



**C.C. Tatham & Associates Ltd.**  
Consulting Engineers

**STANHOPE AIRPORT  
BUSINESS PARK ROAD  
Township of Algonquin Highlands**

**Class Environmental Assessment Schedule B**  
Project File

prepared by:

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prepared for:

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# Executive Summary

## Study Overview & Objective

The Township of Algonquin Highlands is planning to expand the commercial business park at the Stanhope Municipal Airport.

## Alternative Solutions

Alternative solutions were evaluated with respect to the natural, social, physical and economic environments.

Alternative A is to do nothing. This alternative includes not proceeding with a new municipal road. It would still be possible to create some lots for the proposed commercial development. However, the number of lots would be limited with driveway access directly from Stanhope Airport Road. The full potential of the commercial business park would not be possible.

Alternative B is to construct a new municipal road from Stanhope Airport Road. This road would allow access to internal lots within the commercial business park and would reduce the number of driveways accesses from Stanhope Airport Road while maximizing the number of lots.

Other options for road alignments within the development boundary could be developed. The alignments would be similar and the impacts would also be very similar.

## Environment Inventories

The purpose of the environment inventories is to provide the information from which the assessment of the alternative solutions can be based. A description of the study area has been developed considering the identified improvement alternatives, existing land uses and developments, and the natural environment, physical environment, economic environment and cultural/heritage environment.

## Preferred Solution

Following consideration of all evaluations completed and comments received, the construction of a new road was identified as the preferred solution.

## Next Steps

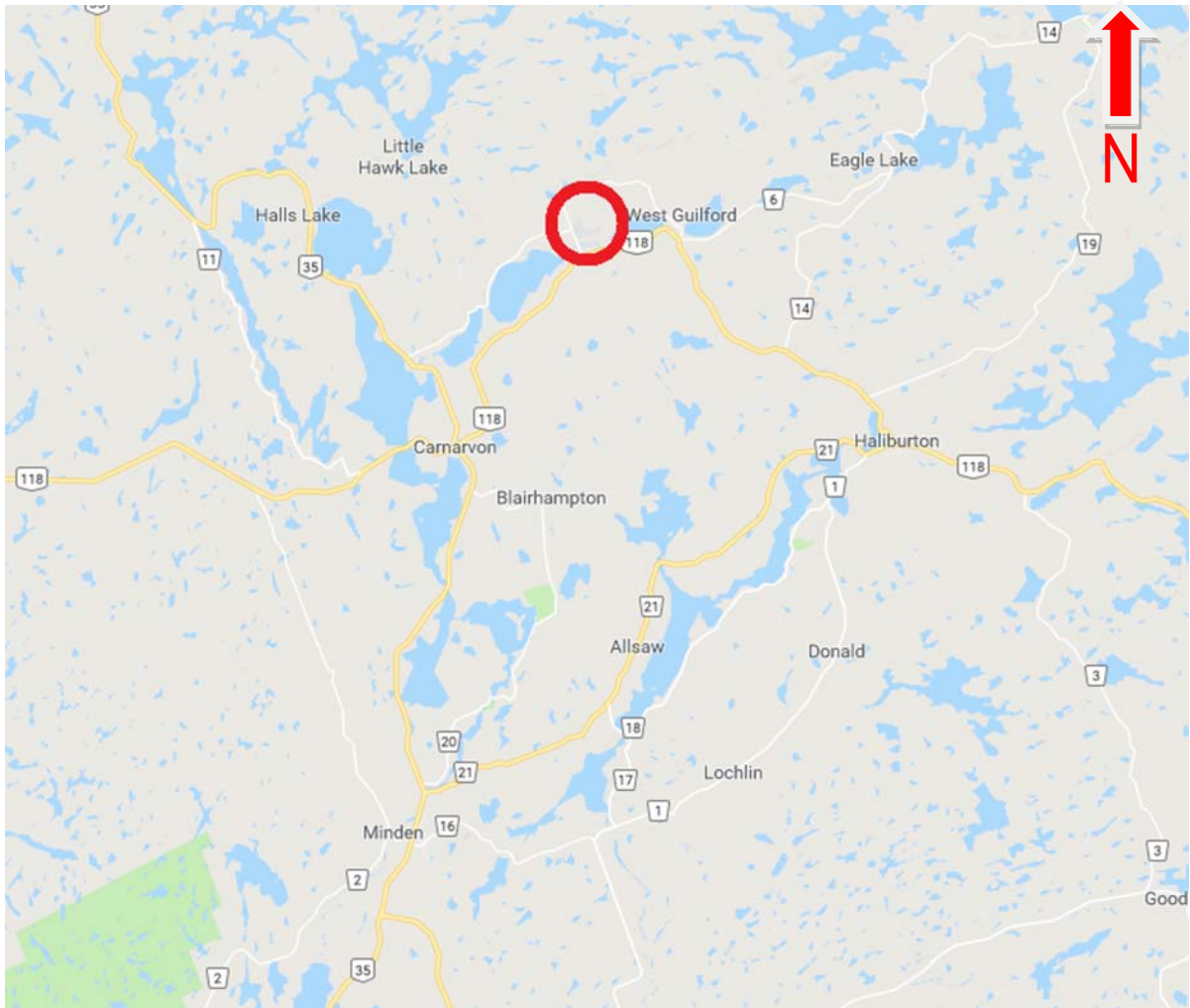
Following completion of the Class EA Schedule B process, which allows for one further point of public consultation and review, and provided there are no requests for Part II Order, the Township may proceed to implementation.

# 1 Introduction and Background

The Township of Algonquin Highlands is considering expanding the commercial business park at the Stanhope Airport. The individual lots within the business park will require road access. Stanhope Airport is located on Stanhope Airport Road approximately 700m north of Highway 118 and north-west of Green Lake, in The Township of Algonquin Highlands, County of Haliburton.

C.C. Tatham & Associates was retained by The Township to undertake a Municipal Class Environmental Assessment study, in accordance with the Municipal Engineers Association. The objective of the Class EA is to evaluate the new road and consider the most appropriate manner in which it can be implemented.

Figure 1: Key Map



STANHOPE MUNICIPAL AIRPORT (SOURCE: GOOGLE MAPS)

## 1.1 Class Environmental Assessment Process

The Class Environmental Assessment process is defined in the Municipal Class Environmental Assessment document. Applying to all municipal road construction and improvement projects, a number of study categories or schedules have been established recognizing the range of environmental impacts. These are briefly described below whereas the process corresponding to each is illustrated in Figure 2.

### **Class EA Schedules**

#### Schedule A

Schedule A projects generally include normal or emergency operational and maintenance activities. As the environmental effects of these activities are usually minimal, these projects are pre-approved and may proceed directly to implementation without the need to complete the design and planning process. No reports or study documents need to be prepared.

#### Schedule A+

Schedule A+ projects are typically limited in size and scope, and thus have minimal associated environmental impacts. While these projects are also pre-approved, they require notification to the public prior to implementation. No reports or study documents need to be prepared outside of the notification.

#### Schedule B

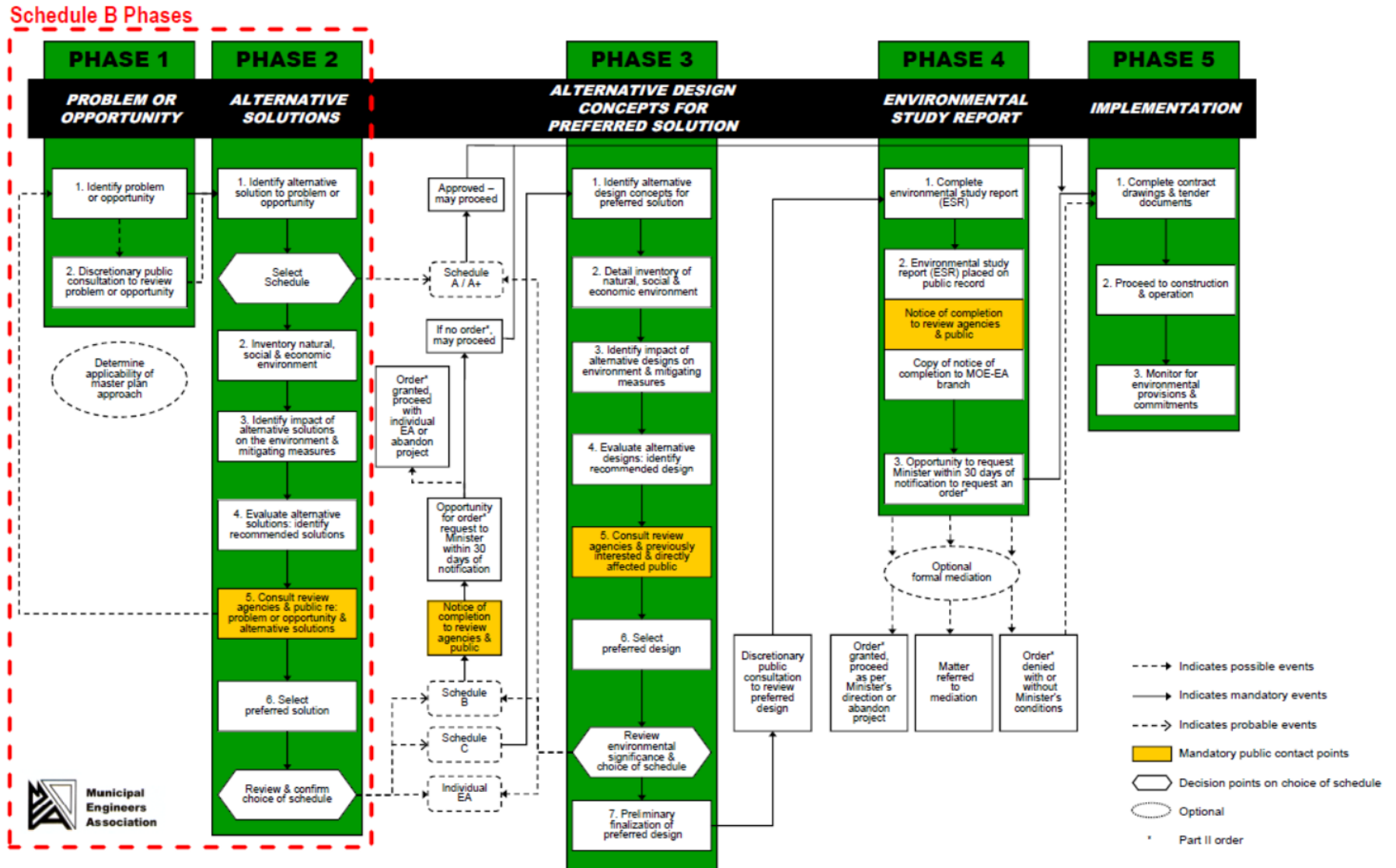
Schedule B projects generally include improvements, minor expansions to existing facilities and construction of basic projects. As there is the potential for some adverse environmental impacts, the municipality is required to conduct a screening process whereby members of the public and review agencies are informed of the project and given the opportunity to provide comment and input to the Study. Documentation of the planning and design process is required under a Schedule B study. As these studies are generally straightforward and do not require detailed technical investigations to determine the preferred solution, a formal report is not required. Rather, a Project File is prepared to demonstrate the appropriate steps have been followed. The Project File is to be submitted for review by the public and review agencies.

#### Schedule C

Schedule C projects generally include the construction of new facilities and major expansions to existing facilities. As they have the potential for environmental impacts, they must proceed under the full planning and documentation procedures specified by the Municipal Class EA document. Schedule C projects require an Environmental Study Report (ESR) be prepared and appropriately filed for review by the public and review agencies.



Figure 2: Class EA Process



## 1.2 Class EA Terminology

Prior to determining the appropriate Class EA schedule, an understanding of the defining terminology is required.

## 1.3 Selected Schedule

As per the Class EA guidelines and in consideration of the proposed work, the following apply:

- Schedule B for construction of new roads or other linear paved facilities that will cost less than \$2.4M;
- Schedule C for construction of new roads or other linear paved facilities that will cost more than \$2.4M.

Considering the new road can be constructed for less than \$2.4M, and to ensure appropriate public consultation throughout the study, the Schedule B Class EA process has been selected. A Schedule B requires completion of Phases 1 and 2 of the Municipal Class EA planning and design process.

## 1.4 Objectives of the Report

The overall objective of this report is to document the planning process completed during the Class EA process related to the development and evaluation of alternative solutions and designs. Specifically, the objectives of this report are as follows:

- To prepare a detailed description of the problem;
- To establish alternatives to address the problem;
- To prepare a detailed inventory of the affected or applicable environments;
- To screen the impact of the alternatives on the environment;
- To outline the remaining steps involved in the planning and design process.

## 1.5 Format of the Report

The Project File Report has been prepared in accordance with the chronological order of the Class EA process and is structured as follows:

- Chapter 2 presents the need and justification of the study and the preparation of a problem statement to guide the Municipal Class EA process;
- Chapter 3 addresses the first point of public consultation - Notice of Study Commencement;
- Chapter 4 details the alternative solutions developed to address the problem statement;

- Chapter 5 identifies the affected environments and provides an inventory of such to be considered in the subsequent evaluation;
- Chapter 6 details the evaluation of the alternative solutions in context of the manner to which they satisfy the problem statement and potential impacts to the environments;
- Chapter 7 addresses the second point of public consultation - Public Information Centre 1;
- Chapter 8 identifies the preferred solution, considering the initial evaluation and comments received from Public Information Centre 1; and
- Chapter 9 outlines the remaining tasks in the Municipal Class EA process.

## 2 Need and Justification

The purpose of this study is to identify the most appropriate alternative to address the requirements of the proposed business park development. It is necessary to establish and understand the conditions from which the needs are determined. Once the conditions and needs are identified, the overall problem statement can be defined. These tasks have been completed in accordance with Phase 1 of the Class EA process, which culminates with the creation of the problem statement.

The main areas of concern are:

- Identifying, evaluating and selecting long-term cost-effective strategies for accessing proposed lots that will not be accessible from existing roadways;
- Providing necessary improvements to the existing roads to accommodate new roads;
- Minimizing or avoiding impacts to adjacent properties;
- Providing environmental protection measures;
- Acquisition of necessary approvals, in a timely manner.

### 2.1 Existing Condition

The portion of the Stanhope Airport property that is being considered for the business park development consists of regrown forested area that was previously cleared and would have been used for agriculture purposes. West of this area is Stanhope Airport Road which runs north-south and is a two-lane rural road with an approximate asphalt width of 7.0m. Immediately south of the site is an access driveway for the airport hangers. North and east of the site is further undeveloped, regrown forest land.

## 2.2 Problem/Opportunity Statement

In consideration of the existing conditions, the Problem Statement, which sets the framework for the remainder of the study, is as follows:

“The Township of Algonquin Highlands has identified the need for a new road to provide access to a commercial business park.”

## 3 Consultation – Study Commencement

As per the Class EA process, there are a number of points of stakeholder contact. The first point of contact is the Notice of Study Commencement, which is used to inform the general public and stakeholders of the start of the study. The remaining points of contact are discussed further in the report in the chronological order in which they occurred.

### 3.1 Notification

A Notice of Study Commencement, which is a discretionary point of contact, was issued to all property owners, as determined from the Township’s records, within the 500 m of the airport property on July 19, 2018. The notice was also submitted to the appropriate review agencies, stakeholder groups and special interest groups. The notice identified the study area, the study methodology and EA guidelines to be followed. In addition, it invited public input and comments to be considered in the overall study design and completion. A copy of the Notice of Study Commencement is provided in Appendix A.

### 3.2 Public Comments

Public comments were received from two residents which are included in Appendix A and summarized in the table below.

Table 1: Study Commencement Public Comment Summary

Date Received	Summarized Comment
July 31	Requesting more information on the purpose of the road.
August 14	The new road and associated development will provide a great opportunity for economic growth.

### **3.3 Agency Comments**

Comments were received from a number of review agencies and utility companies in response to the Notice of Study Commencement. The comments are included in Appendix A and summarized below.

#### **Ministry of Environment, Conservation and Parks**

Provided a list of First Nations and requested the Notice be circulated to all on the list. The Notice was issued to all on the requested list. Provided requirements for surface and groundwater impacts review, confirming no closed or active landfills are near the study area, and identifying mitigation measures to control sediment and silt during construction.

#### **Ministry of Tourism, Culture and Sport**

Provided comments and requested a Cultural Heritage Evaluation Checklist be completed. We completed the checklist and confirmed there is low potential for built heritage or cultural heritage landscape on the property. Also requested copies of future notices be circulated to those on MCTS Master Distribution List.

#### **Chippewas of Rama First Nation**

Advised they had reviewed the Notice and forwarded the information to their Council and the Williams Treaties First Nation Process Co-ordinator/Negotiator for their review.

#### **Nation Huronne-Wendat**

Inquired if an archaeological assessment has been completed. We advised that a Stage 1 Assessment was completed for the entire Stanhope Airport property.

#### **Curve Lake First Nation**

Confirmed receipt of Notice and requested we provide a copy of the Project File to the Williams Treaty First Nation Process Coordinator/Negotiator.

#### **Department of Fisheries and Oceans**

Requested that we complete a self assessment to determine if their review is required. We completed the self assessment and concluded their review is not required since there is no surface water or fish habitat on or near the site.

## **Hydro One**

Requested clarification on the proposed study location to determine if they had concerns. We confirmed the nearest Hydro One transformer station is located approximately 13km south.

## **Union Gas**

Union Gas confirmed they have no plant near the site.

# **4 Alternative Solutions**

Further to identification of the problem statement, two alternative solutions have been developed for consideration and evaluation. The associated tasks have been completed in accordance with Phase 2 of the Class EA process.

## **4.1 Alternative 1 – Do Nothing**

This alternative is to not construct a new municipal road. It would still be possible to create some accessible lots for the proposed commercial development. However, the number of possible lots would be limited. With individual driveway access directly from Stanhope Airport Road, there would be additional entrances on Stanhope Airport Road which is not desirable, and the full potential of this development would not be possible.

## **4.2 Alternative 2 – New Road**

This alternative includes construction of a new municipal road from Stanhope Airport Road to service the business park. This road would allow access to internal lots within the development boundary and would limit the number of access points from Stanhope Airport Road.

## **4.3 Other Alternatives**

Other options for road alignments to access the proposed lots within the business park were considered in developing the concept plan. However, Alternative 2 is considered to optimize the development potential within the development area by the introduction of a minimal amount of roadway, while allowing for the creation of comparably sized lot parcels. Other options represent minor alignment variations and their impacts would be very similar, if not identical to Alternative 2.

## 5 Environmental Inventories

The study area has been reviewed considering the following environments:

- Physical
- Natural
- Social
- Economic

Descriptions of the various environments investigated are provided below. The associated reports were completed previously, in support of a possible runway on the Stanhope Airport property. Some of the reports address the entire Stanhope Airport property, and some address the area of the possible runway. The possible runway is located immediately east of the proposed business park and we are satisfied the study area for all of these reports is an adequate representation of the study area for this Class EA Study.

### 5.1 Physical Environment

Elements of the physical environment related to the study area are summarized below.

#### 5.1.1 Topography

The south portion of the site slopes to the south-east and the north portion slopes to the north-east. The road alignment included in the alternative presented can be achieved with minor cut and fill operations. There is a high point near the proposed central lots fronting Stanhope Airport Road and this area will require some cutting to flatten the grades.

#### 5.1.2 Geotechnical

A geotechnical investigation (Appendix D) was completed by Peto MacCallum Limited in 2008 in support of a proposed new airport runway and consisted of 47 test pits up to 5.0m depth along the alignment of the proposed runway which runs approximately through the center of the airport property from north-west to south-east and is therefore a good indication of the type of soils throughout the property.

The results of the test pits were consistent with a layer of topsoil over sand with localized deposits of silty sand and silt. The existing native subgrade soils should be suitable to support the proposed development including any new municipal roads.

There will be no deep excavations required to construct the road and therefore there will be no dewatering required to construct the road. Siltation and erosion control measures can be implemented during construction to contain all sediment within the construction site.

There are no closed or active landfills close to the site and therefore there will be no related impacts.

## **5.2 Natural Environment**

### **5.2.1 Natural Heritage Assessment**

The natural environment of the study area was studied to document the natural features in the area and evaluate potential impacts based on the project alternatives.

A natural heritage assessment (Appendix E) was completed by Beacon Environmental in 2008. Beacon assessed the terrestrial and aquatic environments associated with the airport property. The assessment is based on field surveys, review of planning documents related to development restrictions, the Ministry of Natural Resources and Forestry's (MNRF) Natural Heritage Information Center (NHIC) data base, and consultation with an MNRF Species at Risk Biologist.

After review of the vegetation communities, flora, birds, mammals, reptiles, amphibians, aquatic resources, fish habitat, species at risk and significant wildlife features, Beacon concluded development at the Airport will not impact significant natural heritage features at the provincial, regional or local level.

The Beacon recommendations for construction mitigation included typical measures for construction activities including adherence to the Migratory Bird Act and sediment and erosion control measures.

### **5.2.2 Source Water Protection**

The study area is in a location that is subject to the Trent Source Protection Plan. According to the Source Protection Information Atlas available from the Ministry of Environment, Conservation and Parks, the property is not in a Wellhead Protection Area or Intake Protection Zone, however it is in a Significant Groundwater Recharge Area and a Highly Vulnerable Aquifer, each with a score of 6. As such, the proposed activity must comply with Policy Z-1 (Recharge Reduction) of the Trent Source Protection Plan. Accordingly, development of the lands shall implement best management practices in order to maintain pre-development recharge levels.

For example, the vegetated ditch design of the proposed roadway will include measures to promote infiltration of runoff to predevelopment levels. Similarly, during lot development the Township shall require all site plans to provide a water balance assessment demonstrating pre-development recharge by implementing measures such as minimizing impervious surfaces and providing lot level infiltration.



## **5.3 Social Environment**

The social environment includes any matters related to the existing residents and the general public. Matters for consideration in relation to the social environment include:

Noise impacts to area residents will be minimal as the construction of the road will occur in accordance with the Township's Noise By-Law and the businesses proposed at the business park will be dry with no out-door storage or manufacturing.

Visual impacts to area residents will be minimal as the business park will be adequately buffered from Stanhope Airport Road with existing vegetation.

There will be no odour impacts as the business park will not release any odours.

Driver safety will be addressed by adhering to MTO geometric standards for the new road and the intersection with Stanhope Airport Road.

### **5.3.1 Archaeological Assessment**

A stage 1 archaeological assessment (Appendix F) was completed by Jacques Whitford in 2008. This report assessed the potential for undiscovered prehistoric and historic period resources. Various portions of the Stanhope Airport property are identified as having elevated archaeological potential. The areas identified that relate to this site include all areas within 100m of Stanhope Airport Road.

A stage 2 archaeological assessment, including a systematic test pit excavation, was recommended by Jacques Whitford for the areas of potential that will require ground disturbance. A visual assessment will be made for all other areas of disturbance outside of the identified areas of potential.

Other recommendations of the Jacques Whitford report included typical measures for construction activities including stopping work immediately and notifying The Ministry of Culture if archaeological artifacts or human remains are discovered.

### **5.3.2 Cultural Heritage Assessment**

As requested by the Ministry of Tourism, Culture and Sport we completed the questionnaire for Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Resources and Cultural Heritage Landscapes and confirmed there are no resources identified in the study area. The completed questionnaire is included in Appendix A.

## **5.4 Economic Environment**

The costs associated with each option are considered including construction costs and/or maintenance costs. For preliminary assessments, the costs are considered on a qualitative basis only. Also considered is the positive economic opportunity associated with the business park development.

# **6 Evaluation of Solutions**

This section will discuss the evaluation of the alternative solutions as previously described. The results of the evaluation are considered preliminary given the need to solicit agency and public input. The evaluation is descriptive or qualitative in nature allowing for a comparative evaluation of the pros and cons associated with each option.

## **6.1 Evaluation Criteria**

In completing the evaluation, a number of criteria were considered as outlined below.

### **6.1.1 Physical Environment**

- Road geometry and alignment
- Topography limitations
- Traffic operations

### **6.1.2 Natural Environment**

- Effects on wildlife, habitat, natural resources

### **6.1.3 Social Environment**

- Noise impacts
- Odour
- Overall Safety
- Archaeological impacts

### 6.1.4 Economic Environment

- Construction costs
- Maintenance costs
- Opportunity for economic growth

## 6.2 Environmental Impacts

The potential effects and impacts associated with each alternative are noted in the table below.

Table 2: Pros & Cons of Alternatives

Evaluation Criteria	Alternative A: Do Nothing	Alternative B: Construct New Road
Physical	√ No impacts to the physical environment.	√ Minor alterations to the local topography will be required for construction of a safe road and intersection with Stanhope Airport Road.
Natural	√ No impacts to environment or habitat.	√ Limited vegetation removal, no significant impacts and potential impacts can be mitigated with best management practices.
Social	√ No impacts to the social environment.	√ No significant impacts.
Economic	√ No construction or maintenance cost. X Limited opportunity for development leading to job creation.	√ Reasonable cost for construction and maintenance of a new road to provide access to all proposed lots. √ Strong opportunity for development leading to job creation.

## 6.3 Preliminary Preferred Solution

In consideration of the evaluation criteria, Alternative A is not considered appropriate as it does not address the problem statement. Lots within the proposed business park development would not be accessible.

Alternative B is expected to maximize the opportunity for development of the business park at optimized costs established through municipal budgeting and competitive bidding following a detailed design process.

## 7 Technical Considerations

A new road would be designed and constructed in accordance with all applicable current design standards for a design speed of 60km/h and posted speed limit of 50km/h. The main parameters considered for design include limitations on the geometry of the crests and sags for the vertical profile including minimum and maximum slopes, and limitations for the radius of horizontal curves, all related to the design speed of the road.

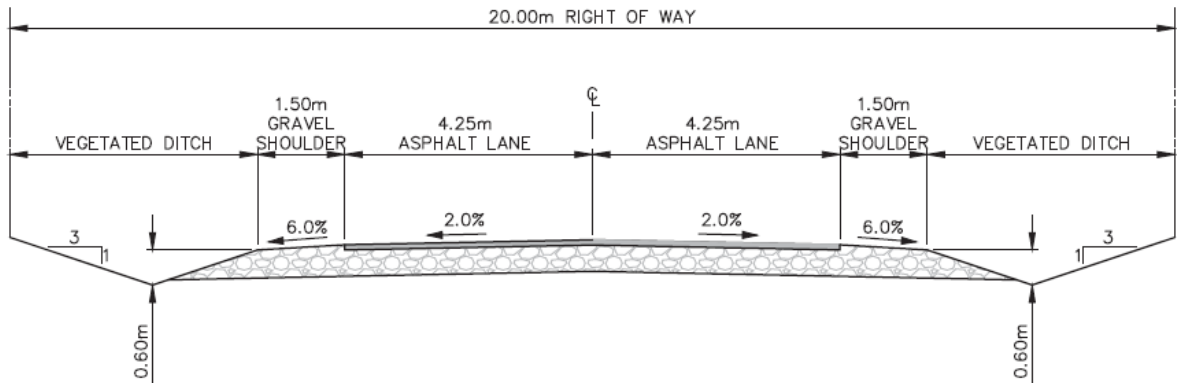
Appropriate stormwater management and drainage features will be designed for the road to utilize roadside ditches, driveway culverts and road crossing culverts, if necessary. The proposed roadside ditches will be designed to accommodate the expected drainage flows from adjacent lands. Drainage will generally be directed east and south to the existing stormwater management facility for the airport. The capacity of the existing stormwater management facility will be reviewed at the detailed design stage. Additional capacity can be provided if required, as sufficient land exists.

As the business park is within a groundwater recharge area, it is proposed to complete a water balance assessment during final design for the road and development of each lot to maintain groundwater recharge.

Minor improvements to existing Stanhope Airport Road at the location of the new intersection will be required to comply with current standards including lowering the crest of the profile of the road immediately north of the intersection to provide appropriate sight distances for southbound vehicles and vehicles turning left onto Stanhope Airport road from the new road. Clearing to the limits of the right of way is also recommended to improve site lines. This and all other safety concerns will be reviewed during the detailed design stage.

To accommodate the anticipated commercial traffic, the recommended road platform is 4.25m wide asphalt lanes and 1.50m wide gravel shoulders. Detailed plan and profile drawings will be prepared for construction. The figure below illustrates the recommended road cross section.

Figure 3: Recommended Road Cross Section



## 8 Consultation – Public Consultation Center

Under a Schedule B Class EA Study, there are two points of mandatory stakeholder contact. The Notice of Study Commencement is discretionary. The first mandatory contact is the Notice of Public Consultation Center issued inviting stakeholder comment and input via a public open house. The second is the Notice of Completion once the planning process is completed.

### 8.1 Notification

In accordance with the Class EA guidelines, notification of the Public Consultation Centre was issued inviting stakeholder comment and input. Stakeholders include review agencies and the public. Notices were issued to all in the same manner in which the Notice of Study Commencement was issued. Copies of the notices and distribution list are provided in Appendix A.

Notices were also published in the local newspapers, the Huntsville Forester and the Minden Times on August 30, 2018 and September 6, 2018 preceding the public consultation centre. The Township published the notice on their website. Notices to the public and the review agencies were mailed.

### 8.2 Public Consultation Centre

The purpose of the Public Consultation Centre was to provide information to the public and agencies and seek their input with respect to the following:

- Identification of the problem;
- Development and evaluation of alternative solutions to the problem;
- General inventory of the affected environments in order to determine the possible impacts; and
- Identification of the preliminary recommended alternative.

The Public Consultation Centre was held on Saturday, September 15, 2018 from 10:00 AM to 2:00 PM at the Township of Algonquin Highlands Firefighters Hall. Display boards of the presentation material were displayed around the room's perimeter for people to review and ask questions. The Township CAO, Council members, and C. C. Tatham & Associates Ltd. were in attendance to answer any questions and provide assistance as necessary.

Various display boards were prepared for viewing by the public (as provided in Appendix B), which addressed the following:

- The Municipal Class EA process and those tasks relevant to this study;
- Existing conditions;
- Existing concerns;
- Background Studies;
- Alternative solutions;
- Preliminary preferred solution;
- The remaining steps to completion; and
- Contact details for additional information.

Six people attended the Public Information Centre (a copy of the sign-in sheet is provided in B). No public comment sheets were submitted. A copy of the public comment sheet is provided in Appendix B. Residents did provide the following comments to Township and CCTA representatives;

- Vibrations from construction equipment can cause impacts to neighbours
- The commercial business park will provide needed opportunities for employment
- The Study should consider active transportation corridors on Highway 118 to allow active transportation between Haliburton and Bracebridge. This is well beyond the scope of this study and the resident was advised of this.
- The entrance to Stanhope Airport Road should consider the existing trail entrance on the west side

The overall conclusion drawn from the comments received is the road can be constructed with proper design and mitigation to limit impacts to neighbours.

The Chippewas of Rama First Nation advised they had reviewed the Notice and forwarded the information to their Council and the Williams Treaties First Nation Process Co-ordinator/Negotiator for their review.

Department of Fisheries and Oceans suggested the self assessment on their projects near water website be completed. We completed the self assessment and confirmed there is no requirement for assessment by DFO as there is no surface water body on or near the business park.

There were no other agency comments received following the notice of the Public Consultation Centre.

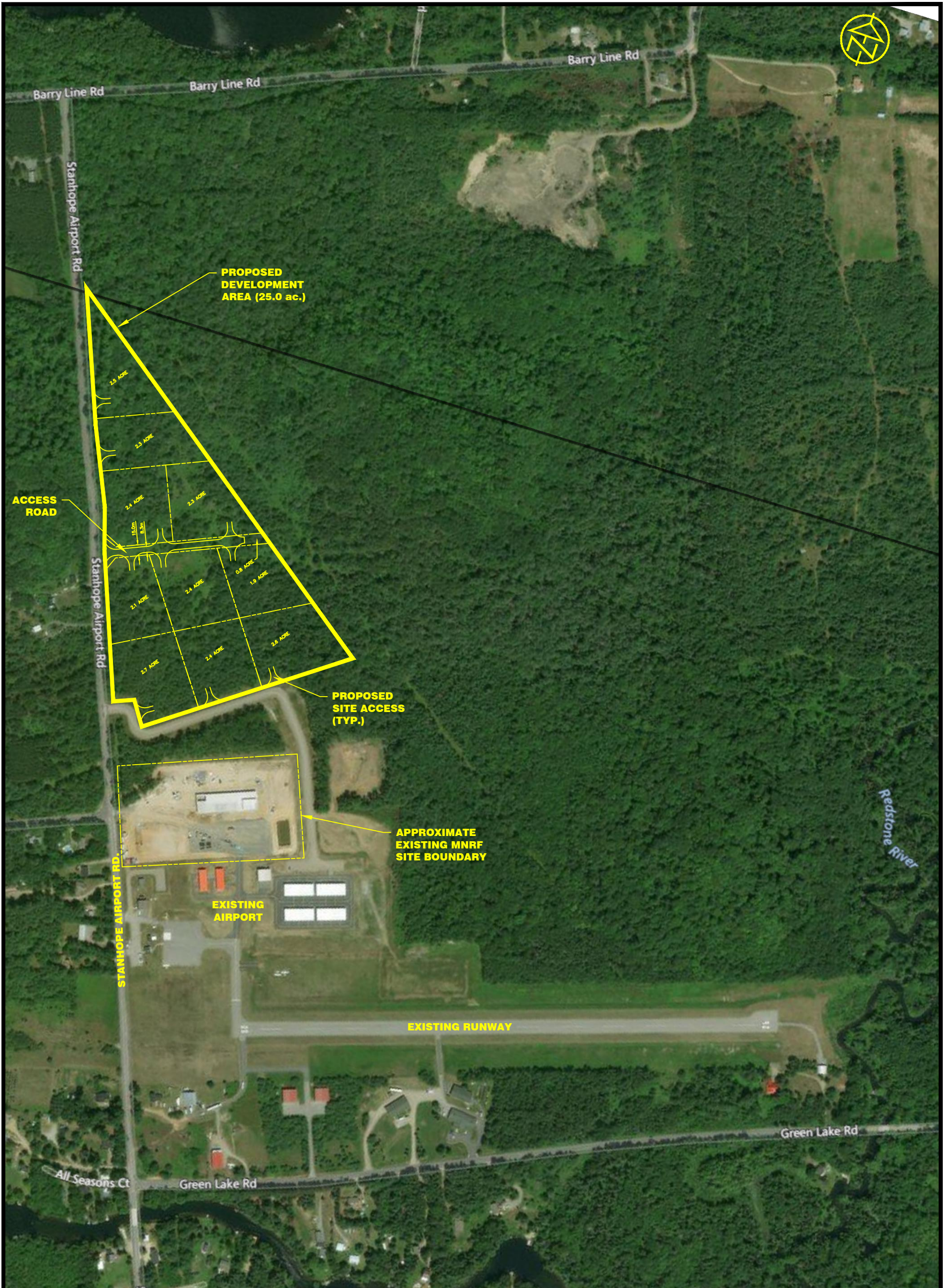
## **9 Identification of Preferred Solution**

Following the Public Consultation Centre, the preliminary assessment was revisited to consider comments and input received from the various stakeholders.

### **9.1 Preferred Solution**

The preferred solution remains constructing a new road to access the business park. As previously noted, do nothing, does not address the problem statement. Through proper design and mitigation, the construction of the new road will address the problem statement and minimize any impacts to neighbours during and after construction.

Figure 4, following, Illustrates the proposed new access road and business park as presented at the PCC.



**NOTES**

1. BASEPLAN FROM AVAILABLE AERIAL IMAGERY.
2. RUNWAY LOCATION APPROXIMATED BASED ON PRELIMINARY DRAWINGS BY RICHARDSON FOSTER LTD. PROJECT No. 1795-DS.
3. BOUNDARY LINES APPROXIMATED FROM ASSUMED 20 m ROW WIDTH AND RUNWAY SETBACK REQUIREMENTS.



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**STANHOPE MUNICIPAL AIRPORT  
 TOWNSHIP OF ALGONQUIN HIGHLANDS**

PROPOSED DEVELOPMENT – OVERALL PLAN

SCALE: 1:5,000	DATE: MAY/17	JOB NO. 217507	DWG NO. FIG-03
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## 9.2 Confirmation of EA Schedule

As previously noted, the Schedule B guidelines apply to road construction provided the cost to construct is less than \$2.4M, not including land acquisition or engineering costs. Based on the extent of works anticipated, the construction cost will be less than \$2.4M, and therefore the Schedule B guidelines are appropriate.

# 10 Completion of the EA Process

This chapter details the steps remaining to complete the Schedule B Class Environmental process and to proceed to Phase 5: Implementation, which entails completion of the engineering drawings and construction.

## 10.1 Submission to the Township of Algonquin Highlands

This Phase 1 & 2 Report was submitted to the Township of Algonquin Highlands and the preferred solution endorsed by the Township Council was the construction of a new road. A summary of the presentation to Township Council is presented in Appendix C.

## 10.2 Stakeholder Consultation - Study Completion

This represents the second mandatory point of stakeholder consultation in the Schedule B Class EA process. The purpose is to confirm the conclusion of the study and provide an opportunity for additional review of the study findings and recommendations within a 30-day review period.

In accordance with the Class EA guidelines, a Notice of Completion was prepared to identify the preferred improvement solution and the opportunity for further review (a copy of the notice is provided in Appendix C). Notices were distributed as follows:

- Mailed to each of the review agencies and other stakeholder groups as previously contacted;
- Mailed to the area residents, businesses and landowners;
- Mailed to those in attendance at the Public Information Centre;
- Advertised in the local newspaper (Minden Times and Huntsville Forester) on two separate occasions, in accordance with the Class EA guidelines; and
- Posted on the Municipal website.

### **10.3 30-Day Review Period**

The Phase 1 & 2 report will be placed on public record for a period of 30 days following the Notice of Completion, December 6, 2018 to January 5, 2019. As per the notice, the public and review agencies will be encouraged to further review the report and provide written comments to the Township on or before January 5, 2019.

If concerns arise regarding this study, which cannot be resolved in discussion with the Township or the Project Team, the public can request that the Minister of the Environment make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. Requests are to be submitted to the Minister and copied to the Township before the end of the 30-day review period.

If there is no request for a Part II Order, the project may proceed based on the identified preferred improvements.

## 10.4 Implementation

It is the intent of the Township to complete the design in 2019 and construct the works when funding becomes available. As such, construction drawings detailing the required works, including the need for mitigation measures to address impacts to the natural environment will be completed. Drawings will be submitted to the Township and the relevant agencies as required, to obtain the necessary approvals prior to construction. There are no further requirements with respect to public consultation during Phase 5.



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Authored by: Bill Van Ryn, B.Eng., P.Eng.  
Vice President, Manager – Bracebridge  
Office



\_\_\_\_\_  
Reviewed by: Phil Watts, P.Eng.  
Project Manager

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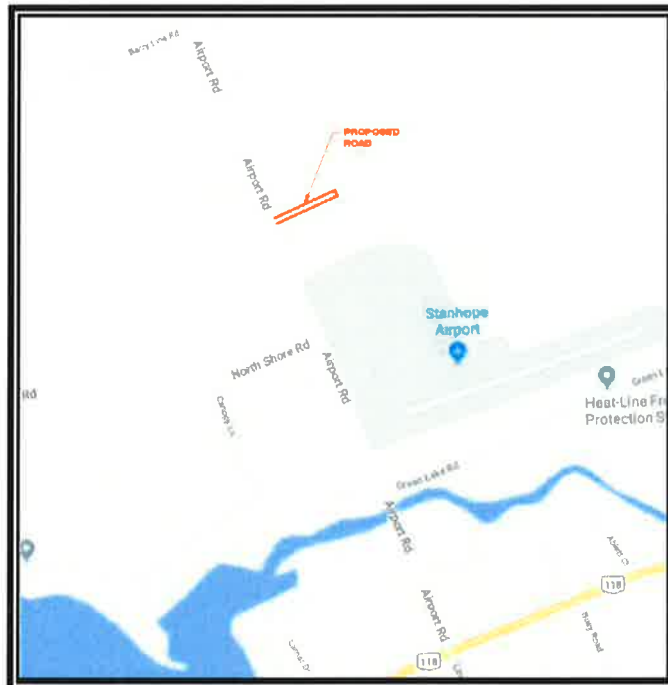
**APPENDIX A:  
CONSULTATION – STUDY COMMENCEMENT**



## NOTICE OF STUDY COMMENCEMENT

### CONSTRUCTION OF NEW ROAD NORTH OF THE STANHOPE MUNICIPAL AIRPORT TO ACCESS THE AIRPORT BUSINESS PARK IN THE TOWNSHIP OF ALGONQUIN HIGHLANDS MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT STUDY

The Township of Algonquin Highlands has initiated a Municipal Class Environmental Assessment (Class EA) Study for the proposed construction of a new road north of the Stanhope Municipal Airport to access the Airport Business Park to be located on Airport Road, north of Highway 118 in the Township of Algonquin Highlands. The study is being planned under Schedule B of the Municipal Class Environmental Assessment.



Comments and information are being collected at this time to assist the study team. The information will be maintained on file for use during the study and, unless otherwise requested, may be included in the study documentation, which is made available for public review.

We welcome any comments or information prior to August 17, 2018. Subject to comments received and the receipt of necessary approvals, the Township of Algonquin Highlands intends to proceed with the planning, design, and construction of this project.

This notice first issued July 19, 2018.

**Owner:**  
Township of Algonquin Highlands  
1123 North Shore Road  
Algonquin Highlands, ON K0M 1J1  
Telephone: (705) 489-2379  
Fax: (705) 489-3491

**Inquiries:**  
Bill Van Ryn, B.Eng., P.Eng.  
Vice President, Manager – Bracebridge Office  
C.C. Tatham & Associates Ltd.  
8 Barron Drive  
Bracebridge, ON P1L 0A1  
Telephone: (705) 645-7756  
Fax: (705) 645-8159  
Email: [bvanryn@cclatham.com](mailto:bvanryn@cclatham.com)

4415 KENNISIS LAKE RD  
HALIBURTON ON K0M 1S0

8503 LINDBERGH AVE  
NIAGARA FALLS NY USA 14304

1046 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

53 NORTHERN DANCER DR  
OSHAWA ON L1L 0A9

1673 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1491 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1064 CAMERON LANE  
PO BOX 100  
WEST GUILFORD ON K0M 2S0

1059 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1706 BARRY LINE  
PO BOX 100  
WEST GUILFORD ON K0M 2S0

1748 BASELINE RD W UNIT 100  
COURTICE ON L1E 2T1

610 THE QUEENSWAY  
PETERBOROUGH ON K9J 7H2

2441 NORTH SHORE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1015 ALL SEASONS CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

1050 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

35 WYNFORD HEIGHTS CRES SUITE 1005  
TORONTO ON M3C 1K9

1054 GREEN LAKE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

100 ST JOHNS RD  
TORONTO ON M6P 1T9

1045 WANDERING LANE  
ALGONQUIN HIGHLANDS ON K0M 1J1

1007 WANDERING LANE  
ALGONQUIN HIGHLANDS ON K0M 1J1

1023 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

503 ROMAINE ST  
PETERBOROUGH ON K9J 2C8

ED  
265 PORT UNION RD  
PO BOX 15509  
SCARBOROUGH ON M1C 4Z7

1088 GREEN LAKE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

13 SHELDONBURY CRT  
ST CATHARINES ON L2N 6G8

2598 NORTH SHORE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

PO BOX 1458  
HALIBURTON ON K0M 1S0

750 LESLIE VALLEY DR  
NEWMARKET ON L3Y 7J3

3110 SHEPPARD AVE E SUITE 1005  
SCARBOROUGH ON M1T 3J8

2117 KENNISIS LAKE RD  
HALIBURTON ON K0M 1S0

1725 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

24 ROBERT ST  
THORNTON ON L0L 2N0

1083 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

16 COVE RD  
FENELON FALLS ON K0M 1N0

3694 SIXTEEN RD  
ST ANNS ON L0R 1Y0

32 CHILD DR  
AURORA ON L4G 1Y5

6891 GANARASKA RD  
CAMPBELLCROFT ON L0A 1B0

27 FERMAN DR  
GUELPH ON N1H 7C9

1033 GREEN LAKE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1165 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

4415 KENNISIS LAKE RD  
HALIBURTON ON K0M 1S0

1008 ALL SEASONS CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

1123 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1



506 JOHN ST W  
WHITBY ON L1N 2V6

57 NEWBRIDGE CRES  
BRAMPTON ON L6S 4B5

1009 ALL SEASONS CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

1235 GRANT ST N APT 606  
DENVER CO USA 80203

88 MARIETTA ST  
UXBRIDGE ON L9P 1J5

1050 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

33 CAMMAY AVE  
DUNDAS ON L9H 6W9

2 EDENBRIDGE DR  
ANGUS ON L0M 1B3

5 VIMY RD  
LINDSAY ON K9V 2S2

1058 GREEN LAKE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

192 COUNTY RD 48  
WOODVILLE ON K0M 2T0

15 BLOSSOMVIEW CRT  
WHITBY ON L1R 3G5

78 JOICEY BLVD  
NORTH YORK ON M5M 2T5

PO BOX 368  
HALIBURTON ON K0M 1S0

19226 YONGE ST  
HOLLAND LANDING ON L9N 1L4

1095 GREEN LAKE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1064 OLIVER RD  
ALGONQUIN HIGHLANDS ON K0M 1J2

529 LISBON CRT  
OSHAWA ON L1J 6R3

1007 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

1032 CAMERON LANE  
ALGONQUIN HIGHLANDS ON K0M 1J1

76 SUNSET BEACH RD  
PEFFERLAW ON L0E 1N0

T  
2516 NORTH SHORE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

2586 NORTH SHORE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1060 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

1082 GREEN LAKE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1082 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

17 MAPLE AVE  
PO BOX 597  
HALIBURTON ON K0M 1S0

C/O LARRY VANLIESHOUT  
1081 NORLEY DR  
ALGONQUIN HIGHLANDS ON K0M 1J1

500 LARRY AVE  
OSHAWA ON L1K 2B7

2534 NORTH SHORE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

264 KEEWATIN AVE  
TORONTO ON M4P 2A5

PO BOX 734  
MINDEN ON K0M 2K0

2574 NORTH SHORE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1112 OSHAWA BLVD N  
OSHAWA ON L1G 5W1

1019 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

138 PARK ST W  
DUNDAS ON L9H 1X7

35 SHIPPIGAN CRES  
WILLOWDALE ON M2J 2G1

1711 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1179 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

11895 LITTLE HAWK LAKE WAO  
ALGONQUIN HIGHLANDS ON K0M 1J2

1022 ORM'S TRAIL  
ALGONQUIN HIGHLANDS ON K0M 1J1

1508 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1508 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

40 LINTON AVE  
AJAX ON L1T 2X6

1389 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

242 28TH ST E  
NORTH VANCOUVER BC V7N 1C2

1741 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

300 WATER ST PO Box 7000 STN Main  
PETERBOROUGH ON K9J 8M5

1035 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

500 BAY ST FLR 2  
SAULT STE MARIE ON P6A 1X5

1625 FLAMBOROUGH CIR  
MISSISSAUGA ON L5M 3M8

1100 GREEN LAKE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

PO BOX 78  
WEST GUILFORD ON K0M 2S0

1036 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

3617 BAIRD CRT  
MISSISSAUGA ON L5L 4T5

1008 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

2507 NORTH SHORE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1681 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1018 ALL SEASONS CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

1030 ALL SEASONS CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

PO BOX 941  
HALIBURTON ON K0M 1S0

1333 GREEN LAKE RD  
HALIBURTON ON K0M 1S0

11015 HWY 118  
ALGONQUIN HIGHLANDS ON K0M 1J1

1214 CAMERON LANE  
PO BOX 87  
WEST GUILFORD ON K0M 2S0

1036 CAMERON LANE  
ALGONQUIN HIGHLANDS ON K0M 1J1

11033 HWY 118  
ALGONQUIN HIGHLANDS ON K0M 1J1

11033 HIGHWAY 118  
ALGONQUIN HIGHLANDS ON K0M 1J1

1085 LAMAR DR  
ALGONQUIN HIGHLANDS ON K0M 1J1

1061 ABLETT CRT  
ALGONQUIN HIGHLANDS ON K0M 1J1

8478 HICKORY LANE  
NIAGARA FALLS ON L2H 0K8

2 ORCHARD HEIGHTS BLVD UNIT 204  
AURORA ON L4G 3W3

850 TAPSCOTT AVE UNIT 36  
TORONTO ON M1X 1N4

201 ST. GEORGE'S CRESCENT NW  
EDMONTON AB T5N 3M7

32 LANGBOURNE PL  
NORTH YORK ON M3B 1A9

1094 EASTMOUNT AVE  
MISSISSAUGA ON L5E 1Z4

PO BOX 847  
TWEED ON K0K 3J0

1722 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

11101 HWY 118  
ALGONQUIN HIGHLANDS ON K0M 1J1

962 FERNDALE CRES  
NEWMARKET ON L3Y 6B7

1906 SUNSET AVE  
DURHAM NC USA 27705-3555

1489 WATTS RD  
HALIBURTON ON K0M 1S0

PO BOX 247  
MINDEN ON K0M 2K0

1067 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1035 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1755 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

10979 HWY 118  
ALGONQUIN HIGHLANDS ON K0M 1J1

1005 WANDERING LANE  
ALGONQUIN HIGHLANDS ON K0M 1J1

49 DANESBURY CRES  
BRAMALEA ON L6T 1T2

158 RUGGLES AVE  
RICHMOND HILL ON L4C 1Y4

1036 WANDERING LANE  
ALGONQUIN HIGHLANDS ON K0M 1J1

1468 BARRY LINE RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

1030 STANHOPE AIRPORT RD  
ALGONQUIN HIGHLANDS ON K0M 1J1

89 BOBMAR RD  
SCARBOROUGH ON M1C 1C8

151 BROOKE AVE  
TORONTO ON M5M 2K3

**RETURNED NOTICE OF STUDY COMMENCEMENT – AUG 31/18**

7069 WINDSOR CRES  
NIAGARA FALLS ON L2G 1G2

11015 HWY 118  
ALGONQUIN HIGHLANDS ON K0M 1J1

1333 GREEN LAKE RD  
HALIBURTON ON K0M 1S0

1081 NORLEY DR, RR 1  
ALGONQUIN HIGHLANDS ON K0M 1J1

1081 NORLEY DR, RR1  
ALGONQUIN HIGHLANDS ON K0M 1J1

2 EDENBRIDGE DR  
SS 3  
ANGUS ON L0M 1B3

PO BOX 162  
WEST GUILFORD ON K0M 2S0

135 MAPLE AVE  
PO Box 389  
HALIBURTON ON K0M 1S0

21 POUCHER ST  
TORONTO ON M4J 2Z1

408-9 Boardwalk Cres  
TORONTO ON M4L 6T1

89 HARTRICK PL  
WHITBY ON L1R 2C3

1481 BARRY LINE RD  
HALIBURTON ON K0M 1S0

1481 Barry Line  
HALIBURTON ON K0M 1S0

24 JOANITH DR  
TORONTO ON M4B 1S7

63 HERREMA BLVD  
UXBRIDGE ON L9P 1W6

PO BOX 5  
WATERLOO ON N2J 3Z6

81 SWEETNAM DR  
LINDSAY ON K9V 0A6

14 SCARBOROUGH HEIGHTS BLVD  
SCARBOROUGH ON M1M 2V4



1293 GREEN LAKE RD  
HALIBURTON ON K0M 1S0

1272 GREEN LAKE RD  
HALIBURTOM ON K0M 1S0

1197 BARRY LINE RD  
HALIBURTON ON K0M 1S0

119 SILVERWOOD CIR  
AJAX ON L1Z 0A4

1371 BARRY LINE RD  
HALIBURTON ON K0M 1S0



**Bracebridge File - Re: FW: Road to nowhere. Airport road. New road. Why do we need this road. Is this road just another way to spend the townships cash that they don't have. Thanks,**

---

**From:** Bill Van Ryn  
**To:** Tammy McKelvey  
**Date:** 8/4/2018 12:34 PM  
**Subject:** Re: FW: Road to nowhere. Airport road. New road. Why do we need this road. Is this road just another way to spend the townships cash that they don't have. Thanks, Mayor. Ernie Francis  
**Cc:** Angie Bird <abird@algonquinhighlands.ca>; Cam Loucks; Mook, Evan; Tre...  
**Bc:** Bracebridge File

---

Thank you Tammy.

