other services | 45 475 | 68 575 | 20 235 | 4 825 | 4 050 |
| Average employment income ($) | | | | | |
| - male | 31 175 | 23 736 | 30 585 | 29 440 | 26 754 |
| - female | 13 961 | 12 000 | 13 657 | 13 755 | 12 489 |

In 1986 the average annual income for men in the study area ranged from a high of $31,175 in the Halton Regional Municipality to a low of $23,736 in Hamilton-Wentworth. The average annual income for women followed a similar pattern with a high of $13,961 in Halton and $12,000 in Hamilton-Wentworth.

### 2.2.3 Archaeological and Heritage Resources

Acres retained Mayer, Poulton and Associates (MPA) to undertake an archaeological resource assessment of the study area. The purpose of the assessment was to review available information on known sites within the study area. A separate report has been prepared by MPA (1990) and the following summarizes the findings of that study. (Details of the archaeological data are given in Appendix H.)

There has been a considerable quantity of archaeological research carried out within the study area, with the greatest focus of attention being on prehistoric sites located in the Bronte Creek gap in the Escarpment. Mayer, Poulton and Associates determined that a total of 151 archaeological sites have been documented within the study area. These comprise 58 registered and 93 unregistered sites. The nature of these sites is summarized in Table 2.4 with more detailed information and mapping contained in Appendix H.

From the mapping it can be seen that there is a cluster of over 20 registered sites at the confluence of Bronte and Limestone creeks with 4 others located just south of Carlisle and 5 more just north of Derry Road in Concession I, Milton. The unregistered sites are more scattered but there is a concentration near Limestone Creek and also along Derry Road. The largest sites are Iroquoian villages, ten of which have been identified within the study area.

As Mayer and Poulton (1990) explain, the relative absence or presence of archaeological sites reflects the survey coverage of the researchers. It is probable that the site densities clustering Bronte and Limestone creeks are the norm not the exception. The information also reflects the biases of the researchers who were looking for particular cultures and thus, other types of sites may have been overlooked. This is definitely the situation with historic sites where there is very little Euro-Canadian documented information. However, the general conclusion that can be drawn is that the entire study area has a rich archaeological base.

# Table 2.4

## Summary of Archaeological Sites Within the Study Area

| Period | Time Range | Type of Site | No. of Registered Sites | No. of Unregistered Sites | Total No. of Sites |
|---|---|---|---|---|---|
| Paleo Indian | 9500-7500 BC | Camps | 2 | 1 | 3 |
| Archaic | 7800-1000 BC | Camps | 5 | 3 | 8 |
| | | Others | 4 | | 4 |
| Woodland | 1000 BC-1650 AD | Villages | 9 | 1 | 10 |
| | | Hamlets | 5 | 6 | 11 |
| | | Burial sites | 1 | 1 | 2 |
| Historic | 1700-present | Homesteads | 2 | 4 | 6 |
| Indeterminant Prehistoric | | Camps | 21 | 34 | 55 |
| | | Findspots | 11 | 45 | 56 |
| | | | **60** | **95** | [1] **155** |

[1] **This figure differs from the 151 registered sites quoted in the text as sites can be documented more than once if they cover different periods.**

# 3 - Route Selection

# 3 Route Selection

The purpose of this chapter is to show how a pipeline route was selected such that it satisfied the requirements of the OEB as described in its 1989 "Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario". The route selection process is shown in relationship to the overall environmental assessment process outlined in Figure 1.2. Details of route selection may be summarized as follows

- establish a study area

- generate alternative route locations within the study area

- solicit public opinion on the alternatives

- solicit opinion from affected governmental and other agencies

- compare these alternatives with respect to their impacts on the natural, man made and social environments, and choose a preferred route

- examine the preferred route in more detail to optimize its alignment.

The study area was defined in Section 1. By using the information gathered in Section 2, environmental constraints to the route selection process can be identified. The details of this process are described below.

## 3.1 Criteria for Generating Route Alternatives

In order to establish alternative pipeline routes between the selected terminal points (Hamilton Valve Site to Milton Tie-In), the following guidelines were used (OEB, 1989).

- Preference should be given to locating the pipeline within or adjacent to an established utility corridor or a transportation corridor.

- Avoid wherever possible difficult terrain, e.g., steep slopes, bedrock, unstable soil conditions.

- Urban or settlement areas should be avoided where possible.

- Aggregate resource areas should be avoided if feasible.

- Avoid environmentally sensitive areas and conservation areas, where possible.

- Pipeline route should be compatible with existing municipal and provincial land use considerations.

- Agricultural lands (particularly specialized areas like nurseries, poultry farms and orchards) should be avoided to the extent feasible.

- Minimize distance through wetlands.

- Avoid archaeological sites where possible.

- Forested lands (hedgerows and woodlots) should be avoided where possible.

## 3.2 Route Alternatives

In light of the criteria described in Section 3.1, two viable route alternatives were generated. These are shown on Figure 8. Identification of other viable route alternatives was limited due to the short distance between terminal points (approximately 17 km) and the constricting nature of the landscape. The natural gap in the escarpment between Mount Nemo and Rattlesnake Point limited the north/south latitude available. The deeply incised Bronte Creek ESA in the center of the study area also presented a considerable constraint. Location of sand and gravel pits and the expansion of settlement areas around the older rural communities also provided routing difficulties.

The two route alternatives are as follows.

**Alternative 1**
This alternative parallels the existing Union Gas pipelines except through Carlisle. Following the existing pipelines through this area is impractical because of residential development.

A minor modification to this route (Alternative 1A, Figure 8) was considered but subsequently dropped after consultation with landowners. This route differed from Alternative 1 only in that it avoided construction through Islay Lake. Subsequent investigation and discussions revealed that construction through the pond was feasible and would cause less environmental disruption than construction on the steep slopes to the south of the pond.

**Alternative 2**
A portion of this alternative parallels the Sun Oil Pipeline which runs parallel and south of Britannia Road in the southeast section of the study area. This pipeline veers south just to the west of Mount Nemo and from this point west the alternative parallels Britannia Road, in

Burlington and the 7th Concession Road in Flamborough. This alignment runs west to the Union Gas NPS 20 pipeline from where it continues north to connect with Union Gas Hamilton Valve Site. At its eastern end this alignment would connect with the Milton Tie-In by paralleling the CN Rail tracks.

## 3.3 Evaluation of Route Alternatives

In order to evaluate the two route alternatives, a number of criteria were examined (Table 3.1). These criteria were generated from the guidelines provided in Section 3.1 and could be measured from the mapping gathered in Section 2. These criteria provide a mechanism for quantitatively assessing the alternatives and their potential impacts. Only distance crossed is examined in this analysis. The easement requirement for the proposed pipeline is 28 m and the assumption is that the maximum area impacted will be total easement width times the distance crossed. Where the routes are adjacent to existing easements/ROW, the actual area impacted may be less as the easements could overlap. This analysis assumes the worst case scenario where the total area of easement will be impacted.

From Table 3.1, Alternative 1 is preferred to Alternative 2 for the following reasons.

- It is shorter by 6 km.

- Over 7 km more of Alternative 2 is not on an existing right-of-way/easement

- Total distance of Alternative 1 through high quality farmland is about 2 km less than that of Alternative 2.

- Alternative 1 is also superior to Alternative 2 in that it crosses 0.8 km less of specialty crops.

- It minimizes the need for blasting since there is no bedrock within 1 m of the surface and only 5.2 km where bedrock is within 8 m of the surface; Alternative 2 has 0.3 km of bedrock within 1 m from the surface plus an additional 9.6 km where bedrock is within 8 m of the surface.

- It reduces the distance through areas of topographic constraint by approximately 0.5 km. (Topographical constraints for this analysis were measured from the land capability maps.)

- Its total length in woodlots is one third less than that of Alternative 2.

# Table 3.1

# Routing Evaluation[1]

| Component | Indicator | Alternative 1 | Alternative 2 |
|---|---|---|---|
| Miscellaneous | Total length of route (km) | 16.9 | 22.9 |
| | Total length not adjacent to existing ROW/easement (km) | 3.4 | 10.6 |
| Agriculture | Class 1-4 Agricultural Land (km) | 15.3 | 17.2 |
| | Class 1 Agricultural Land (km) | 5.2 | 8.8 |
| | Class 2 Agricultural Land (km) | 8.0 | 4.1 |
| | Class 3 Agricultural Land (km) | 1.4 | 3.7 |
| | Class 4 Agricultural Land (km) | 0.7 | 0.6 |
| | Specialty Crops (km) | 2.7 | 3.5 |
| | Drainage | | |
| | - tile drains (km) | 1.1 | 0.4 |
| | - municipal drains | 0 | 1 |
| Soils and Topography | Length of Bedrock (km) | | |
| | - within 1 m | 0 | 0.3 |
| | - within 8 m | 5.2 | 9.6 |
| | Topography (km) | 1.7 | 2.2 |
| | Hazard Lands (km) | 7.0 | 5.0 |
| Forestry | Length of Woodlots (km) | 2.3 | 3.8 |
| | Woodlot Improvement Areas | 0 | 0 |
| | Agreement Forests | 0 | 0 |
| | Crown Lands | 0 | 0 |
| | High Productivity Woodlots | | |
| | - upland | 0 | 1.1 |
| | - lowland | 0.9 | 0.3 |
| Aquatics | Total Number of Stream Crossings | 19 | 19 |
| | Cold-water streams | 6 | 2 |
| | Warm-water streams | 2 | 3 |

[1] Sources MNR 1980: OMAF, 1982/3: Ontario Geological Survey, 1982a, b, 1984: Halton Region Conservation Authority Hazard Land Mapping: Niagara Escarpment Plan, 1984.

Table 3.1
Routing Evaluation - 2

| Component | Indicator | Alternative 1 | Alternative 2 |
|---|---|---|---|
| | Spawning areas | 0 | 1 |
| | Lakes/ponds | 1 | 0 |
| | Rare/threatened/endangered fish | 0 | 0 |
| Natural Areas | Class 1-3 Wetlands | 0 | 0 |
| | Class 4-7 Wetlands | 0.3 | 2.3 |
| | Provincial ANSIs (km) | 0 | 1.3 |
| | Regional ANSIs | 0 | 0 |
| | Municipal ESAs (km) | 0 | 1.6 |
| Flora/Fauna | Wildlife Habitat (deer wintering, waterfowl staging, rare/endanged species) | 0 | 0 |
| Cultural | Settlement policy/rural buffer areas | | |
| | - conservation and recreation areas | 0 | 0 |
| | - primary mineral resources | 7.1 | 8.1 |
| | - licenced extraction areas | 0 | 0 |
| | Heritage Resources, Archaeological Sites Within 1 km | | |
| | - registered | 10 | 29 |
| | - unregistered | 76 | 4 |
| | Niagara Escarpment Plan | | |
| | - Escarpment Natural Area (km) | 0.2 | 2.3 |
| | - Escarpment Protection Area (km) | 1.5 | 3.3 |
| | - Total Plan Area Crossed (km) | 9.9 | 8.0 |

- It does not impact on known or suspected fish spawning grounds whereas Alternative 2 goes through one such area.

- It does not go through any ANSIs/ESAs whereas Alternative 2 goes through 2.9 km of natural areas including Carlisle Swamp (an ESA) and Mount Nemo (an ANSI).

- It traverses 1 km less of aggregate resource areas.

- Although Alternative 1 traverses 1.9 km more of NEC lands, it actually goes through significantly less land designated Natural Escarpment Area and Escarpment Protection Area.

It can be seen from the above that Alternative 1 is superior or equal in almost all ways to Alternative 2 except for its potential to disturb known archaeological sites, tile drains, cold-water streams, hazard land and lowland high productivity woodlots. The discussion below introduces findings from other studies, field investigations, comments from government agencies and the results of discussion with the public which were considered influential in assisting the determination of the preferred route.

Ecological Services for Planning (1989) carried out a route evaluation study for pipeline routing from the Dawn to Parkway compressor stations. The NEC in responding to that study (May 3, 1990) (See Appendix A) concurred that following the existing Union Gas pipeline route through NEC controlled land appeared to be the most favorable from their perspective.

As discussed in Section 2, the presence or absence of archaeological sites is unknown. MPA (1990) suggest that both route alternatives have a more or less equal potential for the same kind of sites. Using the available information, sites which are located within 1 km of the alternative routes were distinguished from those located further away. The rationale is that Iroquoian village and burial sites represent the single greatest potential archaeological constraint encountered with any frequency and the presence of an Iroquoian village within 1 km is considered to yield an increased possibility of associated Iroquoian sites. Along both alternatives, there is only one known significant archaeological site. This is an Iroquoian village, known as the Pipeline site which is on Alternative 1.

Crossing of tile drainage areas and cold-water streams is greater for Alternative 1 than Alternative 2. However, tile drains can be readily mitigated. Also the streams in the study area are relatively small and can be crossed by dry methods. Crossing of hazard lands is 2 km more for Alternative 1 than Alternative 2, however, there are less significant wetland areas for Alternative 1.

Frequent emphasis in route selection studies has been to minimize effects to the natural environment. A major concern in this study is the effects to areas designated as Residential and Settlement Areas. Self-sustaining, single-family residential development is encouraged in these areas on relatively small lots. Burlington was concerned that route Alternative 2 west of Guelph Line would bisect an area zoned for Residential and Settlement Area. A new pipeline in these areas may change drainage patterns which could impact on the self sufficiency of the existing homes and limit future residential areas. Furthermore, increased building setbacks from the pipeline may have a visual impact and create an artificial barrier separating parts of the community (See Appendix A).

Burlington was also concerned about the more uneven nature of the topography along the southern alternative which would make preserving the natural and visual characteristics of the environment more difficult. NEC is also concerned regarding the visual impact of the pipeline route. The major aesthetic impact is in the loss of woodlots and in this aspect Alternative 1 is therefore superior to Alternative 2.

Hamilton-Wentworth and Flamborough expressed concern in the first instance regarding the crossing of the Carlisle Swamp ESA along Alternative 2. Flamborough later suggested in their letter of August 14, 1990 (see Appendix G) that they think Alternative 1 has more problems than Alternative 2 however, because of the potential impact of the former on the Settlement Area of Carlisle. Their specific concerns include disruption (during construction) to existing residents and the possibility of limiting growth in the area. They also suggest that mitigation measures can be taken to alleviate the concerns they earlier expressed with respect to the agricultural lands and environmentally sensitive areas along Alternative 2. However, the Regional Municipality of Hamilton-Wentworth when recording the alternative routes agreed with the criteria used and also with the selection of Alternative 1 because "it has less negative effects on the natural and social environments than Alternative 2." After further discussions with Flamborough, October, 13, 1990, (Appendix G), they concurred that their concerns regarding Carlisle could be addressed with alignment modifications to Alternative 1 and on January 28, 1991, the council of Flamborough passed the motion supporting the route selection (see Appendix J).

At the public meeting held in Carlisle on April 30, 1990, one of the major issues raised was that a pipeline should not restrict potential development of the village of Carlisle. As presently zoned, both route alternatives are outside the area zoned for the Carlisle Settlement Area.

From the above analysis, Alternative 1 is clearly superior to Alternative 2 and will have less negative environmental effects on the environmental quality of the area.

Questions were raised at the public meeting on January 8, 1991, regarding why a northern alternative route had not been examined. A route had been initially investigated to the north

but was rejected in that a totally different route could not be generated due to the steepness of the escarpment in the Rattlesnake Point/Nassagaweya Canyon area. After the meeting on January 8, 1991, variations on a northern alternative incorporating part of Alternative 1 were examined. These results are presented in Appendix K. The analysis indicates that the preferred route is still the same.

## 3.4 Alignment of the Preferred Route Alternative

After selecting the preferred route alternative, a more detailed (1:10 000) phase of analysis was initiated so as to precisely define the alignment for the proposed pipeline. The detailed environmental features are illustrated on figures 9 to 12. Many of the concerns related to optimizing the preferred route alternative are focused on whether the proposed line should be north or south of the existing pipelines. Table 3.2 summarizes Acres recommendations with respect to this issue.

As per the terms of reference provided by Union Gas, the proposed pipeline must tie in on the north side of the existing pipelines at both the Hamilton Valve Site and Milton Tie-In. The preferred alignment would then be as close as possible to the existing pipelines (12 m separation is generally required). Thus, from the Hamilton Valve Site the proposed alignment is 12 m north from the existing NPS 26 pipeline.

The proposed alignment then takes off north from the existing pipelines to bypass the new development in Carlisle. It was not considered feasible to go south of the town (due to more development, more difficult topography and a longer route). Discussions were held with Flamborough to determine the alignment which would best mesh with future development in the Carlisle area. The route shown on Figure 8 which is immediately north of the present settlement area, meets this requirement best. Acres considers any impacts to the natural environment resulting from this routing deviation to be an acceptable trade off with the planning objectives of the Town.

Once past Carlisle the proposed alignment is adjacent and north of the existing pipelines. Between Twiss Road and Walker's Line there are a number of constraints. The most significant one is a large man-made lake on Lot 10, Concession III, Burlington. The existing pipelines already cross the southern tip of this lake. Placement of the pipe north of the existing pipelines would involve a longer crossing of the lake and a difficult construction problem when breaching the highest section of the dike. It is proposed that the new alignment should cross from the north under the existing pipelines west of the lake and then proceed to the south of the existing pipelines through the shallow and shorter part of the lake.

# Table 3.2

## North/South Location along the Preferred Route in Relation to Existing Union Gas Pipelines

| Location | North | South | Comments |
|---|---|---|---|
| Hamilton Valve Site | X[1] | | Compatible with existing location |
| Carlisle | X | | Avoid settlement area |
| Lake Islay | | X | Construction constraints |
| Guelph Line | | X | Proximity to house |
| 'Pipeline site' | - | - | More study required to determine preference |
| Walker's Line | X | | Proximity to house |
| Appleby Line | X | | Proximity to house |
| Tremaine Road | X | | Proximity to house |
| Milton Tie-In | X | | Compatibility with existing location. |

[1] X indicates preferred side of existing line.

The slope of the land south and east of the lake is also more favorable for construction on the south side. This location also avoids the house and pond which lie north of the existing pipelines.

The alignment should then continue on the south side beyond the Guelph Line to avoid a house located to the northwest side of the road. Before reaching Walker's Line there should be an under crossing back to the north side, once again to avoid a house on the southwest side of Walker's Line. The point of under crossing has not yet been determined. There is the Pipeline archaeological site to the west of Limestone Creek and further investigations will be required before it is known where the least impact to the site will occur. If these archaeological investigations reveal no significant differences between the north and south side, then the preferred pipeline alignment would be to return to the north side before crossing Limestone Creek, as is shown on Figure 11. There would be less disturbance to the woodlot, the slope is slightly less steep and one less landowner would be affected by an alignment to the north.

From Walker's Line to the Milton Tie-In the preferred alignment is on the north side, this will avoid houses which are close to the south side of the existing pipelines at Appleby Line and Tremaine Road.

# 4 - Potential Environmental Impacts and Recommended Mitigation Measures Along the Preferred Route

# 4 Potential Environmental Impacts and Recommended Mitigation Measures Along the Preferred Route

This section assesses the potential impacts to the environment as a result of the construction and operation of the proposed pipeline along the preferred route and the mitigation measures that are recommended to minimize these impacts.

## 4.1 Pipeline Construction, Operation and Maintenance

The following is a brief description of the construction and operation process for a natural gas pipeline. Prior to construction, Union Gas contacts each landowner to discuss the construction of the pipeline, documents landowners' concerns, develops appropriate mitigation and discusses compensation.

**Construction**

The typical right-of-way during construction is illustrated in Figure 4.1. Pipeline construction is divided amongst several work crews, each crew performing a separate function under the supervision of a Union Gas Inspector. The first crew to enter the property is the clearing crew which braces and cuts all fences crossing the easement and installs any required temporary gates and fences. This crew also clears sufficient brush, trees and crops on the easement to permit construction of the pipeline.

The grading crew next prepares the easement for access by construction equipment. At this stage, topsoil is stripped by bulldozers and graders so that it will not be mixed with the subsoil later removed from the trench.

The stringing crew next lay pipe on wooden skids adjacent to the trench area. Whenever possible, the stringing trucks travel down the center of the proposed trench to minimize compaction.

Next, a trenching machine or hydraulic hoe excavates a trench. Laneways and driveways are left in the trench as long as possible where requested by the landowner. All tiles that are cut during trench excavation are flagged and repaired as quickly as possible.

A boring crew may install pipe at road and railway crossings at the same time as trenching is underway. Most crossings of this nature are bored. This operation involves a large excavation on both sides of the crossing to allow room for the boring equipment.

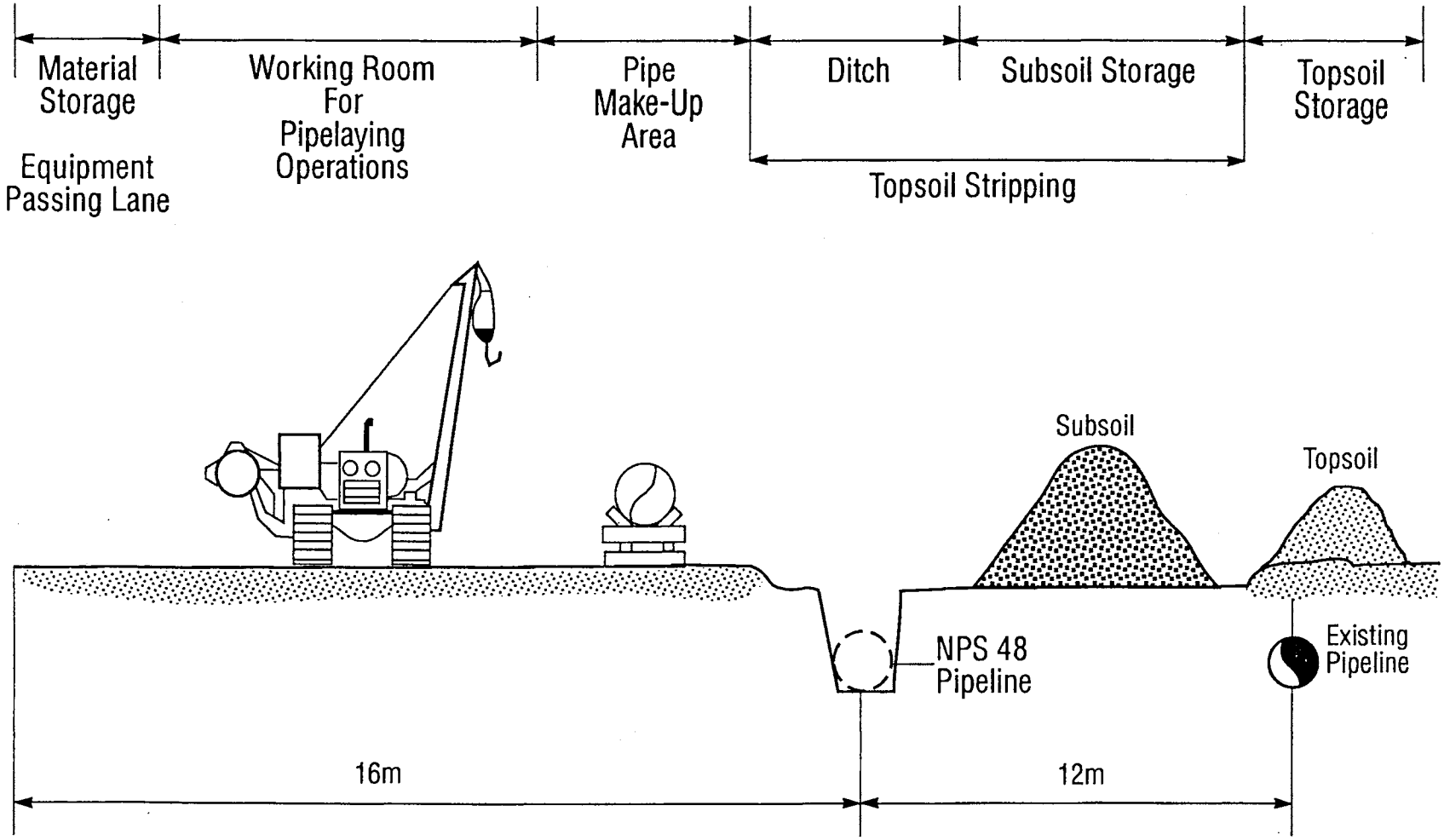



Fig. 4.1

Union Gas Limited
NPS 48 Hamilton to Milton
Right-of-Way During Construction

ACRES

Once the trench is dug, the pipe is welded into one continuous length and the welded joints are radiographically inspected. The pipe is then lowered into the trench, and backfilled with the originally excavated subsoil, or may be sand padded in rock or excessively stony areas.

After the trench is backfilled, a tiling crew repairs any disturbed or broken tiles. The landowner and municipal tile inspector, if necessary, is asked to inspect each tile repair. A tile consultant is retained to determine the necessity of repairing individual tile systems.

The pipeline is then tested hydrostatically (tested with water under pressure).

The clean-up crew is responsible for the final restoration. On farmland, this may entail subsoiling or deep chisel ploughing and stone picking. The trench line is generally crowned to allow for trench settlement. The clean-up crew will also repair fences, pick up debris, replace sod in landscaped areas and reseed sensitive areas such as woodlots, ditch banks and stream crossings.

Table 4.1 gives a listing of generic construction activities and their potential environmental impacts.

**Operation**

Pipeline operation consists of gas flowing through the pipeline. Gas flow is controlled by valves located in valve sites along the pipeline system. Valves serve to shut off and isolate a particular section of pipeline for maintenance and security purposes. In the case of the proposed pipeline, no valve sites are planned.

Above-ground facilities will be limited to post-mounted signs identifying the pipeline and small 'test boxes' located along fence lines that are used to test the corrosion protection along the pipeline.

**Maintenance**

Once the pipeline has been put into service, the following activities are undertaken to patrol and maintain the pipeline.

- A 'line walk' of the entire pipeline by Union Gas Operations personnel twice yearly (spring and fall).

# Table 4.1[1]

## Summary of Typical Construction Activities and Their Potential Impacts

| Construction Activity | Potential Impact |
|---|---|
| **1 Clearing**<br>Removal of trees, brush and crops. | Removal of vegetation leading to soil erosion.<br>Soil compaction and rutting.<br>Loss of merchantable timber.<br>Damage to stream banks and beds.<br>Disturbance to integrity of woodlot (sunscalded and throw).<br>Removal of specimen trees.<br>Disturbance to wetlands.<br>Loss of habitat. |
| **2 Grading**<br>Easement temporarily graded to reduce inclines allowing efficient use of machinery.<br>Topsoil stripped on agricultural land. | Disturbance to terrain leading to slope instability.<br>Changes to drainage.<br>Poor topsoil stripping can lead to mixture of top and subsoil.<br>Soil compaction, rutting and mixing.<br>Sedimentation. |
| **3 Trenching**<br>Excavation of trench by wheel-ditcher or backhoe. Blasting may be required in bedrock. | Disruption to farm activities<br>Road crossings can inconvenience public<br>Improper placement of spoil can cause mixing with topsoil and impede drainage<br>Pushing spoil pile into trees makes backfilling without damaging trees difficult.<br>Loss of habitat.<br>Noise/vibration effects of blasting on buildings and animals.<br>Effects of blasting on groundwater and water wells.<br>Cutting tile drains.<br>Blocking watercourses and release of sediment into streams with effects to fish activity.<br>Trench dewatering can lead to erosion and sedimentation of nearby watercourses and drainage of wetlands.<br>Damage to stream banks and beds. |
| **4 Hauling, Stringing, Welding, Lowering-In**<br>The activity of bringing the pipe to the site, unloading it onto wooden skids, welding sections of pipe together and then lowering it into the trench. | Rutting and mixing.<br>Dust, noise and soil compaction from stringing vehical traffic.<br>Interference with farm movement across easement.<br>Spent welding rods risk to livestock. |
| **5 Backfilling**<br>Excavated spoil or selected backfill is placed in trench covering pipe.<br>The backfill is compacted and a crown is left over the trench to allow for future settlement. | Poorly compacted backfill or too high a crown can cause drainage problems and affect farming operation.<br>Erosion of slopes.<br>Mixing of topsoil and subsoil. |
| **6 Testing**<br>Pipe is cleaned and checked for damage using construction and sizing pigs.<br>Pipe is tested with water. | Removal of water for testing can affect downstream users.<br>Possible erosion when discharging water. |
| **7 Clean Up**<br>Final stage in reclamation.<br>All garbage, survey stakes and debris removed.<br>All final erosion control structures installed.<br>Watercourse crossing structures removed.<br>Fences and gates repaired/replaced.<br>Chisel ploughing, etc to remove soil compaction.<br>Seeding where required (steep slopes, woodlots). | Poor clean-up can reduce agricultural capability of land. Poor stabilization of banks leads to erosion and siltation of watercourses (with subsequent effect to fish). Adverse effects to wildlife and livestock from garbage/debris. Poor regrowth of vegetation. Poor clean-up leads to bad relationship with landowners. |

[1] Summarized in part from Alberta Environment, 1985

- Air surveillance by plane or helicopter monthly during the winter and weekly for all other months. These patrols serve to detect

  - the presence or absence of structures or activities which could damage the pipeline

  - erosion problems along the pipeline

  - the operating condition of pipeline facilities such as valve sites.

To maintain access to the pipeline area, vegetation is periodically cut over the pipeline.

## 4.2 Potential Impacts and Recommended Mitigation Measures

This section describes the environmental features along the preferred route and the potential impacts of construction and operation of the proposed pipeline. Recommendations for measures to reduce these effects are included. This more detailed assessment was carried out at the 1:10 000 scale and entailed detailed field work along the preferred route, continued consultation with government agencies and interviews with the affected landowners. Figures 9 to 12 (Appendix I) show the major environmental features which will be encountered along the preferred route. This section is organized by discipline, following the same sequence as Section 2, for ease of presentation.

### 4.2.1 Natural Environment

#### 4.2.1.1 Topography

**Description**--The preferred route crosses relatively level to slightly undulating topography with few areas of difficult or steep terrain. It will run along the south side of an kame in part of Lot 10 and Lot 11, Concession IX, Flamborough where the slope for a short distance (less than 100 m) can be up to 25%. Local residents have been removing sand and gravel material from the kame and as a result it is discontinuous. Pipeline construction will follow side slopes in Lot 9 and Lot 3, Concession IX, Flamborough; Lot 10, Concession I, and Concession III in Burlington. The maximum slope in these areas is approximately 10%.

Most of the streams have relatively shallow slopes. The most significant are those adjacent to Kilbride Tributary and to the west of Limestone Creek where they exceed 10%. These occur, however, over a short distance. Areas with steep slopes or side slopes are marked in figures 9 to 12.

**Potential Impacts**--Water erosion causing gullying, rilling and sloughing are the potential impacts that could occur on these slopes. This is mainly a problem immediately after construction and before vegetation can be reestablished. Instability can occur along the stream banks.

**Mitigation Measures**--Cross ditches and berms (Union Gas Specification 91-T-13 and drawings S802, S804, and S805) for the diversion of surface runoff to the natural drainage system should be constructed.

All slopes should be contour ploughed and revegetated as soon as possible, preferably with an all-purpose, quick-germinating, seed mix (Union Gas Specification 91-T-28). To ensure rapid germination of the seed, hydroseeding and hydromulching may be used if considered necessary. To ensure stabilization on the steeper slopes, the use of rock riprap, impermeable ditch breakers and/or erosion control matting may be required.

#### 4.2.1.2 Bedrock

**Description**--The presence of bedrock either as an outcrop or in close proximity to the surface is indicated in figures 9 to 12 (and generalized in Figure 1). The exact extent of bedrock is unknown. With a minimum trench depth of 2.4 m, it is anticipated that bedrock could be encountered along approximately 0.6 km to 2.5 km of the proposed pipeline route, in particular in lots 4, 5, 11 and 12, Concession IX, Flamborough and Lot 10, concessions I, II and III, Burlington. The bedrock encountered will be dolostones of the Amabel formation. This is expected to be fragmented at its top surface but it may be sufficiently hard that blasting techniques may be required in some locations. Residences are near these bedrock areas in Lot 11 Concession IX, Flamborough and adjacent to McNiven Road.

**Potential Impacts**--If bedrock is removed by blasting, there are a number of potential impacts to humans, animals, structures and property in the vicinity. The vibrations transmitted through the ground may result in damage to buildings and other structures, and can also prove to be an annoyance to humans and possibly animals. Depending on the magnitude of the vibrations, the damage to residential structures could involve plaster cracking and falling. Changes in bedrock joints could result in altered bedrock

mass permeability. Fly rock (projectiles of blasted rock), if not adequately restrained, can damage structures and injure humans and animals in the vicinity.

Air-blast shock waves and noise are transmitted through the air when explosions occur. If of sufficient magnitude, the air blast can break windows and possibly cause structural damage. The noise aspect of the air shock can be annoying to humans and animals.

Additionally, noise and ground vibrations can also be generated by the construction equipment required both to drill the explosive charge holes, and in earth-moving operations to excavate the fragmented rock.

If the bedrock is removed by mechanical methods such as hoe rams, high noise levels can be experienced often over a longer period of time than required for blasting. Bedrock can also be removed by nonexplosive chemical methods (using such materials as Bristar) but some noise is still experienced due to drilling of the holes in which to place the material.

**Mitigation Measures**--It is recommended that Union Gas retain an independent consultant who will be responsible for approving the design and scheduling of a rock removal program. In accordance with the OEB 1989 Guidelines, blasting and noise limits shall conform to the criteria specified in the MOE "Model Municipal Noise Control By-Law" (1978 b). The by-law states that routine monitoring of the peak pressure limit and peak particle velocity limit must be carried out in conjunction with the application of their limits. Nonblasting techniques should be considered where noise and vibration levels from blasting cannot be mitigated.

Where blasting is used, precautions should be taken to mitigate the effects of fly rock by ensuring a proper design of the blasting pattern, charge ration and plugging of the charged holes (stemming). Blasting mats must be used to prevent damage which could result from the fly rock.

The buildings and structures that could be affected by blasting should be monitored during construction. This monitoring program is to be developed and implemented by the consultant as described in Section 5. Advance notice of blasting must be given to all residents within 200 m and warning signs posted.

#### 4.2.1.3 Soils

**Description**--Eleven different soil series were mapped along the preferred route as shown in figures 9 to 12. This information was extracted from published soil survey

maps for Wentworth, and Halton and confirmed from landowner interviews and field checking. The general characteristics of the soil are given in Table 4.2.

Stoniness is evident in many of the soils above the Escarpment, reflecting the underlying surficial geology of outwash sands and gravels. Occasional large boulders (over 1 m) can be expected in the subsoil. Extreme stoniness is found in the kame deposit in Lot 11, Concession IX, Flamborough.

Light sandy loam soils, (some of which are used for specialty market garden crops) are found in lots 1 to 9 Concession IX, Flamborough, whereas heavier clay loam soils are located along the eastern half of the preferred route.

**Potential Impacts**--Possible impacts of pipeline construction on soils include enhanced susceptibility to wind and water erosion, soil compaction, rutting, mixing, increased stoniness, and their resulting impacts on drainage, structural stability and/or fertility.

Silty topsoils are susceptible to water erosion, particularly those found in areas of irregular topography, as in lots 3, 4 and 9, Concession IX, Flamborough and Lot 10, Concession I, Burlington.

Rutting, mixing and compaction problems can occur if heavy machinery is operated under very moist or wet conditions on clay loam. The main effects of compaction on soils are the reduction in root penetration and reduction in hydraulic conductivity. This generally results in a reduced infiltration rate as well as mixing and degradation of the soil structure, leading to drainage problems. This would be especially noticeable in the imperfectly drained soils such as the Chinguacousy clay-loams.

Dust can be a problem with light sandy and silty soils in lots 1 to 9, Concession IV, Flamborough.

**Mitigation Measures**

- **Compaction**--To minimize impacts to soil structure a wet soil shutdown policy should be enforced. This policy restricts construction on agricultural land (cultivated and pasture) during and after periods of heavy rain. It will be implemented by the chief inspector and environmental inspector and the shutdown will remain in effect until normal soil moisture conditions are restored.

# Table 4.2

## Soil Types Along the Proposed Alignment

| Soil Mapping Unit | Parent Material | Drainage | Agricultural Capability[1] | Limitations[2] | Approximate Depth of Topsoil (cm) |
|---|---|---|---|---|---|
| Burford Loam | Outwash gravel | Well drained | 3 | P | 10-15 |
| Chinguacousy Clay Loam | Clay loam till | Imperfectly drained | 1 | | 10-25 |
| Dumfries Loam | Stony loam till | Well drained | 5 | R, P | 10-12 |
| Farmington Loam | Shallow loam till | Variable | 2 | F, M | 12-15 |
| Flamborough Sandy Loam | Outwash medium sand | Poorly drained | 2 | W | 12-15 |
| Font Sandy Loam | Outwash gravel | Well drained | 2 | F, M | 6-8 |
| Grimsby Sandy Loam | Medium sand over bedrock | Well drained | 2 | F, M | 0-5 |
| Guelph Loam (shallow phase) | Loam till over bedrock | Well drained | 6 | R, P | 10-12 |
| London Loam | Loam till | Imperfectly drained | 2 | W | 15-20 |
| Oneida Clay Loam | Clay loam till | Well drained | 1 | | 10-15 |
| Springvale Sandy Loam | Outwash sand and gravel | Moderately well drained | 2 | F | 10-15 |

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**[1]Capability classes based on the Canada Land Inventory system where soils are grouped into 7 classes based on their capability for agricultural use–Class 1 has no limitations-Class 7 are not suitable for agriculture.**

**[2]Type of limitation**
**R Depth to bedrock**
**F Fertility**
**M Moisture deficiency**
**P Stoniness**
**W Excessive moisture**

Agricultural crops should be left uncut or shredded and left on the soil surface over the entire working area. This helps to reduce soil compaction and rutting due to heavy equipment and vehicular traffic, by spreading the load and holding the soil in place.

To alleviate compaction, chisel ploughing and/or subsoiling as outlined in Union Gas Specification 91-T-28 Cleanup should be undertaken.

In agricultural areas, random soil samples should be taken from areas prone to compaction so that the requirement for further chisel ploughing and/or subsoiling can be assessed. Also a cover crop (e.g., alfalfa or red clover) should be recommended to the landowner to be planted over the entire easement before and after construction to aid in the restoration of agricultural soils.

Whenever possible, all vehicles should drive over the future trench area to confine potential compaction in areas that will be trenched thus minimizing undue compaction along the total width of the easement.

- **Topsoil**--Topsoil should be stripped and stockpiled separately in accordance with Union Gas Specification 91-T-12 Topsoil Conservation. The topsoil should only be stripped over the trench area and under the subsoil pile, a width of approximately 12 m (see Figure 4.1). On side slopes and hill tops, additional topsoil may have to be stripped because of grading requirements. It is recommended that the topsoil be stripped entirely in areas of particularly heavy vehicular traffic, for example adjacent to road bores.

  To reduce the amount of working room in woodlots, and thus create less disturbance, it is recommended that the topsoil not be removed separately in these locations. However, care should be taken to replace soil from the spoil pile in the reverse order from which it was removed to help reduce the mixing of soil horizons.

  Topsoil should not be stockpiled along natural drainage ways. This may cause an increase in topsoil moisture content and deterioration of soil structure, as well as water erosion, loss of topsoil and interference of the drainage.

  Access through the topsoil piles to adjacent fields must be maintained where requested by landowners.

- **Subsoil**--Subsoil should be excavated and stockpiled separately from the topsoil as illustrated in Figure 4.1. Subsoil should not be piled in a manner that would interfere with natural drainage.

- **Mixing and Rutting**--All considerations previously specified for compaction will apply. In addition, special attention should be paid to the clay soils (Oneida and Chinguacousy clay loams) by restricting vehicular movements on them under wet conditions.

- **Stone Picking**--On agricultural land, any stones greater than 100 mm (fist size), should be picked up and hauled away after the construction is completed according to Union Gas Specification 91-T-28 Cleanup. Repeated operations of chisel ploughing and stone picking may be required. Stone picking should be repeated the following spring, if necessary. In areas of extreme stoniness, removal of all stones will not be possible. The environmental inspector must ensure however, that the easement is not stonier than the adjacent land.

- **Cleanup**--Cleanup should adhere to Union Gas Specification 91-T-28 Cleanup. Subsoil should be mounded over the pipeline trench to allow for subsistence except if it is considered that there has been adequate compaction during backfilling.

  Woodlands and sensitive areas prone to erosion such as ditch banks, stream banks, roadsides and steep slopes, should be fertilized and seeded using Union Gas Specification 91-T-28 Cleanup. Other measures including contour ploughing, rock riprap, erosion control matting and hydroseeding should also be considered.

  Any excess subsoil should be removed to an acceptable disposal site. This site (sites) must be approved by the Halton Region Conservation Authority or other appropriate governing body (see Halton Region Conservation Authority letter, Appendix J).

#### 4.2.1.4 Water Resources

**Groundwater**

- **Description**--There are three main aquifers along the preferred route

  - localized granular overburden aquifers in the west half of the route
  - a dolomitic bedrock aquifer in the west
  - a shale bedrock aquifer just east of Kilbride Tributary to the east end of the route.

Groundwater is near the surface along the western part of the preferred route as can be seen from Table 4.3. Landowners commented that groundwater had been encountered during previous pipeline trenching in Lots 12 Concession IX, Flamborough and Lot 10, Concession II Burlington. Also, in low-lying areas trenching may encounter groundwater. Well records (Ministry of the Environment (MOE), 1978, 1982) indicate that water was found at depths ranging from 5 - 25 m in Flamborough, 4 - 21 m in Burlington and 7 - 26 m in Milton.

Wells completed in the dolomitic bedrock or overburden aquifers had carrying capacities in excess of 30 L/min. whereas the shale aquifer had much lower yields. Groundwater recharge is essentially by precipitation locally infiltrating the surficial sediments with little significant lateral flow. Infiltration is greater in the areas of outwash sands and gravels than in the till areas.

All known water wells within 100 m of the preferred route are shown in Table 4.3 and in figures 9 to 12. The location and depth of the wells were determined from discussions with landowners and from the MOE well records (MOE, 1978, 1982).

As can be seen on Table 4.3 data on these wells are incomplete. Well depths appear to vary from 6 m to 23 m and all wells are satisfactory producers. There are no water-table depth measurements available for most of the wells shown in Table 4.3 but these are anticipated to conform with water table data given above.

Wells in bedrock are drilled boreholes, usually 6 in. (15 cm) in diameter. In each well, steel well casing runs through the surficial deposits and is socketed (usually cemented) into bedrock. The bedrock portion of the well is usually an open borehole. Below the Escarpment the surficial till deposits form a good barrier against surface water contamination of the local bedrock aquifer. Above the Escarpment the overburden deposits are of more variable thicknesses and there are bedrock outcrops. The bedrock aquifers in this area, particularly in zones of near surface or surface outcrops, are more susceptible to local contamination from surface sources.

Most wells in the aquifers of the various granular deposits are drilled, although at least one dug well was noted along the pipeline route. Drilled wells in surficial deposits are fully lined with steel casing and usually have a steel or plastic well screen in the water producing horizon. Depending upon the depth of the well screen, the method of well construction and nature of the soil stratigraphy, these wells can be susceptible to contamination from local surface sources.

# Table 4.3

## Water Wells Within 100 m[1]

| Owner | Location Lot | Concession | Approximate Distance from Pipeline Easement (m) | Approximate Depth Of Well (m) |
|---|---|---|---|---|
| **Town of Flamborough** | | | | |
| Jackson | 11 | IX | 80 (north) | Spring |
| Courtcliffe Park | 10 | IX | 60 (northwest) | <15 |
| | | | 100 (south) | <15 |
| Fasullo | 10 | IX | 30 (northwest) | Spring |
| | | | 80 (southeast) | 18 |
| McCartney | 8 | IX | 100 (north) | 12 |
| Sandink | 8 | IX | 30 (south) | 11 |
| Bent | 7 | IX | 50 (north) | nd[2] |
| Allen | 3 | IX | 100 (southeast) | 23 |
| MOE Log No. 68-7801 | 1 | IX | 33 (south) | 19 |
| **City of Burlington** | | | | |
| Neilson | 10 | I | 35 (north) | 10 |
| Lillycrop | 10 | II | 85 (north) | 10 |
| Buzza | 10 | II | 50 (south) | nd |
| Bellm | 10 | II | 45 (south) | 15 |
| Stipsits | 10 | II | 5 (south) | nd |
| | | | 10 (south) | nd |
| Al-Jay Development | 10 | II | 30 (south) | 13 |
| | | | 30 (south) | 13 |
| McColl | 10 | III | 40 (north) | <10 |
| | | | 30 (south) | <10 |
| Gordon | 10 | II | 80 (north) | 6 (dug) |
| Dobbin | 10 | III | 100 (north) | nd |
| Ireland | 10 | III | 20 (north) | nd |
| Blanche | 10 | IV | 90 (north) | nd |
| Triad | 9 | IV | 100 (south) | <10 |
| Davidson | 9 | IV | 13 (south) | nd |
| Hoare | 9 | V | 25 (south) | nd |
| Limestone Farms | 10 | VI | 100 (north) | 6 |
| **Town of Milton** | | | | |
| 'Auto wreckers' | 9 | I | 49 (south) | nd |

[1]**This list could be incomplete. All locations should be confirmed prior to construction.**

[2]**No data**

Burlington has raised concerns regarding construction in the Kilbride area and its possible effects on the groundwater and well water levels. With the establishment of a number of new homes within the Kilbride area in the past few years there has been reported draw down of groundwater in the existing wells. Recent changes to the Halton Region Urban and Rural Servicing Guidelines (1990) recommends that no new development can adversely affect any existing wells with respect to either water quality or quantity.

- **Potential Impacts**--The planned construction activities can have the following potential impacts on local wells and aquifers.

  - Interference with the groundwater recharge and lowering of the water table.
  - Quality of groundwater can be affected.
  - Can cause damage to well construction or introduce suspended matter into the groundwater as a result of blasting activities.

  For the most part, construction of the pipeline trench, approximately 2.4 m deep, is not expected to result in any noticeable change in the flow regime through either the regional bedrock aquifers or in the local surficial sand and gravel aquifers. The water table in wells is generally deeper than 3 m and pipeline construction will be well above the level of groundwater extraction. It is possible that sand point dewatering may be required to lower the water below the trench bottom in a few areas with near-surface groundwater. This may result in localized lowering of the water table for a short period of time during construction. The impact on wells will be minimal as the major effects of water table lowering will occur in the immediate area of the trench and local wells which are generally located more than 10 or 15 m from the trench will experience minimal water table lowering.

  In areas of near surface groundwater table the trench may become a zone of high or low permeability if improper backfilling is carried out. This could result in a local barrier to groundwater flow or the formation of a linear 'drain' which could draw the groundwater away from a given area. While possible in a few small areas, it is not anticipated that this situation will cause problems.

  The sand and gravel aquifers and Guelph-Amabel aquifer in areas of near surface bedrock are susceptible to contamination. This contamination could be the result of improper disposal of muddy water from local trench dewatering or the introduction of contaminants into the work area as a result of improper construction procedures.

Blasting activities can locally change rock permeability and flow patterns. Excessive blasting vibrations can damage the well by jarring loose the casing or cracking the well housing. This may result in seepage of contaminated surface water into the well.

- **Mitigation Measures** --It is not anticipated that any effects will occur to wells due to pipeline construction. However, it is recommended that all wells 50 m from the pipeline trench (and 100 m in bedrock areas) be monitored. This program is outlined in Section 5. Any wells that are adversely affected must be repaired or replaced to pre-construction quality and quantity conditions.

  Groundwater contamination by fuel spills must be avoided by ensuring that the contractor is aware of the possibility of contamination by reference to this concern in the construction contract.

  Where it is necessary to pump water from the trench due to high groundwater levels, this water should be discharged in an area acceptable to the landowner. The hoses should be equipped with a dissipator to ensure that erosion does not occur. Backfill methods should ensure that pre-construction drainage conditions are restored. If the trench area remains excessively wet, it may be necessary that some subsurface drainage (either plastic pipe or gravel drain) be installed.

  Carefully controlled blasting will eliminate the effects of ground vibration induced damage. Seismic monitoring and the enforcement of acceptable ground vibration criteria should be carried out.

  The effects on the groundwater in the Kilbride area (from just west of McNiven Road to Twiss Road) from the pipeline construction are anticipated to be minimal. This is based on information obtained from the previous pipeline construction and in discussion with blasting and groundwater specialists from Acres and an independent consultant. The main points are as follows.

  - There were no reports of any adverse effects to wells from earlier pipeline construction.

  - Using information from the seismographic reports in 1970, it would appear that with the nature of the bedrock in the Kilbride area and a blast size producing less than 50 mm/s at the existing pipeline, it would be improbable that there would be any damaging vibrations beyond 15 m. Closer than this distance, there is a possibility that the water level may rise and fall by 2.5 cm during the blast (Martin, 1990).

- The previous pipeline trenching did not affect groundwater flow and although the trench for the proposed pipeline is deeper by 60 cm, the previous history is a useful indicator that it is improbable that the new trench will affect the groundwater flow. Overall it is considered that the trench depth is too shallow to affect the general groundwater flow. However, where groundwater flows are encountered, trench breakers may be necessary so that the original flow regime is maintained.

**Surficial Water**

- **Description**
  - **Streams**--Nineteen stream crossings were identified along the preferred route and are marked in figures 9 to 12. They were surveyed during field work in the summer of 1990 and their characteristics are summarized in Table 4.4. It is anticipated that five of these stream crossings along the preferred route, (SC-10, 15, 17, 18, 19) will be dry during low flow conditions in the summer.

    The significant crossings, from the perspective of flow, will be Bronte Creek (SC-1 and SC-2), One Mile Creek (SC-4), Kilbride Tributary (SC-5), and Limestone Creek (SC-8).

    Bronte Creek and its tributary Mountsberg Creek join in Lot 10, Concession IX Flamborough (SC-1 and SC-2), (Figure 9). The stream at this location is flowing through Courtcliffe and the natural river bed has been altered by damming and straightening to produce ponds and improve drainage through the area. Bronte Creek is crossed twice in Courtcliffe. SC-2 is a diversion channel from the main creek. There is a lack of in-stream cover in both SC-1 and SC-2. The stream is approximately 3 m and 5 m wide at the two crossing points (however, the width is extremely variable due to man-made alterations) and had a discharge of 1.6 $m^3/s$ when measured during field work in July 1990.

    Minimum flows are recorded between July and September and ranged from 0.21 $m^3/s$ to 0.32 $m^3/s$ between 1980 and 1985 at the Progreston flow gauge (just downstream of the crossing point) (Environment Canada, 1985).

    The other three main crossings (SC-4, 5 and 8) are aesthetically attractive streams with combinations of pools, riffles and braiding and have good overhanging cover. SC-4 and SC-5 have gravelly bottoms, whereas Limestone Creek (SC-8) flows through finer silty material but with boulders and cobbles.

## ıble 4.4
## General Characteristics of Watercourses Crossed by Proposed Pipeline

| Site/Map Reference | Watercourse Type | Approximate Channel Width (m) | Approximate Depth (cm) | Approximate Discharge July/Aug 1990 ($m^3/s$) | Water Quality Indicators | Surrounding Land Use | Riparian Vegetation | Bed Materials | Bank Characteristics | Erosion Potential | Fisheries Habitat Potential |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [1]SC-1 | Bronte Creek | 4-8 | 8-18 | 1.6 | Clear | Campground | Scattered willow and lawn | Muck and gravel | 0.5 m high grassy | Low | Medium-high coldwater, brook trout, brown trout, (MNR, 1989) bass, sunfish suckers[2] |
| SC-2 | Mountsberg Creek | 4-8 | 50-70 | nd | Clear | Campground | Scattered basswood, white birch, lawn grass. | Muck | 0.5-1 m high grassy | Low | Medium-high coldwater, brook trout, brown trout, (Marshall, 1990) |
| SC-3 | One Mile Creek | 0.7 | 2.5 | Too shallow | Clear | Woodlot, cow pasture, firewood cutting. | Semi-wetland, mixed deciduous/ conifers | Muck and gravel | Fairly deep organic muck <0.5 m high | Medium | Low, cold water brook trout[2] |
| SC-4 | One Mile Creek | 2.4 | 9.1 | 0.03 | Clear | Woodlot, horse pasture | Lowland deciduous/ coniferous forest. | Muck | 1.5-2 m with trees and shrubs | Low-medium | Low-medium cold water chub, possibly brook trout[2] |
| SC-5 | Kilbride Tributary | Braided 2 channels 1-2 m | 15-25 | 0.06[3] | Clear | Woodlot, hay field | Mixed deciduous | Gravel | Banks > 20 ft slope > 20% | Medium | Medium-high Coldwater, brook trout[2] |
| SC-6 | Spring | <0.3 | 0-1 | Too shallow | Clear | Woodlot, recreation (lake), horse pasture | mixed deciduous, scrub | Rocky | no banks | Low | Nil |
| SC-7 | Intermittent stream tributary of Limestone Creek | - | 0 | dry | | Hay farming/ stream course overgrown. | Scrub, grassy, - overgrown | Muck | no banks | Low | Nil |
| SC-8 | Limestone Creek | 2 - 4 | 2 - 20 | 0.06 | Relatively clear some green algae. | Woodlot with clearing, beehives, corn farming, hay/clover farming. | Mainly upland deciduous forest with prevalent white cedar clumps | Muck stones gravel | 0.5-1.5 m, grassed with trees and mixed herbs | Low | Medium-high coldwater, resident brook trout, (MNR, 1989) Salmon[2] |
| SC-9 | Stream-straightened tributary of Limestone Creek | <0.3 | 5 | Too shallow | Relatively clear some algae. | Mixed grains. | Field boundary | Muck and gravel | 0-0.5 m, grassed | Low | Low |
| SC-10 | Stream straightened tributary of Limestone Creek | <0.3 | 0 | Dry | - | Mixed grains/hay. | - | - | - | - | Nil |
| SC-11 | Stream straightened tributary of Limestone Creek | 0.5 | 5 | Too shallow | Relatively clear, with brown and green algae. | Mixed grains/hay. | Congested mixed herb growth | Muck | 0-0.5 m, grassed with abundant vegetation. | Low | Low |
| SC-12 | Stream straightened tributary of Limestone Creek | <0.3 | 4 | Too shallow | Relatively clear some green algae. | Winter wheats, mixed grains. | Congested mixed herb growth | Sand, gravel | 0-0.5 m, grassed with abundant vegetation | Low | Low |

[1]Stream crossing

[2]As reported by landowner

[3]Discharge measured at bridge at Derry Road

Table 4.4
General Characteristics of Watercourses Crossed by Proposed Pipeline - 2

| Site/Map Reference | Watercourse Type | Approximate Channel Width (m) | Approximate Depth (cm) | Approximate Discharge July/Aug 190 ($m^3/s$) | Water Quality Indicators | Surrounding Land Use | Riparian Vegetation | Bed Materials | Bank Characteristics | Erosion Potential | Fisheries Habitat Potential |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SC-13 | Stream-straightened tributary of Indian Creek | 1 | < 10 | Too shallow | Relatively clear | Apple orchard. Water used for spraying. | Swampy, cattails. | Stones and muck. | - | Low | Low |
| SC-14 | Field drain | < 1 | 5 | Too shallow | Some algae. | Alfalfa | Grass | Clay loam | Grassed | Low | Nil |
| SC-15 | Road ditch/ field drain | 0 5 | - | Dry | - | - | Hedgerow | Clay loam | Grassed/trees. | Low | Nil |
| SC-16 | Stream-straightened tributary of Indian Creek | < 1 m | - | Dry[1] | - | Apple orchard. | Grass | Clay loam | - | Low | Nil |
| SC-17-18 | Tributaries Indian Creek | | - | Dry | | Soybeans/hay | - | Clay loam | - | Low | Nil |
| SC-19 | Indian Creek field swale | | - | Dry | - | Soybeans | Cattails | Clay loam | | Low | Nil |

[1] Landowner reports stream usually flowing except when farmer upstream is irrigating

The western streams are cold-water streams containing brook trout. None of the streams are being crossed in known spawning areas (MNR, 1990), except for the possibility of SC-3, where the landowner indicated that trout had been spawning there up until 2 years ago.

- **Ponds**--There are a number of man-made private ponds along the preferred route. These are located in Lot 10, Concession I (Lindley), Lot 10, Concession III (McColl and Gordon) and Lot 10, Concession IV (Segsworth), all in Burlington. The ponds on the Lindley and Segsworth properties can likely be avoided.

  The largest pond (Islay Lake), approximately 10 ha, is located on the McColl/Gordon property. This is the only pond likely to be affected by construction of the pipeline. It was created by construction of a dike around the southern side of the lake. The dike is at its maximum depth in the south central section and is shallowest at the very southwestern tip where it is only 1 - 2 m. The water is shallow in this southwestern area reaching its deepest (possibly 8 - 10 m) north of the Gordon house. The dike is made from clay material which was excavated from the bottom of the lake and may not sustain the weight of heavy equipment working on it. The lake is supplied by some natural springs but in order to maintain the present water level, water is pumped from a lower pond which is also spring fed.

  The only fish reported in these ponds is large mouth bass in Islay Lake. These fish were introduced into the lake a number of years ago through a stocking program and they now naturally regenerate. There is a private club (Islay Farms Fishing Club) which uses the lake for sport fishing.

- **Hydrostatic Testing--**When construction of the pipeline is completed, it is tested to ensure its integrity before it is made operational. The final test is when the pipe is filled with water and left under pressure for 24 hours. This is known as a hydrostatic test.

  To fill the entire length of pipe, approximately 20 000 $m^3$ of water will be required. MOE recommends that not more than one third of a stream's flow be diverted for hydrostatic testing. Bronte and Mountsberg creeks are the only streams in the study area which can meet the minimum filling rate of 0.023 $m^3/s$. Another source of water could be Islay Lake, which has an area of 10.5 ha. The Milton municipal water supply from First Line could also be used if approved by the Town.

- **Potential Impacts**
  - **Streams**--The potential impacts to streams may be

    - siltation
    - disruption to spawning activities
    - disturbance to spawning beds
    - increased instability in the stream banks
    - reduction of aesthetic quality of the stream by removing trees and other vegetation
    - altering the watercourse and the nature of the stream bottom.

  - **Ponds--**The potential effects due to crossing the ponds may be

    - disturbance to the aesthetic setting of the pond
    - disturbance to the pond's water retention capability
    - disruption to the source of irrigation water
    - affect the fishery in Islay Lake.

  - **Hydrostatic Testing--**The potential effects of hydrostatic testing may be

    - excessive withdrawal of water from a source can affect downstream users and fish habitat
    - erosion when water is discharged from the pipeline after testing
    - introduction of contaminated material into the watercourse.

- **Mitigation Measures**

  **Streams--**Typically two standard procedures for crossing watercourses are used. These are known as wet and dry crossings and are described in Union Gas Specification 91-T-16 Stream Crossings. As the names imply, in a wet crossing, water-courses are crossed with no attempt to isolate water from the construction whereas in a dry crossing water is kept out of the construction area. In a wet crossing the trench is dug directly in the stream bed with the water flowing continually. These crossings are usually employed for large water courses where it would be impractical to divert the entire water flow.

  Dry crossings can generally be achieved in two manners. One process, outlined in Union Gas standard drawings S806 and S807, is where a flume pipe is installed within the channel and the water is diverted through the pipe. The trench is dug under this pipe while the water flows through it. The other dry technique involves temporary dams

on the upstream and downstream sides of the work area. Portable pumps and flexible hoses are used to maintain stream flow across the working area by pumping from the upstream to the downstream side. Access roads have to be constructed for both crossing techniques.

It is recommended that dry crossings be employed for all flowing creeks and in particular, for the more sensitive streams identified above (SC-1, SC-2, SC-4, SC-5 and SC-8). The MOE and the Halton Region Conservation Authority favor dry crossings (see Appendix J). However if at the time of construction a dry crossing is not considered feasible then, in consultation with the local MNR office and the Conservation Authority, a wet crossing may be acceptable if sediment releases are kept to a minimum. Stream crossings should be completed as quickly as possible and stream flow should not be interrupted.

Trenching should not be undertaken within 25 m of a watercourse until just prior to the crossing. Alternatively, if practical, trenching could be undertaken to the top of the river bank. In any case, a final field recommendation would be made by the environmental inspector. This ensures that in the case of wet weather or high stream flow that the plug is not broken through and also any water pumped from the trench does not find its way directly back into the watercourse.

For the Bronte Creek crossings (SC-1 and SC-2), consideration should be given to temporarily diverting the water in SC-2 back into the original channel SC-1 to facilitate the SC-2 crossing in the dry. The existing dams, just upstream of the crossing point, could possibly be used in the dry crossing of Bronte Creek instead of building temporary dams. If trench dewatering or sand point dewatering is necessary, water should be pumped into a grassy area so as to intercept as much sediment as possible. Discharge should ensure that no increase in stream erosion occurs.

Stream crossing timing would be ideally suited to summer low-flow periods (July/August). For the cold-water stream crossings should not commence before June 1 and should be completed two weeks prior to the brook trout spawning season period or by September 15 (Tapley, 1990). MNR should be informed one week prior to any anticipated crossing. Access roads across the streams should be constructed and removed in the same time window as the crossing. If scheduling becomes difficult, the road could be removed the following season if approved by the landowner and the appropriate permitting agencies.

Removal of in-stream and bank vegetation should be minimized. The stream bed should be restored to its preconstruction condition. Sloped banks should be stabilized as soon as possible following construction. If the banks have not been stabilized (for example, the vegetation is not reestablished) by the end of the fall, interim protection should be provided over the winter to prevent runoff and silt entering the water course. This protection would involve some sort of silt fencing such as staked straw bales protected by geotech-style material.

A "Fill, Construction and Alteration to Waterways" permit from the Halton Region Conservation Authority will be required for stream crossings as will a permit from MNR under the Lakes and Rivers Improvement Act.

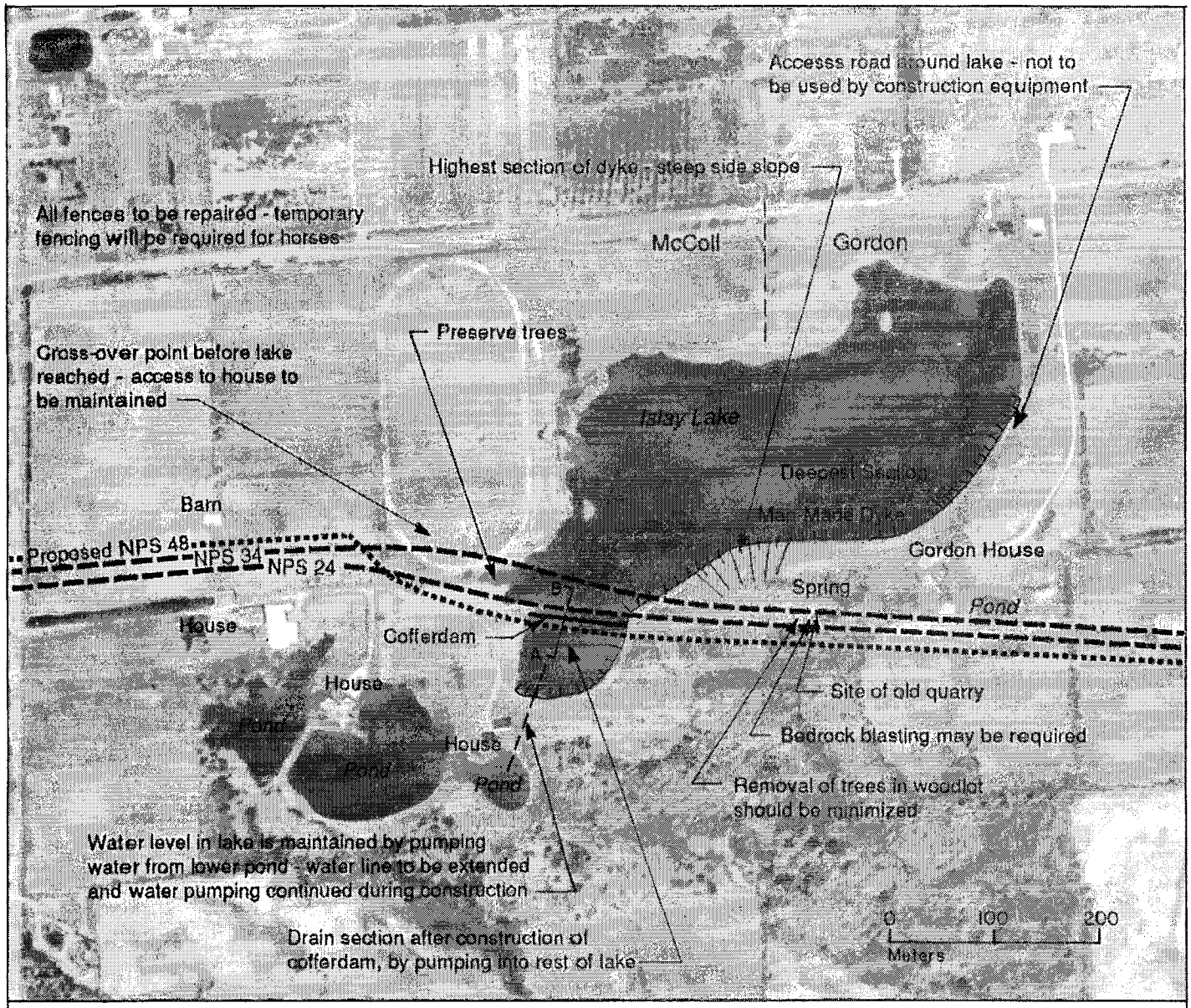
**Ponds--**If the ponds on the Lindley and Segsworth property are crossed, they should be drained, or partially drained, so that construction can proceed in the dry. The water from the ponds must be discharged in a location acceptable to the landowner and must be controlled so as not to cause any erosion. The berm at the south end of the Segsworth pond will probably have to be rebuilt after the pipe has been laid. The Lindley pond must be relandscaped and any lawns disturbed must be resodded to preconstruction conditions. If there is insufficient water for irrigation purposes during construction, an alternate source of water must be provided.

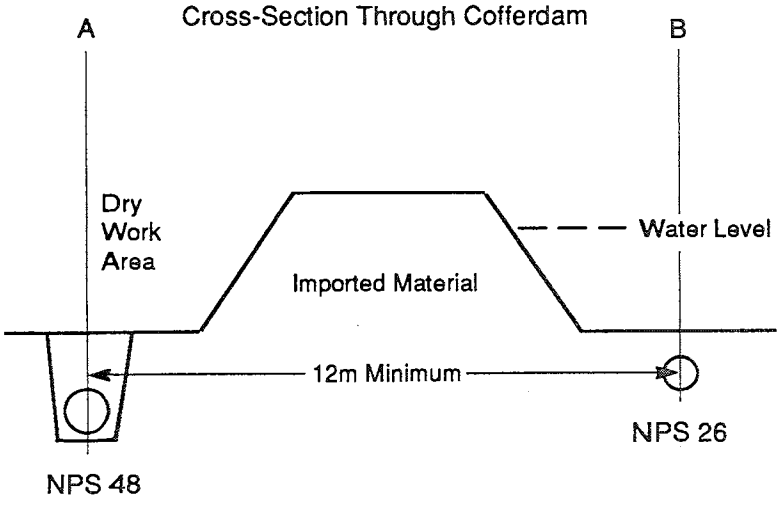
Crossing of the pond on the McColl/Gordon property is outlined in Figure 4.2. A cofferdam should be placed just south or just north of the existing pipelines and the water behind the dam pumped out into the lake to the north. Pipeline trenching can then be carried out in the dry and the dike repaired. The area should be filled with water and the integrity of the dike checked before the cofferdam is removed. No construction traffic is to be allowed on the dike surrounding the lake.

The trees on the west side of Islay Lake must be preserved if possible and removal of the trees in Woodlot W-12 should be kept to a minimum. The rest of the area must be restored including regrading and seeding.

In order that spawning activities of the large-mouth bass within the Lake are not affected, construction should occur after July 1. Large-mouth bass tend to use shallow water as nursery areas and if this part of the Lake was found to be a significant location, measures should be taken to move the fish before draining the area.

**Hydrostatic Testing--**Bronte Creek, Islay Lake or the municipal water supply are recommended as sources for the hydrostatic test water. A water permit will be required




Dimensions Dependent on Actual Water Depth

Specifications

- Use imported material for cofferdam.
- Pump area behind cofferdam dry.
- Pipe placement and repair to dike carried out in dry.
- Remove cofferdam.

Fig. 4.2

Union Gas Limited

NPS 48 Hamilton to Milton

Proposed Crossing of McColl / Gordon Property

AGRA

from MOE in advance of removal of any water from a surface source as the withdrawal will exceed 50 000 L/d. If Bronte Creek is used the rate of withdrawal must not exceed one third of the stream flow.

After the water has been used for hydrostatic testing, it is desirable to return it to the same source. The primary consideration is that the necessary measures be taken to ensure that erosion does not take place when the testing water is discharged or that the water quality is not harmful to the lake or stream. A pre- and post-testing water quality program should be carried out in consultation with MOE. Union Gas Specification 91-T-30 Hydrostatic Testing and Drawing No. 809 should be followed. They require the use of an energy dissipator and erosion protection. Pumps used for withdrawal of water for hydrostatic testing must be placed within temporary, plastic-lined berms when located near the lake shore or creek bank to prevent spills of fuels or lubricating fluids into the water courses.

#### 4.2.1.5 Terrestrial Environment

**Vegetation**

- **Description**--Much of the preferred route is within agricultural fields, however, approximately 2.4 km will affect wooded areas. The woodlots are marked in figures 9 to 12 and described in Appendix B, along with the list of trees, shrubs and ground cover identified during field work along the preferred route. The woodlots most sensitive to human disturbance are W-4, W-6, W-8, W-9, W-10, W-12 and W-13 in Lot 3, Concession IX, Flamborough and Lot 10, Concession I, II, III and IV, Burlington. W-4 is a mixed conifer hardwood woodlot with mature trees in the south providing a high aesthetic value for the houses to the south. W-6 and W-12 are Sugar Maple/Beech type hardwood associations with mature trees and some degree of sensitivity to construction. W-6 will be affected in 2 locations in the west (W-6a) and southern tip. The northeast portion of W-6 is designated as a Class V wetland by MNR. W-8, W-9 and W-10 are basically all one woodlot divided either by road or previous pipeline construction. Sugar Maples dominate these medium-high sensitive woodlots. W-8 has been classified as a Class VII wetland. W-13 is a medium-high sensitivity conifer/deciduous upland forest with mature Oak, Cedar, White Pine and Sugar Maple.

  Woodlots are located adjacent to five of the stream crossings (SC-3, SC-4, SC-5, SC-6 and SC-8). Hedgerows are found along many of the field boundaries, often supporting Walnut, Basswood, Oak and Hawthorn. In particular the preferred route will be parallel and adjacent to hedgerows H-1 and H-2, a distance of almost 1 km.

  The 2 wetlands in W-6 and W-8, as described above, are classified as class V and VII respectively, (MNR, 1984 a). These are the lower classes in the wetland classification.

For this system, wetlands are defined as areas with shallow standing water (<2 m deep) until July 1 in most years (MNR, 1984 b).

One landowner identified that ferns (Christmas Fern), mosses (i.e., British Grenadier) and herbaceous plants (orchids, trillium, wild ginger, Indian pipe and cancer root) grow in Woodlot 6a. Of these, cancer root is designated as a rare plant in the Halton-Hamilton area. This plant grows throughout the woodlot in clumps mainly in the lower, wetter and rockier sites.

- **Potential Impacts and Mitigation Measures**--Potential impacts to vegetation include

  - removal of trees
  - loss of merchantable timber
  - aesthetic disturbance
  - fragmentation of woodlots
  - loss of hedgerows
  - loss of significant plant and tree species
  - disturbance to wetlands
  - removal of vegetation along a 6 m band of easement centered over pipeline required for operational surveillance.

Union Gas Specification 91-T-11 Tree Clearing, and the protection of specimen trees (Union Gas Specification Drawing S801) should be followed. The environmental inspector appointed during construction should identify and flag which specimen trees are to be protected.

A certain amount of tree removal will be unavoidable. However, by overlapping the preferred route with the existing Union Gas easements impacts to wooded areas will be reduced. It is anticipated that a maximum of a 20 m swath adjacent to the cleared areas for the existing pipelines would need to be removed. However, a totally new easement of 28 m will have to be cleared in W-4, W-5, W-6a and part of W-6. In the worst-case scenario approximately 5.7 ha of woodlots will be removed of which approximately 2 ha is classified as barren and scattered (scrub) by MNR Forest Resources Inventory maps. Union Gas should attempt whenever possible to reduce as much as possible its working area and the width of the cleared swath.

Overall timber values are not high along the preferred route. By using the Forestry Resources Inventory maps an estimation was made of the volume and value of timber that will be lost during construction (Appendix B). The woodlot with the greatest volume of timber to be removed will be W-8 (96 $m^3$ representing a revenue of $624) with the lowest being W-4 (12 $m^3$ representing a revenue of $75).

By selecting the preferred route, mainly adjacent to an existing easement, the visual impact of the pipeline will be minimized. The landscape has already been disturbed in these areas.

Similarly, woodlot fragmentation has been reduced by the choice of the preferred route. Woodlots along the present easement have already been fragmented. The greatest potential for fragmentation is where a totally new easement will have to be cleared in W-4, W-5, W-6 and W-6a. W-4 is a small woodlot with mature trees in the south. The mature trees should be avoided by routing to the north (this will also avoid the irregular topography in the south). Fragmentation of W-5 is minimal in that the preferred route passes through the very southern section of the woodlot and through areas designated as barren and scattered. Similarly, fragmentation of W-6 is minimal as the route lies on the western boundary of the woodlot. The risk of fragmentation is higher in W-6a as the pipeline passes through a mature mixed stand. However, by selection of the preferred route through the narrowest portion of the woodlot (a distance of approximately 50 m) the impact should be reduced. In terms of the loss of herbaceous plants in W-6a, in particular cancer root, the choice of the narrowest part of the woodlot should also minimize the effect on this plant.

Specimen trees/hedgerows should be avoided or bored if possible. Hedgerow vegetation and the scrub areas that contain common, fast-growing early successional species such as dogwood and hawthorn will be cut but these species are expected to regenerate rapidly. Hedgerows H-1 and H-2 must be avoided. H-2 acts as a visual barrier and the Union Gas environmental inspector should closely monitor the construction crews in this area to ensure that the hedgerows are preserved.

Disturbance to wetland areas should be minimized by reducing the amount of work area. The Union Gas environmental inspector should closely monitor activities in the wetlands to ensure restoration after construction, in particular natural drainage patterns and flood storage capacity must be restored (by replacement of the muck soil within the trench and prevention of water draining along the pipeline with breakers, if required). Any corduroy construction roads should be removed unless approved by the landowner and conservation authority.

The pipeline is to be located along the southern- and western-most fringe of the Class V (W-6) wetland and the impact to the wetland is considered minimal. The Class VII wetland in W-8 is crossed through the center (a distance of 350 m). Construction should occur after the local spring growing season so that there will be less impact to the wetland. Field work along the preferred route in this area has confirmed the lack

of significant plant or tree species. It is felt that the overall sensitivity of the area is relatively low and there should be rapid regeneration of the present species after construction.

There will be residual impacts to woodlots resulting from construction, even after the implementation of the mitigation measures. Mature trees will be lost and the aesthetic appearance in the area of the route will be diminished. Sunscald and blow downs along the new exposed forest edges will be inevitable. However, by overlapping with the existing easement, the residual effects are reduced.

Union Gas should discuss reforestation options for cleared areas with affected landowners. This would exclude the previously mentioned requirement for a 6 m cleared swath centered over the pipeline.

**Wildlife**

- **Description**--The wildlife observed during fieldwork are listed in Appendix B. The common animals reported by landowners include deer, raccoons, groundhogs, rabbits, foxes.

  Great blue herons were sighted, but there are no known heronries within 1 km of the route. Osprey were reported near Islay Lake, as was a pileated woodpecker nest in Woodlot 6a. Sightings of the rare and endangered West Virginia White Butterfly have been seen in the Calcium Pits area 1.5 km north of the preferred route. However, no sightings of the butterfly were observed during the field review and no critical habitat (Cut-leaved Toothwort and Two-leaved Toothwort) was found in the maple/beech forests along the preferred route. No other rare or endangered species were identified.

  The Hamilton Naturalists Club (see correspondence in Appendix A) report that along the preferred route in the vicinity of the CP tracks (Lot 3, Concession IX, Flamborough) one of their members identified a number of butterflies. These included European Skipper, Tawny-edge Skipper, Long Dash, Black Dash, Delaware Skipper, Dion Skipper, Tiger Swallowtail, Coral Hairstreak, Acadian Hairstreak, Bronze Copper, Pearl Crescent and Monarch. Of these species, the Dion Skipper and Black Dash are considered rare in Ontario and uncommon in the Carolinian zone of Ontario.

- **Potential Impacts**--A portion of the scrub vegetation which has grown along the existing easement will be lost, as will some woodlots and hedgerows. These areas provide habitat for a variety of small mammals and birds and possibly deer. There will be an increase in noise and human activity during construction which will have a temporary disturbance to wildlife. There is a potential to disturb some nesting birds until the end of July.

temporary disturbance to wildlife. There is a potential to disturb some nesting birds until the end of July.

- **Mitigation Measures**--There will be some unavoidable loss of wildlife habitat due mainly to the loss of woodlots. The primary mitigation measure was through the route selection process which avoided environmentally sensitive areas. By allowing regeneration of scrub vegetation there should be only temporary disturbances to much of the local wildlife. In the opinion of the Hamilton Naturalists Club, the habitat for the above-listed butterfly species will likely persist in the area after construction is completed.

  With a summer/fall construction schedule many of the effects from humans and noise to nesting birds or denning animals should be minimized.

## 4.2.2 Cultural Environment

### 4.2.2.1 Land Use

**Infrastructure**

- **Description**--The preferred route is predominantly through land zoned for agricultural purposes. The low lying land adjacent to the streams is zoned as hazard land and all land adjacent to any creeks is regulated by the Halton Region Conservation Authority.

  The Niagara Escarpment Plan Area extends from Millborough Road (the boundary between Hamilton-Wentworth and Halton) to Tremaine Road, a distance of approximately 9 km along the preferred route. From Twiss Road to the Guelph Line, lands are designated Escarpment Protection Area (1.35 km along the preferred route) and the land adjacent to Limestone Creek is designated Escarpment Natural Area--the most sensitive designation. Only 'essential' utility facilities are permitted through Escarpment Natural Areas. the remainder of the lands within the Niagara Escarpment Plan Area are designated Escarpment Rural.

  Eight paved road crossings will be required including three regional roads (Twiss Road, {R.R. 7}, Guelph Line {R.R. 1} and Tremaine Road, {R.R. 22}). The pipeline will cross two sets of rail tracks, the CP line in Lot 3, Concession IX, Flamborough and the CN line in Lot 10, Concession I Milton.

  The proposed pipeline will be approximately 12 m from the existing Union Gas pipelines (except for the 3 km deviation north of Carlisle). It will be necessary to cross

under these pipelines twice (as discussed in Section 3.4). Union Gas operates a distribution line north/south on the east side of the Guelph Line which will have to be undercrossed.

Buried telephone lines are located in many of the road allowances.

- **Potential Impacts**--Potential impacts that may occur are

  - conflicts in zoning
  - disturbance to lands within the Niagara Escarpment Plan Area
  - disruption to traffic during road and rail crossings
  - disturbance to utility lines.

- **Mitigation Measures**--Construction through the Niagara Escarpment Plan Area will require a development permit from the NEC. Support documentation must be provided prior to approval by the Ontario Energy Board and the NEC to justify the proposed route through Escarpment Natural Areas in terms of the Niagara Escarpment Plan definition of 'essential' as 'that which is deemed necessary to the public interest after all alternatives have been evaluated'.

  Crossing of some hazard land will be unavoidable and will require permission from the Halton Region Conservation Authority.

  Pipeline construction will only temporarily affect the existing land use. However, the operation of the pipeline will permanently restrict changes in land uses over the easement. Development guidelines in the vicinity of natural gas pipelines are given in Appendix D.

  It is recommended that all roads be bored (following Union Gas Specification 91-T-18) except for possibly McNiven Road. Bedrock is close to or at the surface at this location and open cut methods will probably be required. All local municipalities and regional offices must be informed of road crossings and the design approved before construction proceeds. Any deterioration of the road bed due to construction use of the roads must be repaired. Roads must be kept swept of mud and dust.

  No concerns were expressed by either CN or CP rail as long as their specifications are followed. Union Gas Specification 91-T-18 Railway Crossings should also be followed.

When crossing utility lines, Union Gas Specification 91-T-14 Trenching should be followed.

#### 4.2.2.2 Agricultural Land Use

**Description**--The preferred route passes primarily through agricultural lands. The crop cover in the summer of 1990 is shown in figures 9 to 12.

The main crop types consist of forage and grain crops. There are a number of fields in pasture which are used for horse and cattle grazing. There are three market garden operations (Lot 9, Lot 1, Concession IX, Flamborough and Lot 10, Concession I, Burlington) and two apple orchards (Lot 10, Concession VI, Burlington and Lot 10, Concession VII, Milton) are also present.

Six properties have tile drainage and these are marked in figures 9 to 12. Of these, only the market garden operation in Lot 9, Concession IX Flamborough and the apple orchard in Lot 10, Concession VII Milton are systematically tiled. The other properties have random tiles to drain low spots.

**Potential Impacts**--Pipeline construction may cause general farm disruption: tile drainage will be cut, access across the easement could be restricted, pasture land will be crossed and fencing will be removed. Nuisance factors such as dust and noise could be experienced. Potential disruption could occur to water supplies used for irrigation or animal needs.

**Mitigation Measures**--All tile drains should be repaired in accordance with Union Gas Specifications 91-T-14 Trenching and 91-T-27 Tile Repairs. The depth of cover over the pipeline in agricultural areas should not be less than 1.2 m (except in bedrock areas) to accommodate existing and future tile drains.

Access across the easement must be maintained where requested by the landowner. Temporary bridges across the trench should be provided where required.

In fields used for pasturing livestock, the easement must be fenced off. Where fencing is cut or damaged during construction, temporary fencing must be maintained if requested by the landowner or municipality and repaired following Union Gas Specification 91-T-10.

Water supplies for irrigation and animal needs must be maintained, if the landowner requests it, using alternative water sources (including trucking in water) if necessary.

If livestock, in particular horses, are susceptible to noise, arrangements should be made with the landowner to remove the animals from the areas adjacent to the easement during construction.

Dust should be minimized, especially in the market garden operations, by dampening the working area with water and strictly enforcing low speeds for construction vehicles.

In the market gardens and orchards, land should be kept free at the end of the rows for the turning of any farm vehicles which could be required for spraying or other purposes, if requested by the landowners.

Where possible landowners should be provided with the opportunity to harvest any crops.

#### 4.2.2.3 Commercial and Industrial Land Use

There is no industrial land use along the proposed alignment. The only commercial property is on Lot 10, Concession 1, Burlington where Mr. Lindley operates Pickletree Farm selling garden accent ornaments. The owners' concerns and the suggested mitigation measures are addressed in Section 4.2.3.4 (Table 4.5).

There are plans for commercial development on Lot 10, Concession I, Milton but the application had not been submitted when this report was prepared.

#### 4.2.2.4 Residential Land Use

**Description**--There are approximately 31 homes within 100 m of the proposed pipeline (see figures 9 to 12) These are mainly farm dwellings and single family homes adjacent to roads. There are 140 residential trailers in Courtcliffe Park to the north of the preferred route and the nearest are approximately 150 m from the pipeline easement.

It is possible that construction of new homes within the next two years could bring other residences close to the preferred route. Residential development has been approved in Lot 4, Concession IX, Flamborough and Lot 9, Concession II, Burlington.

**Potential Impacts**--Pipeline construction could cause loss of subdivision land, produce noise and dust problems, and disturb lawns and driveways. Safety concerns have been expressed related to the operation of a high-pressure pipeline.

**Mitigation Measures**--Union Gas must follow the set-back guidelines required by the Fuel Safety Branch as outlined in Appendix D and all applicable provincial codes relating

to such items as pipe wall thickness, depth of cover, inspection frequency and nearness to residences. Aerial patrols and ground surveillance of the pipeline must be maintained on a regular basis to ensure that the easement is only being used for activities compatible with the operation of a high-pressure pipeline.

Nearby residences will experience short-term disturbances such as noise and dust. Residences should be notified of the construction schedule and, where possible, no heavy equipment should operate outside the hours of 7 a.m. to 6 p.m. close to residences. All activities should proceed rapidly in the vicinity of the closer residences and, if feasible, clean up should be initiated immediately after construction.

Where lawns and driveways are affected, lawns should be resodded and driveway crossings should be coordinated with the landowners.

Residual impacts will occur in that residential development is generally not allowed within 20 m of an operating high-pressure pipeline.

In any new subdivision development, 5% of the land has to be dedicated to park land. The pipeline easement could be incorporated as part of the green space in the future plans thus helping to meet the development criteria.

#### 4.2.2.5 - Parks and Recreational Land Use

There are no parks along the proposed alignment. Kilbride Park in Lot 9, Concession II, Burlington abuts the southern edge of the present easement and will not be directly affected by construction (except possibly by noise and dust). For safety reasons it is recommended that the easement be temporarily fenced off from the park during construction. The preferred route crosses the Bruce Trail at Twiss Road. The construction of the pipeline would not affect the use of the trail and would only cause temporary inconvenience to hikers.

A new golf course is presently being constructed in Lot 2, Concession IX, Flamborough. The course is scheduled to open in 1991. The pipeline will intersect four fairways but no greens or tees will be disturbed. Mature trees have been transplanted throughout the course. The owner is planning to seed the fairway and roughs with different grasses. A clubhouse will be constructed approximately 200 m to the north of the preferred route and the access road would be across the pipeline to Carlisle Road.

Courtcliffe operates a commercial campground and permanent trailer park in Lot 10, Concession IX, Flamborough. The preferred route crosses the camping area along the

lower, hazard land area where permanent residences are not permitted. As described in Section 2.2.1.5, Courtcliffe holds a number of music festivals during the summer months (usually 3-day events over long weekends) when 5000 to 20 000 people have been known to attend.

Specific concerns and mitigation measures for both the campground and golf course are addressed in the landowner concerns in Section 4.2.3.4. (Table 4.5).

## 4.2.3 Socioeconomic Environment

### 4.2.3.1 Employment

The impact of pipeline construction on employment in the study area cannot be predicted with certainty at this time since hiring is at the discretion of the pipeline contractors. However, it is believed that a significant portion of the work crew will come from southern Ontario.

The construction period is expected to take place during the summer of 1993 with a maximum of 350 workers on the job during peak times.

### 4.2.3.2 Impacts of Construction Crews on Local Commercial Resources

Some of the construction crew will require local accommodation but precise numbers will be contingent on the hiring practices of the contractor. Mobile lunch/snack services and possibly some local diners and coffee shops will also benefit from increased patronage during the construction period.

There may also be a small number of local economic benefits. For example sand and gravel may be obtained from local pits.

### 4.2.3.3 Construction and Safety Concerns

**Noise**--Noise from general construction activities and blasting activities can be expected. Construction equipment should have appropriate mufflers to ensure compliance with MOE (1978) guidelines for sound levels from such equipment[1]. Generally, construction activities including blasting and drilling should be limited to daylight scheduling Monday to Saturday between the hours of 7 a.m. to 8 p.m. to minimize disturbance to local residents (MOE, 1982). However, at stream crossings, during hydrostatic testing and

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[1]Maximum permitted noise emission standards for construction equipment manufactured after 1980 are:

- power rating less than 75 kW - 83 dBA
- Power rating greater than 75 kW - 85 dBA

passage through special land uses (i.e., the golf course and campground) construction activities may be extended to complete this work as quickly as possible.

During construction, noise levels resulting from hydrostatic testing may be high. Advance notice should be given to those residents who could be affected.

**Impacts of Construction Traffic on Local Transportation Routes**--Although road access along the pipeline route is good, some minor interference with local traffic is likely to be experienced, due to construction crew commuters and transfer of equipment and materials.

**Nuisance Dust**--Dust control measures for general construction activities should only include the application of water. Water applications should be carefully controlled so that erosion of soil and banks is prevented.

**Equipment Fueling, Maintenance and Chemical Storage**--In accordance with the OEB's Environmental Guidelines for Locating, Constructing and Operating of Hydrocarbon Pipelines in Ontario (1989), fuel storage and maintenance of equipment should not take place in or adjacent to watercourses. All hoses should be equipped with an acceptable nonspilling attachment.

Also, any areas on the easement to be used for fuel and chemical storage must be diked with impermeable material with sufficient enclosed volume to hold the tank contents +20% and sloped away from waterways (OEB, 1989).

In addition, materials required for cleanup of fuel spills should be readily available and capable of handling the maximum volume of liquid that may be spilled.

**Waste Disposal**--It will be the contractor's responsibility to properly dispose of any wastes that accumulate on site. However, Union Gas construction and environmental inspectors should ensure that the contractor carries out these duties in accordance with the specifications provided to the contractor.

These specifications require the contractor to comply with the waste management requirements of Ontario's Environmental Protection Act. All nonhazardous waste such as paper packaging materials should be transported by the contractor to a local municipal landfill site. Hazardous wastes such as lubricating oils, should be transported by licensed waste carriers to a waste disposal site that is registered to accept such waste.

Waste materials temporarily stored on site should be placed in secure containers in designated areas away from watercourses and slopes that might cause runoff of material to watercourses. Food wastes must be properly bagged for final disposal and placed in an enclosed area not accessible to wildlife to prevent a nuisance situation. The contractor should also be advised to instruct his crew not to litter the site at any time.

**Construction Safety**--All workers on the construction site must wear hard hats, safety footwear and other appropriate safety clothing and devices as required by the Occupational Health and Safety Act - Regulations for Construction Projects. It will be the responsibility of the contractor and Union Gas to ensure that all workers comply with these regulations. All hazardous areas should be fenced off as should access to the easement at roadways thus preventing unauthorized entry.

#### 4.2.3.4 Landowner Concerns

**Description**--To address landowner concerns, Acres conducted door-to-door interviews throughout July, 1990. A copy of the interview form is enclosed in Appendix E. The questionnaire was divided into two sections. Section A determined physical information regarding each individual property and whether there were any concerns related to existing pipelines. The second part of the questionnaire was used to produce a demographic profile of the area that would be affected. There will be 38 directly affected landowners. All of these, except one were interviewed personally or by phone. Figures 9 to 12 show the names of the landowners along the preferred route as determined from the assessment record and then confirmed during the landowner interviews.

While only two families have lived on the same property for over two generations, the area is relatively stable with about half the landowners being residents in the area for 20 years or longer. Only 8 landowners had owned the property less than 5 years. Nine properties had no one living on them at present.

The majority of the people interviewed are in the 40 to 65 year old age bracket--the following records the actual age breakdown of the affected population.

| **Age Group** | 0-9 | 10-20 | 21-40 | 41-64 | 65+ |
|---|---|---|---|---|---|
| **Number** | 6 | 17 | 20 | 45 | 7 |

All those younger than 20 and 10 of the 21 - 40 age category were living with their parents.

In addition, approximately 200 families are living permanently in Courtcliffe Park representing approximately 600 people. Of these, 140 families live north of the pipeline. They access their homes from Carlisle Road and they would have to cross over the preferred route during construction.

There are 31 farm properties along the preferred route. There are 5 full-time farmers who own their land and 11 properties with tenant farmers. Ten properties are farmed by the owners who also have off-farm occupations. These include steel workers, teachers, businessmen, secretarial, construction, aircraft maintenance and hospitality type employment. Ten of the people living along the preferred route described themselves as retired but 5 of these are still actively farming. There are 3 residential lots and another 2 properties are predominantly woodlots.

Twelve landowners were on their properties when at least one of the previous pipelines was installed. Five other landowners commented on the construction resulting from upgrading the existing pipelines in 1989. Nine properties will be crossed where the preferred route leaves the existing Union Gas easement (on 2 of these the landowners have the existing pipelines in other locations).

**Potential Impacts**--The major concerns raised relating to previous pipeline construction are as follows.

- Six landowners reported changes in grade or some effect on drainage such that they now have wet areas or the land does not dry out as quickly in the spring.

- Six landowners reported some adverse effects on crops, including lower yields and not growing specialty crops over the pipeline easement.

- Poor separation of topsoil was discussed by 3 landowners.

- Increased stoniness was mentioned by 2 landowners.

- Two landowners were upset with activities of the construction crew.

- One owner had concerns regarding the necessity for a temporary working easement at a road and he was inadequately compensated for the use of this land.

However, three landowners did state that they had found Union Gas and the contractor generally cooperative.

The major issues raised with respect to the proposed pipeline (in addition to the above concerns) are as follows in the order of frequency of reporting.

- Nine landowners stressed that the pipeline would affect the immediate development potential of their land and it would subsequently lose its value. A further nine landowners thought that their land had subdivision development potential sometime in the future.

- Eight landowners were concerned regarding the loss of trees on their property.

- Five landowners had concerns related to the safety or maintenance of a high-pressure pipeline.

- Two landowners were upset by the fact that their lands were disturbed only two years ago when pipeline upgrading occurred and they felt that the new pipe should have been installed at the same time. They would like better coordination of activities.

- One landowner requested that Union Gas not install stiles over their fence lines as this invites trespassing.

A public meeting was held on April 30, 1990 as described in Section 1 and detailed in Appendix F. The purpose of the meeting was to explain the project to the public and to incorporate any local concerns into the route selection process. The major issues raised at the meeting related to the need for the pipeline, its location, width of easement, length of time a property is affected during the construction period and loss of development land. The responses to the exit questionnaire indicated that the public found the meeting useful and informative.

A second public meeting was held January 8, 1991 to discuss with landowners and concerned citizens the draft report which had previously been distributed. The agenda from that meeting is also included in Appendix F. The results of additional route selection analyses resulting from this meeting are shown in Appendix K. Aerial photographs (1:2 000) showing the approximate alignment of the proposed pipeline were on display. Landowners were given the opportunity to discuss any concerns regarding the alignment on their property and some minor changes were made after these discussions.

**Mitigation Measures**--Individual landowner concerns and specific mitigation measures are given in Table 4.5. The general measures, such as those to reduce impacts to agricultural land and tile drains, are included in previous sections.

The recorded landowner concerns related to previous pipeline construction demonstrate a clear need to deal effectively with mitigation measures along the preferred route. The improved construction practices, together with the additional mitigation techniques that have been developed and implemented since the construction of the NPS 34 pipeline in 1972, should adequately address the above concerns. A Union Gas environmental inspector should be on site to ensure the proposed measures are implemented.

Generally, landowners' concerns can be addressed in two ways. Where feasible, the construction schedule and mitigation measures described previously should alleviate the many concerns of the individual landowners. However, there will also be concerns that can only be properly addressed by compensation either directly to the landowner or indirectly into the community including

- revenue from permanent easement payments
- crop compensation for the year of pipeline construction and subsequent years
- property taxes to the region.

### 4.2.4 Archaeology and Heritage Resources

The archaeological investigation involves four components

- background documentation of existing information
- surface investigation of the preferred route
- detailed examination, including test pitting, of any significant sites
- salvage excavation of sites if required.

At this stage, Mayer, Poulton and Associates have undertaken the first component and have determined that the study area has a rich archaeological component.

**Description**--The only documented archaeological site which is affected directly by the preferred route is in Lot 10, Concession III, Burlington just to the west of Limestone Creek. This is the 'Pipeline Site' (AiGx-12) which is an early prehistoric Neutral village dating to 1400 AD. There have been extensive excavations of some of this site but the total area covered by the site has not yet been determined. Figure 4 (Appendix H) shows the location of the known features of the village in relation to the existing pipeline

# Table 4.5
# Landowner Concerns[1] and Specific Mitigation[2]

| Landowner | Location Lot | Conc. | Land Use/Farm Operation | Specific Construction Requirements | Concerns | Specific Mitigation |
|---|---|---|---|---|---|---|
| **Town of Flamborough** | | | | | | |
| Dokter | 12 | IX | Pasture/sucker operation. | Fencing of easement.<br>Access across easement. | Subsidence occurred after previous pipeline construction-wet spots and stones left.<br>Generally low lying, poorly drained land-prone to soil compaction. | Rehabilitate existing easement where feasible, stone picking required. |
| Jackson | 11-12 | IX | Pasture/feeder operation. | Fencing of easement.<br>Access to pasture/water for cattle. | Historic home 49 m north of existing NPS 26 with landscaped lawn and birch trees up to easement. | Bore under birch trees if possible. Resod lawn and landscape. |
| | | | | Access to house. | Septic system just east and south of house (adjacent to easement). | Repair septic system, if necessary. |
| | | | | | Eight-year old stand of black walnut trees to east and adjacent to existing pipeline easement. | Walnut trees should be preserved if possible. |
| | | | | | Bedrock close to surface west of house with spring activity. | Monitor house, outbuildings, spring, if blasting required. |
| | | | | | Poor rehabilitation from last pipeline construction--stoniness problems. | Rehabilitate existing easement if feasible. |
| | | | | | Potential subdivision land. | |
| Arsenault | 11 | IX | Pasture/race horses and brood mares. | Fencing of easement.<br>Access across easement. | Intention to build racetrack over pipeline easement.<br>Stony soil. | Rebuild racetrack if affected.<br>Stone picking required. |
| Labelle | 11 | IX | Pasture/horses, sheep, goats. | Fencing of easement. | Stony soil.<br>No concerns that owner is aware. | Stone picking. |
| Coulson | 11 | IX | Grass | None | Would like pipeline 1.8 m (6 ft) below surface. | Union Gas to discuss with owner depth of pipeline. |
| Courtcliffe Park | 10 | IX | Campground, residential trailer park. | Fencing of easement.<br>Access maintained to trailer park. | Loss of business.<br>Potential subdivision land being removed by additional pipeline. | Access to Courtcliffe to be maintained at all times, strict regulations enforced to ensure safety of community |
| | | | | | Area north of pipeline houses 140 families.<br>Musical festivals held every month from May to October. | Minimize construction time through property to address both landowner needs and MNR, regarding fishery in Bronte Creek, Union Gas to discuss timing with landowner and MNR. |
| | | | | | Disturbance to campground roads and bridges, etc. | Repair bridges, etc, to preconstruction condition or better. |
| Fasullo | 9 | IX | Cabbage, potatoes/market garden. | Access to fields.<br>Maintain water supply from stream for irrigation needs. | Damage to tile drains and interference to irrigation system.<br>Possible dust problems from light sandy loam soils. | Repair tile drains and ensure irrigation is maintained.<br>Dampen working areas if necessary, reduce speed of construction traffic. |
| | | | | | Stones brought to surface during construction of previous pipelines and can only grow grain crops on easement now. | Union Gas to confirm if stone picking required. |
| | | | | | Proposed alignment where fill material deposited after previous pipeline construction. | Union Gas inspectors to monitor and ensure integrity of trench |
| | | | | | Potential loss of subdivision land. | Placement of pipeline parallel and adjacent to woodlot should minimize impact on development potential. |
| McCartney | 8 | IX | Grains, hay/heifer cows. | Fencing of easement.<br>Access across easement. | Landowner does not want pipeline and especially not through center of land--it would be acceptable along northern boundary, pipeline could affect development potential. | Attempt to minimize effect to development potential. by paralleling property line. |
| | | | | | Possible subsurface drains.<br>Effect of dust and dirt during construction. | Repair any drains.<br>Dampen working area if necessary, reduce speed of construction traffic. |
| Bent | 7 | IX | Lawn | Access to house to be maintained. | Removal of hedgerows which provide privacy to house. Loss of subdivision land.<br>Impact to garage. | Bore under cedar hedges if possible in front of house and avoid hedgerow along laneway if possible.<br>Remove and/or relocate garage. Compensate owner. |

[1]As provided by landowner.

[2]Does not include general mitigation, i.e., topsoil stripping, fence repairs, etc which would be expected for most property.

## Table 4.5
## Landowner Concerns and Specific Mitigation - 2

| Landowner | Location Lot | Conc. | Land Use/Farm Operation | Specific Construction Requirements | Concerns | Specific Mitigation |
|---|---|---|---|---|---|---|
| Johnson | 7 | IX | Oats | None | Loss of subdivision land. | |
| J & M. Boyd | 6 | IX | Woodlot. Mixed grains/wild bird seed. | Access to house to be maintained. | Land adjacent to Carlisle settlement area-pipeline could affect value of property. | Minimize impact to development potential by paralleling property line. |
| J Boyd | 7 | IX | Woodlot. | | Land adjacent to Carlisle settlement area-pipeline could affect value of property.<br>Sixty year old walnut trees scattered throughout woodlot. | Minimize impact to development potential by paralleling property line.<br>Avoid trees if possible. |
| Usik | 4 | IX | Pasture/cow-calf operation. | Fencing across easement.<br>Access to fields. | Routing preference is through 2 large holes to south of property which could be filled in after construction and land could be farmed.<br>Potential subdivision land.<br>Sensitive wetland with springs along southern boundary. | Preferred route south of solution hollows<br><br>Minimize disturbance to wetland area by reducing working area |
| Teichmuller | 3 | IX | Woodlot/vegetables | None | None at present | |
| Allen | 3 | IX | Pasture/standard-bred horses (trotters) woodlot. | Fencing across easement.<br>Access maintained across easement. | Barn 25 m north of existing pipe line.<br>Erosion potential on side slope, difficult to grow grass. | Reduce working area next to barn.<br>Berm land as required, mulch and hydroseed if necessary |
| Mandarich and Kaneff | 1-2 | IX | Golf course.<br>(Carlisle Golf and Country Club) | | New golf course under construction-planning to open May 1991--disruption to new business<br><br>Pipeline route crosses 4 fairways - underground high pressure irrigation pipes on both sides of all fairways.<br>Planting of different grass seeds for fairways and rough.<br>Disturbance to large trees.<br>Subsidence over pipeline trench. | Minimize construction time through property. Coordinate with owner timing of construction to minimize impact to golf operation if possible.<br>Repair all irrigation pipes. Maintain flow of irrigation water during construction.<br><br>Prepare sod of correct grass seed mixture and place in fairways and in rough immediately after cleanup.<br>Bore under trees, if feasible.<br>Ensure adequate compaction during backfilling (tamping subsoil if necessary)-not feasible to crown trench. |
| Brouwer | 1 | IX | Brussel sprouts beans/market garden.<br>White pines planted under MNR agreement. | None | After previous pipeline construction crops did not grow as well for the next 10 years. | Ensure careful replacement of soil after pipeline placement (follow Union Gas Specification (91-T-12) |
| **City of Burlington** | | | | | | |
| Lindley | 10 | I | Strawberries, beans, tomatoes/ market garden and 'garden accent' business | None | Manicured lawn and ponds could be disturbed. These are an integral part of a 'garden accent' business operated on the property. Business will be affected as customers will find construction aesthetically displeasing. Would prefer construction between January to April when business closed.<br>Present pipeline easement planted in wild flower mix.<br>Loss of 10-15 year old Austrian Pine and junipers.<br><br>Preservation of wetland and willows to west of ponds.<br>Does not want land used as a highway for construction vehicles.<br>Ponds used to irrigate land. | For rehabilitation purposes, construction is preferable in the the drier summer months. Minimize construction time. Lawn and ponds must be restored to same or better--resod lawn.<br><br>Restore meadows with same proportion of wild flower seeds.<br>Avoid trees if possible. Save trees on alignment and replant, where feasible.<br>Avoid willows if possible. Minimize disruption to wetland to extent possible.<br>Minimize traffic movement to extent possible.<br><br>Maintain adequate water supply for irrigation needs, truck in water, if required. |
| Price | 10 | I | Woodlot/land not farmed. | None | Some of land included in the Kilbride settlement area hoping to obtain permission to develop into 12 lots.<br>Wetland area in center of property. | Minimize working room requirements through wetland and wood lots. |

## Table 4.5
## Landowner Concerns and Specific Mitigation - 3

| Landowner | Location Lot | Conc. | Land Use/Farm Operation | Specific Construction Requirements | Concerns | Specific Mitigation |
|---|---|---|---|---|---|---|
| Neilson | 10 | I | Japanese garden. | None | House only 46 m from existing pipelines.<br>Developing a Japanese style garden which has involved many hours of hand labor.<br>Landowner concerned about blasting effects to house which is built on steel stilts into bedrock with large studio windows.<br>Removal of trees which provide privacy to house.<br>Septic system runs south into pipeline easement. | Minimize disturbance to garden-relandscape.<br>Follow blasting consultant's recommendations. Excavate rock near house without blasting if feasible, monitor buildings if blasting is required.<br>Minimize tree removal.<br>Repair any damaged weeping tiles. |
| Lillycropp | 10 | II | Woodlot, pasture/horses. | Fencing along easement. | Potential subdivision land.<br>Disturbance to wood lot adjacent to easement. | Minimize disturbance to land and wood lot |
| Bellm | 10 | II | Small building lot. | None | Loss of trees.<br>Possibility of springs during trenching. | Minimize removal of trees.<br>Summer construction should ensure ground water at lowest level |
| Hewick | 10 | II | Hay, alfalfa/cash cropping. | None | Potential subdivision land.<br>When Union Gas upgraded pipe in 1989, ran into springs and left wet areas along easement. | Summer construction should ensure ground water at lowest level<br>Correct grade and ensure drainage over entire easement--providing subsurface drains if necessary. |
| Richardson | 10 | II | Hay (alfalfa-timothy)/horse farm. | Fencing along easement. | Potential subdivision land.<br>Extremely stony land - problems with stones related to previous pipeline construction.<br>Loss of trees in wood lot adjacent to stream - especially cedars. | Stone pick entire easement.<br>Minimize working room when crossing stream - preserve cedars where feasible. |
| K E. Associates | 10 | II | Corn/cash cropping. | None | Draft subdivision plan for 14 - 3-acre lots new pipeline could involve loss of 1.4 ha of land. | |
| McColl | 10 | III | Pasture, hay, grains/horse farm (thoroughbreds) cattle, sheep feeder operation. | Fencing of easement.<br>Access across easement.<br>Maintenance of waterline across easement. | Concerns regarding Islay Lake.<br>Dikes not strong enough to carry weight of construction traffic.<br>If lake requires draining would take a long time to refill.<br>Fear of dam failure after construction and their liability.<br>Removal of trees near lake. | See Figure 4.2 for crossing of Islay Lake.<br>No construction traffic allowed on dike road.<br>Only small section of lake behind cofferdam will require draining<br>Check safety of dike before removal of cofferdam.<br>Cross under existing pipelines before trees so tree removal unnecessary. |
| Gordon | 10 | III | Hay (alfalfa, timothy, trefoil)/ horse farm. | Fencing of easement.<br>Access across easement. | Possible historic quarry site.<br>Disturbance to wood lot. | Minimize disturbance to quarry site and woodlot by reducing working area, monitor house and well, if blasting required |
| Angona et al | 10 | IV | Hay (alfalfa, clover)/cash cropping. | None | 'Quicksand' over existing pipeline with a number of wet spots. | Ensure adequate drainage conditions after construction providing subsurface drains if necessary |
| Segsworth | 10 | IV | Corn, soybean rotation/ cash cropping. | Access across easement if construction during harvest. | Experiences diminished yields over pipelines.<br>Main subsurface drain servicing rest of farm parallel and north of existing pipelines.<br>Cutting through pond | Follow recommendations for 'soils' in of this report. Rehabilitate existing easement, where feasible.<br>Replace/repair main drain, if necessary.<br>Repair pond to preconstruction conditions; follow recommendation in Section 4.2.1.4. |
| Middlebrook | 10 | V | Pasture, grains/dairy farming and cash cropping. | None | Damage to subsurface drains. | Repair clay tiles to satisfaction of landowner. |
| Limestone Farms | 10 | VI | Hay, winter wheat/ cash cropping. | Fence access from Appleby Line during construction. | Damage to subsurface drains.<br>Public trespassing onto property. | Repair clay tiles to satisfaction of landowner.<br>Union Gas to review feasibility of removing stile over fence at Appleby Line. |

## ...le 4.5
## Landowner Concerns and Specific Mitigation - 4

| Landowner | Location Lot | Conc. | Land Use/Farm Operation | Specific Construction Requirements | Concerns | Specific Mitigation |
|---|---|---|---|---|---|---|
| Borcsok | 10 | VI | Apple orchard. | Access across easement. | Loss of apple trees just coming into production.<br>Disturbance to water source used for crop spraying. | Minimize tree removal, ensure adequate turning room for farm machinery at end of rows.<br>Water supply should not be affected, however, if disturbed alternative source to be provided. |
| Young | 10 | VI | Hay (alfalfa), spring grains/ cash cropping. | None | Problems with drainage and grade over existing pipelines. Wet spots created and alfalfa will not grow. | Correct grade and ensure drainage over entire pipeline easement, providing subsurface drains, if necessary. |
| **Town of Milton** | | | | | | |
| Bousfield | 10 | VII | Vegetable crops, apple orchard/ farm market. | None | Loss of apple trees<br>Problems with drainage and grade over existing pipelines, created wet spots.<br>Damage to header and feeder tile drains. | Minimize tree removal, ensure adequate turning room for farm machinery at end of rows.<br>Correct grade and ensure drainage over entire pipeline easement, providing subsurface drains, if necessary.<br>Replace or repair tile drains as required. |
| Mazzo et al | 10 | IV | Hay/cash crop. | None | No major concerns. | |
| Danczieger et al[1] | 10 | IV | Soybeans/cash crop. | None | No major concerns. | |
| Brason/Lewis[1] | 10 | I | Soybeans, winter wheat/cash cropping. | None | Loss of potential development land | |
| Premier Plaza Development[2] | 10 | I | Winter wheat/cash cropping. | None | Expects area to be rezoned commercial/residential in near future. | |

easement. The most extensive excavation occurred south of the present pipelines where two rich midden deposits and parts of two longhouses have been identified.

Eleven unregistered sites are documented within a distance of 100 m from the preferred route. Collectively, these comprise one indeterminate[1] Woodland Period camp (ROM 97), four indeterminate prehistoric camps (ROM 99, 119, 127 and 144), and six indeterminate prehistoric find spots (ROM 15, 16, 120, 126, 128 and 141) (figures 9 to 12).

Of the above, a consideration of site type and proximity to the alignment indicates a possible concern for one of the indeterminate prehistoric camps, ROM 119, which is situated on or very close to the preferred route. This site yielded 13 artifacts.

Potential concern is also warranted for two sites situated approximately 50 m north of the preferred route: ROM 99 (an indeterminate prehistoric camp) and ROM 97 (the indeterminate woodland camp). Both of these sites are situated close to the 'Pipeline Site', and ROM 97 may represent either a related settlement or activity area or part of that village.

The only other known unregistered sites in proximity to the preferred route which are of potential significance are two other indeterminate prehistoric camps, ROM 127 and ROM 144. These are situated approximately 100 m from the preferred route and are not considered to be subject to potential impacts.

**Potential Impacts**--Pipeline construction could disturb significant archaeological sites. The 'Pipeline Site' is a large, rich and at present, partially undisturbed site. There is a strong potential, as with all Iroquoian villages, for human burials, in pits within longhouses inside the village, and/or in an associated cemetery.

**Mitigation Measures**-- Further archaeological investigations will be undertaken. The recommendations presented at this time are as follows.

- A detailed field assessment of the preferred route should be initiated in the spring/ summer of 1991 in order to identify and evaluate potential archaeological concerns well in advance of construction and to provide sufficient lead time for test and/or mitigative excavations.

---

[1]Indeterminate implies that the archaeologists are unable to identify the cultural group associated with the artifacts.

- The field assessment should be coordinated with crop and ploughing schedules in order to maximize the amount of corridor which can be covered by surface examination. This should be supplemented where necessary and appropriate, by contract ploughing in order to effect a reliable assessment of known and suspected sites and areas with high archaeological potential.

- A detailed field assessment should be conducted of the 'Pipeline Site'. This should include a controlled surface examination of the cultivated portion of the site, limited test excavations of the uncultivated portion of the site, and an attempt to reestablish the 1977 excavation grid and limits of excavation.

## 4.3 Summary of Environmental Issues

A summary of the key environmental issues associated with construction and operation of the proposed Hamilton to Milton pipeline is presented in Table 4.6. Included in this table are mitigation recommendations for each environmental issue. These are only brief summaries of the proposed mitigation measures and more details are contained in previous subsections and in Table 4.5.

# Table 4.6

## Summary of Key Environmental Issues

| Issues | Mitigation Measures Recommended |
|---|---|
| **(a) Agricultural Soils and Land Use** | |
| - Soil Compaction | Leave agricultural crops uncut or shredded, and enforce wet-soil shutdown policy as necessary; chisel ploughing and/or subsoiling; the easement should be left in a legume cover crop for a period of 2 - 3 years. |
| - Mixing of Topsoil | Separate topsoil from subsoil. |
| - Soil erosion | Use berming, riprap, erosion control blankets, contour ploughing, revegetation as necessary. |
| - Drainage tile damage | Restore or replace drainage tiles as necessary. |
| - Interference with Natural Drainage Contours | Restore and stabilize natural drainage contours. |
| - Damage to fencing | Restore fences to original or better condition. |
| - Interference with Livestock | Provide temporary fencing as necessary. |
| - Farm Access Roads | Provide temporary alternative access when required by landowners. |
| **(b) Blasting** | |
| - Effects on groundwater and adjacent structures | Retain independent consultant to determine rock removal methods.<br>Conduct pre- and post-blasting surveys where required (see Section 5.1.1).<br>Blast size restricted so that should not damage aquifers. |
| **(c) Watercourse Crossings** | Preferably use dry crossing technique for SC-1, SC-2, SC-4, SC-5 and SC-6; wet crossings are acceptable for other watercourses; obtain agency approvals prior to each crossing. Complete crossings between June 1 - September 15 prior to brook trout spawning; complete instream activity as quickly as possible during low flows to minimize downstream siltation. Prevent bank erosion and sedimentation into watercourses by use of berms riprap etc where necessary. Minimize tree removal. |
| **(d) Water Wells** | Conduct pre, and post construction monitoring for those wells near alignment (Section 5.1.4). |
| **(e) Vegetation** | Minimize clearing required for construction. |
| - Restoration of Lands | Grade, fertilize and seed easement through woodlots; check success of restoration effort following year. |
| - Loss of Wetlands | Replacement of muck soils and breakers if required so hydrology of wetland is maintained. Some loss of mature wetland habitat will be unavoidable. |
| **(f) Wildlife** | Summer/fall construction will minimize effects to nesting birds and denning animals; minimize vegetation clearing. |
| **(g) Socioeconomic** | |
| - Crop loss | Provide compensation. |
| - Noise from Construction | Restrict construction times to daylight hours; |
| - Interference to business concerns | UGL to discuss with landowners construction schedule which would minimize effect to business and property. |
| - Safety during construction | Easement should be fenced off where public can easily access the trench and working area (i.e., at road crossings and through Courtcliffe Park). |
| - Loss of development | Maintain route immediately adjacent to property lines if possible to minimize potential disturbance. Overlap easements where possible. Negotiate compensation. |
| **(h) Road Crossings** | Bore under roads wherever possible; restore roads to original or better condition. |
| **(i) Archaeological Resources** | Excavate or avoid any significant archaeological sites. Conduct archaeological survey prior to construction. |

# 5 - Inspection and Monitoring Requirements

# 5 Inspection and Monitoring Requirements

## 5.1 Monitoring and Surveillance During Construction

It is recommended that at least one full-time Union Gas environmental inspector be on site from commencement of pipeline construction through to its completion. The environmental inspector's responsibilities will be to ensure that the mitigation and monitoring requirements outlined in the report are carried out effectively and that good construction practices are followed to minimize impacts to the environment.

It is further recommended that a return visit to the site should be made at least one year following construction to assess the effectiveness of mitigation measures used and to determine whether further rehabilitative actions are warranted.

Monitoring is carried out to assess any disturbance to the environment and to protect both Union Gas and the landowners from false charges. It is recommended that Union Gas take a pictorial record of the entire route including fences, lawns, roads, road ditches, ponds, stream crossings, etc, before any construction commences. This can be used to ensure that pre-construction conditions have been restored after clean-up.

The following monitoring is recommended over and above the standard practices as outlined in Union Gas Specifications.

### 5.1.1 Rock Excavation

It is recommended that Union Gas retain an independent rock removal consultant to approve the contractor's blasting program (as outlined in Union Gas Specificaitons 91-T-15, Rock Excavation). The consultant would approve the size of charge to be used and the structures that would require monitoring and would also recommend areas where other techniques rather than blasting may be preferable for bedrock excavation.

The type of monitoring would include a pre- and post-blast examination. Structures (including wells and ponds) would be examined in detail for cracks or signs of deterioration. This will provide a basis for the consideration or rejection of any damage claims. In such surveys, every crack in a structure is documented as to location, extent and width, and supplementary photography utilized to record the state of the structure. The wells and ponds should be checked for their recharge capability.

A permit will be required from Flamborough if blasting is used to remove rock in their jurisdiction. They also require that all occupants of dwellings within 200 m of any blasting activity be notified prior to the blasting.

### 5.1.2 River Crossings

MOE, MNR and the Conservation Authority should be notified one week prior to crossings so that they can monitor the crossings.

### 5.1.3 Subsurface Drainage

Inspectors should monitor trenching operations in the vicinity of tile drains. It is the inspector's responsibility to ensure that restoration is carried out in accordance with Union Gas Specification 88-T-27 Tile Repairs.

### 5.1.4 Groundwater

Although no negative impacts to landowners' water supplies are anticipated, a baseline monitoring program is recommended to protect both the proponent and the public against false claims.

It is recommended that all wells be monitored if they lie within 50 m of the pipeline route except in areas of blasting where all wells within 100 m (or as specified by the blasting consultant) should be monitored. These wells were identified in Table 4.3 but their location should be confirmed prior to construction. It is suggested that preconstruction and postconstruction monitoring of wells be carried out to determine static water level and basic water quality including total and faecal coliform. This information will be used to determine if any interference with the wells has occurred as a result of construction of the pipeline.

Where impacts do occur to wells, an alternative drinking source should be provided until the well water supply can be restored to its baseline water quality. If a well is damaged, a new well may have to be drilled if it cannot be restored to preconstruction conditions.

### 5.1.5 Archaeological Sites

Archaeological field investigations involving test pitting and surface collection will identify any significant sites along the proposed route. If these sites cannot be avoided during construction, the archaeologist may request an opportunity to monitor the removal of soil cover during trenching activities. In these instances advance notification should be provided to the archaeologist before trenching through these areas.

### 5.1.6 Dust and Noise

During construction, the environmental inspector should ensure that all roads are kept free of mud and dust, and that blowing soil from the storage piles is not adversely affecting adjacent landowners or their crops. There must be ongoing surveillance of the construction activities to ensure that the noise guidelines are followed.

## 5.2 Operations Monitoring

The following contribute to monitoring and surveillance during operation

- foot patrol twice yearly (spring and fall)
- air patrol weekly in the summer and monthly in winter
- detailed helicopter survey annually (spring).

The objective of these surveillance operations is to ensure the integrity of the pipeline by noting (a) the presence or absence of structures or activities that could rupture or otherwise damage the pipeline; (b) erosion problems and (c) the operating condition of the facilities (i.e., valve stations).

# 6 - Provincial Environmental Legislation

# 6 Provincial Environmental Legislation

The Ontario environmental legislation and the specific permitting requirements relevant to this pipeline are listed in Table 6.1. It is recommended that this legislation be referenced when finalizing the design of the pipeline and applying for the necessary permits and authorizations. The proponent should also be aware of the contents of this legislation during construction and operation of the pipeline facility.

Pertinent policies affecting this project are discussed below.

## 6.1 Policy Statements

Under Section 3 of the Planning Act, 2983, the Ontario Government may issue policy statements related to municipal planning. To date, three statements have been approved and two more have been proposed and are being circulated for public review and comment. Those that are approved relate to housing, floodplains and aggregates; those proposed are wetlands and foodland guidelines.

### 6.1.1 Mineral Aggregate Resources (1986)

This policy statement outlines that mineral aggregates are an essential nonrenewable resource and should be recognized as important components in any comprehensive land use or resource management program. Planning authorities should protect as much of their aggregate resource base as possible through commitments in their official plans and through zoning bylaws.

From the perspective of pipeline routing, the Mineral Aggregate Resources Policy Statement is a guideline that construction should avoid aggregate resource areas.

### 6.1.2 Wetland Proposed Policy Statement (1989)

This proposed statement identifies that all municipalities, planning boards and resource management agencies should identify and protect all Class I and Class II wetlands within their jurisdictions. New land uses adjacent to significant wetlands must be compatible with the wetland so that the wetland values are maintained or improved. Class III to VII wetlands may

# Table 6.1

# Relevant Legislation and Permits Required for the Proposed Pipeline

## Legislation

Conservation Authority Act
Endangered Species Act
Environmental Protection Act
Lakes and Rivers Improvement Act
Pesticides Act
Ontario Water Resources Act
Occupational Health and Safety Act
Ontario Heritage Act
Game and Fish Act
Public Lands Act

## Environmental Permits

| Agency | Permit/Approval | Comments |
|---|---|---|
| Ontario Ministry Environment | Permit to Take Water (Ontario Water Resources Act) | Required for hydrostatic test of the sources and in the event that dewatering of the trench exceeds 50,000 L/d |
| Ontario Ministry Natural Resources | Approval of a Work (Lakes and Rivers Improvement Act) | Required for crossings of watercourses. |
| Niagara Escarpment Commission | Niagara Escarpment Planning and Development Act | Required from Milborough Line to Appleby Line. |
| Halton Region Conservation Authority | Fill, Construction, and Alteration to Waterways Permit | Required for crossings of regulated areas. |
| Town of Flamborough | Blasting Permit | Required if consultant recommends rock removal by blasting within the Town of Flamborough |

be identified in planning documents and protected in a manner deemed appropriate by local authorities. Pipeline routing should avoid all wetlands where possible and Class I and II in particular.

### 6.1.3 Floodplain Planning (1988)

This policy statement has been developed to prevent loss of life, to minimize property damage and social disruption and to encourage a coordinated approach to the use of land and the management of water. Thus, all municipalities and planning boards should recognize flood susceptibility at the various stages of the land use planning process for which they have jurisdiction, having regard to the implication of their actions respecting the creation of new or the aggravation of existing floodplain management problems.

Pipeline construction procedures within floodplain areas should be minimized where feasible and every precaution taken such that preconstruction conditions are restored.

### 6.1.4 Land Use Planning for Housing (1989)

This policy statement indicates that all planning jurisdictions should consider the implications of their actions in providing lands for housing to meet future local, regional and provincial needs. This policy statement has little direct implication to pipeline routing except that land zoned for future housing should be avoided where feasible.

### 6.1.5 Foodland Guidelines (1978)

A policy statement was issued in 1978 on planning for agriculture. This statement is still the working document although it precedes the 1983 Planning Act. The Foodland Guidelines are intended to assist local municipalities, counties or regions in the preparation of their official plans or amendments. They provide a mechanism to identify lands of highest priority for agriculture, outlining the considerations necessary to incorporate agricultural concerns into land use planning.

A section in the guidelines identifies policies related to utilities and communications facilities outlining that their impact on agricultural land should be minimized. In particular impacts to better class agricultural land and specialty crops should be avoided if possible.

## 6.2 Niagara Escarpment Plan

The Niagara Escarpment Plan was approved by the province to ensure that the Niagara Escarpment Plan Area would be protected as a natural environment and to strike a balance between development, preservation, and the enjoyment of this resource. The policies of the Niagara Escarpment Plan take precedent over Provincial Policy Statements within the Plan Area. The Niagara Escarpment Commission implements the Niagara Escarpment Plan. The Niagara Escarpment Commission is administered by the Minister of the Environment.

There are three major planning designations: Escarpment Natural Area; Escarpment Protection Area; Escarpment Rural Area. Escarpment Natural Areas contain the most significant and scenic aspects of the Niagara Escarpment and hence only 'essential' pipelines are permitted in this designation. Essential is defined as

> "that which is deemed necessary to the public interest after all alternatives have been considered".

Any construction within the Niagara Escarpment Plan Area requires a development permit from the Niagara Escarpment Commission. The permit application must be supported by documentation which should show the 'essential' character of all proposals crossing through the Escarpment Natural Areas.

The Niagara Escarpment Plan Area is outlined in Figure 6 (Appendix I).

# 7 - Conclusions and Recommendations

# 7 Conclusions and Recommendations

It is recommended that the preferred route follow the existing Union Gas pipeline corridor as outlined in Section 3 of this report. Deviation from the existing easement will be required around Carlisle. The preferred route is shown in figures 9 to 12. By following Union Gas Specifications together with site specific measures, impacts to the environment will be minimized.

It is recommended that construction of the pipeline occur in the summer/fall months during lower stream flows and when wildlife nesting and denning activities do not occur. The cold-water streams with an identified brook trout fishery should be crossed between June 1 and September 1, where feasible and before September 15 at the latest. Construction through any commercial operation and adjacent to all houses should be completed in as short a time frame as possible. Union Gas should discuss with landowners suitable construction timing through commercial properties so as to attempt to minimize conflicts with their business operations.

The mitigation, inspection and monitoring recommendations in sections 4 and 5 of this environmental report should also form part of the contractor's specifications, where appropriate.

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# Glossary

# Glossary

| | |
|---|---|
| Alignment | The exact (surveyed) course of the pipeline. |
| Archaeological Site | A location containing the remains of early human cultures,such as artifacts, charcoal, burnt soil, fire-cracked rock, animal bones, human burials, etc. |
| Berm | A narrow mound often made of earth and stone but occasionally straw, constructed typically at the tip or bottom of a slope to control runoff. |
| Chisel Plough | A tillage implement with one or more cultivator-type feet to which are attached strong knife-like units. Used to shatter or loosen hard compact layers, usually in the subsoil to depths below normal plough depth. |
| Dewatering | The process of removing water with pumps from an excavation site. Water presence is frequently a result of excavation below the water table, in proximity to water-courses, or meteorological events. |
| Drumlin | An elongated hill or ridge of till material often shaped like half an egg, formed beneath an ice sheet by the movement of the ice. |
| Easement | An interest in land owned by another that entitles its holder to a specific limited use. |
| Environmental Impact | A resultant change in existing environmental (natural or social) conditions in either a positive or negative respect, as a result of a project's implementation. |
| Esker | A long narrow ridge of sand and gravel which was once a stream flowing beneath or in the inside of a glacier and was left after the ice melted. |
| Friable | The ease of crumbling of soils. |
| Hydroseeding | Dissemination of seed hydraulically in a water medium. Mulch, lime and fertilizer can be incorporated into the sprayed mixture. |
| Hydrostatic Test | A test of the pipeline's structural integrity carried out by filling the line with water, under pressure, to detect any possible leaks. |
| Kame | A mound of sand and gravel which was formed by the deposition of the sediment from a stream as it ran from the edge of an ice sheet. |

| | |
|---|---|
| Meromictic Lake | A lake where the primary upper water mass does not mix with the lower portion and therefore there is little disturbance of the bottom sediments. |
| Mitigative Measure | An ameliorative measure taken to minimize negative environmental impacts of a proposed development conducted either before, during or after construction. |
| NPS | Nominal Pipe Size used in conjunction with a non-dimensional number to designate the nominal size of valve, fittings and flanges. |
| Preferred Route | The pipeline route which is considered to have the overall minimal effect to the environment. |
| Outwash | Material washed from streams originating from the melting of ice from a glacier. |
| Right of Way | A legal right of passage over another person's ground. |
| Riprap | A layer of stones put together (without order) for support of a slope and to prevent erosion. |
| Route Location | A generalized course for the pipeline. |
| Rutting | The effects of ruts left after vehicular travel. |
| Sand Pointing | The process of sinking plastic drains into soil material to remove excess water. |
| Study Area | The area under study for the proposed project, with boundaries defined<br>- to include a reasonable area for the route selection process<br>- to limit the area for data acquisition and study. |
| Subsoiling | Breaking of compact subsoils, without inverting them, with a special knife-like instrument (chisel) which is pulled through the soil at depths usually of 30 to 60 cm and at spacings usually of 60 to 150 cm. |
| Subsurface Drainage Systems | Tile or plastic piping placed underground to assist draining the land. Systematic systems are where the drains are placed at regular intervals across a field. Random systems are where drains are placed irregularly usually only along low spots in a field. |
| Valve Site | A location where a series of valves and fittings are situated in order to facilitate the maintenance and operation of the pipeline. |

# Appendix A

# Initial Correspondence and Meetings With Public Agencies

# Appendix A

# Initial Correspondence and Meetings with Public Agencies

| Agencies Contacted | Letter Sent | Response Received |
|---|---|---|
| **Provincial Government Agencies** | | |
| Ontario Ministry of Agriculture and Food (OMAF) | Nov 16/89, May 29/90 | July 10/90 |
| Ontario Ministry of the Environment (MOE) | Nov 13/89 | No response |
| Ontario Ministry of Natural Resources (MNR) | Nov 13/89 | Dec 15/89, Nov 20/89 |
| Niagara Escarpment Commission | Nov 16/89, Dec 1/89 | Nov 28/89, Dec 13/89 |
| **Conservation Authorities** | | |
| Halton Region Conservation Authority | Nov 16/89 | No response |
| **Municipal Government Agencies** | | |
| Regional Municipality of Hamilton-Wentworth | Nov 16/89 | Dec 6/89, Nov 23/89 |
| Regional Municipality of Halton | Nov 16/89 | Dec 12/89 |
| City of Burlington | Nov 16/89 | Nov 29/89, Dec 15/89 |
| Town of Milton | Nov 16/89 | Nov 29/89 |
| Town of Flamborough | Nov 16/89 | Dec 1/89 |
| **Other Agencies** | | |
| CN Rail | Nov 16/89 | Nov 28/89 |
| CP Rail | Nov 16/89 | Nov 27/89 |
| Hamilton Naturalists Club | Apr 3/90 | Apr 30/90 |
| The Federation of Ontario Naturalists | Nov 16/89 | Dec 5/89 |
| Halton-North Peel Field Naturalists | Nov 16/89 | Jan 22/90 |
| The Bruce Trail Association | Feb 18/91 | Feb 21/91 |

ACRES

November 16, 1989
P9243.00

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Foodland Preservation Branch
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Toronto, Ontario
M7A 2B2

**Attention:** Mr. Tony Tosine
Regional Manager
Central and Southwestern Ontario

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate receiving your comments of the following points.

- Indicate any concerns that your agency might have with regard to routing and construction of the pipeline.

- Indicate whether construction of the pipeline is likely to interfere with any tile-drained agricultural lands in your district.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed route, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

Gordon S. Davies, Ph.D.
Manager, Environmental Services

FD:imci
Attach

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

May 29, 1990
P9243.00

Ministry of Agriculture and Food
Foodland Preservation Branch
1110 Stellar Drive, Unit 102
Newmarket, Ontario
L3Y 7B7

**Attention:** Heather Gariepy
District Manager

Dear Ms. Gariepy:

**Proposed Gas Pipeline**
**Hamilton Take off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of or study corridor.

We would appreciate receiving any comments or concerns you might have regarding routing and construction of the pipeline, especially with respect to any interference to tile drainage.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or me in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before June 15, 1990. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Gordon S. Davies, Ph.D.
Project Manager

CM:imci
Attach

**ACRES INTERNATIONAL LIMITED**
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver Calgary Winnipeg Toronto Burlington Halifax Sydney St. John's

Ontario

Ministry of Agriculture and Food

Ministère de l'Agriculture et de l'Alimentation

Foodland Preservation Branch

1110 Stellar Drive
Unit 102
Newmarket, Ontario
L3Y 7B7
(416) 895-4519
1-800-263-3241

July 10, 1990

Gordon S. Davies, Project Manager
Acres International Ltd.
5259 Dorchester Road
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies,

RE : Proposed Gas Pipeline
Hamilton Take off to Milton Tie-in
Routing and Environmental Study

Staff of this Ministry have completed a review of the above-noted proposal. Consideration has been given to the matter in terms of the goals and objectives of this Ministry and the criteria and policies contained in the Food Land Guidelines, which is the provincial policy on planning for agriculture.

The majority of our concerns with respect to construction and rehabilitation can be addressed by following Union Gas procedures for construction and rehabilitation as outlined in their manual.

We anticipate that the environmental impact study will examine the agricultural impact of the routes in detail and confirm the impacts of both routes. Some artificial drainage information has been mapped for this area and is available from the Soil and Water Management Branch in Guelph. Vern Spencer would be the person to contact for this information at 519-767-3547.

We look forward to receiving the study. Should you have any questions or wish to discuss this matter further, please contact this office.

Yours truly,

Heather Gariepy
Land Use Specialist

cc: Sharon Johnston, District Manager, OMAF-Toronto

Ontario, there's no taste like home
Un bon goût de chez nous

FOODLAND ONTARIO

ACRES

November 13, 1989
P9243.00

Ministry of the Environment
West Central Region
P.O. Box 2112
119 King Street West, 12th Floor
Hamilton, Ontario
L8N 3Z9

**Attention:** Mr. S. M. Irwin, Chief
Water Resources Assessment

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would be interested to know if you have any concerns with this route, particularly with regard to the following watercourses to be crossed.

- Bronte Creek and its tributaries.
- Limestone creek and its tributaries.

We would also appreciate receiving any available information you may have on water users of the above-mentioned water courses and the location of water sampling sites in the vicinity of the study area.

It should be noted that we are aware of the MOE Guidelines for Construction of Hydrocarbon Transmission and Distribution Pipelines Crossing Watercourses, (MOE, 1984).

UGL strives to achieve minimal impacts on water quality by using the following basic procedures as outlined in the above guidelines

- the shortest possible construction time during summer low flows
- limited in-stream disturbance
- immediate implementation of post-construction stabilization measures, i.e., rip-rap.

We are also aware that a permit to take water is required if more than 50 000 litres per day is required during the hydrostatic testing period.

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

FD:imci
Attach

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

ACRES

November 13, 1989
P9243.00

Ministry of Natural Resources
P.O. Box 2186
Beaverdale Road
Cambridge, Ontario
N3G 2W1

**Attention:** District Manager

Dear Sir/Madam:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate your assistance by providing information (e.g., mapping) for the area within our study corridor which may be important for botanical, wildlife, fisheries or forestry resources. Also, we would appreciate receiving your agency's comments and concerns with regard to the proposed pipeline route.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed route, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

FS:imci
Attach

For Gordon. S. Davies, Ph.D
Manager, Environmental Services

ACRES INTERNATIONAL LIMITED
3259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

## Minutes of Meeting

held at
the offices of MNR
Cambridge District Office
November 20, 1989

**Present**

| | | |
|---|---|---|
| Mr. Ted Harvey | ) | Liaison Officer, MNR |
| Ms. Betty Rozendaal | ) | Acres |

## Union Gas Proposed Gas Pipeline
## Hamilton Take-Off to Milton Tie In
## Routing and Environmental Study

The purpose of the meeting was
- to discuss any concerns MNR may have regarding the above project
- to obtain appropriate resource inventory maps, etc.

## A MNR Concerns

- **Fishery Resources**--MNR's main concern would be related to whether the creek crossings would affect spawning areas with special attention being given to Bronte and Limestone creeks which are both cold-water trout creeks.

- **Forestry Resources**-- The pipeline routing should avoid improvement woodlots and also follow the guidelines provided to Acres for previous pipeline studies. {Guidelines for Assessing Impact of Development Proposals on Forest Resources (J. R. Irwin, April 1989)}.

- **Agriculture**--Agricultural lands should be assessed for productivity and capability to determine the long-term loss and long-term decreased productivity.

- **Natural Environment**--Any evidence of significant or endangered species must be noted. Of particular concern is the existence of potential habitats of the West Virginia White Butterfly. The field work regarding this butterfly must be done in May corresponding to its significant flight paths.

- **Aggregate Resources**--Pipeline routing must avoid the areas where sand- and gravel-pit expansion may occur.

## B Mapping

MNR (Mitch Wilson) provided resource inventory maps for Flamborough, Milton and Burlington.

Minutes reported by
Betty Rozendaal

Reviewed by
Ted Harvey

we did not discuss agricultural lands, since this is not a mandate of MNR.

Ministry of Natural Resources
Ministère des Richesses naturelles
Ontario

Box 2186
605 Beaverdale Road
Cambridge, Ontario
N3C 2W1

8565.3

December 15, 1989

Acres International Limited
5259 Dorchester Road,
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Attention: Betty Rozendaal

SUBJECT: Proposed Gas Pipeline
Hamilton Take Off to Milton Tie-in
Routing and Environmental Study

Dear Ms. Rozendaal:

I am responding to your request for further information on the proposed gas pipeline routing and environmental study. The following information is enclosed.

- A map showing those areas of confirmed habitat for the West Virginia White butterfly
- A map showing all Woodland Improvement Act Agreements (WIA's) and Advisory Service Agreements (ASA's)
- An Earth Science Inventory Checklist for Halton Till
- A Life Science Inventory Checklist for Mount Nemo Escarpment
- A copy of the Environmentally Sensitive Area Study for Mount Nemo Escarpment Woods
- A Reconnaissance Biological Inventory of Mount Escarpment Area of Natural and Scientific Interest
- A Life Science Inventory Checklist for Lowville-Bronte Creek Valley
- A copy of the Environmentally Sensitive Area Study for Lowville-Bronte Creek Escarpment Woods
- A Reconnaissance Biological Inventory of Lowville-Bronte Creek Valley Area of Natural and Scientific Interest

- A Life Science Inventory Checklist for Crawford Lake-Milton Outlier Valley

- A copy of the Environmentally Sensitive Area Study for Crawford Lake-Rattlesnake Point Escarpment Woods

- A Reconnaissance Biological Inventory of Crawford Lake-Milton Outlier Valley Area of Natural and Scientific Interest

- An Earth Science Inventory Checklist for the Lowville Reentrant Valley

The following information has already been picked up by your office.

- All resource mapping for the City of Burlington and the City of Milton

- A Sand and Gravel resource map for the Township of Flamborough

Given the proximity of the confirmed habitat for the West Virginia White butterfly to the proposed route of the pipeline, a careful review should be conducted to determine if potential habitat along the proposed pipeline route exists. Should potential habitat exist, we suggest that a field study be conducted in the spring to determine Deuteria distribution and presence/absence of the West Virginia White butterfly.

If you require any further information, please contact Mitch Wilson at this office (telephone (519) 658-9355).

Yours truly,

J. J. McFadden
District Manager
Cambridge District

AMW/ls

Enclosure

ACRES

November 16, 1989
P9243.00

Niagara Escarpment Commission
166 Main Street West
Grimsby, Ontario
L3M 1S3

**Attention:** Mr. Robson

Dear Sir:

**Proposed Gas Pipeline**
**Hamilaton Take off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale maps show the limits of or study corridor.

We would appreciate it if you would review the proposed route and the corridor and advise us in writing whether there are any conflicts with existing or proposed plans by your agency.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

FD:imci
Attach

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

Ontario

Niagara Escarpment Commission
Commission de l'escarpement du Niagara

(416) 945-9235

166 Main Street West
Grimsby, Ontario
L3M 1S3

166, rue Main ou
Grimsby (Ontario)
L3M 1S3

November 28, 1989

Gordon S. Davies, Ph.D.
Manager, Environmental Services
ACRES INTERNATIONAL LTD.
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Sir:

RE: PROPOSED GAS PIPELINE
HAMILTON TAKE OFF TO MILTON TIE-IN
ROUTING AND ENVIRONMENTAL STUDY

Further to your letter of November 16, 1989, please be advised that portions of all suggested routing alternatives are located within the Niagara Escarpment Plan and Development Control Areas. The proposed development within the Development Control Area is subject to the requirement of obtaining a Development Permit from the Niagara Escarpment Commission. A copy of the application form is enclosed.

As a general guideline, the principle of the proposed development is permitted in all designations of the Niagara Escarpment Plan with the exception of the "Escarpment Natural Area". All suggested alternatives traverse lands designated "Escarpment Natural Area". The Niagara Escarpment Plan states that new utility facilities should avoid "Escarpment Natural Areas" and that only "essential" utility facilities may be permitted. The word "essential" is defined as follows:

> "That which is deemed necessary to the public interest after all alternatives have been considered."

The proposed route selected should, therefore, be the one with the least disturbance to the Escarpment environment. The selection should be supported by documentation which would qualify the facility as "essential", according to the Niagara Escarpment Plan. Such information should be supplied with the Development Permit Application.

Gordon S. Davies, Ph.D.
PROPOSED GAS PIPELINE
HAMILTON TAKE OFF TO MILTON TIE-IN
ROUTING AND ENVIRONMENTAL STUDY
November 28, 1989

The Development Permit process involves co-ordination of comments from various public agencies, and the provision of appeals by neighbouring property owners to the Commission's decision. The process, without appeals, takes approximately three (3) months. If a decision is appealed, the process is extended to approximately nine (9) months.

As another matter of administration, staff notes that the Development Control lands involved with Alternative 1 are entirely within the Regional Municipality of Halton. The Development Control lands involved with Alternative 2 cover 2 township lots within the Regional Municipality of Hamilton-Wentworth and a substantial area of Halton. It is, therefore, suggested that your application be forwarded to the Georgetown Office (see application form for address) for processing. David Johnston is the Development Control Planner responsible for the Halton Region, while the undersigned is responsible for the Hamilton-Wentworth Region.

I have supplied you with Map No. 2 (Hamilton-Wentworth) of both the Niagara Escarpment Plan and Development Control Area. The Georgetown Office has the same information available for the Halton Region.

I trust this is of assistance, however, should you have any questions, please feel free to contact either David in Georgetown or myself in Grimsby.

Yours very truly,

Martin Kilian
Planner

gdc
Encl.

cc: David Johnston

ACRES

December 1, 1989
P9243.00

Niagara Escarpment Commission
232 Guelph Street
Georgetown, Ontario
L7G 4B1

Dear Sir:

**Proposed Gas Pipeline**
**Hamilaton Take off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale maps show the limits of or study corridor.