>>> Tammy McKelvey <tmckelvey@algonquinhighlands.ca> 8/1/2018 2:54 PM >>>

Hi Bill:

We received this email so I am forwarding to you for the Airport work you are doing.

Regards, Tammy

*Tammy McKelvey, A.M.C.T.  
Treasurer  
Township of Algonquin Highlands  
1123 North Shore Road  
Algonquin Highlands, ON K0M 1J1*

*Phone: 705-489-2379 ext. 328*

*Fax: 705-489-3491*

---

**From:** Algonquin Highlands Info  
**Sent:** August 1, 2018 12:15 PM  
**To:** Tammy McKelvey <tmckelvey@algonquinhighlands.ca>  
**Subject:** FW: Road to nowhere. Airport road. New road. Why do we need this road. Is this road just another way to spend the townships cash that they don't have. Thanks, I

---

**From:**  
**Sent:** Tuesday, July 31, 2018 9:24 PM  
**To:** Algonquin Highlands Info <info@algonquinhighlands.ca>  
**Subject:** Road to nowhere. Airport road. New road. Why do we need this road. Is this road just another way to spend the townships cash that they don't have. Thanks

Sent from Mail for Windows 10

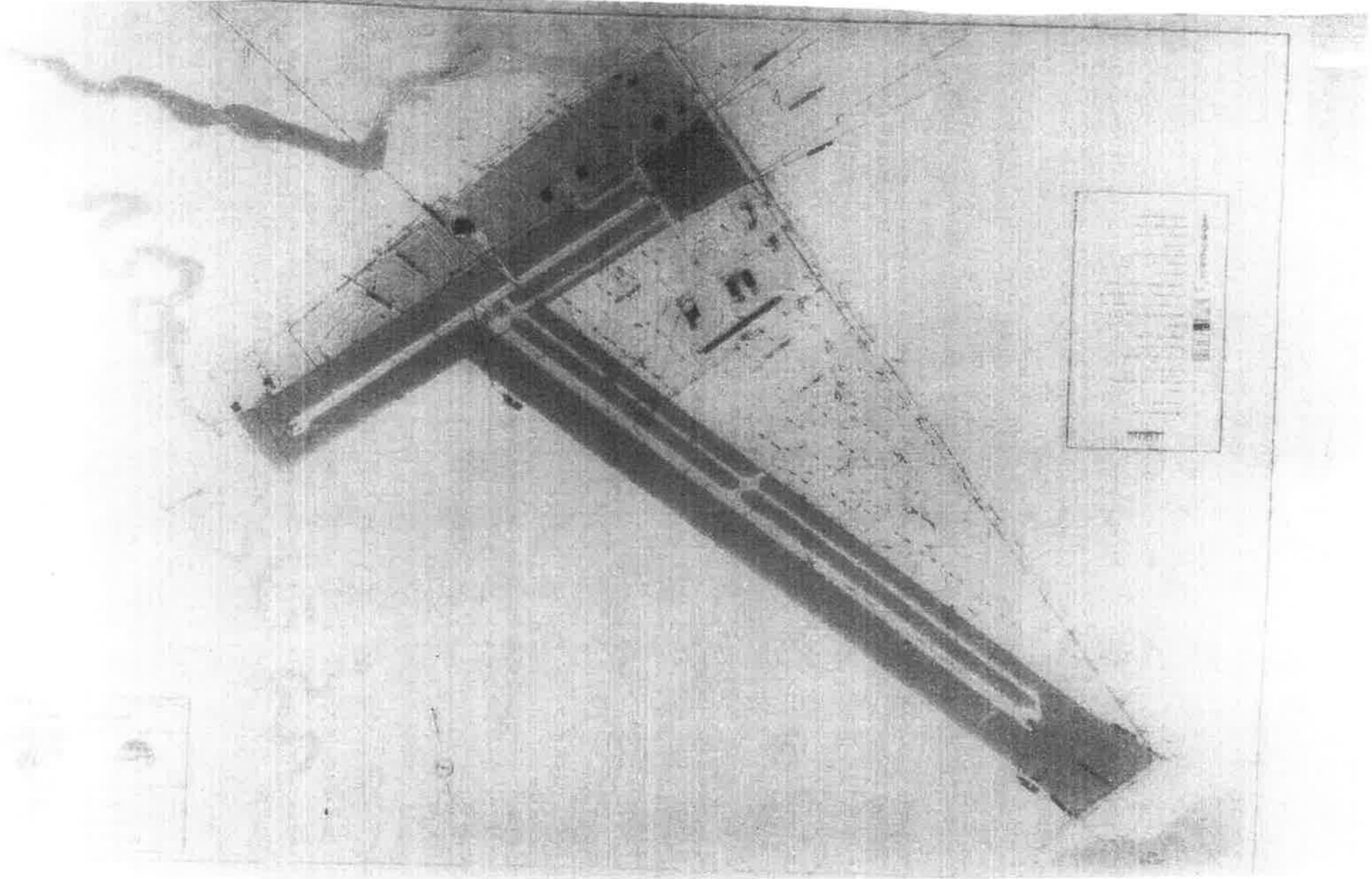
RECEIVED AUG 17 2018

August 14, 2018

Dear Bill Van Ryn

These are my comments about the proposed road. I have been a resident of the area for the past 30 years and I built my home on airport road about 15 years ago. I hold an aircraft maintenance engineer license. With the construction of the industrial park units, my company, Activ aero service, could offer the new tenants contract service for whatever type of aircraft they may wish to purchase. I would highly recommend to build this industrial road, as there are no available properties left around the airport and this could solve a lot of problems. I think this area needs more industrial units to provide more jobs for the next generation.

Thank you for your time.



**Ministry of the  
Environment,  
Conservation and Parks**  
Eastern Region  
1259 Gardiners Road, Unit 3  
Kingston ON K7P 3J6  
Phone: 613.549.4000  
or 800.267.0974

**Ministère de l'Environnement,  
de la Protection de la nature  
et des Parcs**  
Région de l'Est  
1259, rue Gardiners, unité 3  
Kingston (Ontario) K7P 3J6  
Tél: 613 549-4000  
ou 800 267-0974



**By email only**

August 24, 2018

C.C. Tatham & Associates Ltd.  
8 Barron Drive  
Bracebridge, ON  
P1L 0A1

Attention: Bill Van Ryn, B. Eng., P. Eng.  
bvanryn@cctatham.com

Dear Mr. Van Ryn:

Re: Notice of Study Commencement Response – Township of Algonquin Highlands  
Construction of New Road North of the Stanhope Municipal Airport to Access the  
Airport Business Park

---

Thank you for providing the Notice of Study Commencement by email on July 17<sup>th</sup>, 2018. The Notice indicates that the project is being planned as a Schedule B activity under the Municipal Class Environmental Assessment (Class EA).

Here are MECP preliminary comments on the project. Please consider these comments as you proceed through the Class EA process. The comments are grouped under these headings:

- Class EA process,
- MECP technical review issues,
- Aboriginal consultation.

Class Environmental Assessment Process

*Notification*

As the Regional EA Coordinator for this project, I will be responsible for circulating project notices and information to MECP reviewers and coordinating the MECP response during the Class EA process. I am a mandatory contact for all Notices issued for the project. In addition, I request copies of other relevant information such as information updates, technical studies related to MECP's mandate, interim reports and technical memoranda, and two copies of the final report when it is available.

My preferred methods of correspondence are email for notices, one hard copy of technical reports and final reports (Master Plans), and one copy of the report on a

thumb drive. It is helpful to provide scanned copies of the notices as they appear in newspapers, and confirm the dates of publication.

My contact information is:

Jon Orpana, Environmental Assessment Coordinator  
Ministry of the Environment, Conservation and Parks  
1259 Gardiners Road  
P.O. Box 22032  
Kingston, Ontario  
K7M 8S5

telephone: (613) 548-6918  
email: [jon.orpana@ontario.ca](mailto:jon.orpana@ontario.ca)

Please ensure that the Notice of Completion states that Part II Order requests should be addressed in writing to:

Minister Rod Phillips  
Ministry of Environment, Conservation and Parks  
11<sup>th</sup> Floor, 77 Wellesley St. W  
Toronto ON M7A 2T5  
[minister.mecp@ontario.ca](mailto:minister.mecp@ontario.ca)

and

Director, Environmental Assessment and Permissions Branch  
Ministry of Environment and Climate Change  
135 St. Clair Ave. W, 1<sup>st</sup> Floor  
Toronto ON, M4V 1P5  
[enviopermissions@ontario.ca](mailto:enviopermissions@ontario.ca)

The notice should also state that a Part II Order Request Form must be used to request a Part II Order. The Part II Order Request Form is available online on the Forms Repository Website (<http://www.forms.ssb.gov.on.ca>) by searching "Part II Order" or "012-2206E" (the form number).

#### *Consultation with Review Agencies*

In addition to public consultation, consultation with review agencies is an important component of the Class EA process. Please ensure that you contact review agencies directly to determine their interest in the project at the Notice of Commencement stage.

The MECP Regional office is a mandatory contact for all notices (please refer to contact information above). In addition, other ministries and agencies that may have an interest in the project are listed in section A.3.6 and Appendices 3 and 7. The provincial ministries that are most often involved in Class EA project review include the Ministry of Municipal Affairs (for example, expansion of settlement boundaries, consistency with Growth Plan), Ministry of Natural Resources and Forestry (for example, endangered species, significant wetlands), Ministry of Tourism, Culture and Sport (for example, cultural heritage or archaeological resources), and Ministry of Transportation (projects located on MTO property, projects impacting provincial highways).

The final report should include information on correspondence with review agencies, issues raised by reviewers, and how these issues will be addressed. This could include technical studies or other information, and commitments to obtain specific approvals or permits.

### MECP Technical Review

This Ministry's interest in road projects includes:

- impacts to groundwater and surface water quality and quantity due to construction (for example, water crossings, dewatering, control of erosion and sedimentation, spill control),
- potential for encountering landfill sites, contaminated soil, contaminated sediment or groundwater,
- management of excess materials, waste, contaminated soil and groundwater,
- noise and air quality impacts to nearby residents or planned subdivisions,
- stormwater management.

These environmental issues, and appropriate mitigation measures, should be addressed during the Class EA process.

We recommend that you contact this office as soon as possible during the environmental assessment process if you become aware of:

- contaminated sites in the study area or influence area of the project,
- a source water protection vulnerable area in the vicinity of the project, or
- issues that are contentious to the general public, aboriginal communities or review agencies.

The following comments are standard MECP comments and may not all apply to the proposed project.

#### *Water Resources*

We recommend that the proponent consider development of Dewatering and Excess Water Management Plans for collection, assessment, classification, conveyance, treatment and discharge of ground, surface and storm water encountered within the study area during construction.

We recommend that the proponent develop an Excavation and Sediment Control Plan and a Spill Prevention and Contingency Plan for the project. Spills should be reported to the Spills Action Centre at 1-800-268-6060.

If construction involves taking, dewatering, storage or diversion of water in excess of 50,000 litres per day, the activity may be required to be registered on the Environmental Activity and Sector Registry (EASR) or may require a Permit To Take Water. The process to be used depends on the source of the water, the quantity of water taken, and the type of construction activity. EASR requirements for water takings for road construction and construction dewatering are prescribed in Ontario Regulation 63/16 under the Environmental Protection Act. The Permit To Take Water requirements are



prescribed in Section 34, Ontario Water Resources Act.

Guidance on nearshore construction and dredging may be obtained from the following MECP guidelines:

- *B-6 Guidelines for Evaluating Construction Activities Impacting on Water Resources,*
- *Evaluating Construction Activities Impacting on Water Resources, Part III A, Part III B, and Part III C* (dredging handbook) and accompanying *Appendix A Provincial Sediment Quality Guidelines,*
- *Guidelines for Identifying, Assessing and Managing Contaminated Sediments in Ontario: An Integrated Approach.*

Stormwater management should be in accordance with the MECP *Stormwater Management Planning and Design Manual*. Stormwater infrastructure requires approval under section 53 of the Ontario Water Resources Act.

MECP has concerns with the use of a cured-in-place process (CIPP) for culverts. Styrene released into the environment can result in harm to fish.

#### *Source Protection*

Proponents undertaking a Municipal Class EA project must identify early in the process whether a project is occurring within a source water protection vulnerable area. This must be clearly documented in a Master Plan, Project File report or Environmental Study Report. If the project is occurring in a vulnerable area, then there may be policies in the local Source Protection Plan (SPP) that need to be addressed (requirements under the Clean Water Act). The proponent should contact and consult with the appropriate Conservation Authority/Source Protection Authority (CA/SPA) to discuss potential considerations and policies in the SPP that apply to the project.

Please include a section in the report on Source Water Protection. Specifically, it should discuss whether or not the project is located in a vulnerable area or changes or creates new vulnerable areas, and provide applicable details about the area. If located in a vulnerable area, proponents should document whether any project activities are a prescribed drinking water threat and thus pose a risk to drinking water (please consult with the appropriate CA/SPA). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local SPP. If creating or changing a vulnerable area, proponents should document whether any existing uses or activities may potentially be affected by the implementation of source protection policies. This section should then be used to inform and should be reflected in other sections of the report, such as the identification of net positive/ negative effects of alternatives, mitigation measures, evaluation of alternatives etc. Even if the project activities in a vulnerable area are deemed to not to be a drinking water risk, there may be other policies that apply, so consultation with the local CA/SPA is important.

### *Contaminated Sites and Waste Management*

The proponent should consider the potential that the project may be constructed in an area of contamination. If an area of contamination is present, the EA should determine the appropriate management of contaminated soil, sediment and groundwater as well as consider health and safety measures.

Waste, including contaminated soil, must be managed in accordance with MECP standards. The *Environmental Protection Act* (EPA) and Regulation 347 require waste to be classified and disposed of appropriately. When determining the waste category, the proponent must ensure compliance with Schedule 4 of Regulation 347.

Where the removal and movement of soils is required for the project, we recommend that you refer to the MECP document *Management of Excess Soil – A Guide for Best Management Practices* and Ontario Regulation 153/04 and the accompanying *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* for guidance on assessment, management, restoration and soil quality criteria.

Excess materials generated during construction must be handled in accordance with this Ministry's *Protocol for the Management of Excess Materials in Road Construction and Maintenance*. The principles of this protocol are reflected in OPSS 180.

We recommend that the proponent consider development of an Excess Materials Management Plan for identification, assessment, excavation, conveyance, treatment, staging, grading and/or off-site disposal/re-use of soils and aggregates generated within the study area during construction.

The Waste Disposal Site Inventory, dated June 1991, may be helpful in identifying the locations of open and closed waste disposal sites in Ontario.

### *Noise and Vibration*

The final report should include commitments to comply with municipal noise bylaws, implement general noise control measures, investigate noise complaints, and comply with MECP sound level criteria for construction equipment.

Where there is a potential for permanent noise increases from projects, a noise study should be completed as part of the Class EA process to assess impacts on residences, proposed residential development, or other sensitive land uses. This noise assessment should be available to the public during the Class EA process.

If blasting is required, pre-blast surveys are recommended, and the proponent should establish protocols for notifying residents and addressing blasting complaints. Noise, dust and flyrock should be controlled.

### Consultation with First Nation and Métis Communities

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty

right and contemplates conduct that may adversely impact that right. Before you can proceed with this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the process.

Your proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act* 1982. Where the Crown's duty to consult is triggered in relation to your proposed project, **the MECP is delegating the procedural aspects of rights-based consultation to you through this letter.** The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information you have provided to date and the Crown's preliminary assessment you are required to consult with the following Aboriginal communities who have been identified as potentially affected by your proposed project:

- Beausoleil First Nation
- Chippewas of Georgina Island First Nation
- Chippewas of Rama First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Mississaugas of Scugog First Nation
- Coordinator, Williams Treaty First Nations:
  - Sandy McKenzie [inquiries@williamstreatiesfirstnations.ca](mailto:inquiries@williamstreatiesfirstnations.ca)
- Wahta Mohawks
- Huron-Wendat Nation

Steps that you may need to take in relation to Aboriginal consultation for your proposed project are outlined in the "Code of Practice for Consultation in Ontario's Environmental Assessment Process" which can be found at the following link:

<https://www.ontario.ca/document/consultation-ontarios-environmental-assessment-process>

Additional information related to Ontario's Environmental Assessment Act is available online at: [www.ontario.ca/environmentalassessments](http://www.ontario.ca/environmentalassessments)

You must contact the Director of Environmental Assessment and Permissions Branch under the following circumstances subsequent to initial discussions with the communities identified by MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right
- Consultation has reached an impasse
- A Part II Order request or elevation request is expected

The Director can be notified by email, mail or fax using the information provided below:

<b>Email:</b>	<a href="mailto:enviopermissions@ontario.ca">enviopermissions@ontario.ca</a> Subject: Potential Duty to Consult
<b>Fax:</b>	416-314-8452
<b>Address:</b>	Environmental Assessment and Permissions Branch 135 St. Clair Avenue West, 1 <sup>st</sup> Floor Toronto, ON, M4V 1P5

The MECP will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role you will be asked to play should additional steps and activities be required.

Should you or any members of your project team have any questions regarding the material above, please contact me at (613) 540-6852.

Regards,



Jon K. Orpana  
Environmental Planner & Environmental Assessment Coordinator  
Ministry of the Environment, Conservation and Parks  
Kingston Regional Office  
PO Box 22032, 1259 Gardiners Road  
Kingston, Ontario  
K7M 8S5

Phone: (613) 548-6918  
Fax: (613) 548-6908  
Email: [jon.orpana@ontario.ca](mailto:jon.orpana@ontario.ca)

cc: Courtney Redmond, Environmental Compliance Supervisor, MECP  
Peterborough District Office  
Email: [Courtney.redmond@ontario.ca](mailto:Courtney.redmond@ontario.ca)

Township of Algonquin Highlands  
Email: [info@algonquinhighlands.ca](mailto:info@algonquinhighlands.ca)



**C.C. Tatham & Associates Ltd.**  
Consulting Engineers

Collingwood   Bracebridge   Orillia   Barrie   Ottawa

8 Barron Drive  
Bracebridge, Ontario P1L 0A1  
Tel: (705) 645-7756  
Fax: (705) 645-8159  
Email: info@cctatham.com  
Web: www.cctatham.com

**MEMO**

**Date:** November 23, 2018      **Pages:** 1      **CCTA File:** 217507

**To:** Project File

**Subject:** Stanhope Airport Business Park Road - Class EA  
MOECP Source Protection Area Review

---

In regard to MOECP's Source Protection Area comments in their response letter of August 24, 2018, their on-line Source Protection Information Atlas was consulted, as was the local Source Protection Agency contact being Kawartha Conservation.

Kawartha Conservation confirmed in email they did not deem it necessary to comment through the Class EA process being that the site is far from any drinking water systems.

The Source Protection Information Atlas indicated the site is not within a wellhead protection area or an intake protection zone, however it is situated in a significant groundwater recharge area and highly vulnerable recharge area. In accordance with the Trent Source Protection Plan policy 4.8.2, recommendations have been brought forward to the project file that during final design the Township complete a water balance assessment and maintain groundwater recharge through best management practices for the new road, and that the Township require all new lots in the development to also complete a water balance assessment and maintain groundwater recharge.

Center latitude: 45.1068 ° North. Center longitude: 78.4157 ° West. Visible Features: 4 features visible on [Français]  
 Area of features visible on Under Protection Area - Groundwater. 1 features visible on Vulnerable  
 Groundwater Under Direct Influence (WUDI) - Groundwater. 1 features visible on Wellhead Protection Zones. 1 features visible on  
 WUDI Groundwater Under Direct Influence (WUDI A-C).

Search By

Result Details

Searched By:  
 Map location  
 Value:  
 User identified location

Location Policy Search by SPA

Location Information

Latitude: 45.11076 Longitude: -78.64614  
 UTM Zone: 17 Easting: 685162.25  
 Northing: 4997950.33  
 Upper Tier Municipality: COUNTY OF HALIBURTON  
 Lower/Single Tier Municipality: TOWNSHIP OF ALGONQUIN HIGHLANDS  
 Township Concession and Lot: STANHOPE CON 5, LOT 31  
 Assessment Parcel Address: 1168 STANHOPE AIRPORT RD  
 Assessment Roll #: 46210020007250000000

Source Protection Details for Location

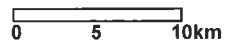
Source Protection Area. **Kawartha-Haliburton**  
 Wellhead Protection Area: **No**  
 Wellhead Protection Area E (GUDI): **No**  
 Intake Protection Zone: **No**  
 Issue Contributing Area: **No**  
 Significant Groundwater Recharge Area: **Yes ; score is 6**  
 Highly Vulnerable Aquifer: **Yes ; score is 6**  
 Event Based Area: **No**  
 Wellhead Protection Area Q1: **No**  
 Wellhead Protection Area Q2: **No**  
 Intake Protection Zone Q: **No**

Use the Policy search tab to see if any policies apply – for more details see the [source protection plan](#)

Information is current as of: **March, 2018**



Map Legend



Center latitude: 45.1108 ° North, Center longitude: -78.6461 ° West. Visible Features: 1 features visible on Significant Groundwater Recharge Area, 3 features visible on Highly Vulnerable Aquifer, 3 features visible on Significant Groundwater Recharge Area. [View Details](#)



Search By

Result Details

Searched By:

Map location

Value:

User identified location

Location Policy Search by SPA

### Location Information

Latitude: **45.11076** Longitude: **-78.64614**

UTM Zone: 17 Easting: **685162.25**

Northing: **4997950.33**

Upper Tier Municipality: **COUNTY OF HALIBURTON**

Lower/Single Tier Municipality: **TOWNSHIP OF ALGONQUIN HIGHLANDS**

Township Concession and Lot: **STANHOPE CON 5, LOT 31**

Assessment Parcel Address: **1168 STANHOPE AIRPORT RD**

Assessment Roll #: **46210020007250000000**

### Source Protection Details for Location

Source Protection Area: **Kawartha-Haliburton**

Wellhead Protection Area: **No**

Wellhead Protection Area E (GUDI): **No**

Intake Protection Zone: **No**

Issue Contributing Area: **No**

Significant Groundwater Recharge Area: **Yes** ; score is **6**

Highly Vulnerable Aquifer: **Yes** ; score is **6**

Event Based Area: **No**

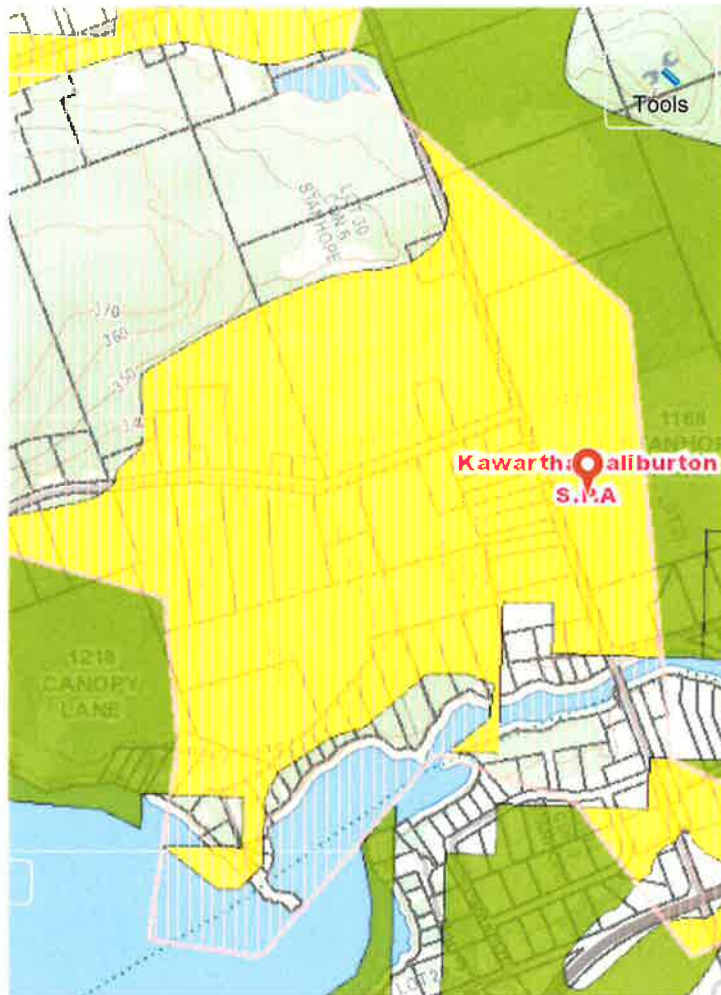
Wellhead Protection Area Q1: **No**

Wellhead Protection Area Q2: **No**

Intake Protection Zone Q: **No**

Use the Policy search tab to see if any policies apply – for more details see the [source protection plan](#)

Information is current as of: **March, 2018**

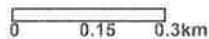


Map Legend

Help and Resources

About

Powered By [Land Information Ontario](#)

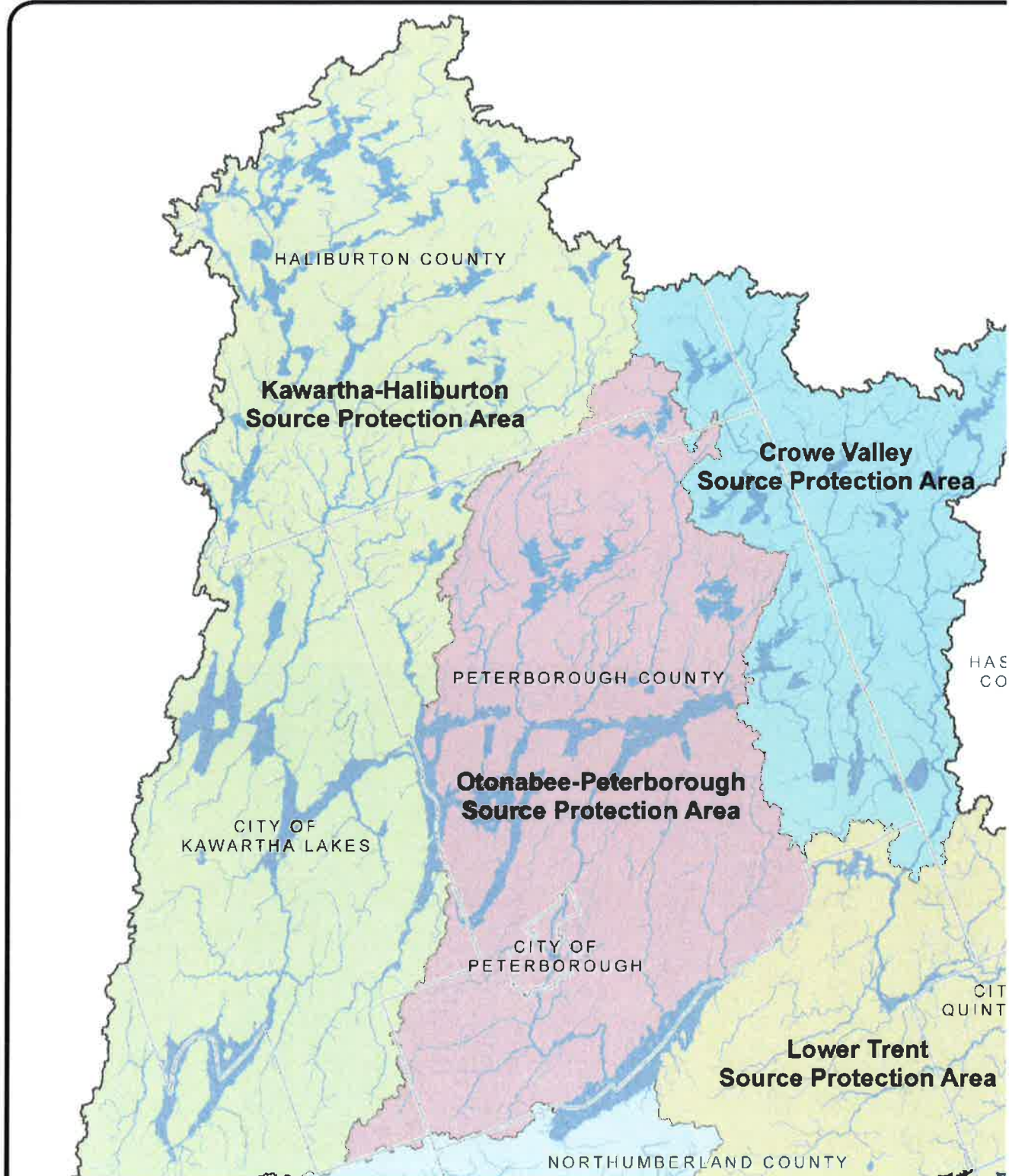


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# DRINKING WATER SOURCE PROTECTION

ACT FOR CLEAN WATER

Cons  
Coaliti  
Protect







TRENT CONSERVATION COALITION  
SOURCE PROTECTION REGION

# Trent Source Protection Plan

**Approved October 23, 2014**

Effective January 1, 2015

Updated February 15, 2018

Crowe Valley Source Protection Area  
Kawartha-Halliburton Source Protection Area  
Lower Trent Source Protection Area  
Otonabee-Peterborough Source Protection Area



4.8.2 WATER QUANTITY RECHARGE (WHPA Q2)

POLICY Z-1

APPLICABLE AREA – WHPA Q2



AND SGRA



**Applicable Activity:** Recharge Reduction

When recharge to an aquifer is reduced, the available water supply becomes depleted and can impair the long-term viability of a water system. Typical examples which reduce recharge include existing and planned land use developments, such as residential subdivisions, employment areas and undifferentiated suburban lands. Any conversions of land to an impervious surface, such as paved parking lots, do not let water travel through the ground to recharge the aquifer.

This activity is a threat to drinking water sources as activities that reduce the recharge of an aquifer, reduces the water available for municipal water supplies. Impervious surfaces impede the ability for the aquifer to recharge and continue to provide water over the long term.

Policy No.	Tool	Legal Effect	Implementer	E/F	Policy Text	Monitoring Policy
Z-1	Land Use Planning	Must Comply	Planning Approval Authority	F - Moderate Risk Area	<p><u>Recharge Policy</u>                      For applications under the Planning Act within the Tier 3 Water Budget WHPA-Q2 identified as having significant water quantity threats, the relevant Planning Approval Authority shall ensure recharge reduction does not become a significant drinking water threat by:</p> <ol style="list-style-type: none"> <li>1) Requiring new development for lands zoned Low Density Residential (excluding subdivisions) or zoned Agricultural to implement best management practices such as Low Impact Development (LID) with the goal to maintain predevelopment recharge.</li> <li>2) Requiring that all site plan (excluding an application for one single family dwelling) and subdivision applications for new residential, commercial, industrial and institutional uses provide a water balance assessment for the proposed development to the satisfaction of the Planning Approval Authority which addresses each of the following requirements:</li> </ol>	Y-1(3)

Chapter 4: Policies

Policy No.	Tool	Legal Effect	Implementer	E/F	Policy Text	Monitoring Policy
					<p>a) maintain pre-development recharge to the greatest extent feasible through best management practices such as LID, minimizing impervious surfaces, and lot level infiltration;</p> <p>b) where pre-development recharge cannot be maintained on site, implement and maximize off-site recharge enhancement (within the same WHPA-Q2) to compensate for any predicted loss of recharge from the development; and</p> <p>3) Only approving settlement area expansions as part of a municipal comprehensive review where it has been demonstrated that recharge functions will be maintained on lands designated Significant Groundwater Recharge Areas within WHPA-Q2.</p> <p>4) Amending municipal planning documents to reference most current Assessment Reports in regards to the Significant Groundwater Recharge Areas within WHPA-Q2.</p>	

## Phil Watts

---

**From:** Jenna Stephens <jstephens@kawarthaconservation.com>  
**Sent:** Monday, October 29, 2018 2:48 PM  
**To:** Phil Watts  
**Cc:** Bill Van Ryn; Paulette Trefry  
**Subject:** RE: New Road, Township of Algonquin Highlands - Municipal Class EA

Hello Phil,

Thank you for notifying us about the creation of the roadway in Algonquin Highlands. This location is quite far from our municipal drinking water systems in Haliburton County and we do not feel it necessary to comment throughout the Class EA process. We appreciate you considering us during this process.

Warmest Regards,

Jenna Stephens  
RMO/Source Protection Technician  
KAWARTHA CONSERVATION  
277 Kenrei Road  
Lindsay, ON K9V 4R1

Tel: 705.328.2271 ext. 224  
Fax: 705.328.2286

[KawarthaConservation.com](http://KawarthaConservation.com)



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---

**From:** Phil Watts [mailto:pwatts@cctatham.com]  
**Sent:** October 26, 2018 3:11 PM  
**To:** Jenna Stephens  
**Cc:** Bill Van Ryn; Paulette Trefry  
**Subject:** New Road, Township of Algonquin Highlands - Municipal Class EA

Hello Jenna –

On behalf of the Township of Algonquin Highlands, we are preparing a Municipal Class Environmental Assessment for a proposed roadway to be situated on Township lands in proximity to Stanhope Airport, as indicated on the attached map.

We would like to confirm the Trent Conservation Coalition's interest in this process, if any, and to where we should direct information for comment.

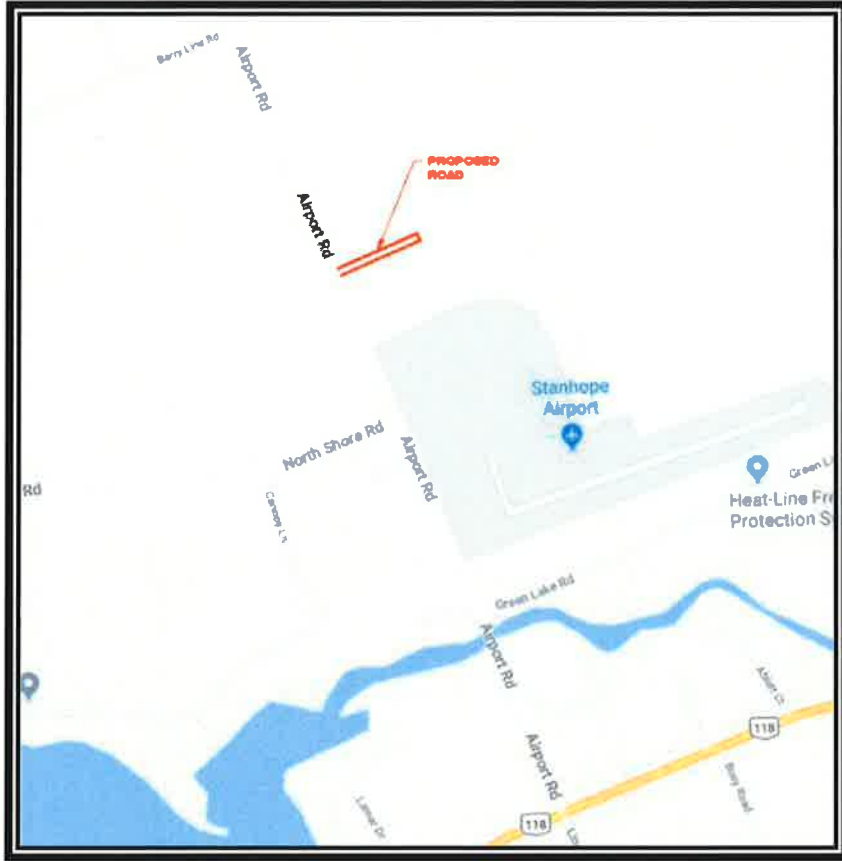
Timing is of the essence and we appreciate your guidance and input in this matter.

Thank you.

Regards,

Phil Watts, P.Eng.  
Project Manager  
C.C. Tatham & Associates Ltd.  
8 Barron Drive  
Bracebridge, ON.  
P1L 0A1

705-645-7756



**Ministry of Tourism,  
Culture and Sport**

Heritage Program Unit  
Programs and Services Branch  
401 Bay Street, Suite 1700  
Toronto ON M7A 0A7  
Tel: 416 314 3108

**Ministère du Tourisme,  
de la Culture et du Sport**

Unité des programmes patrimoine  
Direction des programmes et des services  
401, rue Bay, Bureau 1700  
Toronto ON M7A 0A7  
Tél: 416 314 3108



August 17, 2018 (EMAIL ONLY)

Bill Van Ryn, B.Eng., P.Eng.  
Vice President, Manager – Bracebridge Office  
C.C. Tatham & Associates Ltd.  
8 Barron Drive  
Bracebridge, ON P1L 0A1  
Tel: (705) 645-7756  
[bvanryncctatham.com](mailto:bvanryncctatham.com)

**RE: MTCS file #: 0009340**  
**Proponent: Township of Algonquin Highlands**  
**Subject: Notice of Commencement**  
**Construction of New Road North of Stanhope Municipal Airport**  
**Location: Township of Algonquin Highlands, Ontario**

---

Dear Mr. Van Ryn:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Notice of Commencement for your project. MTCS's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land-based and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources. The recommendations below are for a Schedule B Municipal Class EA project, as described in the notice of study commencement. If any municipal bridges may be impacted by this project, we can provide additional screening documentation as formulated by the Municipal Engineers Association in consultation with MTCS.

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to these communities. Municipal Heritage Committees, historical societies and other local heritage organizations may also have knowledge that contributes to the identification of cultural heritage resources.

**Archaeological Resources**

Your EA project may impact archaeological resources and you should screen the project with the MTCS [Criteria for Evaluating Archaeological Potential](#) to determine if an archaeological assessment (AA) is needed. MTCS archaeological sites data are available at [archaeology@ontario.ca](mailto:archaeology@ontario.ca). If your EA project area exhibits archaeological potential, then an AA should be undertaken by an archaeologist licenced under the *Ontario Heritage Act (OHA)*, who is responsible for submitting the report directly to MTCS for review.

**Built Heritage and Cultural Heritage Landscapes**

The MTCS [Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes](#) should be completed to help determine whether your EA project may impact cultural heritage

resources. The Clerk for Algonquin Highlands can provide information on property registered or designated under the *OHA*. Municipal Heritage Planners can also provide information that will assist you in completing the checklist.

If potential or known heritage resources exist, MTCS recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry's *Info Sheet #5: Heritage Impact Assessments and Conservation Plans* outlines the scope of HIAs. Please send the HIA to MTCS for review, and make it available to local organizations or individuals who have expressed interest in review.

### **Environmental Assessment Reporting**

All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS whether any technical heritage studies will be completed for your EA project, and provide them to MTCS before issuing a Notice of Completion. If your screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Thank-you for consulting MTCS on this project: please continue to do so through the EA process, and contact me for any questions or clarification.

Sincerely,

Laura Hatcher  
Heritage Planner  
Laura.E.Hatcher@Ontario.ca

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.



**Bracebridge File - Fwd: FW: Construction of New Road - Stanhope Airport - MEA Class EA, Township of Algonquin Highlands (CCTA File No. 217507-1)**

---

**From:** Paulette Trefry  
**To:** Bracebridge File  
**Date:** 7/18/2018 4:26 PM  
**Subject:** Fwd: FW: Construction of New Road - Stanhope Airport - MEA Class EA, Township of Algonquin Highlands (CCTA File No. 217507-1)  
**Attachments:** Notice of Study Commencement.pdf; GRT\_excluding\_MOE -only MTCS\_Apr2018.docx

---

>>> "Barboza, Karla (MTCS)" <Karla.Barboza@ontario.ca> 7/17/2018 10:56 AM >>>

Hi all,

Thanks for sending the notice of commencement for the Construction of New Road to the Ministry of Tourism, Culture and Sport (MTCS).

I am not sure if C.C. Tatham and/or the Township has a master contact list when sending environmental assessment notices to ministries and other government agencies. Is it possible to use the same contact as the Ministry of the Environment, Conservation and Parks Government Review Team (see attached for MTCS contact)?

Laura Hatcher, MTCS Heritage Planner, is assigned to this file – MTCS File# 0009340 and will be providing preliminary comments by August 17. Any future notices should be sent to both Laura and I.

Let me know if you have any questions in the meantime.

Thanks again,  
Karla

Karla Barboza MCIP, RPP, CAHP | (A) Team Lead, Heritage  
Ministry of Tourism, Culture and Sport  
Culture Division | Programs and Services Branch | Heritage Program Unit  
T. [416.314.7120](tel:416.314.7120) | fax: [416.212.1802](tel:416.212.1802) | Email: [karla.barboza@ontario.ca](mailto:karla.barboza@ontario.ca)

---

**From:** Paulette Trefry [[ptrefry@cctatham.com](mailto:ptrefry@cctatham.com)]  
**Sent:** July 17, 2018 9:34 AM  
**To:** [cau-uca@aadnc-aandc.gc.ca](mailto:cau-uca@aadnc-aandc.gc.ca); [fisheriesprotection@dfo-mpo.gc.ca](mailto:fisheriesprotection@dfo-mpo.gc.ca); Minkin, Dan (MTCS) <[Dan.Minkin@ontario.ca](mailto:Dan.Minkin@ontario.ca)>; [k.a.sandy-mckenzie@rogers.com](mailto:k.a.sandy-mckenzie@rogers.com)  
**Subject:** Construction of New Road - Stanhope Airport - MEA Class EA, Township of Algonquin Highlands (CCTA File No. 217507-1)

Please find attached Notice of Study Commencement for the above noted Municipal Class EA.

Please call Bill Van Ryn if you have any questions or require additional information.

Paulette Trefry

C.C. TATHAM & ASSOCIATES LTD.

CONSULTING ENGINEERS

8 Barron Drive

Bracebridge, ON, P1L 0A1

Ph# (705)-645-7756 (ext. 2088)

Fax# (705)-645-8159

Email: [ptrefry@cctatham.com](mailto:ptrefry@cctatham.com)

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2. It is agreed that only those hard copy documents bearing the professional seal and signature of the C.C. Tatham & Associates Ltd. project engineer will govern the work of the project. In the event of any dispute concerning an electronic document, the appropriate dated hard copy in C.C. Tatham & Associates Ltd.'s office will be the document used to govern and resolve the dispute.

# **Environmental Assessment Government Review Team Master Distribution List**

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**Including Agency Contacts for Information into Environmental Assessment  
Planning Matters**

**Environmental Assessment Services  
Environmental Approvals Branch  
Ministry of the Environment and Climate Change**

November 2016-January 2018



## **Key Guidelines in Determining the Government Review Team for Projects and in Conducting Circulations**

The “Government Review Team Master Distribution List” is meant as a tool and an information source to ensure that matters pertaining to environmental assessment (EA) approvals are routed to the proper contacts within Federal, Provincial and Municipal agencies. The list also contains agency contacts for information purposes and links to agency websites where additional information may be obtained.

For individual EA projects, prior to submission of a draft Terms of Reference (ToR) for a project, the Project Officer will provide a copy of the Government Review Team (GRT) list to the proponent (or its consultant). The proponent should review the list and indicate which agencies and sections/staff within these agencies it believes should be circulated the ToR and subsequent EA, and provide a brief written explanation for those which are not believed to be relevant for the project (i.e. X ministry only wishes to review projects within X distance from a certain type of facility and the project will be further than that away from the such facilities). The proponent should contact the agencies proposed to be included to confirm their inclusion. The proponent should provide the proposed list to the Project Officer for review and input. Obtaining Project Officer input of the GRT for the particular project will help avoid having to notify additional agencies late in the process.

During the EA process, proponents’ request for comments from agencies which accompanies the EA documentation should outline that if the agency has no concerns on the EA or has no interest in the project, a written letter, completed “no comment form” (if provided by proponent) or e-mail stating this to the proponent would be preferable. This lets the Project Officer know that an agency is satisfied at a certain stage in the process and/or that no further circulation to the agency is necessary. Proponents should also follow-up with the agencies by telephone and e-mail to ensure the proper person received the documentation and to reiterate the preference that a statement of no concerns or no interest is provided, if applicable.

This list is periodically updated. The most up-to-date list may be obtained by contacting:

Environmental Approvals Branch  
Environmental Assessment Services - Duty Officer at:  
416-314-8001; or 1-800-461-6290

### **Important Notes on the Contents of this List**

1. The default method by which agencies receive EA documents is by courier of a hard paper copy. Some agencies have indicated they are willing to accept (or prefer) electronic versions by e-mail, DVD or downloading from websites (with notice of document availability at a website and a request for comments sent by mail or by e-mail), but unless they indicate they are willing to accept this, hard copies are sent.
2. For all agencies, if a project is going to be located or have effects within more than one of their review districts/regions, then all relevant districts/regions should receive the full documentation and the cover letter should notify them which other districts/regions of their ministry are also receiving the documentation. The same should be done if more than one office within a ministry will be circulated a document and the offices are not divided based on geographic areas. This should be confirmed with individual agencies to determine distribution requirements.
3. This list was originally primarily used for individual EAs but is also now being used to indicate, in general, which agencies wish to review projects prepared under Class EAs or other streamlined EA process. For detailed information on which agencies are to be considered for circulation on projects under particular Class EAs, please consult the particular Class EA and/or the proponent of the Class EA.

**Ministry of Tourism, Culture and Sport: Culture Division**

The Ministry of Tourism, Culture and Sport – Culture Division, which has an interest in the conservation of cultural heritage resources, which includes archaeological resources, built heritage resources and cultural heritage landscapes.

Undertakings that may affect property(ies) or project areas having recognized or potential cultural heritage value or interest, which may include:

- built heritage resources;
- cultural heritage landscapes;
- archaeological resources
- areas of archaeological potential;
- provincial heritage properties (properties owned or controlled by the Province or public bodies prescribed under Ontario Regulation 157/10).

While some cultural heritage resources may already be identified and inventoried by official sources, the significance of others can only be determined after evaluation. The first step is to determine whether there are cultural heritage resources that could be impacted. The most accurate means for making this determination is by retaining qualified persons to research the potential presence of cultural heritage resources.

Alternatively, someone who is not a qualified person (e.g. a project engineer) can determine whether or not there may be the potential for an area to contain cultural heritage resources.

The following documents have been developed by MTCS to assist the non-specialists:

- Criteria for Evaluating Archaeological Potential:  
[http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/021-0478E~3/\\$File/0478E.pdf](http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/021-0478E~3/$File/0478E.pdf)
- Criteria for Evaluating Marine Archaeological Potential:  
[http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/021-0503E~1/\\$File/0503E.pdf](http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/021-0503E~1/$File/0503E.pdf)
- Criteria for Evaluating Potential for Built Heritage and Cultural Heritage Landscapes:  
[http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/021-0500E~1/\\$File/0500E.pdf](http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/GetFileAttach/021-0500E~1/$File/0500E.pdf)

Please go to <http://www.mtc.gov.on.ca> to access the Standards and Guidelines for Conservation of Provincial Heritage Properties, along with other guidance materials.

<p>Ms. Karla Barboza, Team Lead (A), Heritage Heritage Program Unit Programs and Services Branch Ministry of Tourism, Culture and Sport 401 Bay Street, Suite 1700 Toronto ON M7A 0A7</p>	<p>1 electronic/e mail copy each <b>(preferred)</b></p>	<p>T: 416-314-7120 <a href="mailto:karla.barboza@ontario.ca">karla.barboza@ontario.ca</a></p>	<p>Receives the <b>initial circulations for all</b> individual and site specific Class EAs for all regions of the province. The Team Lead will assign to a Heritage Planner for review.</p> <p>EA matters of province-wide significance (including Parent Class EAs and Environmental Assessment policies and guidelines).</p>
<p><b>Heritage Planners: Site-specific individual and Class EA projects</b> - Heritage Planners review site specific EAs for impacts on cultural heritage resources. They act as one-window for Culture Division and gather information on culture heritage resources from other staff, including Regional Offices.</p>			
<p>Ms. Laura Hatcher, Heritage Planner Heritage Program Unit Programs and Services Branch Ministry of Tourism, Culture and Sport 401 Bay Street, Suite 1700 Toronto ON M7A 0A7</p>	<p>1 electronic/e mail copy each <b>(preferred)</b></p>	<p>T. 416-314-3108 <a href="mailto:laura.e.hatcher@ontario.ca">laura.e.hatcher@ontario.ca</a></p>	<p>Contact Karla Barboza as initial step prior to circulating documents.</p> <p>All individual and site specific Class EAs in Central Ontario, which covers upper- and single-tier municipalities of: Hamilton, Halton, Niagara, Peel, Dufferin; Durham, York, Toronto, Simcoe, Muskoka, Kawartha Lakes, Haliburton, Peterborough and Northumberland.</p>
<p>Ms. Brooke Herczeg, Heritage Planner (A) Heritage Program Unit Programs and Services Branch Ministry of Tourism, Culture and Sport 401 Bay Street, Suite 1700 Toronto ON M7A 0A7</p>	<p>1 electronic/e mail copy each <b>(preferred)</b></p>	<p>T. 416-314-7133 <a href="mailto:brooke.herczeg@ontario.ca">brooke.herczeg@ontario.ca</a></p>	<p>Contact Karla Barboza as initial step prior to circulating documents.</p> <p>All individual and site specific Class EAs for South-western Ontario which covers upper- and single-tier municipalities from Grey, Wellington, Waterloo, Brant and Norfolk, westward,</p>

Mr. Jeff Elkow, Heritage Planner (A) Heritage Program Unit Programs and Services Branch Ministry of Tourism, Culture and Sport 401 Bay Street, Suite 1700 Toronto ON M7A 0A7	1 electronic/e mail copy each <b>(preferred)</b>	T: 416-314-7182 <a href="mailto:Jeff.elkow@ontario.ca">Jeff.elkow@ontario.ca</a>	Contact Karla Barboza as initial step prior to circulating documents.  All individual and site specific Class EAs in Eastern Ontario which covers upper- and single-tier municipalities from Hastings, east to the Quebec boarder, as well as Renfrew, Parry Sound and Nipissing plus Northern Ontario which covers everything north from Sudbury and Timiskaming, including Manitoulin.
Mr. Dan Minkin, Heritage Planner Heritage Program Unit Programs and Services Branch Ministry of Tourism, Culture and Sport 401 Bay Street, Suite 1700 Toronto ON M7A 0A7	1 electronic/e mail copy each <b>(preferred)</b>	T: 416-314-7147 <a href="mailto:Dan.minkin@ontario.ca">Dan.minkin@ontario.ca</a>	Contact Karla Barboza as initial step prior to circulating documents.  All individual and site specific Class EAs in Central Ontario, which covers upper- and single-tier municipalities of: Hamilton, Halton, Niagara, Peel, Dufferin; Durham, York, Toronto, Simcoe, Muskoka, Kawartha Lakes, Haliburton, Peterborough and Northumberland.
Ms. Katherine Kirzati, Heritage Planner (on secondment)		T: 416-314-7643 <a href="mailto:Katherine.kirzati@ontario.ca">Katherine.kirzati@ontario.ca</a>	Contact Karla Barboza as initial step prior to circulating documents.
Ms. Rosi Zirger, Heritage Planner (on secondment)		T: 416-314-7159 <a href="mailto:Rosi.zirger@ontario.ca">Rosi.zirger@ontario.ca</a>	Contact Karla Barboza as initial step prior to circulating documents.
<b>Ministry of Tourism, Culture and Sport: Regional Offices</b> Site-specific individual and class EA projects - Assessment of sport/recreation and tourism impacts (except do not do tourism in Northern Ontario). They also provide separate comments to Ministry of Tourism and Culture and Sport Heritage Planners on cultural facility impacts which those planners then incorporate into their comments.			
Patrick Morash, Manager North Region Ministries of Citizenship and Immigration, Tourism, Culture, and Sport 435 James Street South, Suite. 334 Thunder Bay, ON P7E 6E3	1 hard copy	T: 807-475-1635 F: 807-475-1297 <a href="mailto:Patrick.morash@ontario.ca">Patrick.morash@ontario.ca</a>	All individual and Class EAs in North Region which covers upper-tier municipalities of Parry Sound, Nipissing and Manitoulin and northward and westward, such as Kenora, North Bay, Sault Ste. Marie, Sioux Lookout, Sudbury, Thunder Bay and Timmins areas.
Mr. Chris Stack, Manager West Region Ministries of Citizenship and Immigration, Tourism, Culture, and Sport 4275 King Street, 2nd Floor Kitchener ON N2P 2E9	1 hard copy	T: 519-650-3421 F: 519-650-3425 <a href="mailto:Chris.Stack@ontario.ca">Chris.Stack@ontario.ca</a>	All individual and Class EAs in West Region which covers upper- and single-tier municipalities of Niagara, Hamilton, Wellington, Dufferin and Grey westward, including Kitchener, London, and Windsor areas.
Mr. Christopher Rosati, Manager Central Region Ministries of Citizenship and Immigration, Tourism, Culture, and Sport 400 University Avenue, 2 <sup>nd</sup> Floor Toronto ON M7A 2R9	1 hard copy	T: 416-314-6682 F: 416-314-2024 <a href="mailto:christopher.rosati@ontario.ca">christopher.rosati@ontario.ca</a>	All individual and Class EAs in Central Region which covers upper- and single-tier municipalities of Durham, Toronto, York, Peel, Halton, Simcoe, and Muskoka.
Ms. Valerie Andrews East Region Ministries of Citizenship and Immigration Tourism, Culture, and Sport 347 Preston Street, 4th Floor Ottawa ON K1S 3J4	1 hard copy	T: 613-742-3366 F: 613-742-5300 valerie.andrews@ontario.ca	All individual and Class EAs in East Region which covers upper- and single-tier municipalities of Northumberland, Kawartha Lakes, and Haliburton eastward including Ottawa, Kingston and Peterborough areas.

<b>Ministry of Tourism, Culture and Sport: Tourism Policy and Development Division</b>			
Mr. Jim Antler, Policy Advisor Northern Policy and Planning Unit Tourism Policy and Research Branch Ministry of Tourism, Culture and Sport 447 McKeown Avenue, Suite 203 North Bay, ON P1B 9S9	Prefers Electronic	T. 705-494-4159 F. 705-494-4086 <a href="mailto:james.antler@ontario.ca">james.antler@ontario.ca</a>	All Parent Class EAs, Class EAs and individual EAs of province-wide or high-level of significance (e.g. inter-provincial bridges), EA policies and guidelines, and site-specific EAs pertaining specifically to Northern Ontario.
<b>Ministry of Tourism, Culture and Sport: Sport, Recreation and Community Programs Division</b>			
Sport, Recreation and Community Division - Policy Branch: Darja Keith, Manager Carol Oitment, Policy Advisor; and Susan Golets, Director (A) 777 Bay Street, 18th Floor Toronto ON M7A 1S5	2 copies	Darja: 416-212-9311 <a href="mailto:Darja.keith@ontario.ca">Darja.keith@ontario.ca</a>  Carol: 416-314-7205 <a href="mailto:carol.oitment@ontario.ca">carol.oitment@ontario.c</a> <a href="#">a</a>  Susan: 416-314-7696 <a href="mailto:susan.golets@ontario.ca">susan.golets@ontario.ca</a>  F: 416-314-7458	All Parent Class EAs, Class EAs and individual EAs that relate to trails, parkland, and open space that support sport and recreation in Ontario.



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**MEMO**

**Date:** November 23, 2018      **Pages:** 1      **CCTA File:** 217507  
**To:** Project File  
**Subject:** Stanhope Airport Business Park Road - Class EA  
Cultural Heritage Evaluation

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A Cultural Heritage Evaluation Checklist was completed as attached, indicating there is low potential for built heritage or cultural heritage landscape on the subject property.

Therefore, no further review or reporting was conducted in this regard.



The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
  - is a recognized heritage property
  - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
  - temporary roads and detours

**Processes covered** under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

### **Cultural Heritage Evaluation Report (CHER)**

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

### **Other checklists**

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – separate checklist
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.

Project or Property Name  
Stanhope Municipal Airport Business Park Road

Project or Property Location (upper and lower or single tier municipality)  
Township of Algonquin Highlands

Proponent Name  
Township of Algonquin Highlands

Proponent Contact Information  
Angie Bird, CAO, abird@algonquinhighlands.ca

### Screening Questions

1. Is there a pre-approved screening checklist, methodology or process in place? Yes  No

If Yes, please follow the pre-approved screening checklist, methodology or process.

If No, continue to Question 2.

### Part A: Screening for known (or recognized) Cultural Heritage Value

2. Has the property (or project area) been evaluated before and found **not** to be of cultural heritage value? Yes  No

If Yes, do **not** complete the rest of the checklist.

The proponent, property owner and/or approval authority will:

- summarize the previous evaluation and
- add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken

The summary and appropriate documentation may be:

- submitted as part of a report requirement
- maintained by the property owner, proponent or approval authority

If No, continue to Question 3.

3. Is the property (or project area): Yes  No

a. identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value? Yes  No

b. a National Historic Site (or part of)? Yes  No

c. designated under the *Heritage Railway Stations Protection Act*? Yes  No

d. designated under the *Heritage Lighthouse Protection Act*? Yes  No

e. identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)? Yes  No

f. located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site? Yes  No

If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated

If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No, continue to Question 4.

## Part B: Screening for Potential Cultural Heritage Value

	Yes	No
4. Does the property (or project area) contain a parcel of land that:		
a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. has or is adjacent to a known burial site and/or cemetery?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. is in a Canadian Heritage River watershed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. contains buildings or structures that are 40 or more years old?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## Part C: Other Considerations

	Yes	No
5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):		
a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. has a special association with a community, person or historical event?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. contains or is part of a cultural heritage landscape?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**If Yes** to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:

- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:

- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

**If No** to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:

- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:

- submitted as part of a report requirement e.g. under the *Environmental Assessment Act*, *Planning Act* processes
- maintained by the property owner, proponent or approval authority

## Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
  - large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport's [Ontario Heritage Toolkit](#) or [Standards and Guidelines for Conservation of Provincial Heritage Properties](#).

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

### 1. Is there a pre-approved screening checklist, methodology or process in place?

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government's [Standards & Guidelines for Conservation of Provincial Heritage Properties](#) [s.B.2.]

## Part A: Screening for known (or recognized) Cultural Heritage Value

### 2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?

Respond 'yes' to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

**Note:** Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

### 3a. Is the property (or project area) identified, designated or otherwise protected under the *Ontario Heritage Act* as being of cultural heritage value e.g.:

- i. designated under the *Ontario Heritage Act*
  - individual designation (Part IV)
  - part of a heritage conservation district (Part V)

## Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note:** To date, no properties have been designated by the Minister.

## Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
  - [Ontario Heritage Trust](#)
  - local land registry office (for a title search)
- 

ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- [Ontario Heritage Trust](#) - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
  - municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
  - local land registry office (for a title search)
- 

iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
  - municipal heritage planning staff
  - municipal heritage committee
- 

iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act*. **Note:** To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
  - [Ontario Heritage Trust](#)
-

v. included in the Ministry of Tourism, Culture and Sport's list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at [registrar@ontario.ca](mailto:registrar@ontario.ca).

### **3b. Is the property (or project area) a National Historic Site (or part of)?**

National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the *Canada National Parks Act*, based on the advice of the Historic Sites and Monuments Board of Canada.

For more information, see the [National Historic Sites website](#).

### **3c. Is the property (or project area) designated under the *Heritage Railway Stations Protection Act*?**

The *Heritage Railway Stations Protection Act* protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.

For more information, see the [Directory of Designated Heritage Railway Stations](#).

### **3d. Is the property (or project area) designated under the *Heritage Lighthouse Protection Act*?**

The *Heritage Lighthouse Protection Act* helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.

For more information, see the [Heritage Lighthouses of Canada website](#).

### **3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?**

The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.

For more information, contact the [Federal Heritage Buildings Review Office](#).

See a [directory of all federal heritage designations](#).

### **3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?**

A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.

Currently, the Rideau Canal is the only World Heritage Site in Ontario.

For more information, see Parks Canada – [World Heritage Site website](#).

## **Part B: Screening for potential Cultural Heritage Value**

### **4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?**

Heritage resources are often recognized with formal plaques or markers.

Plaques are prepared by:

- municipalities
- provincial ministries or agencies
- federal ministries or agencies
- local non-government or non-profit organizations

For more information, contact:

- [municipal heritage committees](#) or local heritage organizations – for information on the location of plaques in their community
- Ontario Historical Society's [Heritage directory](#) – for a list of historical societies and heritage organizations
- Ontario Heritage Trust – for a [list of plaques](#) commemorating Ontario's history
- Historic Sites and Monuments Board of Canada – for a [list of plaques](#) commemorating Canada's history

**4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?**

For more information on known cemeteries and/or burial sites, see:

- Cemeteries Regulations, Ontario Ministry of Consumer Services – for a [database of registered cemeteries](#)
- Ontario Genealogical Society (OGS) – to [locate records of Ontario cemeteries](#), both currently and no longer in existence; cairns, family plots and burial registers
- Canadian County Atlas Digital Project – to [locate early cemeteries](#)

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

**4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?**

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada's river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the [Canadian Heritage River System](#).

If you have questions regarding the boundaries of a watershed, please contact:

- your conservation authority
- municipal staff

**4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?**

A 40 year 'rule of thumb' is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:

- history of the development of the area
- fire insurance maps
- architectural style
- building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

**Note:** 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:

- residential structure
- farm building or outbuilding
- industrial, commercial, or institutional building
- remnant or ruin
- engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide [Heritage Property Evaluation](#).

## Part C: Other Considerations

### 5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

### 5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

### 5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- [municipal heritage committees](#) or local heritage organizations
- Ontario Historical Society's "[Heritage Directory](#)" - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through [Ontario Trails](#).



**Paulette Trefry - Fwd: re: Town of Algonquin Highlands – Notice of Study Commencement – Construction of New Road of the Stanhope Municipal Airport to Access the Airport Business Park in the Township of Algonquin Highlands**

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>>> Chief Rodney Noganosh <chief@ramafirstnation.ca> 7/25/2018 10:41 AM >>>

Dear Bill;

Thank you for your letter re: Town of Algonquin Highlands – Notice of Study Commencement – Construction of New Road of the Stanhope Municipal Airport to Access the Airport Business Park in the Township of Algonquin Highlands.

Please be advised that we reviewed your letter. I have shared it with Council and we've forwarded the information to Karry Sandy-McKenzie, Williams Treaties First Nation Process Co-ordinator/Negotiator. Ms. McKenzie will review your letter and take the necessary action if required. In the interim, should you wish to contact Ms. McKenzie directly, please do so at [k.a.sandy-mckenzie@rogers.com](mailto:k.a.sandy-mckenzie@rogers.com).

Thank you,

Chief Rodney Noganosh

---

**Hollie Nolan**

*Executive Assistant to the Chief, Administration*

**Chippewas of Rama First Nation**

(ph) [705-325-3611](tel:705-325-3611), 1216

(cell)

(fax) [705-325-0879](tel:705-325-0879)

(url) [www.ramafirstnation.ca](http://www.ramafirstnation.ca)

---

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**Paulette Trefry - Re: New Road Notice**

---

**From:** Bill Van Ryn  
**To:** Maxime Picard  
**Date:** 8/4/2018 12:28 PM  
**Subject:** Re: New Road Notice  
**Cc:** melanievincent21@yahoo.ca; Angie Bird <abird@algonquinhighlands.ca>; C...  
**Attachments:** IMAGE.jpeg

---

Good afternoon.

Yes - a Stage 1 Archaeology Assessment was completed for the entire Airport Property. The Assessment confirmed the location of the new road does not have elevated potential for archaeological resources, and recommended a visual assessment be made prior to ground disturbance to confirm there are no resources. We wish to confirm the visual assessment will be completed before any ground disturbance for the new road. We trust this is satisfactory. Please call if you have any questions. Thank you.

Bill Van Ryn, B.Eng., P.Eng  
Vice President, Branch Manager  
C. C. TATHAM & ASSOCIATES LTD.  
CONSULTING ENGINEERS  
8 Barron Drive  
Bracebridge, ON, P1L 0A1  
Ph# (705)-645-7756 (ext 2093)  
Fax# (705)-645-8159  
Email: [bvanryn@cctatham.com](mailto:bvanryn@cctatham.com)

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>>> Maxime Picard <maxime.picard@cnhw.qc.ca> 7/24/2018 3:58 PM >>>

Good afternoon,

We received the attached correspondence regarding the construction of new road north of the Stanhope municipal airport.

Are there any archaeological assessment that have been done yet on this project ?

Best regards,

Maxime Picard



**NATION HURONNE-WENDAT**  
**Bureau du Nionwentsio**

Maxime Picard, B. Sc. A.  
Coordonnateur de projets - Ontario  
255, Place Chef Michel-Laveau  
Wendake (Qc) G0A 4V0  
Téléphone : 418-843-3767 # 2105  
Courriel : maxime.picard@cnhw.qc.ca



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Government Services Building  
22 Winookeeda Street  
Curve Lake, Ontario K0L1R0



Phone: 705.657.8045  
Fax: 705.657.8708  
www.curveLakefirstnation.ca

RECEIVED SEP 10 2018

5 September, 2018

Bill Van Ryn  
8 Barron Drive  
Bracebridge Ontario P1L 0A1

Dear Bill Van Ryn,

**RE: Construction of a New Road North of the Stanhope Municipal Airport**

I would like to acknowledge receipt of your correspondence, which was received on 7/19/2018 regarding the above noted project.

As you may be aware, the area in which your project is proposed is situated within the Traditional Territory of Curve Lake First Nation. Our First Nation's Territory is incorporated within the Williams Treaties Territory and is the subject of a claim under Canada's Specific Claims Policy. We strongly suggest that you provide Karry Sandy-Mackenzie, Williams Treaty First Nation Claims Coordinator, 8 Creswick Court, Barrie, ON L4M 2S7, with a copy of your proposal as your obligation to consult to also extend to the other First Nations of the Williams Treaties.

If you do not have a copy of Curve Lake First Nation's Consultation and Accommodation Standards they are available at <https://www.curveLakefirstnation.ca/services-departments/lands-rights-resources/consultation/> Hard copies are available upon request.

Although we have not conducted exhaustive research nor have we the resources to do so, Curve Lake First Nation Council is not currently aware of any issues that would cause concern with respect to our Traditional, Aboriginal and Treaty rights.

Please note that we have particular concern for the remains of our ancestors. Should excavation unearth bones, remains or other such evidence of a native burial site or any Archaeological findings, we must be notified without delay. In the case of a burial site, Council reminds you of your obligations under the Cemeteries Act to notify the nearest First Nation Government or other community of Aboriginal people which is willing to act as a representative and whose members have a close cultural affinity to the interred person. As I am sure you are aware, the regulations further state that the representative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.

Government Services Building  
22 Winookeeda Street  
Curve Lake, Ontario K0L1R0



Phone: 705.657.8045  
Fax: 705.657.8708  
[www.curvelakefirstnation.ca](http://www.curvelakefirstnation.ca)

Curve Lake First Nation also has available, trained Archaeological Liaisons who are able to actively participate in the archaeological assessment process as a member of a field crew, the cost of which will be borne by the proponent.

If any new, undisclosed or unforeseen issues should arise, that has potential for anticipated negative environmental impacts or anticipated impacts on our Treaty and Aboriginal rights we require that we be notified regarding these as well.

Thank you for recognizing the importance of consultation and respecting your duty to consult obligations as determined by the Supreme Court of Canada.

Should you have further questions or if you wish to hire a liaison for a project, please feel free to contact our Lands and Resources Consultation Liaisons by email, Kaitlin Hill at [KaitlinH@curvelake.ca](mailto:KaitlinH@curvelake.ca) , Julie Kapyrka at [JulieK@curvelake.ca](mailto:JulieK@curvelake.ca) , or by phone at 705-657-8045.

Yours sincerely,

A handwritten signature in cursive script, appearing to read "Phyllis Williams".

Chief Phyllis Williams  
Curve Lake First Nation

**Bracebridge File - Fwd: RE: Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1)**

---

**From:** Paulette Trefry  
**To:** Bill Van Ryn; Mook, Evan  
**Date:** 8/23/2018 1:32 PM  
**Subject:** Fwd: RE: Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1)  
**Cc:** Bracebridge File

---

fyi

>>> "FPP.CA / PPP.CA (DFO/MPO)" <fisheriesprotection@dfo-mpo.gc.ca> 8/23/2018 1:19 PM >>>

Dear Ms. Trefry:

Thank you for the notification of Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1). Fisheries and Oceans Canada reviews projects (works, undertakings, or activities) being conducted in or near waterbodies that support fish that are part of, or that support a commercial, recreational or Aboriginal fishery. We also review project proposals for impacts to Species at Risk. We do not review notifications for administrative processes. Please visit our Projects Near Water website at [www.dfo-mpo.gc.ca/pnw-ppc/index-eng.html](http://www.dfo-mpo.gc.ca/pnw-ppc/index-eng.html) to determine whether your project requires a review by the Department using our self-assessment process. If you determine that your project needs a review, please complete and submit a Request for Review Form to: [FisheriesProtection@dfo-mpo.gc.ca](mailto:FisheriesProtection@dfo-mpo.gc.ca). If you have any questions, contact us at: [1-855-852-8320](tel:1-855-852-8320).

Thank you,

Lisa Wren  
Fisheries Protection Biologist  
Fisheries and Oceans Canada

---

**From:** Paulette Trefry [[ptrefry@cctatham.com](mailto:ptrefry@cctatham.com)]  
**Sent:** August-20-18 1:40 PM  
**To:** FPP.CA / PPP.CA (DFO/MPO)  
**Cc:** Bill Van Ryn; Evan Mook  
**Subject:** Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1)

Good Afternoon,

Please see attached Notice of Public Consultation Centre No. 1.

Please call Bill if you have any questions or require additional information.

Paulette Trefry

**Bracebridge File - Re: Notice of Study Commencement**

---

**From:** Bill Van Ryn  
**To:** Craig.Christie@HydroOne.com  
**Date:** 8/4/2018 12:48 PM  
**Subject:** Re: Notice of Study Commencement  
**Cc:** Angie Bird <abird@algonquinhighlands.ca>; Cam Loucks; Trefry, Paulette...  
**Bc:** Bracebridge File

---

Hello Craig.

We believe the closest HYDRO ONE transformer station is on County Road 21 between Minden and Haliburton, and is located about 13 km south of the proposed road location. Please call if you have any questions. Thank you.

Bill Van Ryn, B.Eng., P.Eng  
Vice President, Branch Manager  
C. C. TATHAM & ASSOCIATES LTD.  
CONSULTING ENGINEERS  
8 Barron Drive  
Bracebridge, ON, P1L 0A1  
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>>> <Craig.Christie@HydroOne.com> 7/26/2018 10:27 AM >>>  
Bill,

I recently received a Notice of Study Commencement from the Township of Algonquin Highlands and want to ensure these notifications are being sent to the right location and person.

Hydro One also conducts Class EAs but I'm wondering why one of your notifications was sent to me. I don't believe we have a transformer station in the general vicinity of where the study is going to take place. Can you provide me with some clarity on this.

Craig Christie  
Community Relations Officer

Hydro One Networks Inc.  
483 Bay Street, South Tower, 6<sup>th</sup> Floor  
Toronto, ON  
[416.345.5102](tel:416.345.5102)  
[Craig.christie@HydroOne.com](mailto:Craig.christie@HydroOne.com)



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**Bracebridge File - Re: Fwd: Stanhope municipal airport - Request for a detailed area map (217507-1)**

---

**From:** Evan Mook  
**To:** jenny.seo@hydroone.com  
**Date:** 9/4/2018 4:21 PM  
**Subject:** Re: Fwd: Stanhope municipal airport - Request for a detailed area map (217507-1)  
**Cc:** Bracebridge File; Paulette Trefry; Bill Van Ryn; abird@algonquinhighl...  
**Bc:** Bracebridge File  
**Attachments:** Stanhope Airport - location map.png

---

Hello Jenny,

Attached is a more detailed map showing the location of the study area.

The study area is located on Stanhope Airport Road, approximately 1.4km north of Highway 118 in The Township of Algonquin Highlands, County of Haliburton.

Please call if you have any questions or require additional information.

Thank you,

Evan Mook. P.Eng.  
Project Manger  
C.C. TATHAM & ASSOCIATES LTD.  
CONSULTING ENGINEERS  
8 Barron Drive  
Bracebridge, ON, P1L 0A1  
Ph# (705)-645-7756 (2058)  
Fax# (705)-645-8159  
Email: [emook@cctatham.com](mailto:emook@cctatham.com)

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Hello Bill Van Ryn,

I have received your letter for [the Stanhope municipal airport](#).

As per Hydro One's initial Environmental Assessment (EA) in your project area, I would like to have more detailed area maps.

So I can send you the accurate/official response if your project falls under Hydro One's asset (Transmission & Distribution Lines/Overhead poles etc) or not.

Thanks,  
Jenny

**Jenny SEO**  
Network Management Officer, Secondary Land Use

Hydro One Networks Inc.

483 Bay St. | North Tower | 13th Floor  
Toronto, ON | M5G 2P5

Tel: [416.345.5676](tel:416.345.5676)

Email: [Jenny.Seo@Hydroone.com](mailto:Jenny.Seo@Hydroone.com)

[www.HydroOne.com](http://www.HydroOne.com)

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## Paulette Trefry

---

**From:** Bill Van Ryn  
**Sent:** Monday, August 20, 2018 1:56 PM  
**To:** abird@algonquinhighlands.ca  
**Cc:** EMOOK@cctatham.com; ptrefry@cctatham.com  
**Subject:** Fwd: Construction of New Road North of Stanhope Municipal Airport

>>> Kaella Earle <Kaella-Marie.Earle@uniongas.com> 8/10/2018 9:42 AM >>>  
Good morning Mr. Van Ryn,

According to GIS, there are no Union Gas services in the indicated area off of Airport Rd. at approximately 45.116434, -78.648566.

Miigwech,

Kaella

**Kaella-Marie Earle**  
Engineering Intern  
Construction and Growth

—  
UNION GAS LIMITED | AN ENBRIDGE COMPANY  
TEL: 705-474-8483 EXT. 5177923 | [kaella-marie.earle@uniongas.com](mailto:kaella-marie.earle@uniongas.com)  
36 Charles Street East, North Bay, Ont P1B 8K7

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**APPENDIX B:**  
**CONSULTATION – PUBLIC INFORMATION CENTER**



**TOWNSHIP OF ALGONQUIN HIGHLANDS  
CLASS ENVIRONMENTAL ASSESSMENT  
STANHOPE MUNICIPAL AIRPORT**

**NOTICE OF PUBLIC CONSULTATION CENTRE NO.1**

The Township is proposing construction of a new road north of the Stanhope Municipal Airport to access the airport business park.

The project is being planned as a Schedule B project under the Municipal Class Environmental Assessment. A Public Consultation Centre has been arranged to provide further information to the members of the public, approval agencies and interested stakeholders on the proposal and to receive further input. All those with an interest in the project are encouraged to attend.

Date: Saturday September 15, 2018  
Time: 10:00 a.m – 1:00 p.m  
Location: Stanhope Firefighters' Community Hall  
1095 North Shore Road, Algonquin Highlands

Comments and information collected at the public consultation centre will be maintained on file for use during the Study, and, unless otherwise requested, may be included in the Study documentation which is made available for public review.

Following the public consultation centre, further comments are invited, for incorporation into the planning and design of this project, and will be received until October 15, 2018.

This notice issued August 20, 2018.

Owner:  
Township of Algonquin Highlands  
1123 North Shore Road  
Algonquin Highlands, ON  
P1L 1R6  
Telephone: (705) 489-2379  
Fax: (705) 489-3491

Inquiries:  
Bill Van Ryn, B.Eng., P.Eng.  
Vice President, Manager – Bracebridge Office  
C.C. Tatham & Associates Ltd.  
8 Barron Drive  
Bracebridge, ON P1L 0A1  
Telephone: (705) 645-7756  
Fax: (705) 645-8159  
Email: [bvanryn@cctatham.com](mailto:bvanryn@cctatham.com)

**Paulette Trefry - Fwd: re: Township of Algonquin Highlands – Class Environmental Assessment – Stanhope Municipal Airport – Notice of Public Consultation Centre No 1**

---

**From:** Bill Van Ryn  
**To:** Trefry, Paulette  
**Date:** 10/23/2018 4:36 PM  
**Subject:** Fwd: re: Township of Algonquin Highlands – Class Environmental Assessment – Stanhope Municipal Airport – Notice of Public Consultation Centre No 1

---

for the project file

>>> Chief Rodney Noganosh <chief@ramafirstnation.ca> 8/23/2018 3:39 PM >>>

Dear Bill;

Thank you for your letter re: Township of Algonquin Highlands – Class Environmental Assessment – Stanhope Municipal Airport – Notice of Public Consultation Centre No 1.

Please be advised that we reviewed your letter. I have shared it with Council and we've forwarded the information to Karry Sandy-McKenzie, Williams Treaties First Nation Process Co-ordinator/Negotiator. Ms. McKenzie will review your letter and take the necessary action if required. In the interim, should you wish to contact Ms. McKenzie directly, please do so at [k.a.sandy-mckenzie@rogers.com](mailto:k.a.sandy-mckenzie@rogers.com).

Thank you,

Chief Rodney Noganosh

---

**Hollie Nolan**

*Executive Assistant to the Chief, Administration*

**Chippewas of Rama First Nation**

(ph) [705-325-3611](tel:705-325-3611), 1216

(cell)

(fax) [705-325-0879](tel:705-325-0879)

(url) [www.ramafirstnation.ca](http://www.ramafirstnation.ca)

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**Bracebridge File - Fwd: RE: Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1)**

---

**From:** Paulette Trefry  
**To:** Bill Van Ryn; Mook, Evan  
**Date:** 8/23/2018 1:32 PM  
**Subject:** Fwd: RE: Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1)  
**Cc:** Bracebridge File

---

fyi

>>> "FPP.CA / PPP.CA (DFO/MPO)" <fisheriesprotection@dfo-mpo.gc.ca> 8/23/2018 1:19 PM >>>

Dear Ms. Trefry:

Thank you for the notification of Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1). Fisheries and Oceans Canada reviews projects (works, undertakings, or activities) being conducted in or near waterbodies that support fish that are part of, or that support a commercial, recreational or Aboriginal fishery. We also review project proposals for impacts to Species at Risk. We do not review notifications for administrative processes. Please visit our Projects Near Water website at [www.dfo-mpo.gc.ca/pnw-pppe/index-eng.html](http://www.dfo-mpo.gc.ca/pnw-pppe/index-eng.html) to determine whether your project requires a review by the Department using our self-assessment process. If you determine that your project needs a review, please complete and submit a Request for Review Form to: [FisheriesProtection@dfo-mpo.gc.ca](mailto:FisheriesProtection@dfo-mpo.gc.ca). If you have any questions, contact us at: [1-855-852-8320](tel:1-855-852-8320).

Thank you,

Lisa Wren  
Fisheries Protection Biologist  
Fisheries and Oceans Canada

---

**From:** Paulette Trefry [[ptrefry@cctatham.com](mailto:ptrefry@cctatham.com)]  
**Sent:** August-20-18 1:40 PM  
**To:** FPP.CA / PPP.CA (DFO/MPO)  
**Cc:** Bill Van Ryn; Evan Mook  
**Subject:** Stanhope Airport - Construction of New Road - Notice of PIC (CCTA File No. 217507-1)

Good Afternoon,

Please see attached Notice of Public Consultation Centre No. 1.

Please call Bill if you have any questions or require additional information.

Paulette Trefry

C.C. TATHAM & ASSOCIATES LTD.

CONSULTING ENGINEERS

8 Barron Drive

Bracebridge, ON, P1L 0A1

Ph# (705)-645-7756 (ext. 2088)

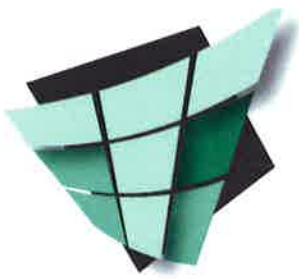
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-



# C.C. Tatham & Associates Ltd.

Consulting Engineers

Collingwood   Bracebridge   Orillia   Barrie   Ottawa

8 Barron Drive  
Bracebridge, Ontario P1L 0A1  
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Email: [info@cctatham.com](mailto:info@cctatham.com)  
Web: [www.cctatham.com](http://www.cctatham.com)

## MEMO

**Date:** November 23, 2018      **Pages:** 1      **CCTA File:** 217507

**To:** Project File

**Subject:** Stanhope Airport Business Park Road - Class EA  
DFO Self-assessment Summary

---

A self-assessment was conducted according to the attached information. It was determined the subject property is not in or near a waterbody requiring a project review by DFO.

Government  
of CanadaGouvernement  
du Canada

Canada

Fisheries and Oceans CanadaHome → Projects near water

## Projects near water

The Fisheries Act requires that projects avoid causing serious harm to fish unless authorized by the Minister of Fisheries and Oceans Canada. This applies to work being conducted in or near waterbodies that support fish that are part of or that support a commercial, recreational or Aboriginal fishery.

### SARA-listed aquatic species

For more information on harmful activities and threats to aquatic species at risk, please consult the documents produced for the species in question at:

- [www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)

Are there SARA-listed aquatic species or critical habitat at your project site?

- [Aquatic Species at Risk Maps](#)

The Species at Risk Act (SARA) prohibits the killing, harming, harassment, possession, capturing or taking of a species listed as extirpated, endangered or threatened; the damage or destruction of a residence or the destruction of any part of the critical habitat of such a listed species, unless authorized by the Minister who is responsible for the species in question. The Minister of Fisheries and Oceans Canada is responsible for the protection of aquatic species at risk wherever they are found with the exception of areas administered by Parks Canada Agency.

To protect fish and fish habitat, including aquatic species at risk, their residences, and their critical habitat, efforts should be made to avoid, mitigate and/or offset harm. Following the measures to avoid harm will help you comply with the Fisheries Act and SARA.

## Self-assessment: Does DFO (Fisheries and Oceans Canada) need to review my project?

If your new or existing project is in relation to aquaculture (marine or freshwater fish, including hatcheries, or shellfish (An aquatic animal that has a hard shell such as mollusks (e.g. mussels) and crustaceans.)) contact the DFO Regional Aquaculture Management Office responsible for the province or territory in which your project is located to determine how to comply with either the Pacific Aquaculture Regulations if your project is located in British Columbia, or the Aquaculture Activities Regulations if your project is located elsewhere in Canada.

If your project is regulated by the National Energy Board or the Canadian Nuclear Safety Commission, or takes place in New Brunswick, Nova Scotia or Prince Edward Island, consult our guidance on regulatory partnerships before contacting DFO.

If your project is taking place in the James Bay Territory in Quebec, consult the ✉ Voluntary Proponent-driven Information Exchange Program for the Self-Assessment of Projects subject to the Fisheries Act.

Use the criteria below to determine if your project requires a review by DFO. If your project cannot avoid serious harm to fish or is likely to contravene one of the SARA prohibitions with respect to aquatic species, and is not included in either of the criteria below, please submit a request for review. Specially identified criteria addressing SARA concerns are also provided if an aquatic species at risk, their residence or critical habitat occurs at your project site (see DFO's Aquatic Species at Risk Maps).

#### ▼ Types of waterbodies where **DFO (Fisheries and Oceans Canada) review is not required**

If your project is taking place in one of the following **existing** waterbody types, you do not need to submit your project for review to DFO (Fisheries and Oceans Canada). You are still required to avoid causing serious harm to fish and contravening SARA prohibitions. Following best practices such as those described in the measures to avoid harm will help you avoid causing harm and comply with the Fisheries Act and SARA.

- Approved marine disposal or dumping sites that have been used in the past 10 years
- Tailings Impoundment Areas (as listed in Schedule 2 of the Metal Mining Effluent Regulations)
- Artificial waterbodies that are not connected to a waterbody that contains fish at any time during any given year, such as:
  - Private ponds
  - Commercial ponds (e.g., golf course ponds, stocked fishing ponds)
  - Stormwater management ponds

- Irrigation ponds or channels
- Agricultural drains and drainage ditches
- **Roadside drainage ditches**
- Quarries and aggregate pits
- Any other waterbody that does not contain fish at any time during any given year, and is not connected to a waterbody that contains fish at any time during any given year

### ▼ **Project activities and criteria where DFO (Fisheries and Oceans Canada) review is not required**

If your project meets the criteria listed below, your project does not require DFO (Fisheries and Oceans Canada) review. (Note: project type must be listed below and associated criteria must be met in order to qualify as a project that does not require DFO review.) .You are still required to avoid causing serious harm to fish or contravening SARA prohibitions. Following best practices such as those described in the measures to avoid harm will help you to avoid causing harm and to comply with the Fisheries Act and SARA. If your project does not meet these criteria, it is recommended that you submit a request for review.

## **SARA**

Criteria for projects not requiring DFO review have taken into consideration the protection of aquatic species at risk listed under SARA, their critical habitat and residences where they may be present (see DFO's Aquatic Species at Risk Maps).

Please note that the **taking or capture of aquatic species listed under SARA as endangered or threatened** (e.g., during baseline environmental studies, site isolation, fish salvage, or shellfish (An aquatic animal that has a hard shell such as mollusks (e.g. mussels) and crustaceans.) relocation activities), or any entrainment or impingement of such species (e.g., at water intakes) is contrary to SARA section 32 and therefore requires approval from DFO. Please submit a request for review in these situations.

- ▶ Bridges, causeways and culverts

▶ Cottage, boating and recreation

▶ Harbours and marine commercial activities

▼ Drainage, flooding and erosion control, stormwater and wastewater management

- **Stormwater management facilities/basins**

- Construction of new land-based stormwater management facilities, settling ponds and storage basins
  - No work occurring below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.) of a nearby waterbody

- **Tailings impoundment areas**

- Construction of new land-based Tailings Impoundment Areas
  - No work occurring below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.) of a nearby waterbody

- **Water outfalls**

- Construction of, and repairs to, water outfalls
  - No temporary or permanent increase in existing footprint (Total area of the bed of a waterbody that is covered by a structure or fill.) below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
  - No new temporary or permanent fill (The deposit of materials (e.g., rock, rubble, soil, sand, concrete) or installation of structures below the high water mark resulting in the creation of land in a waterbody (i.e., what was wet is now dry).) placed below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)

- All removal activities

- **Drainage channels**

- Construction and routine clean-out of drainage channels
  - Clean-out has occurred in the past 10 years
  - Work can be done in the dry or under frozen conditions

- **Species at Risk** Where SARA-listed aquatic species, their residences or critical habitat occur, no construction or clean-out activities will take place
- **Bank stabilization**
  - Bank stabilization using rock protection, plantings or bioengineering
    - No temporary or permanent increase in existing footprint (Total area of the bed of a waterbody that is covered by a structure or fill.) below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
    - No new temporary or permanent fill (The deposit of materials (e.g., rock, rubble, soil, sand, concrete) or installation of structures below the high water mark resulting in the creation of land in a waterbody (i.e., what was wet is now dry).) placed below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
    - **Species at Risk** No removal of riparian vegetation if the riparian area is identified as part of the critical habitat of an aquatic listed species at risk
- **Aquatic vegetation removal**
  - Removal of aquatic vegetation by hand or mechanical cutting for flood control
  - **Species at Risk** Where critical habitat of SARA-listed aquatic species occurs, only hand cutting will be done, no aquatic vegetation removal by mechanical cutting will take place
- **Dykes**
  - Repairs to existing dykes
    - No temporary or permanent increase in existing footprint (Total area of the bed of a waterbody that is covered by a structure or fill.) below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
    - No new temporary or permanent fill (The deposit of materials (e.g., rock, rubble, soil, sand, concrete) or installation of structures below the high water mark resulting in the creation of land in a waterbody (i.e., what was wet is now dry).) placed below the high water mark (The usual or average level to



which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)

- **Berms**

- Repairs to existing berms

- No temporary or permanent increase in existing footprint (Total area of the bed of a waterbody that is covered by a structure or fill.) below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
    - No new temporary or permanent fill (The deposit of materials (e.g., rock, rubble, soil, sand, concrete) or installation of structures below the high water mark resulting in the creation of land in a waterbody (i.e., what was wet is now dry).) placed below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)

- ▶ Water level and flow management

- ▼ Other activities

- **Habitat restoration**

- Restoration projects undertaken with the sole purpose of improving or repairing existing habitats including riparian planting, shoreline/bank stabilization, bio-engineering and creation of in-stream structure
      - No new temporary or permanent fill (The deposit of materials (e.g., rock, rubble, soil, sand, concrete) or installation of structures below the high water mark resulting in the creation of land in a waterbody (i.e., what was wet is now dry).) placed below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
      - Any obstruction to fish passage (Any slide, dam or other thing impeding wholly or partially the free passage of fish.) will respect timing windows
      - Time work in water to respect timing windows
      - Relevant measures to avoid harm are followed

- **Species at Risk** No removal of riparian vegetation if the riparian area is identified as part of the critical habitat of an aquatic listed species at risk. Where SARA-listed aquatic species, their residences or critical habitat occur, the type of work will follow the specific conditions listed under the section of the website called “Project activities and criteria where DFO review is not required”
- **Log removal/salvage**
  - All commercial submerged log salvage operations
  - Time work in water to respect timing windows
  - Relevant measures to avoid harm are followed
- **Riparian vegetation removal**
  - Vegetation clearing for maintenance of existing linear projects (e.g., road right-of-ways, electrical and telecommunication transmission corridors) and existing commercial and industrial development sites
    - If your project deals with riparian areas in Southern British Columbia, the provincial Riparian Area Regulation (RAR) may apply. Please visit the [provincial website](#) for more information and follow the provincial process if the RAR applies to your project.
    - Time work in water to respect timing windows
    - Relevant measures to avoid harm are followed
  - **Species at Risk** No removal of riparian vegetation if the riparian area is identified as part of the critical habitat of an aquatic listed species at risk
- **Beaver dam removal**
  - Gradual removal of beaver dams by hand or machinery
    - Flooding can be prevented
    - Any obstruction to fish passage (Any slide, dam or other thing impeding wholly or partially the free passage of fish.) will respect timing windows
    - Time work in water to respect timing windows
    - Relevant measures to avoid harm are followed
  - **Species at Risk** Where SARA-listed aquatic species, their residences or critical habitat occur beaver dam removal will not occur under frozen conditions where fish may be overwintering
- **Mineral exploration**
  - Mineral exploration activities such as site reconnaissance, line cutting, temporary work camp operations, small diameter/low density drilling (Small diameter boreholes (<100 mm diameter) with drill sites

consisting of no more than three boreholes each, and drill sites spaced no closer than 15 m apart.), high density drilling and/or bulk sampling (extraction of large samples of mineralized material) through large diameter drilling, pitting, trenching and surface stripping

- A plan is in place to plug and permanently seal artesian flow (Occurs when the pressure within an aquifer forces the groundwater to rise above the land surface.) if encountered
- All work can be done on land with the exception of small diameter/low density drilling (Small diameter boreholes (<100 mm diameter) with drill sites consisting of no more than three boreholes each and drill sites spaced no closer than 15 m apart.) which can be carried out on ice

- **Underwater cables**

- All installations on lakebeds and in the marine environment
- **Species at Risk** Where critical habitat of SARA-listed aquatic species occurs, no open trench methods, including ploughing and water-jetting, will be used to bury cables

- **Water intakes - municipal and industrial**

- Repairs to existing intakes
  - No temporary or permanent increase in existing footprint (Total area of the bed of a waterbody that is covered by a structure or fill.) below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
  - No new temporary or permanent fill (The deposit of materials (e.g., rock, rubble, soil, sand, concrete) or installation of structures below the high water mark resulting in the creation of land in a waterbody (i.e., what was wet is now dry).) placed below the high water mark (The usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to leave a mark on the land.)
  - Use fish screens to avoid killing fish (includes a) parts of fish, b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals.)
  - No change in flows
- All removal activities

Seek advice from a qualified environmental professional if you are unsure about whether your project requires a review by DFO.