We would appreciate it if you would review the proposed route and the corridor and advise us in writing whether there are any conflicts with existing or proposed plans by your agency.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before December 15, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

FD:imci
Attach

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

Ontario

Niagara Escarpment Commission
Commission de l'escarpement du Niagara

232 Guelph Street
Georgetown, Ontario
L7G 4B1
(416) 877-5191

232, rue Guelph
Georgetown, Ontario
L7G 4B1
(416) 877-5191

13 December 1989

Mr. Gordon S. Davies, Ph.D.
Manager, Environmental Services
Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies:

Re: Proposed Gas Pipeline
Hamilton Take-Off to Milton Tie-In
Routing and Environmental Study

Further to your letter of December 1, 1989, Commission staff have reviewed the alternate alignments for the proposed Union Gas Pipeline and submit the following comments.

We note that comments have been previously provided to you from the Grimsby office of the Niagara Escarpment Commission for the Hamilton-Wentworth portion of the study area. The following comments reflect the intent of the Niagara Escarpment Plan and are in addition to those previously provided.

Portions of both the alternative 1 and 2 alignments traverse areas under the jurisdiction of the Niagara Escarpment Plan as well as the Development Control Area. Further, both alignments traverse the three major planning designations as shown on the attached map. The relevant policies of the Plan are as follows:

**Escarpment Natural Area**

Escarpment Natural Areas contain the most significant and scenic aspects of the Escarpment, and the policy aims to maintain these areas. The Permitted Uses under the Escarpment Natural Area are therefore restrictive, and only permit essential utility facilities, which is

defined in the Plan as "...that which is deemed necessary to the public interest after all alternatives have been considered". Section 2.14 under Development Criteria specifically states that new utility facilities should avoid Escarpment Natural Areas.

**Escarpment Protection Area**

Escarpment Protection Areas generally include lands that have previously been modified by land use activities and are necessary to buffer prominent Escarpment Natural Areas. Lands included in this designation are comprised of escarpment slopes and related landforms; areas in close proximity to Escarpment slopes which are visually part of the landscape; and Regionally Significant Area of Natural and Scientific Interest. The policy aims to maintain these features.

As with Escarpment Natural Areas, only those utilities which are considered "essential" are permitted.

**Escarpment Rural Area**

Escarpment Rural Areas are considered an important component of the Escarpment corridor. They include lands in the Escarpment vicinity, provide a buffer to the more ecologically sensitive areas and are considered essential in maintaining the open landscape character. Utilities are stated as a permitted use, subject to Part 2-Development Criteria of the Plan.

Through examination of topographic maps for the area, Commission staff note that the Alternative 1 alignment follows an existing Union Gas easement. It is our understanding that the intent would be to follow the existing easement to the extent possible, but that additional lands will likely be required. The Alterternative 2 alignment appears to partially follow an existing Imperial Oil Pipeline easement for a portion of the route.

As previously noted, both areas traverse the three major Plan designations. It, therefore, appears that the alternative which presents the least environmental and visual impact will likely be the one which most closely conforms with the intent and policies of the

Niagara Escarpment Plan. Consideration of these factors as well as supporting documentation regarding how the undertaking fits in with consideration of "essential utilites", as defined in the Plan, will be of great importance in preparation of the Class Environmental Assessment. Further, both the site selection and detailed design components of the undertaking must give consideration to Part 2- Development Criteria of the Plan. Notwithstanding which alternative is selected, a Development Permit will be required from the Niagara Escarpment Commission.

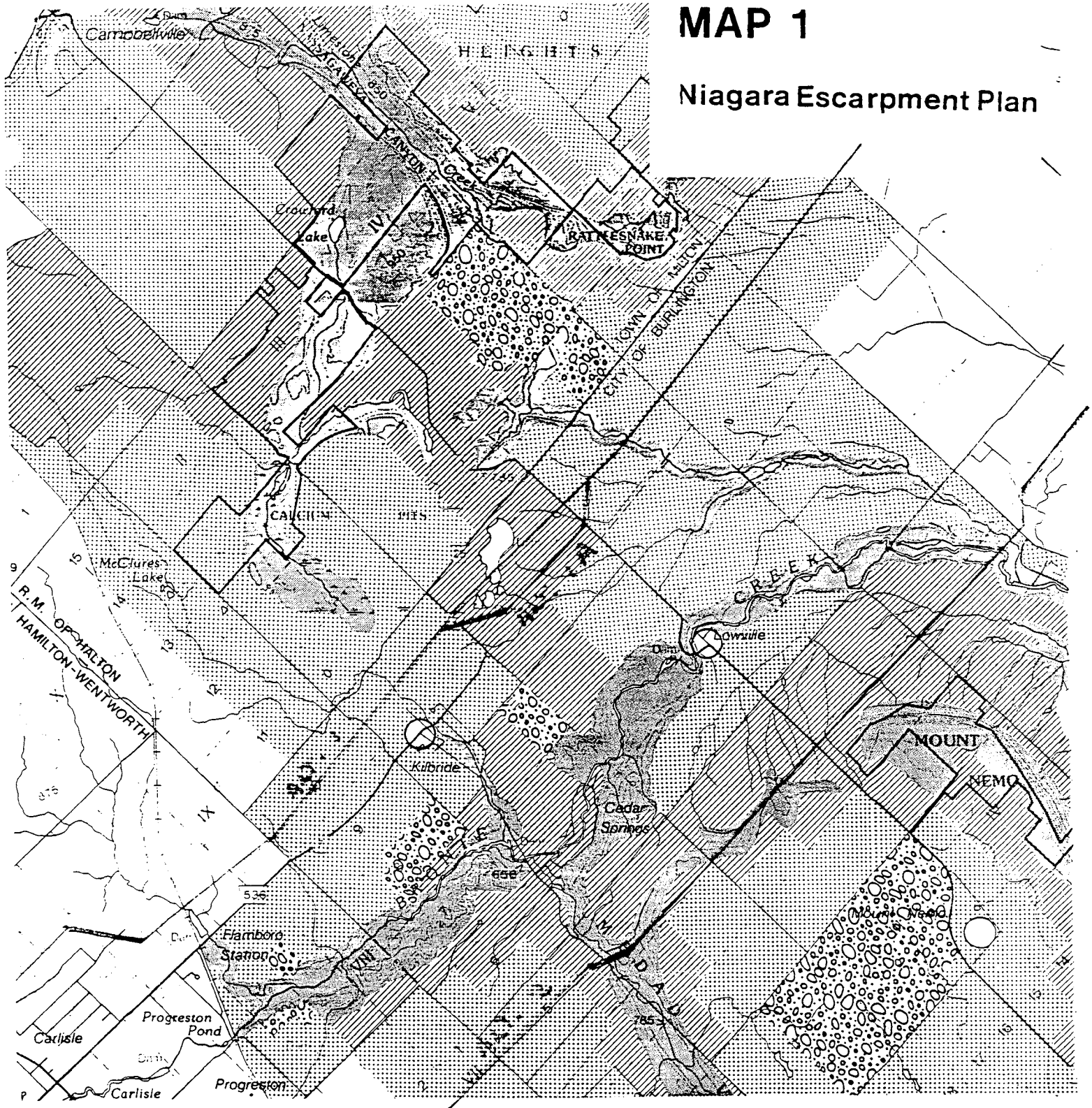
It is our understanding that the inquiry forms the initial investigation stage for subsequent preparation of a Class Environmental Assessment. We trust that the above in formation will be of assistance. Should you have any questions, please contact Deborah Ramsay of this office.

Yours very truly,

Cecil Louis
Manager
Plan Administration

# MAP 1

## Niagara Escarpment Plan




### LEGEND

| | | | |
|---|---|---|---|
| Escarpment Natural Area | | Urban Area | |
| Escarpment Protection Area | | Escarpment Recreation Area | |
| Escarpment Rural Area | | Mineral Resource Extraction Area | |
| Minor Urban Centre | | Public Land (in Parks System) | |

SCALE 1 : 50,000

METRES 1000 500 0 1000 2000 3000

November 16, 1989
P9243.00

The Halton Region Conservation Authority
P.O. Box 1097
Station B
Burlington, Ontario
L7P 3S9

**Attention:** Mr. John Hall

Dear Sir/Madam:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate it if you would review the proposed route and the corridor and advise us in writing whether there are any conflicts with existing or proposed plans by your agency.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before December 15, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

FD:imci
Attach

Gordon S. Davies, Ph.D.
Manager, Environmental Services

ACRES

November 16, 1989
P9243.00

Regional Municipality of Hamilton-Wentworth
Planning and Development Department
119 King St, P.O. Box 910
Hamilton, Ontario
L8N 3V9

**Attention:** Mr. J. Thoms

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate if you would review the proposed route and advise us in writing whether there are any conflicts with existing or proposed plans by your regional municipality.

Also, if you could provide zoning maps for the area and indicate the location of any water and sewer lines, it would be very helpful.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

for Gordon S. Davies, Ph.D.
Manager, Environmental Services

FD:imci
Attach

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Department of Engineering
71 Main Street West, Hamilton, Ont. L8N 3T4 (416) 526-4170

ID#brenda

Refer to File No. T103-06
Attention of C. Pacella
Your File No.

December 6, 1989

Acres International Ltd.
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Att: Gordon S. Davies

**Proposed Gas Pipeline**
**Hamilton Take Off To**
**Milton Tie-In Routing And**
**Environmental Study**

Dear Sir:

In response to your letter dated November 16, 1989 regarding the above referenced material, please be advised that we have no proposed major utility works. However, a small watermain may have to cross the system in the future.

Should you have any inquiry I can be contacted at 546-2052.

C. Pacella
Supervisor of Utilities & Approvals

CP:bm

cc: K. Brenner
Manager of Environmental Planning

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Planning and Development Department
119 King Street West, 14th floor
Hamilton, Ontario

Mailing Address:
P.O. Box 910, Hamilton, Ontario
L8N 3V9

Refer to File No. R519.2.7
Attention of
Your File No.

November 23, 189

Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Attention: Mr. Gordon S. Davies, Ph.D

Dear Mr. Davies:

**RE: PROPOSED GAS PIPELINE**
**HAMILTON TAKE OFF TO MILTON TIE-IN**

In response to your letter dated November 16, 1989, the following comments are provided.

With respect to the Hamilton-Wentworth Official Plan, there are a number of policies which should be considered in the route selection. Specifically:

1) The study corridor is within the Rural Policy Areas of Hamilton-Wentworth and is for the most part, designated as "Agriculture"(see maps 1 and 7). Disruption of agricultural operations in the area should be minimized.

2) Lands on Map No. 2 in Concession 7, 8, and 9 are shown as "Mineral Resource Areas" (Policies attached).

3) One Environmentally Sensitive Area may be affected if Alternative 2 was selected as shown in Map No. 4. If possible, disruption of the E.S.A. should be avoided.

4) Lands within Concession 7 affected by Alternative 2 are located in the Niagara Escarpment Plan Area as shown in Map No. 7 and 8, and are subject to the attached Policies. Comments should also be obtained from the Niagara Escarpment Commission.

Also, comments relating to zoning should be obtained from the Town of Flamborough.

...2/

The Regional Engineering Department has been requested to provide comments respecting sewer and water lines directly to you.

If you have any further questions, please call Steve Miazga at 546-4164.

Yours truly,

William R. Pearce, M.C.I.P.
Head, Plans Administration Division

attach./
WRP/sw

cc: T. Gill,
Engineering.

G. Paperella,
Flamborough.

ACRES

November 16, 1989
P9243.00

Regional Municipality of Halton
Box 700
1151 Bronte Road
Oakville, Ontario
L6J 6E1

**Attention:** Mr. R. Mohammed

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate if you would review the proposed route and advise us in writing whether there are any conflicts with existing or proposed plans by your regional municipality.

Also, if you could provide zoning maps for the area and indicate the location of any water and sewer lines, it would be very helpful.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

FD:imci
Attach

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

THE REGIONAL MUNICIPALITY OF HALTON
P.O. BOX 7000, 1151 BRONTE ROAD
OAKVILLE, ONTARIO, CANADA L6J 6E1

PLANNING AND DEVELOPMENT DEPARTMENT
TEL: 416/827-2151 FAX: 416/827-3816

Halton
a World Class Place To Be.

December 12, 1989

Mr. Gordon S. Davies, Ph.D.
Manager, Environmental Services
Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies:

Re: Proposed Gas Pipeline
Hamilton Take-Off to Milton Tie-In
Routing and Environmental Study
File: EN03 A

This letter is to respond to your request for information on the Region of Halton with respect to the above noted project. The following policy areas of the Halton Region Official Plan affect the study area: Energy, The Niagara Escarpment Planning area and Environmentally Sensitive Areas (ESAs). The appropriate sections of the Official Plan are enclosed for your information.

The Region of Halton has also undertaken a major initiative called the Halton Urban Structure Review that looks at where growth is going to take place over the next 25 years in Halton. Through that study it was determined that the Region will require 5,000 acres for residential and industrial development. This growth will be concentrated around the Town of Milton. A 13,000 acre study area has been established around the Town of Milton to determine the best location for the 5,000 acres of development. A map is enclosed illustrating the location of the study area for the Halton Urban Structure Review. The study area for the proposed gas pipeline overlaps into the Halton Urban Structure Review Study Area.

The Region's Public Works Department advised me that there are no water and sewer services within your study area.

The City of Burlington and the Town of Milton would be able to provide you up-to-date information regarding the zoning of the study area for the proposed pipeline.

If you have any questions please contact me at extension 309.

Yours truly,

Suzanne McInnes

Suzanne McInnes
Planner

Encl.

cc: HKW/DRM/FILE

SM.sm
ko

ACRES

November 16, 1989
P9243.00

City of Burlington
P.O. Box 5013
426 Brant Street
Burlington, Ontario
L7R 3Z6

**Attention:** Mr. Goodman

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate if you would review the proposed route and advise us in writing whether there are any conflicts with existing or proposed plans by your municipality.

Also, if you could provide zoning maps for the area and indicate the location of any water and sewer lines, it would be very helpful.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

FD:imci
Attach

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

The Corporation of the
**City of Burlington**

*City Hall:*
426 Brant Street, Burlington, Ontario, Canada
*Mailing Address:*
P.O. Box 5013, Burlington, Ontario, Canada L7R 3Z6

Telephone: 335-7672

Fax No.: 335-7861

November 29, 1989

International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Attention: Gordon S. Davies, PhD.
Manager of Environmental Services Acres

Dear Sir

Re: Proposed Gas Pipeline
Hamilton Take-Off to Milton Tie-In

In response to your letter of November 16, 1989 addressed to our Mr. Gary Goodman, I am responding to you on behalf of the Public Works Group of the City of Burlington.

The Engineering Department does not have any responsibilities for sanitary sewers or water mains, these services are the responsibility of the Regional Municipality of Halton. We are repsonsible for storm sewers and are not aware of any storm sewers that would be in conflict with the proposed routings of the pipeline. We would appreciate more detailed information in the future so we can review the impacts of your proposal on our roadways.

Yours truly

D. Dalgarno, P.Eng.
Manager of Design

DD/sjel

cc Gary Goodman

The Corporation of the
**City of Burlington**

*City Hall:*
426 Brant Street, Burlington, Ontario, Canada
*Mailing Address:*
P.O. Box 5013, Burlington, Ontario, Canada L7R 3Z6
Telephone: 335-7789
Fax No.: 335-7880

November 29, 1989

Mr. Gordon S. Davies, Ph.D.
Manager, Environmental Services
Acres International Limited
5259 Dorechester Road
NIAGARA FALLS, Ontario
L2E 6W1

Dear Mr. Davies:

RE: Proposed Gas Pipeline
Hamilton Take Off to Milton Tie-In
Routing and Environmental Study

Your letter dated November 16, 1989 along with the map showing your study corridor was not received in our office until November 24, 1989.

We are presently reviewing the proposed route but unfortunately we will not be able to respond by November 30, 1989 as requested. We will attempt to have a response to you by mid December.

Yours truly,

G.E. Goodman, M.C.I.P.
Executive Director,
Planning and Development Group

/je

The Corporation of the
**City of Burlington**

*City Hall:*
426 Brant Street, Burlington, Ontario, Canada
*Mailing Address:*
P.O. Box 5013, Burlington, Ontario, Canada L7R 3Z6

Telephone: 335-8781
Fax No.: 335-7880

December 15, 1989

Mr. Gordon S. Davies, Ph.D.
Manager, Environmental Services
Acres International Limited
5259 Dorchester Road
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies:

RE: Proposed Gas Pipeline
Hamilton Take Off to Milton Tie In
Routing and Environmental Study

Thank you for the opportunity to comment on the route selection for the proposed gas pipeline. In a phone conversation with Cate Mee of your office, she confirmed that the proposed northern route for the pipeline (Alt. 1) would run adjacent to an existing Union Gas pipeline on the same easement with the possible exception of the proposed pipeline being required to bypass McColl Lake (Alt. 1A). This bypass would be utilized if it was found that the pipeline could not be strung through the lake. The southern pipeline proposal would follow a route south of and roughly parallel to Britannia Road to a point east of Guelph Line, where it would meet and share an easement with the Sun Oil Pipeline (Alt. 2). Ms. Mee indicated that there appears to be difficulties with the topography of the second proposal and that the northern location appeared to be more feasible.

The proposed pipeline locations were evaluated against the policies of the Burlington Official Plan, the Kilbride Secondary Plan, the Halton Official Regional Plan and the Niagara Escarpment Plan. Several concerns have been identified regarding the proposed southern and northern routes, which we request that you consider. The following is a synopsis of these concerns:

1. The northern proposed route and possible bypass of McColl Lake run through two land use designations of the Burlington Official Plan as amended, namely Agriculture and Natural Resource (Sketch 1). The intent of these designations

is to encourage the preservation of large lots (min. 50 and 25 acres respectfully) and to limit the types of development to those requiring large acreage. As the existing Union Gas Pipeline has already impacted on drainage patterns an additional pipeline would create few new constraints to development.
However, the southern route , west of Guelph Line, would bisect Residential and Settlement Areas as well as Agriculture and Natural Resource designations. Self sustaining single family residential development is encouraged in the Residential and Settlement Areas on relatively small lots. A new pipeline in these areas may change drainage patterns which could impact on the self sufficiency of the existing homes in the area and limit future residential use. Further, increased building setbacks from the pipeline may have a visual impact and create an artificial barrier separating parts of the community.
East of Guelph Line, the southern route following the Sun Pipeline, would cross lands with Agriculture and Natural Resource designations. As with the northern route, there is less potential for impact on future development.

2. The southern location of the pipeline would bisect or be in close proximity to the Medad Valley and Mt. Nemo Escarpment and Woods. These areas have been identified as Environmentally Sensitive Areas (see attached Sketch 2). The Halton Regional Plan requires that where the physical and/or biological features of these areas may become altered by a proposed land use that Environmental Impact Assessments (E.I.A.) be carried out to ensure that any development which may alter these features is encouraged to locate outside the sensitive area. The northern alternative is not in proximity to any identified Environmentally Sensitive Areas.

3. The location of Hazard Lands as identified by the Ministry of Natural Resources are shown on Sketch 3. These areas are subject to the Flood and Fill Line Regulations of the Halton Region Conservation Authority and the Hazard Lands Policy of the Ministry of Natural Resources. As indicated, both the Sun Oil and Union Gas pipelines cross through Hazard Lands. An assessment of present and potential impacts would be in order prior to any route selection. Further, the development of the southern route or the McColl Lake bypass would require additional hazard land crossings. Site studies should be performed to consider the nature and severity of the hazard and the potential impacts of the hazards.

4. The Ministry of Natural Resources has identified a 15.2ha area north of Kilbride Street and west of McNiven Road as a Class 7 Wetland (Sketch 4). The Halton Region Conservation Authority advocates no development in Wetland Areas of any evaluation class. Permits must be obtained from the H.R.C.A. prior to draining or filling a wetland and will not be granted if the development is considered ecologically harmful. The existing Union Gas pipeline has affected the drainage pattern in this wetland, as is evident on attached Sketch 4. If the northern route is selected an assessment of the likelihood of any additional impacts must be done to determine whether a bypass to the north of the Wetlands should be considered. In particular, the Kilbride Secondary Plan has identified that rock cutting or blasting in this Wetland area may risk the water supply of existing and future homes.

5. Both northern and southern routes cross lands within the Niagara Escarpment Planning Area (Sketch 5). While essential utility facilities are a permitted use in each of the Escarpment designated areas, development criteria apply, which require that:

   i. The long-term capacity of the site to support the use without a substantial negative impact on Escarpment environmental features such as water quality, natural vegetation, soil and visual attractiveness.

   An examination of any impact along the existing Sun Oil and Union Gas pipelines would reveal information about the probable long term impacts of a proposed pipeline along both routes and would assist in the decision making.

   ii. Where a lot is located in more than one designation, development should be located on that portion of the lot located in the least restrictive designation.

   This statement logically requires that if a choice can be made in the location of a development, that the location with the least restrictive designation should be selected. The proposed southern route cuts through a much larger proportion of land in the more restrictive designations of Escarpment Protection and Escarpment Natural Areas than the northern route. Thus, there may be less potential impact with the northern route.

   iii. Any development permitted should be designed and located in such a manner as to preserve the natural and visual characteristics of the area.

iv. Where development involves new roads or service corridors, their designation and alignment should be in harmony with the Escarpment landscape.

Additional development along the existing northern route would have significantly less natural and visual impact than the new cut proposed for a portion of the southern route. Further, staff is concerned that in the Mt. Nemo Escarpment area, the southern pipeline may be required to be strung above ground and through ravines rather than buried because of the uneven topography. This would make preserving the natural and visual characteristics and creating harmony with the Escarpment landscape difficult.

Based on the information above, it would appear that the northern route may have less negative environmental impacts than the proposed southern route, with the exception of the Wetland area west of McNiven Road. We would appreciate a copy of all pertinent technical information and reports that result from your studies in Burlington. The City may wish to make further comments regarding the route selection at a later date. Should you have any questions regarding our comments please do not hesitate to call.

Your truly,

Marilyn Lagzdins
Planner - Policy

416
Att.

ACRES

November 16, 1989
P9243.00

Town of Milton
P.O. Box 1005
251 Main Street East
Milton, Ontario
L9T 4B5

**Attention:** Mr. R. J. Zsadanyi

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate if you would review the proposed route and advise us in writing whether there are any conflicts with existing or proposed plans by your municipality. Also, if you could provide zoning maps for the area and indicate the location of any water and sewer lines, it would be very helpful.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

FD:imci
Attach

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road. P.O. Box 1001, Niagara Falls. Ontario. Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver. Calgary. Winnipeg. Toronto. Burlington. Halifax. Sydney. St. John's

The Corporation of the
**TOWN of MILTON**

R.J.L. Zsadanyi
Director of Planning

November 29, 1989. File Z.2100

Mr. Gordon S. Davies, Ph.D.
Manager, Environmental Services,
Acres International Ltd.,
5259 Dorchester Road,
P.O. Box 1001,
NIAGARA FALLS, Ontario.
L2E 6W1

**RE: Proposed Gas Pipeline,**
**Hamilton Take Off to Milton Tie-In,**
**Routing and Environmental Study**

Dear Sir:

We have in hand your letter re: the above dated November 16, 1989. Virtually all of the lands within the Town of Milton affected by this pipeline are zoned "A1" Agriculture. This particular zone does include provisions to accommodate the pipeline in question without the need of having to go through any form of zoning amendment.

We are attaching, as requested, a copy of Map 4 from Town of Milton Zoning By-law 61-85. This map covers all of the lands which you are interested in.

We are unaware of any water or sewer lines that may be traversed by your pipeline. We will be, however, surprised to learn if there are any such services in any proximity to the pipe in question. You may wish to follow up on this with the Halton Region Public Works Department as they are responsible for water and sewers. We are also taking the liberty of forwarding a copy of your letter to our own Public Works Department for their review and possible response to you.

Trusting that this is the information you were seeking, I remain

Yours sincerely,

R. J. L. Zsadanyi, M.C.I.P.,
Director of Planning.

attach.
RJLZ:la
cc: Mr. J. Matthews, Dir. Public Works

ACRES

November 16, 1989
P9243.00

Township of Flamborough
P.O. Box 50
163 Dundas Street East
Highway 5
Waterdown, Ontario
L0R 2H0

**Attention:** Mr. E. Murphy

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor and proposed route(s).

We would appreciate if you would review the proposed route and advise us in writing whether there are any conflicts with existing or proposed plans by your municipality.

Also, if you could provide zoning maps for the area and indicate the location of any water and sewer lines, it would be very helpful.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

FD:imci
Attach

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

163 Dundas St. E. (Hwy. 5)
P.O. Box 50
Waterdown, Ontario
L0R 2H0
Tel. (416) 689-7351
Ham. (416) 524-0322
Tor. (416) 825-2176
Zenith No. 36650
Fax 689-3310

File No: 40.69.03
40.69.04

December 1, 1989

Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Attention: Gordon S. Davies, Ph.D.
Manager, Environmental Service

Dear Sir:

In response to your request for information regarding the Union Gas Limited route selection. Staff have attached Schedules A-4 and A-5 from the Draft Comprehensive Zoning By-law and excerpts from this document relating to utilities to aid you in understanding the Town's planning policies.

Staff note that both routes will pass through lands designated as Agriculture in the Official Plan (see Schedule 'B') and indicated as Hazard Land on Schedule E to the Official Plan. These designations directly correlate to the Agriculture 'A' and Conservation Management 'CM' zones in the Draft Zoning By-law. The existing Zoning By-law 75-65-EF-Z zones the lands through which both routes would pass as Agriculture 'A'.

In regard to an alternate route, staff note that the route will cross the Bronte Creek and a tributary to Bronte Creek and these creeks and associated valley lands are designated as Hazard. Staff suggest that the comments of the Halton Region Conservation Authority be obtained. Staff's only other concern would be the proximity of this route to the settlement area of Carlisle, and the impact of the route on any future possible expansion of Carlisle.

With regard to alternative route 2 staff note that the route will pass through lands indicated on the following schedules as being:

| | |
|---|---|
| Schedule C | Escarpment Rural Area in the Niagara Escarpment Plan. |
| Schedule D | Environmentally Sensitive Area know as the Carlisle Swamp. |

Schedule E Hazard Land Grindstone Creek.

Schedule J Mineral Aggregate.

Staff suggest that the comments of the Niagara Escarpment Commission, Halton Region Conservation Authority, Ministry of Natural Resources and the Ministry of the Environment be considered with regard to these designations.

Staff note that the Official Plan permits the routing of utility transmission lines and Policy D.3.2 relates to the locating of such lines. Also enclosed is the relevant section of the Draft Zoning By-law.

The Town has done its best to answer your questions and if you should have any further questions please call this department at 689-7351.

Yours truly

Adrian Redish
Planner

AR:cm

Encl.

November 16, 1989
P9243.00

CN Rail
Regional Engineering Technical Services
Suite 503, 277 Front St. W
Toronto, Ontario
M5V 2X7

Gentlemen:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would be crossing CN's rail line southwest of the Town of Milton. Could you please advise us in writing whether you have any concerns where the pipeline crosses your railroad. We would also appreciate copies of any CN Rail or Canadian Transport Commission specifications which must be followed.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed corridor, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Gordon S. Davies, Ph.D.
Manager, Environmental Services

FD:imci
Attach

**ACRES INTERNATIONAL LIMITED**
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

Operations Services
Southern Ontario District
Suite 404
277 Front Street West
Toronto, Ontario
M5V 2X7

28 November 1989

Our File: 4715-GEN

Acres International Limited
5259 Dorchester Road
Niagara Falls, Ontario
L2E 6W1

Attention: Gordon S. Davis, Ph.D

Dear Sir

Re: Board Order No. E.B.L.O.230

With reference to your letter dated 16th November 1989, we have no objections in principal subject to Union Gas Submission with ten (10) detailed drawings, showing the proposed pipe crossing/parallel occupation in accordance with General Order E-10 prior to our final approval.

Yours truly

J.A. Beysovec, C.E.T.
Engineering Technologist
For: Technical Support Engineer

WL/T11971ap

November 16, 1989
P9243.00

CP Rail
655 Richmond Street North
London, Ontario
N6A 3G9

Dear Sir:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would be crossing CP's rail line west or south of the Town of Carlisle. Could you please advise us in writing whether you have any concerns where the pipeline crosses your rail road. We would also appreciate copies of any CP Rail specifications which must be followed.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed route, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

FD:imci
Attach

Gordon S. Davies, Ph.D.
Manager, Environmental Services

**ACRES INTERNATIONAL LIMITED**
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

**CP Rail**

'fice of the
ıperintendent

Our File
Your File

C.P. RAIL
664 Richmond Street North
LONDON, Ontario
N6A 3G9

27 November 1989

Acres International Ltd.,
5259 Dorchester Road,
P.O. Box 1001
NIAGARA FALLS, Ontario
L2E 6W1

File: L-GOD-11.0

Attention: Gordon S. Davies, Ph.D.

Re: Proposed Pipe Crossing of C.P.Rail, Vicinity of Carlisle, Ontario
Approximate Mileage 11.0 Goderich Subdivision

---

Dear Sir;

This is to acknowledge receipt of your letter of November 16, 1989 re proposed railway crossing of a pipe line.

Enclosed, please find all necessary information relating to pipe crossings,including a sample plan. We will require ten (10) copies of the plan with your submission. Please be guided accordingly.

Yours truly,

W. Stekman, P. Eng.,
Division Engineer

April 3, 1990
P9243.00

Hamilton Naturalists Club
P.O. Box 5182, Station E
Hamilton, Ontario
L8N 4L3

**Attention:** Conservation Section

Dear Sir/Madam:

**Hamilton Take-Off to Milton Tie In**
**NPS 48 Natural Gas Pipeline-Route**
**Selection and Environmental Assessment**

Acres International Limited (Acres) have been retained by Union Gas Limited (UGL) to prepare a route selection and environmental assessment for a natural gas pipeline between Hamilton and Milton. We contacted you last November regarding the pipeline.

Our records indicate that we have not yet received any response from your club. It is necessary that we have written comments that can be included in the EA report and would appreciate if you could send them to us as soon as possible. We apologize if you have already sent us your comments and, if this is the situation, could you please provide us with another copy. We also apologize for the delay in following up this request, but the project has been on hold and is only now underway again.

We are proposing to hold a public meeting at the Carlisle Memorial Hall, Carlisle Road on Monday April 30, 1990, at 7:30 p.m. Acres is interested in determining any local concerns so that they may be incorporated in the route selection process. We would welcome your presence at the meeting if you wish to attend.

If you require further information please contact Cate Mee at (416) 374 5200.

Yours sincerely,

CM:imci
Attach

Gordon S. Davies, Ph.D.
Project Manager

**ACRES INTERNATIONAL LIMITED**
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374 5200 Telex 061 5107 Facsimile 416-374-1157
Vancouver Calgary Winnipeg Toronto Burlington Halifax Sydney St. John's

Rec'd May 1/90

April 30, 1990

Cathleen Mee
Project Coordinator
Acres International Ltd.
5259 Dorchester Rd.
Niagara Falls, Ont.
L2E 6W1

Dear Ms. Mee,

Re: **Hamilton Take-Off to Milton Tie In NPS 48 Natural Gas Pipeline-Route Selection and Environmental Assessment**

This letter is in response to your request for information regarding the proposed pipeline routes. In my view, the more northerly route, Alt 1, as indicated on your map, would be preferable to Alt 2. Route Alt 2 crosses the Bronte Creek in two places, and pipeline construction activities may potentially have negative effects on the water clarity in the creek and thus disturb the ecology of this watercourse. The Alt 1 route is also entirely along an existing pipeline route, whereas the Alt 2 route would require a new route for part of its course.

Several areas within close proximity to the area of study which are used frequently by naturalists include Rattlesnake Point, Crawford Lake, Mount Nemo, Medad Valley and the Bronte Creek. However, none of these sites are immediately on the proposed routes.

The only site directly on the proposed route Alt 1 for which we have specific information is the area where the CPR railline crosses the existing Union Gas pipeline just east of Carlisle at UTM 837065. This site was visited by Robert Curry on July 17, 1988, and the following butterfly species were recorded: European Skipper, Tawny-edged Skipper, Long Dash, Black Dash, Delaware Skipper, Dion Skipper, Dun Skipper, Tiger Swallowtail, Coral Hairstreak, Acadian Hairstreak, Bronze Copper, Pearl Crescent and Monarch. Of these species, the Dion Skipper and Black Dash are considered to be rare in Ontario and uncommon in the Carolinean zone of Ontario (Lamond, April 1990, Wood Duck 43(8): 131-136). In my view, habitat for these species will likely persist in this area after contruction is completed.

I hope that this information will be useful in your route planning process.

Sincerely,

Rob Dobos

Rob Dobos
Conservation Committee
Hamilton Naturalists' Club
Box 5182
Hamilton, Ont.
L8S 4L3

November 16, 1989
P9243.00

Federation of Ontario Naturalists
355 Lesmill Road
Don Mills, Ontario
M3B 2W8

Gentlemen:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate receiving your Federation's comments regarding any environmental concerns related to the proposed pipeline route and its construction. Please include the location of any important natural sites and areas which are frequently visited by you and your members in the pipeline corridor. We have already written similar letters to the Hamilton Naturalist Club, Royal Botanical Gardens, Nature Conservatory and Halton Field Naturalists. However, if there are any others who should be notified, please let us know.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed route, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

FD:imci
Attach

Gordon S. Davies, Ph.D.
Manager, Environmental Services

**ACRES INTERNATIONAL LIMITED**
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver Calgary Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

FEDERATION OF
**Ontario Naturalists**
355 Lesmill Road, Don Mills, Ontario M3B 2W8 Phone: (416) 444-8419 Fax: (416) 444-9866

Gordon S. Davies
Acres International Limited
5259 Dorchester Rd., P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

December 5, 1989

Dear Sir:

Thank you for offering us the opportunity to comment on the proposed Hamilton gas pipeline.

We ask, however, that you send all additional information to our affiliated clubs, Halton/North Peel Naturalists and the Hamilton Naturalists Club, which are more familiar with surrounding natural areas.

Yours truly,

Kim Gavine, Environmental Researcher

ACRES

November 16, 1989
P9243.00

Halton Field Naturalists
P.O. Box 115
Georgetown, Ontario
L7G 4T1

Dear Sir/Madam:

**Proposed Gas Pipeline**
**Hamilton Take Off to Milton Tie-In**
**Routing and Environmental Study**

Acres International Limited (Acres) has been retained by Union Gas Limited (UGL) to carry out a route selection and environmental impact study for a proposed gas pipeline from Hamilton Take-Off in the west to the Milton Tie-In in the east. The attached 1:50 000-scale map shows the limits of our study corridor.

We would appreciate it if you would provide assistance by indicating if your organization uses any sites within our study area for field excursions, nature walks, birding, etc. If you have any specialized knowledge or other information that you believe would be relevant to our study for route planning, it would also be helpful if you brought this to our attention.

If you have questions regarding this study, please feel free to contact Ms. Cate Mee or Mr. Farzad Dadgari in Niagara Falls at (416) 374 5200. We would appreciate receiving your written response before November 30, 1989. If you have no comments on the proposed route, please sign this letter and return it to Acres for our records. Thank you for your assistance in this matter.

Yours sincerely,

Farzad Dadgari

FD:imci
Attach

For Gordon S. Davies, Ph.D.
Manager, Environmental Services

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

The Halton-North Peel Naturalists
Box 115, Georgetown,
Ontario,
L7G 4T1,

January 22, 1990

Dr. G. S. Davies,
Manager, Environmental Services,
Acres International, Ltd.
P. O. box 1001
5259 Dorchester Rd,
Niagara Falls, Ontario,
L2E 6W1

Subject: Routing and Environmental Study-Proposed Hamilton Take-off to Milton Tie-in

Dear Sir;

Thank you for contacting the Halton-North Peel Naturalists concerning the proposed gas pipeline.

We hope that the route chosen will be the one most appropriate from an environmental impact point of view. Regardless of the route, it is very important that the construction methods, site preparation and site maintenance are conducted so as to protect natural values. Sedimentation and bank stability at stream crossings, tree removal, and cutting and brush control after construction are all matters of concern.

Neither of the proposed routes passes through any site regularly visited by the Halton-North Peel Naturalists, and so we can only make very general comments. Alternative 1 follows an existing pipeline route for all its length west of Milton through the Niagara Escarpment area. Alternative 2 twins the existing for only part of the route, from Lowville east. This route travels close to three environmentally sensitive areas in Halton Region. With this concern in mind, perhaps Alternative 1 would be the more appropriate, from an environmental viewpoint.

We hope that you have been in contact with the Ecological and Environmental Advisory Committee for Halton Region. That group will be able to comment in more detail on environmental concerns with respect to the proposed routes through Halton, and the corresponding agency should be able to do the same in the Hamilton Wentworth Region.

We suggest that you get in contact with the Bruce Trail Association since both your proposed routes cross the Bruce Trial.

Again, We would like to confirm that we appreciate your consulting the HNPN concerning these proposals.

Yours truly

Judith Reed  Sandra A Symmes

Judith Reed  Sandra Symmes

Chairman Environmental Issues Committee.  President

ACRES

February 18, 1991
P09243.00

The Bruce Trail Association
Raspberry House
Royal Botanical Gardens
Hamilton, Ontario

**Attention:** Mr. Douglas Robertson
Executive Director

Dear Mr. Robertson:

**Proposed NPS 48 Natural Gas Pipeline**
**Hamilton to Milton Route Selection and**
**Environmental Assessment**

Acres International has been retained by Union Gas to carry out a route selection and environmental assessment for a natural gas pipeline between Hamilton Take Off to the Milton Tie-In. The attached map shows the location for the preferred route for the new pipeline.

The route will cross the Bruce Trail at Twiss Road and the local naturalist Club suggested that we contact your association to inform you of the proposal and determine any concerns you might have. As the crossing is where the trail follows a road we would anticipate that it should have the least impact to the trail.

We were also interested to know if the association conducts surveys of trail usage as we would like an estimation of hikers using the trail in the vicinity of Twiss Road.

Cate Mee will contact you in the next few days to discuss the proposed pipeline route, or feel free to phone me at (416) 374-5200.

Thank you for your assistance in this matter.

Yours sincerely,

GSD:ljr

Attach

G. S. Davies, Ph.D.
Project Manager

5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

NIAGARA TO TOBERMORY

The BRUCE TRAIL ASSOCIATION

Head Office: Rasberry House
Royal Botanical Gardens Arboretum
Phone: (416) 529-6821 or 529-6823

Mailing Address: P.O. Box 857
Hamilton, Ontario, Canada L8N 3N9

February 21, 1991.

Dr. G. S. Davies,
Acres International Ltd.,
5259 Dorchester Rd.,
Niagara Falls, Ont.
L2E 6W1

Dear Dr. Davies:

This is in response to your February 18/91 letter.

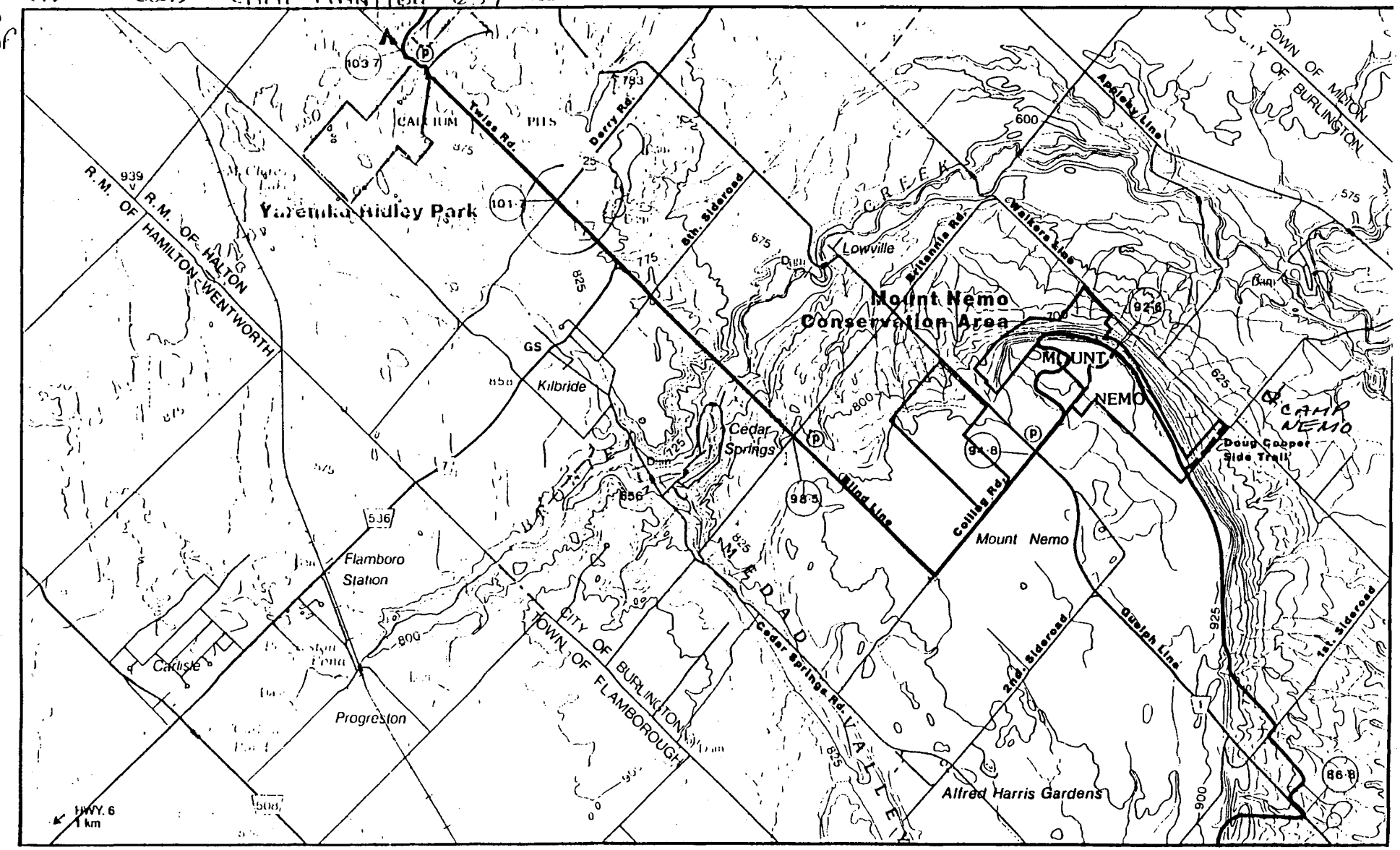
The Bruce Trail's existing route follows Twiss Rd. in the vicinity of the proposed Union Gas pipeline. In view of this, we believe that, with the exception of some minor inconvenience to hikers during construction, there will be no significant negative impact on the Bruce Trail.

Yours truly,

Douglas J. Robertson

Douglas J. Robertson,
Executive Director,
THE BRUCE TRAIL ASSOCIATION.

ALL (BUR SCOUTS) CAMP MANITOU 637-2526
CAN CAMP




MILTON BURLINGTON

N

SCALE 1: 50,000

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MOUNT NEMO 10

# Appendix B

# Biological Data

# Appendix B[1]

## Listing of Trees, Shrubs and Groundcover Species Identified Along the Preferred Route

### Tree Species

| | |
|---|---|
| *Acer saccharinum* | Silver or Soft Maple |
| *A. saccharum* | Sugar Maple |
| *A. rubrum* | Red Maple |
| *Betula alleghaniensis* | Yellow Birch |
| *B. papyrifera* | White Birch |
| *Carpinus caroliniana* | Blue Beech |
| *Carya ovata* | Shagbark Hickory |
| *Fagus grandifolia* | Beech |
| *Fraxinus americana* | White Ash |
| *Juglans nigra* | Black Walnut |
| *Malus sylvestris* | Apple |
| *Ostrya virginiana* | Ironwood |
| *Picea glauca* | White Spruce |
| *Pinus resinosa* | Red Pine |
| *P. strobus* | White Pine |
| *Populus tremuloides* | Trembling Aspen |
| *P. grandidentata* | Largetooth Aspen |
| *P. balsamifera* | Balsam Poplar |
| *Prunus serotina* | Black Cherry |
| *P. virginiana* | Choke Cherry |
| *P. pensylvanica* | Pin Cherry |
| *Quercus macrocarpa* | Bur Oak |
| *Q. rubra* | Red Oak |
| *Q. alba* | White Oak |
| *Salix spp.* | Willow |
| *Thuja occidentalis* | White Cedar |
| *Tilia americana* | Basswood |
| *Tsuga canadensis* | Eastern Hemlock |
| *Ulmus americana* | White Elm |

### Shrubs and Vines

| | |
|---|---|
| *Alnus rugosa* | Speckled Alder |
| *Cornus alternifolia* | Alternate-leaf Dogwood |
| *C. stolonifera* | Red-Osier Dogwod |
| *Crataegus spp.* | Hawthorn |
| *Lonicera dioica* | Wild Honeysuckle |
| *L. tatarica* | Tartarian Honeysuckle |
| *Parthenocissus quinquefolia* | Virginia Creeper |
| *Rhus radicans* | Poison Ivy |
| *Rhus typhina* | Staghorn Sumac |
| *Ribes cynosbati* | Pasture Gooseberry |

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[1] **Revised March, 1991**

### Shrubs and Vines

| | |
|---|---|
| *R. triste* | Swamp Red Currant |
| *Rubus idaeus* | Red Raspberry |
| *Syringa vulgaris* | Common Lilac |
| *Vitis riparia* | Wild Grape |

## Groundcovers

### Ferns and Allies

| | |
|---|---|
| *Athyrium felix-femina* | Lady Fern |
| *Dryopteris cristata* | Wood Fern (hybrid) |
| *Dryopteris spinulosa* | Spinulose Wood Fern |
| *Equisetum arvense* | Field Horsetail |
| *Equisetum scirpoides* | Dwarf Scouring-rush |
| *Matteuccia struthiopteris* | Ostrich Fern |
| *Onoclea sensibilis* | Sensitive Fern |
| *Polystichum acrostichoides* | Christmas Fern |

### Grass-Like Plants

| | |
|---|---|
| *Agropyron repens* | Quack Grass |
| *Agrostis alba* | Red Top |
| *Carex stipata* | Sedge |
| *Glyceria spp.* | Manna Grass |
| *Glyceria striata* | Fowl Manna Grass |
| *Juncus effusus* | Soft Rush |
| *Leersia oryzoides* | Cut Grass |
| *Phleum pratense* | Timothy |
| *Typha latifolia* | Common Cattail |

### Broad-Leaved Herbaceous Plants

| | |
|---|---|
| *Actaea rubra* | Red Baneberry |
| *Achillea millefolium* | Yarrow |
| *Alliaria officinalis* | Garlic Mustard |
| *Ambrosia artemisiifolia* | Common Ragweed |
| *Anemone canadensis* | Canada Anemone |
| *Aralia nudicaulis* | Wild Sarsaparilla |
| *Arctium minus* | Common Burdock |
| *Arisaema triphyllum* | Jack-in-the-Pulpit |
| *Asclepias syriaca* | Common Milkweed |
| *Asparagus officinalis* | Wild Asparagus |
| *Asteraceae spp.* | Daisy |
| *Aster macrophyllus* | Large-leaved Aster |
| *Aster novae-angliae* | New-England Aster |
| *Bidens frondosa* | Beggar Ticks |

**Broad-Leaved Herbaceous Plants**

| | |
|---|---|
| *Caltha palustris* | Marsh Marigold |
| *Caulophyllum thalictroides* | Blue Cohosh |
| *Chelone glabra* | Turtlehead |
| *Chenopodium album* | Lamb's Quarters |
| *Chrysanthemum leucauthemum* | Oxeye Daisy |
| *Cichorium intybus* | Chicory |
| *Circaea quadrisulcata* | Enchanter's Nightshade |
| *Cirsium arvense* | Canada Thistle |
| *Clintonia borealis* | Bluebead-Lily |
| *Comus canadensis* | Bunchberry |
| *Daucus carota* | Queen Anne's Lace |
| *Dipsacus sylvestris* | Teasel |
| *Echinocystis lobata* | Wild Cucumber |
| *Epifagus virginiana* | Beechdrops |
| *Epipactis helleborine* | Helleborine |
| *Eupatorium maculatum* | Spotted Joe-Pye Weed |
| *Fragaria vesca* | Woodland Strawberry |
| *Galium aparine* | Cleavers |
| *Geranium robertianum* | Herb Robert |
| *Geum laciniatum* | Rough Avens |
| *Hepatica acutiloba* | Sharp-lobed Hepatica |
| *Hesperis matronalis* | Dame's Violet |
| *Hieracium pratense* | Field Hawksweed |
| *Hydrocotyle americana* | Water Pennywort |
| *Hypericum perforatum* | Common St. Johnswort |
| *Impatiens capensis* | Jewelweed |
| *Laportea canadensis* | Wood Nettle |
| *Lilium spp.* | Lily |
| *Linaria vulgaris* | Butter-and-eggs |
| *Lycopus americanus* | Water Horehound |
| *Lysimachia nummularia* | Moneywort |
| *Lythrum salicaria* | Purple Loosestrife |
| *Maianthemum canadense* | Wild Lily of the Valley |
| *Melitotus alba* | White Sweet Clover |
| *Mentha arvensis* | Mint |
| *Mitella nuda* | Naked Miterwort |
| *Monarda fistulosa* | Wild Bergamot |
| *Nepeta cataria* | Catnip |
| *Orchidaceae spp.* | Orchid |
| *Oxalis stricta* | Upright Yellow Wood Sorrel |
| *Plantago major* | Common Plantain |
| *Podophyllum peltatum* | Mayapple |
| *Prenanthes altissima* | Tall White Lettuce |
| *Prunella vulgaris* | Heal-all |
| *Ranunculus spp.* | Buttercup |
| *Rubiaceae spp.* | Bedstraw |
| *Rubus pubescens* | Dwarf Raspberry |
| *Sanguinaria canadensis* | Bloodroot |
| *Sanicula marilandica* | Black Snakeroot |

**Broad-Leaved Herbaceous Plants**

| | |
|---|---|
| *Scutellaria galericulata* | March Skullcap |
| *Solanum dulcamara* | Bittersweet Nightshade |
| *Solidago canadensis* | Canada Goldenrod |
| *Solidago graminifola* | Lance-leaved Goldenrod |
| *Solidago spp.* | Goldenrod |
| *Streptopus roseus* | Rose Twisted-Stalk |
| *Taraxacum officinale* | Common Dandelion |
| *Thalictrum polygamum* | Tall Meadow Rue |
| *Trillium erectum* | Purple Trillium |
| *Trifolium pratense* | Red Clover |
| *Tussilago farfara* | Coltsfoot |
| *Verbena hastata* | Blue Vervain |
| *Veronica anagallis-aquatica* | Water Speedwell |
| *Veronica officinalis* | Common Speedwell |
| *Viola spp.* | Violet |

**Non-Vascular Plants**

| | |
|---|---|
| *Marchantia spp.* | Liverwort |

# Wildlife Observed in the Vicinity of the Preferred Route

## Avian Species

| | |
|---|---|
| *Agelaius phoeniceus* | Red-Winged Blackbird |
| *Anas platyrhynchos* | Mallard |
| *Ardea herodias* | Great Blue Heron |
| *Branta canadensis* | Canada Goose |
| *Buteo jamaicensis* | Red-tailed Hawk |
| *Cathartes aura* | Turkey Vulture |
| *Charadrius vociferus* | Killdeer |
| *Falco sparverius* | American Kestrel |
| *Spizella pusilla* | Field Sparrow |

## Mammals

| | |
|---|---|
| *Ondatra zibethica* | Muskrat |
| *Sciurus floridanus* | Gray Squirrel |
| *Tamias striatus* | Eastern Chipmunk |

## Herpetofauna

Unidentified turtle

## Insects (Family)

| | |
|---|---|
| *Aeshnidae* (family) | Darners |
| *Cerambycidae* (family) | Long-Horned Beetles |
| *Ceonagroinidae* (family) | Narrow-Winged Damselflies |
| *Gerridae* (family) | Water Striders |
| *Libellulidae* (family) | Common Skimmers |
| *Lycaenidae* (family) | Coppers, *Hairstreaks* |
| *Lycaeninae* (subfamily) | Coppers |
| *Papilionidae* (family) | Swallowtails, Parnasians |
| *Papilioninae* (subfamily) | Swallowtails |
| *Pieridae* (family) | Whites, Sulphurs, Orangetops |
| *Pierinae* (subfamily) | Whites |
| *Satyridae* (family) | Satyrs, Wood Nymphs |

## Summary of the Characteristics of the Woodlands In the Vicinity of the Preferred Route

| Map Ref. | Unit Type | Dominant Species | Quality | Sensitivity | Comments |
|---|---|---|---|---|---|
| **Woodlands** | | | | | |
| W-1 | Red Pine Plantation White Ash, Oak | Red Pine, White Ash, White Oak, White Spruce, White Pine | Medium | Low-medium | All trees appear to be planted. Black Walnut plantation to hardwoods the south. Several fox dens observed. |
| W-2 | Hardwood lowland | Yellow Birch, Sugar Maple Pin Cherry, Red Maple, Blue Beech, White Elm, White Pine, White Cedar, Hemlock | Low-medium | Low-medium | Woodpecker hole in dead tree. Creek runs through woodlot. |
| W-3 | Cleared for agriculture | NR[1] | NR | NR | Was originally part of W-2, separated by agriculture, now cleared for agriculture. Clump of White Cedar to northeast. |
| W-4 | Elm, Basswood regeneration | White Elm, Basswood, White Ash Black Walnut | Low | Low | Indications of extreme disturbance probably due to agriculture. |
| W-5 | Elm, Ash regeneration | White Elm, White Ash, Black Walnut Black Cherry, Red Oak, Sugar Maple White Pine | Low | Low | Extreme disturbance, a few overmature trees remaining. |
| W-6 | Sugar Maple, Beech dominant hardwoods | Sugar Maple, Beech, White Birch, White Elm, White Ash, Red Oak, Black Cherry, White Pine, Blue Beech, LargeTooth Aspen, Trembling Aspen, Hemlock White Cedar | Medium-high | Medium-high | Mature trees-good form and health with vigorous under-storey, evidence of cutting for firewood. Contains small wetland area in southwest portion. |

[1] **No record**

| Map Ref. | Unit Type | Dominant Species | Quality | Sensitivity | Comments |
|---|---|---|---|---|---|
| W-7 | Residue Aspen edge | Balsam Poplar, White Birch, White Pine | Low | Low | Cut into 2 strips on golf course only remnant left. May originally have been part of W-6. White Pine planted. |
| W-8 | Sugar Maple dominant hardwoods | Sugar Maple, White Ash, White Pine, White Cedar, Choke Cherry, Balsam, Poplar | Medium-high | Medium-high | Disturbed by earlier pipeline construction. Creek from north of Derry Road flows in and terminates in swamp area (Class 7 Wetland). |
| W-9 | Originally W-8 | Sugar Maple, White Ash, White Pine, White Cedar, Choke Cherry, Balsam Poplar | Medium-high | Medium-high | Disturbed by earlier pipeline construction. |
| W-10 | Originally W-8 | Sugar Maple, White Ash, White Pine, White Cedar, Choke Cherry, Balsam Poplar | Medium-high | Medium-high | Disturbed by earlier pipeline construction. |
| W-11 | White Elm regeneration | White Elm, Salix spp., White Cedar Basswood, Apple, Black Cherry White Ash, Sugar Maple, Pin Cherry | Low | Low | Only trees of note are large Sugar Maple along creek flowing through woodlot. Kilbride Tributary appears healthy, fish fry observed. |
| W-12 | Sugar Maple, Beech hardwoods | Sugar Maple, Beech, Red Oak, White Oak, Basswood, Chestnut, White Ash, White Birch, White Pine | Medium-high | Medium-high | Disturbed edge, larger more mature trees slightly to interior. |
| W-13 | Mixed conifer/deciduous upland | Salix spp., White Ash, Basswood, White Cedar, Hemlock, White Elm, Bur Oak, Hawthorn, White Pine, Sugar Maple, Trembling Aspen. | Medium/high | Medidum/high | Observed baby muskrat in northern portion of Limestone Creek. High productivityupland forest in centre of woodlot. |
| W-14 | Residue Aspen, Willow edge | Salix, spp., Basswood, Trembling Aspen, White Ash, White Oak | Low | Low | Man-made pond. |
| W-15 | Elm, Aspen regeneration | White Elm, Salix spp., Silver Maple, Basswood, White Oak, Trembling Aspen | Low | Low | Dense undergrowth with a few mature/overmature trees. |

| Map Ref. | Unit Type | Dominant Species | Quality | Sensitivity | Comments |
|---|---|---|---|---|---|
| W-16 | - | - | Low-medium | Low-medium | No woodlot--cleared for agriculture. Low marsh area with typical plant assemblages. Great Blue Heron seen here. |
| **Hedgerows** | | | | | |
| H-1 | Continuous mixed conifer/hardwood hedgerow along a laneway | White Cedar, Red Maple , Sugar Maple, Willow, Sumac | Medium | Medium | Along a laneway leading from driveway into woodlot. |
| H-2 | Intermittent mixed hardwood hedgerow | Sugar Maple, White Birch, Pin Cherry, Basswood, Sumac | Medium | Low-medium | Sugar Maples adjacent to house near Centre Street have owner aesthetic value. |
| H-3 | Continuous mixed hardwood hedgerow along a laneway to a woodlot | Basswood, Sumac, White Birch Silver Maple, Sugar Maple, Honey Locust, Red Oak | High | Medium-high | Privacy hedgerow (mostly mature trees) on south side of laneway, north side mostly intermittent rocks and boulders present at east end of hedgerow. |
| H-4 | Continuous conifer ornamental hedgerow | White Cedar | High | High | Part of landscaped front lawn, for privacy. |
| H-5 | Continuous mixed hardwood hedgerow | Black Walnut, Basswood, White Ash | Low | Low | Observed Swallowtail, Pieridae sp. and Lycaenidae sp. (Butterflies). |
| H-6 | Discontinuous hedgerow | White Elm, Apple, White Oak, Hawthorn | | Low | LowLow-quality trees. |

# Total Timber Estimate by Woodlot Along Preferred Route for Total Gross Merchantable Timber and Generated Revenue

| Woodlot | Gross Merchantable Timber ($m^3$) | Generated Revenue ($)[1] |
|---|---|---|
| $W_4$ | 12 | 75 |
| $W_5$ | 21 | 136 |
| $W_6$ | 83 | 539 |
| $W_8$ | 96 | 634 |
| $W_{11}$[2] | B-S | B-S |
| $W_{12}$ | 38 | 247 |
| $W_{13}$ (North) | 21 | 137 |
| $W_{13}$ (South) | 40 | 261 |

**[1] As most timber cut in this area is utilized for fuelwood the generated revenue figures reflect the current market value of $6.52/m$^3$ for fuelwood. This is a general figure not differentiated by tree species or diameter. As well these figures do not accurately portray generated revenue for the those logs used for sawlogs (for specific tree species).**

**[2] The Ontario Ministry of Natural Resources considers areas designated as Barren and Scattered (B-S) as non-productive. Therefore, no Ministry Yield Tables are available and a volume cannot be calculated for these areas.**

# Appendix C

# Union Gas General Specifications

# Appendix C

# Union Gas General Specifications

| Name | Number |
|---|---|
| **Specifications** | |
| Fencing | 91-T-10 |
| Clearing | 91-T-11 |
| Topsoil Conservation | 91-T-12 |
| Grading | 91-T-13 |
| Trenching | 91-T-14 |
| Rock Excavation | 91-T-15 |
| River and Creek Crossings | 91-T-16 |
| Highways, Railways, Road Crossings | 91-T-18 |
| Backfill | 91-T-24 |
| Tile Repairs | 91-T-27 |
| Clean Up | 91-T-28 |
| Hydrostatic Testing | 91-T-30 |
| Environmental Concerns | 91-T-34 |
| **Drawings** | |
| Typical Tile Support Installation | |
| 1 Concrete Block Support | S-705 |
| 2 Stone and Pad Support | S-706 |
| 3 In-Trench Connection | S-706a |
| Typical Fence Bracing Detail | S-707 |
| Preservation of Specimen Trees | S-801 |
| Typical Rip-Rap Installation | S-802 |
| Erosion Control Stream Banks | S-804 |
| Erosion Control of Cross Slopes | S-805 |
| Crossing Techniques for Small Creeks | S-806 |
| Stream Flume | S-807 |
| Hydrostatic Test Water Discharge | S-809 |
| Riparian Vegetation | S-813 |
| Wet Creek Crossing | S-814 |

## *10.1 Description*

This shall include work done on all fences on or adjacent to the right-of-way where it is necessary to cut the fence to permit passage of equipment onto or along the right-of-way. All fences so cut shall be closed with temporary gates constructed in a manner acceptable to the Engineer.

## *10.2 Construction Procedure*

No fences shall be cut without approval of the Engineer. Before cutting wire fences or removing any posts, two sets of double posts are to be set in the following manner. One post not less than 150 mm in diameter at the small end shall be set permanently in the ground to a minimum depth of 1 metre at the limit of the right-of-way. A second such post shall then be placed 3 metres off of the right-of-way on the fence line. Both these posts are to be firmly tamped in place. A bracing post, having a minimum diameter of 100 mm, shall then be firmly placed between these two posts at a 40 degree angle to the horizon and having contact near to the top of the post nearest to the right-of-way. Another brace, consisting of four (4) strands of twisted number nine wire, shall then be located between two posts at the opposite slope to the bracing post. After such braces and posts have been placed, the existing fence shall be fastened and nailed securely to said posts and only then all posts on the right-of-way shall be removed (Drawing No. S707).

A temporary gap or gate shall be installed as follows. A piece of timber not less than 75 mm in diameter shall be attached firmly to the wire at a point adjacent to the post previously set on the edge of the right-of-way. Wires shall then be cut between the piece so set and the post to complete the temporary gate. The span of wire across the right-of-way shall be supported with dividers spaced at intervals one-third (1/3) the length of the span. All gates shall be provided with facilities which will permit one man to open and close such gates. Where a fence is constructed of woven wire, the Contractor at the request of the Engineer shall cut the wire at the nearest corner post of said fence and roll wire back to a point past the right-of-way and replace said fence with a temporary gate and temporary fence construction in a manner approved by the Engineer.

If special restrictions require, Contractor shall either tunnel under the fence without disturbing it or take an entire section down and rebuild it after construction operations are completed. Contractor shall rebuild the fence in a condition equally as good as it was found.

Contractor shall be solely responsible for damages resulting from negligence of his employees in failing to keep any gates or gaps installed, or any regular farm gates that may be used by them securely closed at all times. All livestock shall be prevented from entering or leaving. Contractor shall furnish a watchman, where necessary, in order to comply with the foregoing regulations.

Following the completion of the pipeline construction, Contractor shall remove temporary gates but leaving the braced posts in on each side of the right-of-way and shall restore fences to their condition prior to the beginning of the said construction. Where required, Contractor shall provide new wire and suitable posts at his own expense, to rebuild said fence, but in no event shall skids be used for posts. In no event shall wooden posts be used which are less than 150 mm in diameter at the small end.

## *10.3 Temporary Fencing*

To confine the easement and/or to protect animals such as cattle, horses, sheep, etc. from excavated areas, temporary fencing shall be erected on either or both sides of the right-of-way if so directed by the Engineer.

Temporary fencing shall extend the entire length of a field or pasture and tie into existing fences to ensure complete enclosure of the area to be protected.

The type of structure to be erected shall depend on the restriction required, the location and/or landowner request.

There are three (3) types of temporary fences, eight or ten strand wire (see Drawing Number S707-2) three or four strand barbed wire (see Drawing Number S707-1) and one strand barbed wire, electrified (see Drawing Number S707-3).

The Contractor shall be responsible for the erection of any and all temporary fences and following the completion of the pipeline construction, the Contractor shall remove all temporary fences.

## *10.4 Basis of Payment*

10.4.1 **R.O.W. Fencing**

Contractor shall furnish all wire, posts, nails or other equipment for construction of temporary gates and repairing of fences. The work prescribed in this article shall not be paid for directly, but shall be considered as subsidiary work pertaining to the work covered in the lay price.

10.4.2 **Temporary Fencing**

The Contractor shall furnish all labour, tools and equipment for the construction of temporary fences. All material required is to be invoiced to the Company. The purchasing and transportation of all items to the job site shall be the responsibility of the Contractor. Compensation for the building and removal of all temporary fencing will be paid for directly under the specified bid item in the Schedule of Unit Prices.

10.4.3 **Protective Fencing**

No payment shall be made for labour, equipment or material provided for protective fences erected around, near or adjacent to hydro towers, trees, landscaping, open ditches, trenches or other areas designated by the Engineer.

## 11.1 Description

This work shall include the clearing of all crops, trees, brush, hedges, or other obstacles with the exceptions noted below, lying within the confines of the right-of-way, extra working room or road allowance.

## 11.2 Method of Construction

In all cases where cultivated shrubbery or trees or valuable growing timber is encountered on the right-of-way, the Engineer shall have the right to require that such shrubbery or trees, or growing timber be left standing.

Large trees standing in isolation within the right-of-way are of particular interest and such trees must be preserved whenever possible, such trees will be identified by the Company. Large roots near the ground surface should be protected by diverting construction equipment around a protected zone equal to the branch spread of the tree. If this is impractical, the tree root zone can be protected by the placement of at least 30 cm of soil over the roots around the tree. This material shall be removed after construction. The Contractor may be required to install protective fencing around such trees at the drip line for added protection as shown in Drawing No. S-801. Protective fencing to be installed along top of ditch bank at all stream crossings. Damage to limbs, roots, or bark of large trees adjacent to the right-of-way or those left standing on the right-of-way are to be trimmed and cleaned as soon as possible to facilitate healing.

All growing crops that are cut on the right-of-way shall be disposed of as directed by the Engineer. Crop removal may be restricted if agreed to by the landowner for the purposes of dust control on the working side of the easement and reduce compaction in these areas.

Where the route of the line traverses fields of dry grass, hay stubble or fields of ripened grain such as wheat, oats, barley or other crops, where there is danger of spreading fire, a suitable fire break shall be constructed as directed by the Engineer, along both sides of the right-of-way.

In forested areas, the Contractor will clear only those trees within the confines of the easement that are necessary for the practical installation of the pipeline. Felling of all trees shall be accomplished within the confines of the easement to restrict damage to the remaining timber.

Tree trunks shall be stripped of leaves and branches and the remaining logs cut into lengths of approximately three (3) metres unless otherwise directed by the Engineer. Cut logs shall be lifted by a bush skidder or equivalent and moved to the edge of the easement in neat orderly piles. Logs shall not be piled outside of the woodlot area or off easement unless permission is granted (in writing) from the landowner. Logs shall not be "pushed" by dozer blade or similiar equipment into piles. Branches larger than 10 cm in diameter shall be cut in 3 metre lengths, stripped of smaller branches and leaves, then piled with the logs. Brush, undergrowth, branches, leaves etc. shall not be shoved into piles with earth from the grading operation. Branches, brush and leaves cut from trees shall be picked up and placed in piles on the cleared portion of the easement along with the undergrowth that is cut from the easement. This debris shall be mulched or burned, as directed by the Engineer. Disposal or mulching of brush shall be carried out by the Clearing Crew preceding any other pipeline operation.

Where the easement contains an existing fence row, care shall be taken during the clearing operation to remove the fence row area separate from the remaining easement area. Fence stones, stumps and debris shall be carefully removed and hauled away. Care must be taken to contain all topsoil within the fence row area.

Unless otherwise directed by the Engineer, all tree stumps shall be excavated, cleaned of all topsoil removed from the right-of-way and disposed of in a location agreeable to owner and/or local authorities having jurisdiction. In no case shall tree stumps be buried on the right-of-way.

### *11.3 Basis of Payment*

The work prescribed in this Article shall not be paid for directly, but shall be considered as subsidiary work pertaining to the work covered in the lay price. Compensation for the placement of soil over the roots as described above, will be covered under bid Item 8 of the Schedule of Unit Prices only if material must be hauled to the site.

## *12.1 Description*

This shall include all work necessary to remove and replace topsoil in cultivated and improved land areas, graded and boring bay areas or where directed by the Engineer.

## *12.2 Method of Construction*

C Topsoil shall be removed to its actual depth. The natural topsoil/subsoil horizon shall be determined by the Environmental Inspector. Topsoil stripping shall be done by means of lifting the topsoil with a dozer followed by a road grader or equivalent machine to ensure that subsoils and topsoil are accurately separated.

C If directed by the Engineer, the full width of the pipeline easement shall be stripped of topsoil and the
C topsoil piled outside of the easement boundaries on one or both sides of the easement depending on easement width.

C In certain areas, the contractor will be directed to apply a straw mulch or equivalent as a barrier between the existing topsoil and the topsoil removed from the easement if no natural barrier exists or as directed by the Engineer.

A second method of topsoil stripping requires a 3 or 4 metre wide area to be stripped over the trench line.
C This material will be placed immediately adjacent to the trench line on the working side or on the outer edge of the easement on the spoil side of the trench.

C A third method for topsoil stripping is to remove topsoil from over the ditch line to the edge of the ease-
C ment on the spoil side. This topsoil will be deposited outside of the limit of the easement for storage.

C All topsoil removed and stored off easement shall be returned to its original area by the use of a mormon board.

Topsoil shall be removed from all areas to be graded and all other areas such as road highway and rail-
C way bore bays, and other large excavations. In these areas, the topsoil shall be conserved from the total width of the easement and extra work areas if so directed by the Engineer.

In cases of deep ditch and stream crossing approaches, the removal of vegetation and topsoil shall not
C take place until the pipe is ready for installation. Topsoil shall then be removed and piled separate from
C the trench spoil just prior to trench excavation and the placement of pipe. Care must be taken not to mix the topsoil with any other materials that are removed from the trench.

During normal trenching procedures in cultivated areas a complete separation between topsoil and spoil
C pile must be maintained. In restricted areas where separation may be difficult due to obstructions, a filter cloth shall be placed over the topsoil to ensure it will not be mixed with other materials.

C Under no circumstances shall topsoil be used for padding, backfilling or building of ramps or bridges at road entrances or ditch and stream crossings.

Upon completion of backfilling, the trench area shall be graded and compacted to allow the topsoil to be
C replaced uniformly. The topsoil will be replaced over the entire area it was removed from to the same depth that it originally was found to be.

| Section: | Subject: |
|---|---|
| GENERAL SPECIFICATIONS | TOPSOIL CONSERVATION |

### *12.3 Basis of Payment*

The work described herein shall be paid for directly at the unit price per lineal metre for specified width set forth in the Schedule of Unit Prices.

## 13.1 Description

The term 'grading' in these specifications includes grading hills, the removal or relocation of the native material for the forming of embankments, diverting of ditches or small streams, building of temporary bridges and roads, or other work performed to facilitate the safe movement of equipment onto and along the right-of-way, reduce pipe bending or facilitate a satisfactory elevation for trench excavations.

## 13.2 Method of Construction

Excess graded materials shall be placed in piles from which it may be replaced to its original position. Such materials shall not be scattered along the right-of-way and shall not be placed in low areas traversed by the pipeline route without the consent of the Engineer.