Contact a fisheries protection office near you if you have reviewed the information, sought professional advice and still have questions.

In all cases, it is your responsibility to ensure you follow any additional requirements from other federal, provincial and municipal jurisdictions and ensure compliance with the Species at Risk Act and the pollution prevention provisions of the Fisheries Act.

This information was last updated on November 18, 2016. It is strongly recommended that you visit this website often to receive the most recent DFO (Fisheries and Oceans Canada) advice. You can also view a detailed log of recent changes to the guidance.

**Date modified:**

2018-05-16

# Public Consultation Centre 1 (PCC 1)

NEW MUNICIPAL ROAD TO SERVICE PROPOSED BUSINESS  
PARK DEVELOPMENT AT STANHOPE MUNICIPAL AIRPORT

Class Environmental Assessment

TOWNSHIP OF  
Algonquin  
Highlands



C.C. Tatham & Associates Ltd.  
Consulting Engineers

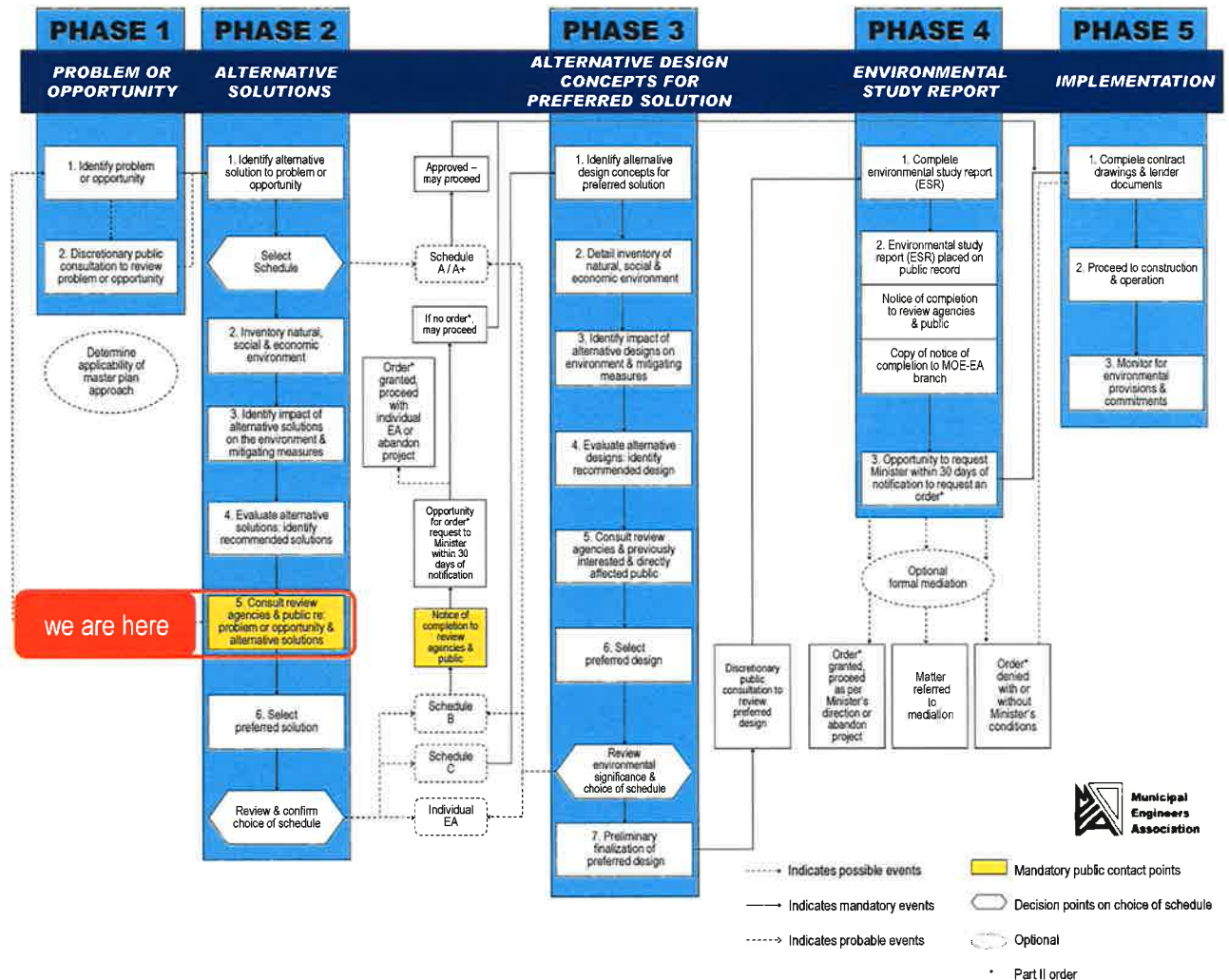
September 15, 2018

- This Public Information Centre will:
  - establish channels of communication with public & stakeholders
  - detail the study area, study purpose & objective
  - present the need & justification for the study and issues to be resolved
  - identify alternative solutions & potential environmental impacts
  - identify a recommended solution for public review
  - seek input & comments for consideration in the selection of the final preferred solution
- Public & Stakeholders should:
  - sign the registry
  - review the presentation material
  - ask questions of the Consultant or Township
  - submit a comment sheet & indicate whether or not they want to be kept informed of the process

- The objective of the study is to evaluate options for a new municipal road to provide access to the proposed business park development at Stanhope Municipal Airport.
- The purpose of the study is to:
  - identify the location, extent and sensitivity of affected environments
  - assess the alternatives given potential environmental impacts
  - identify the preferred solution
  - establish measures to mitigate impacts
  - satisfy the Class EA requirements

# Municipal Class EA Process

- The Class EA schedule is based on the type of work, potential impacts & cost
- The New Road
  - will be undertaken as a Schedule B process
  - Phases 1 & 2 will be completed
- Opportunities for public review & input
  - Notices
  - Public consultation centre
  - 30-day review of project file & findings





# Study Area

5

- The study area is located at The Stanhope Municipal Airport, approximately 1.4 km north of Ontario Highway 118



Source: bing.com/maps

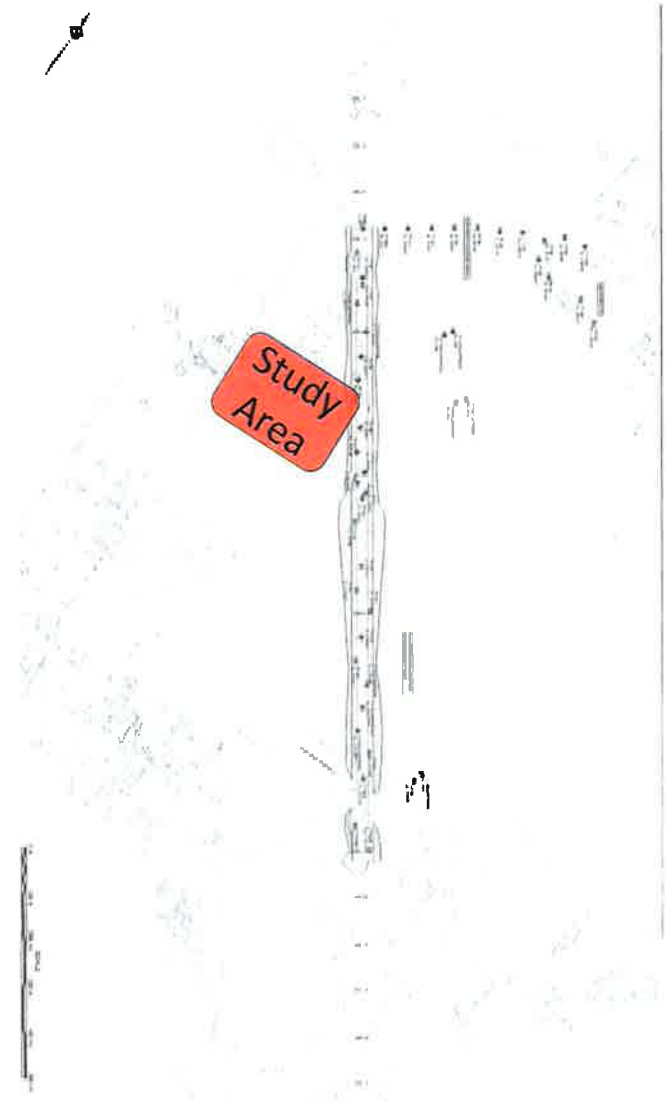
# Existing Conditions

6

- The study area consists of vacant land consisting of old pasture and regrown forest.
- Speed limit on Airport Rd = 60 km/hr
- Overhead Hydro/communications lines are on the east side of Airport Road.



- Geotechnical Considerations
  - A geotechnical investigation was completed by Peto MacCallum Ltd. in 2008, for a significant portion of the Airport property.
  - The results were generally consistent for all 47 test pits which had a layer of topsoil over sandy soils with localized deposits of silty sand and silt material.
  - These results indicate suitable material for road construction.
  - Additional geotechnical testing will be required during construction.

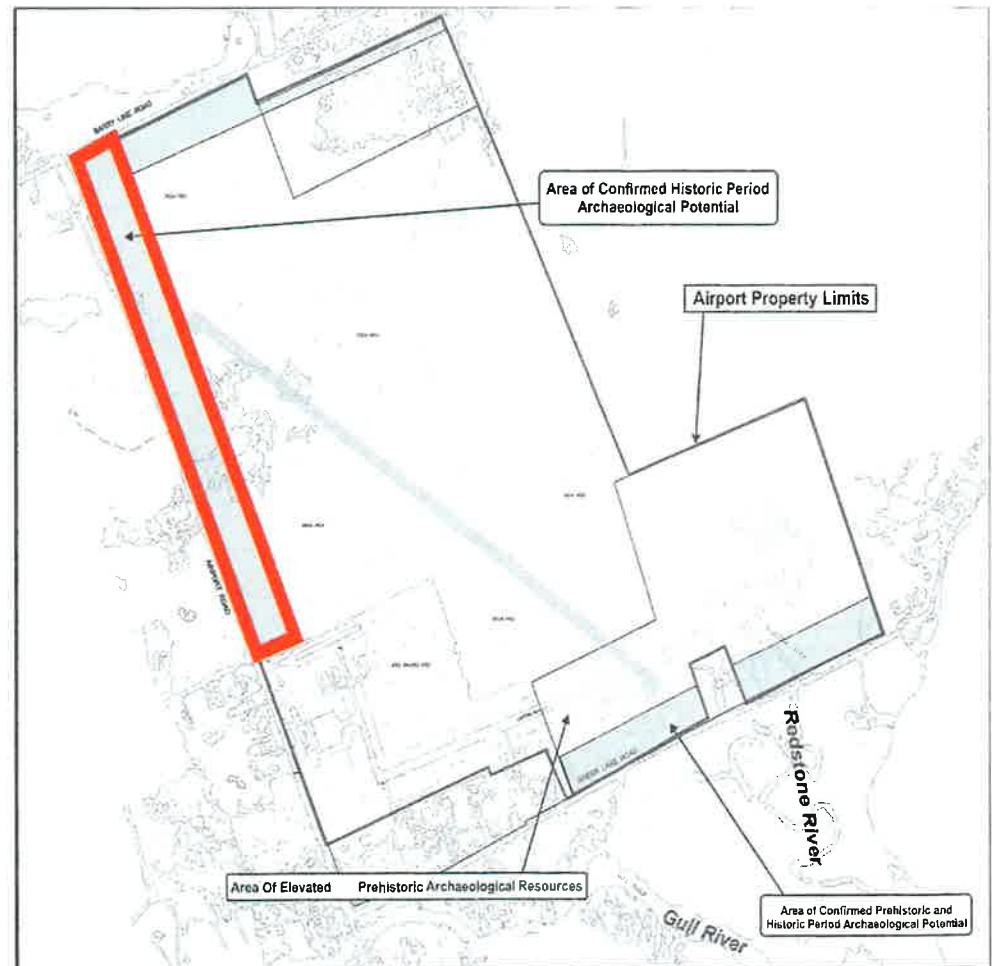


- Beacon Environmental completed a Natural Heritage Assessment in 2008
  - The terrestrial and aquatic environments were reviewed for the entire airport property.
  - The assessment is based on:
    - Field Surveys;
    - The Ministry of Natural Resources and Forestry's (MNR) Natural Heritage Information Center (NHIC) historical database;
    - Consultation with an MNR Species at Risk Biologist
    - Planning documents related to development restrictions
  - The report concluded that further development on the Stanhope Municipal Airport property will not impact significant natural heritage features at the provincial, regional or local level.
- Typical measures for construction activities would be in place including adherence to the Migratory Birds Act and mitigation measures if any Species at Risk are identified during construction.

# Archaeological Assessment

9

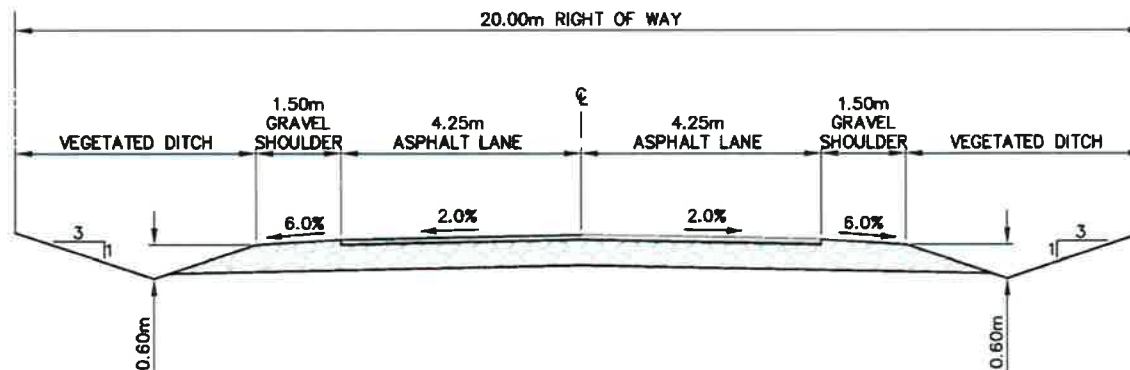
- Jacques Whitford completed a Stage 1 Archaeological Assessment of the entire airport property in 2008.
- Multiple areas of the property were identified as having elevated archaeological potential.
- The area of archaeological potential related to this development is within 100m of Stanhope Airport Road.
- Stage 2 property assessment utilizing test pits at 5 m intervals is required for these areas where ground will be disturbed for construction.



- Alt A: Do Nothing
  - Do not build a new road.
  
- Alt B: New Road
  - Build a new road to provide access to multiple lots within a new business park development.



- The new road will be designed and built in accordance with applicable current design standards including:
  - MTO Geometric Design Standards Manual
  - MTO Roadside Safety Manual
  - Ontario Provincial Standards for Roads and Public Works
- The new road will have a posted speed limit of 50km/h and 4.25m wide lanes to accommodate commercial and industrial traffic.
- Minor improvements to Stanhope Airport Road may be required adjacent to the new intersection such as lowering part of the road and additional vegetation clearing to provide safe sight distances. All safety concerns will be reviewed at the detailed design phase.



TYPICAL PROPOSED ROAD CROSS SECTION

# Stanhope Airport - Assessment of Alternatives



Evaluation Criteria	Alternative A: Do Nothing	Alternative B: Construct New Road
Physical	√ No impacts to the physical environment.	√ Minor alterations to the local topography will be required for construction of a safe road and intersection with Stanhope Airport Road.
Natural	√ No impacts to environment or habitat.	√ No significant impacts and potential impacts can be mitigated with best management practices.
Social	√ No impacts to the social environment.	√ No significant impacts.
Economic	√ No construction or maintenance cost. X Limited opportunity for development leading to job creation.	√ Reasonable cost for construction and maintenance of a new road to provide access to all proposed lots. √ Strong opportunity for development leading to job creation.



# Next Steps

13

- For the New Municipal Road we will
  - review/address stakeholder comments
  - identify the preferred solution
  - prepare final project file for public review
  - prepare Notice of Study Completion
  - design & implementation
- Before you leave:
  - have your questions been addressed?
  - have you signed the registry to be informed of the next phase of the study?
  - have you completed a comment sheet?

## contacts

- Angie Bird, A.M.C.T., CMM III  
Township of Algonquin Highlands  
1123 North Shore Road  
Algonquin Highlands, ON K0M 1J1  
t: (705) 489-2379 ext 322  
f: (705) 489-3491  
e: [abird@algonquinhighlands.ca](mailto:abird@algonquinhighlands.ca)

- Bill Van Ryn, P. Eng.  
C.C. Tatham & Associates Ltd.  
8 Barron Drive  
Bracebridge, ON P1L 0A1  
t: (705) 645-7756 ext 2101  
f: (705) 645-8159  
e: [bvanryn@cctatham.com](mailto:bvanryn@cctatham.com)







**STANHOPE AIRPORT BUSINESS PARK ROAD  
PUBLIC CONSULTATION CENTRE – SEPTEMBER 15, 2018**

**MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT  
COMMENT SHEET**

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Personal information on this form is collected under the authority of the *Environmental Assessment Act, Chap. E18, Section 7*, and will be used in the development of a Municipal Class Environmental Assessment. Questions about this collection should be directed to C.C. Tatham & Associates Ltd., Attention: Bill Van Ryn.

*Please print all responses.*

**NAME:**

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**REPRESENTING (Agency, Municipality, Property Owner, Tenant, etc.):**

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**ADDRESS (Including Postal Code):**

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**Telephone Number:** \_\_\_\_\_

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**PROBLEM STATEMENT**

*The Township of Algonquin Highlands has proposed construction of a new road north of the Stanhope Municipal Airport to access the Airport Business Park.*



**APPENDIX C:  
CONSULTATION – NOTICE OF COMPLETION**

# Presentation to Council

## NEW MUNICIPAL ROAD PROPOSED BUSINESS PARK DEVELOPMENT STANHOPE MUNICIPAL AIRPORT

### Class Environmental Assessment Study

TOWNSHIP OF  
**Algonquin  
Highlands**

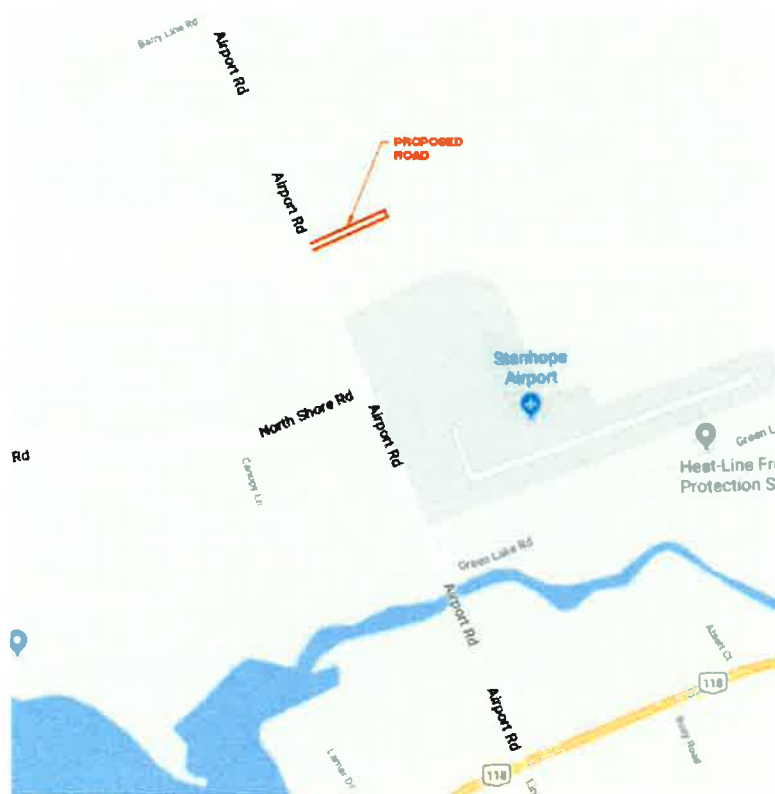


C.C. Tatham & Associates Ltd.  
Consulting Engineers

November 14, 2018

# Study Objective & Purpose

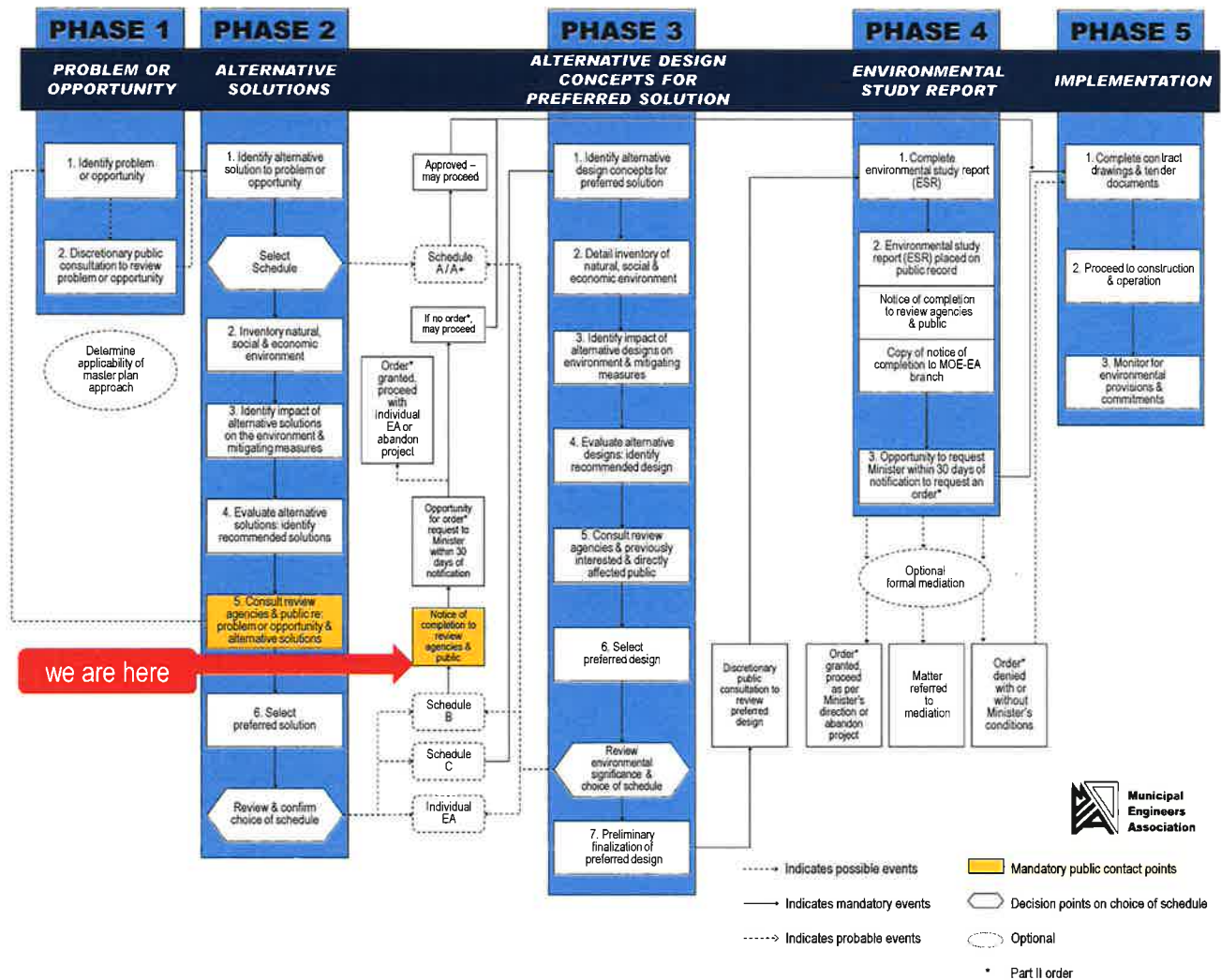
- The objective of the study was to evaluate options for a new municipal road to provide access to the proposed business park development at Stanhope Municipal Airport.



- The purpose of the study was to:
  - identify the location, extent and sensitivity of affected environments
  - assess the alternatives given potential environmental impacts
  - identify the preferred solution
  - establish measures to mitigate impacts
  - satisfy the Class EA requirements

# Municipal Class EA Process

- The Class EA schedule is based on the type of work, potential impacts & cost
- The New Road
  - is undertaken as a Schedule B process
  - Phases 1 & 2 are completed
- Opportunities for public review & input
  - Notices
  - Public Consultation Centre (PCC)
  - 30-day review of project file & findings





The alternatives considered during the Class EA Study were:

- Alt A: Do Nothing
  - Do not build a new road.
  
- Alt B: New Road
  - Build a new road to provide access to multiple lots within a new business park development.



Evaluation Criteria	Alternative A: Do Nothing	Alternative B: Construct New Road
Physical	√ No impacts to the physical environment.	√ Minor alterations to the local topography will be required for construction of a safe road and intersection with Stanhope Airport Road.
Natural	√ No impacts to environment or habitat.	√ No significant impacts and potential impacts can be mitigated with best management practices.
Social	√ No impacts to the social environment.	√ No significant impacts.
Economic	√ No construction or maintenance cost.	√ Reasonable cost for construction and maintenance of a new road to provide access to all proposed lots.
	X Limited opportunity for development leading to job creation.	√ Strong opportunity for development leading to job creation.

## Public Consultation Centre (PCC) Results

- Six attendees;
- No written comments returned;
- Verbal comments provided at the PCC can be addressed through proper engineering design and standard construction mitigation practices.

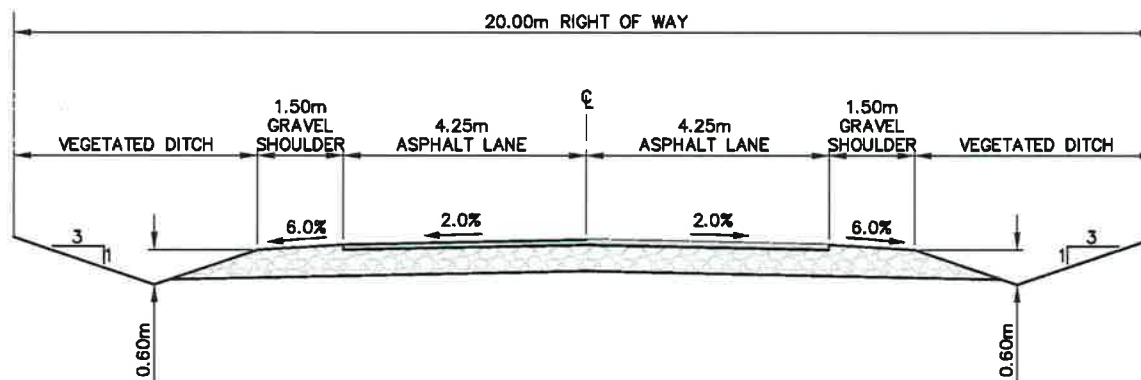
## Agency Comments

- Notice of Commencement provided directly to First Nations, Provincial Agencies, emergency services, school boards, neighbouring municipalities and utility companies;
- No agency comments were made in objection to the proposal.

## Preferred Solution

- **The preferred solution is to build a new access road which will provide access to multiple lots within a new business park, per Alternative B.**

- The new road will be designed and built in accordance with applicable current Township and Provincial design standards.
- Employ a posted speed limit of 50km/h and 4.25m wide lanes to accommodate commercial and industrial traffic.
- Best management practices will be employed to encourage infiltration of surface water runoff in accordance with local Source Water Area Protection requirements.
- Minor improvements to Stanhope Airport Road may be required adjacent to the new intersection such as lowering part of the road and additional vegetation clearing to provide safe sight distances. All safety concerns will be reviewed at the detailed design phase.



TYPICAL PROPOSED ROAD CROSS SECTION

# Next Steps

8

- Final project file available for 30 day public review
- Publish Notice of Study Completion
- Design & implementation (subject to receiving further public comments or Part II Order request)

## contacts

- Angie Bird, A.M.C.T., CMM III  
Township of Algonquin Highlands  
1123 North Shore Road  
Algonquin Highlands, ON K0M 1J1  
t: (705) 489-2379 ext 322  
f: (705) 489-3491  
e: [abird@algonquinhighlands.ca](mailto:abird@algonquinhighlands.ca)

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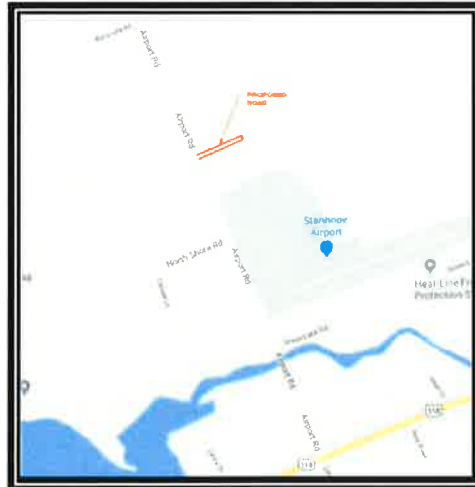




## Notice of Study Completion

### Construction of New Road North of the Stanhope Municipal Airport in The Township of Algonquin Highlands Municipal Class Environmental Assessment Study

The Township of Algonquin Highlands completed a Municipal Class Environmental Assessment (Class EA) Study for the proposed construction of a new road north of the Stanhope Municipal Airport to access the Airport Business Park to be located on Airport Road, north of Highway 118 in the Township of Algonquin Highlands. The Class EA Study concluded the new road should be located as illustrated below.



The Class EA Study followed the planning process for Schedule B projects as described in the Municipal Class EA document for Municipal Roads Projects (2000), published by the Municipal Engineers Association and revised in 2007, 2011, and 2015. The findings of the Class EA process have been documented in the Project File Report.

The purpose of this notice is to advise the public and stakeholder groups that the complete Project File Report is available for review at the Township Office and on the Township website. Interested persons are encouraged to review the report and provide written comments to the Township within the 30 day review period, December 6, 2018 to January 5, 2019, directed to the project contacts below.

Owner:

Township of Algonquin Highlands  
1123 North Shore Road  
Algonquin Highlands, ON K0M 1J1  
Telephone: (705) 489-2379  
Fax: (705) 489-3491

Consultant:

Bill Van Ryn, B.Eng., P.Eng.  
Vice President, Manager – Bracebridge Office  
C.C. Tatham & Associates Ltd.  
8 Barron Drive, Bracebridge, ON P1L 0A1  
Email: [bvanryn@cctatham.com](mailto:bvanryn@cctatham.com)

If concerns arise regarding this project, which cannot be resolved in discussion with the Township, you may request that the Minister of the Environment, Conservation and Parks make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order), which addresses individual environmental assessments. Completed Part II Order Request Forms are to be submitted to the Minister, the Director of Environmental Assessments, and copied to the Township, before the end of the review period. If there is not a request received by **January 5, 2019**, the project may proceed based on the identified preferred solution.

Minister Rod Phillips  
Ministry of the Environment, Conservation and Parks  
Floor 11, 77 Wellesley Street West  
Toronto ON M7A 2T5  
[minister.mecp@ontario.ca](mailto:minister.mecp@ontario.ca)

Director, Environmental Assessment and Permissions Branch  
Ministry of the Environment, Conservation and Parks  
135 St. Clair Avenue West, 1<sup>st</sup> Floor  
Toronto ON M4V 1P5  
[enviropemissions@ontario.ca](mailto:enviropemissions@ontario.ca)

Part II Order Request Forms are available at [www.ontario.ca/page/class-environmental-assessments-part-ii-order](http://www.ontario.ca/page/class-environmental-assessments-part-ii-order)

**APPENDIX D:  
GEOTECHNICAL REPORT**



**RUNWAY DEVELOPMENT PROJECT  
HALIBURTON / STANHOPE MUNICIPAL AIRPORT  
TOWNSHIP OF ALGONQUIN HIGHLANDS, ONTARIO  
for  
TOWNSHIP OF ALGONQUIN HIGHLANDS**

PETO MacCALLUM LTD.  
16 FRANKLIN STREET SOUTH  
KITCHENER, ONTARIO  
N2C 1R4  
PHONE: (519) 893-7500  
FAX: (519) 893-0654  
EMAIL: [kitchener@petomaccallum.com](mailto:kitchener@petomaccallum.com)

**Distribution:**

1 cc: Township of Algonquin Highlands  
1 cc: PML Kitchener  
1 cc: PML Toronto

PML Ref.: 08KF003  
Report: 1  
September 5, 2008



***Peto MacCallum Ltd.***  
**CONSULTING ENGINEERS**

September 5, 2008

PML Ref.: 08KF003  
Report: 1

Mr. Lorne Mitchell  
Township of Algonquin Highlands  
1123 North Shore Road  
R.R. #2  
Minden, Ontario  
K0M 2K0

Dear Mr. Mitchell

**Runway Development Project  
Haliburton / Stanhope Municipal Airport  
Township of Algonquin Highlands, Ontario**

We are pleased to present our report on the geotechnical investigation recently carried out at the above referenced site. This work was authorized by Mr. Lorne Mitchell of the Township of Algonquin Highlands.

The project involves the proposed construction of a new Runway 14-32 at the Haliburton / Stanhope Municipal Airport in the Township of Algonquin Highlands. The proposed runway will be 1220 m long and significant fill will be required to build the runway. The fill will be cut from an area located east of the north end of the runway. An existing gravel pit is located further east of the borrow area and may also be used as a source of fill for runway embankment construction, if necessary.

In 1985, Peto MacCallum Ltd. (PML) carried out a geotechnical investigation and pavement design for the existing Runway (currently designated 09-27 but to be revised to 08-26) which was upgraded from a grass strip to a paved runway at that time. We refer to our report 85F143 dated June 11, 1985 for particulars of that investigation.

The purpose of the current investigation was to determine the detailed subsurface soil and groundwater conditions along the proposed new runway alignment, at the proposed stormwater management pond, and within proposed soil borrow areas. Based on this information, we have prepared an engineering report with detailed recommendations pertaining to construction of the new runway.

*16 Franklin Street South, Kitchener, Ontario N2C 1R4  
Tel: (519) 893-7500 Fax: (519) 893-0654  
E-mail: [kit@petomac.on.ca](mailto:kit@petomac.on.ca)*

*BARRIE BRAMPTON HAMILTON KITCHENER TORONTO*



## **Field Work**

The field work for the investigation was carried out on June 23 and 27, 2008 and consisted of 47 test pits excavated to depths ranging from 1.50 to 5.00 m below existing grade at locations shown on the appended Test Pit Location Plan. The test pits on the proposed runway had generally been excavated several days prior to our site visit.

The test pits were advanced with a tracked hydraulic excavator supplied and operated by a specialist subcontractor.

In the test pits, representative samples of the overburden were secured at regular intervals throughout the depth explored. Groundwater observations were carried out in the open test pits during and after completion of excavating.

The field work was supervised throughout by a member of our engineering staff who directed the excavating and sampling process, prepared the stratigraphic logs and cared for the recovered samples.

All samples obtained during the investigation were returned to our laboratory for detailed visual examination to confirm field visual identification. The laboratory testing programme consisted of natural moisture content determinations on all recovered samples, 11 particle size distribution analyses, three modified Proctor moisture density relationship tests, and two California Bearing Ratio (CBR) tests.

Richardson Foster Ltd. personnel surveyed the test pit locations and ground surface elevations. It is understood that the elevations are related to a geodetic datum.



## **Site and Subsurface Conditions**

### **Site Conditions**

The portion of the airport lands which are currently developed are grass covered and relatively level, as shown in Photos 1 and 2 appended. The condition of the pavement on the existing Runway (currently designated 09-27 but to be revised to 08-26) is also shown in Photos 2 through 5. The pavement is about 19 years old and is experiencing distress associated with aging. Typical distress includes frequent longitudinal and transverse cracking with associated secondary cracking. The pavement is typically in fair condition.

The original pavement structure, built in 1989, comprised 65 mm of asphalt over 230 mm of granular base placed on a prepared subgrade.

Beyond the limits of the existing airside development, the ground level rises up to the north and east, and the area is heavily bushed, as noted in Photos 6 through 9. Between the existing runway and Station 1+350 and the ground is flat and poorly drained, as depicted in Photo 8. North of Station 1+350, the ground rises up about 9 to 10 m and the area is well drained.

About 400 m east of the north end of the proposed runway, a gravel pit exists as shown in Photos 10 and 11.

### **General Geology**

We have reviewed the Report "*Aggregate Resources Inventory of Part of Haliburton County, Southern Ontario, Ontario Geological Survey, Aggregate Resources Inventory Paper 141*", dated 1988.

Based on this report, the higher portion of the runway, north of Station 1+350 lies within a lacustrine delta comprising undifferentiated ice contact stratified drift. Within the lower portion of the runway, south of Station 1+350, the geology comprises a lacustrine plain.



The higher portion of the site (north of Station 1+350), the proposed borrow area, and the existing gravel pit are included in an ice-proximal delta potential aggregate deposit located along the eastern boundary of Stanhope Township. The deposit has a generally uniform surface with the exception of steep slopes present along the edges. This slope is evident on the proposed runway alignment at Station 1+350. Material exposed on the surface of the feature is chiefly sand. Sandy aggregate is exposed in the pit on the airport property as well as in two other pits on Barry Line Road, west of the airport. The Aggregate Resources Report notes that in these pits, faces consist of between 8 and 25 feet (2 and 8 m) of medium to coarse sand with occasional pockets of gravel, and the material appears well suited for pit-run products.

In places, the sand may overlie and mask coarser aggregate. This relationship was observed in the pit on the airport property. The 10 to 25 foot (3 to 8 m) faces in this pit reveal up to 10 feet (3 m) of silty fine sand overlying variable material ranging from medium sand to coarse gravel. The Aggregate Resources Report notes that in one face, 15 to 20 feet (5 to 6 m) of medium to coarse gravel is exposed and the report states that if selective extraction measures are employed, the aggregate in the pit is considered well suited for the production of a variety of aggregate products, including crushed stone.

The specific resource area described in the Aggregates Resources Report occupies 370 acres (150 ha), of which 295 acres (119 ha) are considered presently available for extraction and about 100 acres are located on airport property. Based on an average deposit thickness estimate of 20 feet (6 m), total resource tonnages are 15 million tons (14 million tonnes). Township roads provide access to the resource area.

#### Subsurface Stratigraphy

We refer to the appended Log of Test Pit sheets for details of the field work including soil descriptions, inferred stratigraphy, groundwater observations during and upon completion of drilling, and natural moisture content determination test results.



The test pits located within the proposed runway, stormwater management pond and borrow areas, generally contacted a surficial topsoil layer overlying major deposits of sand or sand and gravel with localized deposits of silty sand and silt. Bedrock was encountered locally.

The surficial topsoil typically comprised of dark brown sandy silt with organics and rootlets. The topsoil depth varied after 200 to 450 mm and averaged 300 mm. Test Pit 225 at Station 1+950 near the existing runway encountered 0.90 m of surficial fill, but no topsoil.

Beneath the surficial topsoil, the subgrade soils typically comprised a major deposit of sand with localized deposits of sand and gravel or silt.

The sand is typically compact and grades from fine sand with trace to some silt to fine to coarse sand with trace silt. Typical particle size distribution charts for the sand are presented on Figures 1 to 5. Typically the native deposits are coarse towards the north and become finer towards the south. The test pits at the north frequently encountered sand and gravel layers and the test pits at the south contacted silt and sandy silt deposits. Typical particle size distribution charts for the sand and gravel are presented on Figures 6 to 8, respectively. Typical particle size distribution charts for the silty sand, sandy silt, and silt, are presented on Figures 9 to 11.

Modified Proctor moisture density relationship tests were also carried out on the sand, Figures 12 and 13, and on the sand and gravel, Figure 14.

Optimum moisture contents measured 10.8 and 13.5% for the sand and 8.7% for the sand and gravel. Within the high portion of the runway and within the borrow area, insitu moisture contents typically ranged from 4 to 10% for the sand and 5% for the sand and gravel. Within the lower portion of the runway, south of Station 1+350 the sand is generally wet to saturated with moisture contents of 18 to 24%.

Two CBR tests were carried out on the sand and the results are summarized on Table 1. The results have revealed CBR values of 73 and 40% for the unsoaked condition and 36 and 28% for the soaked condition.



Test Pits 228 and 229, located southeast of the proposed stormwater management pond, and test pit 244 through 247 excavated at the toe of the knoll / hill south of the proposed borrow area, encountered bedrock at depth of 1.20 to 2.40 m below existing grade revealing that these knolls / hills are in fact bedrock knobs with thin soil cover.

Groundwater observations carried out during and upon completion of excavation are presented on appended Log of test pit sheets. Based on the groundwater observations noted upon completion of excavation, free water was measured at depths of 0 to 0.60 m in the test pits excavated in the low lying area between Station 1+350 and the existing runway. Elsewhere, the groundwater table lies below the depth of exploration. Seasonal fluctuations and local variations should be expected.

### **Discussion and Recommendations**

#### **Grading**

The project involves the proposed construction of a 1220 m long runway, to be designated Runway 14-32, at the Haliburton / Stanhope Municipal Airport.

Some minor cut and significant filling operations will be required to reach proposed grades along the new runway. Cuts of less than 0.5 m are expected at the south end of the proposed runway (near the existing runway) with fills of up to about 6.5 m through the central portion.

Following subexcavation of all surficial topsoil the existing native subgrade soils should be suitable to support the proposed fill embankments and pavement structures. All surficial topsoil and organics should be removed prior to fill placement. Locally, subexcavation of the silty subgrade soils near the existing runway will be required to ensure that at least 300 mm of sand borrow is placed above the existing silt, and beneath the pavement structure.



Prior to the placement of any fill, the exposed subgrade surface must be allowed to dry (south of Station 1+350) and be proofrolled with a heavy vibratory compactor under full time supervision of qualified geotechnical personnel. To facilitate drying in the low area between Station 1+350 and the existing runway, side ditches must be constructed several weeks prior to subgrade preparation. The subgrade preparation should occur during dry weather. Any soft spots or deleterious soils encountered during proofrolling processes should be subexcavated to the level of competent soils. Grades may then be raised where required.

In general, the sand and sand and gravel deposits contacted within the proposed borrow area, should be suitable as pavement embankment fill, provided site grading work is carried out during good weather. The insitu moisture content is typically in the order of 4 to 10% and the optimum is 11 to 13%. Therefore, it will likely be necessary to add water to assist with compaction. Any excavated silty soils will also be suitable for reuse as embankment fill; however, these soils must be worked during dry weather and should not be placed within 1 m of the pavement subgrade.

The pavement embankment fill should be placed in 200 mm loose lift thicknesses, and compacted to 95% modified Proctor maximum dry density with the upper 300 mm of the pavement subgrade compacted to 98% modified Proctor maximum dry density. The pavement and embankment fill should extend 1 m beyond the asphalt edge, and down to the native subgrade level at a slope of 45° to the horizontal.

Outside of the pavement embankment zone, which extends 1 m beyond the edge of asphalt and down to the subgrade level at a slope of 45° to the horizontal, graded area fill will be required.

Provided minor long term settlements of the graded areas are tolerable, excess inorganic soils may be used to raise grades outside the pavement embankment. The graded area fill should be placed in thin lifts and compacted to 90% modified Proctor maximum dry density. If topsoil and wet soils are used as fill, these materials should be placed a minimum of 11.5 m beyond the pavement edge and this work must be carried out during periods of dry weather to facilitate compaction.



It is desirable that the contractors should be required to provide details of the number and types of compaction units proposed for use on the project. During the initial phase of the grading operations, trial sections should be carried out to determine the number of passes required to achieve the desired degree of compaction with the various types of compaction equipment. The degree of compaction will be affected by the lift thickness, fill type and moisture content. Provisionally, the lift thicknesses should be limited to 200 mm loose depth. Thicker lifts may be permitted only upon confirmatory insitu density testing to ensure that a uniform high degree of compaction is achieved throughout the full depth of the lift.

Qualified geotechnical personnel should inspect all earthworks operations to verify the compaction levels and to evaluate borrow materials.

#### Pavement Design

The pavement design methods used in our analysis are in general accordance with Transport Canada guidelines as outlined in ASG-19 "Manual of Pavement Structural Design".

CBR strength testing of the sand subgrade soils was conducted for the current assignment, and CBR values typically ranged from 40 to 73. For design purposes the lower quartile Spring reduced subgrade bearing strength is considered to be 170 kN for the sand.

Based on the design subgrade bearing strength, the following is the minimum recommended flexible pavement structure for the runway.

Asphaltic Concrete	80 mm (two 40 mm lifts)
Granular A Base	250 mm
TOTAL THICKNESS	330 mm

Flexible Pavement Equivalent Granular Thickness<sup>1</sup>      410 mm

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<sup>1</sup> Determined using Transport Canada Granular Equivalency Factors of 1 for Granular Base and Subbase materials, and 2 for Asphaltic Concrete.





The runway will be capable of handling aircraft up to Transport Canada Aircraft Load Rating (ALR) of Class 9 with tire pressures less than 1.0 MPa. Aircraft types capable of using the pavements vary from the Piper Navajo through the Cessna Citation I, Canadair CL 415, and C 130 Hercules type aircraft, for example.

Based on the very low susceptibility for potential frost heaving of the sand subgrade, and considering the performance of the existing runway, thicker pavements to provide increased frost protection are not warranted. However, as noted in the previous section, subexcavation of the silty soils and replacement with at least 300 mm of sand is required in the vicinity of the existing runway.

#### Pavement Materials Placement

The Granular A base course should be placed in maximum 150 mm thick lifts and compacted to a minimum of 100% modified Proctor maximum dry density. The asphaltic concrete should be placed in two lifts and compacted to at least 97% Marshall (75 blows) density.

During construction, testing should be conducted to confirm the gradation and compactibility characteristics of the granular base materials, and the design properties of the asphaltic concrete. All construction materials proposed for the project should conform to Transport Canada specifications. We would be pleased to provide asphalt mix design details which would include a slight modification to Transport Canada specifications to utilize locally available aggregates.

#### Subdrains

Considering that a high groundwater table exists between Station 1+350 and the existing runway, we recommend subdrains be installed in any areas when the subgrade will be below existing grade. The subdrains should comprise adequately sized perforated pipe surrounded with geotextile filter sleeve, which in turn should be surrounded with a concrete sand type bedding / backfill material or equivalent.



### Culvert Construction

In general, the native soils are suitable to support any proposed culverts, if necessary.

The culverts should be installed as per OPSD 802 series. Appropriate 10 horizontal to 1 vertical frost tapers as per OPSD 803.030 and 803.031 should be used. Note that if the culvert invert is greater than 1.5 m below final runway grade no frost tapers would be required and the fill above the pipe should be similar to that of the adjacent embankment.

The stabilized groundwater table is believed to be approximately at the existing ground level in the low area between Station 1+350 and the existing runway. Groundwater seepage will be encountered which may be managed during construction by large capacity sumps pumping from pits within the excavation.

All work should be carried out in accordance with the Occupational Health and Safety Act and with Ministry / local regulations. The insitu materials are classified as Type 3 soils above any seepage levels and Type 4 soils below the seepage levels.

If space permits, open cut procedures may be employed with trench sidewalls inclined at 1 horizontal to 1 vertical (1H:1V). Excavation slopes will have to be flattened to 3H:1V where groundwater seepage is encountered.

Bearing capacity or settlement problems are not anticipated. Vegetation, topsoil, or other deleterious material should be removed from the culvert subgrade.

Pipe bedding and cover material should be as per OPSD 802 series using Granular A material. Backfill should comprise of Granular B Type I if frost tapers are required, otherwise, the backfill above the pipe should comprise typical subgrade soil to avoid differential frost heave problems.



### Stormwater Management Pond

The proposed stormwater management pond is located northwest of Test Pits 228 and 229. Information from these test pits indicates the pond subgrade soils will also likely comprise silty soils, which are relatively impermeable. Further, the groundwater table likely lies very close to the existing ground surface in the area of the proposed stormwater management pond.

Side slopes for the pond should be cut a 5H:1V or flatter and be provided with appropriate erosion protection.

### Existing Runway, Apron, and Main Taxiway Pavements

Considering the pavement surface distress evident on the existing pavements, we recommend that the existing runway, apron, and main taxiway be considered for rehabilitation when the new runway is constructed. Based on our cursory examination of the existing pavement condition, and knowing the original design details, we would suggest that the existing asphalt be in-place-processed (pulverized) and mixed with the underlying granular base. A 50 mm thick layer of new granular base material can then be placed, graded, and compacted, followed by resurfacing with 80 mm of new asphalt (two lifts).

After rehabilitation the existing pavements will also be capable of handling aircraft with an ALR up to Class 9 with tire pressures up to 1.0 MPa.

We would suggest that a coring and boring programme be carried out prior to detail design to document the existing pavement component thicknesses.

### General

All construction materials proposed for this airport project should conform to Transport Canada Specifications, with minor variations to utilize local materials. Inspection and testing of all pavement construction operations and subgrade preparation should be carried out on a continuous basis by experienced specialist geotechnical / materials quality assurance testing staff to ensure that appropriate materials, procedures and equipment are used to construct the work.



The proposed airport improvements should be designed and constructed in accordance with Transport Canada guidelines.

When the final design of the Runway is complete, we recommend a thorough overview of all geotechnical issues be made by our engineering staff.

We trust this report has been completed within our terms of reference, and is sufficient for your immediate requirements. If you have any questions or require further information, please do not hesitate to contact our office.

Sincerely

Peto MacCallum Ltd.



G. Mitchell, MEng, P.Eng.  
Branch Manager and  
Manager, Geotechnical Services

GM:sh

Enclosures:

Table 1 – Compaction and CBR Test Results  
Figures 1 to 11 - Particle Size Distribution Chart  
Figures 12 to 14 - Moisture Density Relationship Test Report  
Photographs 1 to 14  
List of Abbreviations  
Log of Test Pits 201 to 247  
Drawing 1 – Site Plan



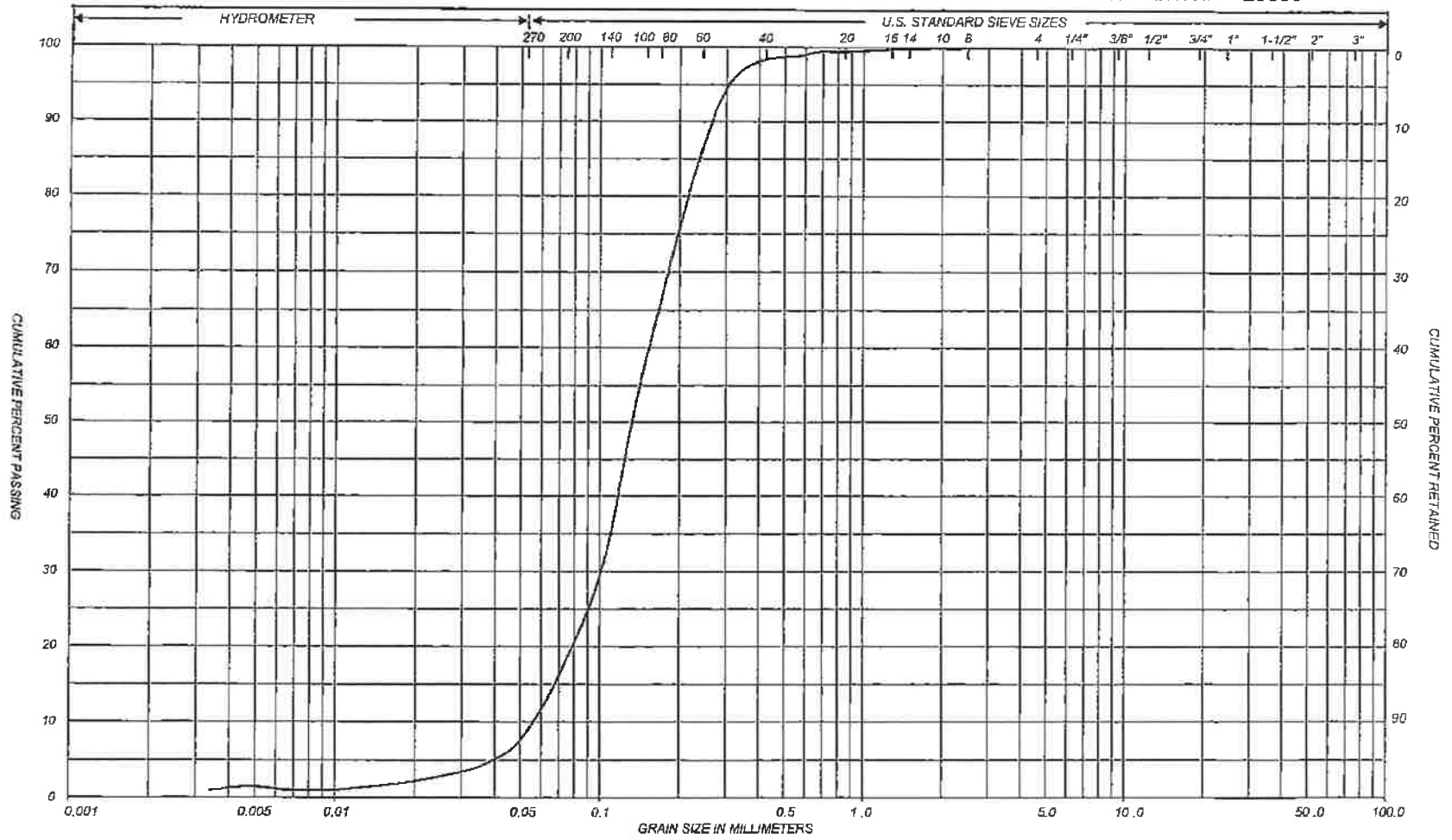
**TABLE 1**  
**COMPACTION AND CBR TEST RESULTS**

SOIL DESCRIPTION	TEST PIT NO.	SAMPLE NO.	LENGTH (m)	MODIFIED PROCTOR COMPACTION		CALIFORNIA BEARING RATION (CBR)						
						UNSOAKED CONDITION			SOAKED CONDITION			
				MAXIMUM DRY DENSITY (t/m <sup>3</sup> )	OPTIMUM WATER CONTENT (%)	DRY DENSITY	PERCENT COMPACTION	WATER CONTENT	CBR	WATER CONTENT (%)	CBR	SWELL <sup>1</sup> (%)
Sand	230	1	2.40	1.939	10.8	1.900	98	12.1	73	14.9	36	0
Sand	231	1	1.50	1.791	13.5	1.755	98	14.0	40	15.5	28	0

NOTE: 1. Percent swell measured after 4 days soak period under surcharge of 13.6 kg.

PML REF. 08KF003  
FIGURE NO. 1  
SAMPLE NO.: 25393

**PARTICLE SIZE DISTRIBUTION CHART**

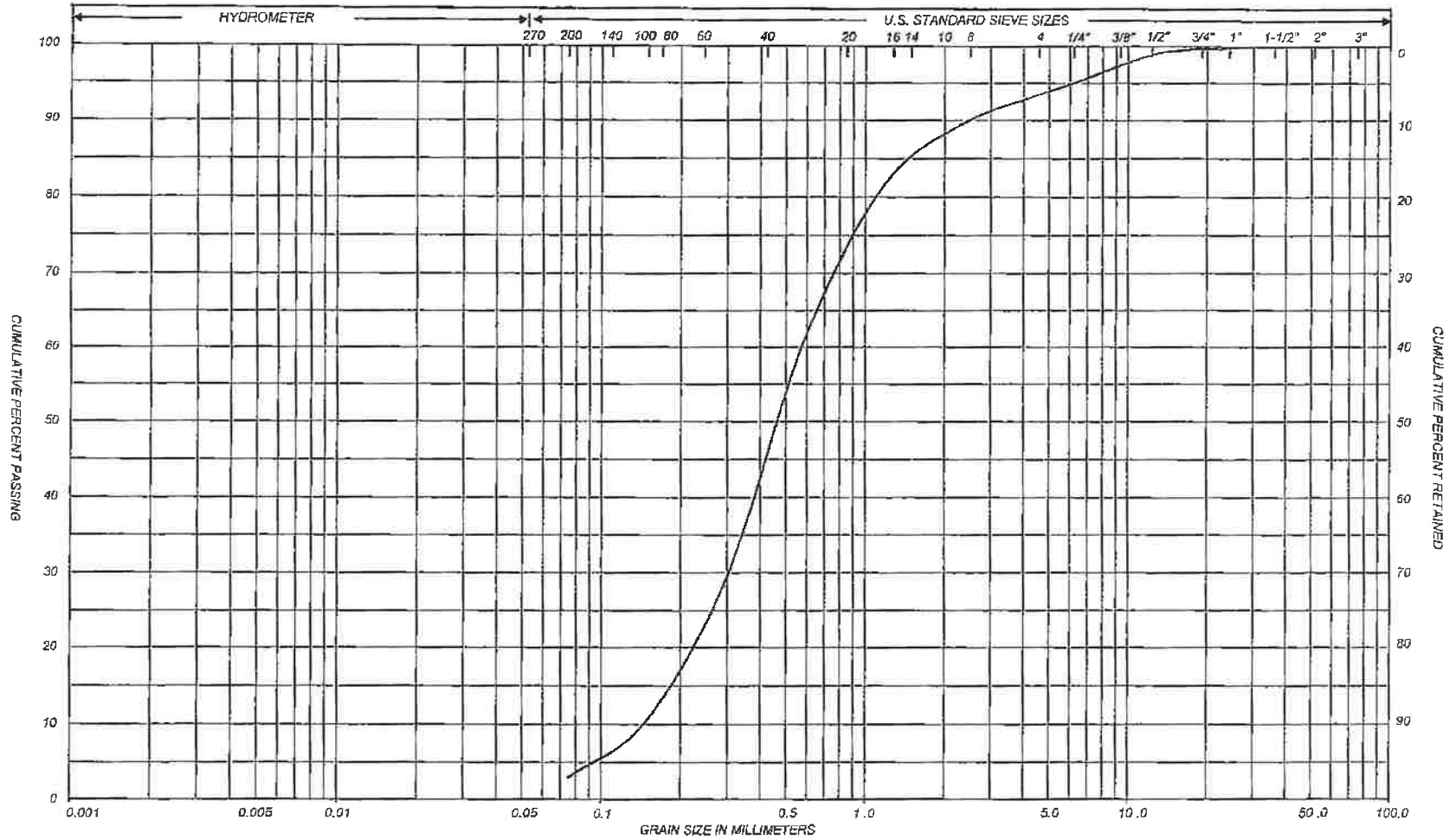


SILT & CLAY			FINE SAND		MEDIUM SAND	COARSE SAND	GRAVEL		COBBLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL		COBBLES	M.I.T.
CLAY	SILT		VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL			U.S. BUREAU

REMARKS Test Pit 203, Sample 1, Depth 0.60 m

SAND

**PARTICLE SIZE DISTRIBUTION CHART**

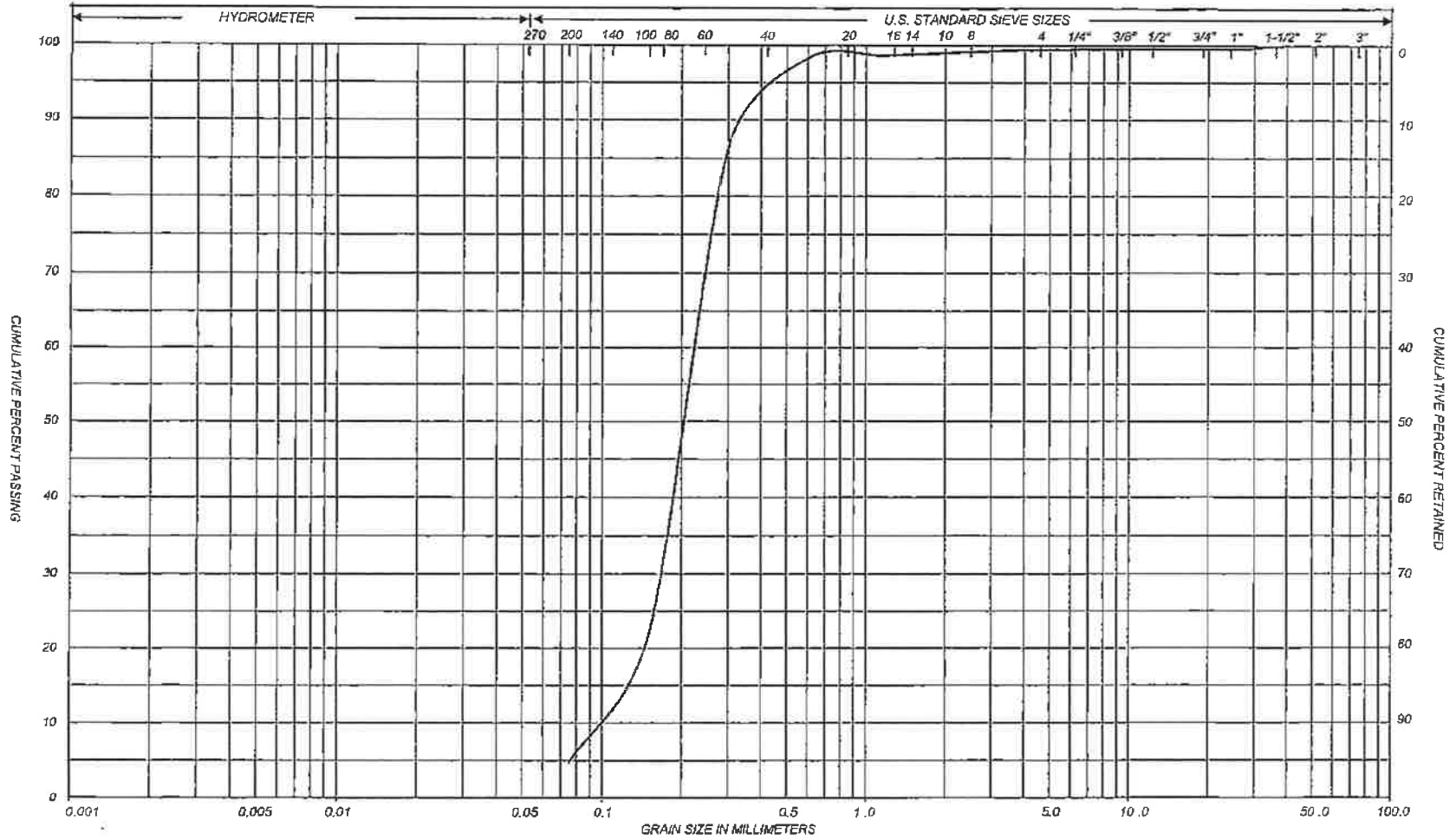


SILT & CLAY			FINE SAND		MEDIUM SAND	COARSE SAND	GRAVEL		COB BLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL		COB BLES	M.I.T.
CLAY	SILT		VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL			U.S. BUREAU

REMARKS Test Pit 230, Sample 1, Depth 2.40 m

SAND

### PARTICLE SIZE DISTRIBUTION CHART



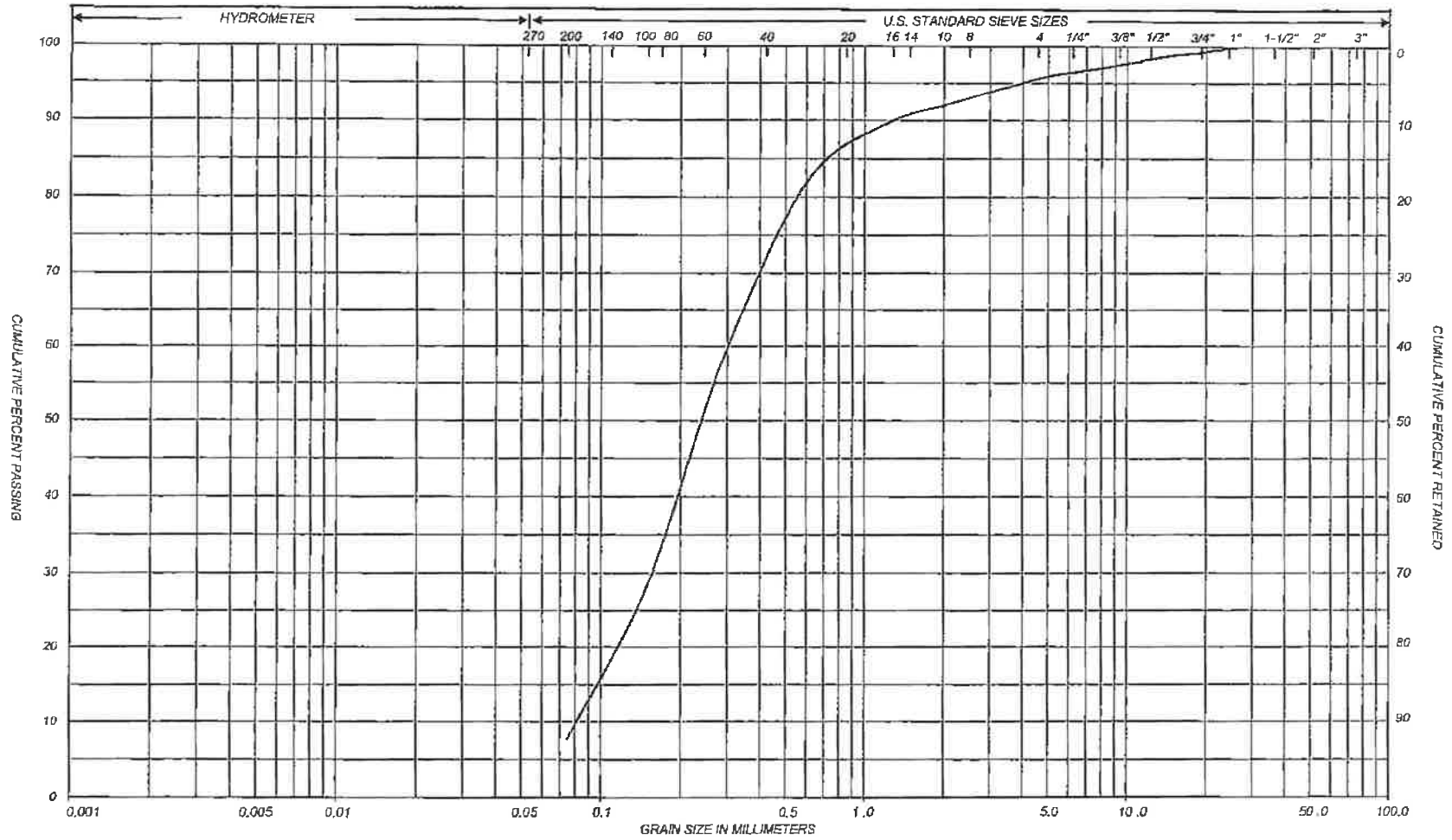
SILT & CLAY			FINE SAND		MEDIUM SAND	COARSE SAND	GRAVEL	COB BLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL	COB BLES	M.I.T.
CLAY	SILT		VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL		U.S. BUREAU

REMARKS Test Pit 231, Sample 1, Depth 1.50 m

SAND



**PARTICLE SIZE DISTRIBUTION CHART**

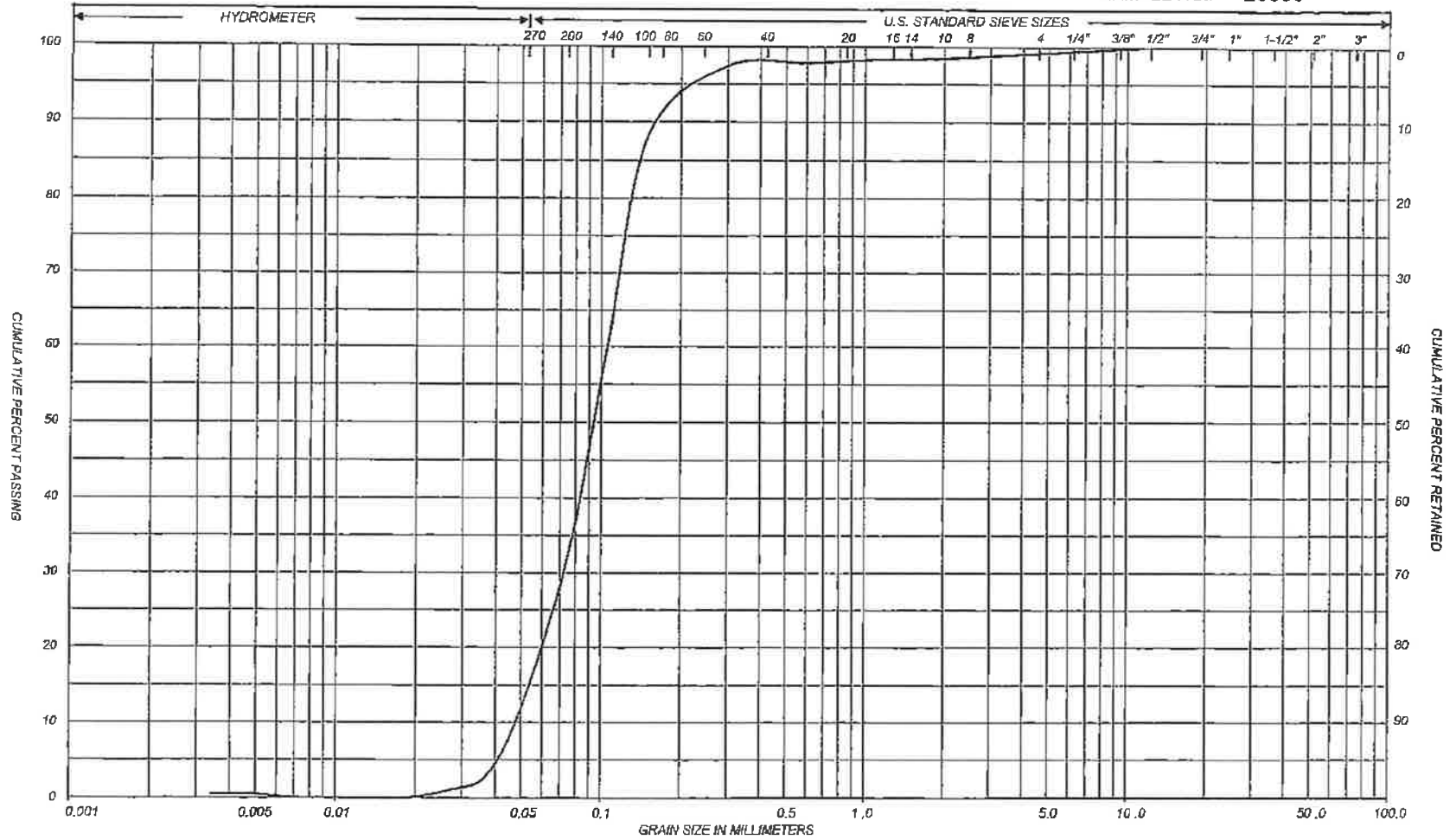


SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	UNIFIED
CLAY	FINE SILT		COARSE SILT	FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	M.I.T.	
	CLAY	SILT		VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND		GRAVEL				U.S. BUREAU	

REMARKS Test Pit 232, Sample 1, Depth 4.00 m

SAND

**PARTICLE SIZE DISTRIBUTION CHART**

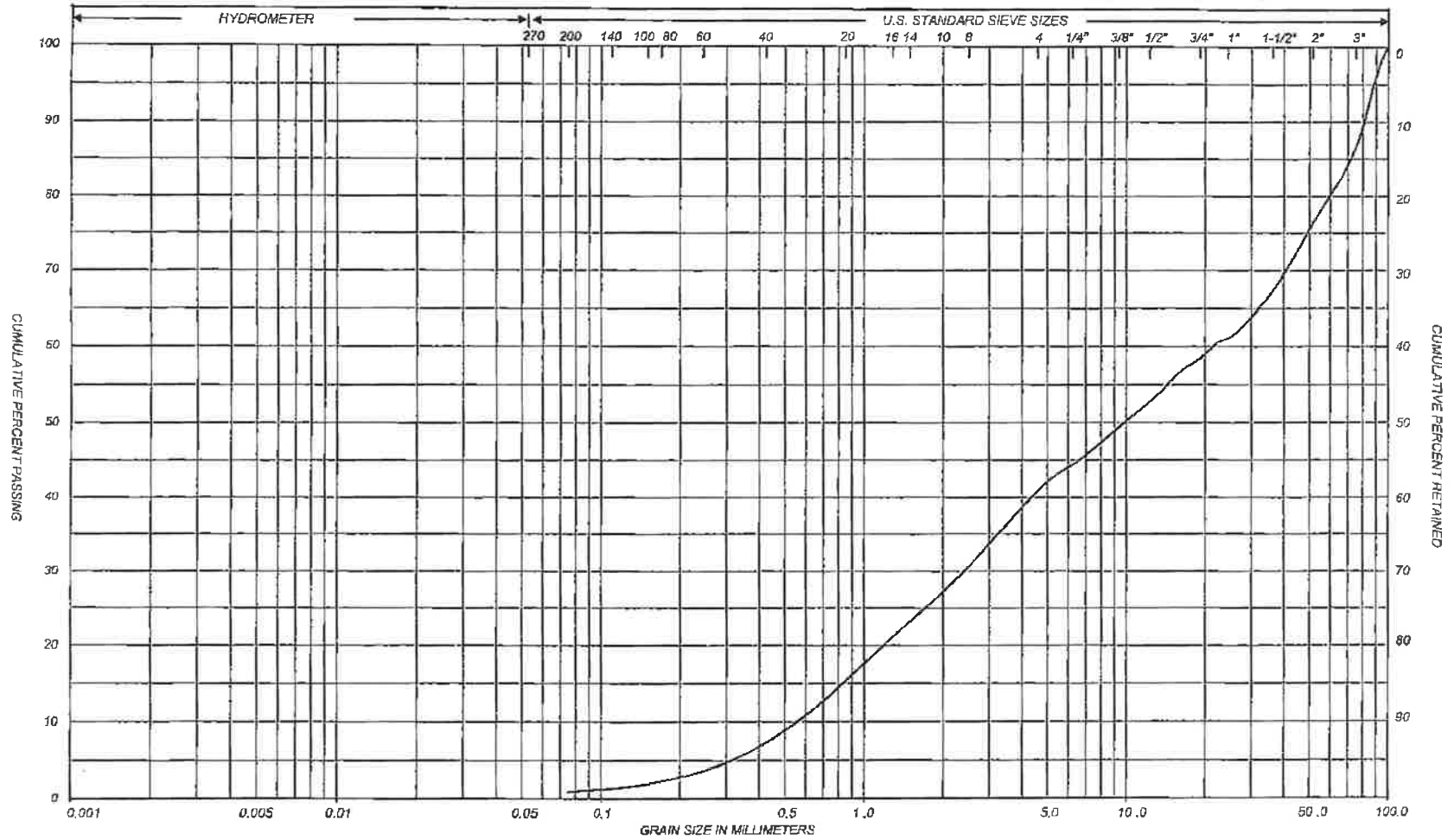


SILT & CLAY			FINE SAND			MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	UNIFIED
CLAY	FINE	MEDIUM SILT	COARSE	FINE	MEDIUM SAND	COARSE	GRAVEL			COBBLES	M.I.T.		
CLAY	SILT		VERY FINE	FINE SAND	MEDIUM	COARSE	GRAVEL				U.S. BUREAU		

REMARKS Test Pit 243, Sample 2, Depth 3.60 m

SAND

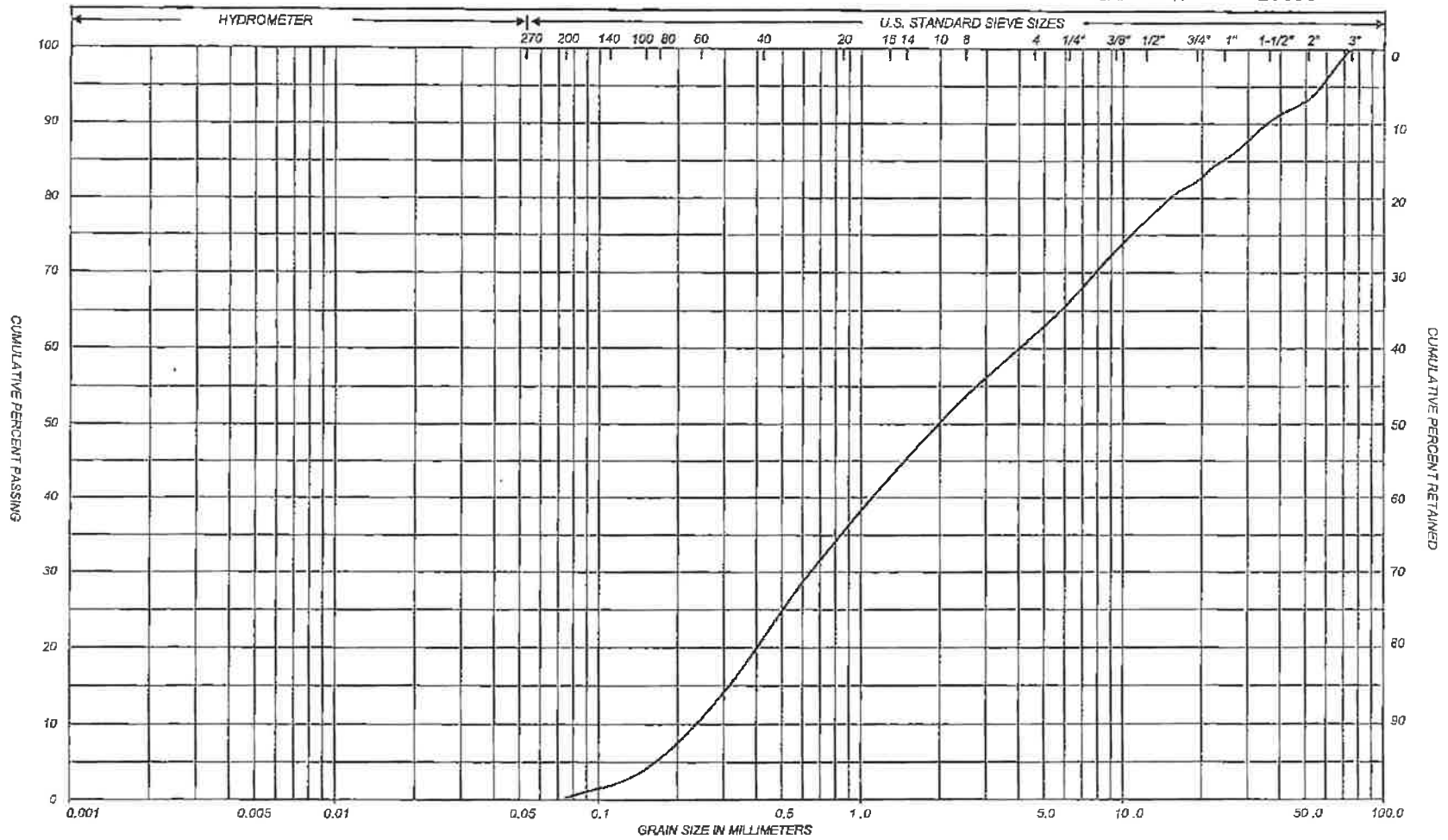
**PARTICLE SIZE DISTRIBUTION CHART**



SILT & CLAY		FINE SAND			MEDIUM SAND		COARSE SAND		GRAVEL		COB BLES	UNIFIED
CLAY	FINE	MEDIUM SILT	COARSE	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL			COB BLES	M.I.T.	
CLAY	SILT		VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL				U.S. BUREAU	

REMARKS Test Pit 234, Sample 1, Depth 1.80 m  
SAND AND GRAVEL

**PARTICLE SIZE DISTRIBUTION CHART**

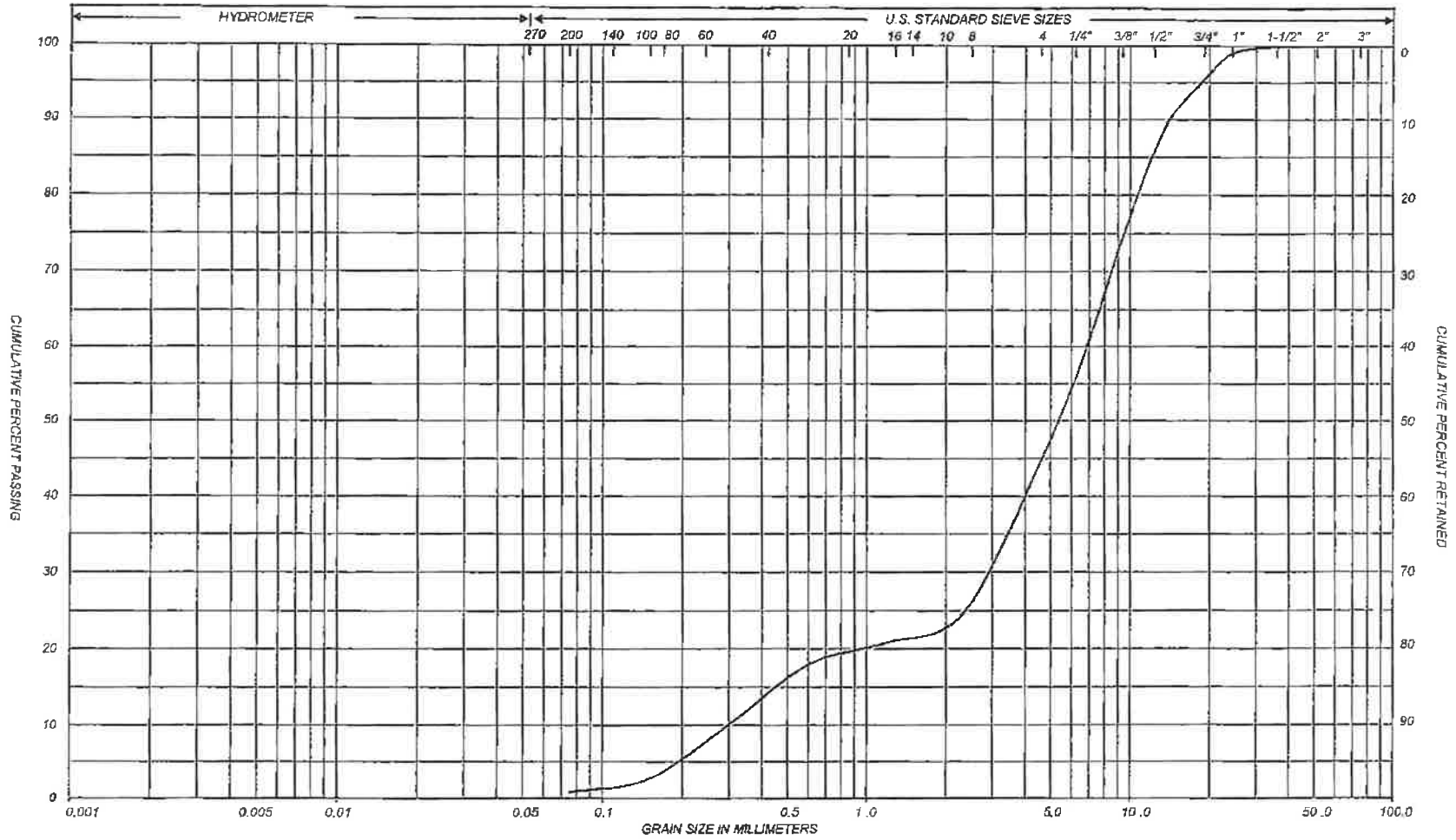


SILT & CLAY		FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL		COBBLES	M.I.T.	
CLAY	SILT		VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL			U.S. BUREAU	

REMARKS Test Pit 240, Sample 1, Depth 3.00 m

SAND AND GRAVEL

**PARTICLE SIZE DISTRIBUTION CHART**

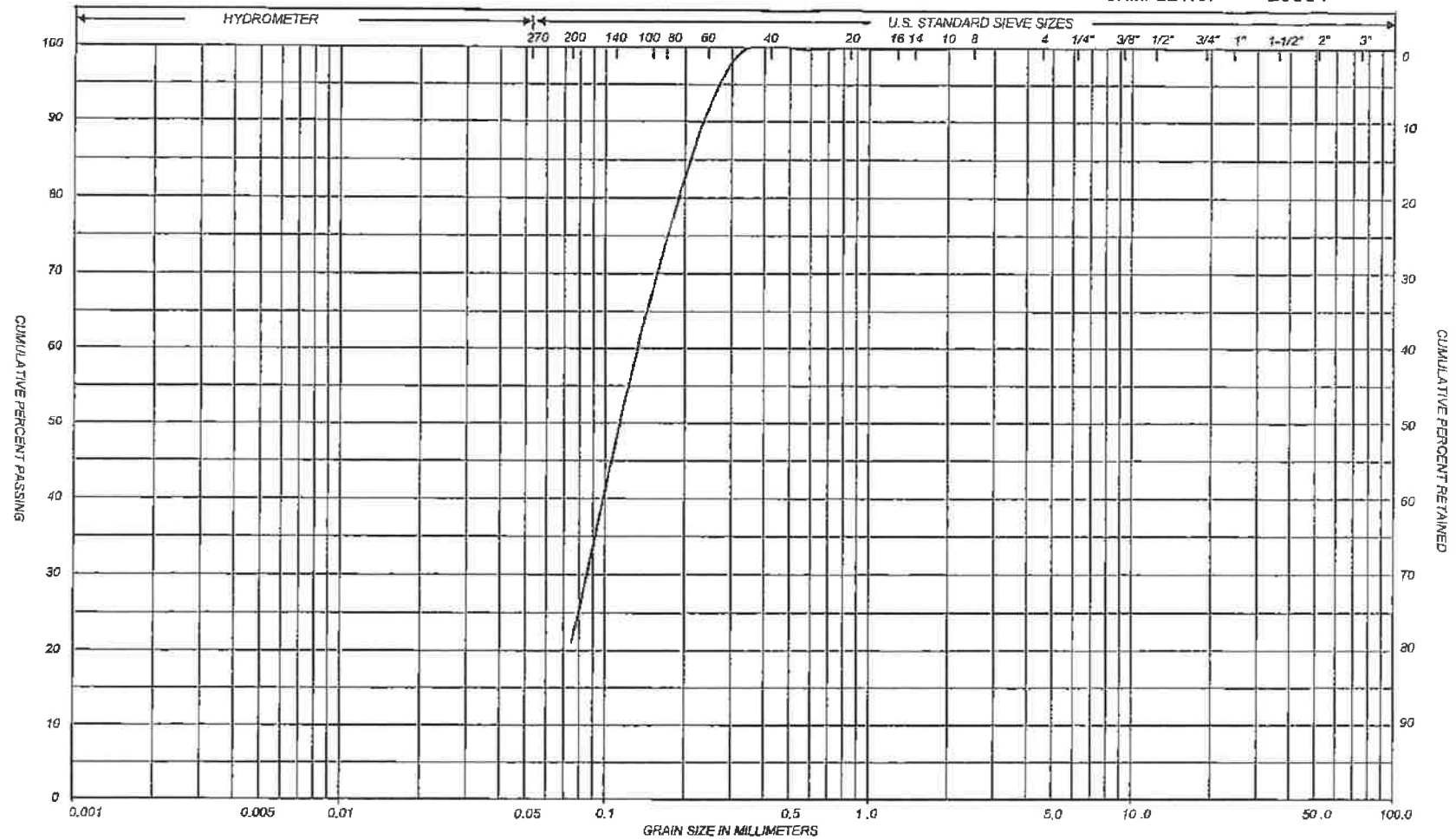


SILT & CLAY			FINE SAND			MEDIUM SAND			COARSE SAND			GRAVEL			COB BLES	UNIFIED
CLAY	FINE		MEDIUM SILT		COARSE	FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL			COB BLES	M.I.T.
	CLAY		SILT			VERY FINE SAND		FINE SAND		MEDIUM SAND		COARSE SAND		GRAVEL		

REMARKS Test Pit 243, Sample 1, Depth 2.40 m

SAND AND GRAVEL

**PARTICLE SIZE DISTRIBUTION CHART**

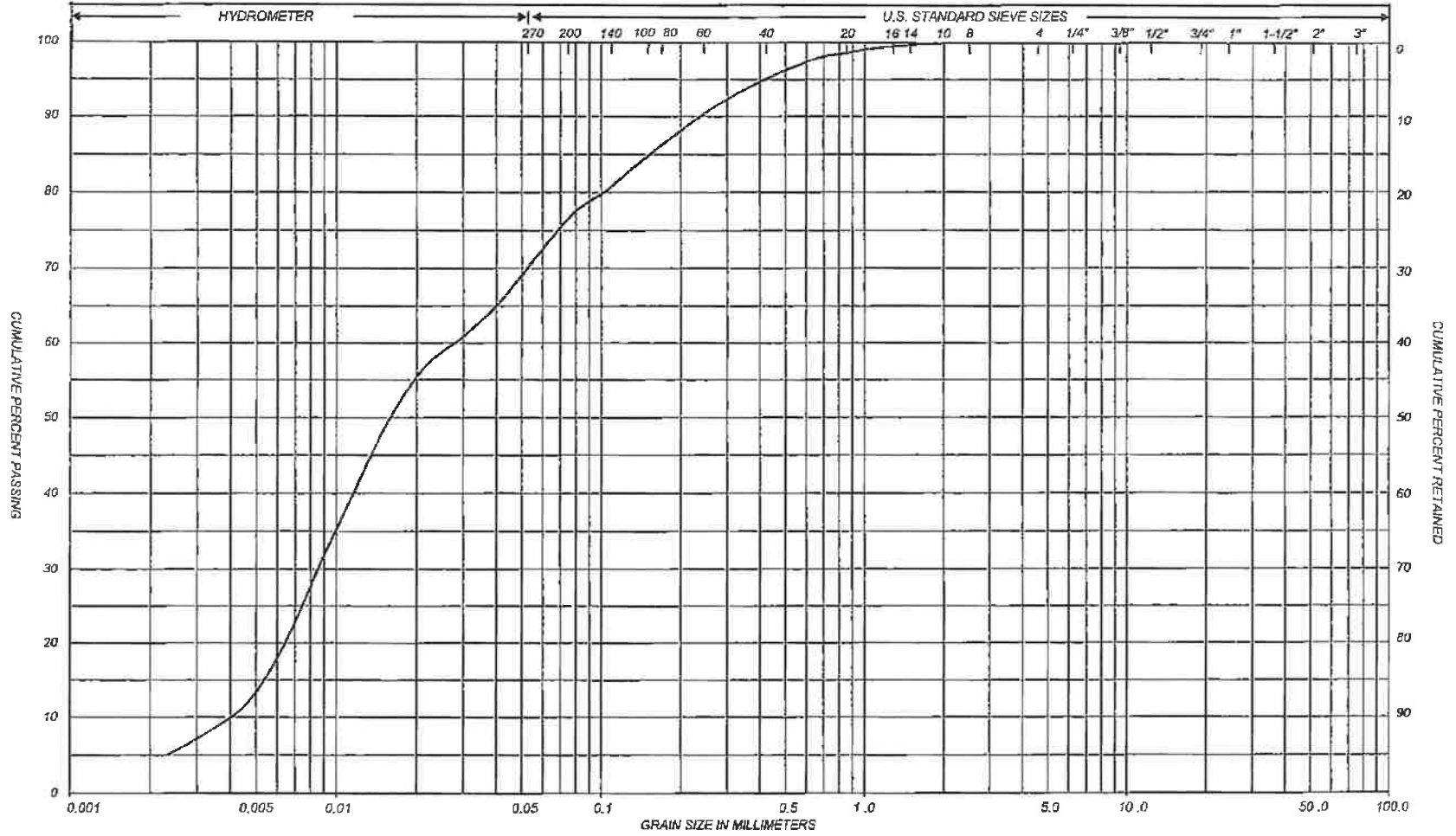


SILT & CLAY			FINE SAND		MEDIUM SAND	COARSE SAND	GRAVEL		COBBLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL		COBBLES	M.I.T.
CLAY	SILT		VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL		COBBLES	U.S. BUREAU