A Prior to grading, all topsoil in the area to be graded shall be removed to its actual depth and placed in a location separate from the subsoil to be removed. Care shall be taken so that the placing of topsoil and subsoil will not result in intermixing of these materials. Topsoil shall be removed by the use of a bulldozer or other equipment that can be safely handled on steep slopes. Lighter topsoils shall be removed separately and placed so as not to intermix with topsoil or heavy subsoil materials. (ie. blue clays, heavy
A gravel deposits, stone). Heavy subsoil materials shall be removed and placed separately from all previously removed materials. After the trench backfilling operation is completed, the graded materials will be replaced in the order of heavy subsoil first and topsoil last and should present a profile as close to the original profile as practical.

A Soil removed on ditch and stream banks shall be held to a minimum and not removed until the stream bed is excavated for pipe installation.

Care must be taken to ensure the water flow in creeks, streams and channels is not impeded by improper installation.

C At crossings such as highway, county and township roads where culverts are installed in roadway drainage ditches, neither the topsoil or excess subsoil shall be used for bridging. To alleviate ponding at the easement approaches to roadway, suitable bridging material such as granular "B" or "pitrun" shall be trucked in by the Contractor. Please refer to Drawing number B112.

Machinery for grading of right-of-way may be used except at locations where in the judgement of the Engineer the integrity of an existing pipeline would be jeopardized or when undue property damage would result. The extent of grading shall meet with the approval of the Engineer in all cases.

At the completion of the pipeline installation, material excavated from hillsides, side slopes, creek banks, and other places shall be replaced in its original position and protected from slides and erosion by proper
A compaction, rip-rap, wash breakers, erosion control matting, or such other means as may be designated by the Engineer. Example of such methods are illustrated in Drawing No S700, S-802, S-803, S-804 and S-805.

## 13.3 Basis of Payment

The work prescribed in this Article shall not be paid for directly, but shall be considered as subsidiary work pertaining to the work covered in the lay price. The Company shall compensate for wire, piling, or other material, except rock for rip-rap, that may be necessary to construct wash breakers or such other protection as may be required by the Engineer. Granular for road and stream approques shall be compensated under applicable Schedule of Unit Prices. Granular for swamp, right-of-way and other roads are at Contractor's cost.

## 14.1 Description

This shall include all excavations whether by trenching machine, power shovel, backhoe, by hand, or by other methods, excluding blasting, which may be necessary to prepare a trench in which the pipe will lie and have a minimum of cover between the top of the pipe and the immediate ground level as set forth in these Specifications. It is the Contractor's responsibility to locate all utilities prior to construction.

**Note:** : Contractor's personnel will report any evidence of buried artifacts such as firepits, lithic materials and skeletal remains to the Company as soon as they are discovered.

## 14.2 Method of Construction

Trench shall be dug on line as located by the Company Inspector or as staked. Trenching shall be completed in a manner that will offer a smooth, continuous support to the entire length of the pipelines. The trench shall be excavated to a width not less than 30 cm greater than the nominal diameter of the pipe. For pipe NPS 12 in diameter or less that has been mill coated, the trench may be excavated to a width not less than 15 cm greater than the diameter of the pipe if approved by the Engineer.

The trench shall be excavated to a depth which will provide minimum cover over the pipe of one (1) metre.

C Where the line crosses drainage ditches, creeks or land subject to flood, 1.2 m of cover shall be provided.

Where the pipeline is laid in wet terrain requiring the installation of concrete weights, the Contractor shall excavate to depth of 1.2 m over the top of the concrete weight.

Where other pipelines or other metallic structures are undercrossed, the trench shall be excavated to provide a minimum of clearance of 30 cm between the top of the line being installed and the bottom of the line being undercrossed. When the two lines are smaller than NPS 12 the minimum clearance shall be one diameter of the larger of either line installed or undercrossed.

Where trenching is across or adjacent to roads, highways, railroads, irrigation or drainage ditches, creeks, rivers, ravines and other water courses, farm terraces and at points where the contour of the earth may require extra depth, Contractor shall with no additional compensation, excavate to such additional depth and employ box bends as may be necessary to meet the requirements of the Company, of the landowner, and of any public or private authority having jurisdiction over same.

Where drain tile are encountered, the Contractor shall dig the ditch so that the pipeline may be laid over or under such tile with a minimum clearance of 15 cm.

At the time such tile is damaged, the Contractor shall carefully and immediately mark the location of such damaged tile at the trench and both sides of the easement and install a plugging device approved by the Company and supplied by the Contractor on the downstream opening of the damaged tile so that foreign material will not be allowed to enter the tile. At no time will bags be permitted for this plugging purpose. These plugs will remain in place until the Contractor's tile repair crew begin to repair the damaged tile. Where it is necessary to maintain drainage, temporary flumes shall be provided. The markers shall be kept in place and shall not be removed except by the Contractor's tile repair crew at the time the tile is permanently repaired.

It is the Company's intention that the Contractor shall operate the ditching machine at various depths at approaches to roads, ditch crossings, railway crossings, uneven ground surfaces and small ravines in order to minimize bending. For road crossings the Contractor shall dig the trench in such a manner that bends are not installed within 15 metres of the road allowance limits. For drainage ditches or municipal drains no bends shall be installed within 7 metres of the top of the banks.

In all cases where cultivated shrubbery or trees, or valuable growing timber is encountered on the right-of-way, the Engineer shall have the right to change the pipeline route in order to minimize possible
D damage or injury thereto.

When advised by the Engineer of any future plans of municipal or field drainage systems or other structures, the Contractor shall excavate the trench in that location to a depth so as to provide the minimum clearance in accordance with such predetermined plans.

Where a pipeline is laid across lawns, the turf must be removed and laid aside so that it can be replaced after the pipeline is laid and backfilled. Where heavy equipment is used on lawns, care must be taken to avoid damage to the turf and shrubbery. Use of cleated equipment should be avoided across lawns. Contractor may be required to bore under trees or tree roots at the direction of the Engineer.

All road crossings and driveways shall be bored wherever possible as outlined in Specification 17-18
C (91-T-18) Highway,Railway and Road Crossings unless otherwise stated or approved by the Engineer.

The Contractor shall be responsible for obtaining and erecting any safety barricades, fences, signs, flagpersons, flashers, etc. around any excavations across or along a road allowance which will be left overnight or for an extended period of time. All such equipment shall be maintained in proper working order by the Contractor.

The Contractor shall provide temporary crossings over and across the trench to permit the passage of pedestrians, vehicles and livestock as necessary. Gaps or openings will be but in the spoil bank as necessary so that excessive rains will not cause water to back up and flood sections of land.

The Contractor will maintain control of the ditch water in sloping land when trenches are open by the use
W of adequate culverts, hard plugs, water stops, surface ditching, dykes or the use of pumps. The Contractors will disperse pumped or diverted water through drainage ditches where feasible and will utilize brush or grass lands to filter water in preference to spreading water over cultivated fields. The Contractor must receive written approval to pump any water off easement from the Company and the landowner.

In areas where the paving extends from building line to building line it is intended that, where possible, the pipeline shall be laid under the sidewalk rather than under the road pavement. In order to minimize the amount of breaking and repair, a saw shall be used to score the concrete so that when the ditch allowance is broken out, a clean sharp edge will be left, permitting a localized surface repair rather than complete replacement of the whole slab.

A In areas where the existing trench has caved in and must be re-excavated, the subsoil will not be placed on topsoil on the workside of easement unless a cloth or equivalent barrier has been placed between them.

## *14.3 Uncovering Underground Facilities*

Actual uncovering of facilities with power equipment may proceed after location of the pipeline and existing branch connections or services have been located and marked by Company personnel.

W Contractor shall probe the area where the facility has been marked in order to verify actual depth of the facility.

Contractor shall not start to uncover an active facility unless there is a Company Inspector present.

Wherever possible excavations are to begin parallel to the pipeline to be uncovered, but 30 cm from the estimated edge of the pipe. Positive location of the pipeline is to be obtained by hand digging to maintain a minimum of 15 cm clearance from the main.

In situations where it is impossible to excavate adjacent to the pipe, the Contractor may dig directly over the pipe, if a labourer probes or digs by hand at regular intervals ahead of the excavating equipment to maintain a minimum of 15 cm clearance from the main.

Mechanical equipment shall not excavate closer than 15 cm to any facility.

### *14.4 Crossing or Paralleling Underground Facilities*

Where trenching operations parallel or cross existing underground facilities such as pipelines, cables, sewers, etc., the Contractor shall take care to ensure that those facilities are not damaged. The Contractor shall give sufficient notification to the authorities having jurisdiction over the facility prior to the commencement of trenching or boring at this location. The excavation of the crossing shall be governed C by the requirements of the authority. The authority may require their facility to be exposed by their employees prior to commencement of the Contractor's trenching or boring near their facilities.

### *14.5 Basis of Payment*

The work prescribed herein shall not be paid for directly but shall be considered as subsidiary work pertaining to the work covered in the lay price.

## 15.1 *Description*

This shall include rock in solid beds or masses, hereinafter referred to as "solid rock", in its original formation, encountered in trenching for said pipelines, which rock must be removed.

## 15.2 *Method*

Company's representative shall be notified of Contractor's intention to use any explosive and shall give his consent to such use only after careful examination of the particular site of such use. When it is necessary for Contractor to resort to the use of explosives, blasting shall not be done until occupants of nearby buildings, stores, houses, places of business and landowners have been notified in writing by Contractor as directed by the blasting consultant sufficiently in advance to protect property and livestock. The Company's Inspector shall be present during blasting.

Contractor shall take every precaution to protect the public and its workmen from any injury or harm which might arise from the use of the explosives. Only workmen thoroughly experienced in handling explosives shall be permitted to supervise, handle, haul, or load and detonate explosives.

C Blasting will not be permitted within 5 metres of an existing operating pipeline. However, in no event shall any explosives be used at a point where, in the opinion of the Company representative, the use of such explosives would be dangerous to the existing pipeline(s) of the Company. A minimum of 48 hours notice must be given to the Company so that mainline valves may be manned during blasting.

Where specified by the Engineer, the Contractor shall furnish the necessary equipment to employ air bubble curtains at water crossings for the protection of fish and wildlife during blasting operations.

Blasting Procedures

A Unless otherwise permitted by the Union Gas inspector, each blast shall be limited to a maximum length of 50 metres or 100 blast holes, whichever comes first. Blasts may be detonated in one series or sequentially, not in multiple series (ie. back to back).

A Short period electric detonating caps or Nonel delay detonating caps shall be used. Each hole shall be connected to a successive delay period number (ie. one hole per period).

A Where the loading of blast holes is carried out in advance of current blasting, not more than one further blast shall be loaded prior to the detonation of the current blast.

A No blasting shall be detonated before 8:00 a.m. or after 7:00 p.m., nor any blasting carried out on Sundays and Statutory Holidays. In addition, the loading for any blast shall not be commenced unless the loading can be completed and the blast matted and detonated no later than one half hour after sunset.

Detonating caps shall under no circumstances be stored with explosives, but shall be stored in a separate place in accordance with the specifications of the Department of Mines. Explosives shall not be primed or fused until immediately before they are to be used and under no circumstances are loaded and fused holes to be left over night.

Flyrock and Matting

C Contractor shall blanket ***all shots*** using heavy duty rubber blasting mats in good condition. Mats which have, in the opinion of Union's inspector, suffered a significant loss of rubber laminations shall be discarded. The use of overburden material and sand fill as matting material will not be permitted.

All flyrock shall be kept to an absolute minimum and in no case shall blasting be carried out in such a manner as to deposit flyrock outside the right-of-way. In the event that loose rock is scattered over the

right-of-way or adjacent property, the Contractor shall clean up such rock to the satisfaction of the Company's Inspector and landowner and his tenants, and haul it to a location satisfactory to the Engineer for disposal. If, in the opinion of the Engineer, the amount of rock scattered over the right-of-way or adjacent property is unwarranted, the Company maintains the right to specify the hole pattern, size of dynamite to be used, the amount of each charge and the placement of additional blasting mats.

A Notwithstanding the above requirements, the mats shall be placed over the blast area with the following minimum laps:

A A a. Within 50 metres of any house, building, structure, hydro tower, overhead wire or parked car the mats shall be double layered with lapped joints.

A b. A 25% (minimum) lap at each abutting mat shall be used elsewhere.

A Additional mats shall be laid, as necessary, to control flyrock and to protect seismographic equipment at blast monitoring locations.

Warning Signals

A Distinctive warning signals shall be given with an air horn during all blasting. Five short signals shall be given to warn of pending detonation and need to clear area. Three short signals shall be given immediately before the blast. One long signal shall be given after the blast to indicate the safe completion of the blast.

Vibration Limits

C During all blasting operations the Contractor shall limit the ground vibration emanating from each blast to the following limits:

a. where blasting is necessary adjacent to an existing operating pipeline, 50 mm/sec PPV in the horizontal plane when measured on the ground surface above the existing transmission pipeline. However, if the pipeline is exposed and out of service, readings are taken on the pipeline in the horizontal plane.

C b. 50 mm/sec PPV when measured at houses, buildings, structures and hydro towers. For houses, buildings and structures, this limit applies to the vector sum of the three planes and at hydro towers, the greater of the three vectors.

C The above limits refer to the intensity of the ground vibrations emanating from any particular blast in any of three mutually perpendicular planes, measured at the nearest point on the line to the location of the blasting. The amplitude of vibration shall not exceed 0.1524 mm.

Initial Series of Trial Blasts

C The Contractor is to employ the services of a blasting consultant to advise on drilling and loading patterns. The Contractor shall submit an engineering report showing proposed drilling and loading patterns to be used at specific locations to Union Gas for approval two weeks prior to the commencement of any blasting.

C Prior to full scale production blasting, the Contractor is to carry out a series of at least three initial blasts based upon the Contractors approved blasting pattern. These initial blasts are to be carried out at a location on the project to be selected jointly by the Contractor and the Union Gas blasting consultant.

C Based upon these initial tests, the Contractor is to revise his blasting pattern, if necessary, in order to obtain satisfactory levels of blast vibrations, adequate trench profile and satisfactory flyrock control.

C If, during blasting, the Contractor is unable to maintain satisfactory levels of vibration at the existing transmission line, he will be required to submit revised blasting patterns to Union Gas as set out in this specification.

C Great care must be exercised by the Contractor to prevent damage to underground structures such as cables, conduits, and pipelines. This also applies to water wells, springs and other underground water courses. In the event that the techniques of the Contractor appear to be injurious to these installations or formations, the Company again maintains the right to specify the hole pattern, size of dynamite to be used, and the amount of each charge.

A For the purposes of tiling, where rock is encountered at or above 1.2 m depth, the pipe shall have 1.0 m of cover. Where rock starts below 1.2 m, Union requires 1.2 m of cover over the pipeline.

C Solid rock, as classified by the Engineer, shall be removed to a depth of 30 cm below the standard ditch depth to allow for padding between rock and pipe. The excavated ditch shall be padded to a minimum thickness of 30 cm with earth, sand (free from rock), or other protective material approved by the Engineer. The padding material is to be placed in the trench in such a manner as to protect the pipe and the pipe coating from any hard points of rock. Felt and/or rockshield will be used in locations designated by the Engineer.

Monitoring Procedures

A Union Gas will employ the services of a blasting consultant to monitor the ground vibration levels over the existing transmission line during each blast. The blasting consultant will also monitor the vibration and air overpressure levels at any nearby houses and structures within a minimum of 200 m from the blast and any other sites as required by the Company.

A The monitoring equipment shall consist of three component portable seismographs capable of measuring ground vibrations up to 200 millimetres per second of Peak Particle Velocity (mm/sec PPV) and have on-site print out capabilities. The transducers shall be set up at locations and in a manner to be selected by Union's blasting consultant.

A The Contractor is to assist Union's blasting consultant in the setting up of his equipment in the event that monitoring is required below ground level and on the existing pipe, including the excavation of a pocket by hand to the required depth below ground level. All excavation in the vicinity of the existing transmission pipe shall be carried out in the presence of a Union Gas representative and only after the pipe location has been established by electronic means.

A The result of each seismographic test will be given to the Contractor orally immediately after each blast. Written confirmation of the reading together with other pertinent data will be given to the Company inspector on a daily basis.

Excessive Vibration Readings

A In the event that any seismograph reading is in excess of the limitations set out above, the following shall apply:

A a. Should any two consecutive seismograph readings taken on the ground above the existing transmission pipe fall between 50 and 80 mm/sec PPV, the Contractor shall cease all further blast hole loading other than those required for the 'third' reading. The 'third' reading shall then be taken below ground level and on top of the existing pipe. Should this third reading be below 50 mm/sec PPV, the loading of the blast holes shall continue and the next reading shall then be taken at the surface position. Should the 'third' reading be in excess of 50 mm/sec PPV, the Contractor shall cease all blasting in the area and move a minimum of 500 metres to a new area and continue blasting. The Contractor shall then submit a revised loading pattern to Union Gas for approval for the area where blasting has been discontinued.

A b. Should any one seismograph recording taken at the surface position be in excess of 80 mm/sec PPV, the Contractor shall cease all further blast hole loading other than those required for one subsequent reading. This subsequent reading shall then be taken below ground level and on top of the pipe. Should this reading fall below 50 mm/sec PPV, blasting

shall continue with readings taken at the surface position. Should the reading be in excess of 50 mm/sec PPV, the Contractor shall cease all blasting in the area and move a minimum of 500 metres to a new area and continue blasting. The Contractor shall then submit a revised loading pattern to Union Gas for approval for the area where blasting has been discontinued.

A c. In any area where blasting has been discontinued, blasting shall only be resumed when permitted by the Company inspector.

C When excavating loose rock from the trench after blasting, the Contractor must keep loose rock separate from any overburden that has previously been stripped. This can either be done by piling the overburden on the "spoil" side of the trench and the loose rock on the "work" side of the trench to be hauled out, or by piling both the overburden and the loose rock separately on the spoil side of the trench. The method to be used will depend upon the amount of overburden, width of the trench, and the type of terrain. The preferred method and the material to be hauled out shall be decided by the Company inspector.

After backfilling operations are complete, excess material shall be removed from the right-of-way by the Contractor. The material shall be disposed of at a location satisfactory to the Engineer.

## *15.3 Permits*

Any permits necessary for blasting shall be obtained by the Contractor at his expense unless specified in the description of work in the construction contract. The Contractor shall comply with all legal requirements in connection with the use, storage and transporation of explosives, including but not limited to the Canadian Explosives Act. Proper notification shall be made to the authority having jurisdiction when required and conformance to all legal requirements will be made.

## *15.4 Damages*

Care shall be taken not to damage any structure owned by others. If damage should occur, the owner of the damaged structure shall be contacted jointly by representatives of the Company and the Contractor and the repairs shall be made at the Contractor's expense under the direction and to the satisfaction of the owner.

C Contractor agrees to indemnify and hold harmless the Company against any damages or claims for damages sustained or alleged to have been sustained in connection with any of Contractor's blasting operations. However, if all requirements of this specification have been adhered to, Union agrees to hold the Contractor harmless against any damage claims related to said blasting.

A Temporary underpinning, supports, and other protective devices necessary to keep interfering structures intact shall be provided by the Contractor and shall be of such design as to insure against possible failure.

Reports shall be made currently to the Company of any damages or any other incidents relating to interfering structures.

## *15.5 Measurement*

C The vertical measurement shall be taken from the top of the rock in the trench to the bottom of the rock excavation, but not lower than 30 cm below the standard ditch depth. The width measurement shall be 30 cm greater than the nominal diameter of the pipe being laid regardless of whether swamp weights will be required or not. The volume will be calculated using the attached drawings. Rock removed for right-of-way purposes shall not be considered as rock excavation. Right-of-way as defined herein is the

total width of the easement. Payment shall be made for a proportional additional volume due to increased depth in areas of "solid rock" where extra cover is required on the line, examples of such being at road crossings, areas of swamp weight locations, etc.

A record of the location and quantities of all trench excavation classified as solid rock shall be made for each property by the Engineer. This record shall be submitted, after acceptable trench has been completed across the property, to the Contractor for approval. When signed by authorized representatives of both parties this record shall form the basis for calculating the compensation due to the Contractor for trenching in solid rock.

## *15.6 Basis of Payment*

D Solid rock excavation shall be paid for at the unit price per cubic metre as covered in the Schedule of Unit Prices.

## *16.1 Description*

A This shall include trenching, excavating and all other work necessary for installation of pipelines across rivers, creeks, streams, drainage ditches and adjacent wet lands or flood plains.

## *16.2 Method of Construction*

A The trench shall be excavated to a minimum width of 30 cm greater than the diameter of the pipe to be laid therein except at locations where swamp weights, river weights or concrete coated pipe are to be installed. At these points the trench will be dug wide enough to allow the weights to rest evenly on the pipeline without contacting the trench walls. The trench in these areas will be dug to provide a minimum cover of 1.2 metres over appurtenances.

When crossing large creeks or rivers, the Contractor will dig the crossings and the approaches to these crossings so that all elevation changes can be made with a minimum amount of bending.

The Contractor shall not be excused from installing the pipe at the grades and elevations established by the Engineer on account of any unforeseen difficulties that might be encountered.

C The Contractor shall provide satisfactory notification to the Company in order to comply with notifications required by permits for such stream crossings.

The Contractor will maintain close supervision on the refueling and servicing of all equipment and vehicles to ensure that soils and water systems are not contaminated. Rapid clean-up, containment and disD posal of spillages is required. Fueling of all equipment shall take place in a designated area a minimum of 30 metres from any stream crossing.

The Contractor shall strive to minimize impact to the watercourse by:

1. the shortest possible crossing time

A 2. limiting in stream disturbances

A 3. stabilization of stream, river and creek banks and beds as quickly as possible

A For each watercourse crossing, the Contractor will adhere to the procedures outlined below. The procedure to be used will be specified by the Engineer

**Wet Crossing Procedure (refer to Drawing S-814)**

A A wet crossing is used for relatively large rivers or streams and details "open cutting" the watercourse without diverting or isolating the water from the river or stream bed minimizing the effects of the crossing.

The following shall be adhered to:

1. Pipe should be strung, welded and coated ready for installation prior to stream trenching.

2. Specific trees and vegetation shall be identified by the Company and marked so that they may be protected by snow fence or temporarily relocated.

2(a) Snowfence to be installed around watercourse bank to prevent disturbance with in-stream activities are to commence.,

3. All operations which directly effect the stream shall be conducted in as short a time frame as possible.

D 4. Trenching within the stream will not commence until just prior to pipe installation.

5. Trench approaches to the stream crossing will be excavated ahead of time and hard plugs will be left on either side of the stream to the top of the bank to minimize the mixing of the trench water and the stream water. Vegetation on these plugs will be maintained as long as possible.

6. An oil catchment boom will be installed downstream from the excavation as close as practicable in an area designated by the Engineer. This catchment boom will be installed prior to any activity in the stream.

   In the event of an oil spill, straw bales will be used to soak up the detained oil for proper disposal by the Contractor.

7. The stream bed shall be trenched maintaining hard plugs at each bank until just prior to the pipe installation. The excavated trench material shall be deposited on the stream banks and then moved
C back from the stream or otherwise protected by straw bales or berms to minimize run-off re-entering into the stream. Larger streams may require the deposition of trench spoil in the stream downstream
A of the trench. In these cases the spoil should not restrict stream flow.

8. Excavation of the stream bed is to be accomplished from each bank unless the stream is of sufficient width to necessitate the use of excavating equipment in the stream. The Contractor is reminded that equipment should not enter the stream unnecessarily at any time and all of such occurrences should be minimized

9. The hard plugs are to be removed and the pipe installed in the shortest time possible.

10. Backfilling shall be commenced as soon after the pipe installation as it can safely be undertaken. Plugs of washed granular material, previously stockpiled on site, will be established at each stream bank prior to the stream trench being backfilled. Native material shall be backfilled into the stream trench to a depth of 30 cm below the grade of the stream bed. Washed granular material shall be backfilled into the remaining trench to provide a contour similiar to that prior to construction. Native material may be used for **all** backfilling if approved by the Engineer.

11. Trench water behind the plugs shall be removed, diffused and allowed to filter through straw bales or existing vegetation prior to entering back into the stream.

12. Stream banks are to be stablilized and restored to the original contour, revegetated and protected from erosion using erosion control matting, large stone or rip-rap, as soon as possible after backfilling.

13. Sediment collected behind the siltation barriers, if used, shall be removed from the stream by means of sand sucker, clam or backhoe and spread over the right-of-way or removed from the site.

**Dry Crossing Procedure (See Drawings S-806 and S-807)**

A A dry crossing is used for "sensitive" watercourses and requires the use of a flume to contain the flow of water across the construction area. To minimize the effects of the crossing.

The following shall be adhered to:

1. Pipe should be strung, welded and coated ready for installation prior to commencing activities in the stream.

2. Specific trees and vegetation shall be identified by the Company and marked so that they may be protected by snow fence or temporarily relocated.

3. All operations which directly effect the stream shall be conducted in as short a time frame as possible.

4. Flume pipes shall be installed in the stream of sufficient capacity to handle the anticipated flows. The length of flume used shall be sufficient to span the entire area of construction activities. Sand bags, stone or other impervious material, to be approved by the Engineer, shall be installed at each end of the flume across the entire stream so as to effectively restrict the flow of water into the area and allow the flow to be maintained thrqugh the flume.

5. Water shall be pumped from the area excavated to a point downstream of the flume onto a vegetated area and allowed to filter back into the stream. Pumps will be maintained to effectively remove seepage within the working area.

6. Trench approaches to the stream crossing will be excavated ahead of time and hard plugs will be left on either side of the stream. Vegetation shall be maintained on these plugs as long as possible.

7. If necessary, due to access problems, the Contractor shall be allowed to construct a roadway in the working area across the stream over the flume pipe. This roadway shall be constructed of granular material and shall be entirely removed after construction.

8. The stream bed shall be trenched and plugs removed at each bank just prior to pipe installation. The excavated trench material shall be deposited on the stream banks or adjacent to the trench. Run-off from trench spoil deposited on the bank shall be protected by straw bales or berms to minimize re-entry into the stream beyond the flume

9. As soon as trenching is completed, the pipe shall be installed with backfilling commencing as soon as it can safely be undertaken.

10. Native material shall be used for all backfilling to a depth of 30 cm below original grade of the stream bed. Washed granular material shall be backfilled into the remaining trench to provide a contour similiar to that prior to construction.

A 11. Stream banks and beds are to be stabilized and restored to their original contour, revegetated and protected from erosion using erosion control matting, large stone or rip-rap, as soon as possible.

12. Remove sandbags or other material used to block the flow in the construction area and remove the flume pipes, once again allow the water to flow through the restored construction site.

### *16.3 Basis of Payment*

The work prescribed in this Article shall not be paid for directly, but shall be considered as subsidiary work pertaining to the work covered in the lay price, except that the installation of river weights, swamp weights
D and granular material shall be paid for at the unit/prices as set forth in the Schedule of Unit Prices.

## *18.1 Description*

This shall include all work necessary to excavate, bore, haul and weld casing, install pipe under highways, railways and roads and install casing as required, and to backfill and repair such excavations.

## *18.2 Method of Construction*

The Company shall procure permits for street, highway, railway or roads and other like crossings. The construction of all crossings designated by the Company including all details incident to the installation of such crossings shall be in accordance with the drawings and requirements of the authority having jurisdiction, and such general specifications herein as may be applicable.

Normally all railroad and major highway crossings require casing. Municipal roads shall be slip-bored without casing, or if permitted by the authorities having jurisdiction, open-cut. In any case, the Company shall have the right to specify the method (including tunnelling) of all crossings at roads and railways.

If during the course of construction for a specific method of installation, it is deemed that the presence of adverse conditions renders that method impossible or impractical, the Contractor shall so inform the Company immediately. This will better enable the Company to obtain the necessary approvals to use other installation methods.

In all cases where plans, specifications, permits or special authoritative permission is granted for excavation on, along or across highways, railways, streets, parkways and other like crossings, the Company will only assume responsibility for the actual cost of special backfill materials required to be used by the Contractor under the terms of the permit or as directed by the Company Engineer. If such special backfill is concrete, the unit cost under Item 6 of the Schedule of Unit Prices shall not be used in determining such actual costs. Only the materials used to make up the concrete shall be used to determine an actual cost.

The Contractor shall assume all costs and expense of every character and description, including, but not limited to labour costs, equipment rentals and other special materials incurred in connection with the repair and restoration of streets, highways, railways, roads, sidewalks and other like crossings, including the ditches, banks and all surrounding areas included in the confines of any crossing under other jurisdictional authority.

If special backfill material is used, the Contractor shall dispose of the original excess material.

Prior to any commencement of construction at each crossing, the Contractor shall notify the Company in advance so all appropriate authorities will receive a minimum of 48 hours notice, which shall not include Saturdays, Sundays or statutory holidays.

## *18.3 Open-Cut*

The following criteria will apply for open-cut road installations.

The Contractor shall ensure that traffic flow is maintained for all roads disturbed or otherwise affected by the pipeline construction.

If permission has been granted to close a road, the Contractor shall ensure that suitable road closure signs including flagpersons are posted at the nearest crossroads to the open cut.

If road closing necessitates a detour, detour signs shall be erected at the nearest crossroad from the roadway being cut. If detour routes cannot feasibly be utilized, the Contractor will either install a tempo-

rary bridge over the ditch or construct an adequate temporary bypass near or around the road crossing installation. Only under special circumstances will the Contractor be permitted to install the pipe by open cutting one-half of the roadway at one time, while maintaining traffic on the other half of the roadway. This is to eliminate having a tie-in weld installed beneath the travelled portion of the road as well as having the road under construction for a long period of time.

The Company and road authority shall approve all methods of maintaining traffic flow during road crossing installations. The Contractor shall provide or construct all detours/crossing ramps as required including supplying, hauling in and installing the necessary material at no additional cost to the Company.

All roadways shall be restored to normal service as soon as possible. Therefore the Contractor shall ensure that all necessary preparatory work, backfill material, and pipe fabrication is completed prior to open cutting the road.

The excavated trench across the road between the outside edges of the shoulders shall be backfilled with granular material as specified below.

A 100 mm of the trench bottom and 300 mm above the pipe shall be padded with sand.

C The remaining trench depth greater than 300 mm below the finished surface of the road shall be backfilled with Granular "B".

The top 300 mm of trench shall be backfilled with Granular "A".

The backfill material shall be placed in layers not greater than 150 mm thick. Each layer shall be thoroughly compacted using a power driven vibratory type tamping machine approved by the Company. The degree of compaction shall meet the requirements of the governing authority. If unspecified, compaction shall be performed for each layer until no further settlement is apparent. Also, where necessary, Contractor shall add water to the backfill material to obtain optimum compaction.

If open-cut, the surface of all paved highways shall be replaced with new paving material having the same specifications as that originally removed.

D Note that the pavement shall not be cut beyond the required trench width, and the adjacent shoulders shall be cleaned of all mud and debris.

All surface courses shall be properly blended in with the adjacent road surface and thoroughly compacted.

## *18.4 Cased Crossings*

The Company will supply the casing pipe, appurtenances and fittings which the Contractor will fabricate and assemble. The following criteria will apply for casing installation:

The casing segments shall be welded together to the length which will facilitate the boring operation. Segments may only be welded onto the portion of the installed casing to achieve the full length specified if so directed by the Engineer. Casing segments shall be properly aligned and welded according to the normal pipeline welding procedure. They shall be full penetrating welds free from undercuts, overlaps, or abrupt ridges or valleys. Any casing girth welds and any rough areas inside the casing shall be ground smooth.

If the casing pipe is not mill coated it shall be coated by the Contractor on the outside surface. The coating will be a suitable pipeline material such as Tapecoat 20 or similiar material as directed by the Engineer.

The faces of the trench (i.e. the ends of the bore bay) for casing and slip-bore operations shall be situated a minimum of 3 m past the edge of the pavement/travelled roadway for roads and 0.6 m beyond the toe of slopes for railways, or as directed by other jurisdictional authority. In cases of possible damage to environmentally sensitive watercourses adjacent to highways, railways or roadways the trench face of the bore bay shall be moved to eliminate interruption or damage to these areas.

W Bore trenches and face areas shall be properly sloped to prevent soil collapse. If the soil is such that the proper slope cannot be maintained the area shall be properly stabilized.

The casing shall be installed to achieve the required profile and alignment as noted on the drawings or as directed by the Engineer, and shall have a minimum slope of 1 to 200.

A Vent pipes shall be welded into place as shown on the drawings or as directed by the Engineer.

Pipeline insulators or spacers shall be installed on the carrier pipe in sufficient quantity as specified on the drawings S-819 or S-820. After installing the carrier pipe into the casing, the insulation resistance between the coated pipe and the casing shall be electrically measured and the installation not considered satisfactory until approved by the Company Engineer.

C After the carrier pipe is tied-in, the ends of the casing shall be sealed with sealing devices supplied by the Company. The casing shall then be pressure tested with nitrogen to 125 KPa for one hour prior to back-filling the casing ends.

At the ends of the cased crossing, both the carrier pipe and the casing shall be supported by sandbags or compacted sand in accordance with Drawing S-819 or S-820 prior to backfilling. All crossings shall be backfilled immediately following the installation of the carrier pipe and support material. Backfilling shall be completed according to the requirements of the Company and the authorities having jurisdiction. Any voids around the pipe or casing resulting from the boring operation shall be filled by tamping a mixture of sand and gravel into place or if required by the Company or agency having jurisdiction, they shall be grouted.

Upon completion of a casing installation, the casing shall be filled with an anti-corrosive filler material. The Contractor shall supply and inject a petroleum-based, corrosion-resistant, non-water soluble material into the annulus between the carrier pipe and casing.

The casing must be filled through the casing vent pipes. Vent pipes are to be cut and capped 300 mm below grade upon completion of the fill.

The Contractor shall monitor and record the injection pressure during the fill to ensure integrity of the casing and seals. It is preferrable if the casings can be filled before the casing seals are backfilled. If in the opinion of the Company the casing seal integrity is in question, the Contractor shall excavate the seals.

If evidence of water is found in the casing before filling the Contractor shall attempt to dewater the casing with compressed air then inject an approved pre-conditioner. It is normal to fill a dry casing from the lower end and a wet casing (free water existing) from the higher end (filler is lighter than water and rides on top).

The Company requires that each casing is to be filled to a minimum 90% fill by volume.

The Contractor shall collect and dispose of excess material and spillage in an approved disposal site.

## *Approved Suppliers*

Quotations for the supply and installation of the filler can be obtained from:

A (A)
Interprovincial Corrosion Control
1159 Plains Road East
BURLINGTON, Ontario
L7S 1W6
Phone: (416) 634-7751

Whose approved product is:
Trenton Fill-Coat #1
(Hot-Installed Casing Filler)

A (B)
Cromer Industries Corp.
769 East Glen Drive
OSHAWA, Ontario
L1G 1H3
Phone: (416) 436-8861

Whose approved product is
Royfill 406
(Hot-Injected Casing Filler)

The supplier is to submit to the Company, a casing fill job summary showing the measured amount of filler and the calculated percent fill.

TABLE 1
Approximate Volume of Filler Required

A

| Carrier Pipe Size | Casing Pipe Size | Filler Required (Per Linear Foot) (U.S. Gal) | (Litres) |
|---|---|---|---|
| NPS 2 | NPS 4 | 0.4 | 1.6 |
| NPS 3 | NPS 6 | 1.0 | 3.8 |
| NPS 4 | NPS 8 | 1.8 | 6.7 |
| NPS 6 | NPS 10 | 2.3 | 8.7 |
| NPS 8 | NPS 12 | 2.8 | 10.7 |
| NPS 10 | NPS 16 | 4.8 | 18.1 |
| NPS 12 | NPS 16 | 2.9 | 10.8 |
| NPS 16 | NPS 20 | 4.7 | 17.7 |
| NPS 20 | NPS 24 | 5.7 | 21.7 |
| NPS 24 | NPS 30 | 11.4 | 43.2 |
| NPS 26 | NPS 30 | 7.3 | 27.7 |
| NPS 34 | NPS 42 | 22.2 | 84.2 |
| NPS 42 | NPS 48 | 19.1 | 72.3 |
| NPS 48 | NPS 54 | 21.7 | 82.1 |

### *18.5 Slip Boring*

In locations where the Company requires that bores be made for the installation of the carrier pipe without casing, the construction shall be as follows:

The Company will supply line pipe (bore pipe) that will be the same diameter as the carrier pipe. This pipe will be used solely for the boring operation for the duration of the project. Bore approaches shall be excavated accordingly to the requirements specified under cased crossings.

The boring operation shall produce a tunnel slightly larger than the casing. The bore bit shall be 25 mm to 50 mm larger than the bore pipe to facilitate ease of installation, a "drilling mud" type lubricant may be used; the use of "petroleum base" products will not be permitted.

Upon completion of boring, all boring equipment shall be removed and the carrier pipe temporarily welded onto the bore pipe. The entire assembly shall be advanced through the tunnel until the carrier pipe is in the desired location. The bore pipe shall be cut from the carrier pipe and in no case shall a section of pipe used for the actual boring operation be left in the line.

The tie-in of the carrier pipe shall not occur closer than 3 m from the face of the trench or as directed by the Company. This amount of carrier pipe shall be left protruding from the trench face in order that a coating inspection and assessment can be made. If the coating has been damaged, the carrier pipe shall be removed and the coating repaired. The carrier pipe shall not be removed without reinstalling the pilot casing to prevent tunnel collapse.

All open ends of pipe that will not be immediately connected into system shall be securely closed with an approved seal to prevent entrance of water, small animals, or the introduction of foreign material of any nature, and shall not be re-opened until work is resumed.

Where the trench has been deepened to accommodate boring machinery, the extra depth must be back-filled and thoroughly compacted before backfill is placed over the carrier pipe or suitably supported by sack breakers as directed by the Engineer.

### *18.6 Measurement of Quantities*

Contractor shall be paid for the full length of casing installed. Where carrier pipe is installed by boring methods, the Contractor shall only be paid for the actual length of the bore.

### *18.8 Basis of Payment*

D
D The work prescribed in this article, including all welding shall be paid for by the unit price per metre of casing as set forth in the Schedule of Unit Prices. Boring through carrier pipe without casing, shall be paid for by the unit price per metre of bore under the Schedule of Unit Prices. If the crossing is installed using the open-cut method, with no casing, the the work shall not be paid for directly but shall be included in the lay price of the Schedule of Unit Prices. Regardless of crossing method used, the crossing length will be paid for under the lay price.

## 24.1 Description

This shall include all work necessary to backfill, compact and crown the trench line, restore creek banks, hillsides and graded areas along the right-of-way.

## 24.2 Method of Construction

Immediately prior to the backfill operation, all backfill material shall be checked to assure its free from debris that may potentially damage the pipeline coating, such as large boulders, stumps, skids, stones and brush. The Contractor may be directed to partially sift through spoil prior to initial backfill.

Backfilling shall be completed in a manner to prevent below grade settlement at a later date. This shall be accomplished by both compaction and trench crowning.

Compaction may be accomplished by flooding, tamping or running a crawler tractor with one track on top of the fill, over the trench line for as many times as will be necessary to obtain maximum compaction by this method. Following this or other compaction methods, the trench line shall be crowned to a height of not less than 20 cm and not more than 30 cm above the ground surface, or as otherwise specified by the Engineer.

For excessively stoney or rocky areas, the Contractor shall supply the necessary labour to observe the backfilling operations and ensure that the coating and pipe are not damaged. Stones or rock in excess of 0.3 metres in diameter, shall not be backfilled into the trench.

Where the use of additional soil is necessary to complete the backfill to the required height, the manner and method of securing soil must be approved by the Company and the landowner.

A In areas of numerous stone or heavy gravel any backfill material that is free from all stones that would damage the pipe coating, shall be placed in the trench to a minimum depth of 30 cm above the top of the pipe and levelled across the full trench width. If stone free material cannot be recovered from the spoil pile a mechanical pipe padder will be utilized to separate the stones from the spoil to pad the pipe in the trench to a depth of 30 cm or more over the pipe depending on rock or stone size and number of stones in the backfill. The remaining trench shall be backfilled with the excavated spoil. The trench line area shall be free of all stone larger than 75 mm to a depth of 30 cm. This shall be accomplished by chisel ploughing and stone picking either mechanically or handpicking.

A In areas of solid rock where blasting has been used to excavate the trench, the entire trench area shall be backfilled with sand to a point where overburden was first removed. The location of the sandpadding will be as approved by the Engineer.

A All excess material shall be hauled away and disposed of at locations satisfactory to the Landowner,. the Engineer and the Conservation Authorities. Prior dump site approval must be obtained from the Conservation Authorities prior to disposal of any excess material.

A All public highway, township and county roadways, private driveways, laneways and railways that are open cut shall be backfilled in 15 cm layers and each layer thoroughly tamped by hand or machine to the satisfaction of the Engineer or government authority having jurisdiction. All crossings mentioned above shall be backfilled with "no shrink" backfill material if so directed by the Engineer. This work shall be carried out immediately after the pipeline has been laid. Backfill material and compaction requirements shall be as described under Specification 91-T-26 (GSCM 17-26) Special Backfill and 91-T-18 (GSCM 17-18) Highway, Railway and Road crossings.

The backfilling across drainage ditches, irrigation ditches, terraces, levee districts, trails and streams shall be backfilled to its original state in a manner satisfactory to the Engineer and governmental authority having jurisdiction.

Manual backfilling shall be used where mechanical equipment would damage road or sidewalk surfaces, buildings or other structures. If the backfilling operation is being carried out during freezing weather, the Contractor shall refill the trench and redress the area after the frost has gone from the ground.

The Contractor will take steps to divert the flow of surface water from disturbed slopes by methods such as the use of ditches, herringbone swales, berms or erosion control matting.

Extremely steep slopes may require specialized stablization methods to prevent erosion. Examples of such methods are illustrated in Drawing No. S-700, S-802, S-803, S-804, and S-805.

In no case is surface drainage to be diverted into channels other than the ones they followed before the line was laid.

Any tile runs or underground systems interrupted by the ditch shall not be backfilled until properly repaired unless directed by the Engineer and shall be protected during the backfilling operations. Drain tile
C shall be repaired in accordance with Specification 91-T-27 (GSCM 17-27) by inserting a satisfactory support around the tile and by replacing all broken or damaged tile with new tile.

Pipeline marking tape shall be installed at all open cut road, in-ground utility, waterway and municipal drain crossings, or as directed by the Engineer. The tape shall be installed to a depth of 500 mm and will extend at least 5 m beyond the crossing (see standard Drawing No. S-808, Pipeline Marking Tape Installation for Transmission Lines). Orange coloured tape shall be used for gas line, yellow tape for electrical lines.

## *24.3 Basis of Payment*

The work prescribed in this Article shall not be paid for directly, but shall be considered as subsidiary work pertaining to the work covered in the lay price. Special materials required for protecting coating
D pipe in the trench or road surface shall be paid for under the applicable item of the Schedule of Unit
D Prices.

| Section: | Subject: |
|---|---|
| GENERAL SPECIFICATIONS | TILE REPAIRS |

## 27.1 Description

Tile repair shall include all work necessary to replace and repair any drainage tile, either on or off the pipeline easement that has been damaged during the pipeline construction.

## 27.2 Method of Construction

Where the pipeline ditch intercepts drainage tile, the Contractor shall excavate to a depth that will allow a minimum of 15 cm of clearance between the top of pipe and bottom of tile when pipe is laid in the ditch. All drain tile that have been damaged by ditch excavation shall be renewed back from the edge of the ditch at least four tile lengths or as indicated on Dwg. No. S-705 and S-706. A perforated, corrugated galvanized pipe shall be installed by the Contractor at the same grade and elevation of the original tile run. The galvanized support shall be placed so that the perforated holes are centred on each side of the bottom of the pipe. They shall be held in place by earth, tamped firmly around the repaired line and
C supported by concrete blocks placed at each end (see Dwg. No. S-705). In order to compensate for minor differences in elevation, the Contractor will be allowed to place cedar wedges between the galvanized support and the concrete blocks. Cedar wedges shall be cut from 50.8 mm x 101.6 mm material so that the 101.6 mm width will form the base of the wedge (see Dwg. No. S-705). The cost involved in purchasing and the installation of these wedges will be the responsibility of the Contractor.

In lieu of concrete support blocks, a stone pad may be used if requested by the landowner or municipal drain inspector. (For proper dimension of the stone pad see Dwg. No. S-706).

All tile that is re-used shall be thoroughly cleaned.

The replacement tile shall be inserted into the corrugated galvanized support a sufficient distance to ensure the end sealant does not block the tile. Each end of the support pipe and tile insert shall be wrapped with tile filter cloth or equivalent and sealed with sacrete.

If requested by the landowner the replacement tile shall be placed completely through the support pipe.
C All tile repairs must be tied into the existing tile system using an adapter or connector designed for that purpose regardless of size or type of existing tile.

When possible, tile used for replacement shall be of the same size as the tile encountered in the trench. All tile run repairs will be left uncovered at the point where the repair joins the existing tile run until inspected by the Company Inspector and landowner and/or municipal inspector.

In cases where the trench width is in excess of the normal length of the corrugated support pipe, the support pipe shall be joined in the centre with a coupling supplied for that purpose. The coupling shall be installed and supported as shown in Dwg. No. S-706A.

A Upon completion and inspection of the drainage tile repair, the tile shall be carefully backfilled and compacted.

The Company will furnish material for all tile repair. The work prescribed above will be paid for directly
D at the unit price set forth in the Schedule of Unit Prices.

In the event that tile is broken, crushed, or otherwise disturbed, by the Contractor's equipment on the pipeline easement, but not included in the tile crossing, such disturbed tile shall be dug up and repaired by the Contractor using replacement tile and/or corrugated galvanized pipe. This work will be paid for
C directly at the unit price set forth in the Schedule of Unit Prices. All tile broken or disturbed by the Contractor's equipment off of the pipeline easement shall be dug up for inspection and/or repaired at the Contractor's own expense, except that the Company will furnish material for all tile repair.

In order to ensure that drainage tile have not been damaged either on or off the easement, it is the responsibility of the Contractor to examine the tile runs by means of a flashlight, sewer tape or other means acceptable to the Engineer. Any damaged tile that are discovered in this way are to be repaired as outlined above.

It will be the responsibility of the Contractor to supply pick up and deliver all materials for the repairing of field tile. The Contractor shall submit actual invoices to the Company for reimbursement of all tile repair material used.

### *27.3 Basis of Payment*

The work prescribed in this article shall be paid for directly at the Unit Price set forth in the Schedule of Unit Prices.

| Section: | Subject: |
|---|---|
| GENERAL SPECIFICATIONS | CLEAN-UP |

## *28.1 Description*

This shall include all work necessary to remove surplus material from right-of-way, complete final grading of the trench line and area. To permanently repair or replace all fence lines. Replace shrubs, pavements, sidewalks, curbs, surfaced driveways, hedges, sodded areas and all other damages resulting from the pipeline construction.

## *28.2 Method of Construction*

C The Contractor shall provide a daily garbage detail to keep the right-of-way clear of all waste material such as containers, paper, skids, defective material and all construction and other debris immediately behind the daily operation. The objective is to maintain a clean and neat right-of-way at all times.

C The Contractor shall remove all surplus excavated materials from the right-of way and adjacent properties as well as public and private roadways, sidewalks and gutters. All stream and ditch channels shall be cleared of all surplus material.

C All underbrush, broken skids, and other debris shall be hauled away. All material originally furnished by the Company and not used in the project shall be picked up regardless of location and delivered to a designated Company warehouse.

C The Contractor shall complete the permanent repair or replacement of all fences and other enclosures through which he gained temporary access or means of passage. All fences shall be replaced with new material if the need demands. Early or historic fences shall be carefully re-assembled by hand from the original material. All fencing material shall be at the Contractor's expense. All structures shall be replaced in a condition as good as or better than at the beginning of construction. All repairs shall be completed to the satisfaction of the owner or tenant and the Company.

C The Contractor shall remove all other temporary means of access to or along the right-of-way which may have been installed such as rip rap, geotextile, granular cover material, excepting any material which may be left for later use by the landowner or Company maintenance crews if permission is granted by both the landowner and the Company. Such permission shall be in writing. Contractor shall repair and restore all public right-of-ways to their original condition.

C After completion of backfilling and compaction of the trench line to its original density. Adequate provision shall be made for normal subsidence as specified by the Engineer. All excess subsoil removal on any given property will be completed prior to cultivation of the right-of-way. Following this, the entire easement shall be levelled with a grader or dozer, chisel ploughed or ripped with a subsoiler to eliminate compaction to a depth of 40 to 50 centimetres. Chisel plough equipment will be of the multiple shank type with shanks approximately 30 cm. to 40 cm. apart. If subsoiling is required a subsoiler may be supplied by the Company.

The easement will then be disced or harrowed to a depth of 20 cm. if required by the Engineer.

C In areas where stone is present, the Contractor shall be responsible for chisel ploughing and picking stones over the entire easement prior to topsoil replacement, then chisel ploughed and stone picked again after the topsoil has been replaced.

C All stones 7.6 cm. and larger on the easement are to be picked up and disposed of during final clean-up.

C The Contractor shall construct terraces, berms or cross ditches on the right-of-way at inclines or steep enbankments to divert surface water run off to adjacent vegetated areas or to existing drainage systems. Terraces shall have a maximum fall of one in fifty (1:50) and shall be feathered at the ends.

C Particular care shall be exercised by the Contractor to ensure that all drainage ditches, creeks, etc. are maintained and left in a unobstructed manner to avoid the backing up of water against the bank of back-filled trench line that would cause flooding or water diversion.

C In areas of gravel soils, side slopes or inclines, they shall be contour ploughed and left with a roughened ground surface with furrows across the slope to increase water retention and avoid erosion. These areas shall be reseeded as soon as possible after final clean-up if applicable.

C All turf removed shall be replaced and firmly tamped, reseeded or sodded so that the final appearance of the lawn shall be reasonably close to the original state. Mulch will be spread along the easement during clean-up operation in areas as directed by the Engineer.

C All areas such as ditch and stream banks, road and highway shoulders, woodlots, steep embankments, right-of-ways (if requested by Landowner). or other environmentally sensitive areas shall be reseeded and fertilized. The following seed mixture will be used at a rate of 50 kg per hectare (45 lbs. per acre).

| SPRING and SUMMER | | FALL | |
|---|---|---|---|
| Creeping Red Fescue | 50% | Red Fescue | 50% |
| Kentucky Blue Grass | 20% | Perennial Rye | 30% |
| Perennial Rye | 12% | Red Top Clover | 20% |
| Red Top Clover | 5% | | |
| D Alfalfa | 5% | | |
| White Clover | 3% | | |

A general purpose fertilizer mixture such as 7-7-7 will be used at a rate of 125 kg per hectare (115 lbs. per acre).

C All equipment used to perform clean-up, repairs and seeding operations shall be furnished by the Contractor.

C Final clean-up shall be started as soon as practicable after backfilling the trench. At no time shall final clean-up be more than 4 km behind the backfill operations.

## *28.3 Basis of Payment*

The work prescribed in this Article shall not be paid for directly but shall be considered as subsidiary work pertaining to work covered in the lay price.

The Company shall reimburse the Contractor for the cost of the seed and fertilizer.

## *30.1 Description*

This shall include all work necessary to hydrostatically test the completed line or section thereof, in accordance with specifications outlined by the Company. The Contractor shall supply all supervision, W labour, equipment, hand tools, calibrated gauges and deadweight gauges, deadweights, fuel and operating supplies, and materials both for the test operation and for the connection of supply lines, headers and other test installations to perform the hydrostatic test.

## *30.2 Test Specifications*

After completion of the pipeline or a part thereof, the Contractor shall hydrostatically test said lines.

The Contractor is required to provide the notification as stated on the Permit to Take Water prior to such taking and must adhere to all conditions regarding withdrawal rates and quantities.

All valves and appurtenances shall be checked, prior to filling the pipeline, to ensure that they are in proper working order. Valves must be greased and checked along with all fittings for tightness before filling.

Contractor shall supply equipment suitable to fill and then pressure the line to the specified test pressure. Water used for testing shall be filtered at the source if so directed by the Engineer. If necessary, the Contractor shall have a water analysis made and chemically treat the water. The Contractor shall place spheres or pigs supplied by the Company, ahead of and behind the water fill as required. Whenever a sphere is used it must be inflated to a **minimum** diameter three percent (3%) greater than the inside diameter of the pipe. In cases where the terrain is such that filling will take place on a substantial decline, a back pressure of air must be maintained on the sphere or pig to prevent it from running away from the water.

The Contractor shall keep an accurate record of the quantity of water pumped into the line as deter- D mined from a properly calibrated flow meter to ensure that the line is completely filled with water. During filling of the test section, the Contractor shall continually vent, when possible, the high points of the line to ensure the complete removal of air in the test section. On lines of NPS 12 size and greater a minimum filling rate of 1,400 litres/min. will be maintained during the filling operation.

The Contractor shall co-ordinate his test activities with the progress of the other pipeline construction operations in such a way as to perform the test promptly and diligently causing no unnecessary delay in the completion of the work.

C All hydrostatic testing shall be witnessed by the Engineer. The Engineer shall be notified at least seventy-two (72) hours prior to the commencement of each test and shall be present before each test is started.

All fabrication shall be tested on site.

## *30.3 PROCEDURE FOR TESTING ATIOR ABOVE PIPE MILL TEST PRESSURE*

Upon attainment of the test pressure, the pressure shall be increased at a rate not to exceed 40 kPa per minute. When pressuring above mill test pressure, a graph of pump strokes vs. pressure shall be plotted until the test pressure as noted above is reached. Scales of the pump strokes vs. pressure C graph shall meet with the approval of the Engineer. If a deviation on this graph to the extent of 60 kPa occurs, the pump shall be stopped at this point and the pressure locked in until all surging has ceased and the pressure is stabilized. The pressure shall then be decreased by 700 kPa then again increased until a second deviation of 60 kPa in the graph occurs or the maximum test pressure is reached. If a second such deviation occurs, the pump shall be stopped and this pressure locked in

until all surging has ceased and the pressure is stabilized. The pressure shall then again be decreased by 700 kPa then the pressure increased to the level of the second deviation and closed in for a period of twenty-four (24) hours. If no deviation in the graph is encountered the pump shall be stopped at the final set pressure and this pressure locked in for a period of twenty-four (24) hours.

During the first thirty (30) minutes of the twenty-four (24) hour test, a deadweight pressure reading shall be recorded at five (5) minute intervals. During the next thirty (30) minutes, the deadweight pressure readings shall be recorded at ten (10) minute intervals. During the remaining twenty-three (23) hours of the twenty-four (24) hour test, deadweight pressure readings shall be recorded every half hour.

## *30.4 PROCEDURE FOR TESTING BELOW PIPE MILL TEST PRESSURE*

C
C When testing pipelines to a test pressure below the pipe mill test pressure, a deadweight pressure gauge will be used to monitor the pressure while pressure in the line is being increased, and to assure the pressure recording gauge is accurate with the deadweight recorder. Once the test pressure has been reached and surging has ceased the deadweight pressure gauge readings shall be monitored and recorded on an hourly basis throughout the 24 hour test period.

The following table indicates pipe mill test pressure for common Company pipe.

| Pipe Diameter | Specification | Wall Thickness mm | Mill Test Pressure kPa |
|---|---|---|---|
| NPS 2 (60.3 mm) | CSA Z245.1 Grade 172 | 3.9 | 15,200 |
| NPS 3 (88.9 mm) | CSA Z245.1 Grade 290 | 4.8 | 18,700 |
| NPS 4 (114.3 mm) | CSA Z245.1 Grade 290 | 4.8 | 14,500 |
| NPS 6 (168.3 mm) | CSA Z245.1 Grade 290 | 4.8 | 12,300 |
| NPS 8 (219.1 mm) | CSA Z245.1 Grade 290 | 4.8 | 9,500 |
| NPS 10 (273.1 mm) | CSA Z245.1 Grade 290 | 5.6 | 10,000 |
| NPS 12 (323.9 mm) | CSA Z245.1 Grade 290 | 5.6 | 8,500 |
| NPS 16 (406.4 mm) | CSA Z245.1 Grade 290 | 7.1 | 8 600 |

## *4.30.5 PROCEDURE FOR TESTING PIPELINES TO OPERATE AT HOOP STRESS OF LESS THAN 30 PERCENT OF THE SPECIFIED MINIMUM YIELD STRENGTH OF THE PIPE*

When hydrostically testing pipelines to operate at hoop stresses of less than 30 percent of the specified minimum yield strength of the pipe, a deadweight pressure gauge is not required. A pressure recording gauge will be used to record the test. The test shall be held for a minimum period of 24 hours.

D
A

The following table indicates hoop stresses of 30 percent of the specified minimum yield strength of the pipe for common Company pipe.

| Pipe Diameter | Specification | Wall Thickness mm | Internal Pressure to Create Hoop Stress of 30% of Specified Minimum Yield kPa |
|---|---|---|---|
| NPS 2 (60.3 mm) | CSA Z245.1 Grade 172 | 3.9 | 6,700 |
| NPS 3 (88.9 mm) | CSA Z245.1 Grade 290 | 4.8 | 9,300 |
| NPS 4 (114.3 mm) | CSA Z245.1 Grade 290 | 4.8 | 7,200 |
| NPS 6 (168.3 mm) | CSA Z245.1 Grade 290 | 4.8 | 4,900 |
| NPS 8 (219.1 mm) | CSA Z245.1 Grade 290 | 4.8 | 3,800 |
| NPS 10 (273.1 mm) | CSA Z245.1 Grade 290 | 5.6 | 3,500 |
| NPS 12 (323.9 mm) | CSA Z245.1 Grade 290 | 5.6 | 3,000 |
| NPS 16 (406.4 mm) | CSA Z245.1 Grade 290 | 7.1 | 3,100 |

## *30.6 THE FOLLOWING PARAGRAPHS PERTAIN TO ALL TEST PRESSURES*

If a pressure loss greater than 4.3 kPa/km occurs at any time during the test, due to a decrease of the pipe temperature, this pressure shall be made up with the pump. If, in the opinion of the Engineer,

the rate of pressure loss has increased to such an extent that a leak is suspected, the Contractor will maintain the required test pressure on the section by pumping at a rate that will hold the line at the required test pressure. This pumping will be maintained throughout the duration of the test, if necessary, in.order to maintain the test pressure. In the event that a leak is suspected on a line being
W tested at a pressure less than the pipe yield pressure, the Engineer may require the Contractor to pump against the leak and pressure the line to a point above the actual test pressure. This will cause the line to rupture and make the locating of the leak much easier.

W The Contractor shall provide the personnel to walk the section under test in order to locate any leakage at the request of the Engineer. During the entire test operation, a pressure recorder and a pipe temperature recorder shall be used to obtain charts of the test. In the event of a rupture during testing, the break shall be repaired and the above test repeated until a satisfactory test is obtained on the section.

The pipe temperature recorder, supplied by the Contractor is to be installed in approximately the centre of the test section with the bulb strapped to the bare pipe and well covered in a manner approved by the Inspector. The pipe coating removed for the installation of the pipe temperature re-
W corder is to be replaced in a manner acceptable to the Company's Engineer.

W The Contractor shall pass to the Engineer at the completion of each test, the pressure and temperature recorder charts, the yield plot graph, if applicable, and a completed hydrostatic test record all in a suitable report form. These forms which are to be supplied by the Contractor, shall become the property of the Company upon their receipt.

Upon completion of the hydrostatic test of a line or section thereof, the water shall be removed by running spheres through the line with compressed air. The number of such runs made shall be determined by the Engineer.

The hydrostatic discharge water will be directed into the centre of the stream from which it was taken, not onto the banks and allowed to discharge into the stream. A larger diameter header will be attached at the end of the discharge pipe to reduce the energy and velocity of the flow of water and prevent any scouring of the stream bottom as per Drawing No. S-809.

As an alternative, the hydrostatic discharge will be directed upon straw bales, stone or wood cribbing or spraying device to dissipate the energy. The water would then be allowed to pass through existing vegetation and re-enter the stream or ditch. Care shall be taken to ensure that the stream banks are not eroded upon the discharge water re-entering the stream.

Damage to the pipeline right-of-way or adjacent property caused by dewatering shall be repaired by the Contractor at the Contractor's expense.

After the section has been satisfactorily dewatered, the pipeline shall be dried by a series of "drying runs". Three to five plain foam water retention pigs backed by a urethane four cup pig or equivalent shall be propelled through the pipe line section with compressed air. These drying runs shall be continued until the foam pigs indicate the pipeline is completely dry. After each dry run the foam pigs
C shall be removed and replaced with new ones.

The Contractor shall provide qualified personnel to conduct all phases of the hydrostatic test. In the event that in the opinion of the Engineer, the Contractor does not have sufficient experience or cannot supply the required equipment or personnel to perform the test to the satisfaction of the Engineer, the Company will have the right to insist that the Contractor hire a testing Contractor whose qualifications meet those required by the Company. All work performed by the Contractor or his agent shall be done in a safe manner subject to the approval of the Inspector.

The Contractor shall supply water, water filters, water fill and pressure pumps, air compressor equipment, piping valves and fittings (except those supplied by the Company) meters for measuring

the water, facilities for injecting any chemical additives (if required), supervision, labour, transportation, mobile and portable radio equipment for use by the Contractor and any other expendable material and supplies as may be required to clean, test, dry or repair the pipeline.

The Contractor shall take care to prevent damage to the internal coating of the pipe.

The Company shall obtain water permits, and shall provide pigs and/or pipeline spheres (for cleaning, water filling, water displacement and drying, testheads, valves, scrappers, chemicals and other fittings necessary for test operation.

Testing of pipelines and related facilities shall be carried out with due regard to the safety of employees and the public. Signs, stating that pipeline testing is being conducted shall be posted at the test site and at all road and highway crossings. Heavy equipment shall refrain from working near the pipeline during test procedures.

For major rivers, the 'river section' of pipe shall be pretested for four hours prior to installing the concrete coating.

A All pipe that will be used to undercross all company owned or foreign pipelines will be pretested prior to installation for a period of four (4) hours.

It shall be the responsibility of the Contractor to inspect all testheads prior to welding into place.

## *30.7 SEAT TESTING BALL VALVES (NPS 20 and Larger)*

Upon completion of the pressure test and prior to depressurizing, large diameter ball valves shall be seat tested as follows:

A a. Lower the test pressure to maximum operating pressure of the system.

b. Fully close the valve.

c. Install a pressure gauge on either side of the valve.

d. Open the body bleed valve and depressurize the cavity of the ball.

e. Monitor the pressure on either side of the valve for a minimum of 15 minutes to determine if the seats are holding.

**Note:** : Only one valve shall be seat tested at a time. All ball valves shall be drained after the piping has been dewatered.

**Note:** : Clean water being free of sand, oils and other matter shall be used. A sample shall be taken of water used for each test for cleanliness. The Engineer has the right to reject water.

## *30.8 SENSING LINES*

A Where sensing lines, gauge lines, control lines or instrumentation lines are installed above ground using tubing all joints shall be soap tested after the station has been put into operation. The Contractor shall be responsible for testing all lines included in the contract.

Where sensing lines, gauge lines, control lines or instrumentation lines are installed underground using welded steel pipe, the below ground piping shall be pressure tested with air or nitrogen to 1.25 times the design pressure of the pipeline for a minimum number of hours as specified on the drawings, plans and specifications and steady pressure reading shall be obtained on the pressure recorder chart. Sensing lines may be hydrostatically tested providing **extra caution** is taken to remove all water.

### *30.9 FACILITIES*

When so specified in the contract, the Contractor shall provide adequate facilities to protect test personnel and instruments from inclement weather conditions. These facilities shall meet with the approval of the Company and shall consist of a portable shelter complete with electric lighting and heating facilities when required. The Contractor shall be responsible for the setting up of all test facilities. The test shelter shall be located at least 15 m from the section of line under test and shall be firmly supported, so that movement of the chart recording instrument will not occur.

### *30.10 Basis of Payment*

D C The work prescribed herein and the associated standby shall be paid for directly at the unit price set forth in the Schedule of Unit Prices. The Contractor shall be responsible for payment to any and all agents hired by him to assist in, or to perform the hydrostatic test. Payment under the Schedule of Unit Prices will cover all costs of the Contractor pumping against any leak during the twenty-four (24) hour period. Where repairs are necessary because of defective materials furnished by the Company, the actual cost of such repairs will be paid for as EXTRA WORK, as prescribed in Section H, Paragraph 56 of the General Conditions. The period for which the test equipment cannot be operated due to repairs resulting from D faulty materials supplied by the Company, shall be paid for as outlined in the Schedule of Unit Prices.

## *34.1 Description*

In addition to the Description of Work, Environmental Assessment and the O.E.B. Environmental Guidelines for the Construction and Operations of Pipelines in Ontario, the specific requirements listed below are brought to the Contractor's attention.

## *34.2 Information and Instructions*

The Contractor shall ensure that all persons engaged in work associated with the pipeline construction are:

a. Informed of all specific conditions associated with watercrossings, woodlot and brush areas, wet lands, swamps and other areas that require special attention.

b. Instructed on the requirements of all the safety laws, rules and regulations applicable to the construction area as set forth by the area Municipalities and Governmental Authorities.

c. Instructed as to all environmental concerns within the Description of Work and Environmental Assessment of the Contract.

## *34.3 Conservation Measures*

The Contractor shall ensure that:

a. Cutting and removal of trees and brush is carried out in accordance with proper forest conservation practices.

b. Where there is danger of fire in forests or agricultural fields, precautions must be taken to prevent such occurences by practicing proper fire preventive procedures.

c. All wildlife and domestic animals shall be protected from harm or harrassment of any kind.

d. Where any structure or change in streams, ponds, ditches, etc., causes permanent blockage to the migration of fish, endangers fish spawning beds, or causes excessive sediment that may endanger fish, that substitute provisions are made immediately to adequately maintain the population of migrating or resident fish species.

e. The Contractor shall not permit liquid or solid waste or fuel to be deposited on the ground or into or near bodies of water contrary to enactments of any regulatory bodies having jurisdiction.

## *34.4 Archeological and Paleontological Sites*

Where archeological or paleontological sites are excavated, the Contractor shall take immediate measures to protect the sites. The location of the site shall immediately be brought to the attention of the Engineer who will advise the appropriate Provincial authorities. Until such time as the value of the site has been officially assessed, the Contractor shall cease his activities to avoid damage to the site.

## *34.5 River and Creek Crossings*

a. Particular care shall be taken during construction to ensure that the normal drainage of creeks and streams has not been changed.

b. Ditch plugs shall be maintained at stream or creeks to control trench water form entering into the streams.

c. Construction activities in or near creek, rivers and streams shall be kept to an absolute minimum.

d. Construction access roads across streams shall be composed of gravel or stone and provided with culverts or bridges. All such structures shall be removed as soon as possible after completion of the construction project. During construction care must be taken to ensure culverts under access road do not become blocked or particularly blocked with debris that would alter normal drainage or stream flow.

### *34.6 Wetland Crossings*

a. Where tree and/or shrub removal is necessary for construction activities, it shall be held to a minimum.

b. Limits of the easement will be staked and flagged through all wetlands to prevent impacting the surrounding area.

c. In sensitive wetlands, to minimize damage to muck soils along the working side of the easement, Geotextile material should be used as a barrier between the muck soil and the gravel or sand placed for a construction access road through the wetlands wherever it is practical.

d. Movement of equipment through wetland should be restricted to the access road as much as possible.

e. Culverts should be strategically placed under the access road to prevent ponding.

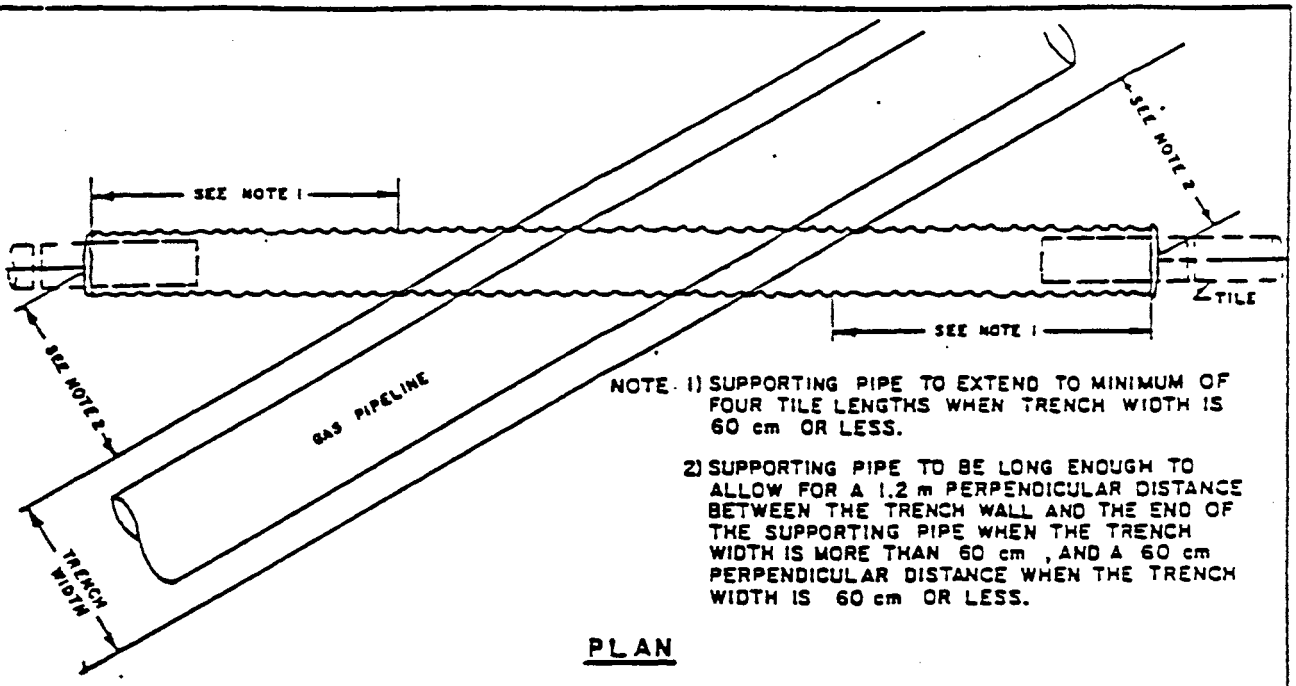
f. After construction, the original ground contour shall be returned to restore proper drainage patterns and the easement area reseeded as soon as possible.

g. Where wood rip-rap or corduroy access road construction is necessary, the Contractor shall, if so instructed by the Engineer or the landowner, remove such rip-rap for aesthetic reasons or to ensure that natural drainage of the wetlands and/or muskeg area is not impeded.

h. The Contractor shall dispose of all excess grading material in a manner satisfactory to the Engineer, such material shall not be allowed to be spread indiscriminately into treed areas.

### *34.7 Basis of Payment*

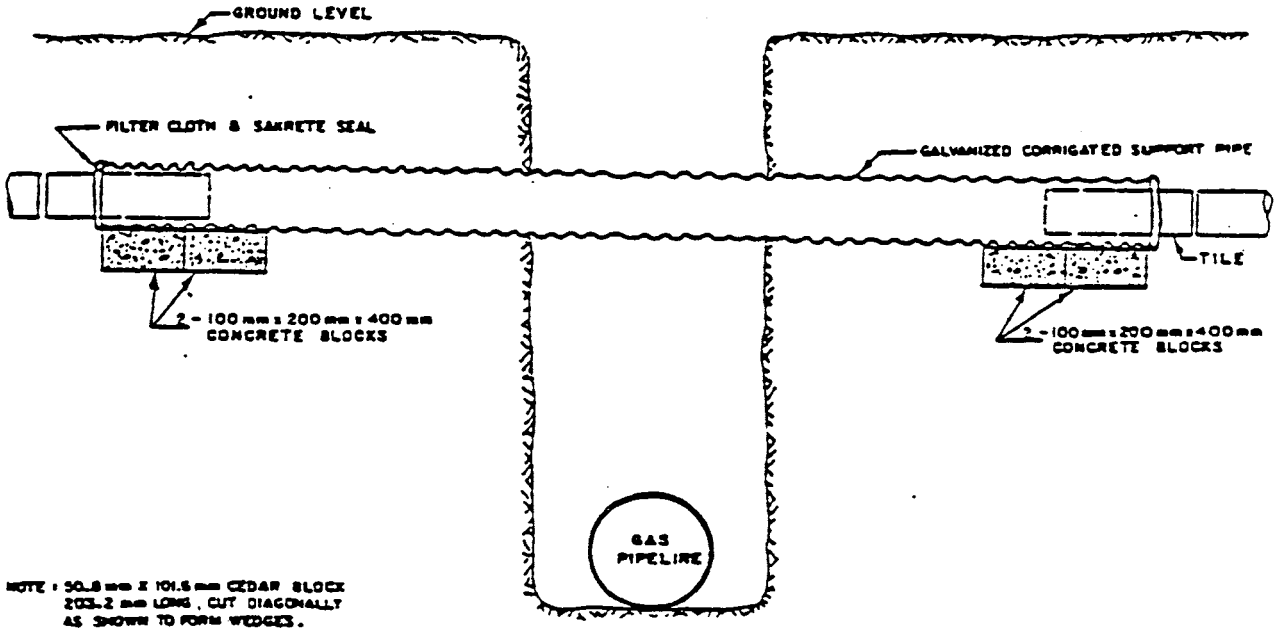
The work prescribed in this article shall not be paid for directly, but shall be considered as subsidiary work pertaining to work covered in the lay price.




NOTE 1) SUPPORTING PIPE TO EXTEND TO MINIMUM OF FOUR TILE LENGTHS WHEN TRENCH WIDTH IS 60 cm OR LESS.

2) SUPPORTING PIPE TO BE LONG ENOUGH TO ALLOW FOR A 1.2 m PERPENDICULAR DISTANCE BETWEEN THE TRENCH WALL AND THE END OF THE SUPPORTING PIPE WHEN THE TRENCH WIDTH IS MORE THAN 60 cm , AND A 60 cm PERPENDICULAR DISTANCE WHEN THE TRENCH WIDTH IS 60 cm OR LESS.

## PLAN




NOTE : 50.8 mm X 101.6 mm CEDAR BLOCK 203.2 mm LONG , CUT DIAGONALLY AS SHOWN TO FORM WEDGES.




## ELEVATION

| REVISIONS | | | | |
|---|---|---|---|---|
| No | DATE | BY | APP'D. | REMARKS |
| 1 | 85-03-08 | RES | // | REMOVE TILE & CHANGED TITLE ADD NOTE |

**UNION GAS LIMITED**

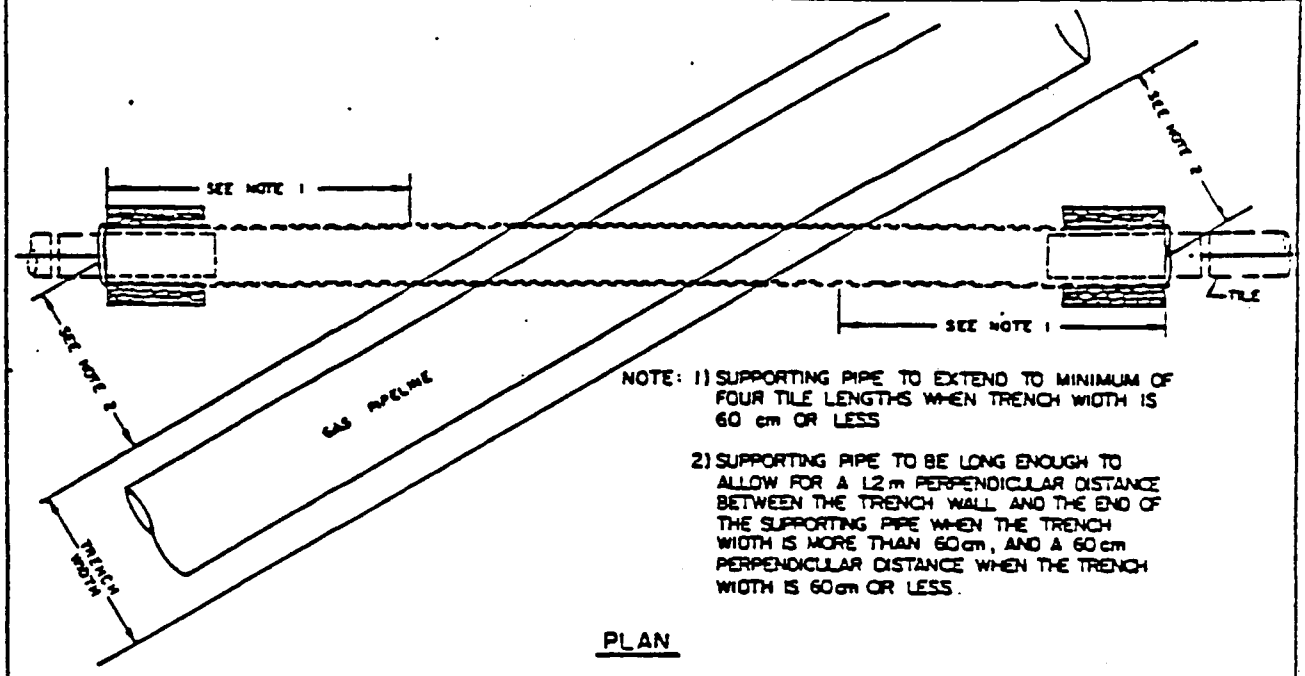
CHATHAM ONTARIO

TYPICAL TILE SUPPORT INSTALLATION
CONCRETE BLOCK SUPPORT

DRAWN BY R.K.
CHECKED BY
APPROVED BY

SCALE NOT TO SCALE
DATE 1980-03-19

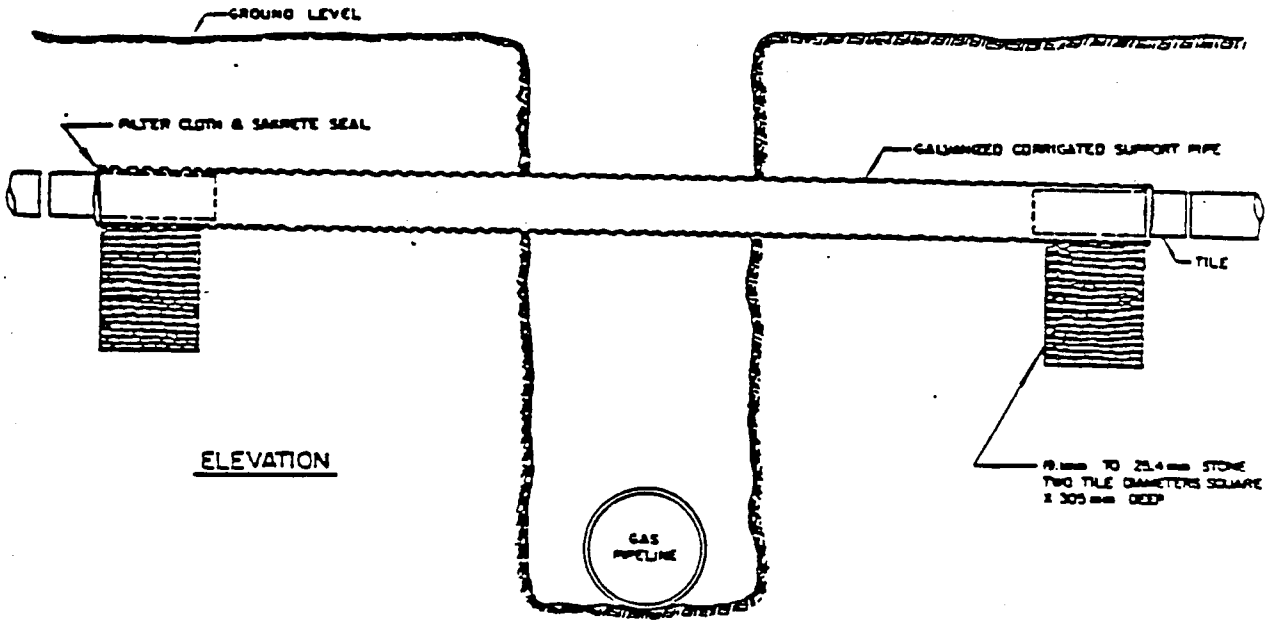
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| A | | | S - 705 |




NOTE: 1) SUPPORTING PIPE TO EXTEND TO MINIMUM OF FOUR TILE LENGTHS WHEN TRENCH WIDTH IS 60 cm OR LESS

2) SUPPORTING PIPE TO BE LONG ENOUGH TO ALLOW FOR A 1.2 m PERPENDICULAR DISTANCE BETWEEN THE TRENCH WALL AND THE END OF THE SUPPORTING PIPE WHEN THE TRENCH WIDTH IS MORE THAN 60 cm, AND A 60 cm PERPENDICULAR DISTANCE WHEN THE TRENCH WIDTH IS 60 cm OR LESS.

PLAN




ELEVATION

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| No. | DATE | BY | APP'D. | REMARKS |
| 1. | 85-03-08 | RES | | ADDED GALVANIZED CORRUGATED SUPPORT PIPE |

UNION GAS LIMITED

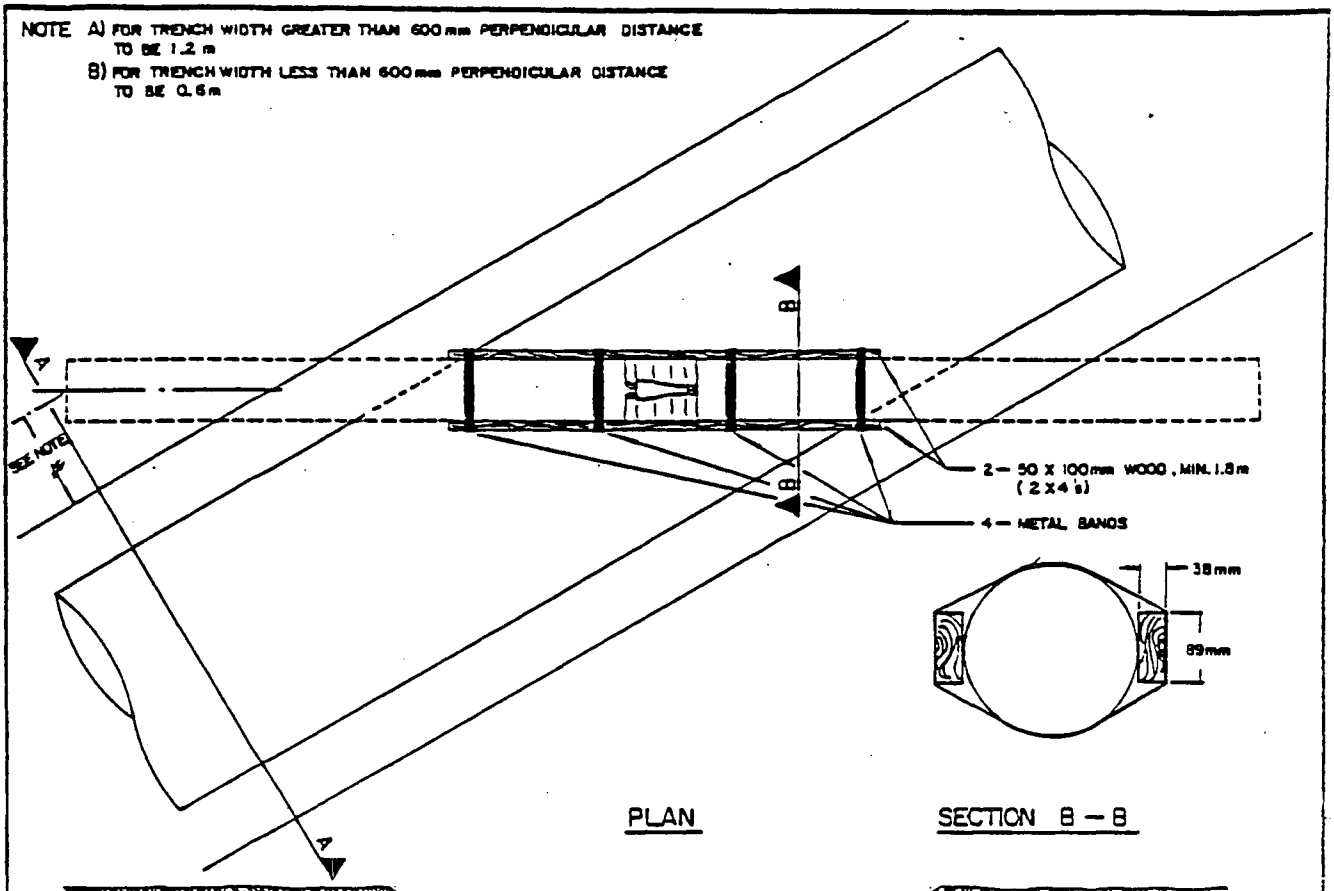
CHATHAM ONTARIO

TYPICAL TILE SUPPORT INSTALLATION
STONE PAD SUPPORT

DRAWN BY RES
CHECKED BY
APPROVED BY
SCALE NOT TO SCALE
DATE 1983-10-11
SIZE A
DRAWING No. S-706

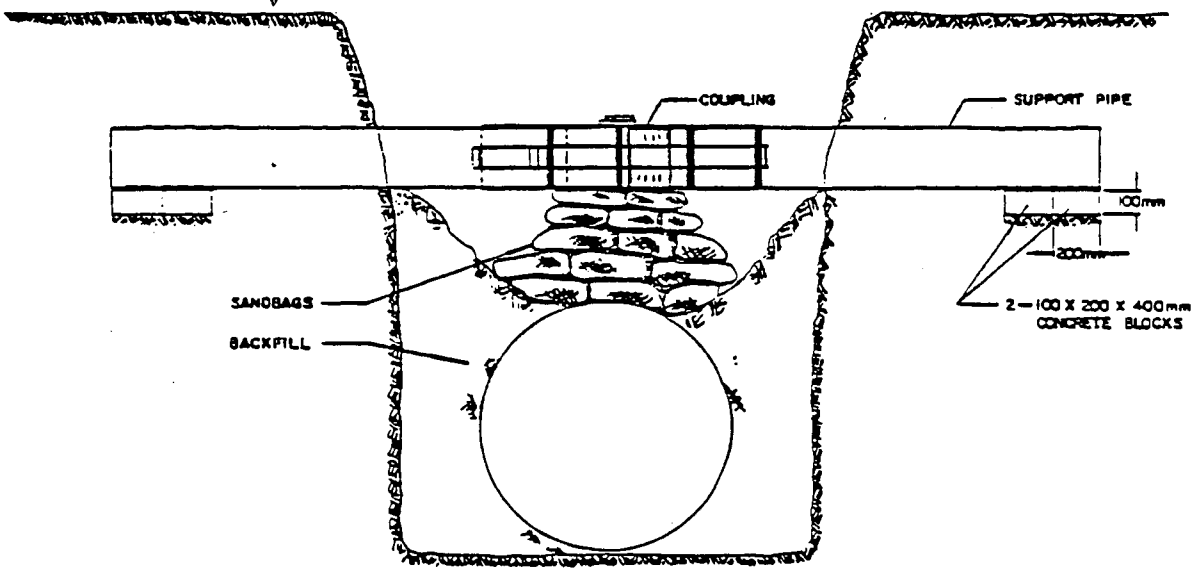
NOTE A) FOR TRENCH WIDTH GREATER THAN 600 mm PERPENDICULAR DISTANCE TO BE 1.2 m

B) FOR TRENCH WIDTH LESS THAN 600 mm PERPENDICULAR DISTANCE TO BE 0.6 m




PLAN

SECTION B – B




SECTION A – A

| REVISIONS | | | | |
|---|---|---|---|---|
| No. | DATE | BY | APP'D. | REMARKS |
| 1 | 85-03-05 | RES | | CHANGE FROM DWG NO. 14066 |

UNION GAS LIMITED

CHATHAM ONTARIO

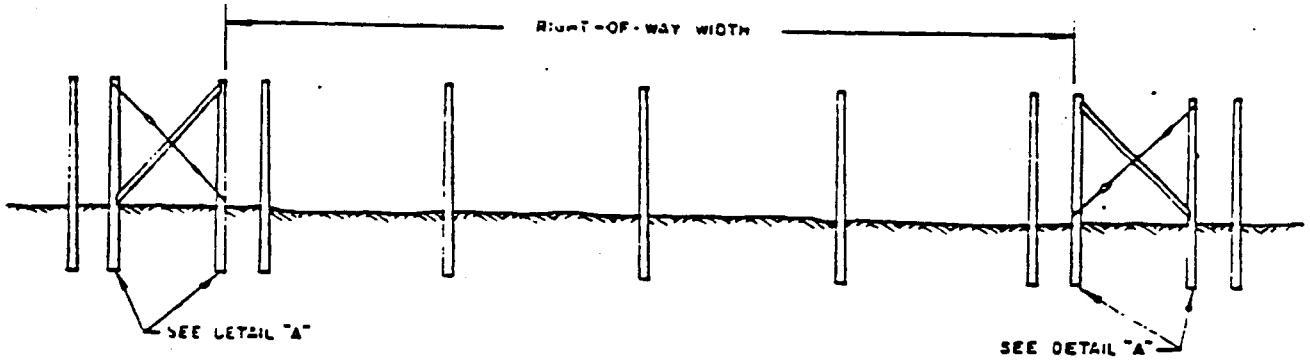
# TYPICAL TILE SUPPORT FOR IN-TRENCH CONNECTION

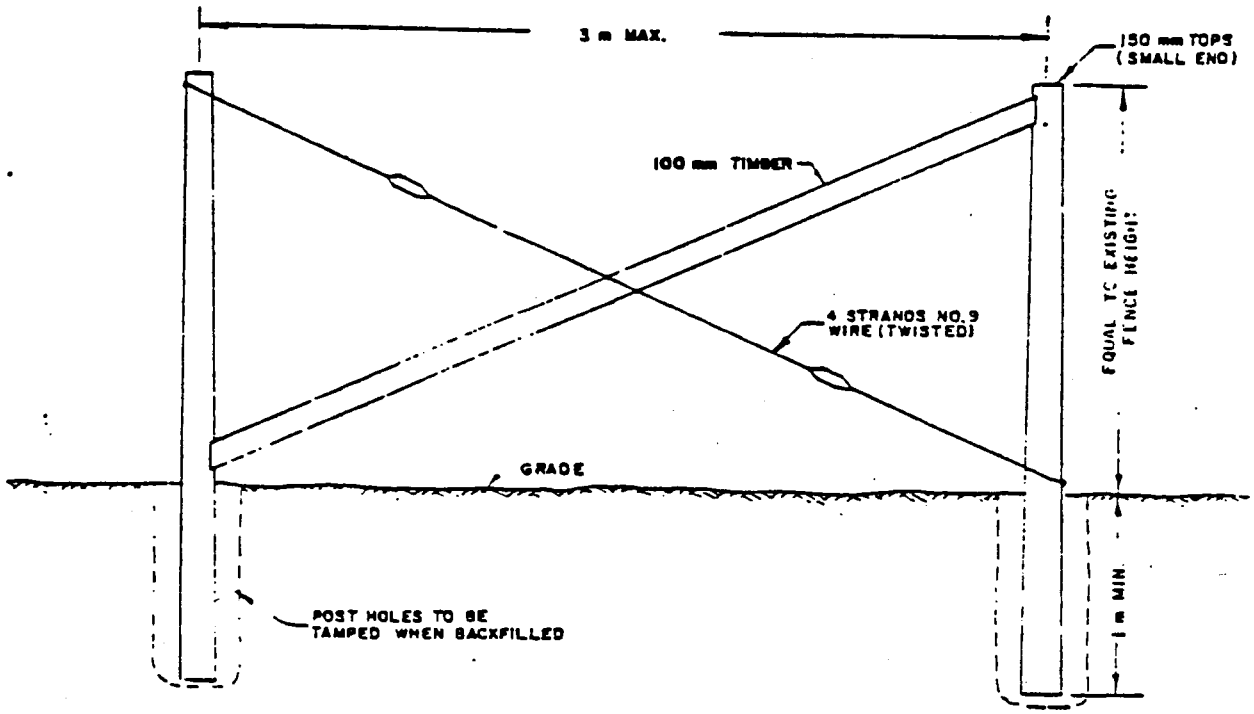
DRAWN BY R.E.S. SCALE NOT TO SCALE

CHECKED BY DATE 1982-03-16

APPROVED BY

SIZE A | DRAWER | SHEET | DRAWING No. S-706A




NOTE: 1) LENGTH OF POSTS GOVERNED BY EXISTING FENCE.
2) ALL GATES TO HAVE A MINIMUM OF 5 STRANDS OF WIRE.
3) ALL STAPLES TO BE 45 mm.
REFERENCE: SPECIFICATION 85-T-10 OR EQUIVALENT.

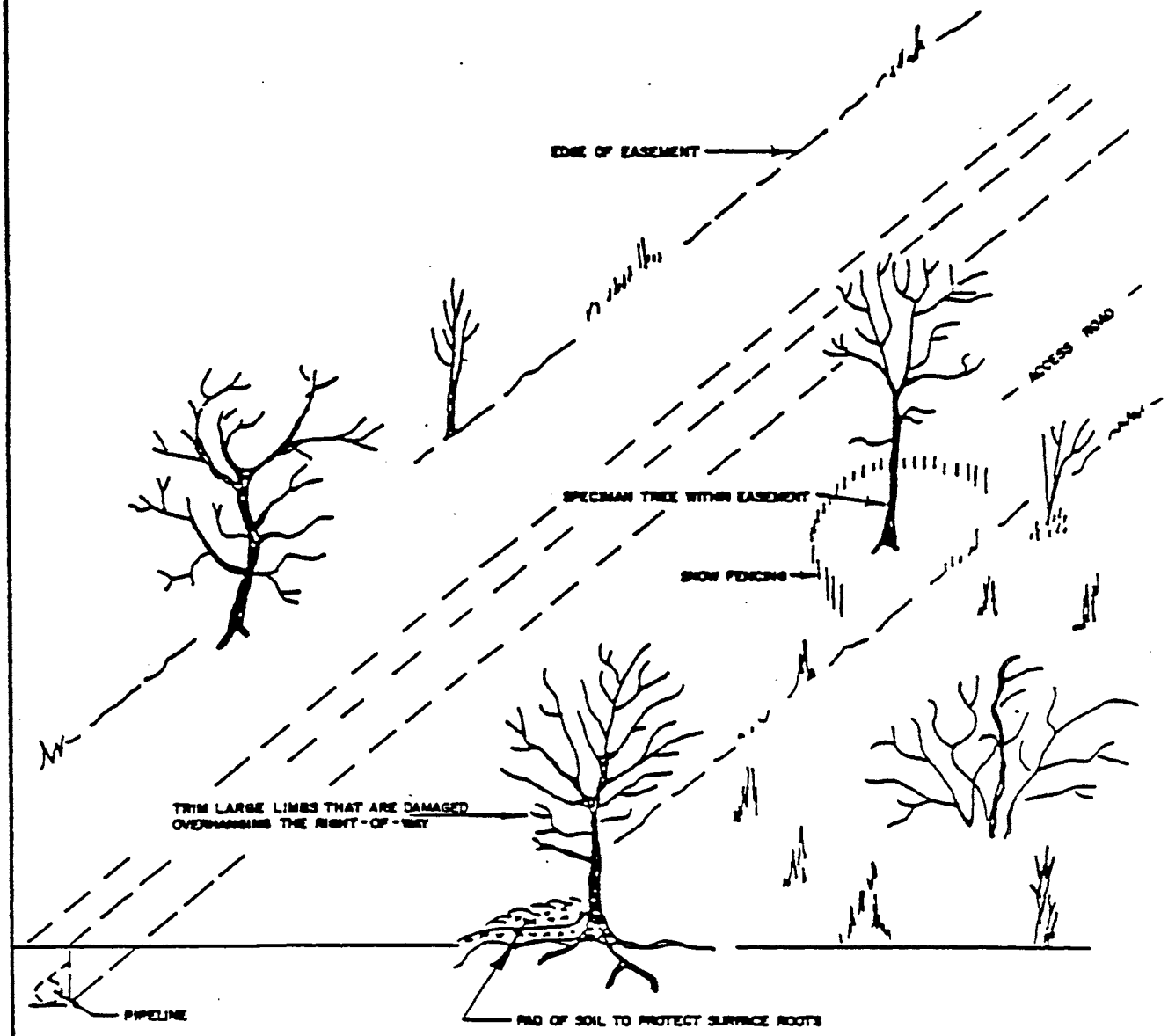
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|---|---|---|---|---|
| No | DATE | BY | APP'D | REMARKS |
| 1. | 85/05/8 | LDP | | GENERAL UPDATE |

**UNION GAS LIMITED**

# TYPICAL FENCE BRACING DETAIL

DRAWN BY G.T.H
CHECKED BY
APPROVED BY
SCALE NOT TO SCALE
DATE MAY 14,1986

| SIZE | DRAWER | SHEET | DRAWING No |
|---|---|---|---|
| A | | | S-707 |




## REVISIONS

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| L | 85/05/08 | L.D.R. | | NOTE CHANGE |
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**UNION GAS LIMITED**

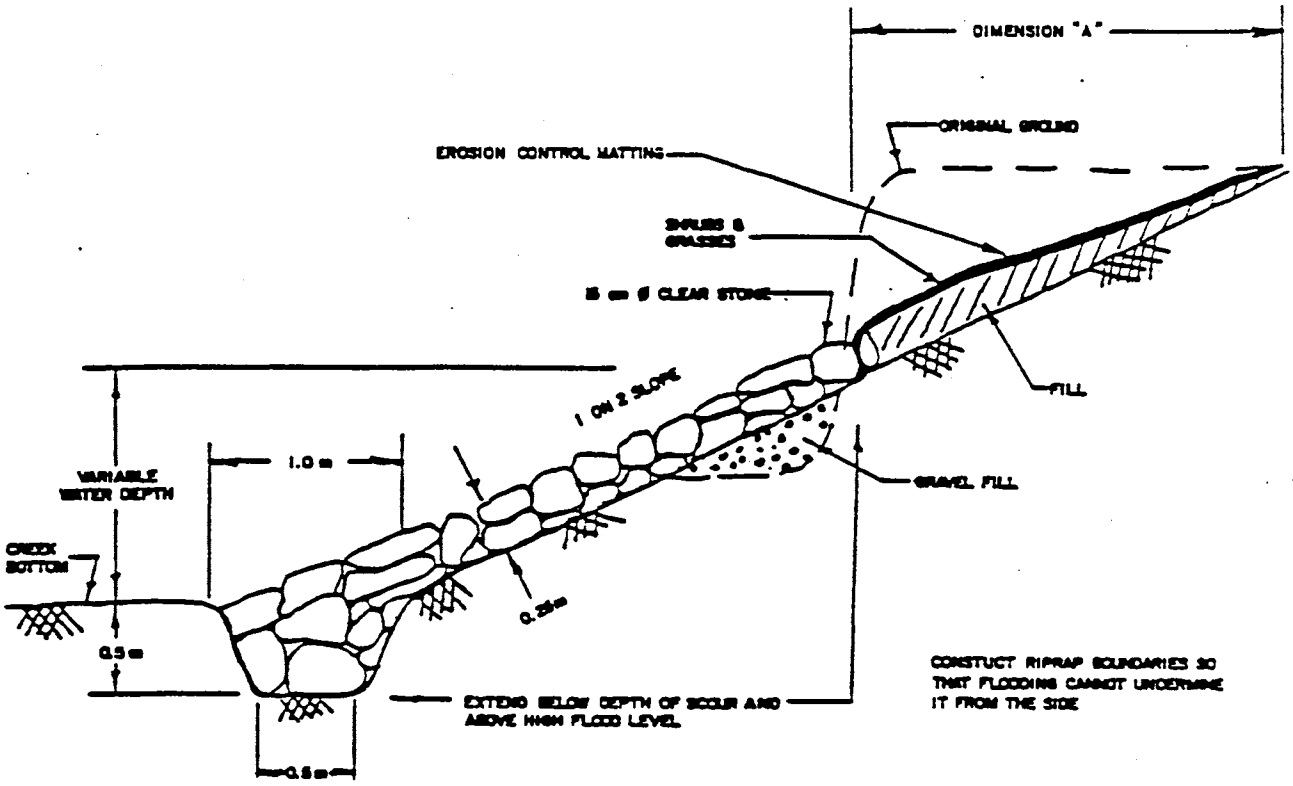
CHATHAM ONTARIO

# PRESERVATION OF SPECIMEN TREES

DRAWN BY L.M.
CHECKED BY
APPROVED BY

SCALE N.T.S.
DATE 1981-08-25

| SIZE | DRAWER | SHEET | DRAWING NO. |
|---|---|---|---|
| A | | 1 OF 1 | S-801 |




NOTE: 1. RIP RAP IS TO BE INSTALLED ACROSS THE WIDTH OF PIPELINE TRENCH OR AS DIRECTED BY THE COMPANY.

2. MINIMUM STONE SIZE TO BE 0.15 m.

3. FILTER CLOTH TO BE INSTALLED ON SLOPE UNDER ROCK.

4.- DIMENSION "A" WILL BE 5.0m UNLESS OTHERWISE DIRECTED BY ENGINEER

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | DATE | BY | APP'D. | REMARKS |
| 1. | 85-05-08 | LDR | | REVISIONS: ADDED NOTE 4 |

UNION GAS LIMITED

CHATHAM ONTARIO

TYPICAL RIPRAP INSTALLATION FOR CREEK BANKS

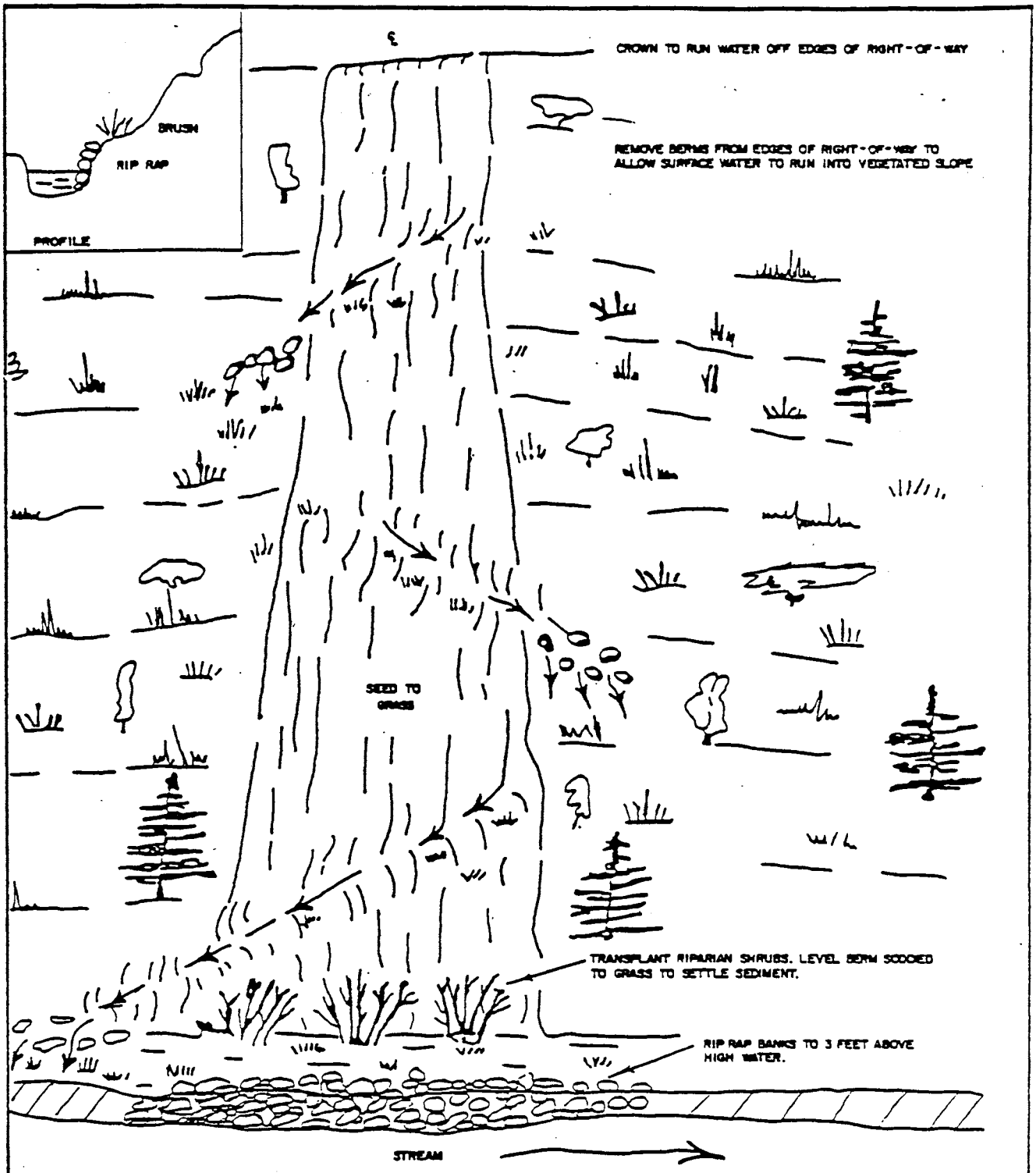
DRAWN BY J.M.
CHECKED BY
APPROVED BY

SCALE N.T.S.
DATE 1981-09-22

SIZE A | DRAWER | SHEET 1 OF 1

DRAWING NO. S-802

FORM 337A




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**UNION GAS LIMITED**

CHATHAM ONTARIO

MECHANICAL EROSION CONTROL OF STREAM BANKS AND VALLEY SLOPES AT STREAM CROSSINGS

DRAWN BY L.M.
CHECKED BY
APPROVED BY

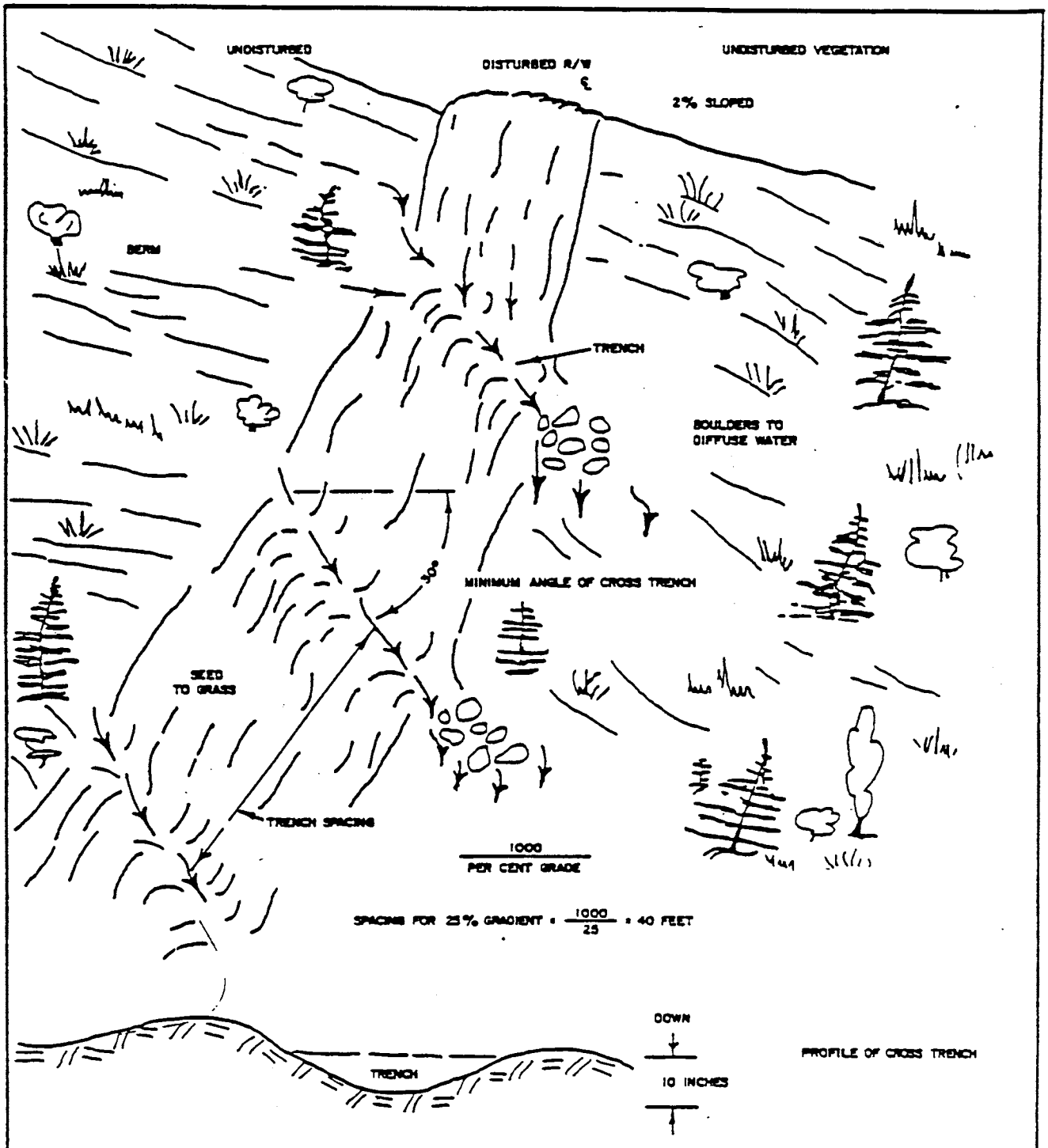
SCALE N.T.S.
DATE 1981-09-23

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|---|---|---|
| A | | 1 OF 1 |

DRAWING No. S-804

Form 227A

3052 ROLL




DISTURBED AREA TO BE SEEDED TO GRASS. COARSE SURFACE MATERIAL REQUIRES LESS FREQUENT CROSS TRENCHING. FINE - TEXTURED SURFACE REQUIRES MORE FREQUENT CROSS TRENCHING.

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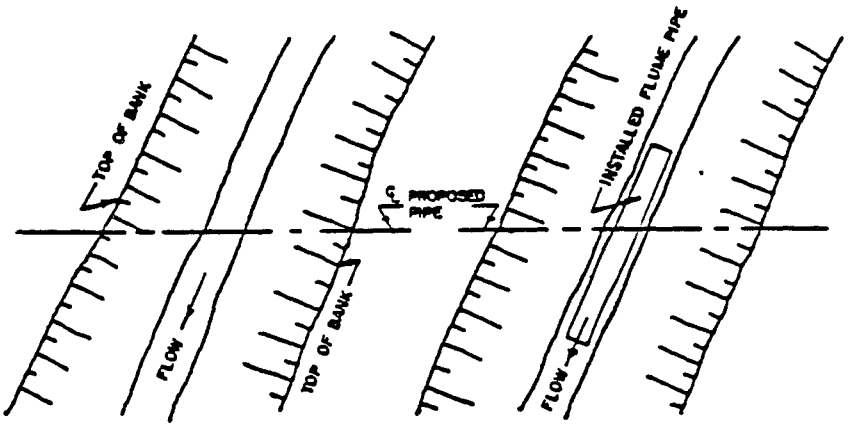
**UNION GAS LIMITED**

CHATHAM ONTARIO

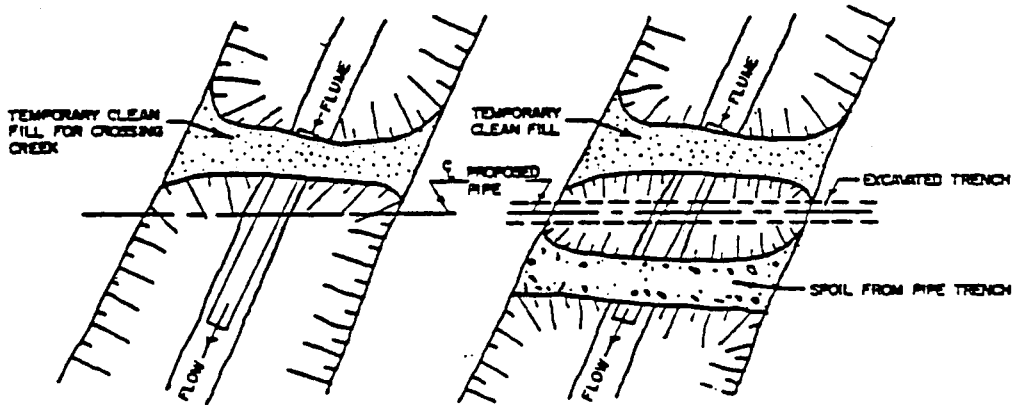
# EROSION CONTROL OF CROSS SLOPES

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| DRAWN BY I.M. | | | SCALE N.T.S. |
| CHECKED BY | | | DATE 1981-09-23 |
| APPROVED BY | | | DRAWING No. |
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FORM 327A




STEP 1 STEP 2




STEP 3 STEP 4

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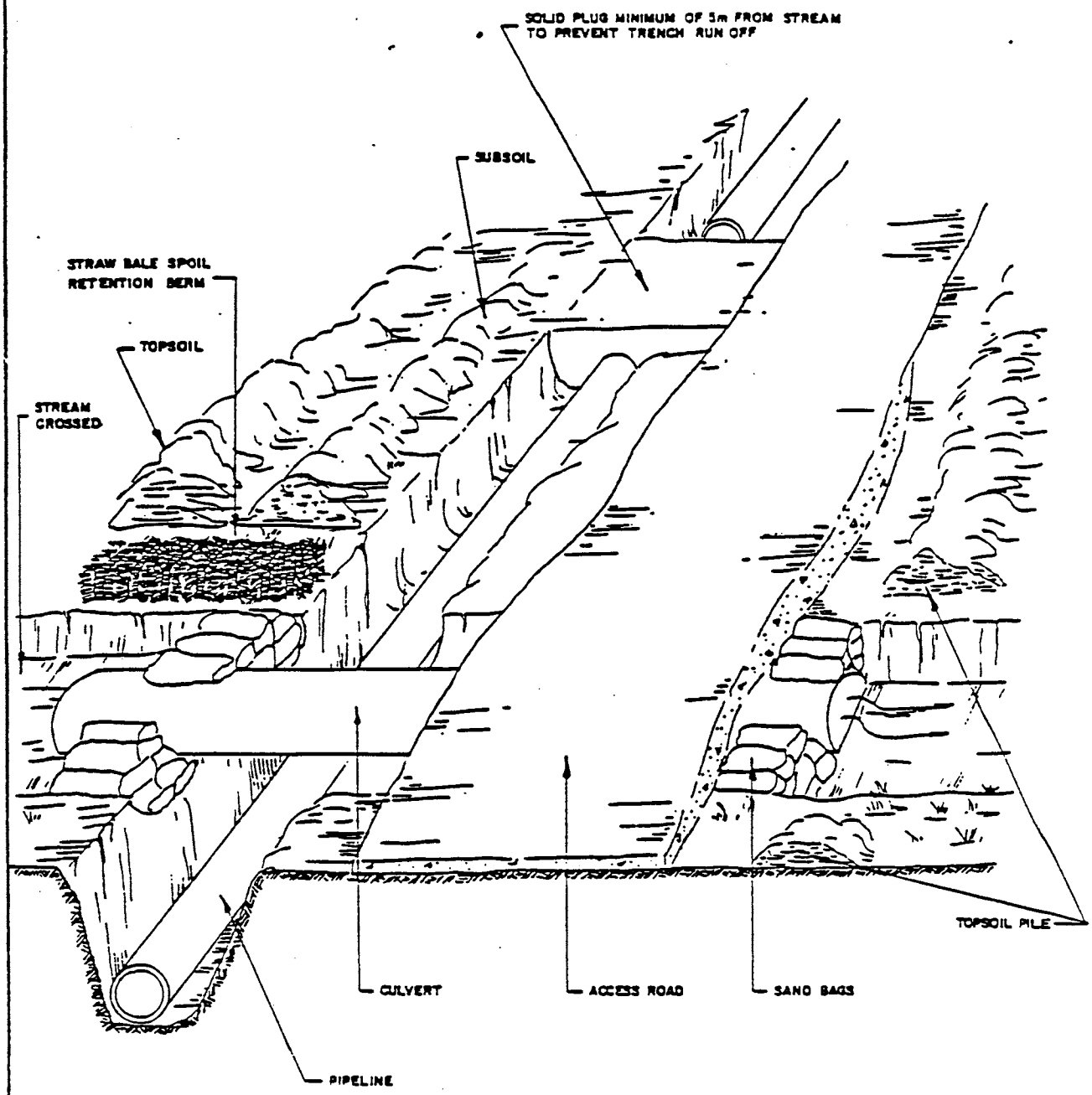
**UNION GAS LIMITED**

CHATHAM ONTARIO

CROSSING TECHNIQUES FOR SMALL CREEKS

| | | | |
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| DRAWN BY I.M. | | | SCALE N.T.S. |
| CHECKED BY | | | DATE 1981-09-21 |
| APPROVED BY | | | DRAWING No. S-806 |
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3353




## REVISIONS

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**UNION GAS LIMITED**

CHATHAM ONTARIO

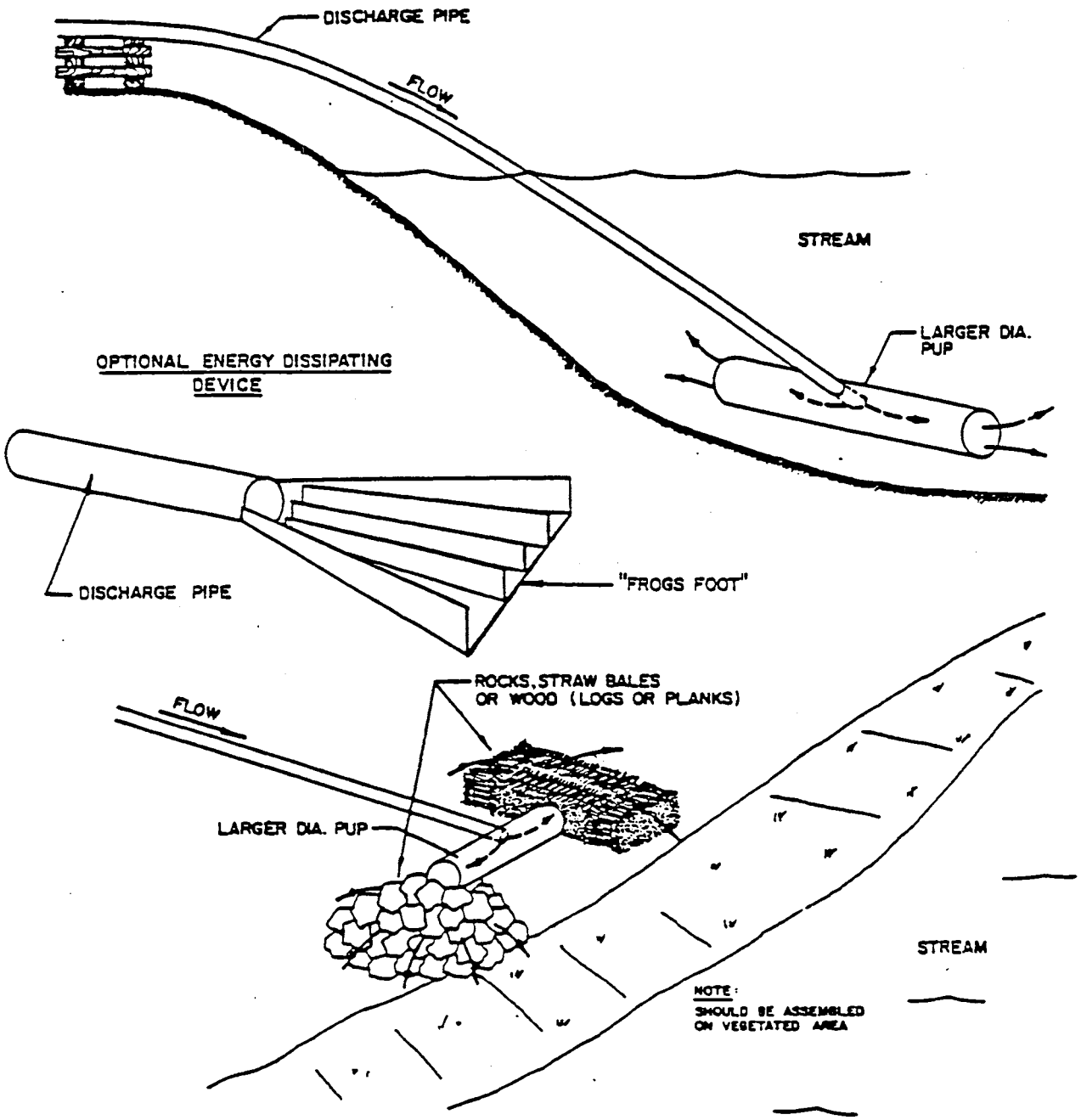
# STREAM FLUME

DRAWN BY L.J. ROES
CHECKED BY
APPROVED BY

SCALE NOT TO SCALE
DATE 1985-05-03

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| A | | 1 OF 1 |

DRAWING No. S-807




| REVISIONS | | | | |
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| NO. | DATE | BY | APP'D. | REMARKS |
| 1. | 85/05/08 | L.D.R. | | ADDED "FROGS FOOT" |

UNION GAS LIMITED
CHATHAM ONTARIO

TYPICAL HYDROSTATIC TEST WATER DISCHARGE

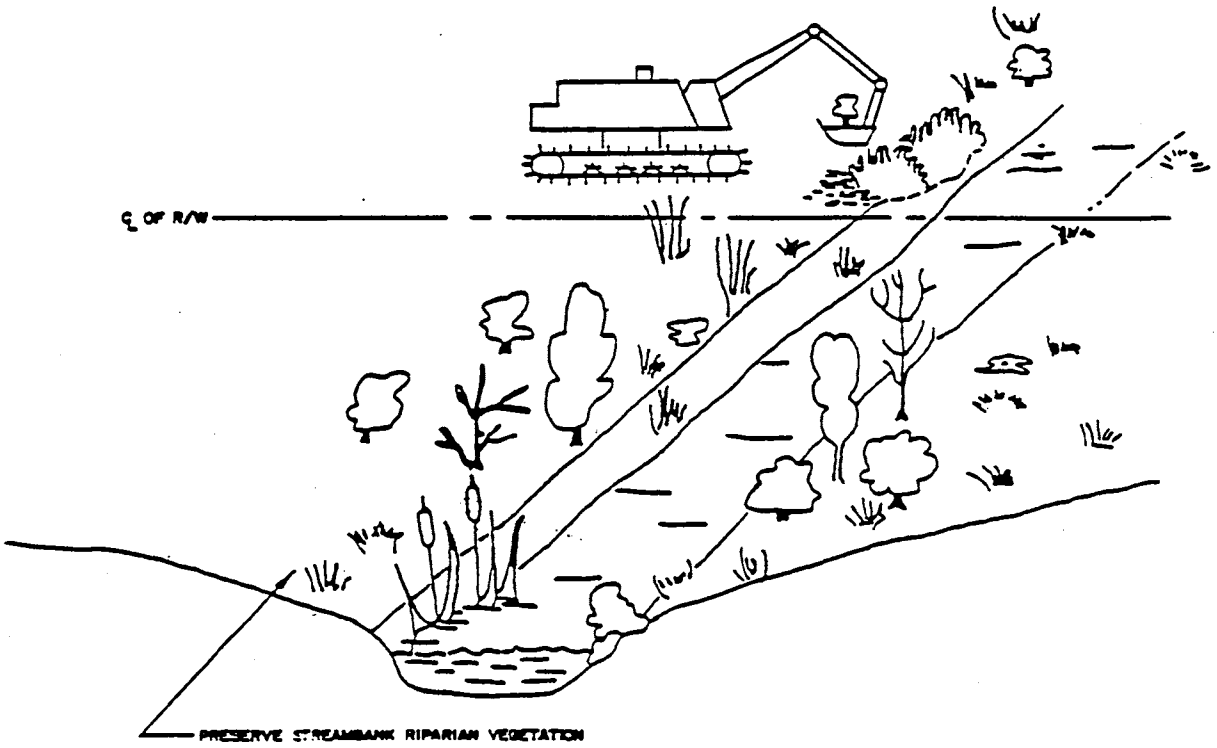
DRAWN BY
CHECKED BY
APPROVED BY

SCALE N.T.S.
DATE 81-10-01

| SIZE | DRAWER | SHEET |
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DRAWING NO. S-809

DIG AND STOCKPILE SHRUBS FOR TRANSPLANTING ALONG STREAM BANKS




| REVISIONS | | | | |
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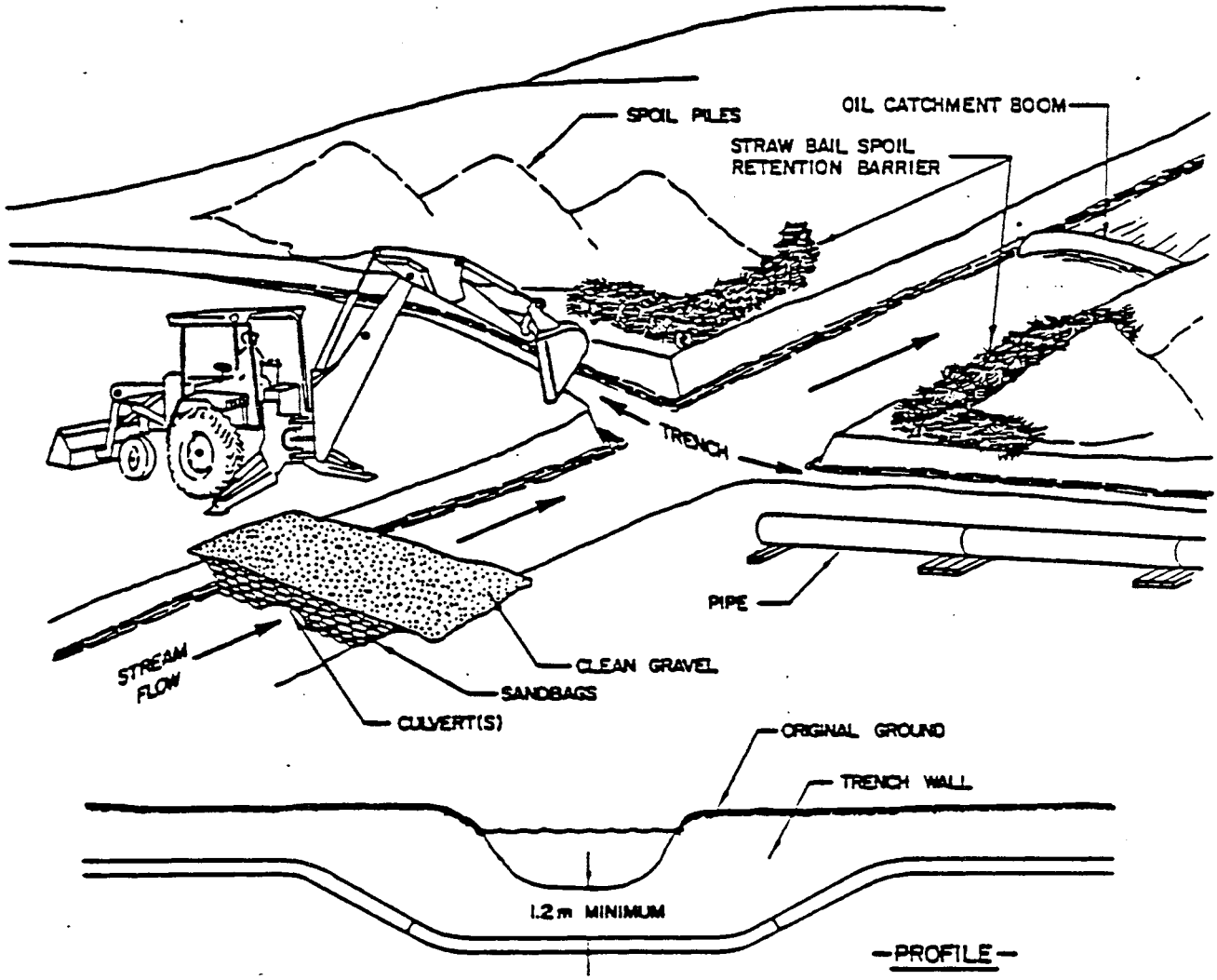
**UNION GAS LIMITED**

CHATHAM ONTARIO

# RIPARIAN VEGETATION

| | | | |
|---|---|---|---|
| DRAWN BY | M. | SCALE | N.T.S. |
| CHECKED BY | | DATE | 1981-09-22 |
| APPROVED BY | | | |
| SIZE A | DRAWER | SHEET 1 OF 1 | DRAWING NO. S-813 |

FORM 377A




NOTES TO THE CONTRACTOR

1. Pipe should be strung, welded and coated ready for installation prior to the stream trenching.

2. Trenching will be completed by backhoe from one or both sides of the creek. Equipment shall not enter the stream unnecessarily at any time and all occurrences should be minimized (a gravel roadway would be required for frequent crossings).
3. Spoil from the trench shall be placed at a suitable distance away from the creek or contained so as to not run back into the creek.
4. Backfilling shall be commenced as soon after the pipe installation as it can safely by undertaken. Banks then stream bed shall be backfilled initially. If material taken from banks and creek bed is found unsuitable for backfill, clean gravel will be used.
5. Stabilize and restore stream banks.

| REVISIONS | | | | |
|---|---|---|---|---|
| NO. | DATE | BY | APP'D. | REMARKS |
| 1. | 85/05/08 | L.D.R. | | GENERAL UPDATE |

UNION GAS LIMITED
CHATHAM ONTARIO

WET CREEK CROSSING

DRAWN BY JOHN HARRIS
CHECKED BY
APPROVED BY
SCALE NOT TO SCALE
DATE 82-02-8
SIZE A | DRAWER | SHEET 1 OF 1
DRAWING NO. S-814

# Appendix D

# Guidelines for Development in the Vicinity of Existing and Proposed Natural Gas Pipeline Facilities

# GUIDELINES FOR NATURAL GAS UTILITIES LOCATING NEW PIPELINE FACILITIES

FSB Guidelines
August 1990

# I PIPELINES

## CRITERIA

The following guidelines pertain to all segments of gas pipelines designed with a maximum allowable operating pressure (MAOP) above 40% SMYS.

## DEFINITIONS

Category II means a pipe with requirements for proven pipe body notch toughness in the form of energy absorption and fracture appearance.

MAOP means Maximum Allowable Operating Pressure which is the maximum operating pressure to which a pipeline system may be qualified in accordance with the requirements of the Canadian Standards Association CAN/CSA-Z184 Gas Pipeline Systems standard.

Notch touchness means the resistance of the steel to fracture under suddenly applied loads at a notch.

SMYS means Specified Minimum Yield Strength which is the minimum yield strength prescribed by the specification or standard under which the pipe material is purchased.

Yield strength means the stress at which a material exhibits the specified limiting offset or produces a specified total elongation under load, in a tensile test as specified in the specification or standard under which the material is purchased.

A

MINIMUM SETBACKS

Pipelines should be aligned to provide a minimum setback of 20 metres from the centreline to any buildings intended for human occupancy. Additionally, a 200 metre setback should be maintained from the centreline of pipe to hospitals, nursing homes, penal institutions, and institutions for the physically and mentally handicapped. Where these distances are not reasonably attainable, the following measures must be implemented to reduce the minimum respective setbacks to 5 metres and 90 metres.

1. The use of Category II pipe with proven notch touchness characteristics as specified by CSA-Z184-M86.

2. Minimum cover of at least 1.5 metres over the pipeline.

In instances where 1.5 metres of cover is not practicable, concrete slabs placed over the pipeline may be used as an alternate means to reduce the setbacks.

II COMPRESSOR STATIONS

Compressor stations should be situated to provide 100 metres from the property limit to any residential development.

# GUIDELINES FOR DEVELOPMENT IN THE VICINITY OF NATURAL GAS PIPELINE FACILITIES

FSB Guidelines
August 1990

# I PIPELINES

## CRITERIA

The following guidelines pertain to all gas pipelines with a maximum allowable operating pressure (MAOP) greater than 1900 kPa.

## DEFINITIONS

Pipeline operator means the individual, partnership, corporation, public agency, or other entity that operates the pipeline system.

SMYS means Specified Minimum Yield Strength which is the minimum yield strength prescribed by the specification or standard under which the pipe material is purchased.

Yield strength means the stress at which a material exhibits the specified limiting offset or produces a specified total elongation under load, in a tensile test as specified in the specification or standard under which the material is purchased.

## USE OF EASEMENT

For pipelines located on easement, the entire width must be kept clear of all structures. The easement may be incorporated into subdivision plans as green space, walkways, or bicycle paths and should not be incorporated into individual lots. With prior approval of the pipeline operator, certain other uses such as light weight vehicles parking lots or temporary storage areas may be acceptable provided that the goods or materials may be moved quickly in case of an emergency. The piling up of garbage, dirt or industrial waste shall not be permitted at any time.

Both limits of the easement must be easily identified with fencing or equivalent to prevent gradual encroachment by adjacent landowners. Suitable barriers should be installed at all road accesses to prevent unauthorized motor vehicles from entering. The actual pipeline location must be clearly identified with pipeline markers.

MINIMUM SETBACKS

For gas pipelines operating under 40% of SMYS no additional setbacks are required beyond the limits of the easement.

For gas pipelines operating over 40% SMYS, a minimum setback of 20 metres should be maintained from the centreline of pipe to any building intended for human occupancy. Similarly, a minimum setback of 200 metres should be maintained from the centreline of these pipelines to hospitals, nursing homes, penal institutions, and institutions for the physically and mentally handicapped.

The degree of setback can be reduced depending on the design/installation features of the specific pipeline being encroached upon. The affected pipeline operator must be contacted to ascertain if the pipeline qualified for a reduced setback.

II COMPRESSOR STATIONS

As a general guideline, residential developments should not be allowed within 100 metres of a compressor station property.

# Appendix E

# Landowner Questionnaire Form

**Acres International Limited**
**5259 Dorchester Road**
**Niagara Falls, Ontario, L2E 6W1**

# Hamilton Take-Off to Milton Tie-In
# Proposed 48 NPS Pipeline

## Landowner Survey

Date _____

Name _____

Address _____

_____

Township _____

Lot _____

Concession _____

Telephone _____

Are you the Owner ___ Tenant ___ of this property?

Please provide owner/tenant

Name _____

Address _____

Phone No. _____

**Reference No. _____**

## Landowner Survey UGL-Hamilton to Milton P9243

### A Biophysical Impact Assessment Reference No. _____

1 What is the total acreage of your property _____

Do you farm the land Yes ___ No ___

Number of acres farmed _____

2 Water wells (locate on air photo) Type _____ Depth _____

Operational _____ Use: domestic/livestock _____

Approximate distance from proposed pipeline _____

Water quality/quantity _____

3 Municipal water supply: Yes ___ No ___

Septic Tanks: Yes ___ No ___

Location _____

4 Buried utility lines: Yes ___ No ___

Type: _____

5 Tile drainage (locate on air photo) Yes ___ No ___

Do you intend to put in tile drainage in the next year?

Specify _____

6 Irrigation Yes ___ No ___

Any future plans _____

Source irrigation water _____

7 Streams/ponds on property Yes ___ No ___

Municipal drains Yes ___ No ___

Stream/drain flow in summer Fast flowing ___ Slow ___

Intermittent ___ Dried up___

8 Fisheries: any fish in stream Yes ___ No ___

Spawning areas Yes ___ No ___

Fishing Activities Yes ___ No ___

Fish species _____

9 Cultural/historical features (including archaeological finds) _____

_____

Grants permission if required for archaeological survey Yes ___ No ___

10 Woodlots on property Yes ___ No ___

Specify _____

_____

_____

11 Any woodlot mgmt plans Yes ___ No ___ Specify _____

Any specimen trees that extremely sensitive _____

12 Rare plants/wildlife Yes ___ No ___ Specify _____

13 Soil type

Sand___ Sandy loam___ Loam ___

Clay Loam ___ Clay ___

Problems

Compaction ___ Stoniness ___ Erosion ___ Wet spots ___

Specify _____

14 What is the main activity on your land Farming ___Nonfarming ___

Cash cropping _____ Dairy farming _____

Horse farm _____ Feeder operation _____

Other _____

15 What is the land use (include all uses)

Pasture ___ Spring grains ___ Soyabeans ___

Corn ___ Winter wheat ___ Woodlots ___ Other _____

16 Do you have other UGL pipelines on your property? Yes ___ No ___

Were you living at your present residence before the pipelines were constructed?

Before first pipeline Yes ___ No ___ Don't know ___

Before 2nd pipeline Yes ___ No ___ Don't know ___

17 Have your cropping patterns or farming practices changed as a result of these pipelines?

_____

18 Are there any buildings within 100 m of ROW _____

Are there any buildings within 100-300 m of ROW _____

Are there any residences within 200 m of ROW _____

19 Have you experienced any limitations on the construction or use of farm buildings specifically because there are gas pipelines on your property?

_____

20 Do you have any plans to make improvements or change how you use your home or property in the next year (e.g., build a new barn, add an addition to your house, landscaping etc, land severance).

Yes ___ No ___

If yes, what are your plans? _____

_____

21 Would the proposed pipeline affect these plans in any way?

Yes ___ No ___ Don't know ___

If yes, in what way(s) _____

22 Do you have any routing preferences across your property_____

_____

23 Access requirements during construction for farm equipment/livestock _____

_____

24 Potential access routes to the easement _____

_____

## B Socioeconomic Characteristics Reference No _____

1 How many years have you lived at your current residence?

Less than 1 year ___ 1 - 5 years ___

6 - 10 years ___ 11 - 20 years ___

Greater than 20 years ___

2 How long have you lived in this area?[1]

Less than 1 year ___ 1 - 5 years ___

6 - 10 years ___ 11 - 20 years ___

Greater than 20 years ___

3 Was your property owned by another family member (including in-laws) before you moved there?

Yes ___ No ___

If yes, how many years has your property been owned by members of your family?

Years ___ Generations ___

4 How many people live in your household? _____

To which age group does each member belong?

| | Age group (years) 0-9 | 10-20 | 21-40 | 41-64 | 65+ |
|---|---|---|---|---|---|
| Person A (respondent) | ___ | ___ | ___ | ___ | ___ |
| Person B (other adult member) | ___ | ___ | ___ | ___ | ___ |
| Other members of recipient's household | | | | | |
| Person C | ___ | ___ | ___ | ___ | ___ |
| Person D | ___ | ___ | ___ | ___ | ___ |
| Person E | ___ | ___ | ___ | ___ | ___ |
| Person F | ___ | ___ | ___ | ___ | ___ |

| | Occupation |
|---|---|
| Person A (respondent) | _____ |
| Person B (other adult member) | _____ |
| Person C | _____ |
| Person D | _____ |
| Person E | _____ |
| Person F | _____ |

[1]Area refers to the study corridor or close rural proximity.

5 If you already have a pipeline on your property, do you think the new pipeline will have the same effect as the other pipeline or will it be different?

Yes ___ No ___ Don't know ___

Specify _____

_____

_____

6 Do you see any major changes in the uses of your property in the future?

Yes ___ No ___ Specify _____

_____

_____

_____

7 Are there any suggestions you have that would lessen the impact of pipeline construction across your property?

Yes ___ No ___ Specify _____

_____

_____

_____

_____

## Landowner Survey - Exit Question

Do you have any other concerns about the pipeline? Yes ___ No ___

# Appendix F

## Public Meeting Data
## April 30, 1990
## January 8, 1991

April 30, 1990

ACRES

April 3, 1990
P9243.00

# Draft Letter to Agencies

Dear

**Hamilton Take-Off to Milton Tie In**
**NPS 48 Gas Pipeline-Route Selection and**
**Environmental Assessment**

Acres International Limited (Acres) have been retained by Union Gas Limited (UGL) to prepare a route selection and environmental assessment for a natural gas pipeline between Hamilton and Milton.

We are proposing to hold a public meeting at the Carlisle Memorial Hall, Carlisle Road on Monday April 30, 1990, at 7:30 p.m. Acres is interested in determining any local concerns so that they may be incorporated in the route selection process. We would welcome your presence at the meeting if you wish to attend.