REMARKS Test Pit 233, Sample 1, Depth 2.40 m

SILTY SAND

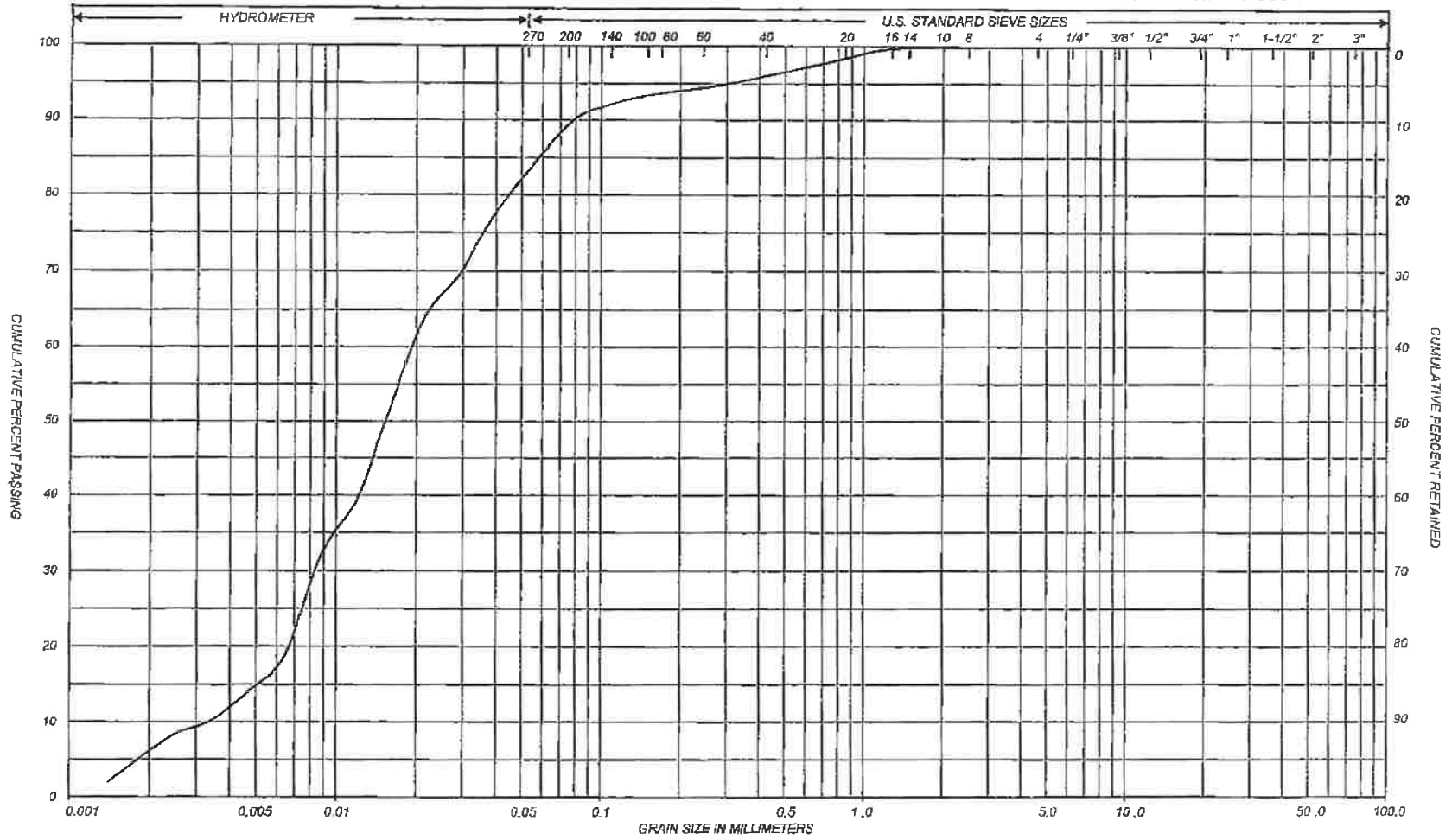
**PARTICLE SIZE DISTRIBUTION CHART**



SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE SAND		GRAVEL		COB. & BLK.	UNIFIED
CLAY	FINE	MEDIUM SILT	COARSE	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL				COBBLES	M.I.T.		
CLAY	SILT			VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL					U.S. BUREAU	

REMARKS Test Pit 238, Sample 1, Depth 3.00 m  
SANDY SILT

**PARTICLE SIZE DISTRIBUTION CHART**



SILT & CLAY			FINE SAND		MEDIUM SAND	COARSE SAND	GRAVEL	COB BLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL	COB BLES	M.I.T.
CLAY	SILT	VERY FINE SAND	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL			U.S. BUREAU

REMARKS Test Pit 228, Sample 1, Depth 1.50 m

SILT



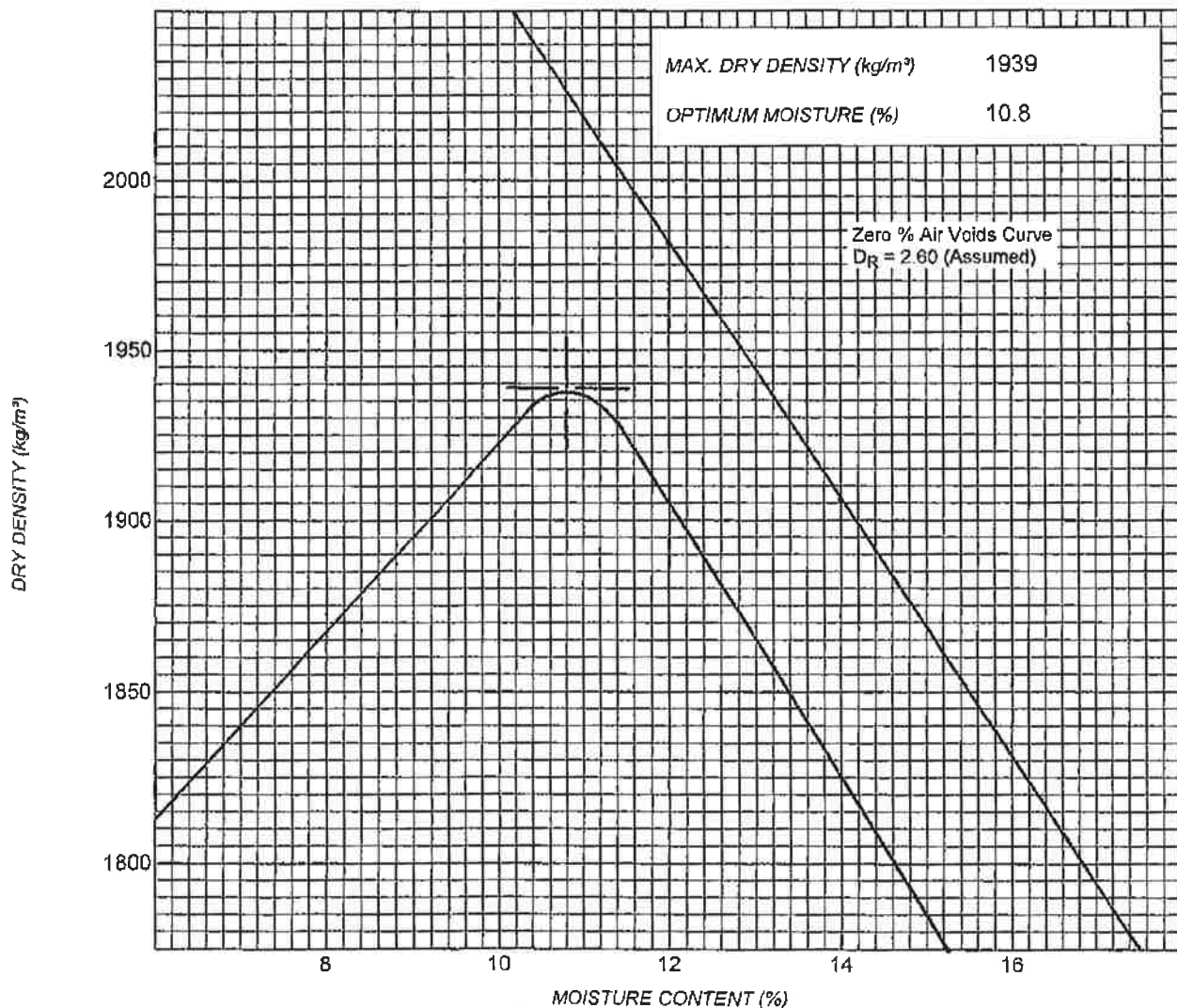
## MOISTURE DENSITY RELATIONSHIP TEST REPORT

CLIENT Township of Algonquin Highlands  
PROJECT Runway Development Project  
LOCATION Haliburton / Stanhope Municipal Airport

PML REF. 08KF003  
REPORT NO. 1  
FIGURE NO. 12

SAMPLE TYPE	Sand	SAMPLE NO.	25501
		DATE SAMPLED	June 27, 2008
SAMPLED FROM	Test Pit 230, Sample 1, Depth 2.40 m	SAMPLED BY	G. Mitchell OF PML
		DATE RECEIVED	June 30, 2008

MOISTURE CONTENT AS RECEIVED	8%	STANDARD PROCTOR - ASTM D698-70
REMARKS	For Particle Size Distribution See Figure 2	METHOD - <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
		MODIFIED PROCTOR - ASTM D1557-70
		METHOD - <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D

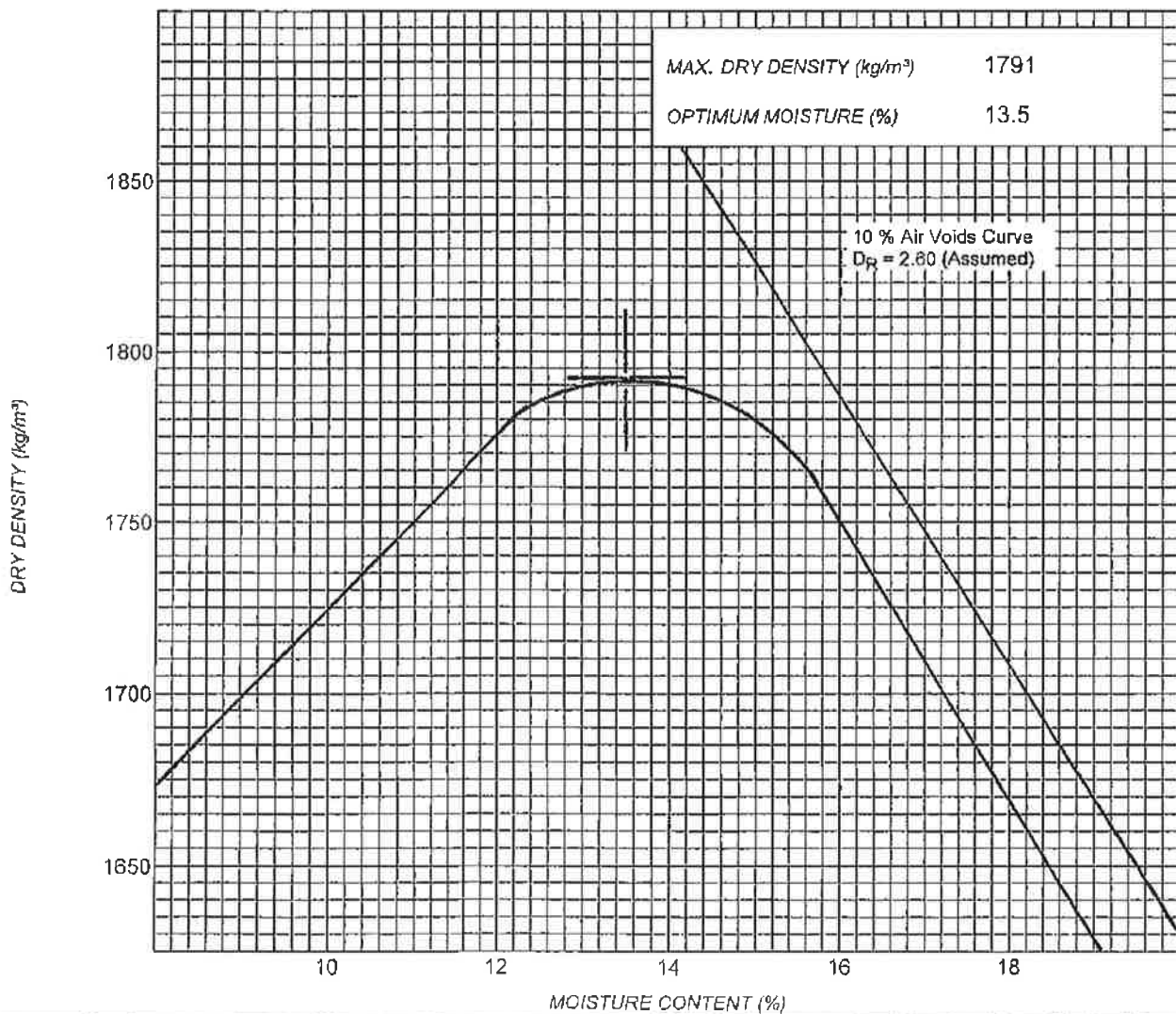


## MOISTURE DENSITY RELATIONSHIP TEST REPORT

CLIENT Township of Algonquin Highlands  
PROJECT Runway Development Project  
LOCATION Haliburton / Stanhope Municipal Airport

PML REF. 08KF003  
REPORT NO. 1  
FIGURE NO. 13

SAMPLE TYPE	Sand	SAMPLE NO.	25502
SAMPLED FROM	Test Pit 231, Sample 1, Depth 1.50 m	DATE SAMPLED	June 27, 2008
		SAMPLED BY	G. Mitchell OF PML
		DATE RECEIVED	June 30, 2008
MOISTURE CONTENT AS RECEIVED	6%	STANDARD PROCTOR - ASTM D698-70	
REMARKS	For Particle Size Distribution See Figure 3	METHOD - <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	
		MODIFIED PROCTOR - ASTM D1557-70	
		METHOD - <input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D	



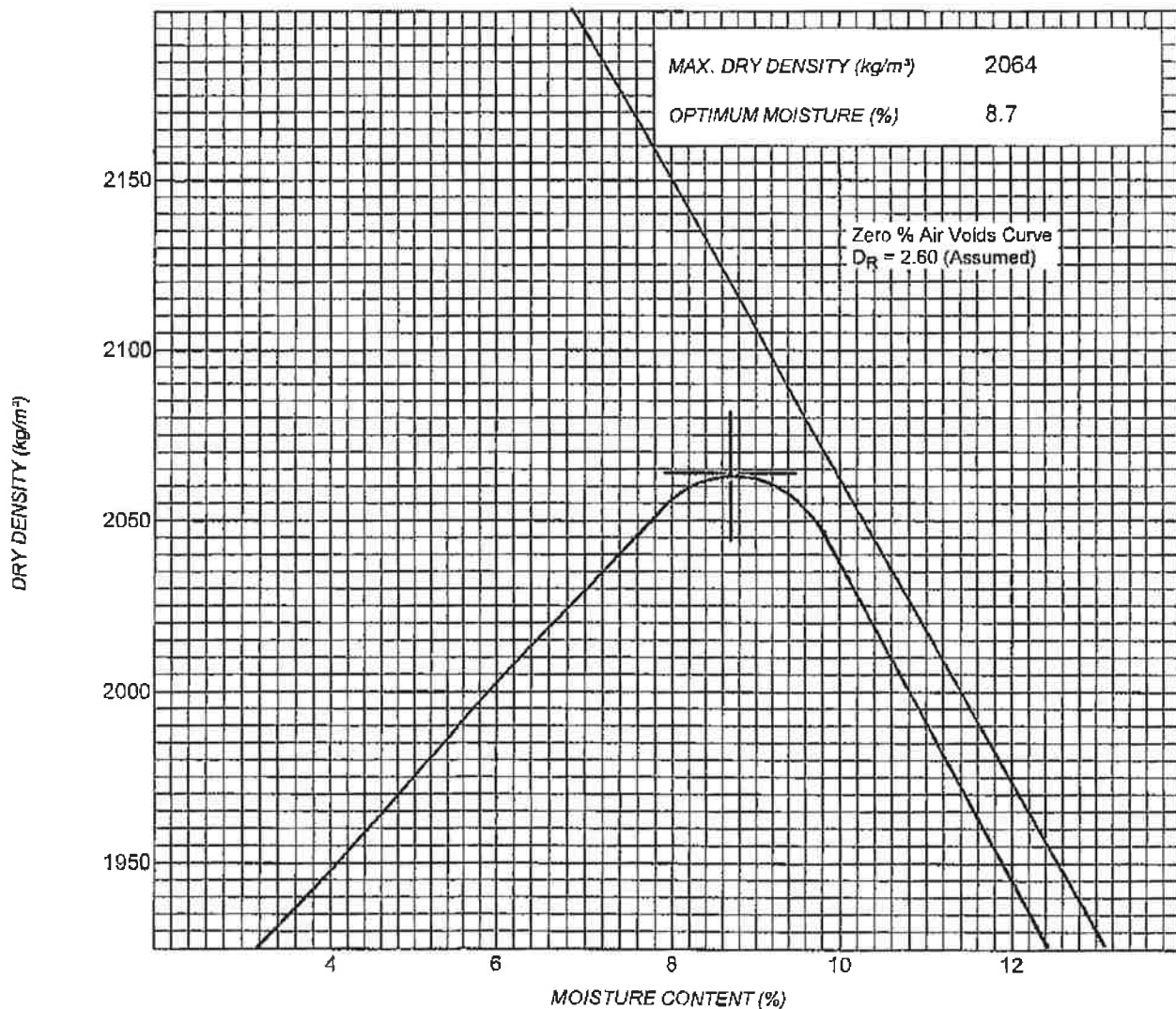
## MOISTURE DENSITY RELATIONSHIP TEST REPORT

CLIENT Township of Algonquin Highlands  
 PROJECT Runway Development Project  
 LOCATION Hallburton / Stanhope Municipal Airport

PML REF. 08KF003  
 REPORT NO. 1  
 FIGURE NO. 14

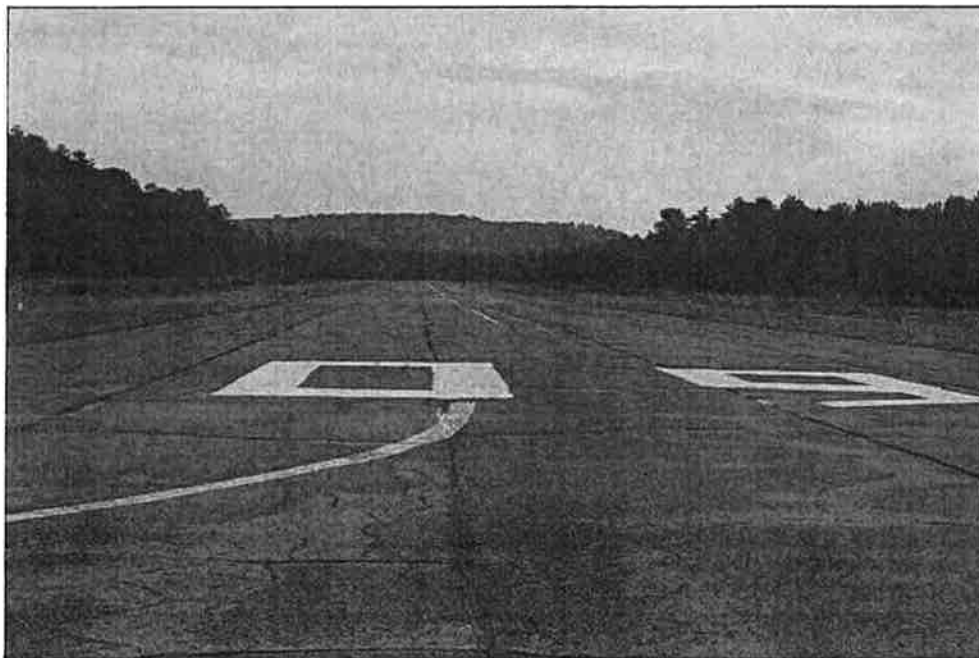
SAMPLE TYPE	Sand and Gravel	SAMPLE NO.	25389
		DATE SAMPLED	June 23, 2008
SAMPLED FROM	Test Pit 240, Sample 1, Depth 3.0 m	SAMPLED BY	G. Mitchell OF PML
		DATE RECEIVED	June 24, 2008

MOISTURE CONTENT AS RECEIVED	4.5%	STANDARD PROCTOR - ASTM D698-70
REMARKS	For Particle Size Distribution See Figure 7	METHOD - <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D
	Stone corrected maximum dry density 2.160 kg/m <sup>3</sup>	MODIFIED PROCTOR - ASTM D1557-70
	Stone corrected optimum moisture 8.0%	METHOD - <input type="checkbox"/> A <input type="checkbox"/> B <input checked="" type="checkbox"/> C <input type="checkbox"/> D

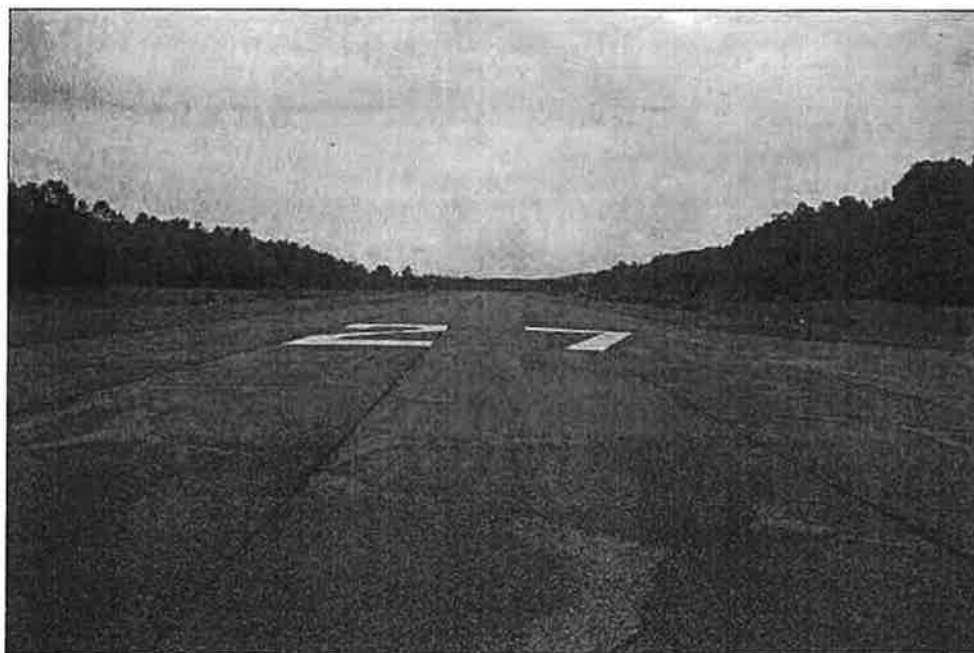




Photograph 1: General view of developed airport property.



Photograph 2: Typical condition of existing Runway 09-27.



Photograph 3: Typical condition of existing Runway 09-27.



Photograph 4: Typical transverse crack on Runway 09-27.



Photograph 5: Typical crack pattern on Runway 09-27.



Photograph 6: Proposed Runway at Station 1+150 looking south.



Photograph 7: Proposed Runway at Station 1+340 looking south.

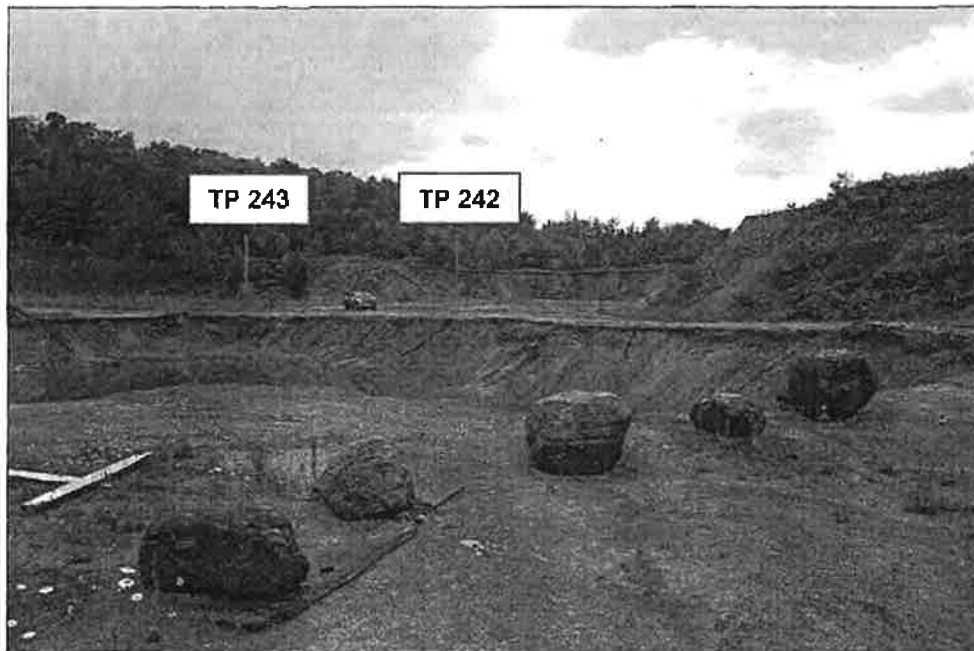


Photograph 8: Proposed Runway at Station 1+500 looking north.



Photograph 9: Proposed Runway at Station 1+700 looking south.





Photograph 10: Existing gravel pit. Photo taken near entrance looking west towards Test Pit 242 and Test Pit 243.



Photograph 11: Existing gravel pit. Same location as Photo 10, but taken looking east towards entrance.



Photograph 12: Typical soil conditions in Test Pit 208 at Station 1+100 Rt.



Photograph 13: Typical soil conditions in Test Pit 218  
at Station 1+600



Photograph 14: Typical soil conditions in test pit 240.

# LIST OF ABBREVIATIONS



## PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

## DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

<u>CONSISTENCY</u>	<u>N (blows/0.3 m)</u>	<u>c (kPa)</u>	<u>DENSENESS</u>	<u>N (blows/0.3 m)</u>
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		
WTPL	Wetter Than Plastic Limit			
APL	About Plastic Limit			
DTPL	Drier Than Plastic Limit			

## TYPE OF SAMPLE




SS	Split Spoon	TW	Thinwall Open
WS	Washed Sample	TP	Thinwall Piston
SB	Scraper Bucket Sample	OS	Oesterberg Sample
AS	Auger Sample	FS	Foil Sample
CS	Chunk Sample	RC	Rock Core
ST	Slotted Tube Sample		
	PH	Sample Advanced Hydraulically	
	PM	Sample Advanced Manually	

## SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

## LOG OF TEST PIT NO. 201

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Station 0+780, Lt	<b>ENGINEER</b>	G. Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G. Mitchell




DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			N/A	50	100	150	200	10	
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist									
1.20	SAND: Compact reddish brown fine sand, trace silt, moist									
3.00	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, moist									
	TEST PIT TERMINATED AT 3.00 m									Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 202

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 0+830, Rt **ENGINEER** G Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	
	N/A									
0.35	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist									Upon completion of excavation, test pit open with no free water.
1.00	SAND: Compact reddish brown fine sand, trace silt, moist									
	becoming brown fine to coarse sand, some gravel									
2.40	TEST PIT TERMINATED AT 2.40 m									

NOTES

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## LOG OF TEST PIT NO. 203

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 0+860, Centreline **ENGINEER** G Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 332.61										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.90	SAND: Compact reddish brown sand, trace to some silt, moist		1								
1.85	becoming brown fine sand, trace silt										
2.40	becoming fine to coarse sand, some gravel, trace silt										
	TEST PIT TERMINATED AT 2.40 m										After three days, test pit remained open with no free water.



NOTES

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## LOG OF TEST PIT NO. 204

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 0+900, Centreline    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell




DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
0.35	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.85	SAND: Compact reddish brown sand, trace to some silt, moist										
2.40	becoming brown fine to coarse sand, some gravel, trace silt										
	TEST PIT TERMINATED AT 2.40 m										After three days, test pit remained open with no free water.

NOTES

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## LOG OF TEST PIT NO. 205

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 0+940, Rt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
				50	100	150	200	10	20	30	
	GROUND ELEVATION 330.77										
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
1.05	SAND: Compact reddish brown fine sand, trace silt, moist										
2.10	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt, moist										
	TEST PIT TERMINATED AT 2.10 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 206

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+000, Lt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell


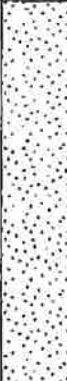
DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 331.14										
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
1.20	SAND: Compact reddish brown fine sand, trace silt, moist										
2.40	becoming brown fine to coarse sand										
	TEST PIT TERMINATED AT 2.40 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 207

PROJECT	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	PML REF.	08KF003
LOCATION	Station 1+050, Centreline	ENGINEER	G. Mitchell
DATE	2008 06 23	TECHNICIAN	G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 331.21										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
	SAND: Compact brown fine to coarse sand, some gravel, trace silt, moist								⊙		
2.10	TEST PIT TERMINATED AT 2.10 m								⊙		
											After three days, test pit remained open with no free water.

NOTES

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## LOG OF TEST PIT NO. 208

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+100, Rt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell





DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 330.61										
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.65	SAND: Compact reddish brown fine sand, trace silt, moist										
	becoming brown										
1.80											
	becoming fine to coarse sand										
2.70											
	TEST PIT TERMINATED AT 2.70 m										After three days, test pit remained open with no free water.

NOTES

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## LOG OF TEST PIT NO. 209

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+200, Centreline    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 329.24										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.60	SAND: Compact reddish brown fine sand, trace to some silt, moist										
	becoming brown, trace silt										
1.20											
1.50	SILTY SAND: Compact grey silty sand, moist										
	TEST PIT TERMINATED AT 1.50 m										After three days, test pit remained open with no free water.

NOTES

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## LOG OF TEST PIT NO. 210

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+250, Rt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 328.82										
0.20	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
	SAND: Compact reddish brown fine sand, trace to some silt, moist										
0.90	becoming brown, trace silt										
1.20	becoming fine to coarse, some gravel, trace silt										
2.40	TEST PIT TERMINATED AT 2.40 m										After three days, test pit remained open with no free water.

NOTES

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## LOG OF TEST PIT NO. 211

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+300, Lt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.90	SAND: Compact reddish brown fine sand, trace to some silt, moist										
3.60	becoming brown, trace silt										
	TEST PIT TERMINATED AT 3.60 m										After three days, test pit remained open with no free water.



NOTES

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## LOG OF TEST PIT NO. 212

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+320, Rt    **ENGINEER** G Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION    N/A			50	100	150	200	10	20	30	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.90	SAND: Compact reddish brown fine sand, trace to some silt, moist										
4.00	becoming brown, trace silt										
	TEST PIT TERMINATED AT 4.00 m										After three days, test pit remained open with no free water.

NOTES

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## LOG OF TEST PIT NO. 213

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+340, Lt    **ENGINEER** G. Mitchell  
**DATE** 2008 08 23    **TECHNICIAN** G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
1.00	SAND: Compact reddish brown fine sand, trace to some silt, moist										
3.40	becoming brown fine to coarse sand, trace gravel, trace silt										
	TEST PIT TERMINATED AT 3.40 m										After 3 days, test pit remained open with no free water.

NOTES

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## LOG OF TEST PIT NO. 214

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Station 1+350, Centreline	<b>ENGINEER</b>	G. Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			324.73	50	100	150	200	10	20	
0.40	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
2.40	SAND: Compact reddish brown fine sand, some gravel, trace to some silt, moist										
	TEST PIT TERMINATED AT 2.40 m										After three days, test pit remained open with no free water.



NOTES

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## LOG OF TEST PIT NO. 215

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+400, Rt    **ENGINEER** G Mitchell  
**DATE** 2008 08 23    **TECHNICIAN** G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	
	GROUND ELEVATION 319.06									
0.20	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet									
0.60	SAND: Compact reddish brown fine sand, some gravel, trace to some silt, wet to saturated becoming grey									
1.50	TEST PIT TERMINATED AT 1.50 m									After 3 days, test pit caved to 1.50 m with water level at 0.40 m.

NOTES

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## LOG OF TEST PIT NO. 216

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+500, Centreline    **ENGINEER** G Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
				50	100	150	200	10	20	30	
	GROUND ELEVATION 318.79										
0.15	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet										
0.30	SAND: Loose grey fine sand, some silt, very moist										
	becoming reddish brown, saturated										
1.00	becoming grey										
1.50	TEST PIT TERMINATED AT 1.50 m										



After 3 days, test pit caved to 1.50 m with water level at 0.30 m.

NOTES

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## LOG OF TEST PIT NO. 217

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+550, Rt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 318.75										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet										
0.60	SAND: Compact reddish brown fine sand, some silt, saturated										
	becoming grey										
1.20											
	becoming silty sand										
1.50											
	TEST PIT TERMINATED AT 1.50 m										After 3 days, test pit caved to 1.50 m with water level at 0.35 m.




NOTES

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## LOG OF TEST PIT NO. 218

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+600, Lt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	
	GROUND ELEVATION 318.40									
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet									
0.60	SAND: Compact reddish brown fine sand, some silt, saturated									
	becoming grey									
1.50	TEST PIT TERMINATED AT 1.50 m									

After 3 days, test pit caved to 1.50 m with water level at 0.45 m.


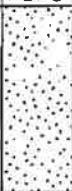
NOTES

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## LOG OF TEST PIT NO. 219

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Station 1+650, Centreline	<b>ENGINEER</b>	G. Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			318.27	50	100	150	200	10	20	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
	SAND: Compact reddish brown fine sand, some silt, saturated										
1.20	TEST PIT TERMINATED AT 1.20 m										After 3 days, test pit caved to 1.20 m with water level at surface.

NOTES




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## LOG OF TEST PIT NO. 220

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+700, Rt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 318.14										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet										
0.60	SAND: Compact reddish brown fine sand, some silt, saturated										
	becoming grey										
1.20	TEST PIT TERMINATED AT 1.20 m										After 3 days, test pit caved to 1.20 m with water level at 0.15 m.




NOTES

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## LOG OF TEST PIT NO. 221

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+750, Lt    **ENGINEER** G Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell


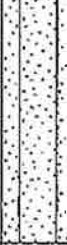
DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 318.49										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet										After 3 days, test pit caved to 1.20 m with water level at 0.15 m.
0.60	SAND: Compact reddish brown fine sand, some silt, saturated										
	becoming grey										
1.20	TEST PIT TERMINATED AT 1.20 m										

NOTES

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## LOG OF TEST PIT NO. 222

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 1+800, Centreline **ENGINEER** G Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G Mitchell




DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	
	GROUND ELEVATION 318.21									
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet									
	SILTY SAND: Compact grey silty sand, trace clay, saturated									
1.50	TEST PIT TERMINATED AT 1.50 m									After 3 days, test pit caved to 1.50 m with water level at 0.05 m.

NOTES

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## LOG OF TEST PIT NO. 223

<b>PROJECT</b> RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b> 08KF003
<b>LOCATION</b> Station 1+850, Rt	<b>ENGINEER</b> G Mitchell
<b>DATE</b> 2008 06 23	<b>TECHNICIAN</b> G. Mitchell



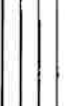
DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			317.92	50	100	150	200	10	20	
0.35	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet										After 3 days, test pit caved to 1.50 m with water level at 0.50 m.
0.60	SILTY SAND: Compact reddish brown silty sand, very moist										
1.50	becoming grey, saturated										
	TEST PIT TERMINATED AT 1.50 m										

NOTES

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## LOG OF TEST PIT NO. 224

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+900, Lt    **ENGINEER** G Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 317.82										
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, wet										
0.60	SILTY SAND: Compact reddish brown silty sand, saturated										
1.20	SILT: Compact grey silt, saturated										
	TEST PIT TERMINATED AT 1.20 m										After 3 days, test pit caved to 1.20 m with water level at 0.20 m.

NOTES

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## LOG OF TEST PIT NO. 225

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+950, Centreline    **ENGINEER** G Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			317.36	50	100	150	200	10	20	
0.90	FILL: Brown sand and silt, organics, moist	[Cross-hatch pattern]									
1.80	SILT: Compact grey silt, saturated	[Vertical lines pattern]									
	TEST PIT TERMINATED AT 1.80 m										After 3 days, test pit caved to 1.80 m with water level at 1.05 m.




NOTES

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## LOG OF TEST PIT NO. 226

PROJECT	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	PML REF.	08KF003
LOCATION	Station 2+050, Rt	ENGINEER	G. Mitchell
DATE	2008 06 23	TECHNICIAN	G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			316.92	50	100	150	200	10	20	
0.27	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										Upon completion of excavation, test pit open with no free water.
0.90	SILTY SAND: Compact reddish brown silty sand, moist										
1.20	SANDY SILT: Compact brown sandy silt, moist										
	TEST PIT TERMINATED AT 1.20 m										

NOTES

CHECKED BY 

## LOG OF TEST PIT NO. 227

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Station 2+100, Lt	<b>ENGINEER</b>	G. Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			317.18	50	100	150	200	10	20	
0.45	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										Upon completion of excavation, test pit open with no free water.
	SILTY SAND: Compact reddish brown silty sand, moist										
1.20	TEST PIT TERMINATED AT 1.20 m										




NOTES

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## LOG OF TEST PIT NO. 228

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** SWM Pond at Toe of Slope **ENGINEER** G. Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G. Mitchell


DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	
	GROUND ELEVATION 319.61									
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist									
1.00	SAND: Compact reddish brown fine sand, trace silt, very moist								⊙	
2.40	SILT: Compact grey silt, trace sand, trace clay, very moist		1						⊙	
	TEST PIT TERMINATED AT 2.40 m									Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 229

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** SWM Pond, 2.5 m above Toe of Slope    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION    N/A			50	100	150	200	10	20	30	
0.15	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist  SAND: Compact brown fine to medium sand, trace silt, moist										
2.40	TEST PIT TERMINATED AT 2.40 m UPON MEETING REFUSAL TO EXCAVATE ON BEDROCK										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 230

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 0+780, 50 m Lt **ENGINEER** G Mitchell  
**DATE** 2008 08 23 **TECHNICIAN** G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 330.13										
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.60	SAND: Compact reddish brown fine sand, some silt, moist										
2.10	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt, moist										
5.00	SAND: Compact brown fine to medium sand, trace silt, occasional coarse sand seams, moist		1								
	TEST PIT TERMINATED AT 5.00 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 231

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station D+780, 100 m Lt    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
				50	100	150	200	10	20	30	
	GROUND ELEVATION 330.20										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
1.40	SAND: Compact reddish brown fine sand, trace silt, moist										
	becoming grey		1						⊙		
2.75	300 mm thick sand and gravel seam										
3.35	becoming fine to medium sand								⊙		
4.50	TEST PIT TERMINATED AT 4.50 m										





Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 232

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 0+780, 150 m Lt    **ENGINEER** G Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 330.20										
0.40	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.90	SAND: Compact reddish brown fine sand, trace to some silt, moist										
2.75	SAND AND GRAVEL: Compact brown fine to medium sand and gravel, trace silt, moist								⊙		
5.00	SAND: Compact brown fine to medium sand, trace to some silt, moist		1						⊙		
	TEST PIT TERMINATED AT 5.00 m								⊙		Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 233

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 0+780, 200 m Lt **ENGINEER** G. Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	
	GROUND ELEVATION 329.59									
0.45	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist									
1.20	SAND: Compact reddish brown fine sand, trace some silt, moist									
2.10	becoming brown fine to coarse sand									
3.00	SILTY SAND: Compact grey silty sand, moist		1							
4.50	SAND: Compact brown fine to coarse sand, some gravel, moist									
	TEST PIT TERMINATED AT 4.50 m									Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 234

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 0+780, 250 m Lt    **ENGINEER** G Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
				50	100	150	200	10	20	30	
	GROUND ELEVATION 331.80										
0.45	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
1.20	SAND: Compact reddish brown fine sand, trace to some silt, moist									⊙	
2.40	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt, moist		1								
3.60	SAND: Compact brown fine to medium sand, trace silt, moist									⊙	
4.50	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt, moist									⊙	
	TEST PIT TERMINATED AT 4.50 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 235

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 0+780, 300 m Lt **ENGINEER** G. Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 331.79										
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.90	SAND: Compact reddish brown fine sand, trace to some silt, moist										
	becoming fine to coarse sand, trace silt										
3.00											
	occasional wet silt seams										
4.80											
	TEST PIT TERMINATED AT 4.80 m										Upon completion of excavation, test pit open with no free water.



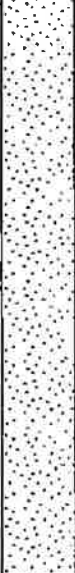

NOTES

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## LOG OF TEST PIT NO. 236

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 0+780, 350 m Lt **ENGINEER** G Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G Mitchell





DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 334.20										
0.35	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.75	SAND: Compact reddish brown fine sand, trace silt, moist										
	becoming brown										
3.50											
	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt with occasional cobbles, moist										
5.00											
	TEST PIT TERMINATED AT 5.00 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 237

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Borrow Area **ENGINEER** G. Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G. Mitchell




DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 332.25										
0.20	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.90	SAND: Compact reddish brown fine sand, some silt, moist										
3.00	becoming brown fine to medium sand										
4.50	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt, moist										
	TEST PIT TERMINATED AT 4.50 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 238

PROJECT	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	PML REF.	08KF003
LOCATION	Borrow Area	ENGINEER	G Mitchell
DATE	2008 06 23	TECHNICIAN	G. Mitchell


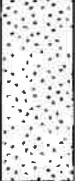

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	30	
	GROUND ELEVATION 331.07										
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
	SANDY SILT: Compact reddish brown sandy silt, moist										
1.50	becoming grey								⊙		
3.60			1								
4.50	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt with occasional cobbles, moist										
	TEST PIT TERMINATED AT 4.50 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 239

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Borrow Area	<b>ENGINEER</b>	G. Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			332.56	50	100	150	200	10	20	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
1.20	SAND: Compact reddish brown fine sand, trace silt, moist										
1.20	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt, occasional cobbles to 300 mm diameter, moist										
4.30	TEST PIT TERMINATED AT 4.30 m										Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 240

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Borrow Area	<b>ENGINEER</b>	G Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			332.42	50	100	150	200	10	20	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt with occasional cobbles and occasional sand seams, moist										
4.50	TEST PIT TERMINATED AT 4.50 m		1					⊙			
								⊙			Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 241

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Borrow Area    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			50	100	150	200	10	20	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist									
4.30	SAND: Compact brown fine sand, trace silt, occasional thin silt seams, moist									
	TEST PIT TERMINATED AT 4.30 m									Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 242

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Existing Pit	<b>ENGINEER</b>	G. Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			323.73	50	100	150	200	10	20	
5.00	SAND: Compact brown fine sand, trace silt, moist	[Pattern]									
	TEST PIT TERMINATED AT 5.00 m										Upon completion of excavation, test pit open with no free water.



NOTES

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## LOG OF TEST PIT NO. 243

<b>PROJECT</b>	RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT	<b>PML REF.</b>	08KF003
<b>LOCATION</b>	Existing Pit	<b>ENGINEER</b>	G. Mitchell
<b>DATE</b>	2008 06 23	<b>TECHNICIAN</b>	G Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			322.46	50	100	150	200	10	
3.00	SAND AND GRAVEL: Compact brown fine to coarse sand and gravel, trace silt, moist		1						⊙	Upon completion of excavation, test pit open with no free water.
4.50	SAND: Compact brown sand, very moist to wet		2						⊙	
	TEST PIT TERMINATED AT 4.50 m									




NOTES

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## LOG OF TEST PIT NO. 244

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 1+000, 150 m Lt, 3 m above Toe of Slope **ENGINEER** G. Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G. Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			N/A	50	100	150	200	10	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist									
0.75	SILTY SAND: Compact reddish brown silty sand, moist									
2.40	SAND: Compact brown fine sand, moist									
	TEST PIT TERMINATED AT 2.40 m UPON MEETING REFUSAL TO EXCAVATE ON BEDROCK									Upon completion of excavation, test pit open with no free water.

NOTES

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## LOG OF TEST PIT NO. 245

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT    **PML REF.** 08KF003  
**LOCATION** Station 1+000, 160 m Lt, 9 m Above Toe of Slope    **ENGINEER** G. Mitchell  
**DATE** 2008 06 23    **TECHNICIAN** G. Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION    N/A			50	100	150	200	10	20	30	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
	SILTY SAND: Compact reddish brown silty sand, moist										
1.20	TEST PIT TERMINATED AT 1.20 m UPON MEETING REFUSAL TO EXCAVATE ON BEDROCK										Upon completion of excavation, test pit open with no free water.

NOTES

CHECKED BY 

## LOG OF TEST PIT NO. 246

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 1+150, 200 m Lt, 2.0 m Above Toe of Slope **ENGINEER** G Mitchell  
**DATE** 2008 06 23 **TECHNICIAN** G Mitchell



DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa				WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			N/A	50	100	150	200	10	20	
0.25	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist										
0.60	SAND: Compact reddish brown fine sand, trace silt, moist										
	becoming brown										
2.10	TEST PIT TERMINATED AT 2.10 m UPON MEETING REFUSAL TO EXCAVATE ON BEDROCK										Upon completion of excavation, test pit open with no free water.