Yours sincerely,

CM:imci

Gordon S. Davies, Ph.D.
Project Manager

ACRES INTERNATIONAL LIMITED
5259 Dorchester Road, P.O. Box 1001, Niagara Falls, Ontario, Canada L2E 6W1
Telephone 416-374-5200 Telex 061-5107 Facsimile 416-374-1157
Vancouver, Calgary, Winnipeg, Toronto, Burlington, Halifax, Sydney, St. John's

Ontario Ministry of Agriculture and Food
Foodland Preservation Branch
1110 Steller Drive, Unit 102
Newmarket, Ontario
L3Y 7B9
**Attention:** Heather Gariepy
District Manager
Central and Southwestern Ontario

Ministry of the Environment
West Central Region
P.O. Box 2112
119 King Street West, 12th Floor
Hamilton, Ontario
L8N 3Z9
**Attention:** Mr. S. M. Irwin, Chief
Water Resources Assessment

City of Burlington
P.O. Box 5013
426 Brant Street
Burlington, Ontario
L7R 3Z6
**Attention:** Mr. Goodman

Regional Municipality of Halton
P.O. Box 700
1151 Bronte Road
Oakville, Ontario
L6V 6E1
**Attention:** Ms. S. McInnes

Niagara Escarpment Commission
232 Guelph Street
Georgetown, Ontario
L7G 4B1
**Attention:** Mr. C. Louis

Township of Flamborough
P.O. Box 50
163 Dundas Street East
Highway 5
Waterdown, Ontario
L0R 2H0
**Attention:** Mr. E. Murphy

The Halton Region Conservation Authority
P.O. Box 1097
Station B
Burlington, Ontario
L7P 3S9
**Attention:** Mr. John Hall

Regional Municipality of Hamilton-Wentworth
Planning and Development Department
119 King St, P.O. Box 910
Hamilton, Ontario
L8N 3V9
**Attention:** Mr. W.. Pearce
Head, Plans Administration Division

Town of Milton
P.O. Box 1005
251 Main Street East
Milton, Ontario
L9T 4B5
**Attention:** Mr. R. J. Zsadanyi

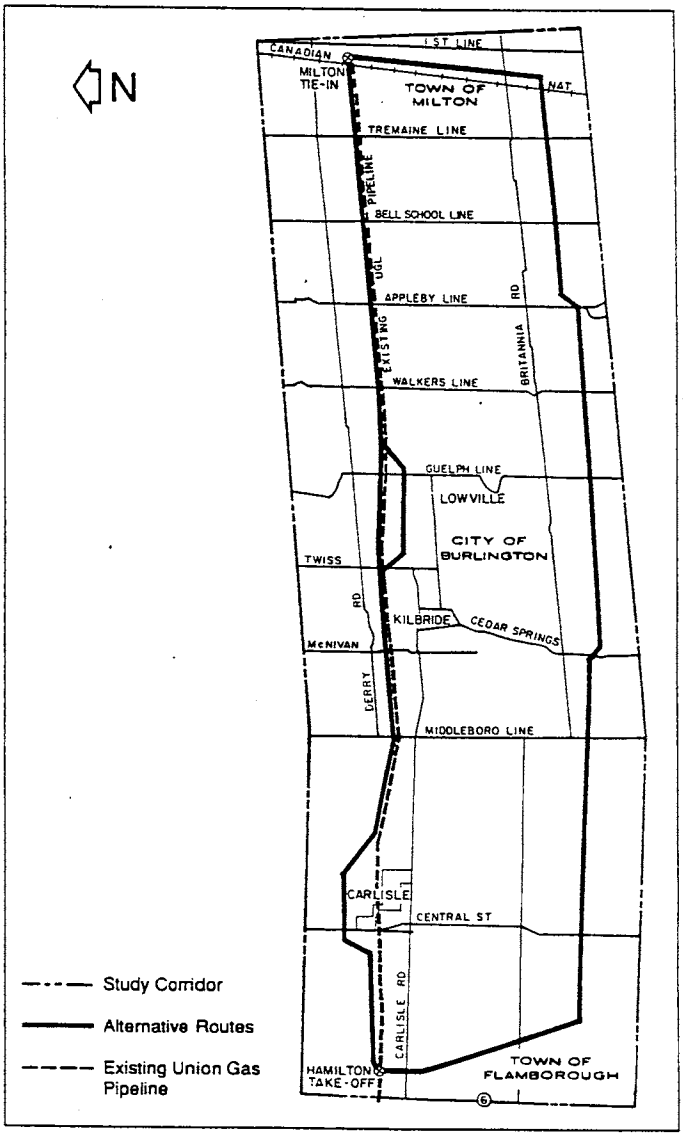
Ministry of Natural Resources
P.O. Box 2186
Beaverdale Road
Cambridge, Ontario
N3G 2W1
**Attention:** District Manager

# Notice of Public Meeting

Acres International Limited has been retained by Union Gas Limited to prepare a route selection and environmental assessment for Union's proposed Hamilton Take-Off to Milton Tie-In gas pipeline. This study is just underway and in order to incorporate any local concerns into their route selection process, Acres International Limited is holding a

**Public Meeting**
**Monday April 30, 1990 7:30 p.m.**
**Carlisle Memorial Hall**

A presentation explaining the project is to be given followed by a disscussion period. Anyone interested in the proposed pipeline is welcome to attend.




The above map shows Union's existing pipeline, the study corridor and route alternatives being considered.

---

Please direct any inquiries to
**Gordon S. Davies**
Project Manager
Acres International Limited
5259 Dorchester Road, Niagara Falls, Ontario
L2E 6W1
416-374-5200 (Call Collect)

Copy of Advertisement put in
Hamilton Spectator April 21st, 1990
Flamborough News April 25th, 1990
Flamborough Review April 25th, 1990
Milton Champion April 27th, 1990

ACRES

# EXIT QUESTIONNAIRE

Union Gas Limited

Proposed Hamilton to Milton Gas Pipeline

**Name** _____ **Phone No.** _____

**Address** _____

**(Personal information is optional but would be useful to be able to keep you informed of the project.)**

1. **What are your major concerns regarding the proposed pipeline?**

_____

_____

_____

_____

_____

2. **Do you have any specific concerns related to the proposed alternative routes?**

Alternative I

_____

_____

_____

_____

Alternative II

_____

_____

_____

_____

3. **Can you suggest alterations to the routing alternatives that would improve them?** _____

_____

_____

_____

_____

4. Are you an affected landowner ☐ Interested citizen ☐ Government Official ☐
Member of Nongovernment Organization ☐ Other (specify) _____

5. **Did you find this meeting very useful** ☐ ☐ ☐ ☐ **not at all useful?**

6. **How did you hear about this meeting?**

Hamilton Spectator ☐ Community Newspaper ☐ UGL letter ☐ Notice Board ☐
Word of Mouth ☐

7. **How would you like to hear about future meetings?**

Hamilton Spectator ☐ Community Newspaper ☐ UGL letter ☐ Notice Board ☐

8. **If you have additional comments please use reverse side.**

---

**Thank you for your cooperation** April 30, 1990

January 8, 1991

December 20, 1990
P09243.00

# Draft Letter to Agencies

**Attention:**

Dear :

We are pleased to send you a copy of our draft final report entitled "NPS 48 Hamilton - Milton Pipeline Route Selection and Environmental Assessment". As you know we have prepared this report for Union Gas Limited who will include it in their application to the Ontario Energy Board for approval to construct the proposed pipeline.

We would be grateful if you would take the time necessary to review this document and pass on to us your comments regarding its contents before January 8, 1991.

You are also invited a public meting which will be held at the Carlisle Memorial Hall at 7:00 p.m. on January 8, 1991.

Please note that this is a draft final report so there is still time to amend it should we have overlooked significant information which could contribute to our better understanding of this proposal. Union Gas will also send you a copy of the final report and this will allow you a further opportunity to assess whether or not your concerns have been met.

If you have any questions please give me a call (collect) at (416) 374 5200 extension 5257 or Cate Mee at extension 5361.

I look forward to hearing from you soon.

Yours sincerely,

GSD:imci

Encl

Gordon S. Davies, Ph.D.
Project Manager

December 4, 1990
P09243.00

# Draft letter to Landowners

Dear

We are pleased to send you a copy of our draft final report entitled "NPS 48 Hamilton - Milton Pipeline Route Selection and Environmental Assessment". As you know we have prepared this report for Union Gas Limited who will include it in their application to the Ontario Energy Board for a Leave to Construct permit.

We would be grateful if you would take the time necessary to review this document and pass on to us your criticisms and/or concerns regarding its contents before December 30, 1990./ You may be particularly interested in Section 4.2.3.6 Landowner Concerns and the proposed mitigation measures that have been proposed to alleviate them.

You may discuss your concerns with us by one or all of the following methods.

- attending a public meeting which will be held at 7:00 p.m., Tuesday January 8, 1991, in the Carlisle Memorial Hall

**Agenda**

| | |
|---|---|
| 7:30 p.m. | Formal Presentation |
| 8:00 p.m. | Presentation of report by Acres |
| 8:15 p.m. | Discussion of report (question/answer period) |
| 8:30 p.m. | Discussion of others for NPS 48 Hamilton-Milton Pipeline with Union Gas |

- telephoning me (collect) directly at (416) 374 5200 (extension 5257)
- writing to me at the address on the bottom of this letterhead.

Please note that this is a draft final report so there is still time to amend it should we have overlooked significant information which could contribute to our better understanding of this proposal.

I look forward to hearing from you soon.

Yours sincerely,

GSD:imci

Encl

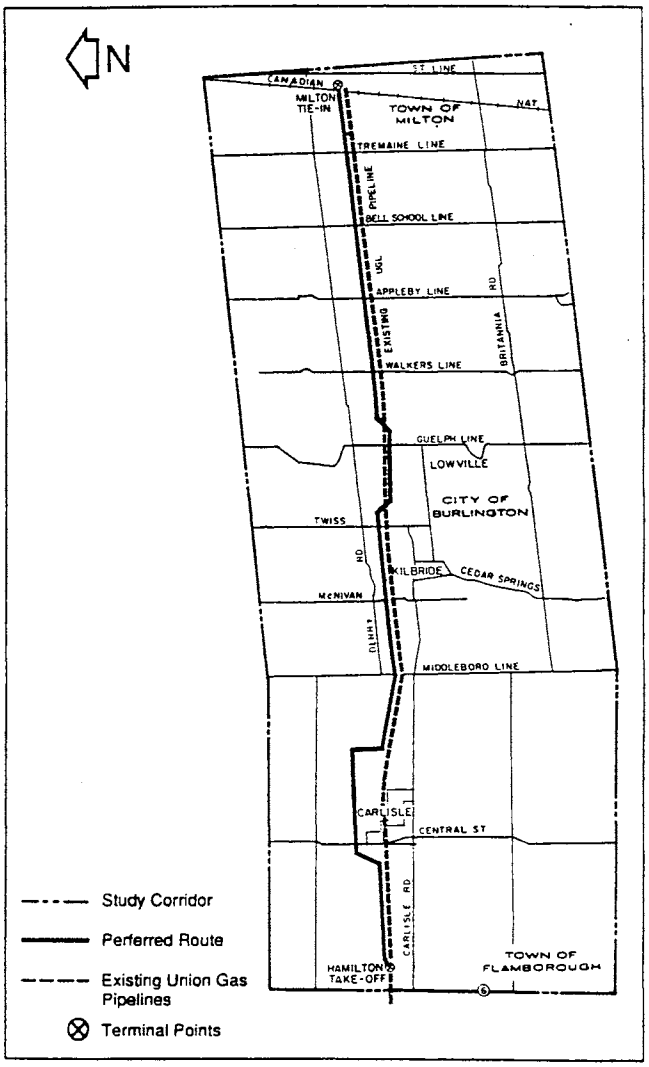
Gordon S. Davies, Ph.D.
Project Manager

# Notice of Public Meeting

Acres International Limited has been retained by Union Gas Limited to prepare a Route Selection and Environmental Assessment report for Union's proposed 48 inch (1219mm) outside diameter natural gas pipeline. The draft report has been completed and a preferred alignment has been identified. In order to provide an opportunity for the public to review details of the report and comment on the alignment, Acres International Limited is holding a

**Public Meeting**
**Tuesday January 8, 1991, 7:00 p.m.**
**Carlisle Memorial Hall**

A presentation explaining the project is to be given at 7:30 p.m. followed by a discussion period. Anyone having an interest, or wishing to discuss issues related to the proposed pipeline, is welcome to attend. Union Gas representatives will also be present to answer questions regarding the proposed pipeline.




Please direct any inquiries to
**Gordon S. Davies** Project Manager
or
**Cathleen E. Mee** Project Coordinator

**Acres International Limited**
5259 Dorchester Road, Niagara Falls, Ontario L2E 6W1
416-374-5200 (Call Collect)

Copy of Advertisement put in
Flamborough News January 2, 1991
Flamborough Review January 2, 1991
Milton Champion January 4, 1991

# Public Meeting

## Union Gas Limited
## Hamilton - Milton NPS 48 Pipeline
## Route Selection and Environmental Assessment

### Agenda

1 **Introduction** . . . . . **Acres**

2 **Study approach** . . . . . **Acres**

3 **Route selection** . . . . . **Acres**

4 **Environmental issues and solutions** . . . . . **Acres**



6 Do you agree with the process by which the preferred route was chosen? If no, what modifications or improvements would you suggest?

_____

_____

_____

7 Do you agree with the choice of the preferred route? If no, what modifications would you suggest and why?

_____

_____

_____

8 (a) Have you any specific concerns regarding how the project may affect you or your family?

_____

_____

# Appendix G

# Route Selection Analysis

# Draft Letter to Agencies

June 29, 1990
P9243.00

Agency
Street
City, Prov
PC

**Attention:**

Dear:

**Proposed NPS 48**
**Hamilton to Milton**
**Routing and Environmental Study**

Acres International Limited has been retained by Union Gas Limited to undertake a Route Selection and Environmental Assessment study for the above proposed pipeline. You may recall our correspondence in late '89 or early '90 regarding this study.

Presently we have selected a preferred route for the proposed pipeline from two potential alternatives. The preferred route is based on environmental constraints identified during our information gathering. The rationale for selecting the preferred route is given in the attached write up which has been extracted from our EA document.

We would like you to review the alternative routes and our selection process and respond if you have any concerns or conflicts with the preferred route and our evaluation. For the route selection process, the information has been gathered at the 1:50 000 scale in accordance with the OEB guidelines (1989); the detailed evaluation of the preferred alignment is now underway at the 1:10 000 scale.

This information is provided to you so that any issues can be addressed now and resolved prior to completion of the EA document. If we do not receive a reply from you by telephone or by mail by August 20, we will assume that you have no further comments or concerns at this time.

If you have any questions please do not hesitate to phone Cate Mee or me at (416) 374 5200.

Yours sincerely,

CM:imci
Attach

G. S. Davies, Ph.D.
Project Manager

List of Agencies sent letter.

Ontario Ministry of Agriculture and Food
Foodland Preservation Branch
1110 Steller Drive, Unit 102
Newmarket, Ontario
L3Y 7B9
**Attention:** Heather Gariepy
District Manager
Central and Southwestern Ontario

Ministry of the Environment
West Central Region
P.O. Box 2112
119 King Street West, 12th Floor
Hamilton, Ontario
L8N 3Z9
**Attention:** Mr. S. M. Irwin, Chief
Water Resources Assessment

City of Burlington
P.O. Box 5013
426 Brant Street
Burlington, Ontario
L7R 3Z6
**Attention:** Mr. Goodman

Regional Municipality of Halton
P.O. Box 700
1151 Bronte Road
Oakville, Ontario
L6V 6E1
**Attention:** Ms. S. McInnes

Niagara Escarpment Commission
232 Guelph Street
Georgetown, Ontario
L7G 4B1
**Attention:** Mr. C. Louis

Township of Flamborough
P.O. Box 50
163 Dundas Street East
Highway 5
Waterdown, Ontario
L0R 2H0
**Attention:** Mr. E. Murphy

The Halton Region Conservation Authority
P.O. Box 1097
Station B
Burlington, Ontario
L7P 3S9
**Attention:** Mr. John Hall

Regional Municipality of Hamilton-Wentworth
Planning and Development Department
119 King St, P.O. Box 910
Hamilton, Ontario
L8N 3V9
**Attention:** Mr. W.. Pearce
Head, Plans Administration Division

Town of Milton
P.O. Box 1005
251 Main Street East
Milton, Ontario
L9T 4B5
**Attention:** Mr. R. J. Zsadanyi

Ministry of Natural Resources
P.O. Box 2186
Beaverdale Road
Cambridge, Ontario
N3G 2W1
**Attention:** District Manager

# Route Selection

Acres, in consultation with Union Gas Limited (UGL), set out to choose a pipeline route location from the Hamilton Valve Site (Lot 12, Concession IX, Town of Flamborough) to the Milton Tie-In (Lot 10, Concession I, Town of Milton). The process for this selection followed OEB guidelines as described in its 1989 "Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario".

The process started with the delineation of the study area which was defined by

- the location of the terminal points (Hamilton Valve Site and Milton Tie-In)
- sufficient area within which to consider a range of alternative routings without unduly lengthening the pipeline
- the paralleling of roadways for ease of definition.

Within this study area data was gathered for the natural and social environment at the 1:50 000 scale in accordance with the OEB guidelines (1989) .

Once this data was gathered a practical number of alternatives were defined such that

- preference should be given to locating the pipeline within an established utility corridor or adjacent to a transportation corridor
- minimizing distance through difficult terrain, e.g., steep slopes, bedrock, unstable soil conditions, streams, ponds, etc
- minimizing distance through mineral resource areas
- minimize distance through environmentally sensitive areas, conservation areas and spawning areas
- pipeline route should be compatible with existing municipal and provincial zoning bylaws
- avoid residential areas
- minimize distance through agricultural lands (particularly specialized areas like nurseries, poultry farms and orchards)
- minimize distance through wetlands
- forested lands (hedgerows and woodlots) should be avoided where possible.

Figures 2.1 to 2.6 show this mapped data.

In light of the criteria described above only two viable route alternatives options could be generated. It was difficult to find other route alternatives due to (a) the short length of the route and (b) the constricting nature of the landscape. The natural gap in the escarpment between Mount Nemo and Rattlesnake Point limited the north/south latitude available. The deeply incised Bronte Creek ESA in

the center of the study area also presented a considerable constraint. Location of sand and gravel pits and the expansion of settlements areas around the older rural communities also provided routing difficulties.

The two options are as follows.

**Alternative 1**
This alternative follows the existing UGL gas pipelines except through Carlisle. The Carlisle residential area has expanded considerably since the construction of the last pipeline in the early seventies. The existing pipelines are located along a residential street (Acredale Street) which prevents construction of a new line in this area. As such, it was necessary to avoid Carlisle, and to look for a routing either north or south of the village. A northern route was selected as a southern route would have been considerably longer and crossed through Bronte Creek ESA.

**Alternative 2**
This alternative was initiated by following the Sun Oil Pipeline which runs parallel and south of Britannia Road in the southeast section of the study corridor. This pipeline veers south just to the west of Mount Nemo and from this point west a new utility easement would have to be obtained. It is proposed that this alternative route would go directly west continuing parallel to Britannia Road and then parallel to the 7th Concession Road once in the Town of Flamborough. The route would go north to connect with the Hamilton Valve Site paralleling UGL NPS 20 Hamilton pipeline. At the east end of the route, this alternative would join the Milton Tie-In by paralleling the CN Rail tracks and their east side.

A number of criteria were examined with respect to each alternative. These criteria are outlined in the attached table and mapped in Figure 3.1. Alternative 2 is over 4 km longer that Alternative 1. Each alternative has the same number of stream crossings but Alternative 2 cuts through 3 km of natural areas (including Carlisle Swamp {an ESA} and Mount Nemo {an ANSI}) whereas Alternative 1 avoids natural areas. With respect to all criteria,

Alternative 1 was superior except for distances in bedrock, large ponds, private open space, primary bedrock, sand and gravel resource areas and known archaeological sites. The distance not adjacent to an existing utility corridor was five times longer for Alternative 2 than 1.

Alternative 2 crosses more of the Niagara Escarpment Commission (NEC) natural- and protection-zoned lands. Ecological Services for Planning (1989) have carried out a route evaluation study for pipeline routing from the Dawn to Parkway compressor stations. The NEC in responding to that study (May 3, 1990) (see attached) concurred that following the existing pipeline route appeared to be the most favorable from their perspective for the section of route being discussed in this study.

From the above analysis, it would appear the route Alternative 1 will have less effects to the natural and social environment that Alternative 2.

# Summary of Routing Constraints

| Constraints | Alternative 1 | Alternative 2 |
|---|---|---|
| Total length of route (km) | 16.9 | 21.3 |
| Length with bedrock within 1 m of surface (km) | 3 | 2.25 |
| Length in bedrock resource area (km) | 5.4 | 2.9 |
| Length in sand and gravel resource area (km) | 5.3 | 1.6 |
| Length in ANSIs/ESAs (km) | 0 | 3 |
| Length in woodlots (km) | 1.1 | 1.8 |
| Number of agreement forests | 0 | 1 |
| Number of significant stream crossings | 4 | 4 |
| Large ponds | 1 | 0 |
| Length in spawning areas (km) | 0 | .5 |
| Class I-III wetlands crossed | 0 | 0 |
| Class I agricultural land (km) | 6.9 | 13.1 |
| Class II agricultural land (km) | 9.3 | 6.9 |
| Niagara Escarpment Commission (km) | | |
| Natural areas | 0.3 | 3.0 |
| - Protection area | 1.5 | 2.8 |
| - Control area | 9.5 | 8 |
| Buildings within 30 m | 5 | 9 |
| Buildings within 100 m | 31 | 34 |
| Archaeological sites <1 km from route | | |
| - Registerd | 9 | 29 |
| - Unregistered | 29 | 2 |
| - Significant sites | 2 | 1 |

Ontario

Ministry of Agriculture and Food

Ministère de l'Agriculture et de l'Alimentation

Legislative Buildings
Queen's Park
Toronto, Ontario

Hôtel du gouvernement
Queen's Park
Toronto (Ontario)

Land Use Planning Branch

1110 Stellar Drive
Unit 102
Newmarket, Ontario
L3Y 7B7
(416) 895-4519
1-800-263-3241

September 24, 1990

G.S. Davies, Project Manager
Acres International Limited
5259 Dorchester Road
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies,

RE : Proposed NPS 48
Hamilton to Milton
Routing and Environmental Study

Staff of this Ministry have completed a review of the above-noted proposal. Consideration has been given to the matter in terms of the goals and objectives of this Ministry and the criteria and policies contained in the Food Land Guidelines, which is the provincial policy on planning for agriculture.

Based upon a review of the information provided it would appear from an agricultural point of view that alternative 1 is more preferable to alternative 2. As was indicated in our letter of July 10, 1990 our main concern is with respect to construction and rehabilitation of the area used for the pipeline. This concern can be addressed by following Union Gas procedures for construction and rehabilitation as outlined in their manual.

Should you have any questions or wish to discuss this matter further, please contact this office.

Yours truly,

Heather Gariepy

Heather Gariepy
Land Use Specialist

cc: Sharon Johnston, District Manager, OMAF-Toronto
a:pipeline.hg

Ontario, there's no taste like home
Un bon goût de chez nous

FOODLAND ONTARIO

Ministry of Natural Resources
Ministère des Richesses naturelles
Ontario

P. O. Box 2186
605 Beaverdale Road
Cambridge, Ontario
N3C 2W1

September 13, 1990

Acres International Limited
5259 Dorchester Road,
P. O. Box 1001,
Niagara Falls, Ontario
L2E 6W1

Attention: Cate Mee

Dear Ms. Mee:

SUBJECT: Proposed NPS 48
Hamilton to Milton
Routing and Environmental Study

This letter is to confirm discussions with Ted Harvey at this office in response to your letter of July 27, regarding the route selection and analysis process.

The Ministry has no concerns with respect to the criteria used or the two route alternatives defined for the pipeline. We support the concept of locating new lines within established utility corridors where at all possible and as long as significant environmental resources are not affected.

The Ministry has some comments on the constraint analysis relating to the two alternatives. In particular we do not agree that the length of route affecting woodlot areas adequately represents the type of impacts encountered. In many cases the impact of the pipeline occurs not only just within the corridor but on adjacent forest site, by fragmenting valuable areas and altering vegetation. This should be represented in your comparison of the two alternatives.

The second item which we wish to have considered in the analysis of the two alternatives relates to impacts upon wildlife (in woodlots and

...2

hedgerows). This type of assessment should include a comparison of wildlife habitat and the location of known rare and significant species.

When detailed assessment of the preferred route is undertaken we will expect to see:

- assessment of forested areas and wildlife habitat in accordance to the above comments; and

- moving the pipeline route from one side or the other of the corridor, reducing the width of the corridor, and modifying the corridor to avoid or minimize the impact upon environmentally significant areas

I trust this will assist you in finalizing your route assessment and environmental study. Questions concerning these comments should be directed to Ted Harvey at this office.

Sincerely,

Craig E. Selby
A/District Manager
Cambridge District

ETH/ls

Ontario

Niagara Escarpment Commission
Commission de l'escarpement du Niagara

232 Guelph Street
Georgetown, Ontario
L7G 4B1
(416) 877-5191

232, rue Guelph
Georgetown, Ontario
L7G 4B1
(416) 877-5191

September 10, 1990

G. S. Davies, Ph.D.
Project Manager
Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies:

Re: Proposed Union Gas Pipeline
Route Selection and Environmental Assessment Study
Hamilton to Milton

Commission staff have reviewed the information relating to the above Route Selection Study and have the following comments.

It is our understanding that the Hamilton to Milton Route Selection Study is a refinement of the overall study for the area, entitled the "Union Gas Alternate Route Evaluation: Dawn Compressor Station to the Parkway Compressor Station". The purpose of this study is therefore to provide a more detailed analysis for the specific alignment and construction details of the pipeline. This will be used in the preparation of the Routing and Environmental Study which, once completed, will be forwarded to the Commission for review and comment.

Our comments on the site selection issues are as follows:

1. Evaluation of route alternatives cannot be based solely on the "distance crossed" of various environmental and cultural features. The evaluation of the preferred route must also be based on the specific route requirements, such as: what additional easements and disturbed areas are required; the total width of the easement; whether the construction will occur in bedrock, overburden, or sand/gravel deposits; and whether the construction will intercept areas of high groundwater table (as well as whether these are areas of groundwater recharge or discharge). Each of these factors will contribute to determining the specific alignment and construction technique, and hence the possible impacts of the undertaking.

In order for these matters to be addressed, the Environmental Study should include a clear description and illustration of the easement requirements for the various alternatives as well as identify and evaluate the "below grade" features which can be anticipated. Further, the evaluation of alternatives must include a description of construction measures, and means of mitigating impact.

In this regard, we draw your attention to the Development Criteria of the Niagara Escarpment Plan dealing with Transporation and Utilities which directs that blasting, grading and tree removal be kept to a minimum. One of the means of mitigating such impacts is through realignment.

2. In our initial comments (dated December 13, 1990), we advised that only "essential" utilities are permitted in Escarpment Natural Areas. We note that both alternatives traverse Escarpment Natural Areas. It will be necessary for the Route and Environmental Study to specifically address how the preferred alternative is necessary to the public interest, and is the only alternative after all others have been considered.

3. The criteria for evaluating alternative routes should specifically identify the preference for avoiding Escarpment Natural Areas, and failing this, should state an intent to minimize both the distance crossed and impact on these areas.

4. The route selection criteria do not adequately address the issues contained in Part 2-Development Criteria of the Niagara Escarpment Plan.

   As noted in our previous comments, the preferred alternative route, from the Commission's perspective, will be based on that which minimizes impact on the natural and visual Escarpment environment.

   Commission staff consider it necessary for the route evaluation to include the following:

   - evaluation of the visual impact of the alternatives.

   - identification and evaluation of areas of steep slopes.

   - examination of potential impacts on groundwater resources.

- identification of all wooded areas. At present, the map dealing with the Natural Environment shows only "high productivity hardwoods". The evaluation of potential impacts must be based on environmental grounds, and not solely on the basis of whether the woodlot has potential to generate economic benefit.

- identification of all wetland areas. The present evaluation shows only Class 1 and 2 wetlands which are considered provincially significant. In addition, Class 3 wetlands are considered significant in that these areas are also eligable for rebate under the Conservation Land Tax Reduction Program. Notwithstanding this, other wetlands exist in the area which have important local and environmental functions, and form part of the natural Escarpment environment.

  Related to this, Commission staff note that the Alternative 1 alignment proposes to traverse a Class VII wetland, in the area north-west of Kilbride Street and McNiven Road. This is a significant feature in both a local context as well as that of the Niagara Escarpment Plan, which seeks to protect such source areas. The wetland should be identified as a constraint, with a view to avoiding impact on this area.

In summary, Commission staff consider the identification of a preferred alignment to be premature given the number of outstanding issues which need to be considered, as well as the need for a more detailed analysis. We look forward to seeing the above issues dealt with in the upcoming Routing and Environmental Study.

Please contact Deborah Ramsay if you have any questions.

Yours very truly,

Cecil A. Louis
Manager
Plan Administration

cc - M. Lagzdins, City of Burlington Planning Department

HALTON REGION
CONSERVATION AUTHORITY
P.O. Box 1097, Station B, 2596 Britannia Road, West
Burlington, Ontario L7P 3S9
(416) 336-1158 (416) 847-7430
Fax: (416) 336-7014

Mr. Gordon S. Davies
Acres International
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

September 10, 1990

Re.: Proposed NPS - 48 Gas Pipeline
Hamilton to Milton
File: Milton - Fill and Flood

Dear Sir:

This letter is further to your request for preliminary comments on the proposed alignment of the Union Gas NPS-48 natural gas pipeline. The proposed alignment will extend from Highway Six in the Town of Flamborough to First Line in the Town of Milton. The proposed gas pipeline will extend through the Grindstone Creek and Bronte Creek watersheds.

Authority staff have prepared a map outlining the lands regulated by the Conservation Authority within the study area. Regulation 253/89 requires that a permit be obtained from the HRCA prior to placing fill of any kind within a scheduled area; altering or diverting an existing watercourse; and, constructing a building or structure within an area subject to flooding under Regional Storm conditions.

Staff have reviewed the alternative alignments with respect to the areas regulated by the Authority under Regulation 253/89, Environmentally Sensitive Areas (ESA's), and Areas of Natural and Scientific Importance (ANSI's). Based on our preliminary review, Authority staff prefer alignment number 1 as it will involve fewer crossings of areas regulated by the Authority under Regulation 253/89. As discussed above a permit from this Authority will be required prior to any construction within a regulated area. A copy of Regulation 253/89 and a permit application form have been enclosed.

Staff look forward to reviewing a draft copy of the Environmental Assessment Report once it has been prepared and will be pleased to provide further comments at that time.

Once the preferred alignment has been selected staff would be pleased to meet with yourselves on site and examine the regulated

areas which will be crossed by the pipeline. A condition of approval for the construction will require that a clause be provided in the construction contract specifically prohibiting the disposal of any fill material in any river, creek, pond, lake, swamp, wetland, ravine or valley lands without the written consent of the local Conservation Authority, and all other lands without the consent of the local municipality. Furthermore, the following conditions will be required:

1. that the excavation of the trench for the gas main be a minimum of 1.5 metres below the creek beds,

2. that a minimum sizing of 300 mm rip rap stone be placed on the creek beds 0.3 metres upstream and downstream of the pipeline;

3. that the excavation of the trench be accomplished from the banks of the creek rather than the creek bed;

4. that where grassed banks exist, rehabilitation occur with sod pegged in place over 4 inches of top soil extending 5 feet from the bank;

5. that where an unvegetated or eroding bank exists, the bank will be covered with 12 inches of minimum sized 300 mm rip rap backed by a 6 inch filter bed of granular "A". The right-of way back from the top of bank to be sodded and pegged for a minimum of 5 feet.; and

6. that a sediment control structure, such as envirofence, be placed along the limit of construction to ensure that no siltation may enter into a wetland area or a watercourse.

We trust that the above is of assistance. Should you require further information, please do not hesitate to contact Edith B. Tobe, B.Sc., Watershed Technologist, or the undersigned.

Yours truly,

John D. Hall, Manager
Resource Planning.

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Planning and Development Department
119 King Street West, 14th floor
Hamilton, Ontario
Fax (416) 546-4364

Mailing Address:
P.O. Box 910, Hamilton, Ontario
L8N 3V9

August 15, 1990

Refer to File No. 772.2 08
Attention of
Your file No.

G. S. Davies, Ph.D.
Project Manager
Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Sir:

**Proposed NPS 48**
**Hamilton to Milton**

The information attached to your letter dated July 27, 1990, has been reviewed and the following comments are provided:

The criteria used for route selections are acceptable. The selection of Alternative #1 is preferred since it has less negative effects on the natural and social environments than Alternative #2.

If you have any questions please call Steve Miazga at 546-4164.

Yours truly

for Wm. R. Pearce, M.C.I.P.
Head - Plans Administration Division

SM:fd

The Corporation of the
**City of Burlington**

*City Hall:*
426 Brant Street, Burlington, Ontario, Canada
*Mailing Address:*
P.O. Box 5013, Burlington, Ontario, Canada L7R 3Z6

Telephone: 335-7871
Fax No.: 335-7880

September 10, 1990

Mr. Gordon S. Davies, Ph. D.
Manager, Environmental Services
Acres International Limited 5259 Dorchester Road
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies:

Subject: Proposed Gas Pipeline
Hamilton Take Off to Milton Tie In
Routing and Environmental Study

The purpose of this letter is to reiterate my conversation with Cate Mee of your office regarding our outstanding concerns with the proposed Option No. 1 pipeline route. The following issues were identified in my letter dated December 15, 1989 and to date have not been addressed to our satisfaction.

1. The route selection information received from Acres does not reference our concern regarding the impact of development on the Class 7 Wetlands north of Kilbride Street and west of NcNiven Road. The Halton Region Conservation Authority advocates no development in Wetland Areas of any evalution class. Burlington Council in examining the Provincial Wetlands Planning Policy Statement have required that in conjunction with the Burlington Official Plan Review that the Official Plan be amended to support the conservation of wetlands in any evaluation class.

2. The pipeline route alternative preferred by Acres abuts the settlement area of Kilbride. In my previous response to your request for comments, several concerns were expressed with respect to the pipeline construction in this area. Noise, dust and vibration are obvious, temporary impacts of blasting. However, of greater concern is the effect blasting may have on the watertable. As you may be aware, the Kilbride residents do not enjoy municipal water services and must rely on wells. Water shortages have been experienced recently as

a result of residential development in the area. Ms. Mee stated that based on her investigation of the impact of blasting for the previous pipeline construction that there would probably be no watertable problems. With respect, this construction took place almost twenty years ago and may not be a good indicator of a potential impact today. Further investigation is needed prior to our support of blasting in this area.

As an alternative, Ms. Mee has suggested the use of a chemical, which when applied to the bedrock eliminates blasting and permits the rock to be simply lifted out. Again, we have great concern for the potential short and long term impacts of chemical use on the water quality, flora, wildlife and soil, and propose that alternate routing to avoid the need to use chemicals or blast may be the only alternative.

3. Further, there is no mention in your evaluation of the routing constraints for visual impacts within the Niagara Escarpment Planning Area and the Kilbride settlement area. Essential utility facilities are a permitted use in Escarpment designated areas. However, development criteria apply which require that any development permitted should be designed and located in such a manner as to preserve the natural and visual characteristics of the area. While it appears that the additional development along the existing northern route would have significantly less natural and visual impact than a new cut, the issue of assuring visual harmony with the Escarpment landscape for the route preferred route has not been addressed.

We request that these issues be examined and that we are given further opportunity to respond to your findings on these matters prior to completion of the Environmental Assessment document. If I can be any further assistance to you or Ms. Mee please call me at the number noted above.

Yours truly,

Marilyn Lagzdins
Planner - Policy
ZPLAN6/448

c.c Mr. John Hall, Halton Region Conservation Authority
Mrs. Debbie Ramsay, Niagara Escarpment Commission
Mr. Brock Crigger, Region of Halton

163 Dundas St. E. (Hwy. 5)
P.O. Box 50
Waterdown, Ontario
L0R 2H0
Tel. (416) 689-7351
Ham. (416) 524-0322
Tor. (416) 825-2176
Zenith No. 36650
Fax 689-3310

File: 40.69.03

August 14, 1990

Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Attention: G.S. Davies, Ph.D.
Project Manager

Dear Mr. Davies:

Re: Proposed NPS 48
Hamilton to Milton
Routing and Environmental Study

Further to your letter of July 27, 1990, I have the following preliminary comments to offer regarding the Proposed NPS 48 Pipeline from Hamilton to Milton.

Regarding the various schedules that have been attached to your letter, please be advised that I have reviewed same and feel that they are comprehensive and have addressed the basic environmental and land use information that is required to complete your study.

In addition, I have reviewed the two alternative routes that you have proposed and I feel that the first alternative may be more problematic than the second alternative. The reason for this is the fact that Alternative 1 skirts the Settlement Area of Carlisle which is, for the most part, a very growing and progressive community. I have a concern that the pipeline may, at some point, not only create disruption to the existing residents, but create some limitations with respect to growth in that area. These concerns should be addressed and followed up by your company. Alternative 2 provides a route pattern which is, for the most part, agricultural in nature with the exception of a number of environmentally sensitive areas, but it is my opinion that mitigation measures can be taken to alleviate concerns and conflicts with existing farms and environmental sensitivity of these areas. These concerns should also be addressed and forwarded to the Town for review as part of your study.

In closing, I would like to reiterate that these are preliminary comments and formal comments from the Town Council will be forthcoming once the E.A. document is completed and submitted to the Town for review. It is hoped these comments are of assistance to you and if you have any further questions or wish clarification on any points contained in this letter, please feel free to contact this office.

Yours truly,

Guy Paparella

Guy Paparella, M.C.I.P.
Director of Planning

GP:gm

**Minutes of Meeting**
held at Town of Flamborough
Municipal Offices (Planning Department)
Waterdown, Ontario
on Thursday, October 4, 1990

October 13, 1990
P09243.00

**Route Selection for Hamilton-Milton Pipeline through the Town of Flamborough**

**Present**

| | | |
|---|---|---|
| Guy Paparella | ) | Director of Planning and Development Town of Flamborough |
| Gordon S. Davies<br>Cathleen E. Mee | ) | Acres International Limited |
| Tony Vadjla<br>Gerry Mallette | ) | Union Gas Ltd. |

**Purpose**

G. Davies explained the purpose for requesting a meeting with the Town of Flamborough.

After circulating the route alternative analysis, the Town of Flamborough was the only group contacted that had responded in favor of alternative 2. Alternative 1 was Acres preferred route and the meeting with Flamborough was to discuss the Town's concerns and in particular if the Town had any suggestions regarding the possible alternative route locations to the north of Carlisle.

Mr. Paparella said that the Town of Flamborough is developing a growth strategy plan for the Carlisle settlement area but this is ongoing and nothing is finalized. The general indication appears to be to develop Carlisle northward adjacent to Centre Street up to the school (located at Centre Street and the 10th Concession).

Mr. Paparella pointed out that a gas pipeline is not a limiting factor to development. It would present basically the same problems as the existing pipelines; it simply presents a caution constraint which can be worked around.

Mr. Paparella stated that if the rest of the analysis had been in favor of Alternative 1, then they would also be in general agreement with that route.

From a planning perspective, the distance separating the pipeline from existing development is important. The Town would not like the pipeline located such that it would bisect a potential lot. The general lot size is approximately 30 m by 60 m (approx 1 acre) and road widths are 20 m. Acceptable distances from existing property line would be something in the order of 250 ft or 570 ft with a minimum set back from a back lot line of 25 ft.

From the Town of Flamborough's perspective, the most preferred route would be along the northern boundary of the present settlement area. This would provide the greatest flexibility for future development further north.

Acres should consult with Mr. Brennan at the Regional Municipality with respect to the location of the municipal wells. Carlisle is serviced by a number of wells and Mr. Paparella believes they might be in the general area of the proposed pipeline.

In summary, the location of the pipeline north of Carlisle would be acceptable to the Town of Flamborough; an alignment immediately north of the present settlement area would be most acceptable to the Town.

Please correct and/or sign if you are in agreement with these minutes.

CEM:fb

Reported by E. J. Ryan for C. E. Mee

Guy Paparella _____

Date _____

Hall
Gord
Fdn

The Corporation of the
**TOWN of MILTON**

R.J.L. Zsadanyi
Director of Planning

August 3, 1990. File Z.2100

Mr. G.S. Davies, Ph.D.
Project Manager,
Acres International Limited,
5259 Dorchester Road,
P.O. Box 1001,
NIAGARA FALLS, Ontario.
L2E 6W1

**RE: Proposed NPS 48**
**Hamilton to Milton**
**Routing & Environmental Study**

Dear Sir:

Thank you for your circulation re: the above dated July 27, 1990. Please be advised that, after having reviewed this material, Milton Planning staff have no further comments to offer with regard to your Routing and Environmental Study.

Trusting that this is the clarification you were seeking, I remain

Yours sincerely,

R. J. L. Zsadanyi, M.C.I.P.,
Director of Planning.

RJLZ:la

# Appendix H

# Archaeological Data Assessment

Table 1
Cultural Chronology for Southwest Ontario

| Period | Group | Time Range | Comment |
|---|---|---|---|
| ***PALEO-INDIAN*** | | | |
| | Fluted | 9500 - 8500 B.C. | Big game hunters; |
| | Hi-Lo | 8500 - 7500 B.C. | small,nomadic groups |
| ***ARCHAIC*** | | | |
| Early | ----- | 7800 - 6000 B.C. | Nomadic hunters and gatherers |
| Middle | Laurentian | 6000 - 2000 B.C. | Transition to territorial settlements |
| Late | Lamoka | 2500 - 1700 B.C. | Polished/ground stone tools |
| | Broadpoint | 1800 - 1400 B.C. | |
| | Crawford Knoll | 1500 - 500 B.C. | |
| | Glacial Kame | *ca.* 1000 B.C. | Burial ceremonialism |
| ***WOODLAND*** | | | |
| Early | Meadowood | 1000 - 400 B.C. | Introduction of |
| | Red Ochre | 1000 - 500 B.C. | pottery |
| Middle | Saugeen | 400 B.C. - A.D. 500 | Long distance trade networks |
| | Princess Point | A.D. 500 - 800 | Incipient horticulture |
| Late | Glen Meyer | A.D. 800 - 1300 | Transition to village life and agriculture |
| | Middleport | A.D. 1300 - 1400 | Establishment of large palisaded villages |
| | Neutral | A.D. 1400 - 1650 | Tribal differentiation and warfare |
| ***HISTORIC*** | | | |
| Early | Mississauga | A.D. 1700 - 1875 | |
| Late | Euro/ Canadian | A.D. 1800 - present | European settlement |

Table 2: Registered Sites Within the Study Area (N=58)

| Borden # | Name | Site Type | Age/Cultural Affiliation |
|---|---|---|---|
| AiGx-1 | Bennett | village | Late Woodland - Pickering |
| -2 | ---- | camp | Woodland |
| -5 | Gunby | village | Late Woodland - Pickering |
| -10 | Laurensen | village | Late Woodland - Uren |
| -12 | Pipeline | village | Late Woodland - Neutral |
| -23 | Garnet Colins | camp | indeterminate prehistoric |
| -24 | John Richardson | village | Woodland |
| -25 | J. Bousfield | camp | indeterminate prehistoric |
| -26 | Campbell Hi-Lo | camp | Paleo-Indian - Hi-Lo |
| -27 | Campbell (6) | camp | indeterminate prehistoric |
| -43 | Snow | ? - lithic | Archaic |
| -44 | Snow II | ? - lithic | Archaic |
| -49 | Floodplain | findspot (1) | indeterminate prehistoric |
| -50 | Limestone Creek | camp | Archaic |
| -51 | Limestone Archaic | camp | Archaic |
| -52 | Limestone Creek II | camp | indeterminate prehistoric |
| -53 | Limestone Creek III | camp | indeterminate prehistoric |
| -54 | Limestone Creek IV | camp | Archaic |
| -55 | Cultivated Field II | camp | indeterminate prehistoric |
| -56 | Southwest Appleby | camp | indeterminate prehistoric |
| -57 | Northwest of #5 | camp | indeterminate prehistoric |
| -59 | Stutt | findspot (1) | indeterminate prehistoric |
| -60 | Parssinen | camp | indeterminate prehistoric |
| -61 | Prosser | camp | indeterminate prehistoric |
| -67 | Strawberry Patch | camp/hamlet | Woodland |
| -70 | Gamble | village/camp | Late Woodland - Neutral; Archaic |
| -78 | Laurensen II | camp | indeterminate prehistoric |
| -90 | South Track | village | Late Woodland - Pickering |
| -101 | ---- | findspot (1) | indeterminate prehistoric |
| -102 | ---- | findspot (1) | indeterminate prehistoric |
| -104 | ---- | findspot (3) | indeterminate prehistoric |
| -105 | Notmuch | camp | Late Woodland |
| -106 | ---- | camp | indeterminate prehistoric |
| -113 | ---- | findspot (5) | indeterminate prehistoric |
| -114 | ---- | camp | indeterminate prehistoric |
| -115 | ---- | camp | indeterminate prehistoric |
| -116 | ---- | camp | Paleo-Indian - Hi-Lo |
| -117 | ---- | camp | indeterminate prehistoric |
| -118 | ---- | camp | Archaic |
| -119 | ---- | findspot (2) | indeterminate prehistoric |
| -120 | ---- | camp | indeterminate prehistoric |
| -121 | ---- | camp | indeterminate prehistoric |
| -123 | ---- | camp | indeterminate prehistoric |
| -124 | ---- | camp | indeterminate prehistoric |

| Borden # | Name | Site Type | Age/Cultural Affiliation |
|---|---|---|---|
| -125 | ---- | findspot (2) | indeterminate prehistoric |
| AiGx-128 | ---- | camp | indeterminate prehistoric |
| -129 | ---- | camp | indeterminate prehistoric |
| -131 | Rotten Cabbage | findspot (1) | Archaic - Brewerton |
| -132 | Sheetrock | findspot (3) | indeterminate prehistoric |
| -133 | LC1 | findspot (2) | Archaic |
| -134 | LC2 | findspot (4) | indeterminate prehistoric |
| -135 | LC3 | findspot (2) | indeterminate prehistoric |
| -137 | Coverdale | village | Late Woodland - Pickering |
| -144 | Tregunno | burial | Historic - Neutral |
| -145 | Carlisle | hamlet/ homestead | Historic - Neutral/ Euro-Canadian |
| -157 | Anderson Farm 1 | homestead | Historic - Euro-Canadian |
| -158 | Anderson Farm 2 | camp/hamlet | Late Woodland - Neutral |
| AiHa-7 | Hood | village | Historic - Neutral |

**Table 3: Component Types of Registered Sites N=60)**

| Component | Type | Site # | Total |
|---|---|---|---|
| Euro-Canadian: | homesteads | AiGx-145,157 | 2 |
| Woodland: | villages | AiGx-1,5,10,12, 24,70,90,137, AiHa-7 | 9 |
| | hamlets/camps | AiGx-2,67,105,145,158 | 5 |
| | burials | AiGx-144 | 1 |
| Archaic: | camps | AiGx-50,51,54,70,118 | 5 |
| | other | AiGx-43,44,131,133 | 4 |
| Paleo-Indian: | camps | AiGx-26,1 16 | 2 |
| Ind. Prehistoric: | camps | AiGx-23,25,27,52,53,55, 56,57,60,61,78,106, 114,115,117,120,121, 123,124,128,129 | 21 |
| | findspots | AiGx-49,59,101,102,104, 113,119,125,132, 134,135 | 11 |
| | | | 60 |

**Table 4: Registered Sites Within 1 km of the Proposed Alternatives 1/1A (N=10)**

| Borden # | Name | Distance from Alternative 1/1A |
|---|---|---|
| AiGx-1 | Bennett | 750 m |
| -2 | ---- | 750 m |
| -10 | Laurensen | 750 m |
| -12 | Pipeline | 0 m |
| -59 | Stutt | 200 m |
| -90 | South Track | 550 m |
| -102 | ---- | 300 m |
| -105 | Notmuch | 950 m |
| -131 | Rotten Cabbage | 750 m |
| -132 | Sheetrock | 750 m |

Table 5: Registered Sites Within 1 km of Proposed Alternative 2 (N=29)

| Borden # | Name | Distance from Alternative 2 |
|---|---|---|
| AiGx-23 | G. Colins | 850 m |
| -24 | J. Richardson | 550 m |
| -25 | J. Bousfield | 850 m |
| -26 | Campbell Hi-Lo | 0 m |
| -27 | Campbell (6) | 250 m |
| -43 | Snow | 100 m |
| -44 | Snow II | 50 m |
| -49 | Floodplain | 350 m |
| -50 | Limestone Creek | 250 m |
| -51 | Limestone Archaic | 400 m |
| -52 | Limestone Creek II | 550 m |
| -53 | Limestone Creek III | 400 m |
| -54 | Limestone Creek IV | 600 m |
| -55 | Cultivated Field II | 800 m |
| -56 | Southwest Appleby | 800 m |
| -57 | Northwest of #5 | 750 m |
| -70 | Gamble | 650 m |
| -104 | ---- | 975 m |
| -106 | ---- | 950 m |
| -113 | ---- | 950 m |
| -114 | ---- | 250 m |
| -115 | ---- | 500 m |
| -116 | ---- | 700 m |
| -121 | ---- | 800 m |
| -123 | ---- | 250 m |
| -124 | ---- | 750 m |
| -125 | ---- | 50 m |
| -128 | ---- | 600 m |
| -129 | ---- | 700 m |

Table 6: Other Registered Sites (N=19)

| Borden # | Name | Distance from Nearest Alignment |
|---|---|---|
| AiGx-5 | Gunby | 1250 m |
| -60 | Parssinen | 1250 m |
| -61 | Prosser | 1100 m |
| -67 | Strawberry Patch | 2200 m |
| -78 | Laurensen II | 1350 m |
| -101 | ---- | 1500 m |
| -117 | ---- | 1100 m |
| -118 | ---- | 1300 m |
| -119 | ---- | 1250 m |
| -120 | ---- | 1100 m |
| -133 | LC1 | 2000 m |
| -134 | LC2 | 2000 m |
| -135 | LC3 | 1900 m |
| -137 | Coverdale | 2250 m |
| -144 | Tregunno | 1400 m |
| -145 | Carlisle | 1300 m |
| -157 | Anderson Farm 1 | 1500 m |
| -158 | Anderson Farm 2 | 1600 m |
| AiHa-7 | Hood | 2000 m |

Table 7: Unregistered Sites in the Study Area (N=93)

| Source # | Name | Site Type | Age/Cultural Affiliation |
|---|---|---|---|
| MIA | Scout | village | Late Woodland - Uren |
| ROM 2 | Bronte Gap | camp | indeterminate prehistoric |
| ROM 3 | Clements I | findspots(3/3) | indeterminate prehistoric/ Euro-Canadian |
| ROM 5 | Clements II | findspot(4) | indeterminate prehistoric |
| ROM 7 | Limestone Hall 1 | findspot(2) | indeterminate prehistoric |
| ROM 8 | Malmstrom III | findspot(1) | indeterminate prehistoric |
| ROM 9 | Laing | camp | indeterminate prehistoric |
| ROM 10 | Cockshutt | findspot(2) | indeterminate prehistoric |
| ROM 11 | ---- | findspot(1) | indeterminate prehistoric |
| ROM 12 | ---- | findspot(2) | indeterminate prehistoric/ Euro-Canadian |
| ROM 13 | Malmstrom II | camp | indeterminate prehistoric |
| ROM 14 | Malmstrom I | findspot(1) | indeterminate prehistoric |
| ROM 15 | Malmstrom IV | findspot(1) | indeterminate prehistoric |
| ROM 16 | Malmstrom V | findspot(1) | indeterminate prehistoric |
| ROM 17 | ---- | camp | indeterminate prehistoric |
| ROM 18 | ---- | camp | Woodland |
| ROM 21 | ---- | camp/findspot(2) | Paleo-Indian Euro-Canadian |
| ROM 22 | ---- | findspot(3) | indeterminate prehistoric |
| ROM 23 | Young | camp | indeterminate prehistoric |
| ROM 90 | Baker I | camp | Woodland |
| ROM 91 | Baker II | findspot(3) | indeterminate prehistoric |
| ROM 92 | Baker III | camp | indeterminate prehistoric |
| ROM 93 | Baker IV | camp | indeterminate prehistoric |
| ROM 94 | Baker V | camp | indeterminate prehistoric |
| ROM 95 | Baker VI | findspot(1) | indeterminate prehistoric |
| ROM 96 | Baker VII | camp | indeterminate prehistoric |
| ROM 97 | Baker VIII | camp | Woodland |
| ROM 98 | Baker IX | camp | Woodland |
| ROM 99 | Baker X | camp | indeterminate prehistoric |
| ROM 100 | Baker XI | camp | Woodland |
| ROM 101 | Baker XII | camp | indeterminate prehistoric |
| ROM 102 | Reid | findspot(2) | indeterminate prehistoric |
| ROM 103 | ---- | findspot(3) | indeterminate prehistoric |
| ROM 105 | "S" Farm | findspot(1) | indeterminate prehistoric |
| ROM 106 | Middlebrook | findspot(3/1) | indeterminate prehistoric/ Euro-Canadian |
| ROM 107 | King | camp | indeterminate prehistoric |
| ROM 108 | ---- | findspot(1) | indeterminate prehistoric |
| ROM 112 | Harbottle I | findspot(3) | indeterminate prehistoric |
| ROM 113 | Harbottle II | findspot(2) | indeterminate prehistoric |
| ROM 114 | Hutchinson | findspot(2) | indeterminate prehistoric |
| ROM 115 | ---- | findspot(1) | indeterminate prehistoric |
| ROM 115-1 | Brock-Harris I | findspot(1) | indeterminate prehistoric |
| ROM 116 | ---- | camp | indeterminate prehistoric |
| ROM 117 | Golf Course | findspot(2) | indeterminate prehistoric |
| ROM 118 | ---- | findspot(2) | indeterminate prehistoric |

| | | | |
|---|---|---|---|
| ROM 119 | ---- | camp | indeterminate prehistoric |
| ROM 120 | Brock-Harris II | findspot(1) | indeterminate prehistoric |
| ROM 121 | Brock-Harris III | findspot(2) | indeterminate prehistoric |
| ROM 122 | Walker I | findspot(3) | indeterminate prehistoric |
| ROM 123 | Walker II | findspot(2) | indeterminate prehistoric |
| ROM 124 | Walker III | camp | indeterminate prehistoric |
| ROM 125 | Haan I | camp | indeterminate prehistoric |
| ROM 126 | Haan II | findspot(2) | indeterminate prehistoric |
| ROM 127 | Haan III | camp | indeterminate prehistoric |
| ROM 128 | Haan IV | findspot(1) | indeterminate prehistoric |
| ROM 129 | Birch I | findspot(1) | indeterminate prehistoric |
| ROM 130 | Birch II | findspot(2) | indeterminate prehistoric |
| ROM 131 | Birch III | findspot(1) | indeterminate prehistoric |
| ROM 132 | Birch IV | findspot(1) | indeterminate prehistoric |
| ROM 133 | Burton I | findspot(4) | indeterminate prehistoric |
| ROM 134 | Burton II | camp | indeterminate prehistoric |
| ROM 135 | Burton III | camp | indeterminate prehistoric |
| ROM 136 | Harris | camp | indeterminate prehistoric |
| ROM 141 | Segsworth I | findspot(4) | indeterminate prehistoric |
| ROM 142 | Segsworth II | findspot(3) | indeterminate prehistoric |
| ROM 143 | Segsworth III | findspot(1) | indeterminate prehistoric |
| ROM 144 | Segsworth IV | camp | indeterminate prehistoric |
| ROM 145 | Sovereign I | findspot(5) | indeterminate prehistoric |
| ROM 146 | Sovereign II | findspot(4) | indeterminate prehistoric |
| ROM 147 | Sovereign III | findspot(2) | indeterminate prehistoric |
| ROM 148 | Sovereign IV | camp | indeterminate prehistoric |
| ROM 149 | Sovereign V | findspot(2) | indeterminate prehistoric |
| ROM 150 | Sovereign VI | camp | indeterminate prehistoric |
| ROM 151 | Sovereign VII | camp | indeterminate prehistoric |
| ROM 152 | Sovereign VIII | findspot(2) | indeterminate prehistoric |
| ROM 153 | Sovereign IX | camp | indeterminate prehistoric |
| ROM 154 | Sovereign X | findspot(5) | indeterminate prehistoric |
| ROM 155 | Sovereign XI | findspot(5) | indeterminate prehistoric |
| ROM 156 | Sovereign XII | findspot(3) | indeterminate prehistoric |
| ROM 157 | Sovereign XIII | camp | indeterminate prehistoric |
| ROM 158 | Sovereign XIV | camp | indeterminate prehistoric |
| ROM 159 | Sovereign XV | camp | indeterminate prehistoric |
| ROM 160 | Sovereign XVI | camp | indeterminate prehistoric |
| ROM 161 | Sovereign XVII | camp | indeterminate prehistoric |
| ROM 162 | Sovereign XVIII | camp | indeterminate prehistoric |
| ROM 163 | Sovereign XIX | camp | indeterminate prehistoric |
| ROM 164 | Sovereign XX | camp | indeterminate prehistoric |
| ROM 166 | Baker XIII | camp | indeterminate prehistoric |
| Carruthers | | | |
| " 28 | ---- | camp | Woodland |
| " 30 | ---- | camp | Archaic |
| " 31 | ---- | findspot(1) | Woodland - Trade Axe |
| " 34 | ---- | camp | Archaic |
| " 38 | Altmaan | camp | Archaic |

Table 8: Component Types of Unregistered Sites Within the Study Area (N=95)

| Component | Type | Site | Total |
|---|---|---|---|
| Euro-Canadian | findspots | ROM 3,12,21,106 | 4 |
| Woodland | villages | MIA Scout | 1 |
| | camps | ROM 18,90,97,98,100, C 28 | 6 |
| | findspots | C 31 | 1 |
| Archaic | camps | C 30,34,38 | 3 |
| Paleo-Indian | camps | ROM 21 | 1 |
| Ind. Prehistoric | camps | ROM 2,9,13,17,23,92,93, 94,96,99,101,107, 116,119,124,125,127, 134,135,136,144,148, 150,151,153,157,158, 159,160,161,162,163, 164,166 | 34 |
| | findspots | ROM 3,5,7,8,10,11,12,14, 15,22,91,95,102,103, 105,106,,108,112,113, 114, 115,115-1,117,118, 120,121,122,123, 126, 128,129,130,131,132,133, 141,143, 145,146,147,149, 152,154,155,156 | 45 |
| | | | 95 |

Table 9: Unregistered Sites Within 1 km of Proposed Alternative 1/1A (N=76)

| Source # | Name | Distance from Alternative |
|---|---|---|
| ROM 2 | Bronte Gap | 450 m |
| ROM 3 | Clements I | 700 m |
| ROM 5 | Clements II | 850 m |
| ROM 7 | Limestone Hall | 500 m |
| ROM 8 | Malmstrom III | 150 m |
| ROM 11 | ---- | 850 m |
| ROM 12 | ---- | 250 m |
| ROM 13 | Malmstrom II | 450 m |
| ROM 14 | Malmstrom I | 150 m |
| ROM 15 | Malmstrom IV | 50 m |
| ROM 16 | Malmstrom V | 25 m |
| ROM 18 | ---- | 450 m |
| ROM 21 | ---- | 600 m |
| ROM 22 | ---- | 800 m |
| ROM 23 | Young | 250 m |
| ROM 90 | Baker I | 450 m |
| ROM 91 | Baker II | 200 m |
| ROM 92 | Baker III | 125 m |
| ROM 93 | Baker IV | 200 m |
| ROM 94 | Baker V | 275 m |
| ROM 95 | Baker VI | 125 m |
| ROM 96 | Baker VII | 150 m |
| ROM 97 | Baker VIII | 50 m |
| ROM 98 | Baker IX | 125 m |
| ROM 99 | Baker X | 50 m |
| ROM 100 | Baker XI | 125 m |
| ROM 101 | Baker XII | ? near 92 |
| ROM 102 | Reid | 550 m |
| ROM 103 | ---- | 250 m |
| ROM 105 | "S" Farm | 200 m |
| ROM 106 | Middlebrook | 300 m |
| ROM 108 | ---- | 700 m |
| ROM 112 | Harbottle I | 700 m |
| ROM 113 | Harbottle II | 650 m |
| ROM 115 | ---- | 500 m |
| ROM 115-1 | Brock-Harris I | 125 m |
| ROM 116 | ---- | 625 m |
| ROM 119 | ---- | 0 m |
| ROM 120 | Brock-Harris II | 50 m |
| ROM 121 | Brock-Harris III | 200 m |
| ROM 122 | Walker I | 950 m |
| ROM 123 | Walker II | 950 m |
| ROM 124 | Walker III | 950 m |
| ROM 125 | Haan I | 650 m |
| ROM 126 | Haan II | 100 m |
| ROM 127 | Haan III | 100 m |
| ROM 128 | Haan IV | 100 m |
| ROM 130 | Birch II | 450 m |

| | | |
|---|---|---|
| ROM 131 | Birch III | 300 m |
| ROM 132 | Birch IV | 300 m |
| ROM 133 | Burton I | 950 m |
| ROM 134 | Burton II | 950 m |
| ROM 141 | Segsworth I | 100 m |
| ROM 142 | Segsworth II | 250 m |
| ROM 143 | Segsworth III | 225 m |
| ROM 144 | Segsworth IV | 100 m |
| ROM 147 | Sovereign III | 850 m |
| ROM 149 | Sovereign V | 350 m |
| ROM 151 | Sovereign VII | 850 m |
| ROM 152 | Sovereign VIII | 650 m |
| ROM 153 | Sovereign IX | 750 m |
| ROM 154 | Sovereign X | 550 m |
| ROM 155 | Sovereign XI | 550 m |
| ROM 156 | Sovereign XII | 750 m |
| ROM 157 | Sovereign XIII | 500 m |
| ROM 158 | Sovereign XIV | 600 m |
| ROM 160 | Sovereign XVI | 550 m |
| ROM 161 | Sovereign XVII | 550 m |
| ROM 162 | Sovereign XVIII | 600 m |
| ROM 163 | Sovereign XIX | 600 m |
| ROM 164 | Sovereign XX | ? near 163 |
| ROM 166 | Baker XIII | 125 m |
| C 28 | ---- | 350 m |
| C 34 | ---- | 550 m |
| C 38 | Altmaan | 700 m |

Table 10: Other Unregistered Sites (N=18)

| Source # | Name | Distance from the Alternative |
|---|---|---|
| ROM 9 | Laing | 1250 m |
| ROM 10 | Cockshutt | 1300 m |
| ROM 17 | ---- | 1050 m |
| ROM 107 | King | 550 m |
| ROM 114 | Hutchinson | 800 m |
| ROM 117 | Golf Course | 50 m |
| ROM 118 | ---- | 1050 m |
| ROM 129 | Birch I | 1250 m |
| ROM 135 | Burton III | 1100 m |
| ROM 136 | Harris | 600 m |
| ROM 145 | Sovereign I | ? m |
| ROM 146 | Sovereign II | 1050 m |
| ROM 148 | Sovereign IV | 1450 m |
| ROM 150 | Sovereign VI | 1050 m |
| ROM 159 | Sovereign V | 1450 m |
| C 30 | ---- | 1500 m |
| C 31 | ---- | 2000 m |
| MIA | Scout | 2350 m |

# Appendix I

# Figures

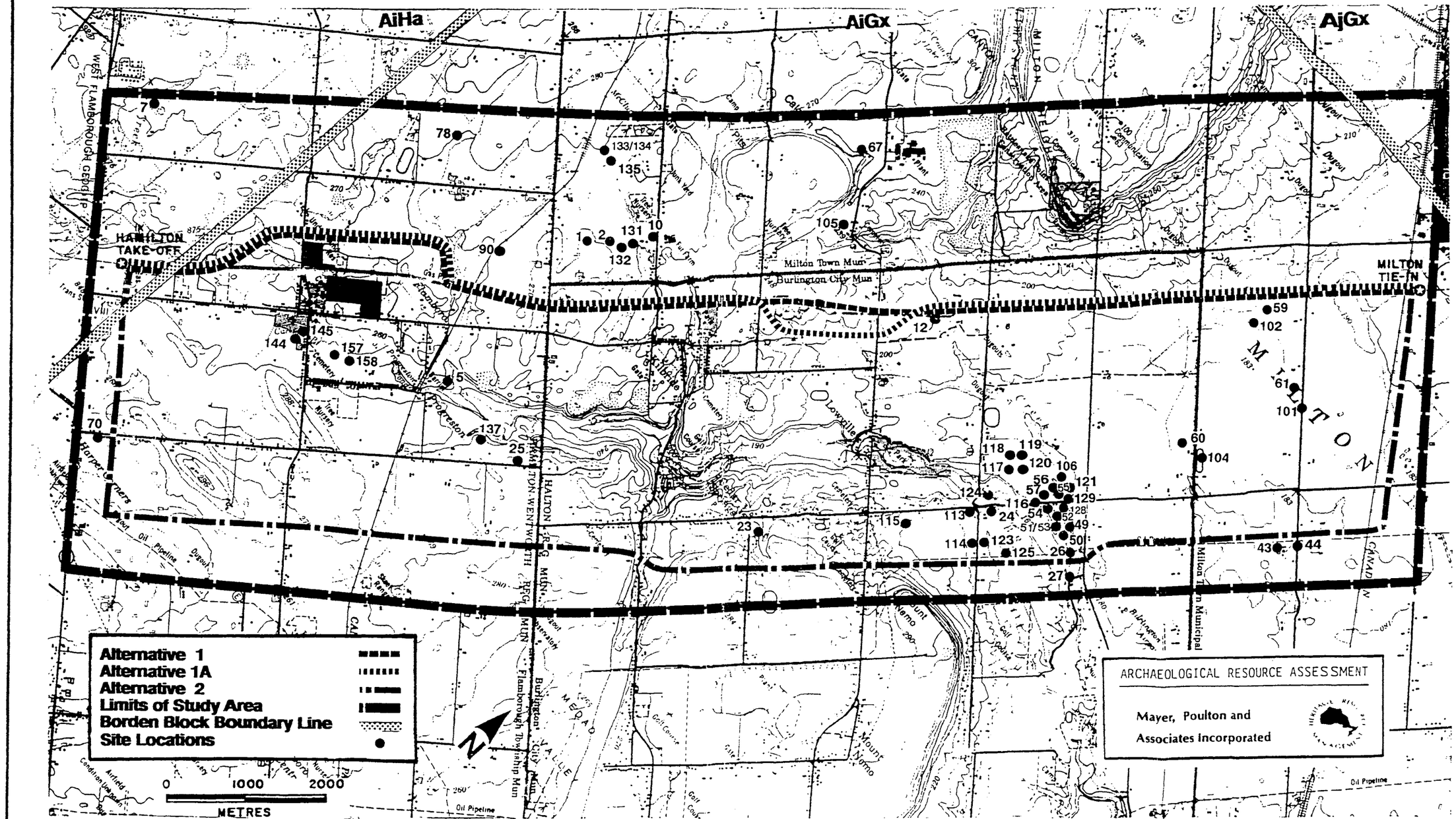



Figure 1: Registered Sites within the Study Area

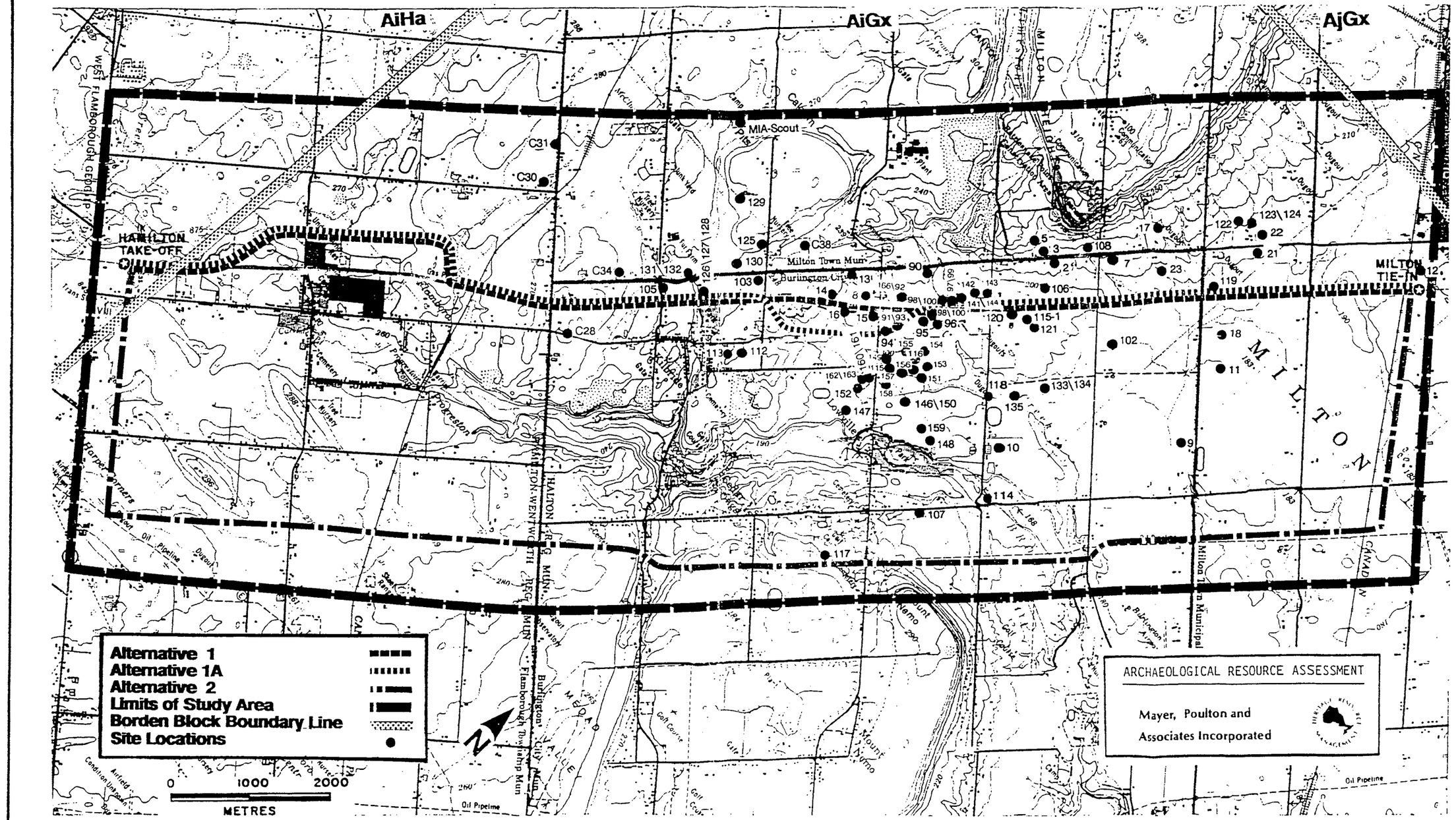



Figure 2: Unregistered Sites within the Study Area

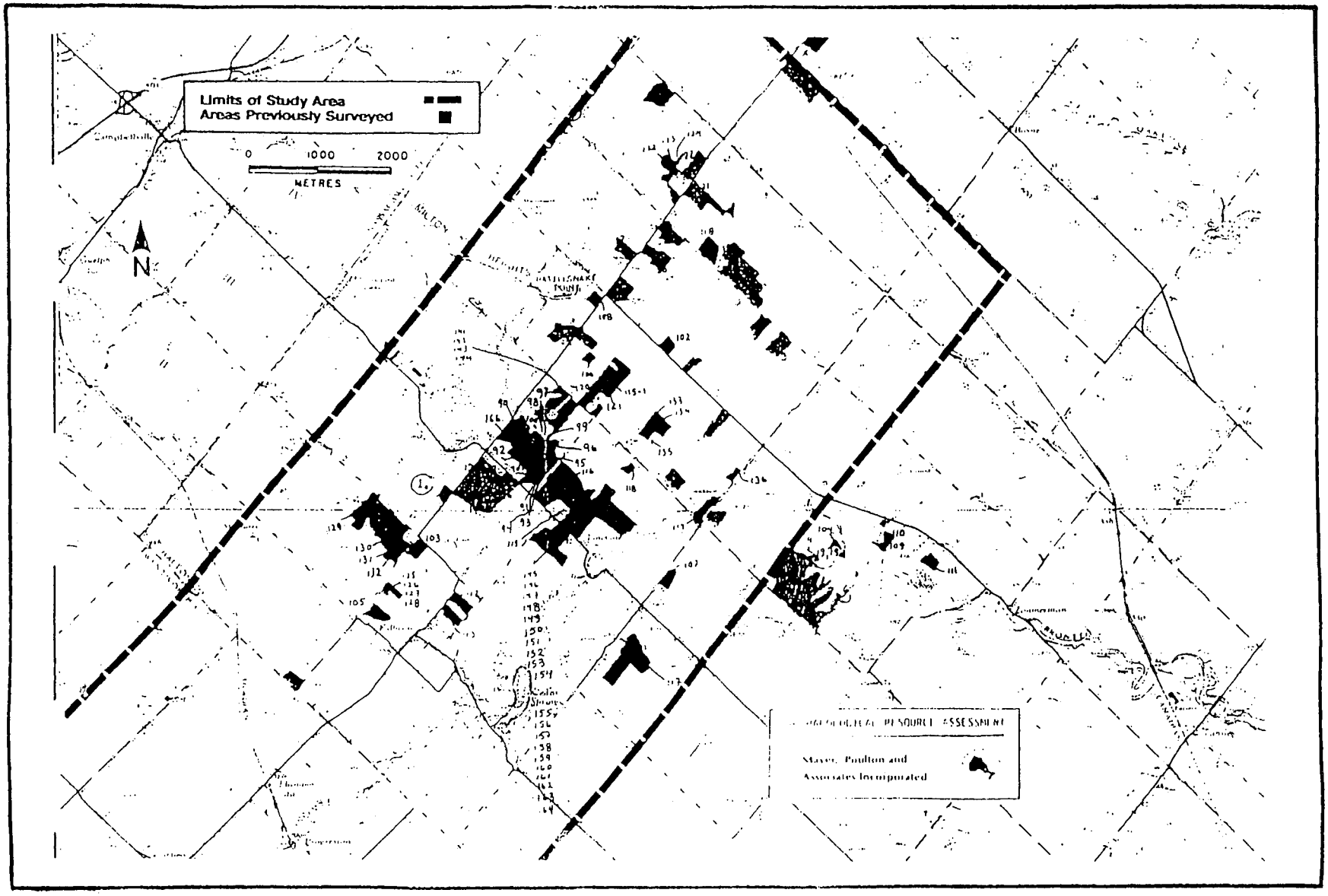



Figure 3: Facsimile of Map of Areas Surveyed and Unregistered Sites Documented by Storck (n.d.)

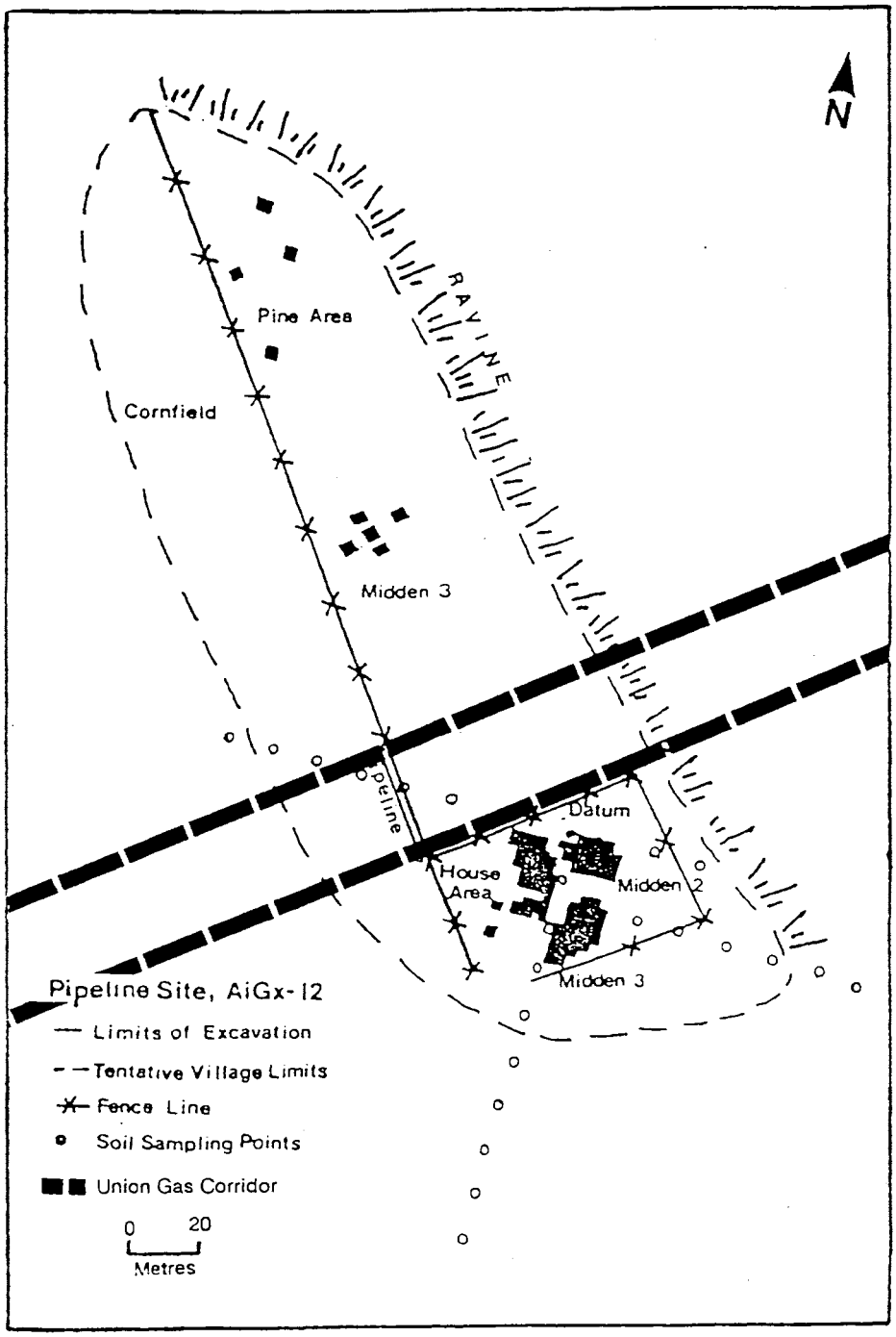



Figure 4: Facsimile of Map of the Pipeline Site (AiGx-12) by Busby (1977)




LEGEND

BEDROCK

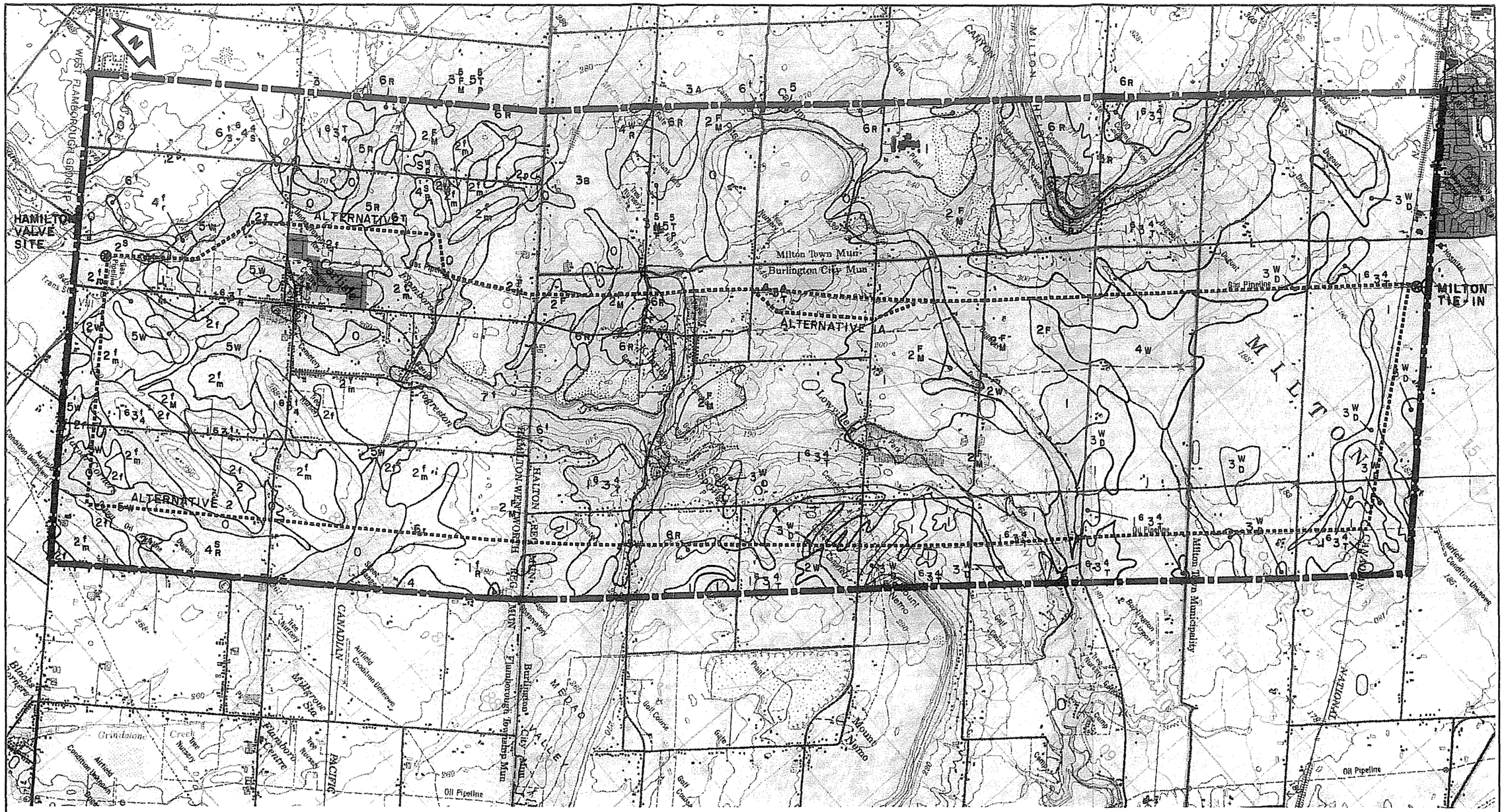
- BEDROCK WITHIN 1 M OF SURFACE
- BEDROCK WITHIN 8 M OF SURFACE
- SAND AND GRAVEL RESOURCE AREAS OF PRIMARY SIGNIFICANCE
- SELECTED BEDROCK RESOURCE AREAS
- LICENCED PIT
- STUDY AREA

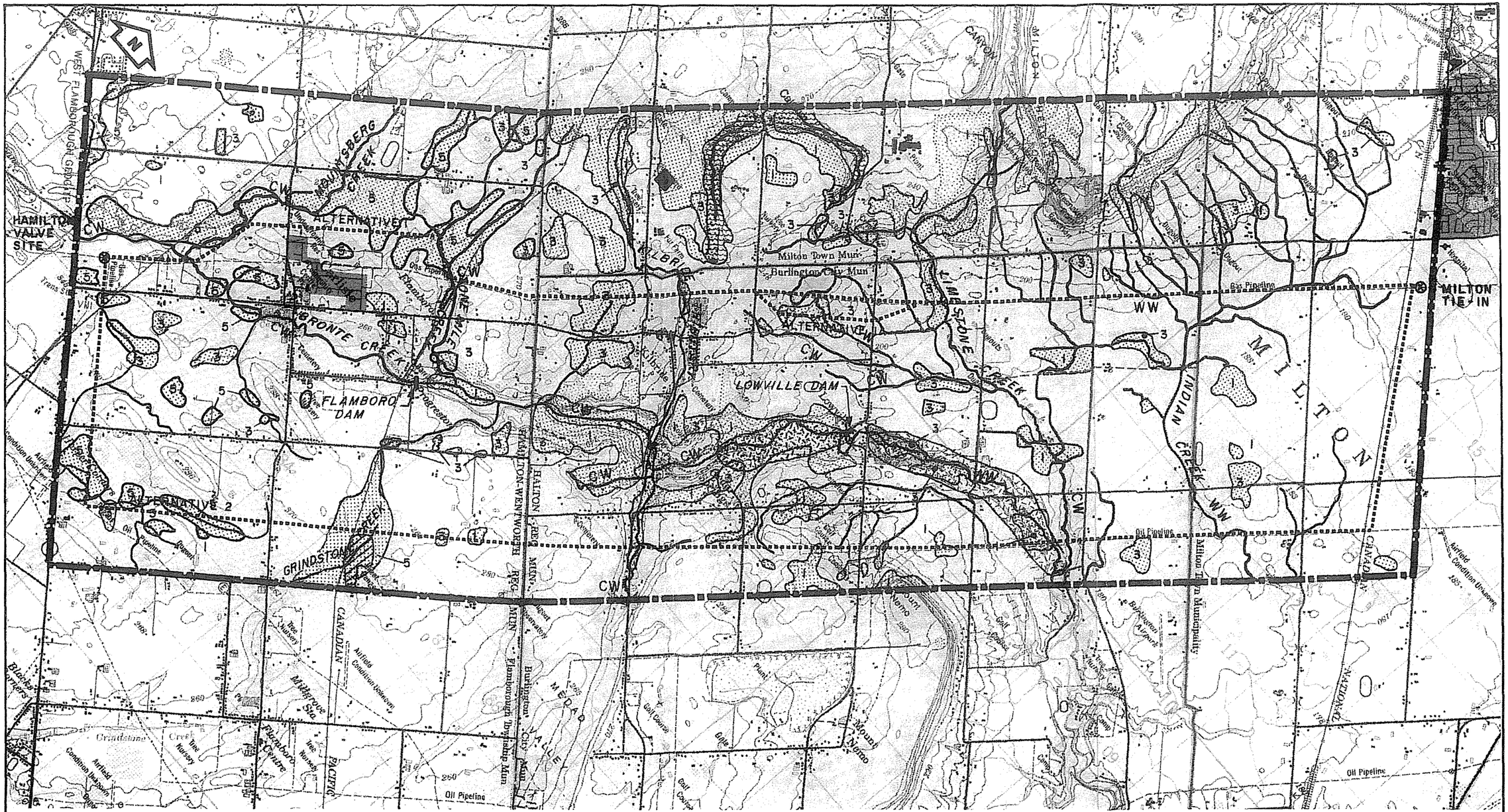
SOURCE:

ONTARIO GEOLOGICAL SURVEY ( 1982 a,b, 1984 )
MNR RESOURCES MAPS

Fig.1

Union Gas Limited
NPS 48 Hamilton to Milton
Mineral Resources and Location of Bedrock


N
HAMILTON VALVE SITE
ALTERNATIVE 1
ALTERNATIVE 1A
ALTERNATIVE 2
Milton Town Mun
Burlington City Mun
MILTON TIE-IN
MILTON
MERAD VALLEY
Mount Nemo
Oil Pipeline
Gas Pipeline
Airfield Condition Unknown
Golf Course
Cemetery
Hospital
Trans Canada Pipeline
Milton Municipality
Burlington Airport
Flamborough Royal Agric Mun
Flamborough Centre
Creek
Nursery
Quarry
Camp
Gate
Dwgout
Dwgout
Dwgout




LEGEND

- STUDY AREA
- CLASS 1-2 WETLAND
- SPAWNING NURSERY AREA
- CW COLD WATER STREAM
- WW WARM WATER STREAM
- DAMS

FORESTRY RESOURCES

- WOODLOTS
  - 1 - UPLAND HARDWOOD-HIGH PRODUCTIVITY
  - 3- LOWLAND HARDWOOD-HIGH PRODUCTIVITY
  - 5- LOW PRODUCTIVITY COVERTYPES ( UPLAND AND LOWLAND )
- MNR AGREEMENT FOREST
- WEST VIRGINIA WHITE BUTTERFLY SIGHTINGS

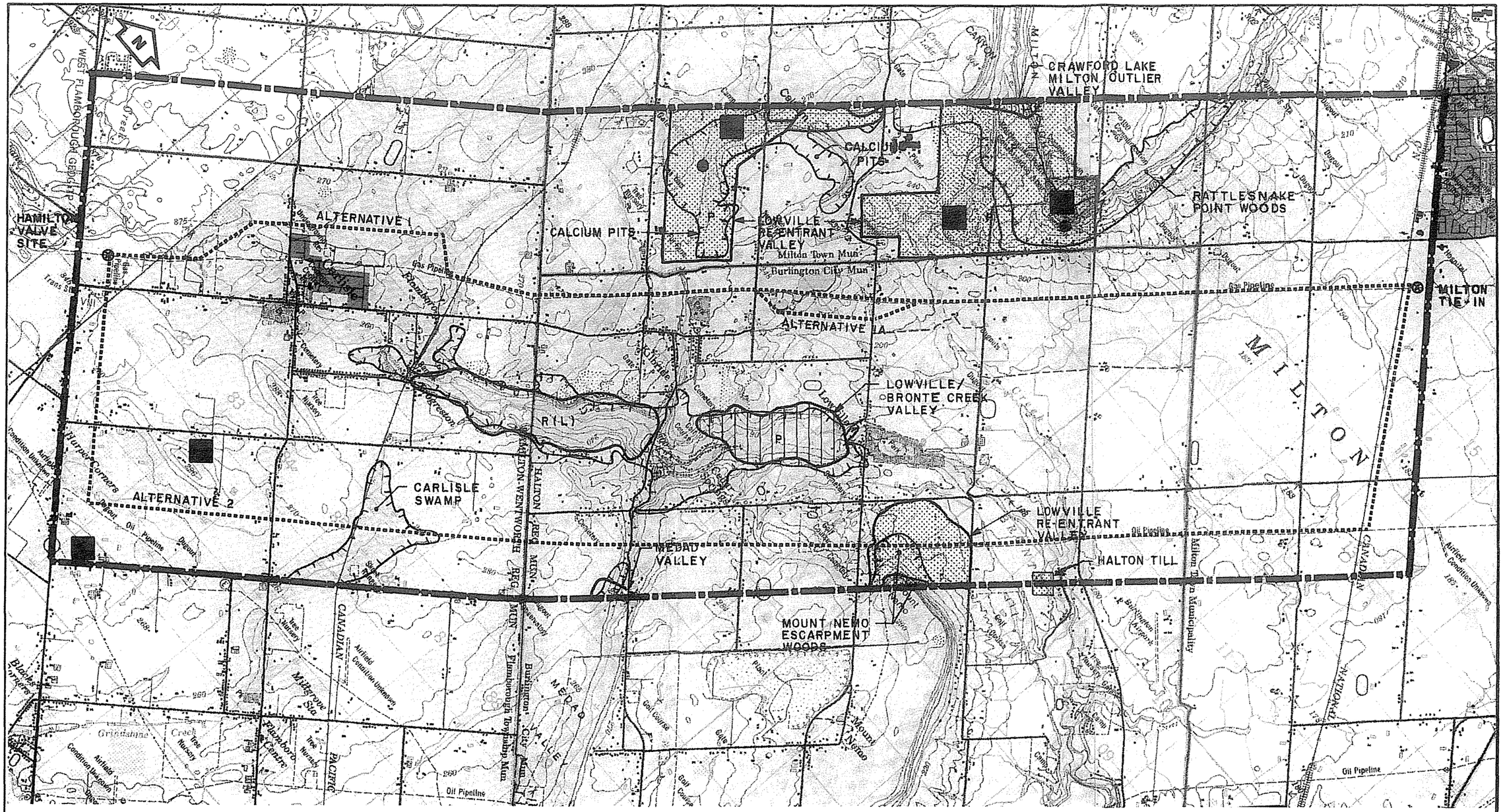
0 1000 2000
METRES

SOURCE:
MNR RESOURCES MAP

Fig.3

Union Gas Limited
NPS 48 Hamilton to Milton
Natural Environment

ACRES




0 1000 2000

METRES

LEGEND

STUDY AREA

AREAS OF NATURAL AND SCIENTIFIC INTEREST

EARTH SCIENCE

P. PROVINCIAL SIGNIFICANCE

REGIONAL SIGNIFICANCE

ENVIRONMENTALLY SENSITIVE AREA (MUNICIPALLY DESIGNATED)

LIFE SCIENCE

P PROVINCIAL SIGNIFICANCE

R(L) REGIONAL SIGNIFICANCE

OTHER SITES OF BIOLOGICAL SIGNIFICANCE (IBP SITES ENVIRONMENTALLY SENSITIVE AREAS)

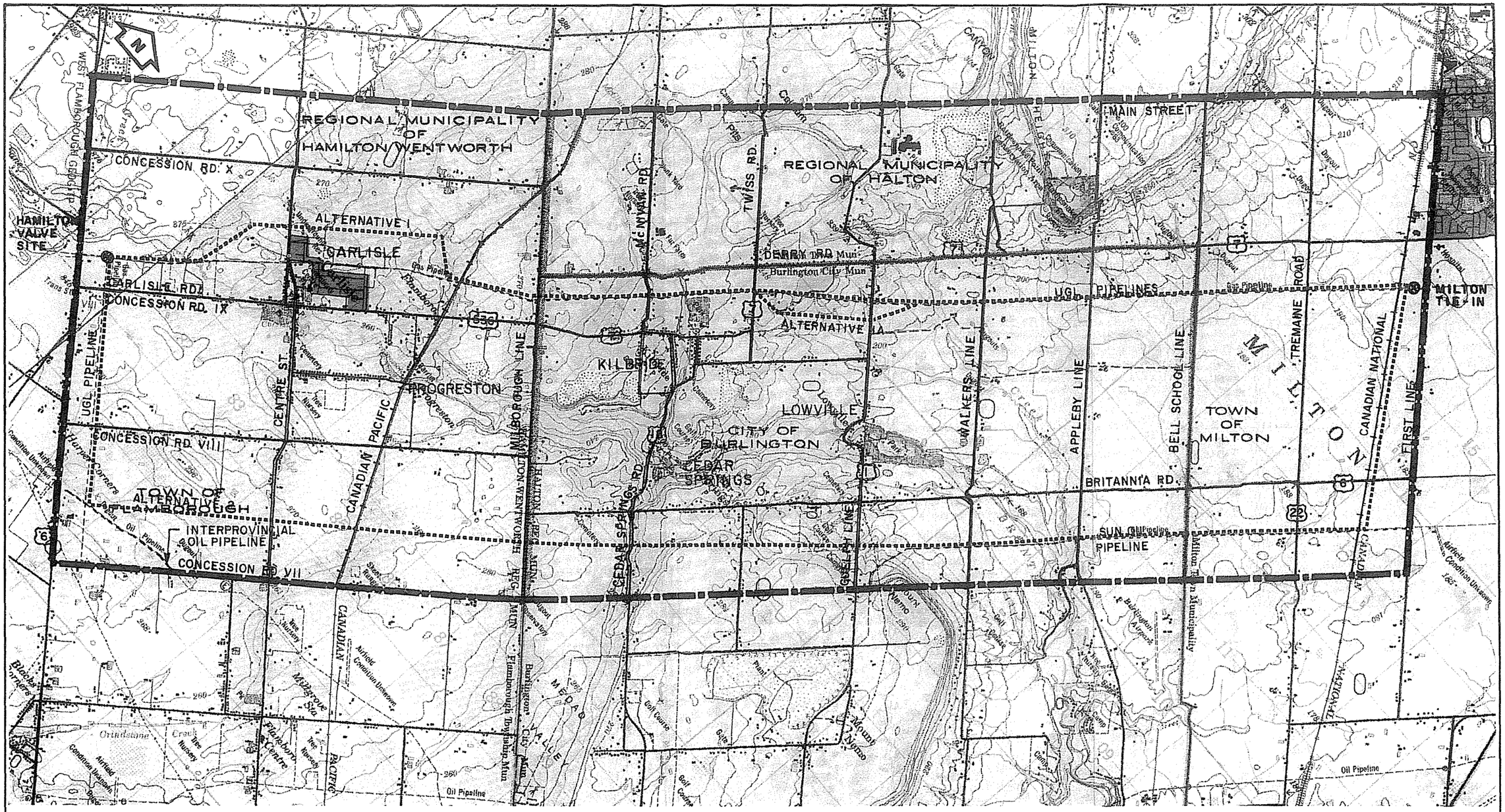
SOURCE:

ONTARIO MINISTRY OF NATURAL RESOURCES, NATURAL AREAS MAPPING

Fig.4

Union Gas Limited
NPS 48 Hamilton to Milton
Natural Areas

ACRES




LEGEND

- STUDY CORRIDOR
- PIPELINE
- TERMINAL POINTS
- REGIONAL BOUNDARIES
- MUNICIPAL BOUNDARIES
- (6) PROVINCIAL HIGHWAYS
- (7) REGIONAL ROADS

Fig.5

Union Gas Limited
NPS 48 Hamilton to Milton
Infrastructure

ACRES




LEGEND

- EXISTING RESIDENTIAL
- RURAL RESIDENTIAL
- SETTLEMENT AREAS
- 01 PRIVATE OPEN SPACE
- 02 PUBLIC OPEN SPACE
- NIAGARA ESCARPMENT COMMISSION CONTROL AREA
- NIAGARA ESCARPMENT COMMISSION NATURAL AREAS
- NIAGARA ESCARPMENT COMMISSION PROTECTION AREAS
- LICENCED PIT
- STUDY AREA

Fig.6

Union Gas Limited
NPS 48 Hamilton to Milton
Land Use and Zoning

ACRES

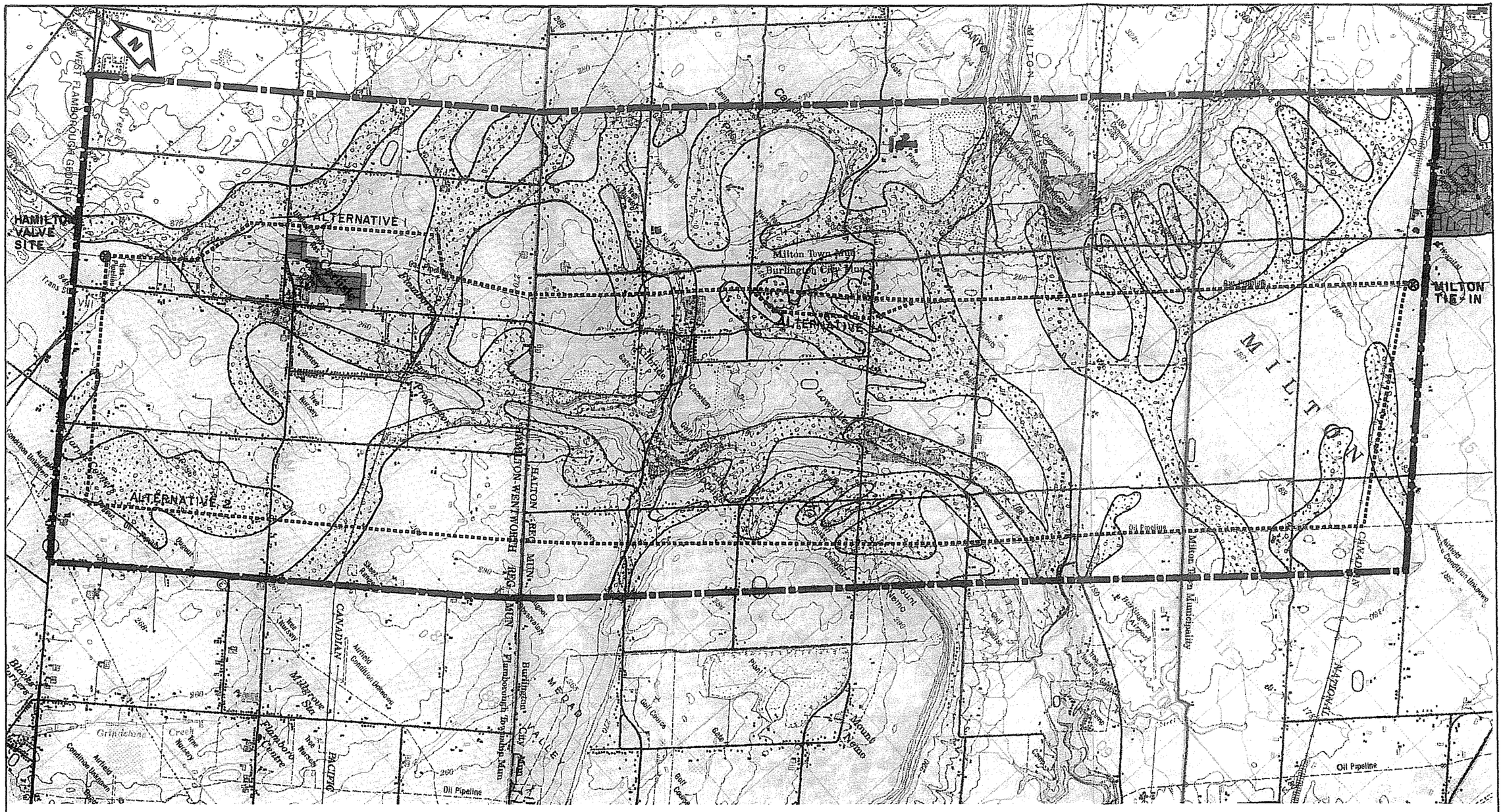



Fig.7

Union Gas Limited
NPS 48 Hamilton to Milton
Hazard Lands

ACRES



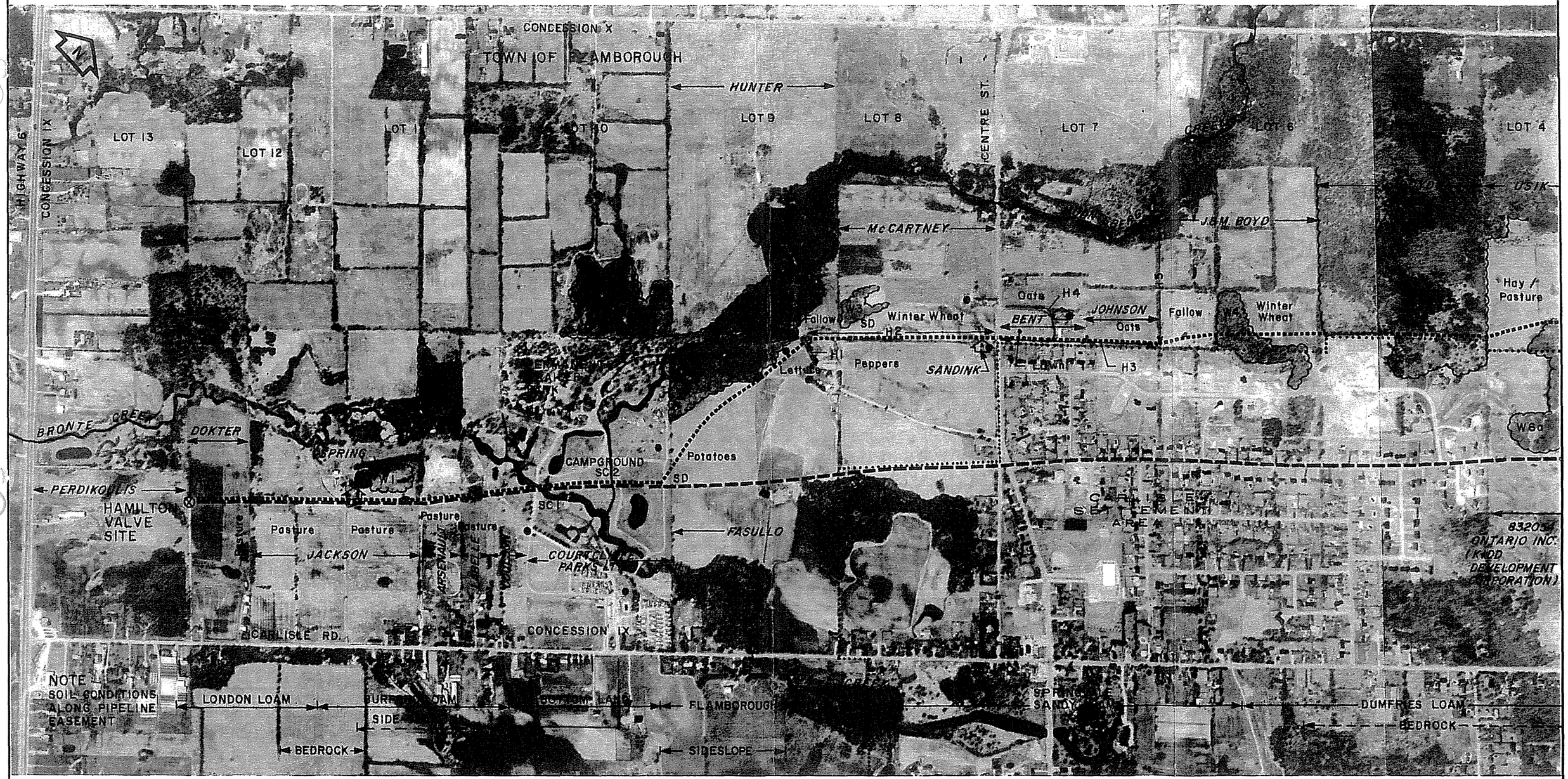

LEGEND

- BEDROCK WITHIN 1 M OF SURFACE
- ENVIRONMENTALLY SENSITIVE AREAS
- SETTLEMENT AREAS
- ALTERNATIVE ROUTES
- NIAGARA ESCARPMENT COMMISSION CONTROL AREA
- NIAGARA ESCARPMENT COMMISSION NATURAL AREAS
- LICENCED PIT
- STUDY AREA

Fig.8

Union Gas Limited
NPS 48 Hamilton to Milton
Major Route Constraints

AGRA




**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| ———— | EXISTING GAS PIPELINES | Oats | EXISTING CROP IN JULY 1990 | ▒▒▒▒ | MUNICIPAL BOUNDARIES |
| ▪▪▪▪▪▪▪▪ | PROPOSED NPS 48 PIPELINE | SD | SUBSURFACE DRAINAGE | ▪▪▪▪▪▪▪▪ | REGIONAL BOUNDARIES |
| ~ | STREAM | ● | WATER WELL | ····· | SETTLEMENT AREA BOUNDARY |
| W2 | WOODLOT | RC | ROAD/RAIL CROSSINGS | | |
| ← H3 → | HEDGEROW | PC | PIPELINE CROSSINGS | | |
| ⌂ | RESIDENCE WITHIN 50M OF UGL EASEMENT | SC3 | STREAM CROSSINGS | | |
| *JACKSON* | LANDOWNER | | | | |

General Concerns / Mitigation

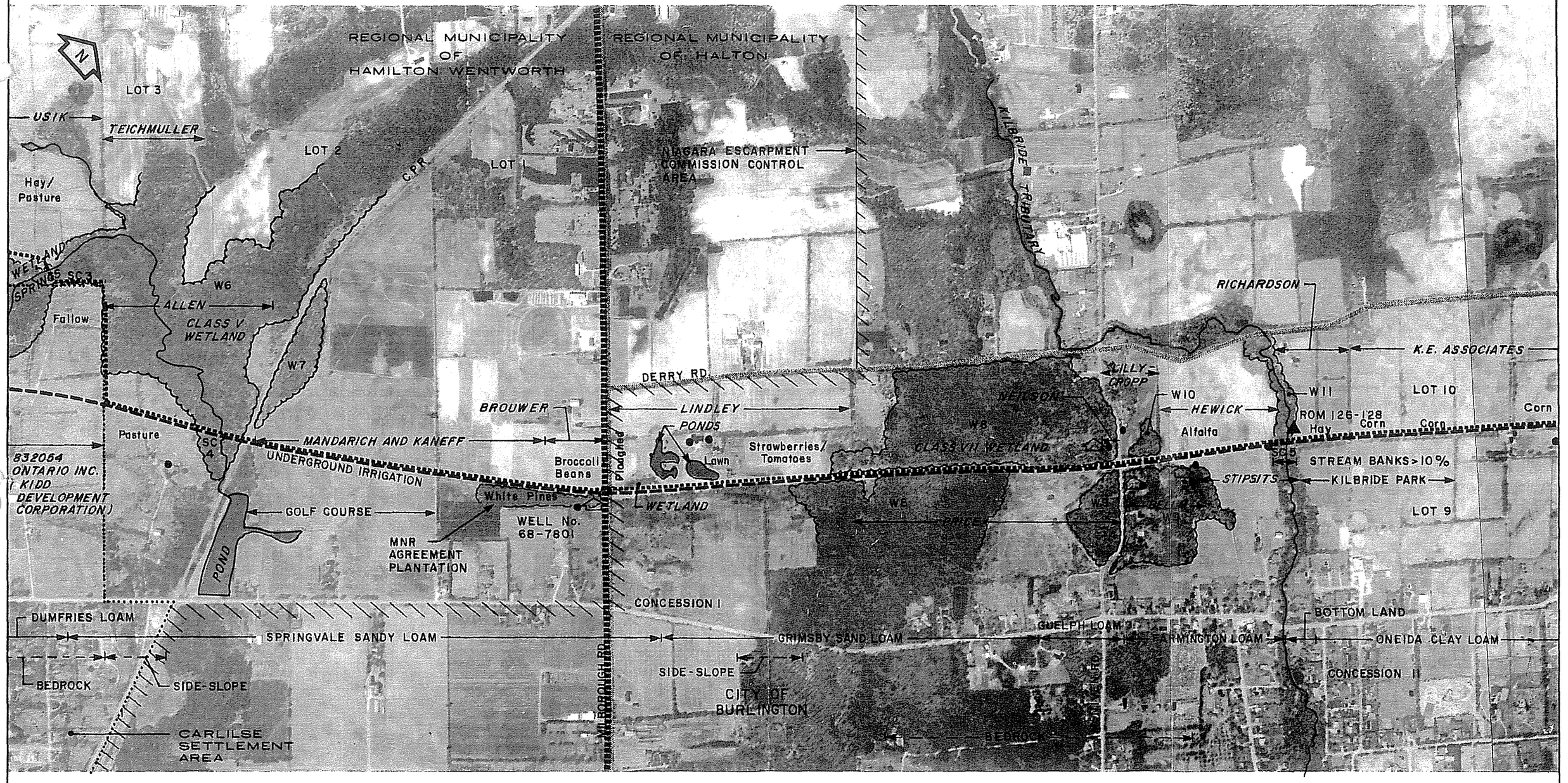
- Stream crossings SC1 and 2 (Bronte and Mountsberg Creeks) - preferrably dry crossing method to be completed between June 1st and Sept. 15th. Inform MNR 1 week before crossing. Obtain permit from Conservation Authority.
- Excavate bedrock by methods approved by blasting consultant.
- Monitor wells and buildings within 100m (or as requested by consultant) of any blasting activities.
- Monitor all other wells 50m from easement;
- Potential dust problems on sandy loam soils.
- Potential water erosion on side slopes.

0 200 400
METRES

Fig. 9

Union Gas Limited
NPS 48 Hamilton to Milton
Preferred Route - Environmental Features

ACRES




**LEGEND**

| | | | |
|---|---|---|---|
| EXISTING GAS PIPELINES | Oats | EXISTING CROP IN JULY 1990 | MUNICIPAL BOUNDARIES |
| PROPOSED NPS 48 PIPELINE | SD | SUBSURFACE DRAINAGE | REGIONAL BOUNDARIES |
| STREAM | ● | WATER WELL | ROM 126-128 ARCHAEOLOGICAL SITE |
| W6 WOODLOT | RC | ROAD/RAIL CROSSINGS | SETTLEMENT AREA BOUNDARY |
| H5 HEDGEROW | PC | PIPELINE CROSSINGS | |
| RESIDENCE WITHIN 50M OF UGL EASEMENT | SC3 | STREAM CROSSINGS | |
| JACKSON LANDOWNER | | | |

General Concerns / Mitigation

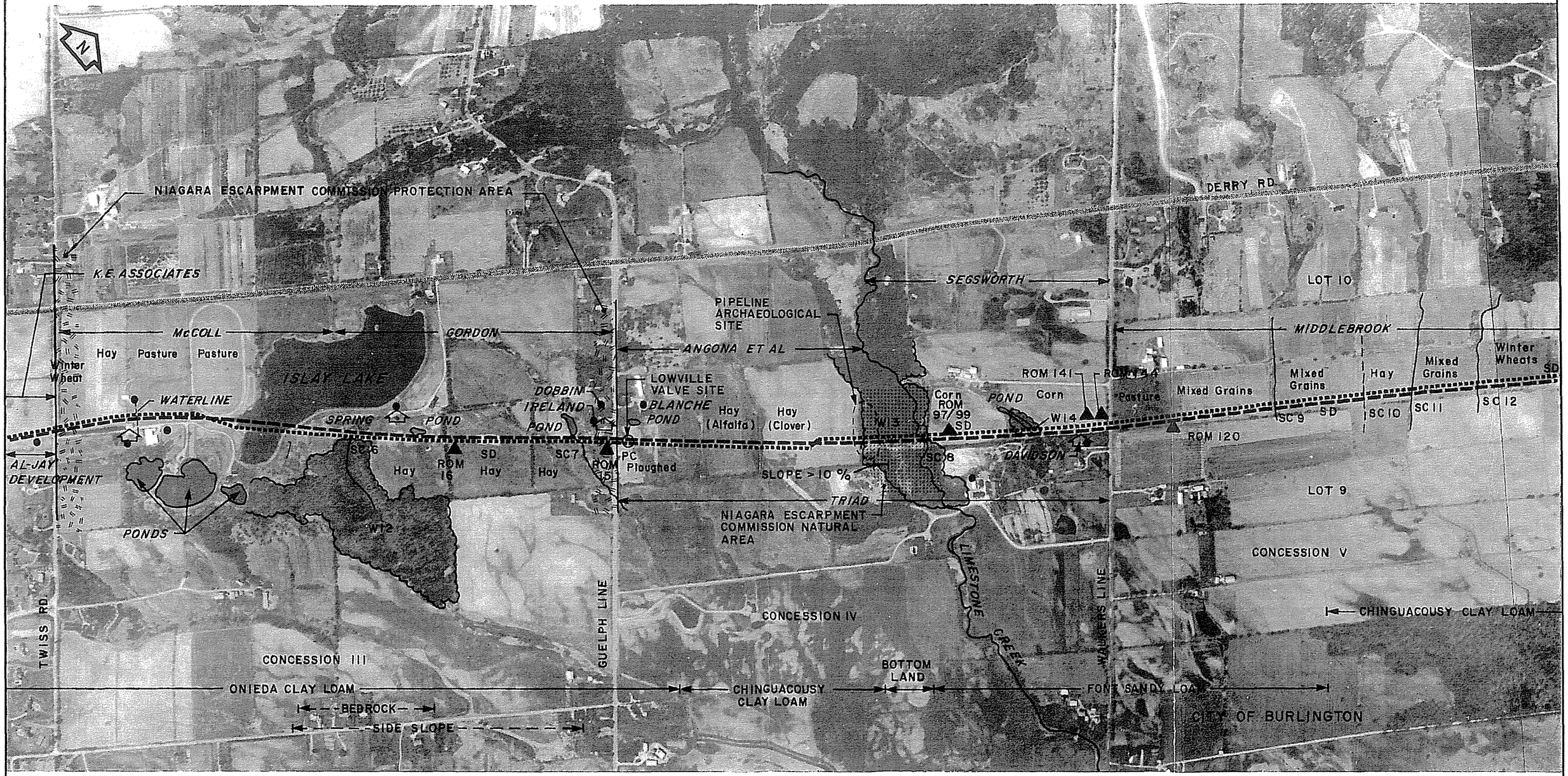
- Stream crossings SC3, 4 and 5 ; preferrably dry crossing method for SC4 and SC5 (Kilbride Tributary) to be completed between June 1st and Sept. 15th. Inform MNR 1 week before crossing. Obtain permit from Conservation Authority.
- Excavate bedrock by methods approved by blasting consultant.
- Monitor wells and buildings within 100m (or as requested by consultant) of any blasting activities.
- Monitor all other wells 50m from easement;
- Potential dust problems on sandy loam soils.
- Potential water erosion on side slopes.
- Bank stabilization required along Kilbride Tributary.
- Permit required from Niagara Escarpment Commission for construction in their Regulated Area.

0 200 400
METRES

Fig. 10

Union Gas Limited
NPS 48 Hamilton to Milton
Preferred Route - Environmental Features

ACRES




**LEGEND**

| | | | | | |
|---|---|---|---|---|---|
| ——— | EXISTING GAS PIPELINES | *JACKSON* | LANDOWNER | | MUNICIPAL BOUNDARIES |
| ····· | PROPOSED NPS 48 PIPELINE | Oats | EXISTING CROP IN JULY 1990 | ▮▮▮▮▮ | REGIONAL BOUNDARIES |
| ~~~ | STREAM | SD | SUBSURFACE DRAINAGE | ROM 16 ▲ | ARCHAEOLOGICAL SITE |
| - - - - | INTERMITTENT STREAM | ● | WATER WELL | | |
| W12 | WOODLOT | RC | ROAD/RAIL CROSSINGS | | |
| ← H5 → | HEDGEROW | PC | PIPELINE CROSSINGS | | |
| ⌂ | RESIDENCE WITHIN 50M OF UGL EASEMENT | SC3 | STREAM CROSSINGS | | |

General Concerns / Mitigation

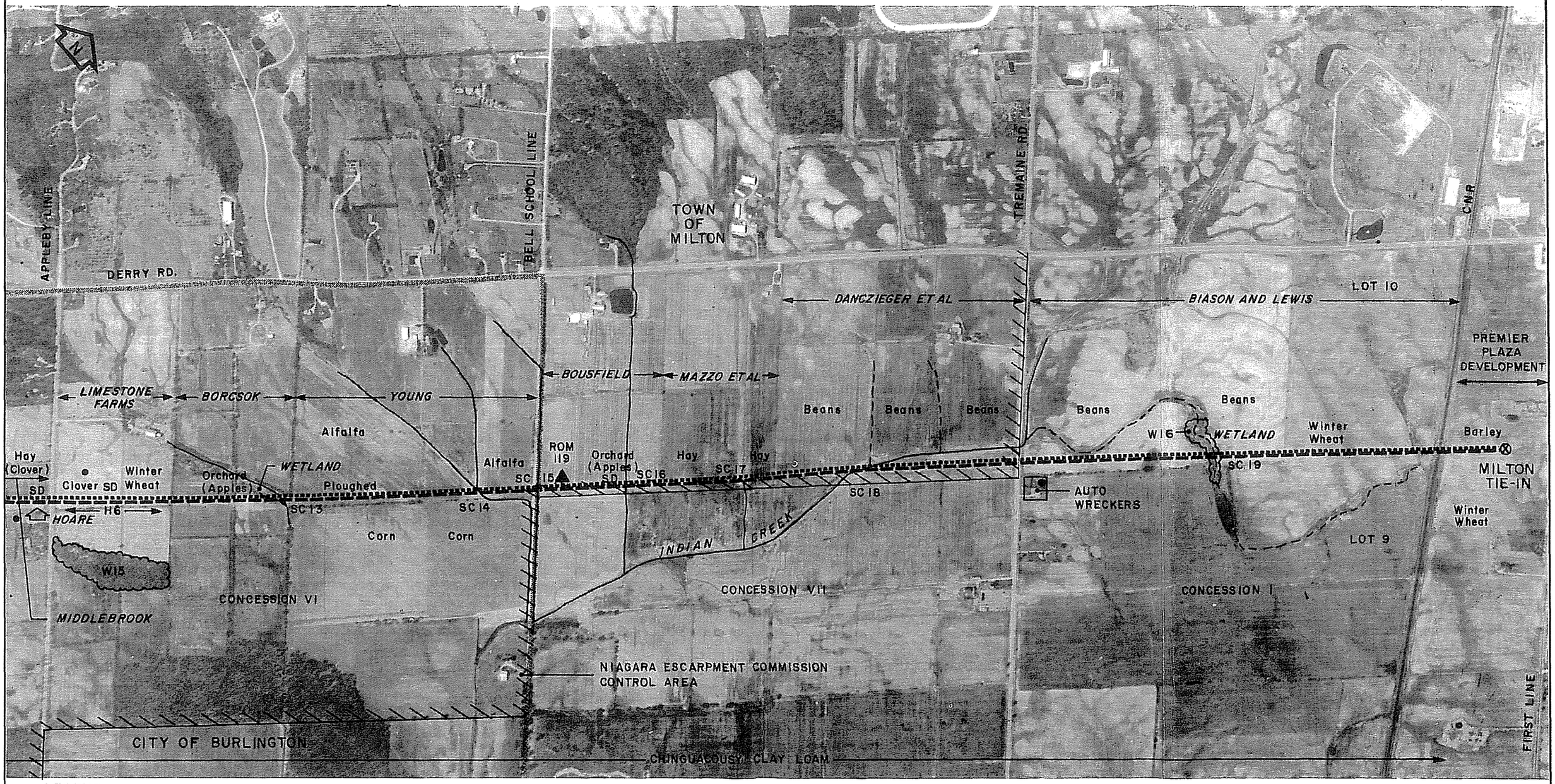
- Stream crossing SC6 to SC12, Limestone Creek (SC8) preferrably dry crossing to be completed between June 1st and Sept.15th. Inform MNR 1 week before crossing. Obtain permit from Conservation Authority.
- For crossing of Islay Lake see Fig.4.2
- Excavate bedrock by methods approved by blasting consultant.
- Monitor wells and buildings within 100m (or as requested by consultant) of any blasting activities.
- Monitor all other wells 50m from easement;
- Wet soil shut down to be strictly enforced on clay loam soils.
- Archaeological field investigation of 'Pipeline Site' to be undertaken.
- Permit required from Niagara Escarpment Commission for construction in their Regulated Area.

0 200 400
METRES

Fig.11

Union Gas Limited
NPS 48 Hamilton to Milton
Preferred Route - Environmental Features

ACRES




**LEGEND**

| | | | |
|---|---|---|---|
| EXISTING GAS PIPELINES | *JACKSON* | LANDOWNER | MUNICIPAL BOUNDARIES |
| PROPOSED NPS 48 PIPELINE | Oats | EXISTING CROP IN JULY 1990 | REGIONAL BOUNDARIES |
| STREAM | SD | SUBSURFACE DRAINAGE | ROM 119 ARCHAEOLOGICAL SITE |
| INTERMITTENT STREAM | ● | WATER WELL | |
| W15 WOODLOT | RC | ROAD/RAIL CROSSINGS | |
| ← H6 → HEDGEROW | PC | PIPELINE CROSSINGS | |
| RESIDENCE WITHIN 50M OF UGL EASEMENT | SC3 | STREAM CROSSINGS | |

General Concerns / Mitigation

- Stream crossings SC13 to SC19, wet crossing method acceptable.
- Monitor all wells within 50m of easement.
- Wet soil shut down to be strictly enforced on clay loam soils.
- Minimize removal of trees in apple orchards while ensuring turning room for farm machinery at end of rows.
- Permit required from Niagara Escarpment Commission for construction in their Regulated Area.

0 200 400
METRES

Fig.12

Union Gas Limited
NPS 48 Hamilton to Milton
Preferred Route - Environmental Features

ACRES

# Appendix J

# Agencies' Responses to Draft Final Report

Ministry of the Environment | Ministère de l'Environnement
West Central Region | Région du Centre-Ouest

119 King St W
12th Floor – Box 2112
Hamilton Ontario
L8N 3Z9
416/521-7640

119, rue King ouest
12e étage – Casier 2112
Hamilton (Ontario)
L8N 3Z9
416/521-7640

January 2, 1991

Mr. G. S. Davies
Acres International Ltd.
5259 Dorchester Road
Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies

Re: Union Gas NPS 48 Hamilton - Milton Pipeline Route Selection and Environmental Assessment

Please accept my apologies for not commenting sooner on this project, however, as per your request of December 21, 1990, we have reviewed the draft report for the above proposal with respect to possible water resources impacts.

In general, the report seems to thoroughly address surface water issues and proposes appropriate mitigative measures to minimize the impacts during the construction period. Most of the watercourses along the preferred route are of exceptional quality and contain biota that depend on the maintenance of pristine conditions. For this reason, we would prefer that all stream crossings are "dry crossings" and should occur during periods of low stream flow and biological sensitivity.

It is not clear whether any disposal of dredged sediment will be required. If this is the case, sediment quality analyses must be completed for those parameters listed in Table 1 of MOE's Draft "Guidelines for the Management of Dredged Material in Ontario". As indicated in Table 1, the disposal method will depend on the sediment quality.

Also, in the event that "wet crossings" of streams or trench dewatering are required, sediment quality analyses should be conducted to ensure that the downstream water quality will not be adversely affected. This would be especially critical in perennial streams with good fisheries.

Water quality analysis of the stream water used in hydrostatic testing (pre and post testing) is recommended in the report. We concur, and feel that the parameter list should include general chemistry (pH, oil and grease, BOD/COD, N and P species etc.) and a heavy metal scan. Appropriate mitigative measures may be required to settle solids and remove oil and grease prior to discharge. Discharge must be carried out in a manner to minimize scouring and erosion of the stream bed.

The report correctly points out that a MOE Permit to Take Water will be required for the pipeline hydrostatic testing. A Permit to Take Water will also be required for any groundwater takings (such as trench de-watering) exceeding 50,000 L/day.

To minimize the duration of disturbance to the stream, all necessary materials, equipment, and personnel should be assembled on-site prior to the initiation of each stream crossing. Once completed, the stream banks must be stabilized and re-vegetated immediately.

Yours truly,



R. Vickers
Surface Water Evaluator (Acting)

RV/

MINISTRY OF THE ENVIRONMENT
WEST CENTRAL REGION
LIBRARY

1987 OCT -2 AM 9:15

# GUIDELINES FOR THE MANAGEMENT OF DREDGED MATERIAL IN ONTARIO

DRAFT

CLASSIFICATION

SEPTEMBER, 1987

## 2.0 DREDGED MATERIAL CLASSIFICATION PROCESS

### 2.1 APPLICATION

This classification process differentiates, on the basis of chemical and physical characteristics, the dredged material management options which include: open water disposal, beneficial use on land and confined licensed disposal.

The classification process applies to dredged material originating from commercial, industrial, and public sector undertakings with the exception of agricultural drainage activities managed by Ontario municipalities under the Drainage Act, and resource recovery activities under the Beach Protection Act administered by Ministry of Natural Resources. The disposal of dredged material from agricultural drainage activities is governed by guidelines established by the Ministry of Agriculture and Food.

Depending on the magnitude and location of small dredging projects of a non-commercial, non-industrial, or non-public sector nature (e.g. cottage owners), they may be exempted from this classification process. Such exemptions would be made at the discretion of MOE review staff. Dredged material from these exempted undertakings should be handled in the following manner:

- disposed of on-land, on-site, above the high water mark
- stabilized as soon as possible to prevent its re-entry into the waterbody.

### 2.2 CLASSIFICATION OPTIONS

The dredged material, depending upon its chemical and physical characteristics relative to the model parameters presented in Table 1, will be classified in one of the following categories:

A) suitable for open-water disposal;

B) suitable for unrestricted use on-land;

C) suitable for restricted use on-land;

D) a waste, requiring disposal at a certified waste disposal site;

E) a hazardous waste, requiring disposal in accordance with MOE regulations and current practices.

Selection of the permissible option is made on a case-by-case basis by following the classification procedure illustrated in Figure 1 and described in the following section.

TABLE 1

DREDGED MATERIAL MODEL CLASSIFICATION CRITERIA

| PARAMETER | OPEN WATER DISPOSAL | UNRESTRICTED LAND USE | RESTRICTED LAND USE |
|---|---|---|---|
| .) | | | |
| CADMIUM | 1.0 | 1.6 | 4.0 |
| LEAD | 50.0 | 60.0 | 500.0 |
| MERCURY | 0.3 | 0.5 | 0.5 |
| PCB'S | 0.05 | 2.0 | 2.0 |
| ) | | | |
| ARSENIC | 8.0 | 14.0 | 20.0 |
| COPPER | 25.0 | 100.0 | 100.0 |
| ZINC | 100.0 | 220.0 | 500.0 |
| CHROMIUM | 25.0 | 120.0 | 120.0 |
| IRON | 10,000.0 | 35,000.0 | 35,000.0 |
| NICKEL | 25.0 | 32.0 | 60.0 |
| COBALT | 50.0 | 20.0 | 25.0 |
| SILVER | 0.5 | - | - |
| CYANIDE | 0.1 | - | - |
| MOLYBDENUM | - | 4.0 | 4.0 |
| SELENIUM | - | 1.6 | 2.0 |
| ) | | | |
| LOSS ON IGNITION | 6.0% | Group 3) parameters only apply to the Open Water Disposal option. | |
| OIL & GREASE | 1500 | | |
| TOTAL PHOSPHORUS | 1000 | | |
| TOTAL KJELDAHL NITROGEN | 2000 | | |
| AMMONIA | 100.0 | | |
| GRAIN SIZE | - | | |
| VISUAL DESCRIPTION | - | | |

ALL UNITS PPM UNLESS OTHERWISE SPECIFIED

ADDITIONAL PARAMETERS MAY BE REQUESTED BY THE REVIEWER BECAUSE OF KNOWN DISCHARGES.

MATERIALS NOT COMPLYING WITH ANY OF THE ABOVE WILL BE EITHER LANDFILLED IN A CERTIFIED WASTE DISPOSAL SITE, OR, IF HAZARDOUS WASTE BY DEFINITION, TRANSPORTED TO A HAZARDOUS WASTE TREATMENT/DISPOSAL FACILITY, IN ACCORDANCE WITH O. REG. 309.

/gr
September 21, 1987
01 24

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

Planning and Development Department
119 King Street West, 14th floor
Hamilton, Ontario
(416) 546-4186 Fax (416) 546-4364

Mailing Address:
P.O. Box 910, Hamilton, Ontario
L8N 3V9

December 21, 1990.

Refer to File No. 772.2 08
Attention of
Your file No.

Mr. Gordon S. Davies, Ph.D.,
Project Manager,
**Acres International Limited,**
5259 Dorchester Road,
P. O. Box 1001,
**NIAGARA FALLS,** Ontario.
L2E 6W1.

Dear Mr. Davies:

After review of the draft report, dated December, 1990, the potential concerns of the Region of Hamilton-Wentworth have been addressed.

As previously stated in our letter dated August 15, 1990, Alternative I is preferred since it has less negative effects on the natural and social environments. However, the previous concerns expressed by Flamborough respecting the pipeline affecting the possible future expansion of Carlisle should be considered in the final location of the pipeline within the corridor.

It should be noted that these are staff comments only and do not represent the final position of the Regional Municipality of Hamilton-Wentworth. If it is necessary to receive a final position, please let us know and a report on the proposed pipeline will be processed for Regional Council's consideration.

If you have any questions, please call Steve Miazga at 546-4164.

Yours truly,

V. J. Abraham, M.C.I.P.,
Director, Regional Planning Branch.

VJA/SCM/ll
Plan.Let
772-2-08

Ontario

Ministry of Agriculture and Food

Ministère de l'Agriculture et de l'Alimentation

Legislative Buildings
Queen's Park
Toronto, Ontario

Hôtel du gouvernement
Queen's Park
Toronto (Ontario)

M7A 2B2

Land Use Planning Branch

(416) 326-3131

January 7, 1991

Mr. Gordon Davies, Project Manager
Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies:

---

Re: Proposed NPS 48, Hamilton to Milton
Routing and Environmental Study
Union Gas

---

Staff of this Ministry have considered your latest report on the above project and note that you have taken into account our letter of September 24, 1990.

As the route selected has the least impact on the agricultural land and mitigation will be undertaken, this Ministry has no concerns with this proposal.

Should you have any further questions, please contact this office.

Yours truly,

Sharon Johnston

Sharon Johnston
District Manager

cc. Heather Gariepy, Land Use Specialist, Newmarket

Ontario, there's no taste like home
Un bon goût de chez nous

FOODLAND ONTARIO

HALTON REGION
CONSERVATION AUTHORITY
P.O. Box 1097, Station B, 2596 Britannia Road, West
Burlington, Ontario L7P 3S9
(416) 336-1158 (416) 847-7430
Fax: (416) 336-7014

January 14, 1991.

Mr. Gordon Davies
Acres International
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Sir:

**Re: Proposed NPS 48 Gas Pipeline**
**Hamilton to Milton Tie-in**
**File No.: PPR-28**

Staff have reviewed the above noted report submitted by your office December 21, 1990. The purpose of the draft report is to determine the preferred route selection and identify any constraints along this route.

The Halton Region Conservation Authority has identified that the preferred route, Alternative 1, crosses nineteen regulated areas, sixteen of which require a permit under Regulation 253/89 and three of which may require a permit (as will be determined during on-site inspections). Regulation 253/89 requires that a permit be obtained from the Halton Region Conservation Authority prior to placing fill of any kind within a scheduled area; altering or diverting an existing watercourse, and, constructing a building or structure within an area subject to flooding under Regional Storm conditions.

The crossing of watercourses should be performed as dry crossings and the Authority will require that any disturbed areas along the watercourse and banks be rehabilitated as best as possible to original existing conditions. These details will be discussed at the time an application is made.

As with any other project where excess fill may be created, the Conservation Authority requires that a clause be provided in all contracts awarded which "specifically prohibits the disposal of any fill or construction debris in any river, creek, pond, lake, swamp, ravine, or valley lands without the written consent of the local Conservation Authority and all other lands without the consent of the municipality."

The proposed pipeline will cross through several wetlands (W6, W8 and W16). Staff are concerned about the long term effects on the wetlands, particularly in regards

to the sub-surface drainage as will be affected by the introduction of foreign non-porous fill material. More information regarding these impacts should be provided in the final draft of the report.

The Environmental Assessment Report superficially discusses potential environmental impacts in Section 4. The impacts on wetland areas are not discussed and should be addressed with due regard to the following:

1. Loss of wetland vegetation and muck soils and the risk of further damage resulting from blow downs and sunscald on the newly exposed wetland, forested edge.

2. Replacement of muck soils with granular bedding thus reducing flood storage capacity.

3. Drainage patterns of subsurface flows and water movement as affected by east/west barrier of pipeline bedding.

4. Restoration of disturbed wetland area.

The removal of 20,000 $m.^3$ of water from active watercourses for hydrostatic testing may have adverse affects upon the streams and should be investigated further to ensure that the removal of such a large quantity of water will not result in damage.

Lake Islay is a pond located on privately owned property. The placement of the pipeline beneath this water body and the possible utilization of the water for hydrostatic testing must be in accordance with the landowners approval. In order to consider the current proposed alignment for the pipeline, a letter from the landowners indicating that they have been duly informed of the NPS48 Gas Pipeline proposal across Lake Islay is required from this Authority.

Several of the tributaries which will be crossed by the proposed pipeline may be dry if construction is to proceed during late summer. On-site meetings with Authority staff may be desired to determine the most appropriate method of construction and silt control.

In the review of the report, staff noted some points of discrepancy. In the biological inventory Castanea dentata (sweet chestnut) was listed. If this species occurs within the area, care should be taken not to disturb it as it is a very significant species being nationally, provincially, and regionally rare. Furthermore, staff question the presence of Trillium unduvatum (painted trillium), Corvus corax (common raven) and Perisoreus canadensis (gray jay) which are species known to reside in Northern Ontario but not regionally. As well, for clarification, the wetland area identified within the report as 'W6' is a Class V wetland and not Class VI.

The tributary crossing SC4 in Lot 3, Concession IX (E.F.) indicates a widening of 28 metres for a new easement. It is the understanding of staff that a 20 metre easement through this area currently exists and that a culvert exists within the watercourse. Staff question the need to widen the easement by 8.0 metres through this area.

It is the understanding of staff, through review of the report, that the proposed pipeline is to be located to the north of the existing pipeline. Has any consideration been given to the placement of the proposed pipeline to the south of the existing pipeline? Authority staff would be pleased to meet with yourselves, representatives from Union Gas and any other interested parties to discuss the proposal further prior to the report being finalized.

We trust the above is of assistance. Should you require further information, please contact Edith Tobe, B.Sc., Watershed Technologist, or the undersigned.

Yours truly,

John D. Hall, Manager
Resource Planning.

EBT:mrl

ccs: Mr. R. Tapley, Ministry of Natural Resources, Beaverdale Road, Cambridge N3C 2W1
Credit Valley Conservation Authority, Meadowvale LOJ 1KO
Ontario Energy Board, P.O. Box 2319, 2300 Yonge Street, Suite 2601, Toronto M4P 1E4

163 Dundas St. E. (Hwy. 5)
P.O. Box 50
Waterdown, Ontario
L0R 2H0
Tel. (416) 689-7351
Ham. (416) 524-0322
Tor. (416) 825-2176
Zenith No. 36650
Fax 689-3310

February 11, 1991

Union Gas Limited
Box 2001
50 Keil Drive North
Chatham, Ontario
N7M 5M1

Dear Sir:

Re: 3.02 Union Gas NPS 48 Hamilton-Milton Pipeline Route Selection and Environment Assessment Draft Final report

On January 28th, 1991, the Planning and Development Committee of the Town of Flamborough dealt with the aforementioned matter and approved the following motion:

(1) That Union Gas' "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" draft final report to allow for the construction of a natural gas pipeline from the Hamilton Valve Site located in Lot 12, Concession 9 (E.F.) to the Milton Tie-In be received.

(2) That the Council of the Town of Flamborough support the proposed Union Gas pipeline from the Hamilton Valve Site to the Milton Tie-in subject to the implementation and monitoring recommendations proposed in the "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" draft final report, in addition to the following mitigation measures:

(i) that any required blasting comply with the Town's Blasting By-law (No. 83-42-E as amended) and that a tightening of the blasting pattern occur within 100 metres of wells, structures and foundations;

(ii) that the trenching contractor be made aware of the possibility of groundwater contamination by reference in the construction specifications and drawings so that appropriate mitigation measures can be identified, approved and utilized to the Town's satisfaction;

(iii) that all farm land be restored to its previous original arable condition and that farmers be compensated for possible crop loss and/or disruption to farm operations;

(iv) that residents in the immediate vicinity of the pipeline corridor be compensated for any damages resulting from blasting procedures;

(v) that the Director of Engineering Services be contacted to review and approve any municipal road crossings proposed; and,

(vi) that further study be done to determine the possible existence and significance of archaeological and heritage resource sites in the immediate vicinity of the pipeline corridor prior to final approval being given for the construction of the proposed pipeline.

(3) That Union Gas, the Ontario Energy Board and the Regional Municipality of Hamilton-Wentworth be informed of these decisions.

The Council of the Corporation of the Town of Flamborough approved these decisions on February 4th, 1991 by adopting the Minutes of the Planning and Development Committee meeting.

Enclosed is a copy of the pertinent section of the Minutes of the Planning Committee meeting as adopted by Council and a copy of the staff report.

Yours truly,

Tricia George,
Deputy Clerk

/bm

encl.
cc. Acres International Ltd., 5259 Dorchester Rd., PO Box 1001 Niagara Falls, Ont. L2E 6W1, Attention: Gordon S. Davies
Ontario Energy Board, 9th Floor, 14 Carlton St., Toronto, Ont M5B 1J2
Regional Municipality of Hamilton-Wentworth Planning Department

3.02 Union Gas NPS 48 Hamilton-Milton Pipeline Route Selection and Environment Assessment draft final report. DPD 1991-06

Moved by Councillor Shurvin
Seconded by Councillor Mitchell

(1) That Union Gas' "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" draft final report to allow for the construction of a natural gas pipeline from the Hamilton Valve Site located in Lot 12, Concession 9 (E.F.) to the Milton Tie-In be received.

(2) That the Council of the Town of Flamborough support the proposed Union Gas pipeline from the Hamilton Valve Site to the Milton Tie-in subject to the implementation and monitoring recommendations proposed in the "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" draft final report. in addition to the following mitigation measures:

(i) that any required blasting comply with the Town's Blasting By-law (No. 83-42-E as amended) and that a tightening of the blasting pattern occur within 100 metres of wells. structures and foundations;

(ii) that the trenching contractor be made aware of the possibility of groundwater contamination by reference in the construction specifications and drawings so that appropriate mitigation measures can be identified, approved and utilized to the Town's satisfaction;

(iii) that all farm land be restored to its previous original arable condition and that farmers be compensated for possible crop loss and/or disruption to farm operations;

(iv) that residents in the immediate vicinity of the pipeline corridor be compensated for any damages resulting from blasting procedures;

(v) that the Director of Engineering Services be contacted to review and approve any municipal road crossings proposed; and,

(vi) that further study be done to determine the possible existence and significance of archaeological and heritage resource sites in the immediate vicinity of the pipeline corridor prior to final approval beino given for the construction of the proposed pipeline.

(3) That Union Gas, the Ontario Energy Board and the Regional Municipality of Hamilton-Wentworth be informed of these decisions.

Carried

3.02 Union Gas NPS 48 Hamilton-Milton Pipeline Route Selection and Environment Assessment draft final report. DPD 1991-06 Cont'd

Councillor Mitchell noted that the public meetings held by Union Gas were held on Monday evenings when it was not convenient for Councillors to attend and suggested that in the future similar public meetings should be held on nights convenient to interested Councillors.

3.03 Request for an Extension to Draft Plan Approval for Orkney Acres Subdivision Derwent Investments Ltd. Pt Lot 24, Con 2 (Bev) DPD 1991-07

Moved by Councillor Leader
Seconded by Councillor Morrison

That the Region of Hamilton-Wentworth and the applicant be informed that the Town of Flamborough does not support the extension of Draft Plan Approval.

Carried

3.04 Request to Amend the Hamilton-Wentworth Official Plan to Expand the Ancaster Urban Boundary. DPD 1991-08

Moved by Deputy Mayor Granger
Seconded by Mayor Robb

That the matter of the proposed amendment to the Hamilton-Wentworth Official Plan to expand the Ancaster Urban Boundary be referred to staff.

AMENDMENT

Moved by Councillor Morrison
Seconded by Mayor Robb

That the matter of the Highway 403 access at Lynden be considered by staff in conjunction with their review of the proposed Hamilton-Wentworth Official Plan.

Carried

The Chairman called the question on the motion as amended as follows:

That the proposed amendment to the Hamilton-Wentworth Official Plan to expand the Ancaster Urban Boundary and the matter of the Highway 403 access at Lynden, be referred to staff.

Carried

3.05 N.E.C.D.P.A. W/C90-91/209 ACME Neon Signs (London) Ltd. Pt Lot 4, Con. 3 (E.F.)

Moved by Councillor Mitchell
Seconded by Councillor Morrison

That the Town of Flamborough does not object to this application.

Carried

DPD 1991-06
File: 40.69.03

# TOWN OF FLAMBOROUGH
# REPORT

TO: Councillor Bush, Chairman, and Members of the Planning and Development Committee

DATE OF MEETING: January 28, 1991

PREPARED BY: Peter J. De Iulio

DEPARTMENT HEAD APPROVAL: Guy Pappalardo

SUPPORTING DEPARTMENT(S):

SUBJECT:

Union Gas' "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" draft final report

Pt. Lots 1-12, Con. 9 (E.F.)

DATE TO MANAGEMENT COMMITTEE: January 23, 1991

IF DIRECT TO COUNCIL/COMMITTEE: _____
(C.A.O. APPROVAL)

---

RECOMMENDATIONS:

(1) That Union Gas' "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" draft final report to allow for the construction of a natural gas pipeline from the Hamilton Valve Site located in Lot 12, Concession 9 (E.F.) to the Milton Tie-In be received.

(2) That the Council of the Town of Flamborough support the proposed Union Gas pipeline from the Hamilton Valve Site to the Milton Tie-in subject to the implementation and monitoring recommendations proposed in the "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" draft final report, in addition to the following mitigation measures:

(i) that any required blasting comply with the Town's Blasting By-law (No. 83-42-E as amended) and that a tightening of the blasting pattern occur within 100 metres of wells, structures and foundations;

(ii) that the trenching contractor be

made aware of the possibility of groundwater contamination by reference in the construction specifications and drawings so that appropriate mitigation measures can be identified, approved and utilized to the Town's satisfaction;

(iii) that all farm land be restored to its previous original arable condition and that farmers be compensated for possible crop loss and/or disruption to farm operations;

(iv) that residents in the immediate vicinity of the pipeline corridor be compensated for any damages resulting from blasting procedures;

(v) that the Director of Engineering Services be contacted to review and approve any municipal road crossings proposed; and,

(vi) that further study be done to determine the possible existence and significance of archaeological and heritage resource sites in the immediate vicinity of the pipeline corridor prior to final approval being given for the construction of the proposed pipeline.