NOTES

CHECKED BY

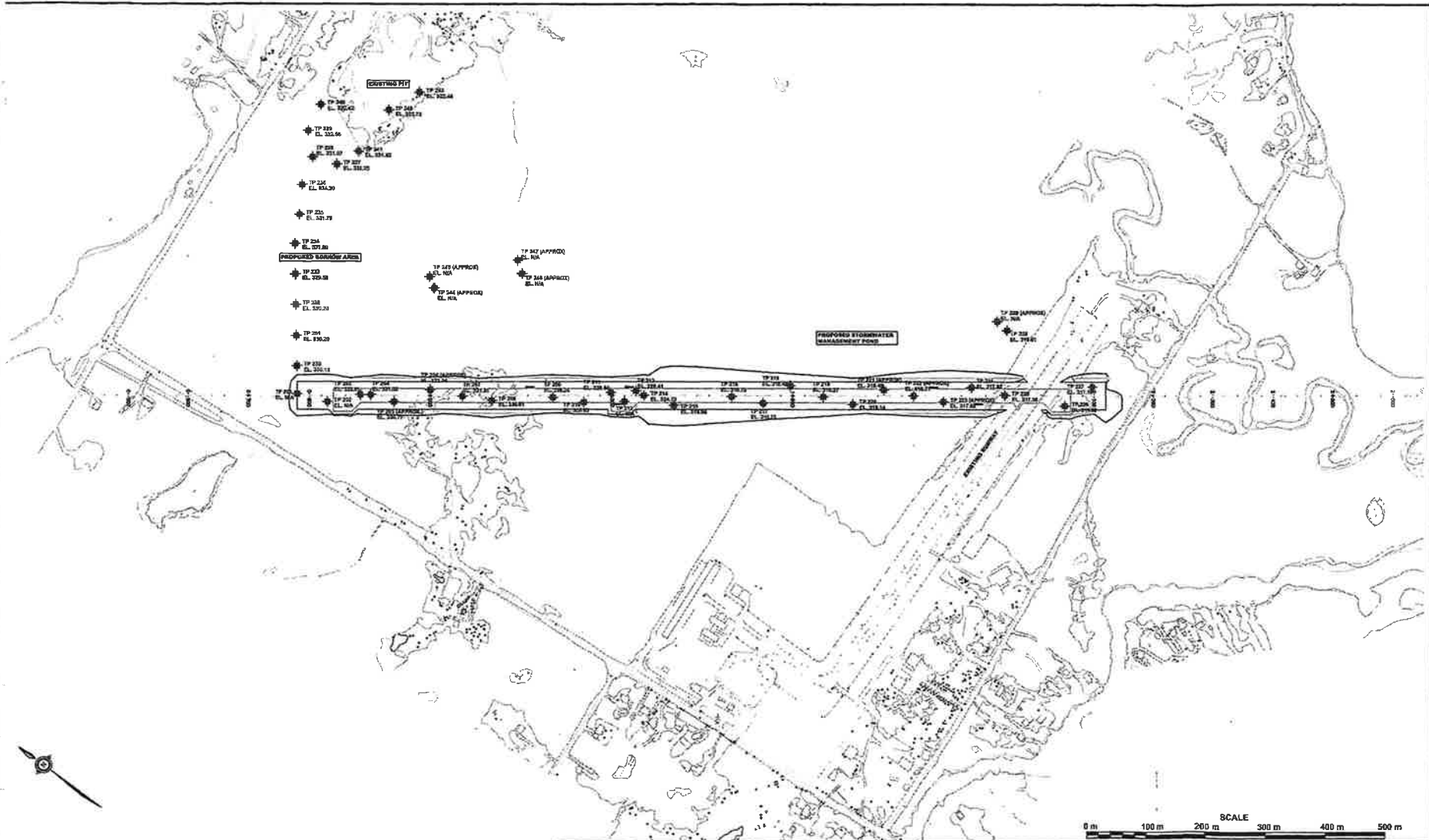
## LOG OF TEST PIT NO. 247

**PROJECT** RUNWAY DEVELOPMENT PROJECT, HALIBURTON/STANHOPE MUNICIPAL AIRPORT **PML REF.** 08KF003  
**LOCATION** Station 1+150, 210 m Lt, 5 m Above Toe of Slope **ENGINEER** G. Mitchell  
**DATE** 2008 08 23 **TECHNICIAN** G Mitchell

DEPTH in METRES	DESCRIPTION	LEGEND	SAMPLE NUMBER	SHEAR STRENGTH kPa			WATER CONTENT %			GROUND WATER OBSERVATIONS AND REMARKS
	GROUND ELEVATION			N/A	50	100	150	200	10	
0.30	TOPSOIL: Dark brown sandy silt, organics and rootlets, moist									
1.00	SAND: Compact reddish brown fine sand, trace silt, moist									
2.70	becoming brown									
	TEST PIT TERMINATED AT 2.70 m UPON MEETING REFUSAL TO EXCAVATE ON BEDROCK									Upon completion of excavation, test pit open with no free water

NOTES

CHECKED BY 



**REFERENCE:**  
 TEST PIT LOCATION PLAN IS REPRODUCED FROM DRAWING SUPPLIED BY CLIENT.

**NOTE:**  
 THE INFERRED STRATIGRAPHY REFERRED TO IN THE REPORT IS BASED ON THE DATA FROM THESE TEST PITS SUPPLEMENTED BY GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY MAY VARY.

**LEGEND:**

★ TEST PIT

**TOWNSHIP OF ALGONQUIN HIGHLANDS**

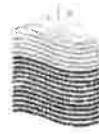
**RUNWAY DEVELOPMENT PROJECT**  
 HALIBURTON / STANHOPE MUNICIPAL AIRPORT  
 TOWNSHIP OF ALGONQUIN HIGHLANDS, ONTARIO

**TEST PIT LOCATION PLAN**



<b>PML Peto MacCallum Ltd.</b> CONSULTING ENGINEERS									
<b>DRAWN:</b>	K. HANES	<b>DATE:</b>	SEPTEMBER 2008	<b>SCALE:</b>	1:8000	<b>PML REF:</b>	09KF003	<b>DRAWING:</b>	1
<b>CHECKED:</b>	G. MITCHELL	<b>APPROVED:</b>	G. MITCHELL						

**APPENDIX E:  
NATURAL HERITAGE ASSESSMENT**



**BEACON**  
ENVIRONMENTAL

GUIDING SOLUTIONS IN THE  
NATURAL ENVIRONMENT

# **Natural Heritage Assessment Stanhope (Haliburton) Airport Development Project**

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*Prepared For:*  
**Township of Algonquin Highlands**

*Prepared By:*  
**Beacon Environmental**

*Date: Project:*  
**September 2008 208063**

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## **1. Introduction**

Beacon Environmental was retained by the Township of Algonquin Highlands to undertake an assessment of natural heritage features for the Stanhope (Haliburton) Airport Development Project. The focus of the assessment was to assess the terrestrial and aquatic environments associated with the lands in the location of the proposed new Runway 14/32. The assessment was conducted through field surveys, review of planning documents, search of the Ministry of Natural Resources (MNR) Natural Heritage Information Center (NHIC) data base, and communications with the MNR's Species at Risk Biologist, Mr. Graham Cameron, Bancroft District Office.

Assessment for the occurrence of Species at Risk was based on a review of species listed under Schedules 1 through 5 of the Endangered Species Act (ESA 2007). Provincially rarity was based on a review of the Natural Heritage Information Centre (NHIC 2008) species provincial S-ranking, with species ranked as S1, S2, or S3 being considered to represent species that are rare in the province. Regional and local rarity was based on existing lists and professional opinion of the author of this report.

This report details the findings of the study and provides recommendations with respect to the new runway development.

## **2. Field Survey Methodology**

For the inventory of flora and fauna, field surveys were undertaken through the spring and summer of 2008. For the assessment of breeding birds, early morning (6:00 am to 11:00 am) surveys were conducted on June 10<sup>th</sup> and July 13<sup>th</sup>. For the survey, the general airport lands were walked. For the new runway, transects were walked through the forest along the corridor where the runway alignment is proposed. All bird species seen or heard (song or call) were recorded.

A vascular plant survey was conducted on July 13<sup>th</sup>, and plant species were recorded by walking the new runway corridor where the existing natural vegetation could be disturbed (100 m on either side of the staked runway centerline). In addition to a floristic assessment, vegetation communities along the runway corridor were assessed following the Southern Ontario Ecological Land Classification System – ELC (Lee et al 1998). Mammals, reptiles and amphibians were recorded while conducting plant and bird surveys.

## **3. Policy Context**

The following paragraphs provide the provincial, regional and local policy context with respect to natural heritage features.

### 3.1 Provincial Policy (2005)

Policy 2.3 of the Provincial Policy Statement (PPS) (MMAH 2005) provides direction to municipalities regarding planning policies for the protection and management of natural heritage features and resources. The PPS defines seven natural heritage features, providing planning policies for each. The *Natural Heritage Reference Manual* (OMNR 1999) is a technical document used to help assess the natural heritage features listed below:

- a) significant wetlands;
- b) the habitat of endangered and threatened species;
- c) fish habitat;
- d) significant woodlands;
- e) significant valleylands;
- f) significant Areas of Natural and Scientific Interest (ANSIs); and
- g) significant wildlife habitat.

Each of these features is afforded varying levels of protection subject to guidelines, and in some cases, regulations. Of these features, provincially significant wetlands are identified by protocols provided by the Ministry of Natural Resources. Significant habitat of threatened and endangered species is determined by the Ministry of Natural Resources once a species has been identified on a property through site specific investigation or through existing information. Fish habitat is governed by the federal *Fisheries Act* and variously applied by Fisheries and Oceans Canada. The identification of the rest of the features is the responsibility of Regional, Municipal, or local planning authorities.

### 3.2 County of Haliburton

The County of Haliburton Official Plan (2006) represents the upper tier planning document with respect to the environment and natural heritage features. Section 2.1.3.1 identifies that development and site alterations are not permitted within the habitat of provincially identified endangered and threatened species, Areas of Natural and Scientific Interest (ANSI's) and provincially significant wetlands as evaluated by the MNR. None of these natural heritage features are identified to occur on the lands where the new runway is proposed as indicated on the OP's Environmental Resource Map. In this section of the OP it is stated that local official plans will identify areas of locally significant natural heritage, including wetlands, woodlands, valley lands, wildlife habitat, fish habitat, the habitat of endangered and ANSI.

### 3.3 Township of Algonquin Highlands

The Township's Official Plan (2005) represents the primary planning document with respect to natural heritage features and land use planning. Within the OP, Section 4 Environmental Management, section 4.2.2 identifies the natural heritage components of the Township which are presented on Schedules 'A' and 'B' in the OP, these include the following;

- Habitat of endangered and threatened species, as identified by the MNR;
- Fish habitat, as identified by the MNR as spawning areas or fish sanctuaries;

- Provincially Significant Wetlands, as identified by the MNR;
- Other Potentially Significant wetlands; and
- Moose and deer wintering areas/yards as identified by the MNR; and
- ANSI

A review of Schedule A4 and B4 finds that no natural heritage features that are identified in the OP are located in the location where the new runway works are proposed. For the area, airport lands to the south of the exiting runway 08/26 are within the zone identified as Waterfront, however, this designation does not extend to the lands where the new runway is proposed. In Schedule A4, the lands where the new runway is proposed are currently designated as Rural.

## 4. Vegetation Communities

The Township of Algonquin Highlands lies within the Ontario Eco-Site Region 5E (Burger 1993). This region is characterized by the Algonquin dome, a geological feature that strongly influences the characteristics of the region's ecosystems. Typical forests of the region include Sugar Maple/American Beech deciduous forest, White Pine/White Spruce/Eastern Hemlock coniferous forest, and White Pine-Spruce-Hemlock/Sugar Maple-Beech mixed forest. These common forest types dominate the local landscape in which the airport lands are located.

Field assessment of the vegetation communities found only six communities to occur along the proposed location of the new runway. Following the ecological land classification system for southern Ontario, the communities identified include the following:

### **Mineral Cultural Meadow Ecosite (CUM1)**

This sandy soil field community is associated with the lands that lie adjacent to the exiting runway. The cut grass apron along the runway is comprised of grasses (*Danthonia spicata*, *Elymus repens*, *Festuca rubra*, *Poa compressa*, *P. partensis*) and clovers (*Lotus corniculatus*, *Medicago lupulina*, *Trifolium hybridum*, *Trifolium pratense*, *Trifolium repens*). Outside the maintained apron, the clear zone is comprised of a mix of grasses (*Poa*, *Festuca*) and field weeds, including common species such as Goldenrod (*Solidago altissima*, *Solidago canadensis*, *Euthamia graminifolia*), Oxeye Daisy (*Chrysanthemum leucanthemum*), Great Mullein (*Verbascum thapsus*), and Milkweed (*Asclepias syriaca*).

### **Moist-Fresh Sugar Maple-Yellow Birch Deciduous Forest Type (FOD6-3)**

This forest community is found to occur along much of the southern section of the proposed new runway alignment. This forest represents a mixed age stand with a canopy that supports a mix of tree species, but species including Sugar Maple (*Acer saccharum* ssp. *Saccharum*), Yellow Birch (*Betula alleghaniensis*), White Birch (*Betula papyrifera*), American Beech (*Fagus grandifolia*) and Basswood (*Tilia americana*) are the most prevalent. The shrub layer is not well developed with typical species including Service Berry (*Amelanchier laevis*), Choke Cherry (*Prunus virginiana*), Mountain Maple (*Acer spicatum*), Honey Suckle (*Lonicera dioica*), Maple-leaf Viburnum (*Viburnum acerifolium*),

Eastern Leather Wood (*Dirca palustris*) and Alternate-leaf Dogwood (*Cornus alternifolia*). The forest floor flora is poorly developed supporting common ephemeral species such as Red Trillium (*Trillium erectum*), White Trillium (*Trillium grandiflorum*), Blue Cohosh (*Caulophyllum thalictroides*), Solomon's-seal (*Maianthemum racemosum*, *Polygonatum pubescens*), and Large-flowered Bellwort (*Uvularia grandiflora*). Fern species are well represented including Lady Fern (*Athyrium filix-femina* var. *angustum*), Spinulose Shield Fern (*Dryopteris carthusiana*), Crested Shield-fern (*Dryopteris cristata* Fern), Marginal Wood (*Dryopteris marginalis*), Northern Beech Fern (*Phegopteris connectilis*) and New York Fern (*Thelypteris noveboracensis*).

### **Black Ash Mineral Deciduous Swamp Type (SWD2-2)**

A small pocket of mature Black Ash swamp, approximately 2ha in size, lies 100 m north of the forest edge along the exiting runway. The swamp canopy is dominated by Black ash (*Fraxinus nigra*), with a sub component of Red Maple (*Acer rubrum*), American Basswood, Yellow Birch and Balsam fir (*Abies balsamea*). The shrub layer is comprised of young Black ash samplings and scattered shrubs of Dwarf Raspberry (*Rubus pubescens*), Prickly Gooseberry (*Ribes cynosbati*), and Wild Black Current (*Ribes americanum*). The ground layer supports a complex micro topography of hummocks and small depressions which results in number soil moisture regimes that support a relatively diverse floral community represented by ferns, Cinnamon Fern (*Osmunda cinnamomea*), Interrupted Fern (*Osmunda claytoniana*), Sensitive Fern (*Onoclea sensibilis*), Bulblet Fern (*Cystopteris bulbifera*) and Marsh Fern (*Thelypteris palustris*) and forbs, including, Bishop's-cap (*Mitella diphylla*, *M. nuda*), Goldthread (*Coptis trifolia*), Clinton Lily (*Clintonia borealis*), Jewel-weed (*Impatiens capensis*), Heart-leaved Foam-flower (*Tiarella cordifolia*) and Northern Bugleweed (*Lycopus uniflorus*).

### **Dry-Fresh White Pine Forest Type (FOC1-2)**

This White Pine stand is found along the central portion for the runway alignment and is associated with a sand ridge that runs perpendicular to the proposed runway alignment. The forest stand is mature and supports a number of large specimen trees. Other coniferous tree species associated with the community include White Spruce (*Picea glauca*) and Balsam Fir. The shrub layer is not well developed comprised mostly of young Balsam Fir and scattered Choke Cherry, Mountain Maple (*Acer spicatum*), and Maple-leaf Viburnum. Ground flora is sparse consisting of Bunch Berry (*Cornus canadensis*), Lily-of-the-valley (*Maianthemum canadense*), and Bracken Fern (*Pteridium aquilinum*).

### **Pine Plantation (CUP3) and Cultural Thicket (CUT1)**

This community is found along the northern section for the runway alignment and represents the establishment of a Pine plantation in what was once old field habitat. The plantation is primarily comprised of White Pine, however Red Pine (*Pinus resinosa*) is also found throughout. Openings in the plantation support a cultural thicket community comprised of shrubs, Pin Cheery (*Prunus pensylvanica*), Choke Cherry, Blue Berry (*Vaccinium angustifolium*), Raspberry (*Rubus allegheniensis*), and Hawthorn (*Crataegus* ssp) and field weeds, including Strawberry (*Fragaria virginiana*), Norwegian Cinquefoil (*Potentilla norvegica*), Evening Primrose (*Oenothera parviflora*) and Goldenrod.

### Dry-Fresh White –Sugar Maple Mixed Forest Type (FOM2-2)

This forest community is found at the northern most end of the runway alignment. It is comprised of a mature White Pine canopy over Sugar Maple. The shrub layers is dominated by young Sugar Maple and Balsam Fir, as well as a mix of other shrub species including Service Berry, Choke Cherry, Pin Cherry, Mountain Maple, Honey Suckle, Maple-leaf Viburnum, Beaked Hazel (*Corylus cornuta*) and Alternate-leaf Dogwood. The ground cover is well developed with ferns and forbs including Trailing Arbutus (*Epigaea repens*), Clubmoss (*Huperzia lucidula*, *Diplazium digitatum*, *Lycopodium clavatum*), Wild Sarsaparilla (*Aralia nudicaulis*) and Shin Leaf (*Pyrola elliptica*).

In summary, vegetation communities in the location of the runway alignment are typically of the forested areas of the Township of Algonquin Highlands. No vegetation communities that are considered rare for the province or Eco-Site Region 5E (NHIS-2008) were identified to occur on or adjacent to the lands where the new runway is proposed. Based on the existing conditions the forested areas do not represent significant woodlands for the Township within the context of the PPS.

## 5. Flora

A list of vascular plant species recorded in the area where the new runway alignment is proposed is presented in **Appendix 1**. A total of 199 species were recorded during the surveys. Of these, 37 species are non-native with most of these species being associated with the field and grass aprons along the existing runway and cultural thicket communities along the proposed new runway alignment. Forested areas supported natural assemblages for plant species with few non-native species being recorded, indicating a general lack of historic disturbance. A total of 53 species of trees and shrubs were found to occur, however shrub diversity was found to be lower than is typical for the forests of the region.

Generally the forest floor flora was not well developed with respect to species richness, for example ephemeral (spring) flora typical of the regions forests were not well represented, with only 9 species recorded (a rich assemblage of ephemeral forest floor flora typically exceeds 20 species). However, the upland forests and black ash swamp were found to support a relatively divers assemblage of ferns, with 14 species recorded. No rich forest orchids were found to occur, with the non-native Eastern Helleborine (*Epipactis helleborine*) representing the only orchid species found to occur on the site.

No Species at Risk (ESA 2007) and no provincially rare plant species (Provincially Rank of S1, S2 or S3 - NHIC 2008) were found to occur. Also no species that is considered to be rare for Eco-Site Region 5E (Crins 1995) was found. In addition, no unique or rare plant communities were found that would be considered to be rare for the Township.

## 6. Birds

A list of bird species recorded for the site is provided in **Appendix 2**. Site surveys to document the avifauna of the site were conducted on June 10<sup>th</sup> and July 13<sup>th</sup>, a period that represents the breeding

season for birds in Central Ontario. Therefore all species that were recorded are considered to be breeding on the site or in the local surrounding area (some species were recorded while flying over the sites and are not considered to be breeding on the airport lands).

A total of 64 species were recorded during the surveys. Of these 59 species are considered to be breeding on or adjacent to the lands where the new runway is proposed. All species are common to Ontario and no provincially rare species (Provincially Rank of S1, S2 or S3 - NHIC 2008) or species at risk (ESA 2007) were found to occur. In addition no species that would be considered to be rare for the region (Cadmen et al 2007) were recorded. For the site, the species richness for wood warblers was found to be typical for forested areas of the southern Algonquin region (Cadmen et al 2007). The presence of three species of wood thrushes, Veery (*fuscescens Catharus*), Wood Thrush (*Hylocichla mustelina*) and Hermit Thrush (*Catharus guttatus*) is note worthy as these species have shown declines in numbers in Ontario over the past decade. However these populations appear secure in the Haliburton region (Cadmen et al 2007). No large stick nests, indicating nesting by raptors such as hawks and owls were found during the surveys.

## 7. Mammals

**Table 1** lists the mammal species noted, either visually or through tracks or scat, while conducting surveys. All mammal species noted are common to the local area and Ontario (NHIC, 2008, ESP 2007, Dobbyn 1994).

**Table 1. Mammal Species Documented in the Study Area**

Common Name	Scientific Name
Snowshoe Hare	<i>Lepus americanus</i>
Eastern Chipmunk	<i>Tamias striatus</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Meadow Vole	<i>Micotus pennsylvanicus</i>
Porcupine	<i>Erethizon</i>
Gray Wolf	<i>Canis lupus</i>
Red Fox	<i>Vulpes vulpes</i>
Black Bear	<i>Ursus americanus</i>
Raccoon	<i>Procyon lotor</i>
Striped Skunk	<i>Mephitis mephitis</i>
White-tailed Deer	<i>Odocoileus virginianus</i>
Moose	<i>Alces alces</i>

## 8. Reptiles and Amphibians

During field surveys conducted on the airport lands a number of species of amphibian and reptile were documented to occur and are presented in **Table 2**.

**Table 2. Reptile and Amphibian Species Documented in the Study Area**

Common Name	Scientific Name
American Toad	<i>Bufo americanus</i>
Spring Peeper	<i>Hyla crucifer</i>
Wood Frog	<i>Rana sylvatica</i>
Northern Leopard Frog	<i>Rana pipiens</i>
Common Garter Snake	<i>Thamnophis sirtalis</i>

All species are common to Ontario (NHIC 2008, ESA 2007) and the local area. In addition the field surveys did not identify ephemeral ponds along the alignment of the new runway that would provide important breeding habitat for frog or salamander.

## 9. Aquatic Resources and Fish Habitat

No creeks, streams or watercourses occur in the area where the new runway is proposed. As a result the proposed works will not directly impact on fish habitat. Surface drainage associate with the exiting airport and runway is conveyed via shallow ditching in sandy soils. Most of the exiting drainage for the airport lands drain eastward toward the Redstone River located directly east of the existing runway. Surface drainage west and south of the airport drains into the Gull River.

## 10. Species at Risk and Significant Wildlife Features

As part of this study a meeting was held with Mr. Graham Cameron, the Ministry of Natural Resources Species at Risk biologist responsible for the area in which the Airport is located. The MNR has not identified significant wildlife habitat (deer yards, heroines, etc) or habitat of endangered and threatened species to occur on, or adjacent to, the lands where the new runway alignment is proposed. With respect to species at risk, or provincially rare species, a review of the MNR database identified the following rare plant species that are known to occur in the general area of Stanhope Airport (i.e. within a 10 km radius):

- Englmann's Quillwort (*Isoetes engelmannii*) – aquatic plant species
- Large Water-starwort (*allitriche heterophylla*) – aquatic plant species
- Carey's Smartweed (*Polygonum careyi*) – acidic peat/sand wetland plant species

The detailed plant inventory of the site undertaken for this study has confirmed that these rare plant species, or their habitats, do not occur on the site.

In addition, to the plant species, the MNR reported the occurrence of a Threatened species of turtle within 1 km of the airport. The name of this species has not been provided here at the request of the MNR due to the sensitivity of the species. However, turtle habitat (ponds, marshes, lake, river) is not found to occur on the airport property. The habitat for turtle species recorded is most likely associated with local lake shores and rivers.

## 11. Summary and Recommendations

Review of the County and Township official plans has identified that they are in conformity with respect to the identification of natural heritage features as identified in the Provincial Policy Statement. Review of these official plans has identified that with respect natural heritage there are no land use constraints to the proposed new runway.

Detailed bio inventory of the lands where the new runway alignment is proposed and information provided by the Ministry of Natural Resources Species at Risk Biologist did not identify the occurrence of species at risk or rare species of flora, fauna or significant wildlife habitats. Forest stands and vegetation communities found in the location of the proposed new runway alignment are common to the Township and County and do meet the criteria of significant woodlands. In addition no significant wildlife habitat or fish habitat occurs on the lands, or adjacent lands, in the location of the new runway.

Based on the findings of this study, the construction of the new runway will not impact on significant natural heritage features at the provincial, regional, or local level.

For the development of the new runway the following mitigation measures have been identified for the Townships consideration during the construction phase of the project.

The federal *Migratory Bird Treaty Act* protects the nests, eggs and young of most bird species from harm or destruction. As the breeding bird season in southern Ontario is generally from mid-April to mid-July, the clearing of vegetation should be outside of these dates. For any proposed clearing of vegetation within these dates, or where birds may be suspected of nesting outside of typical dates, an ecologist should undertake detailed nest searches immediately prior to site alteration to ensure that no active nests are present.

No fish habitat has been identified to occur in the location where construction works will occur. However, the transport of sediment as a result of the clearing and grading works has the potential impact on fish habitat associated with the Redstone River located directly east of the existing runway, and the Gull River to the south. In direct impacts of sediment transport on fish and fish habitat can be considered to represent a harmful alteration, disruption or destruction (HADD) of fish habitat pursuant to the *Federal Fisheries Act*. Therefore it is recommended that a sediment control plan be developed for all phases of the construction works. \*

As a general consideration Standard Best Management Practices should also be employed during the construction process.



**Report Prepared By:**



Ron Huizer  
Principal,  
**Beacon Environmental**

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# **Appendix 1**

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## **Vascular Plant Species**

## Vascular Plant Species

English Name	Scientific Name	Grank	Srank
<b>HORSETAIL FAMILY</b>	<b>EQUISETACEAE</b>		
Field Horsetail	<i>Equisetum arvense</i>	G5	S5
Woodland Horsetail	<i>Equisetum sylvaticum</i>	G5	S5
<b>CLUBMOSS FAMILY</b>	<b>LYCOPODIACEAE</b>		
Fan Club-moss	<i>Diphasiastrum digitatum</i>	G5	S5
Shining Clubmoss	<i>Huperzia lucidula</i>	G5	S5
Stiff Clubmoss	<i>Lycopodium annotinum</i>	G5	S5
Running Pine	<i>Lycopodium clavatum</i>	G5	S5
Treelike Clubmoss	<i>Lycopodium dendroideum</i>	G5	S5
<b>ROYAL FERN FAMILY</b>	<b>OSMUNDACEAE</b>		
Cinnamon Fern	<i>Osmunda cinnamomea</i>	G5	S5
Interrupted Fern	<i>Osmunda claytoniana</i>	G5	S5
<b>BRACKEN FAMILY</b>	<b>DENNSTAEDTIACEAE</b>		
Bracken Fern	<i>Pteridium aquilinum</i>	G5	S5
<b>FERN FAMILY</b>	<b>DRYOPTERIDACEAE</b>		
Lady Fern	<i>Athyrium filix-femina</i> var. <i>angustum</i>	G5T5	S5
Bulblet Fern	<i>Cystopteris bulbifera</i>	G5	S5
Spinulose Shield Fern	<i>Dryopteris carthusiana</i>	G5	S5
Clinton Woodfern	<i>Dryopteris clintoniana</i>	G5	S4
Crested Shield-fern	<i>Dryopteris cristata</i>	G5	S5
Marginal Wood-fern	<i>Dryopteris marginalis</i>	G5	S5
Oak Fern	<i>Gymnocarpium dryopteris</i>	G5	S5
Sensitive Fern	<i>Onoclea sensibilis</i>	G5	S5
<b>BEECH FERN FAMILY</b>	<b>THELYPTERIDACEAE</b>		
Northern Beech Fern	<i>Phegopteris connectilis</i>	G5	S5
New York Fern	<i>Thelypteris noveboracensis</i>	G5	S4S5
Marsh Fern	<i>Thelypteris palustris</i>	G5	S5
<b>POLYPODY FAMILY</b>	<b>POLYPODIACEAE</b>		
Rock Polypody	<i>Polypodium virginianum</i>	G5	S5
<b>YEW FAMILY</b>	<b>TAXACEAE</b>		
Canadian Yew	<i>Taxus canadensis</i>	G5	S5
<b>PINE FAMILY</b>	<b>PINACEAE</b>		
Balsam Fir	<i>Abies balsamea</i>	G5	S5
American Larch	<i>Larix laricina</i>	G5	S5
White Spruce	<i>Picea glauca</i>	G5	S5
Red Pine	<i>Pinus resinosa</i>	G5	S5
Eastern White Pine	<i>Pinus strobus</i>	G5	S5
Eastern Hemlock	<i>Tsuga canadensis</i>	G5	S5
<b>CEDAR FAMILY</b>	<b>CUPRESSACEAE</b>		
Eastern White Cedar	<i>Thuja occidentalis</i>	G5	S5
<b>GRASS FAMILY</b>	<b>POACEAE</b>		
Black Bentgrass	<i>Agrostis gigantea</i>	G4G5	SE5
Spreading Bentgrass	<i>Agrostis stolonifera</i>	G5	S5
Fringed Brome	<i>Bromus ciliatus</i>	G5	S5
Blue-joint Reedgrass	<i>Calamagrostis canadensis</i>	G5	S5
Slender Wood Reedgrass	<i>Cinna latifolia</i>	G5	S5
Poverty Oat-grass	<i>Danthonia spicata</i>	G5	S5
Quackgrass	<i>Elymus repens</i>	G5	SE5

English Name	Scientific Name	Grank	Srank
Red Fescue	<i>Festuca rubra</i>	G5	S5
American Mannagrass	<i>Glyceria grandis</i>	G5	S4S5
Fowl Manna-grass	<i>Glyceria striata</i> var. <i>striata</i>	G5T?	S4S5
White-grained Mountain-ricegrass	<i>Oryzopsis asperifolia</i>	G5	S5
Reed Canary Grass	<i>Phalaris arundinacea</i>	G5	S5
Meadow Timothy	<i>Phleum pratense</i>	G?	SE5
Canada Bluegrass	<i>Poa compressa</i>	G?	S5
Kentucky Blue Grass	<i>Poa pratensis</i> ssp. <i>pratensis</i>	G?T?	S5
<b>SEDGE FAMILY</b>	<b>CYPERACEAE</b>		
Black Sedge	<i>Carex arctata</i>	G5?	S5
Bebb's Sedge	<i>Carex bebbii</i>	G5	S5
Woodland Sedge	<i>Carex blanda</i>	G5?	S5
Brownish Sedge	<i>Carex brunnescens</i>	G5	S5
Fibrous-root Sedge	<i>Carex communis</i>	G5	S5
Graceful Sedge	<i>Carex gracillima</i>	G5	S5
Meadow Sedge	<i>Carex granularis</i>	G5	S5
Bladder Sedge	<i>Carex intumescens</i>	G5	S5
Longstalk Sedge	<i>Carex pedunculata</i>	G5	S5
Pennsylvania Sedge	<i>Carex pennsylvanica</i>	G5	S5
Necklace Sedge	<i>Carex projecta</i>	G5	S5
Stalk-grain Sedge	<i>Carex stipata</i>	G5	S5
Three-fruited Sedge	<i>Carex trisperma</i> var. <i>trisperma</i>	G5T?	S5
Fox Sedge	<i>Carex vulpinoidea</i>	G5	S5
Bald Spikerush	<i>Eleocharis erythropoda</i>	G5	S5
Dark-green Bulrush	<i>Scirpus atrovirens</i>	G5?	S5
Cottongrass Bulrush	<i>Scirpus cyperinus</i>	G5	S5
<b>RUSH FAMILY</b>	<b>JUNCACEAE</b>		
Dudley's Rush	<i>Juncus dudleyi</i>	G5	S5
Soft Rush	<i>Juncus effusus</i>	G5	S5
Path Rush	<i>Juncus tenuis</i>	G5	S5
<b>LILY FAMILY</b>	<b>LILIACEAE</b>		
Small White Leek	<i>Allium tricoccum</i>	G5	S5
Clinton Lily	<i>Clintonia borealis</i>	G5	S5
Yellow Trout-lily	<i>Erythronium americanum</i>	G5	S5
Wild-lily-of-the-valley	<i>Maianthemum canadense</i>	G5	S5
False Solomon's-seal	<i>Maianthemum racemosum</i>	G5	S5
Downy Solomon's-seal	<i>Polygonatum pubescens</i>	G5	S5
Rosy Twisted-stalk	<i>Streptopus roseus</i>	G5	S5
Red Trillium	<i>Trillium erectum</i>	G5	S5
White Trillium	<i>Trillium grandiflorum</i>	G5	S5
Large-flowered Bellwort	<i>Uvularia grandiflora</i>	G5	S5
<b>ORCHID FAMILY</b>	<b>ORCHIDACEAE</b>		
Eastern Helleborine	<i>Epipactis helleborine</i>	G?	SE5
<b>WILLOW FAMILY</b>	<b>SALICACEAE</b>		
Balsam Poplar	<i>Populus balsamifera</i>	G5	S5
Large-tooth Aspen	<i>Populus grandidentata</i>	G5	S5
Trembling Aspen	<i>Populus tremuloides</i>	G5	S5
Peach-leaved Willow	<i>Salix amygdaloides</i>	G5	S5
Bebb's Willow	<i>Salix bebbiana</i>	G5	S5
Tall Prairie Willow	<i>Salix humilis</i>	G5	S5
Meadow Willow	<i>Salix petiolaris</i>	G5	S5

English Name	Scientific Name	Grank	Srank
<b>BIRCH FAMILY</b>	<b>BETULACEAE</b>		
Speckled Alder	<i>Alnus incana</i>	G5	S5
Yellow Birch	<i>Betula alleghaniensis</i>	G5	S5
Paper Birch	<i>Betula papyrifera</i>	G5	S5
Beaked Hazelnut	<i>Corylus cornuta</i>	G5	S5
Eastern Hop-hornbeam	<i>Ostrya virginiana</i>	G5	S5
<b>OAK FAMILY</b>	<b>FAGACEAE</b>		
American Beech	<i>Fagus grandifolia</i>	G5	S5
Northern Red Oak	<i>Quercus rubra</i>	G5	S5
<b>ELM FAMILY</b>	<b>ULMACEAE</b>		
American Elm	<i>Ulmus americana</i>	G5?	S5
<b>NETTLE FAMILY</b>	<b>URTICACEAE</b>		
Canada Clearweed	<i>Pilea pumila</i>	G5	S5
<b>SMARTWEED FAMILY</b>	<b>POLYGONACEAE</b>		
Knotweed	<i>Polygonum aviculare</i>	G?	SE5
Sheep Sorrel	<i>Rumex acetosella ssp. acetosella</i>	G?T?	SEU
Curly Dock	<i>Rumex crispus</i>	G?	SE5
Bitter Dock	<i>Rumex obtusifolius</i>	G?	SE5
<b>GOOSEFOOT FAMILY</b>	<b>CHENOPODIACEAE</b>		
Oak-leaved Goosefoot	<i>Chenopodium glaucum ssp. glaucum</i>	G5T?	SE5
<b>PINK FAMILY</b>	<b>CARYOPHYLLACEAE</b>		
Common Mouse-ear Chickweed	<i>Cerastium fontanum</i>	G?	SE5
Maiden's Tears	<i>Silene vulgaris</i>	G?	SE5
<b>CROWFOOT FAMILY</b>	<b>RANUNCULACEAE</b>		
White Baneberry	<i>Actaea pachypoda</i>	G5	S5
Canada Anemone	<i>Anemone canadensis</i>	G5	S5
Goldthread	<i>Coptis trifolia</i>	G5	S5
Tall Butter-cup	<i>Ranunculus acris</i>	G5	SE5
Tall Meadow-rue	<i>Thalictrum pubescens</i>	G5	S5
<b>BARBERRY FAMILY</b>	<b>BERBERIDACEAE</b>		
Blue Cohosh	<i>Caulophyllum thalictroides</i>	G4G5	S5
<b>SAXIFRAGE FAMILY</b>	<b>SAXIFRAGACEAE</b>		
Two-leaf Bishop's-cap	<i>Mitella diphylla</i>	G5	S5
Naked Bishop's-cap	<i>Mitella nuda</i>	G5	S5
Heart-leaved Foam-flower	<i>Tiarella cordifolia</i>	G5	S5
<b>GOOSEBERRY FAMILY</b>	<b>GROSSULARIACEAE</b>		
Wild Black Currant	<i>Ribes americanum</i>	G5	S5
Prickly Gooseberry	<i>Ribes cynosbati</i>	G5	S5
<b>ROSE FAMILY</b>	<b>ROSACEAE</b>		
Agrimony	<i>Agrimonia gryposepala</i>	G5	S5
Serviceberry	<i>Amelanchier spp</i>		
Allegheny Service-berry	<i>Amelanchier laevis</i>	G4G5Q	S5
A Hawthorn	<i>Crataegus spp</i>		
Dotted Hawthorn	<i>Crataegus punctata</i>	G5	S5
Virginia Strawberry	<i>Fragaria virginiana</i>	G5	S5
Yellow Avens	<i>Geum aleppicum</i>	G5	S5
Norwegian Cinquefoil	<i>Potentilla norvegica</i>	G5	S5
Pin Cherry	<i>Prunus pennsylvanica</i>	G5	S5
Wild Black Cherry	<i>Prunus serotina</i>	G5	S5
Choke Cherry	<i>Prunus virginiana</i>	G5	S5
Allegheny Blackberry	<i>Rubus allegheniensis</i>	G5	S5

English Name	Scientific Name	Grank	Srank
Bristley Dewberry	<i>Rubus hispidus</i>	G5	S4S5
Dwarf Raspberry	<i>Rubus pubescens</i>	G5	S5
American Mountain-ash	<i>Sorbus americana</i>	G5	S5
Narrow-leaved Meadow-sweet	<i>Spiraea alba</i>	G5	S5
<b>PEA FAMILY</b>	<b>FABACEAE</b>		
Birds-foot Trefoil	<i>Lotus corniculatus</i>	G?	SE5
Black Medic	<i>Medicago lupulina</i>	G?	SE5
White Sweet Clover	<i>Melilotus alba</i>	G5	SE5
Yellow Clover	<i>Trifolium aureum</i>	G?	SE5
Alsike Clover	<i>Trifolium hybridum</i>	G?	SE5
Red Clover	<i>Trifolium pratense</i>	G?	SE5
White Clover	<i>Tritollum repens</i>	G?	SE5
Spring Vetch	<i>Vicia sativa</i>	G?	SE5
<b>WOOD-SORREL FAMILY</b>	<b>OXALIDACEAE</b>		
Irish Shamrock	<i>Oxalis acetosella</i>	G5	S5
Upright Yellow Wood-sorrel	<i>Oxalis stricta</i>	G5	S5
<b>CASHEW FAMILY</b>	<b>ANACARDIACEAE</b>		
Staghorn Sumac	<i>Rhus typhina</i>	G5	S5
<b>MAPLE FAMILY</b>	<b>ACERACEAE</b>		
Box Elder	<i>Acer negundo</i>	G5	S5
Red Maple	<i>Acer rubrum</i>	G5	S5
Sugar Maple	<i>Acer saccharum ssp. saccharum</i>	G5T5	S5
Mountain Maple	<i>Acer spicatum</i>	G5	S5
<b>IMPATIENS FAMILY</b>	<b>BALSAMINACEAE</b>		
Spotted Jewel-weed	<i>Impatiens capensis</i>	G5	S5
<b>LINDEN FAMILY</b>	<b>TILIACEAE</b>		
American Basswood	<i>Tilia americana</i>	G5	S5
<b>ST. JOHN'S-WORT FAMILY</b>	<b>HYPERICACEAE</b>		
Common St. John's-wort	<i>Hypericum perforatum</i>	G?	SE5
<b>VIOLET FAMILY</b>	<b>VIOLACEAE</b>		
Canada Violet	<i>Viola canadensis</i>	G5	S5
Marsh Blue Violet	<i>Viola cucullata</i>	G4G5	S5
Yellow Violet	<i>Viola pubescens var. pubescens</i>	G5T5	S5
<b>MEZEREUM FAMILY</b>	<b>THYMELAEACEAE</b>		
Eastern Leatherwood	<i>Dirca palustris</i>	G4	S4?
<b>EVENING PRIMROSE FAMILY</b>	<b>ONAGRACEAE</b>		
Southern Broadleaf Enchanter's Nightshade	<i>Circaea lutetiana</i>	G5	S5
Linear-leaved Willow-herb	<i>Epilobium leptophyllum</i>	G5	S5
Northern Evening-primrose	<i>Oenothera parviflora</i>	G4?	S5?
<b>GINSENG FAMILY</b>	<b>ARALIACEAE</b>		
Wild Sarsaparilla	<i>Aralia nudicaulis</i>	G5	S5
<b>CARROT FAMILY</b>	<b>APIACEAE</b>		
Wild Carrot	<i>Daucus carota</i>	G?	SE5
<b>DOGWOOD FAMILY</b>	<b>CORNACEAE</b>		
Alternate-leaf Dogwood	<i>Cornus alternifolia</i>	G5	S5
Bunchberry	<i>Cornus canadensis</i>	G5	S5
<b>WINTERGREEN FAMILY</b>	<b>MONOTROPACEAE</b>		
Indian-pipe	<i>Monotropa uniflora</i>	G5	S5
<b>HEATH FAMILY</b>	<b>ERICACEAE</b>		
Trailing Arbutus	<i>Epigaea repens</i>	G5	S5
Teaberry	<i>Gaultheria procumbens</i>	G5	S5

English Name	Scientific Name	Grank	Srank
Late Lowbush Blueberry	<i>Vaccinium angustifolium</i>	G5	S5
<b>PYROLA FAMILY</b>	<b>PYROLACEAE</b>		
Shinleaf	<i>Pyrola elliptica</i>	G5	S5
<b>OLIVE FAMILY</b>	<b>OLEACEAE</b>		
White Ash	<i>Fraxinus americana</i>	G5	S5
Black Ash	<i>Fraxinus nigra</i>	G5	S5
<b>DOGBANE FAMILY</b>	<b>APOCYNACEAE</b>		
Spreading Dogbane	<i>Apocynum androsaemifolium</i>	G5	S5
Kansas Milkweed	<i>Asclepias syriaca</i>	G5	S5
<b>BORAGE FAMILY</b>	<b>BORAGINACEAE</b>		
Common Viper's-bugloss	<i>Echium vulgare</i>	G?	SE5
<b>MINT FAMILY</b>	<b>LAMIACEAE</b>		
Northern Bugleweed	<i>Lycopus uniflorus</i>	G5	S5
Corn Mint	<i>Mentha arvensis</i>	G5	S5
Self-heal	<i>Prunella vulgaris ssp. lanceolata</i>	G5T?	S5
<b>FIGWORT FAMILY</b>	<b>SCROPHULARIACEAE</b>		
Butter-and-eggs	<i>Linaria vulgaris</i>	G?	SE5
Great Mullein	<i>Verbascum thapsus</i>	G?	SE5
Gypsy-weed	<i>Veronica officinalis</i>	G5	SE5
<b>PLANTAIN FAMILY</b>	<b>PLANTAGINACEAE</b>		
English Plantain	<i>Plantago lanceolata</i>	G5	SE5
Nipple-seed Plantain	<i>Plantago major</i>	G5	SE5
<b>MADDER FAMILY</b>	<b>RUBIACEAE</b>		
Sweet-scent Bedstraw	<i>Galium triflorum</i>	G5	S5
<b>HONEYSUCKLE FAMILY</b>	<b>CAPRIFOLIACEAE</b>		
Northern Bush-honeysuckle	<i>Diervilla lonicera</i>	G5	S5
Twinnflower	<i>Linnaea borealis</i>	G5	S5
Mountain Honeysuckle	<i>Lonicera dioica</i>	G5	S5
Common Elderberry	<i>Sambucus canadensis</i>	G5	S5
Maple-leaf Viburnum	<i>Viburnum acerifolium</i>	G5	S5
<b>ASTER FAMILY</b>	<b>ASTERACEAE</b>		
Seaside Yarrow	<i>Achillea millefolium ssp. lanulosa</i>	G5T5	S5
Field Pussytoes	<i>Antennaria neglecta</i>	G5	S5
Common Burdock	<i>Arctium minus ssp. minus</i>	G?T?	SE5
Oxeye Daisy	<i>Chrysanthemum leucanthemum</i>	G?	SE5
Chicory	<i>Cichorium intybus</i>	G?	SE5
Creeping Thistle	<i>Cirsium arvense</i>	G?	SE5
Bull Thistle	<i>Cirsium vulgare</i>	G5	SE5
Philadelphia Fleabane	<i>Erigeron philadelphicus</i>	G5	S5
Large-leaf Wood-aster	<i>Eurybia macrophylla</i>	G5	S5
Flat-top Fragrant-golden-rod	<i>Euthamia graminifolia</i>	G5	S5
Orange Hawkweed	<i>Hieracium aurantiacum</i>	G?	SE5
Yellow Hawkweed	<i>Hieracium caespitosum</i>	G?	SE5
Tall Blue Lettuce	<i>Lactuca biennis</i>	G5	S5
Brown-eyed Susan	<i>Rudbeckia triloba</i>	G4	SE4
Tall Goldenrod	<i>Solidago altissima</i>	G5T5	S5
Canada Goldenrod	<i>Solidago canadensis var. canadensis</i>	G5T?	S5
Gary Goldenrod	<i>Solidago nemoralis ssp. nemoralis</i>	G5T?	S5
Rough-leaf Goldenrod	<i>Solidago rugosa</i>	G5	S5
Brown-seed Dandelion	<i>Taraxacum officinale</i>	G5	SE5
Meadow Goat's-beard	<i>Tragopogon dubius</i>	G?	SE5



# **Appendix 2**

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## **Bird Species**

## Bird Species

Common Name	Scientific Name	Provincial S-Rank	Regional Status
Great Blue Heron*	<i>Ardea herodias</i>	S5	C
Turkey Vulture*	<i>Cathartes aura</i>	S4	C
Sharp-shinned Hawk	<i>Accipiter striatus</i>	S5	UC
Broad-winged Hawk	<i>Buteo platypterus</i>	S5	C
Red-tailed Hawk*	<i>Buteo jamaicensis</i>	S5	C
Ruffed Grouse	<i>Bonasa umbellus</i>	S5	C
Killdeer	<i>Charadrius vociferus</i>	S5	C
American Woodcock	<i>Scolopax minor</i>	S5	C
Herring Gull*	<i>Larus argentatus</i>	S5	C
Rock Pigeon	<i>Columba livia</i>		C
Mourning Dove	<i>Zenaida macroura</i>	S5	C
Great Horned Owl	<i>Bubo virginianus</i>	S5	UC
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>	S5	C
Downy Woodpecker	<i>Picoides pubescens</i>	S5	C
Hairy Woodpecker	<i>Picoides villosus</i>	S5	C
Northern Flicker	<i>Colaptes auratus</i>	S5	C
Pileated Woodpecker	<i>Dryocopus pileatus</i>	S4/S5	C
Eastern Wood-Pewee	<i>Contopus virens</i>	S5	C
Alder Flycatcher	<i>Empidonax alnorum</i>	S5	C
Great Crested Flycatcher	<i>Myiarchus crinitus</i>	S5	C
Eastern Kingbird	<i>Tyrannus tyrannus</i>	S5	C
Barn Swallow**	<i>Hirundo rustica</i>	S5	C
Blue Jay	<i>Cyanocitta cristata</i>	S5	C
American Crow	<i>Corvus brachyrhynchos</i>	S5	C
Black-capped Chickadee	<i>Poecile atricapillus</i>	S5	C
Red-breasted Nuthatch	<i>Sitta canadensis</i>	S5	C
White-breasted Nuthatch	<i>Sitta carolinensis</i>	S5	C
Brown Creeper	<i>Certhia americana</i>	S5	C
House Wren	<i>Troglodytes aedon</i>	S5	C
Winter Wren	<i>Troglodytes troglodytes</i>	S5	C
Ruby-crowned Kinglet	<i>Regulus calendula</i>	S5	C
Eastern Bluebird**	<i>Sialia sialis</i>	S4/S5	C
Veery	<i>fuscescens Catharus</i>	S4	C
Hermit Thrush	<i>Catharus guttatus</i>	S5	C
Wood Thrush	<i>Hylocichla mustelina</i>	S5	C
American Robin	<i>Turdus migratorius</i>	S5	C
European Starling	<i>Sturnus vulgaris</i>		C
Philadelphia Vireo	<i>Vireo philadelphicus</i>	S5	UC
Red-eyed Vireo	<i>Vireo olivaceus</i>	S5	C
Nashville Warbler	<i>Vermivora ruficapilla</i>	S5	C
Northern Parula	<i>Parula americana</i>	S5	C
Yellow Warbler	<i>Dendroica petechia</i>	S5	C
Chestnut-sided Warbler	<i>Dendroica pensylvanica</i>	S5	C
Black-throated Blue Warbler	<i>Dendroica caerulescens</i>	S5	C

Common Name	Scientific Name	Provincial S-Rank	Regional Status
Magnolia Warbler	<i>Dendroica magnolia</i>	S5	C
Yellow-rumped Warbler	<i>Dendroica coronata</i>	S5	C
Black-throated Green Warbler	<i>Dendroica virens</i>	S5	C
Blackburnian Warbler	<i>Dendroica fusca</i>	S5	C
Pine Warbler	<i>Dendroica pinus</i>	S5	C
American Redstart	<i>Setophaga ruticilla</i>	S5	C
Ovenbird	<i>Seiurus aurocapillus</i>	S5	C
Common Yellowthroat	<i>Geothlypis trichas</i>	S5	C
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>	S5	C
Indigo Bunting	<i>Passerina cyanea</i>	S5	C
Chipping Sparrow	<i>Spizella passerina</i>	S5	C
Savannah Sparrow**	<i>Passerculus sandwichensis</i>	S5	C
Song Sparrow	<i>Melospiza melodia</i>	S5	C
White-throated Sparrow	<i>Zonotrichia albicollis</i>	S5	C
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	S5	C
Common Grackle	<i>Quiscalus quiscula</i>	S5	C
Brown-headed Cowbird	<i>Molothrus ater</i>	S5	C
Baltimore Oriole	<i>Icterus galbula</i>	S5	C
American Goldfinch	<i>Carduelis tristis</i>	S5	C
*Species observed as a "fly over"			
** Species associated with open fields of existing airport lands			
Ontario Ranking (NHIC 2008)			
S4 – Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.			
S5 – Secure, common, widespread, and abundant in the nation or state/province.			
Local Ranking			
C – Common in the County of Haliburton			
UC – Uncommon, but not rare, species typically less abundant in due to habitat requirements			

**APPENDIX F:  
STAGE 1 ARCHAEOLOGICAL ASSESSMENT**



**Environmental  
Engineering  
Scientific  
Management  
Consultants**

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## **FINAL REPORT**

STAGE 1 ARCHAEOLOGICAL  
ASSESSMENT, PROPOSED  
EXPANSION, HALIBURTON-  
STANHOPE AIRPORT, TOWNSHIP OF  
ALGONQUIN HIGHLANDS, ONTARIO

Township of Algonquin Highlands

PROJECT NO. 1043647  
CIF # P002-141-2007

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**PROJECT NO. 1043647**

REPORT TO

**Township of Algonquin Highlands  
R.R #2, 1123 North Shore Road  
Minden Ontario, KOM 2KO**

ON

**Stage 1 Archaeological Assessment,  
Proposed Expansion, Haliburton-Stanhope  
Airport, Township of Algonquin Highlands,  
Ontario**

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## EXECUTIVE SUMMARY

A Stage 1 Archaeological Assessment was completed for the proposed expansion of the Haliburton-Stanhope Airport in the Township of Algonquin Highlands, Ontario. Based on principals of archaeological potential modelling in Ministry of Culture guidelines, portions of the property are considered to have elevated potential for the presence of archaeological resources and these areas have been recommended to have follow-up Stage 2 archaeological assessment completed prior to any below grade disturbances related with the proposed facility expansion.