(3) That Union Gas, the Ontario Energy Board and the Regional Municipality of Hamilton-Wentworth be informed of these decisions.

**EXECUTIVE SUMMARY:**

Union Gas Limited proposes to construct an NPS 48 pipeline in 1992/1993 from the Hamilton Valve Site (Lot 12, Concession 9)(E.F.) to the Milton Tie-in. It will be approximately 17 km in length and will form part of the existing Union Gas Trafalgar System. The route selection and environmental impact assessment study was prepared in accordance with the requirements of the Ontario Energy Board "Environmental Guidelines for Locating, Constructing and Operating Hydrocarbon Pipelines in Ontario (1989)". Staff have reviewed the report and summarized the general findings in the following report.

**APPLICANT:**

Union Gas Limited
Box 2001
50 Keil Drive North
Chatham. Ontario
N7M 5M1

**AGENT:**

Acres International Limited
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Attention: Gordon S. Davies

**LOCATION:**

Part of Lots 1-12, Concession 9, formerly in the Township of East Flamborough, now in the Town of Flamborough (see Map 1 attached).

**OFFICIAL PLAN:**

Rural, Agriculture and Open Space and Recreation

**ZONING BY-LAW:**

Agricultural 'A' and Private Open Space '01'

**COMPREHENSIVE ZONING BY-LAW:**

Agriculture 'A', Recreation Open Space '03' and Conservation Management 'CM'

**BACKGROUND:**

Union Gas Limited proposes to construct an NPS natural gas pipeline from its existing Hamilton Valve Site located in Lot 12, Concession 9 (East Flamborough) to the Milton Tie-in. Two alternative routes were considered and a preferred route was selected. The preferred route parallels, for the most part, the existing Union Gas pipelines. The route runs east to Lot 10 then goes north, skirting the Carlisle Settlement Area and rejoins the existing Union Gas pipelines in Lot 3 (see Map 2 attached).

The pipeline will be 1219 mm (48 inches) in outside diameter and is required to meet Union Gas transportation service demands. Construction is tentatively scheduled for the summers of 1992/1993 conditional upon Ontario Energy Board (O.E.B.) approval.

The purpose of the study is to select a preferred route for the pipeline in accordance with the O.E.B. Guidelines (1989); to assess the probable impact of construction and operation of the proposed pipeline in the area of the preferred route; and to develop recommendations for mitigating and monitoring potentially significant environmental impacts.

## POTENTIAL IMPACTS AND MITIGATION MEASURES:

The impacts of the proposed pipeline and the proposed mitigation measures are outlined below:

(i) Topography:

Water erosion causing gullying, rilling and sloughing are the potential impacts that could occur along the steep slopes. Cross ditches and berms for the diversion of surface runoff to the natural drainage system should be constructed.

(ii) Bedrock:

If bedrock is removed by blasting, the vibrations transmitted through the ground may result in damage to buildings and other structures, and can also prove to be an annoyance to humans and possibly animals. In accordance with the O.E.B. 1989 Guidelines, blasting and noise limits shall conform to the criteria specified in the M.O.E. "Model Municipal Noise Control By-law."

(iii) Soils:

Possible impacts include enhanced susceptibility to wind and water erosion, soil compaction, rutting, mixing, increased stoniness, and their resulting impacts on drainage, structural stability and/or fertility. To alleviate compaction, chisel ploughing and/or subsoiling should be undertaken and construction on agricultural land is restricted during and after periods of heavy rain. Topsoil and subsoil will be stockpiled separately and piled in a

manner that would not interfere with natural drainage.

(iv) Groundwater:

Potential impacts on local wells and aquifers include interference with the groundwater recharge and lowering of the water table, quality of groundwater and damage to well construction or introduction of suspended matter into the groundwater as a result of blasting activities. It is recommended that all wells 50 m from the pipeline trench (and 100 m in bedrock areas) be monitored. Where it is necessary to pump water from the trench due to high groundwater levels, this water will be discharged in an area acceptable to the landowner. Carefully controlled blasting will eliminate the effects of ground vibration induced damage.

(v) Surficial Water:

The pipeline will cross Bronte Creek and its tributary Mountsberg Creek where they flow through Courtcliffe Park. The potential impacts include siltation, disruption to spawning activities, disturbances to spawning beds, increased instability in the stream banks, reduction of the aesthetic quality of the stream by removing trees and other vegetation and altering the watercourse and the nature of the stream bottom. It is recommended that dry crossings be employed for all flowing creeks and in particular, for the more sensitive streams which includes Bronte and Mountsberg Creeks. Stream crossing timing would be ideally suited to summer low-flow periods (July/August). Removal of in-stream and bank vegetation should be minimized and the stream bed should be restored to its preconstruction condition.

(vi) Vegetation:

The proposed pipeline will cross through three woodlots in Flamborough. The potential impacts include removal of trees, loss of merchantable timber, aesthetic disturbances, fragmentation of woodlots, loss of hedgerows, loss of significant plant and tree species, disturbance to wetlands and removal of vegetation along a 6 metre band of easement centred over the pipeline. A certain amount of tree removal will be unavoidable, however, by overlapping the preferred route with the existing Union Gas easements impacts to wooded areas will be reduced. New 28 metre wide easements are required through the three woodlots in Flamborough. Union Gas should attempt, whenever possible, to reduce as much as possible its working area and the width of the cleared swath. By selecting the preferred route, mainly adjacent to an existing easement, the visual impact of the pipeline will be minimized since the landscape has already been disturbed in these areas. Specimen trees/hedgerows should be avoided or bored if possible and disturbance to wetland areas should be minimized by reducing the amount of work area.

(vii) Wildlife:

Scrub vegetation which has grown along the existing easement provide habitat for a variety of small mammals and birds and possibly deer. Portions of this vegetation as well as some woodlots and hedgerows will be lost as a result of construction. By allowing regeneration of scrub vegetation there should be only temporary disturbances to the local wildlife.

(viii) Land Use and Infrastructure:

Potential impacts include conflicts

in zoning, disturbance to N.E.C. regulated areas, disruption to traffic during road and rail crossings and disturbances to utility lines. Necessary approvals will be required from the N.E.C. and Halton Region Conservation. Pipeline construction will only temporarily affect the existing land use, however, the operation of the pipeline will permanently restrict changes in land use over the easement. All local municipalities and regional offices must be informed of road crossings and the design approved before construction proceeds.

(ix) Agriculture:

Pipeline construction may cause general farm disruption: tile drainage will be cut, access across the easement could be restricted, pasture land will be crossed, fencing will be removed, dust and noise could be experienced and potential disruption could occur to water supplies used for irrigation or animal needs. All tile drains should be repaired and the depth of cover over the pipeline in agricultural areas should not be less than 1.2 metres to accommodate existing and future tile drains. Access across the easement must be maintained where requested by the landowner and temporary bridges provided where required. In fields used for pasturing livestock, the easement must be fenced off and where fencing is cut or damaged during construction, temporary fencing must be maintained if requested by the landowner or municipality and repaired.. Water supplies for irrigation and animal needs must be maintained, if the landowner requests it, using alternative water sources (including trucking in water) if necessary.

(x) Residential:

Pipeline construction could cause loss of subdivision land, produce noise and dust problems, and disturb lawns and driveways. Union Gas must follow the setback guidelines required by the Fuel Safety Branch (attached to report). Aerial patrols and ground surveillance of the pipeline must be maintained on a regular basis to ensure that the easement is only being used for activities compatible with the operation of a high-pressure pipeline. Nearby residences will experience short-term disturbances such as noise and dust. Residences should be notified of the construction schedule and, where possible, no heavy equipment should operate outside the hours of 7:00 a.m. to 6:00 p.m. close to residences. Where lawns and driveways are affected, lawns should be resodded and driveway crossings should be coordinated with the landowners.

(xi) Parks and Recreation:

The pipeline will cross through Courtcliffe Park and Carlisle Golf Course. The pipeline will cross the camping area along the lower, hazard land area where permanent residences are not permitted. Access to Courtcliffe will be maintained at all times, construction time will be kept to a minimum and the site will be returned to preconstruction conditions. The pipeline will intersect four fairways but no greens or trees will be disturbed, the access road will cross the pipeline and the clubhouse will be constructed approximately 200 metres north of the pipeline. Construction time will be kept to a minimum and coordinated with the owners of the golf course to minimize the impact on the golf operation if possible. Fairways, roughs and irrigation pipes will all be returned to

preconstruction condition.

(xii) Socioeconomic:

The construction period is expected to take place during the summers of 1992/1993 with a maximum of 350 workers on the job during peak times. Some economic spinoffs may occur for temporary accommodation and at local restaurants or diners. Some minor interference with local traffic is likely to be experienced, due to construction crew commuters and transfer of equipment and materials.

(xiii) Archaeology and Heritage Resources:

Eleven registered and two unregistered archaeological sites have been identified in the Town of Flamborough within the limits of the study area (see Map 2 for registered sites). The closest site is 500 metres north of the pipeline (Site 90). Pipeline construction could disturb significant archaeological sites. Further investigations will be undertaken.

**CONCLUSION:**

Staff has concluded that the draft final report entitled "NPS 48 Hamilton-Milton Pipeline Route Selection and Environmental Assessment" prepared by Acres International Limited is a fairly comprehensive investigation of the proposed pipeline project. It addresses the important measures that will be taken to minimize the impacts of the construction of the proposed pipeline on the residents and the natural environment.

Prepared by,

Peter J. De Iulio,
Planner

PJD:gm

Ontario

Niagara Escarpment Commission
Commission de l'escarpement du Niagara

232 Guelph Street
Georgetown, Ontario
L7G 4B1
(416) 877-5191

232, rue Guelph
Georgetown, Ontario
L7G 4B1
(416) 877-5191

20 February 1991

Mr. Gordon Davies, Ph.D.
Project Manager
Acres International Ltd.
5259 Dorchester Road
P.O. Box 1001
Niagara Falls, Ontario
L2E 6W1

Dear Mr. Davies:

**Re:** Union Gas NPS 48
Hamilton to Milton Pipeline
Final Draft - Route Selection and
Environmental Assessment Report

The Niagara Escarpment Commission, at its February 14, 1991 meeting, resolved to advise Acres International that before it takes a position on the proposed pipeline the following issues must be addressed:

1. The need for the pipeline should be addressed in the Introduction of the study.

2. The Route Selection section of the report requires further assessment of both alternative routes be undertaken. In particular, an assessment of route impacts needs to be conducted in addition to the "distance crossed" considerations upon which the current assessment is based.

   Additional criteria also need to be addressed in the selection process including:

   - land requirements for easement purposes;
   - visual impacts of construction and operation along both routes;
   - areas of steep slopes crossed, gradient of these slopes, other features proximate to the steep slopes and potential impacts on them;
   - areas of high groundwater table along both routes, areas of groundwater recharge or discharge and potential impacts of construction and operation;
   - wetland areas (Class I-VII) and possible impacts (including impacts to habitat); and
   - within Escarpment Natural Areas, justification of how the route meets the definition of "essential"

in the Niagara Escarpment Plan and potential impacts to these areas and mitigation measures.

3. The "topographic constraint" criteria needs further explanation addressing the types of constraints covered under this heading.

4. It is recommended also that Table 3.1 be retitled Route Evaluation and be expanded to summarize potential impacts along both alternative routes related to the evaluation criteria.

5. In assessing alignment of a preferred route, once a complete evaluation of alternative routes has been undertaken, section 2.4.1.2 should address advance notification of blasting to neighbouring residents and any mitigation possible regarding impacts to wildlife; section 4.2.1.4 should address wetlands as a separate item and address disruption to or loss of habitat as well as impacts on the water resource itself.

   Table 4.1 should address potential impacts regarding disturbance to or loss of habitat under Clearing and Trenching headings, sedimentation as an impact under Grading, and any appropriate mitigation measures related to wildlife under Trenching.

   Table 4.6 should address contour ploughing and revegetation as mitigation measures under Soil Erosion; preservation of treed areas under Watercourse Crossings; and Wetlands, Groundwater and Blasting should be shown as key environmental issues and addressed appropriately.

6. The recommended editorial changes in Appendix A should be incorporated into the report.

A copy of the staff report is attached for your reference. If you have any questions please contact Carolyn Stewart at the telephone number above.

Yours very truly,

Cecil A. Louis
Manager
Plan Administration

# APPENDIX A

## RECOMMENDED EDITORIAL CHANGES

1. Page 3-3 is shown twice and Section 3.3 Evaluation of Route Alternatives is partially duplicated. This section should be corrected to ensure clarity.

2. The statement under 3.3 regarding the Niagara Escarpment Commission lands crossed should be reworded as follows:

   "Although Alternative 1 traverses 1.5 km more of the Niagara Escarpment Plan Area, it actually goes through significantly less land designated Escarpment Natural Area and Escarpment Protection Area."

3. Table 3.1 should be amended by deleting the Niagara Escarpment Commission section and replacing it as follows:

   Niagara Escarpment Plan designations (km)
   - Escarpment Natural Area
   - Escarpment Protection Area
   - Escarpment Rural Area
   - Total Plan Area Crossed.

4. Section 4.2.2, Paragraph 2 should be reworded as follows:

   "The Niagara Escarpment Plan Area extends from Millborough Road (the boundary between Hamilton-Wentworth and Halton) to Tremaine Road, a distance of approximately 9 km along the preferred route. From Twiss Road to the Guelph Line, lands are designated Escarpment Protection Area (1.35 km along the preferred route) and the land adjacent to Limestone Creek is designated Escarpment Natural Area -- the most sensitive designation. Only "essential" utility facilities are permitted through Escarpment Natural Areas. The remainder of the lands within the Niagara Escarpment Plan Area are designated Escarpment Rural".

5. Under Section 4.2.2 - Potential Impacts point 2 should be reworded to say:

   " - disturbance to lands within the Niagara Escarpment Plan Area."

6. Under Section 4.2.2 - Mitigation Measures, Paragraph 1 should be reworded as follows:

> "Construction through the Niagara Escarpment Plan Area will require a development permit from the Niagara Escarpment Commission. Support documentation must be provided prior to approval by the Ontario Energy Board and the Niagara Escarpment Commission to justify the proposed route through Escarpment Natural Areas in terms of the Niagara Escarpment Plan definition of "essential" as "that which is deemed necessary to the public interest after all alternatives have been evaluated."

The second point regarding the Conservation Authority should be separated from that dealing with the Niagara Escarpment Commission.

7. With respect to Mitigation Measures related to the Terrestrial Environment, Paragraph 6 on pages 4-27 should be revised as follows:

> "...(a distance of 350 m). Construction should occur after July 1, well after the sensitive spring growing season, to have less impact on the wetland...".

8. Table 6.1 should include the Niagara Escarpment Planning and Development Act under Legislation.

9. Section 6.2 should be retitled Niagara Escarpment Plan and reworded as follows:

> "The Niagara Escarpment Plan was approved by the Province to ensure that the Niagara Escarpment Plan Area would be protected as a natural environment and to strike a balance between development, preservation, and the enjoyment of this resource. The policies of the Niagara Escarpment Plan take precedent over Provincial Policy Statements within the Plan Area. The Niagara Escarpment Commission implements the Niagara Escarpment Plan. The Niagara Escarpment Commission is administered by the Minister of the Environment.
>
> There are three major planning designations: Escarpment Natural Area, Escarpment Protection Area and Escarpment Rural Area. Escarpment Natural Areas contain the most significant and scenic aspects of the Niagara Escarpment and hence

only "essential" pipelines are permitted in this designation. Essential is defined as:

> "that which is deemed necessary to the public interest after all alternatives have been considered".

Any construction within the Niagara Escarpment Plan Area requires a development permit from the Niagara Escarpment Commission. The permit application must be supported by documentation which should the "essential" character of all proposals crossing through Escarpment Natural Areas."

The Niagara Escarpment Plan Area is outlined on Figure 6 (Appendix I).

# Appendix K

# Evaluation of a Northern Route Alternative

# Appendix K

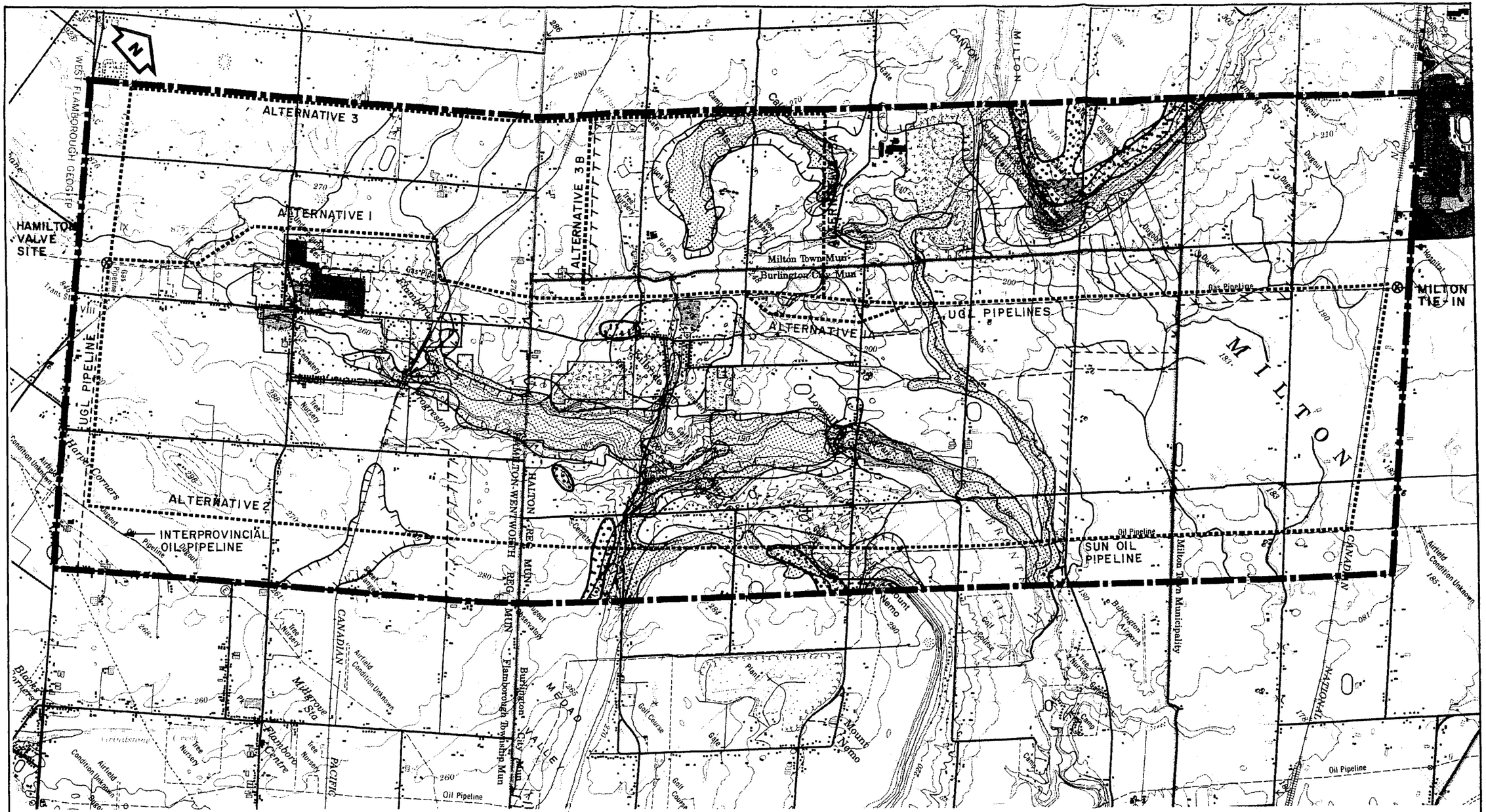
# Evaluation of a Northern Route Alternative

At the public meeting of January 8, 1991, the route selection process which Acres had undertaken was questioned. There was a suggestion that a route to the north of the existing Union Gas pipelines should also have been investigated. Acres had initially looked for a northern alternative but rejected it because they were unable to generate a totally different route due to the topographic constraints (Rattlesnake Point and the Nassagaweya Canyon) at the northeast end of the study area and the aggregate extraction area in Concession IV, lots 11-13, Milton.

After the public meeting, variations on a northern alternative, incorporating part of Alternative 1 were examined. Figure K-1 shows the alternatives that were generated. Alternative 3 proceeds directly northwest from the Hamilton Valve Site, paralleling the lot line, it crosses the Tenth Concession Road to the back lot line in the Tenth Concession. From there the route proceeds northeast along the back lot line. Two routes (Alternative 3A and 3B) were generated to return to Alternative 1. Alternative 3A turns southeast, parallel and west of Guelph Line such that it joins Alternative 1 to the east of Islay Lake. Alternative 3B turns southeast along the back lot line in Concession I, Milton paralleling the western boundary of the Niagara Escarpment Commission Control Area to join Alternative 1 in Concession I, Lot 10, Burlington to the east of the Lindley ponds.

Both of these routes would avoid the Carlisle Settlement Area. Alternative 3A would avoid crossing Lake Islay but it would cut through the Calcium Pits Provincial ANSI and an area where the endangered Virginia White Butterfly has been sighted.

Routing constraints were measured for the two new alternatives and are presented in Table K-1 along with data for alternatives 1 and 2. To be able to compare this information a relative impact ranking exercise was undertaken for the key components in Table K-1. This is presented in Table K-2. To determine if one route had a different ranking from another for a particular constraint, low (L), medium (M) and high (H) categories were established. These categories were determined by allocating an L to the




LEGEND

- BEDROCK WITHIN 1 M OF SURFACE
- ENVIRONMENTALLY SENSITIVE AREAS
- SETTLEMENT AREAS
- ALTERNATIVE ROUTES
- NIAGARA ESCARPMENT COMMISSION CONTROL AREA
- NIAGARA ESCARPMENT COMMISSION NATURAL AREAS
- LICENCED PIT
- STUDY AREA

Fig.K-1

Union Gas Limited
NPS 48 Hamilton to Milton
Route Alternatives

ACRES

## Table K-1[1]

## Summary of Routing Evaluations

| Component | Indicator | Alternative 1 | Alternative 2 | Alternative 3A | Alternative 3B |
|---|---|---|---|---|---|
| Miscellaneous | Total length of route (km) | 16.9 | 22.9 | 21.0 | 21.0 |
| | Total length not adjacent to existing ROW/easement (km) | 3.4 | 10.6 | 13.1 | 10.7 |
| Agriculture | Class 1-4 agricultural land (km) | | | | |
| | Total distance through Class 1-4 (km) | 15.3 | 17.2 | 14.3 | 15.6 |
| | Class 1 Agricultural Land (km) | 5.2 | 8.8 | 8.0 | 6.7 |
| | Class 2 Agricultural Land (km) | 8.0 | 4.1 | 5.0 | 8.3 |
| | Class 3 Agricultural Land (km) | 1.4 | 3.7 | 0.6 | 0.6 |
| | Class 4 Agricultural Land (km) | 0.7 | 0.6 | 0.7 | 0 |
| | Specialty Crops (km) | 2.7 | 3.5 | 2.5 | 2.4 |
| | Drainage | | | | |
| | - tile drains (km) | 1.1 | 0.4 | 1.1 | 1.1 |
| | - municipal drains | 0 | 1 | 0 | 0 |

[1]Sources MNR 1980; OMAF 1982/3; Ontario Geological Survey 1982a, b, 1984; Halton Region Conservation Authority Land Mapping; Niagara Escarpment Plan, 1984.

Table K-1
Summary of Routing Evaluations - 2

| Component | Indicator | Alternative 1 | Alternative 2 | Alternative 3A | Alternative 3B |
|---|---|---|---|---|---|
| Soils and Topography | Length of Bedrock (km) | | | | |
| | - within 1 m | 0 | 0.3 | 0 | 0 |
| | - within 8 m | 5.2 | 9.6 | 9.9 | 11.1 |
| | Topography (km) | 1.7 | 2.2 | 1.3 | 1.8 |
| | Hazard lands | 7.0 | 5.0 | 7.9 | 6.0 |
| Forestry | Length of Woodlots (km) | 2.3 | 3.8 | 4.5 | 3.2 |
| | WIA areas | 0 | 0 | 0 | 0 |
| | Agreement Forests | 0 | 0 | 0 | 0 |
| | Crown Lands | 0 | 0 | 0 | 0 |
| | High Productivity Woodlots | | | | |
| | - upland | 0 | 1.1 | 3.1 | 1.3 |
| | - lowland | 0.9 | 0.3 | 0.6 | 0.9 |
| Aquatics | Total Number of Crossings | 19 | 19 | 27 | 23 |
| | Cold-water streams | 6 | 2 | 7 | 5 |
| | Warm-water streams | 2 | 3 | 1 | 1 |
| | Spawning areas | 0 | 1 | 0 | 0 |
| | Lakes/ponds | 1 | 0 | 0 | 1 |
| | Rare/threatened/endangered fish | 0 | 0 | 0 | 0 |

Table K-1
Summary of Routing Evaluations - 3

| Component | Indicator | Alternative 1 | Alternative 2 | Alternative 3A | Alternative 3B |
|---|---|---|---|---|---|
| Natural Areas | Class 1-3 Wetlands (km) | 0 | 0 | 0.4 | 0 |
| | Class 4-7 Wetlands (km) | 0.3 | 2.3 | 0 | 0.2 |
| | Provincial ANSIs (km) | 0 | 1.3 | 2.5 | 0 |
| | Regional ANSIs (km) | 0 | 0 | 0 | 0 |
| | Municipal ESAs (km) | 0 | 1.6 | 0.5 | 0 |
| Flora/Fauna | Wildlife habitat (km) | | | | |
| | - deer wintering areas (km) | 0 | 0 | 1.3 | 1.3 |
| | - waterfowl staging areas | 0 | 0 | 0 | 0 |
| | - significant habitat (i.e. prairie habitat) | 0 | 0 | 0 | 0 |
| Cultural | Settlement policy/rural buffer areas | | | | |
| | - public conservation and recreation areas | 0 | 0 | 0 | 0 |
| | - primary mineral resources area (km) | 7.1 | 8.1 | 11.5 | 12.7 |
| | - licensed extraction areas (km) | 0 | 0 | 0 | 0 |

Table K-1
Summary of Routing Evaluations - 4

| Component | Indicator | Alternative 1 | Alternative 2 | Alternative 3A | Alternative 3B |
|---|---|---|---|---|---|
| | Heritage resources | | | | |
| | - archaeological sites < 1 km | | | | |
| | - registered sites | 10 | 29 | 9[1] | 12[1] |
| | - unregistered sites | 76 | 4 | 56[1] | 63[1] |
| | - buildings | nd[2] | nd | nd | nd |
| | Niagara Escarpment Plan | | | | |
| | - Escarpment Natural Area (km) | 0.2 | 2.3 | 1.2 | 2.0 |
| | - Escarpment Protection Area (km) | 1.5 | 3.3 | 3.6 | 1.5 |
| | - Escarpment Plan Area (km) | 9.5 | 8.0 | 11.5 | 9.5 |

[1]Data incomplete

[2]No data

# Table K-2

## Component Ratings for Each Route Alternative

| | Alternative | | | |
|---|---|---|---|---|
| | 1 | 2 | 3A | 3B |
| **Key Component** | | | | |
| Total length of route | L | M | M | M |
| Total length not adjacent to existing ROW/easements | L | M | H | M |
| Class 1-4 agricultural lands | L | L | L | L |
| Specialty crops | L | M | L | L |
| Tile drainage | M | L | M | M |
| Bedrock | L | M | M | M |
| Topography | M | H | L | M |
| Hazard lands | M | L | H | M |
| Total woodlots | L | M | H | M |
| Total number of stream crosssings | L | L | M | L |
| Wetlands | M | H | H | L |
| ANSIs/ESAs | L | M | M | L |
| Flora/fauna | L | L | M | M |
| Mineral resources | L | L | M | M |
| Niagara Escarpment Commission Land Protection/Natural Area | L | H | H | M |
| **Total** | | | | |
| Low | 11 | 6 | 3 | 5 |
| Medium | 4 | 6 | 7 | 10 |
| High | 0 | 3 | 5 | 0 |
| **Order of Preference** | 1 | 3 | 4 | 2 |

lowest value for the 4 alternatives. Then, if by adding 10% to this value and subtracting 10% from the next lowest value, the new values generated overlapped then that alternative would also have an L rating, otherwise it would move up to a M rating. Similarly, if the next two values overlapped by the 10% margin it would also have an M rating, if not, it would move to H.

This is a relatively crude ranking system but is useful for an initial evaluation. This analysis indicates that Alternative 1 is still clearly the preferred route location. However, it shows that Alternative 3B would be the second preferred route and that Alternative 2 and Alternative 3A are the least preferred routes. This is as might be expected as more than half Alternative 3B is along the same route as Alternative 1. For Alternative 1, 11 of the constraints would be in the low category and only 4 with a medium rating.

In comparing Alternative 1 with Alternative 3B, Alternative 1 is superior in all categories except

- distance through specialty crop land (by .3 km)
- cold-water stream crossings (5 as opposed to 6)
- distance through wetlands (by .1 km).

Filed: 2014-12-19
EB-2014-0261
Exhibit B.GAPLO.22
Attachment 2

# TRAFALGAR FACILITIES EXPANSION PROGRAM 2006

# HAMILTON TO MILTON PIPELINE PROJECT
# INTERIM MONITORING REPORT

Prepared by: Union Gas Limited
Environmental Construction Permitting
May 2007

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**Interim Monitoring Report**


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**TABLE 2**..... Potential Impacts and Mitigation Measures

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**APPENDIX "C"**..... Photograph Inventory

# 1.0 INTRODUCTION

This Interim Monitoring Report is provided in compliance with the Ontario Energy Board ("Board") Order EB-2005-0201 granting Union Gas Limited ("Union") "Leave to Construct" the Hamilton to Milton portion of the 2006 Trafalgar Facilities Expansion. The pipeline consists of approximately 17.0 km of NPS 48 inch (1219 mm Outside Diameter) natural gas pipeline originating at Unions' existing Hamilton Valve Site located in Lot 12, Concession IX, City of Hamilton (formally Township of Flamborough) and concluding at the Milton Tie-In located in Lot 10, Concession 1 NS, Town of Milton, Regional Municipality of Halton. A map of the pipeline route is included in Appendix A.

The requirements for and details of this report are outlined in the specific conditions issued by the Board in its Order dated June 28, 2005 as listed below. The Conditions of Approval can be found in Appendix B.

Accordingly, the purpose of this Interim Monitoring Report is to fulfill these conditions.

*1.0* **Condition *1.1***

Union Gas Limited shall construct the facilities and restore the land in accordance with its application and evidence, except as modified by this Order and these Conditions of Approval.

**Condition *1.3***

Except as modified by this Order, Union Gas shall implement all the recommendations of the Environmental Study Report filed as Volumes 2 and 3 in the pre filed evidence, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee ("OPCC") review.

**Condition *1.4***

Union Gas shall advise the Board's designated representative of any proposed material change in construction or restoration procedures and, except in an emergency, Union Gas shall not make such change without prior approval of the Board or its designated representative. In the event of an emergency, the Board shall be informed immediately after the fact.

*2.0* **Condition *2.4***

Union Gas shall furnish the Board's designated representative with all reasonable assistance for ascertaining whether the work is being or has been performed in accordance with the Board's Order.

*3.0* **Condition *3.1***

Both during and after construction, Union Gas shall monitor the impacts of construction, and shall file four copies of both an interim and final monitoring report with the Board. The interim monitoring report shall be filed within six months of the in-service date and the final monitoring report shall be filed within eighteen months of the in-service date. Union Gas shall attach a log of all complaints that have been received to the interim and final monitoring reports. The log shall record the times of all complaints received, the substance of each complaint, the actions taken in response, and the reasons underlying such actions.

**Condition *3.2***

The interim monitoring report shall confirm Union Gas' adherence to Condition 1.1 and shall include a description of the impacts noted during construction and the actions taken or to be taken to prevent or mitigate the long-term effects of the impacts of construction. This report shall describe any outstanding concerns identified during construction.

*5.0* **Condition *5.1***

Union Gas shall obtain all other approvals, permits, licences, and certificates required to construct, operate and maintain the proposed project, shall provide a list of thereof, and shall provide copies of all such written approval, permit, licences, and certificates upon the Board's request.

## 2.0 BACKGROUND

Union was granted approval to construct the Hamilton to Milton Pipeline Project on June 28, 2005. Construction was initiated on June 12, 2006 with the pipeline placed into service on November 22, 2006 and cleanup for 2006 was completed on November 25, 2006.

Construction progressed for the most part in a westerly direction with the following order of operations: fence opening, topsoil stripping, stringing, welding, joint coating, trenching, lowering-in, tie-ins, backfilling, testing and clean-up.

On April 23, 2007 representatives from Union Gas as well as the Contractor, Soil Specialist and a Tiling Specialist walked the entire right-of-way to determine the restoration necessary along the pipeline corridor.

Union will return to the right-of-way in spring 2007 to complete the following activities: restore topsoil at various locations along the western portion of the pipeline, cultivate newly replaced topsoil, repair subsidence where required, renew / repair erosion control measures, reseed at watercourses where necessary and complete any additional clean-up that may be required.

## 3.0 POTENTIAL IMPACTS AND MITIGATION

### 3.1 Condition 1.1

Union Gas Limited ("Union Gas") shall construct the facilities and restore the land in accordance with its application and evidence, except as modified by this Order and these Conditions of Approval.

Union has complied with all conditions imposed by the Board during construction of the pipeline however due to the amount of precipitation encountered and the poor right-of-way conditions near the completion of the project, the topsoil on agricultural lands at various locations of the right-of-way could not be restored. Restoration will begin in the spring of 2007 when conditions allow.

### 3.2 Condition 1.3

Except as modified by this Order, Union Gas shall implement all the recommendations of the Environmental Study Report filed as Schedule 16 of the evidence, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee (the "OPCC") review.

Union has implemented all recommendations and mitigation measures outlined in the Environmental Assessment along with all directives identified by the OPCC.

## 3.3 Condition 1.4

Union Gas shall advise the Board's designated representative of any proposed material change in construction or restoration procedures and, except in an emergency, Union Gas shall not make such change without prior approval of the Board or its designated representative. In the event of an emergency, the Board shall be informed immediately after the fact.

There were no changes to construction during this project.

## 3.4 Condition 2.4

Union Gas shall furnish the Board's designated representative with all reasonable assistance for ascertaining whether the work is being or has been performed in accordance with the Board's Order.

This interim monitoring report shall confirm that the work has been performed according to the Board's Order.

## 3.5 Condition 3.1

Both during and after construction, Union Gas shall monitor the impacts of construction, and shall file four copies of both an interim and final monitoring report with the Board. The interim monitoring report shall be filed within six months of the in-service date and the final monitoring report shall be filed within eighteen months of the in-service date. Union Gas shall attach a log of all complaints that have been received to the interim and final monitoring reports. The log shall record the times of all complaints received, the substance of each complaint, the actions taken in response, and the reasons underlying such actions.

### 3.5.1 Report Circulation

Four (4) copies of this interim monitoring report are provided to the Board.

### 3.5.2 Landowner Concerns

Union's complaint tracking system, which identifies the current status of landowner complaints received as a result of pipeline construction, was in effect. A complaint is identified as a concern raised by a landowner, which has not been resolved to the landowner's satisfaction within three (3) working days. Complaints entered into the system can be found in Table 1.

During construction, a number of concerns were raised to Union and their contractor. These issues were minor in nature and were dealt with by Union or the Contractor in an expeditious manner.

Union will continue to monitor the state of the land and environment and will address any additional landowner concerns, if they should arise.

## 3.6 Condition 3.2

The interim monitoring report shall confirm Union Gas' adherence to Condition 1.1 and shall include a description of the impacts noted during construction and the actions taken or to be taken to prevent or mitigate the long-term effects of the impacts of construction. This report shall describe any outstanding concerns identified during construction.

In fulfilment of Condition 3.2, Table 2 summarizes the construction effects and general mitigation measures carried out during construction. All mitigation techniques used during construction will also be implemented during cleanup activities as required.

### 3.6.1 Monitoring Programs

#### 3.6.1.1 Soil Testing

Prior to construction, Union conducted soil sampling along the right-of-way on the cross-country portion (agricultural land) of the project. Soil samples were taken and

analyzed for Soybean Cyst Nematode (SCN). SCN is a microscopic worm-like organism found in soils that obtain their nutrients by feeding on the root systems of soybeans. Results indicated that SCN was not present on any properties along the right-of-way.

### 3.6.1.2 Water Well Monitoring

A water well monitoring program was initiated as recommended in the Environmental Assessment. Union retained the services of Stantec Consulting Ltd. to undertake an independent well survey and monitoring program.

All residents located within 100 metres of the proposed pipeline were provided a notification letter detailing the construction work along the pipeline, potential risk of well interference and the proposed monitoring program. The letter included contact information for Stantec and Union Gas. Residents who were interested in participating were included in the monitoring program. Stantec completed well monitoring between June 5, 2006 and June 28, 2006 at twenty-one (21) residential homes/farms.

Water samples were analyzed for general inorganic water quality parameters and the results were compared to the Ontario Drinking Water Standards (ODWS), which have been established by the Ontario Ministry of the Environment.

Upon receiving the results, Stantec immediately notified any residents whose water exceeded the Ministry of the Environment ODWS and the Maximum Acceptable Concentration (MAC) for both total coliforms and nitrates. Stantec indicated to the resident that they should contact their local public health unit in case of further questions.

One water well concern was raised and addressed during construction. The explanation of this concern can be found in Table 1.

### 3.6.1.3 Water Course Monitoring

Union implemented a monitoring program for all twenty (20) watercourse crossings, one (1) pond and one (1) man made lake along the pipeline route. All of the watercourses were crossed using the dam and pump or open cut method if they were dry. All crossing methods were approved by the Halton Region Conservation Authority and the Department of Fisheries and Oceans.

Watercourses were protected during and following construction by installing sediment fencing, straw bales and erosion control matting. Disturbed areas adjacent to the watercourses were seeded following the installation of the pipeline.

Watercourses that were susceptible to erosion were checked after excessive rainfall to verify the effectiveness of the sediment control devices. These watercourses were reviewed for stability and vegetation reestablishment on April 23, 2007 and any necessary mitigation will be undertaken in the spring of 2007.

### 3.6.1.4 Tree Removal

#### Butternut Canker

Union retained the services of Stantec Consulting (Stantec) to implement an inventory of the forested lands that would be affected due to pipeline construction. During the inventory four (4) Butternut trees were encountered all of which displaying signs of

Butternut Canker. Information on the abundance and locations of the trees, as well as the relative health of the specimens was gathered.

The butternut canker is a fungus that has been introduced to North America and according to the Ministry of Natural Resources (MNR) and the Forest Gene Conservation Association (FGCA) they have found no butternuts in Ontario that are not affected by the fungus.

During removal of the Butternut trees, representatives from the MNR, Stantec and Union were on site to determine the extent of the infestation and collected scions (branch tips) to graft to smaller trees in the hope of establishing a strain of Butternut resistant to the fungus.

Tree removal for the entire right of way was initiated in early 2006 and completed by April 1, 2006 thus avoiding nesting avian concerns.

3.6.1.5 Tree Replacement Program

This program is designed as a reforestation initiative to replant twice the area of trees cleared from the woodlots prior to construction. The landowners are given an option for what native tree species will be planted on their property in the spring of 2007. Some tree planting has been deferred to the spring of 2008 due to the remaining final cleanup in the spring of 2007. Results of the Tree Replacement Program will be discussed in the Final Monitoring Report.

3.6.1.6 Archaeological Monitoring

Union retained the services of D.R. Poulton and Associates to carry out an archaeological assessment, as recommended in the Environmental Assessment. Between 1990 and 1993 the assessment included a Stage 1 archaeological assessment of the preferred and alternative alignments, a Stage 2 survey of approximately 88 % of the preferred alignment and Stage 3 investigations of selected sites.

Stage 2 surveys and Stage 3 investigations carried out in 2005-2006 confirmed that only three sites subject to potential impact from the proposed pipeline construction were significant archaeological resources and warranted Stage 4 excavations. Salvage excavations on all three sites were completed prior to construction.

On June 16, 2006 Union committed by way of a letter to the Ministry of Culture to implement recommendations for the securing / protection of two of the archaeology sites as identified in the executive summary reports prepared by D.R. Poulton and Associates.

The recommendations included:

- Narrowing the easement from 28 metres to 24 metres through these sites.
- A pre-construction meeting between Union Gas, D.R. Poulton and the Contractor to discuss the significance of the two sites.
- Erect safety fence along the easement to protect unexcavated areas during construction.
- Implement archaeological monitoring at the sites during construction and post-construction activities through the protected areas.
- Will notify D.R. Poulton at least 48 hours prior to construction activities in these areas.
- Post signs at each site identifying these areas as "Environmentally Sensitive Area Keep Out"

All recommendations were implemented and followed during construction.

No cultural resources were discovered during construction.

## 4.0 Condition *5.1*

Union Gas shall obtain all other approvals, permits, licences, and certificates required to construct, operate and maintain the proposed project, shall provide a list of thereof, and shall provide copies of all such written approval, permit, licences, and certificates upon the Board's request.

Union Gas obtained the following environmental permits for construction:

**Ministry of Natural Resources – Water Crossings**

- Lakes and Rivers Improvement Act, Permit No. GU-GU-61

**Conservation Halton - Watercourse Crossings**

- Fill, Construction and Alternation Permits No. 2761 – 2775, 2793, 2809

**Niagara Escarpment Commission**

- Development Permit: 8539/H/S/2005-2006/220

**Department of Fisheries and Oceans Canada (DFO)**

- Letter of Advice. File No. SA-06-0110

**Ministry of the Environment (MOE)**

- Permit to Take Water. Permit No. 8034-6Q4SJ8 (Sandpointing)
- Permit to Take Water. Permit No. 4631-6T5NZ4 (Surface Taking)

## 5.0 SUMMARY

This Interim Monitoring Report has been prepared as per conditions in the Board Order EB-2005-0201. The report provides an outline of Unions' compliance with the commitments of its witnesses, the measures implemented during construction to minimize disturbance to the environment and a description of Union's monitoring programs. It is anticipated that these measures will effectively eliminate any long-term impacts to the environment.

A review of the pipeline route was undertaken on April 23, 2007 to determine the condition of the easement in preparation for cleanup activities for the spring / summer of 2007. Final cleanup will begin as soon as conditions permit.

# TABLE 1

**SUMMARY OF LANDOWNER COMPLAINTS**
**HAMILTON TO MILTON**

| ACTION # | OWNER/ORIGINATOR | DATE | CONCERN | UNION'S RESPONSE | CATEGORY | STATUS |
|---|---|---|---|---|---|---|
| A2051 | Fernando Concalvas | August 25, 2006 | a) Landowner concerned that the quantity of well water has been affected by construction. | No baseline data was available as the resident did not wish to participate in the well monitoring program.<br>Union retained the services of Stantec Consulting to inspect the residential well and determine the possible cause of the low water levels.<br>Union supplied potable water to the resident during the investigation.<br>Stantec investigations indicated that low water levels were observed over a broad area and are attributed to normal seasonal variations.<br>All results were discussed and provided to the landowner | Complaint/ Commitment | Resolved |

# "Table 2"

# Potential Impacts and Mitigation Measures

## PIPELINE CONSTRUCTION - POTENTIAL IMPACTS AND MITIGATION MEASURES

| Activity | Effects | Mitigation Measures |
|---|---|---|
| a) Pre-Pipeline Construction | Pipeline construction may be disruptive to landowners and farming operations. | • Prior to pipeline construction, the Lands Relations Agent met with all directly affected landowners to discuss construction and identify any concerns (ie. tiles) that may need to be addressed. |
| b) Surveying | Surveying may be disruptive to the landowners. Crop and woodlot damage. | • Landowners and tenants were notified of intent to enter property;<br>• All crop and woodlot damages were settled with landowners or tenants where required. |
| c) Access Roads | Vehicular traffic may cause soil rutting, compaction or mixing | • Permits from the local Conservation Authority, the Ministry of Natural Resources, the Minisrty of the Environment and the Department of Fisheries conditions followed prior to construction of access roads across watercourses;<br>• Culverts were/will be utilized in the construction of access roads to ensure existing drainage patterns were maintained;<br>• Sediment fence, erosion control matting, vegetative covers (ie. grasses) were used alongside watercourses to minimize run-off and erosion;<br>• Geotextile fabric was/will be used for new temporary access roads to provide additional stability, minimize compaction and minimize topsoil mixing with granular material; |
| d) Clearing | The removal of trees. | • Landowners were eligible for the Union Gas Tree Replacement Program;<br>• Trees cut from woodlots will be replaced on a 2:1 per area basis.<br>• The harvesting of trees was minimized as much as practical; |
| e) Grading | Grading may be necessary for the construction of access roads or work areas. On agricultural lands, grading has the potential to impact soil productivity by disrupting tile drains and causing soil mixing, rutting and compaction, particularly during wet soil conditions. | • Broken tiles were/will be repaired as per Specification CS-GC 12.0 and Drawings NO. PL-51-20-18-1 and PL-51-20-18-2;<br>• Grading was not conducted on wet soils;<br>• Topsoil was stripped and stockpiled outside the easement on the spoil side of the trench and in some areas on the work side;<br>• Topsoil stripping was conducted as per Specification SP-51-20-04. |

## PIPELINE CONSTRUCTION - POTENTIAL IMPACTS AND MITIGATION MEASURES

| Activity | Effects | Mitigation Measures |
|---|---|---|
| f) Stringing | Stringing trucks may impact soil productivity due to soil compaction, rutting and mixing. | • Specification CS-PL-1.0 was followed; |
| g) Trenching | Trenching may disrupt tile drains and cause soil mixing (topsoil and subsoil mixing), which may impact soil productivity. | • Trenching followed Specification CS-GC-3.0<br>• Prior to trenching, topsoil was separated from subsoil as per Specification SP-51-20-04;<br>• Topsoil stripping was monitored by the Soil Inspector to ensure there was an adequate separation of topsoil and subsoil. |
| h) Backfilling | Improper backfilling may cause topsoil/subsoil mixing. | • Specification CS-GC- 11.0 was followed. |
| i) Hydrostatic Testing | Discharge of hydrostatic test water may cause erosion at the point of discharge. | • Measures were used (filtration tub) to prevent erosion at the point of discharge;<br>• A permit was secured from the Ministry of Environment prior to hydrostatic testing and the conditions were followed;<br>• A monitoring program was undertaken to ensure that the water quality had not changed during testing. |
| j) Site Restoration | Improper site restoration may affect soil productivity. | • Restoration followed Specification SP-51-20-19;<br>• Disturbed areas were/will be restored by regrading, followed by chisel ploughing and/or subsoiling and disking;<br>• Soil compaction was/will be monitored by the Soils Inspector to determine if these methods were suitable;<br>• The Lands Relation Agent has reviewed and discussed the site restoration measures with the landowner and tenant, so as to identify any concerns or suggestions with regards to these measures;<br>• Upon completion, the Lands Relation Agent reviewed/will review the area with the landowner and tenant to ensure restoration was completed to their satisfaction. |
| k) Fuel Storage and Handling | Improper fuel storage and handling may cause spillage and possible contamination of soil. | • Fuel was/will not be stored near watercourses (ie. within 100 metres);<br>• Fuel storage areas were/will be clearly marked;<br>• Spill clean-up material (ie. absorbent pads) were/will be stored on site and available at all times;<br>• Spills or leakage were/will be reported to the proper authority immediately;<br>• All spills were/will be promptly cleaned up and contaminated soil was/will be removed to an approved location. |

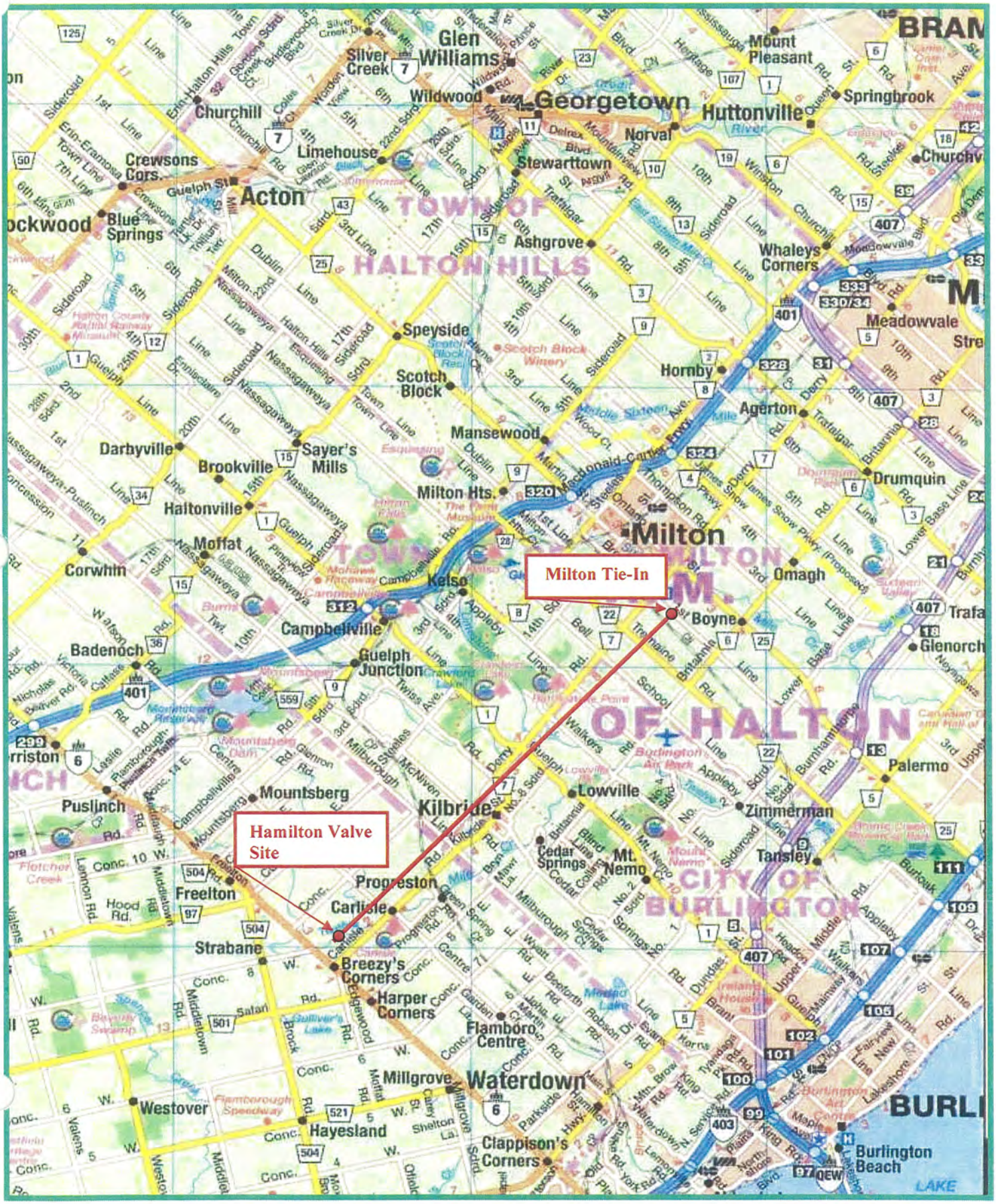
## PIPELINE CONSTRUCTION - POTENTIAL IMPACTS AND MITIGATION MEASURES

| Activity | Effects | Mitigation Measures |
|---|---|---|
| l) Liquid and Solid Waste | Liquid waste, solid waste and lubricants must be properly handled, stored and disposed of so as to avoid possible contamination of surrounding area. | • Liquid and solid wastes were/will be properly stored, handled and disposed of in an approved location;<br>• The area was/will be cleared of all debris and litter during and after . construction. |
| m) General | i) Fences<br>ii) Mixing, rutting and compaction | • Fences were/will be repaired to Specification CS-GC-2.0.<br>• Union implemented its wet soils shut down practice to avoid mixing, rutting and compaction of soils. |

# "Appendix A"

# Location Map

# GENERAL LOCATION MAP
# HAMILTON TO MILTON NPS 48



# "Appendix B"

# Conditions of Approval

# CONDITIONS OF APPROVAL

## Union Gas Limited
## Trafalgar Facilities Expansion Program 2006

### 1 General Requirements

1.1 Union Gas Limited shall construct the facilities and restore the land in accordance with its application and evidence, except as modified by this Order and these Conditions of Approval.

1.2 Unless otherwise ordered by the Board, authorization for Leave to Construct shall terminate December 31, 2006, unless construction has commenced prior to then.

1.3 Except as modified by this Order, Union Gas shall implement all the recommendations of the Environmental Study Report filed as Volumes 2 and 3 in the pre filed evidence, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee ("OPCC") review.

1.4 Union Gas shall advise the Board's designated representative of any proposed material change in construction or restoration procedures and, except in an emergency, Union Gas shall not make such change without prior approval of the Board or its designated representative. In the event of an emergency, the Board shall be informed immediately after the fact.

### 2 Project and Communications Requirements

2.1 The Board's designated representative for the purpose of these Conditions of Approval shall be the Manager, Facilities.

2.2 Union Gas shall designate a person as project engineer and shall provide the name of the individual to the Board's designated representative. The project engineer will be responsible for the fulfilment of the Conditions of Approval on the construction site. Union Gas shall provide a copy of the Order and Conditions of Approval to the project engineer, within seven days of the Board's Order being issued.

2.3 Union Gas shall give the Board's designated representative and the Chair of the OPCC ten days written notice, in advance of the commencement of the construction.

2.4 Union Gas shall furnish the Board's designated representative with all reasonable assistance for ascertaining whether the work is being or has been performed in accordance with the Board's Order.

2.5 Union Gas shall file with the Board's designated representative notice of the date on which the installed pipelines were tested, within one month after the final test date.

2.6 Union Gas shall furnish the Board's designated representative with five copies of written confirmation of the completion of construction. A copy of the confirmation shall be provided to the Chair of the OPCC.

2.7 Where blasting is required, Union Gas shall follow its Standard Blasting Specifications and shall determine the locations of wells within 100 meters of blasting operations and shall test water quality of all wells within 100 meters before and after blasting operations.

## 3 Monitoring and Reporting Requirements

3.1 Both during and after construction, Union Gas shall monitor the impacts of construction, and shall file four copies of both an interim and a final monitoring report with the Board. The interim monitoring report shall be filed within six months of the in-service date, and the final monitoring report shall be filed within eighteen months of the in-service date. Union Gas shall attach a log of all complaints that have been received to the interim and final monitoring reports. The log shall record the times of all complaints received, the substance of each complaint, the actions taken in response, and the reasons underlying such actions.

3.2 The interim monitoring report shall confirm Union Gas' adherence to Condition 1.1 and shall include a description of the impacts noted during construction and the actions taken or to be taken to prevent or mitigate the long-term effects of the impacts of construction. This report shall describe any outstanding concerns identified during construction.

3.3 The final monitoring report shall describe the condition of the rehabilitated land and the effectiveness of the mitigation measures undertaken. The results of the monitoring programs and analysis shall be included and recommendations made as appropriate. Any deficiency in compliance with any of the Conditions of Approval shall be explained.

3.4 Within fifteen months of the in-service date, Union shall file with the Board a written Post Construction Financial Report. The Report shall indicate the actual capital costs of the project and shall explain all significant variances from the estimates filed with the Board.

## 4 Easement Agreements

4.1 Union Gas shall offer the form of agreement approved by the Board to each landowner, as may be required, along the route of the proposed work.

## 5 Other Approvals

5.1 Union Gas shall obtain all other approvals, permits, licences, and certificates required to construct, operate and maintain the proposed project, shall provide a list thereof, and shall provide copies of all such written approvals, permits, licences, and certificates upon the Board's request.

# "Appendix C"

# Photograph Inventory



One of the three Stage 4 archaeological dig sites. Prior to any pipeline construction activities these sites were investigated and all artifacts removed. During construction through these areas an archaeologist was on site as a precautionary measure.



Once the depth of separation between the topsoil and subsoil is established, a grader is used to separate the two layers.



Once the grader has completed the soil separation, a dozer will remove the remainder of the topsoil.



Through long uninterrupted sections of the pipeline, a trenching machine was used for the majority of the trenching.




Bridges were installed over all the cold water streams along the pipeline corridor thus eliminating the concern of disrupting the stream bed early in the season.



Before a road could be constructed through a man made lake, silt curtains were installed to prevent sediments from migrating to the remainder of the pond.



As shown the silt curtains were very effective.



Prior to and during the pumping down of the lake an electro-shocking unit was used to gather the fish to transfer to the unaffected portion of the pond. The unit applies a mild shock to the fish rendering them paralyzed for a brief moment while they are collected.




Immediately following the watercourse crossing the area is seeded, erosion control mating is installed and silt fences are re-established.



On April 23, 2007 the watercourse observed in the preceding photo was inspected and found to have remained very stable during the winter. Wildlife shrubs and a few trees will be planted along the banks in the late spring to restore the watercourse to a more natural state.



During construction it was necessary to cross a public gulf course. This operation was performed in the fall as not to disrupt the business during the summer months



The gulf course was re-established immediately following construction. This photo was taken from the reverse vantage point as above showing the same section of the gulf course on April 23, 2007 when the course was in full operation.

Filed: 2014-12-19
EB-2014-0261
Exhibit B.GAPLO.22
Attachment 3

# TRAFALGAR FACILITIES EXPANSION PROGRAM 2006

# HAMILTON TO MILTON PIPELINE PROJECT
# FINAL MONITORING REPORT

Prepared by: Union Gas Limited
Environmental Construction Permitting
May 2008

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**Final Monitoring Report**


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**APPENDIX "A"**..... Location Map

**APPENDIX "B"**..... Conditions of Approval

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### 3.1 Condition 1.1

Union Gas Limited ("Union Gas") shall construct the facilities and restore the land in accordance with its application and evidence, except as modified by this Order and these Conditions of Approval.

Union has complied with all conditions imposed by the Board during construction of the pipeline. Due to the amount of precipitation encountered and the poor right-of-way conditions near the completion of the project in the fall of 2006, the topsoil replacement and other cleanup activities on agricultural lands at various locations of the right-of-way were delayed. Remaining restoration procedures were performed from April 25 to September 22, 2007 as weather permitted, with all clean-up activities completed and the land restored in accordance to Unions evidence in support of its application.

### 3.2 Condition 1.3

Except as modified by this Order, Union Gas shall implement all the recommendations of the Environmental Study Report filed as Schedule 16 of the evidence, and all the

recommendations and directives identified by the Ontario Pipeline Coordinating Committee (the "OPCC") review.

Union has implemented all recommendations and mitigation measures outlined in the Environmental Assessment along with all directives identified by the OPCC.

3.3 **Condition 1.4**

Union Gas shall advise the Board's designated representative of any proposed material change in construction or restoration procedures and, except in an emergency, Union Gas shall not make such change without prior approval of the Board or its designated representative. In the event of an emergency, the Board shall be informed immediately after the fact.

There were no changes to construction during this project.

3.4 **Condition 2.4**

Union Gas shall furnish the Board's designated representative with all reasonable assistance for ascertaining whether the work is being or has been performed in accordance with the Board's Order.

This Final Monitoring Report along with the previously filed Interim Monitoring Report confirms that the work has been performed according to the Board's Order.

3.5 **Condition 3.1**

Both during and after construction, Union Gas shall monitor the impacts of construction, and shall file four copies of both an interim and final monitoring report with the Board. The interim monitoring report shall be filed within six months of the in-service date and the final monitoring report shall be filed within eighteen months of the in-service date. Union Gas shall attach a log of all complaints that have been received to the interim and final monitoring reports. The log shall record the times of all complaints received, the substance of each complaint, the actions taken in response, and the reasons underlying such actions.

3.5.1 Report Circulation

Four (4) copies of this Final Monitoring Report are provided to the Board.

3.5.2 Landowner Concerns

Union's complaint tracking system, which identifies the current status of landowner complaints received as a result of pipeline construction, was in effect. A complaint is identified as a concern raised by a landowner, which has not been resolved to the landowner's satisfaction within three (3) working days. Complaints entered into the system can be found in Table 1 of the previously filed Interim Monitoring Report and were resolved to the satisfaction of the landowner.

During construction, a number of landowner concerns were raised to Union and its contractor. These issues were minor in nature and were dealt with by Union or the Contractor in a timely manner.

To date there has been no additional outstanding concerns entered into the complaint tracking system. Union will address any additional landowner concerns, if they should arise.

## 3.6 Condition *3.3*

The final monitoring report shall describe the condition of the rehabilitated land and the effectiveness of the mitigation measures taken. The results of the monitoring programs and analysis shall be included and recommendations made as appropriate. Any deficiency with compliance with any of the Conditions of Approval shall be explained.

The entire right-of-way was walked on April 23, 2007 to observe the overall condition of the easement and to assess year after clean-up requirements. Observations of the line walk and monitoring programs completed as part of the project are summarized as follows:

### 3.6.1 Line Walk

As previously mentioned, a line walk was completed on April 23, 2007 of the entire right-of-way. Observations from the walk included areas of topsoil to be replaced, areas in need of repair due to subsidence, erosion, areas requiring additional seeding and stone picking. Union returned to the right-of-way in May, 2007 to address these issues as part of the year after clean-up activities.

### 3.6.2 Monitoring Programs

The previously filed Interim Monitoring Report provides a description of the successfully completed monitoring programs (Water Well, Archaeological, Soil Testing etc.) undertaken prior to, during and following construction to monitor the effects of construction in fulfillment of Condition 3.3

The right-of-way and in particular watercourses were reviewed for stability and vegetation re-establishment in the spring and summer of 2007 and again in the spring of 2008 and found to be successfully rehabilitated with no deficiencies in compliance identified.

### 3.6.3 Tree Replacement Program

This program is designed as a reforestation initiative to replant twice the area of trees cleared from the woodlots prior to construction. The majority of the eligible landowners participated in the program and replanted trees within the area in the spring of 2007. Due to the delay in clean-up activities as a result of wet soil conditions on the right-of-way, tree planting on several properties was deferred until the spring of 2008. All commitments in respect to tree replacement have been completed.

## 4.0 Condition *5.1*

Union Gas shall obtain all other approvals, permits, licences, and certificates required to construct, operate and maintain the proposed project, shall provide a list of thereof, and shall

provide copies of all such written approval, permit, licences, and certificates upon the Board's request.

Union Gas obtained the required environmental permits prior to construction as listed in the previously filed Interim Monitoring Report.

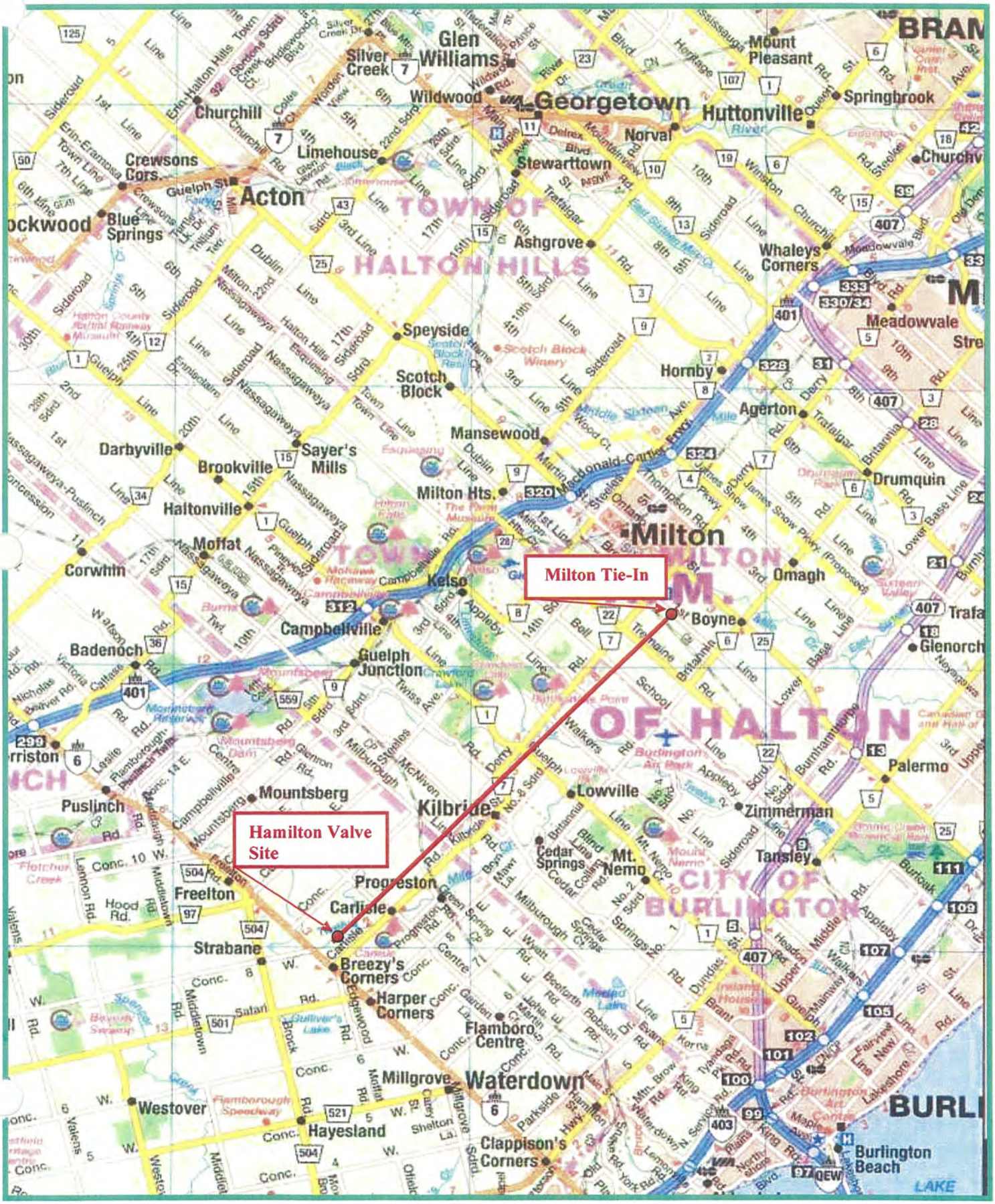
## 5.0 SUMMARY

This Final Monitoring Report has been prepared as per conditions in the Board Order EB-2005-0201. The report provides an outline of Union's compliance with the commitments of its witnesses, the measures implemented during construction to minimize disturbance to the environment and a description of Union's monitoring programs. It is anticipated that these measures have effectively eliminate any long-term impacts to the environment.

# "Appendix A"

# Location Map

# GENERAL LOCATION MAP
# HAMILTON TO MILTON NPS 48



# "Appendix B"

# Conditions of Approval

# CONDITIONS OF APPROVAL

## Union Gas Limited
## Trafalgar Facilities Expansion Program 2006

### 1 General Requirements

1.1 Union Gas Limited shall construct the facilities and restore the land in accordance with its application and evidence, except as modified by this Order and these Conditions of Approval.

1.2 Unless otherwise ordered by the Board, authorization for Leave to Construct shall terminate December 31, 2006, unless construction has commenced prior to then.

1.3 Except as modified by this Order, Union Gas shall implement all the recommendations of the Environmental Study Report filed as Volumes 2 and 3 in the pre filed evidence, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee ("OPCC") review.

1.4 Union Gas shall advise the Board's designated representative of any proposed material change in construction or restoration procedures and, except in an emergency, Union Gas shall not make such change without prior approval of the Board or its designated representative. In the event of an emergency, the Board shall be informed immediately after the fact.

### 2 Project and Communications Requirements

2.1 The Board's designated representative for the purpose of these Conditions of Approval shall be the Manager, Facilities.

2.2 Union Gas shall designate a person as project engineer and shall provide the name of the individual to the Board's designated representative. The project engineer will be responsible for the fulfilment of the Conditions of Approval on the construction site. Union Gas shall provide a copy of the Order and Conditions of Approval to the project engineer, within seven days of the Board's Order being issued.

2.3 Union Gas shall give the Board's designated representative and the Chair of the OPCC ten days written notice, in advance of the commencement of the construction.

2.4 Union Gas shall furnish the Board's designated representative with all reasonable assistance for ascertaining whether the work is being or has been performed in accordance with the Board's Order.

2.5 Union Gas shall file with the Board's designated representative notice of the date on which the installed pipelines were tested, within one month after the final test date.

2.6 Union Gas shall furnish the Board's designated representative with five copies of written confirmation of the completion of construction. A copy of the confirmation shall be provided to the Chair of the OPCC.

2.7 Where blasting is required, Union Gas shall follow its Standard Blasting Specifications and shall determine the locations of wells within 100 meters of blasting operations and shall test water quality of all wells within 100 meters before and after blasting operations.

## 3 Monitoring and Reporting Requirements

3.1 Both during and after construction, Union Gas shall monitor the impacts of construction, and shall file four copies of both an interim and a final monitoring report with the Board. The interim monitoring report shall be filed within six months of the in-service date, and the final monitoring report shall be filed within eighteen months of the in-service date. Union Gas shall attach a log of all complaints that have been received to the interim and final monitoring reports. The log shall record the times of all complaints received, the substance of each complaint, the actions taken in response, and the reasons underlying such actions.

3.2 The interim monitoring report shall confirm Union Gas' adherence to Condition 1.1 and shall include a description of the impacts noted during construction and the actions taken or to be taken to prevent or mitigate the long-term effects of the impacts of construction. This report shall describe any outstanding concerns identified during construction.

3.3 The final monitoring report shall describe the condition of the rehabilitated land and the effectiveness of the mitigation measures undertaken. The results of the monitoring programs and analysis shall be included and recommendations made as appropriate. Any deficiency in compliance with any of the Conditions of Approval shall be explained.

3.4 Within fifteen months of the in-service date, Union shall file with the Board a written Post Construction Financial Report. The Report shall indicate the actual capital costs of the project and shall explain all significant variances from the estimates filed with the Board.

## 4 Easement Agreements

4.1 Union Gas shall offer the form of agreement approved by the Board to each landowner, as may be required, along the route of the proposed work.

## 5 Other Approvals

5.1 Union Gas shall obtain all other approvals, permits, licences, and certificates required to construct, operate and maintain the proposed project, shall provide a list thereof, and shall provide copies of all such written approvals, permits, licences, and certificates upon the Board's request.

# "Appendix C"

# Photograph Inventory



The above photo was taken during low flow at Kilbride Creek prior to construction.



Immediately following the crossing of the creek, erosion control matting, silt fence and straw bales were established to aid in stabilizing the banks and control erosion.



Approximately 18 months later the banks are stabilized and the area has re-vegetated well.




A trail was re-established along the bank of the creek for easy access for hikers on the Bruce Trail.



Limestone Creek in November of 2006.



Limestone Creek in May 2008. All vegetation has re-established.



Islay Lake following construction in May of 2007. The silt fence and straw bales remained along the lake through 2007 due to the poor vegetation re-establishment in the late fall of 2006.



As observed above in May 2008, the vegetation has re-established and the silt fence will be removed.