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## 1.0 INTRODUCTION

The Township of Algonquin Highlands has proposed to expand the runway facilities at the Haliburton-Stanhope Airport, located north-west of the Town of Haliburton, Ontario (Figure 1.1). The proposed runway will run in a roughly NW-SE direction through ground which is largely forest covered (Figure 1.2). For the runway construction there will be clearing and grubbing of an area approximately 1350m long and up to 100m wide. There will also be additional clearing and grubbing for a Storm Water Management pond. Outside of these areas there will be removal of trees for obstacle clearance criteria, but there is no requirement to remove the stumps and thus no grubbing will be required. This will be a swath of up to 260m wide as well as the west faces of the two knolls on site. Prior to initiation of any below grade construction work the Township of Algonquin Highlands was required to complete an archaeological assessment of the proposed project and retained Jacques Whitford Limited (Jacques Whitford) to complete the Stage 1 Archaeological Assessment. The study was completed by Colin Varley, M.A., R.P.A., Senior Archaeologist and Heritage Planner with Jacques Whitford.

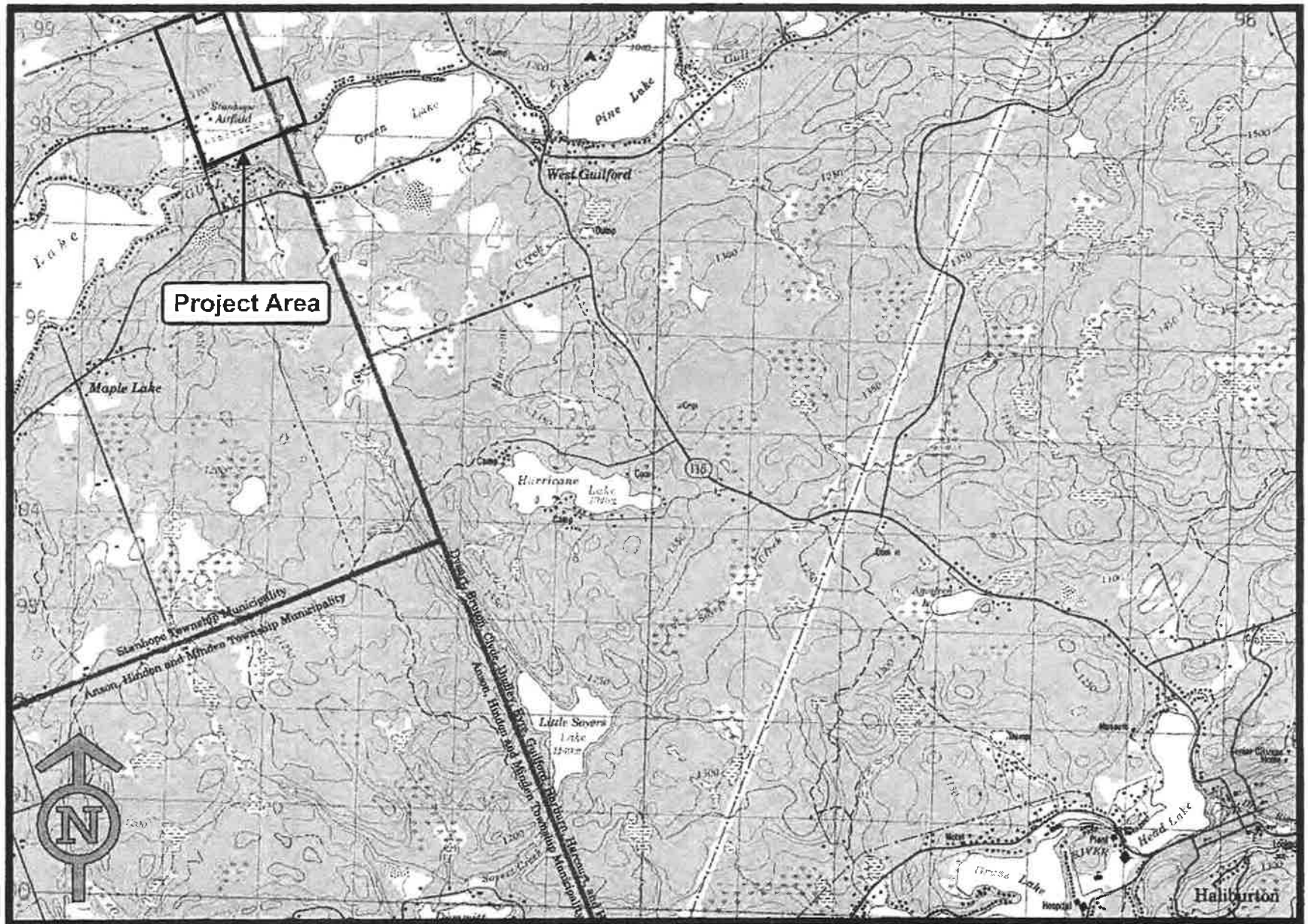
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## 2.0 PROJECT AREA

The project area is located in Lots 31 and 32 in Concession 5 and 6, Geographic Township of Stanhope, in the County of Haliburton (Figure 2.1). The current airport runway is located at the south end of the Haliburton-Stanhope Airport lands, running very roughly east to west. The southern part of the property is cleared, as is an area at the west side of Lot 31, Concession 6, on the east side of Airport Road. Topographically the project area has a gentle slope ascending from the Gull River valley and Grass Lake at the south of the property. There is a hill in the northeast of the property which rises fairly steeply from the rest of the ground to a height of approximately 360 m ASL, or 30 m above the level at which the proposed runway will be constructed (Figure 2.1).

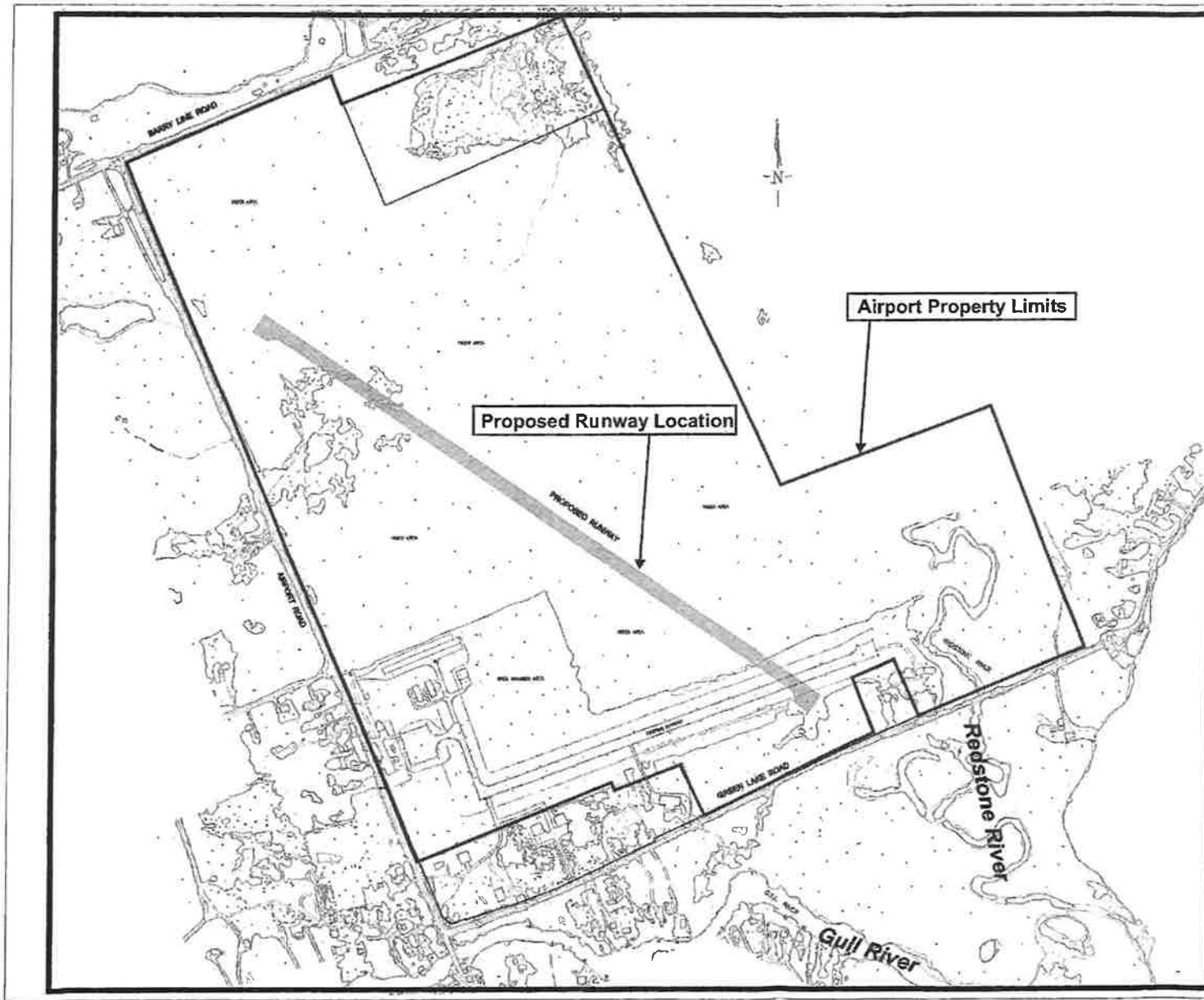
The project area is part of the Algonquin Highlands physiographic region and is characterised by shallow acidic soils over granite and other Precambrian rock (Chapman and Putnam, 1984). There are frequent outcrops of bare rock, although the actual outcrops generally make up approximately 5% of the total area of the region. There are, however, a number of glacial outwash channels in the river valleys. This outwash is composed of sand and gravel and makes for better farmland than the acidic soils which surround them (Chapman and Putnam, 1984). The Gull river valley from Redstone Lake to Maple Lake and beyond is one of these outwash channels, and includes the southern part of the airport project area.

The other notable feature of the general area is the close proximity to the Redstone and Gull Rivers and Grass, Maple and Second Lakes. The Redstone River is a smaller river, but cuts through the south-east corner of the airport property. Gull River, to the south of the property, is just over 100 m from the property line.



**Figure 1.1 - Location of Project Area**

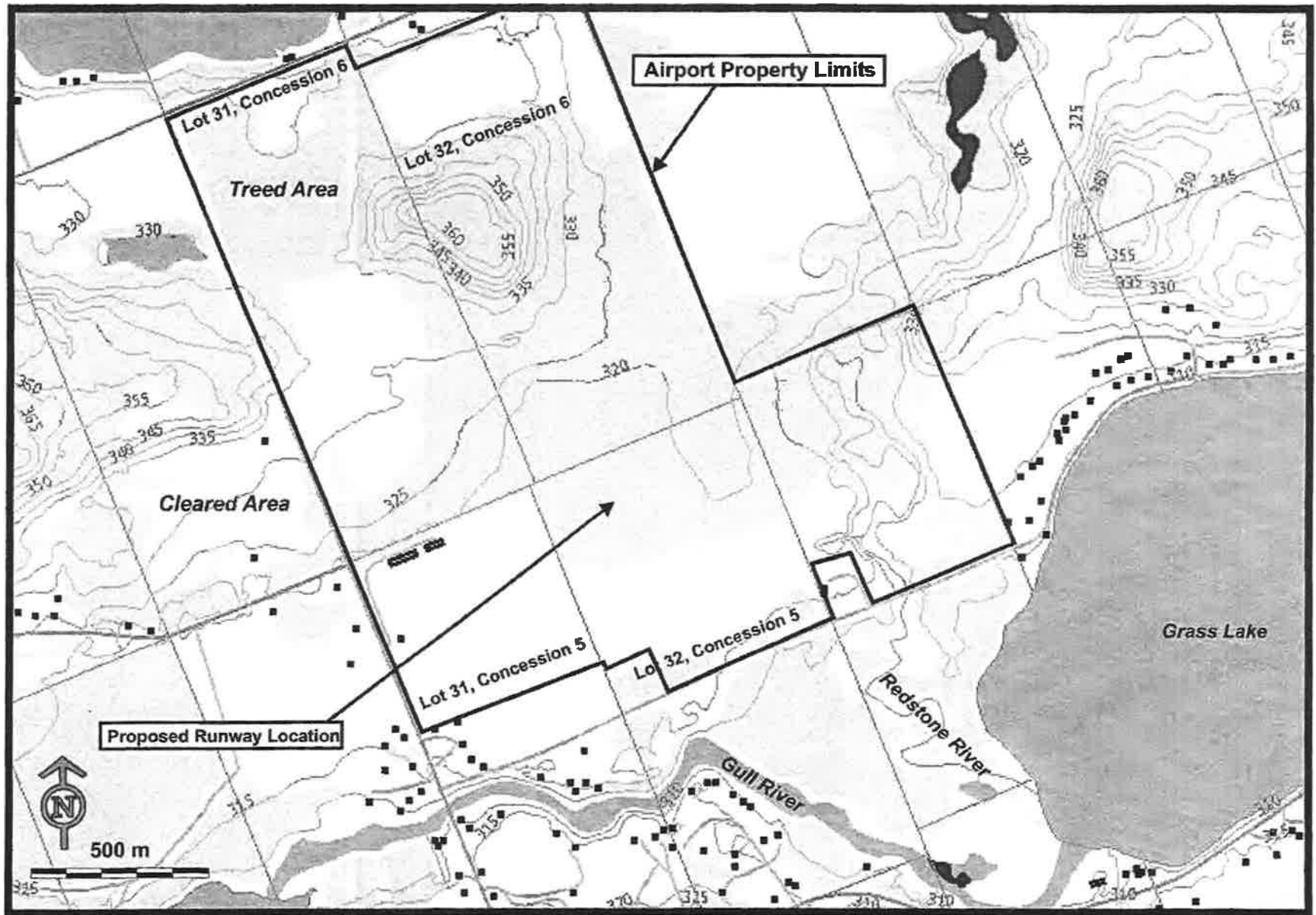
(Source: Natural Resources Canada, Centre for Topographic Information, Sheet 31-E-2)



**Figure 1.2 - Proposed Runway Project**

(Original Courtesy of Richardson Foster Ltd.)





**Figure 2.1 - Project Area and Current Topographic Conditions**

(Source: Ontario Ministry of Natural Resources)

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### 3.0 STAGE 1 ASSESSMENT

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#### 3.1 EXISTING CONDITIONS

*350-yrs or over*

The assessment of archaeological potential for the site considered both (prehistoric) and historic period resources. Archaeological potential modeling for prehistoric era sites is based largely on the identification of landscape features which are either known to have attracted past habitation or land use, or which appear to have potential for attracting human use. These features include: navigable rivers and lakes; confluences of watercourses; smaller sources of potable water; ridges or knolls that overlook areas of resource potential; outcrops of high-quality stone for tool making; and, most importantly, combinations of these features. In general it has been demonstrated that areas within 200-300 m of watercourses, or other significant bodies of water (ASI, 1990; Cox, 1989), and in particular those areas with multiple water sources (Young et al., 1995), are considered to be of elevated archaeological potential.

Patterns of land use by historic Euro-Canadians to some extent mirror those of the prehistoric period. This is not surprising, since the same general needs must be met, i.e., proximity to potable water, access to natural resources, and a level, well drained habitation site. On the other hand, the Euro-Canadian conversion of both fertile and more marginal land for agricultural purposes, the development of non-water travel routes, the exploitation of different resources such as subsurface mineral deposits, and other differences in land use patterns make potential modeling of Euro-Canadian and other non-Aboriginal historic sites somewhat less reliable. Fortunately, these sites are more visible than their prehistoric counterparts, which helps offset this lower level of predictive reliability.

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#### 3.2 ARCHAEOLOGICAL CULTURE HISTORY OF SOUTHERN ONTARIO

The following summary of the prehistoric occupation of Southern Ontario (see Table 3.1 for chronological chart) is based on syntheses in Archaeologix (2008), Ellis and Ferris (1990), Jacques Whitford (2008), and Wright (1995).

The first identified human occupation of Ontario begins just after the end of the Wisconsin Glacial period. The first human settlement can be traced back 11,000 years, when this area was settled by Native groups that had been living south of the emerging Great Lakes. This initial occupation is referred to as the "Palaeo-Indian" archaeological culture.

Early Palaeo-Indian (EPI) (11,000-10,400 BP) settlement patterns suggest that small groups, or "bands", followed a pattern of seasonal mobility extending over large territories. Many (although by no means all) of the EPI sites were located on former beach ridges associated with Lake Algonquin, the post-glacial lake occupying the Lake Huron/Georgian Bay basin, and it is likely that the vegetative cover of these areas would have consisted of open spruce parkland, given the cool climatic conditions. Sites tend to be located on well-drained loamy soils, and on elevations in the landscape, such as knolls. The fact that artifact assemblages of EPI sites are composed exclusively of stone skews our understanding of the general patterns of resource extraction and use. However, the taking of large game, such as caribou, mastodon and mammoth, appears to be of central importance to the sustenance of these early inhabitants. Moreover, EPI sites often appear to be located in areas which would have intersected with migratory caribou herds.

ARCHAEOLOGICAL PERIOD	TIME	CHARACTERISTICS
Early Palaeo-Indian	11,000–10,400 BP	caribou and extinct Pleistocene mammal hunters, small camps
Late Palaeo-Indian	10,400–10,000 BP	smaller but more numerous sites
Early Archaic	10,000–8,000 BP	slow population growth, emergence of woodworking industry, development of specialised tools
Middle Archaic	8,000–4,500 BP	environment similar to present, fishing becomes important component of subsistence, wide trade networks for exotic goods
Late Archaic	4,500–3,100 BP	increasing site size, large chipped lithic tools, introduction of bow hunting
Terminal Archaic	3,100–2,950 BP	emergence of true cemeteries with inclusion of exotic trade goods
Early Woodland	2,950–2,400 BP	introduction of pottery, continuation of Terminal Archaic settlement and subsistence patterns
Middle Woodland	2,400–1,400 BP	increased sedentism, larger settlements in spring and summer, dispersed smaller settlement in fall and winter, some elaborate mortuary ceremonialism
Transitional Woodland	1,400–1,100 BP	incipient agriculture in some locations, seasonal hunting & gathering
Late Woodland (Early Iroquoian)	1,100–700 BP	limited agriculture, development of small village settlement, small communal longhouses
Late Woodland (Middle Iroquoian)	700–600 BP	shift to agriculture as major component of subsistence, larger villages with large longhouses, increasing political complexity
Late Woodland (Late Iroquoian)	600–350 BP	very large villages with smaller houses, politically allied regional populations, increasing trading network

The Late Palaeo-Indian (LPI) period (10,400–10,000 BP) is poorly understood compared to the EPI, the result of less research focus than the EPI. As the climate warmed, the spruce parkland was gradually replaced and the vegetation of Southern Ontario began to be dominated by closed coniferous forests. As a result many of the large game species that had been hunted in the EPI period either moved north with the more open vegetation, or became extinct. Like the EPI, LPI peoples covered large territories as they moved around to exploit different resources.

The transition from the Palaeo-Indian period to the Archaic archaeological culture of Ontario prehistory is evidenced in the archaeological record by the development of new tool technologies, the result of utilising an increasing number of resources as compared to peoples from earlier archaeological cultures, and developing a broader based series of tools to more intensively exploit those resources. During the Early Archaic period (10,000–8,000 BP), the jack and red pine forests that characterized the LPI environment were replaced by forests dominated by white pine with some associated deciduous elements. Early Archaic projectile points differ from Palaeo-Indian forms most notably by the presence of side and corner notching on their bases. A ground stone tool industry, including celts and axes, also emerges, indicating that woodworking was an important component of the technological development of Archaic peoples. Although there may have been some reduction in the degree of seasonal movement, it is still likely that population density during the Early Archaic was low, and band territories large.

The development of a more diversified tool technology continued into the Middle Archaic period (8,000–4,500 BP). The presence of grooved stone net-sinkers suggests an increase in the importance of fishing in subsistence activities. Another new tool, the bannerstone, also made its first appearance

during this period. Bannerstones are ground stone weights that served as counterbalance for "atlatls" or spear-throwers, again indicating the emergence of a new technology. The increased reliance on local, often poor quality chert resources for chipped stone tools suggests that in the Middle Archaic groups inhabited smaller territories that often did not encompass a source of high quality raw material. In these instances lower quality materials which had been glacially deposited in local tills and river gravels were used.

This reduction in territory size appears to have been the result of gradual region-wide population growth, which forced a reorganization of subsistence practices, as more people had to be supported from the resources of a smaller area. Stone tools especially designed for the preparation of wild plant foods suggest that subsistence catchment was being widened and new resources being more intensively exploited. A major development of the later part of the Middle Archaic period was the initiation of long distance trade. In particular, native copper tools manufactured from sources near Lake Superior were being widely traded.

The trend towards decreased territory size and a broadening subsistence base continued during the Late Archaic (4,500-2,950 BP). Late Archaic sites are far more numerous than either Early or Middle Archaic sites. It appears that the increase in numbers of sites at least partly represents an increase in population. However, around 4,500 BP water levels in the Great Lakes began to take their modern form, rising from lower levels in the Early and Middle Archaic periods. It is likely that the relative paucity of earlier Archaic sites is due to their being inundated under the rising lake levels.

The appearance of the first true cemeteries occurs during the Late Archaic. Prior to this period, individuals were interred close to the location where they died. However, with the advent of the Late Archaic and local cemeteries, individuals who died at a distance from the cemetery would be returned for final burial at the group cemetery, often resulting in disarticulated skeletons, occasionally missing minor bone elements (e.g. finger bones). The emergence of local group cemeteries has been interpreted as being a response to both increased population densities and competition between local groups for access to resources in that cemeteries would have provided symbolic claims over a local territory and its resources.

Increased territoriality and more limited movement are also consistent with the development of distinct local styles of projectile points. The trade networks which began in the Middle Archaic expand during this period, and begin to include marine shell artifacts (such as beads and gorgets) from as far away as the Mid-Atlantic coast. These marine shell artifacts and native copper implements show up as grave goods, indicating the value of the items. Other artifacts such as polished stone pipes and slate gorgets also appear on Late Archaic sites. One of the more unusual of the Late Archaic artifacts is the "birdstone", small, bird-like effigies usually manufactured from green banded slate.

The Early Woodland period (2,950-2,400 BP) is distinguished from the Late Archaic period primarily by the addition of ceramic technology. While the introduction of pottery provides a useful demarcation point for archaeologists, it may have made less difference in the lives of the Early Woodland peoples. The first pots were very crudely constructed, thick walled, and friable. It has been suggested that they were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil. These vessels were not easily portable, and individual pots must not have enjoyed a long use life. There have also been numerous Early Woodland sites located at which no pottery was found, suggesting that these poorly constructed, undecorated vessels had yet to assume a central position in the day-to-day lives of Early Woodland peoples.

Other than the introduction of this rather limited ceramic technology, the life-ways of Early Woodland peoples show a great deal of continuity with the preceding Late Archaic period. For instance,

birdstones continue to be manufactured, although the Early Woodland varieties have "pop-eyes" which protrude from the sides of their heads. Likewise, the thin, well-made projectile points which were produced during the terminal part of the Archaic period continue in use. However, the Early Woodland variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance. The trade networks which were established in the Middle and Late Archaic also continued to function, although there does not appear to have been as much traffic in marine shell during the Early Woodland period. These trade items were included in increasingly sophisticated burial ceremonies, some of which involved construction of burial mounds. Elaborate burial sites from this period have been identified near Grenadier Pond and at Baby Point on the Humber River.

In terms of settlement and subsistence patterns, the Middle Woodland (2,400 B.C.-1,400 BP) provides a major point of departure from the Archaic and Early Woodland periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet. Middle Woodland vessels are often heavily decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. Consequently, even very small fragments of Middle Woodland vessels are easily identifiable.

It is also at the beginning of the Middle Woodland period that rich, densely occupied sites appear along the margins of major rivers and lakes. While these areas had been utilized by earlier peoples, Middle Woodland sites are significantly different in that the same location was occupied off and on for as long as several hundred years. Because this is the case, rich deposits of artifacts often accumulated. Unlike earlier seasonally utilized locations, these Middle Woodland sites appear to have functioned as base camps, occupied off and on over the course of the year. There are also numerous small upland Middle Woodland sites, many of which can be interpreted as special purpose camps from which localized resource patches were exploited. This shift towards a greater degree of sedentism continues the trend witnessed from at least Middle Archaic times, and provides a prelude to the developments that follow during the Late Woodland period. Burial mounds, such as the Serpent Mounds at Rice Lake, near Peterborough are seen during this period, although their use markedly declines around 1550 BP.

The relatively brief period of the Transitional Woodland period is marked by the acquisition of cultivar plants species, such as maize and squash, from communities living south of the Great Lakes. The appearance of these plants began a transition to food production, which consequently led to a much reduced need to acquire naturally occurring food resources. Sites were thus occupied for longer periods and by larger numbers of people.

The Late Woodland period in southern Ontario is associated with societies referred to as the Ontario Iroquois Tradition. This period is often divided into three temporal components; Early, Middle and Late Iroquoian (see Table 3.1).

Early Iroquoian peoples continued to practice similar subsistence and settlement patterns as the Transitional Woodland. Villages tended to be small, with small longhouse dwellings that housed either nuclear or, with increasingly, extended families. Smaller camps and hamlets associated with villages served as temporary bases from which wild plant and game resources were acquired. Horticulture appears to have been for the most part a supplement to wild foods, rather than a staple.

The Middle Iroquoian period marks the point at which a fully developed horticultural system (based on corn, bean, and squash) emerged, and at which point cultivars became the staple food source. In this period villages become much larger than in the Early Iroquoian period, and longhouses also become much larger, housing multiple, though related, nuclear families. Food production through horticulture



resulted in the abandonment of seasonal mobility that had characterized aboriginal life for millennia. Hunting, fishing, and gathering of wild food activities continued to occur at satellite camps. However, for the most part most Iroquoian people inhabited large, sometimes fortified villages throughout southern Ontario.

During the Late Iroquoian period longhouses became smaller again, although villages became even larger. Late Iroquoian villages area located throughout the Upper Trent River Valley and on smaller lakes connected to the Upper Trent system (Ramsden, 1989). Most, if not all, of the Iroquoian communities along the north shore of Lake Ontario had moved by about 1600 either northward, joining with other groups in Simcoe County to form the Petun and Huron, or westward to join other ancestral groups of the Neutral, situated at the west end of Lake Ontario and the Niagara Peninsula.

### 3.3 PREHISTORIC AND CONTACT PERIOD ABORIGINAL RESOURCES

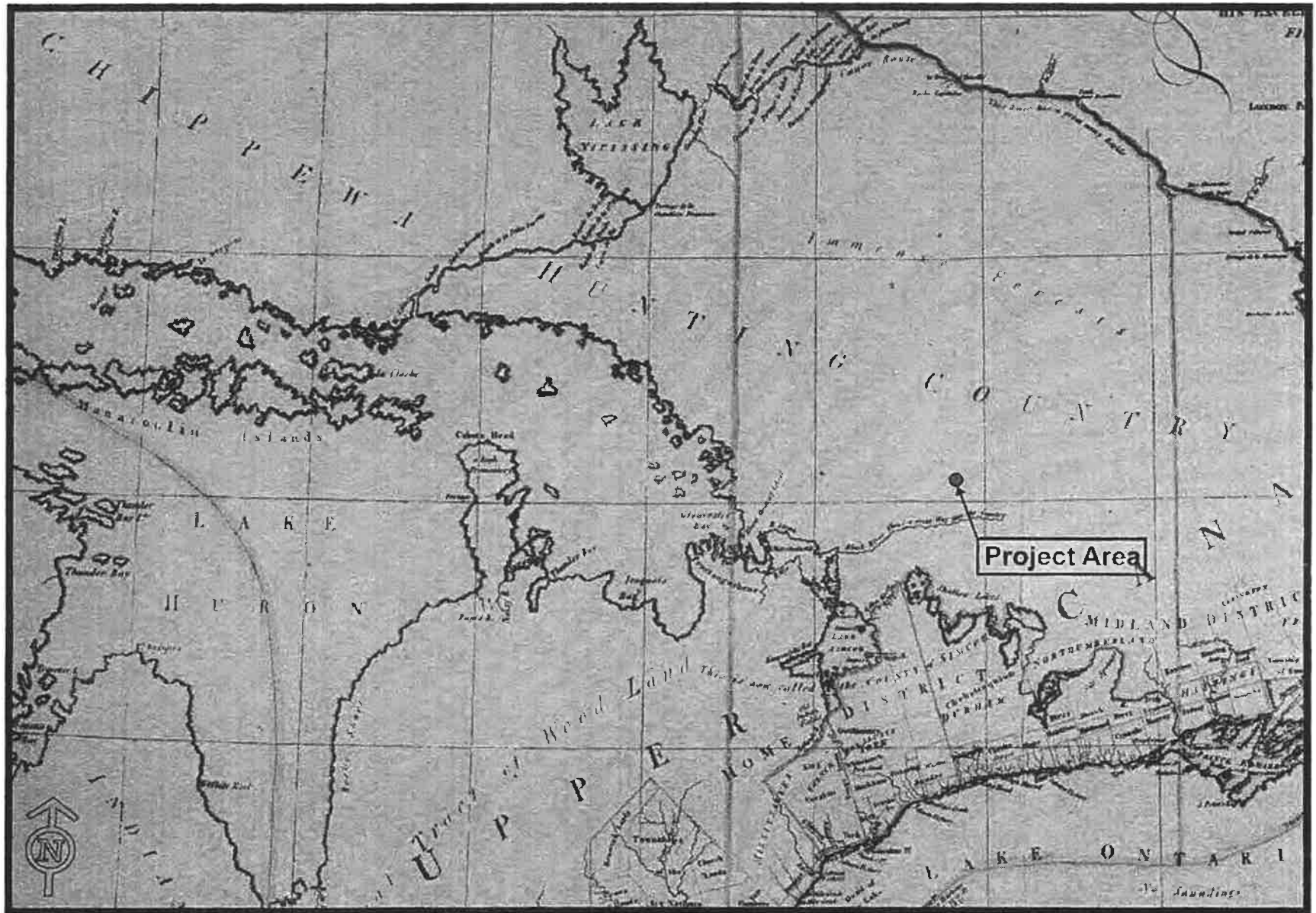
At present there are no registered prehistoric period archaeological sites located within 2 km of the project area (MoC, 2008). However, this is likely due to limited archaeological survey of the area rather than a definite lack of prehistoric or early post-contact use of the area by Aboriginal inhabitants. A map of Upper Canada dating to 1800 identifies all of the land north of the Trent River system as being "Chippewa Hunting Country" and it is likely that the lakes and rivers surrounding the project area were used for resource extraction, habitation and transportation (Figure 3.1). As late as 1850 the project property was north of the limits of land purchased from First Nations (Figure 3.2).

### 3.4 HISTORIC PERIOD RESOURCES

At present no registered historic period archaeological sites have been located within 2 km of the project area (MoC, 2008). There are also no provincially designated buildings within 2 km of the project area (OHF, 2008).

Survey of Stanhope Township was begun was completed in 1861 and land patents granted later in that year (Mulvaney, 1884). Patent records indicate that a portion of Lot 31, Concession 5 and Lot 32, Concession 5 were granted in 1861 (SM, 2008; Table 3.2). However, the 1861 census does not list any occupants on the land (LAC, 1861). Moreover, by the time of the 1871 census the original patentee for Lot 32, William Davis, is not listed, but rather 21 year old James Sawyers, whose occupation is given as 'hunter' (LAC, 1871).

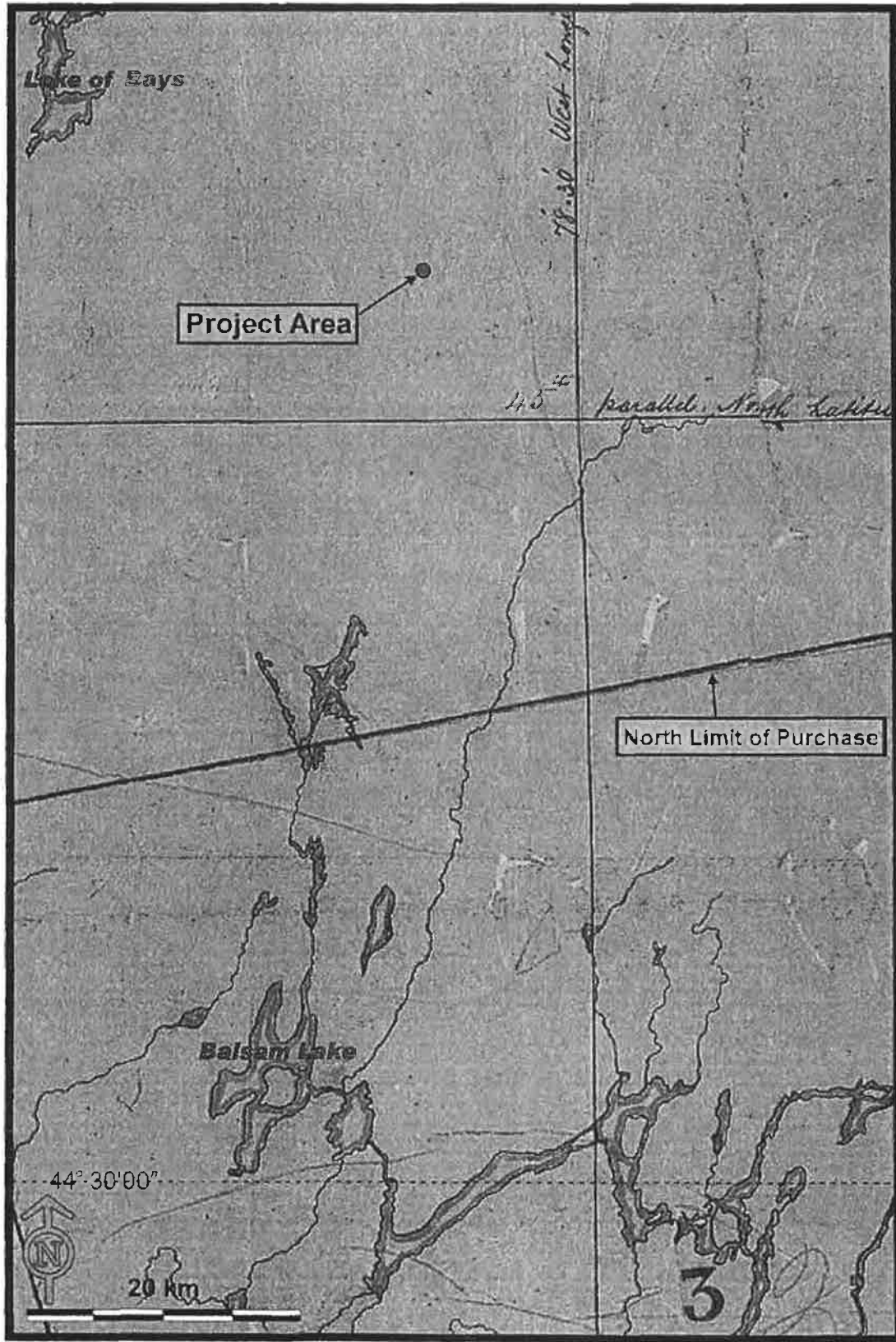
	Concession 5		Concession 6	
	Lot 31	Lot 32	Lot 31	Lot 32
Patent	Benjamin Clarke (90 acres 29-06-1861; 90 acres 20-08-1872)	William Davis (101 acres 31-05-1861)	Hiram Sawyer (113 acres 10-08-1876)	n/a
1861 Census	none listed	none listed	n/a	n/a
1871 Census	none listed	James Sawyers	n/a	n/a
1881 Census	George Clarke	James Sawyer (sic)	none listed	Hiram Sawyer
1901 Census	none listed	Henry Sawyers	none listed	William Siscomb



**Figure 3.1 - Approximate Location of Project Area  
As Shown Over Detail From 1800 Map of Upper Canada**

(Source:Gentilcore et al., 1984)





**Figure 3.2 - Approximate Location of Project Area  
As Shown over 1850 Land Purchase**

(Source: NMC H1/400/1850)

In his history of Peterborough County Mulvaney suggests that a B. Clarke was one of a few settlers who "took up land" in 1861, although he may have been basing that on the patent records (Mulvaney, 1884). In any event, no occupant is listed for Lot 31 in the 1871 census either. A further 90 acres was granted to Benjamin Clarke in 1872, however, and this additional land grant may have been the key factor in taking up the land since a George Clarke (presumably a son) is listed as landowner in the 1881 census. The 1901 census lists no occupant in Lot 31, which is likely the result of it being purchased by an occupant of another lot, in this case possibly Henry Sawyers in the neighbouring lot. Henry Sawyers was born in 1877, and he is not listed as a son of James' in the 1881 census, indicating that the land was not inherited by a direct descendant of James' (LAC, 1881, 1901).

The occupational history of the lots in Concession 6 are somewhat confusing in that Lot 31 is indicated as being granted in 1876 to Hiram Sawyer (SM, 2008; Table 3.2). However, after that there is no occupant on the land shown in either the 1881 or 1901 census records (LAC, 1881, 1901). Conversely, no patent grant is indicated for Lot 32 but there is census information for both 1881 and 1901. It may be that an error was made in the patent book (or its later transcription). However, the 1881 census lists Hiram Sawyer as occupant of Lot 32 and it is presumed that Sawyer took up occupancy of the land patented to him in 1876. The 1901 census indicates that a William Siscomb was occupant on Lot 32 at that time. However, a Frank Sawyers, born in 1884, is listed as living with the Siscomb family and it is possible that they were relatives of the Hiram Sawyer family. Although she was born in 1875, Siscomb's wife Caroline is not listed in the Stanhope records in the 1881 census and so she cannot be a daughter of Hiram.

There are very few 19<sup>th</sup> century maps which show the project area in any detail, and none which give any indication of where homesteads or other buildings may have been located. Presumably homes would have been located close to a transportation route, either a road or the river. A post-1870 map of Haliburton County shows the present day Airport Road extending to the end of Concession 6, but no roads following on from that point (Figure 3.3).

Growth in the township was slow during the 19<sup>th</sup> century, and the development of infrastructure such as roads equally limited. In 1873 Stanhope had a total population of 274, with 71 land-owning rate payers (Mulvaney, 1884). By 1883 the number of rate payers had only increased to 99, and by 1901 the total population of Stanhope was 500 (LAC, 1901). Even in 1908 the present day Barry Line Road at the north of the project area was only a rough road (Figure 3.4).

The slow uptake of land and frequent changing of hands suggest that making a living from the lands associated with the project was not easy, particularly for those attempting to farm the land. It is likely that most of the cleared, arable land would have been found along the margins of the Gull and Redstone Rivers, where glacial outwash soils would have provided better conditions than the ground in the north part of Concession 5 and in Concession 6. These lands would likely have been given over to pasturing.



Figure 3.3 - Project Area Shown Over Detail  
From Post-1870 Map of Haliburton County

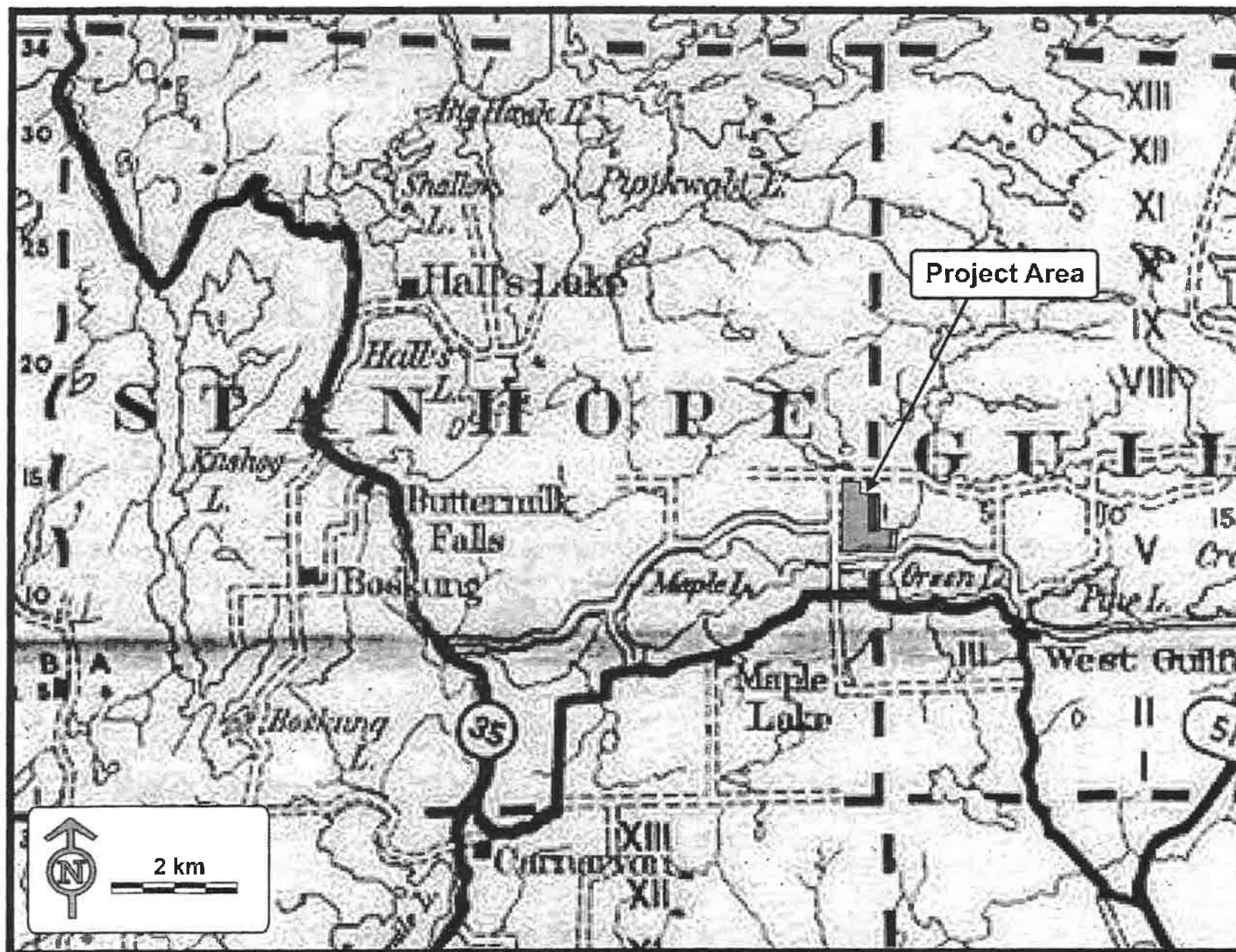


Figure 3.4 - Project Area Shown Over Detail From 1908 Map of Haliburton County

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## 4.0 STUDY RESULTS

Based on the presence of attractive landscape features for prehistoric and early historic period habitation, portions of the project area are rated as having elevated potential for undiscovered archaeological resources. In particular these areas of elevated archaeological potential are found within 300 m of the various watercourses and oxbow ponds that area present at the south end of the project area, including the southern end of the proposed new runway. Areas of elevated potential for prehistoric period sites are indicated in Figure 4.1.

Archival records indicate a relatively short and uneven history of historic period occupation throughout the project area. There are no clearly defined areas of elevated historic period archaeological potential, although it is likely that potential for historic period sites is highest in those areas indicated as having elevated prehistoric archaeological potential. The proposed runway ends approximately 125 m from the historic roadway that makes up present day Airport Road and it is unlikely that that portion of the project will interact with the usual buffer around historic transportation routes.

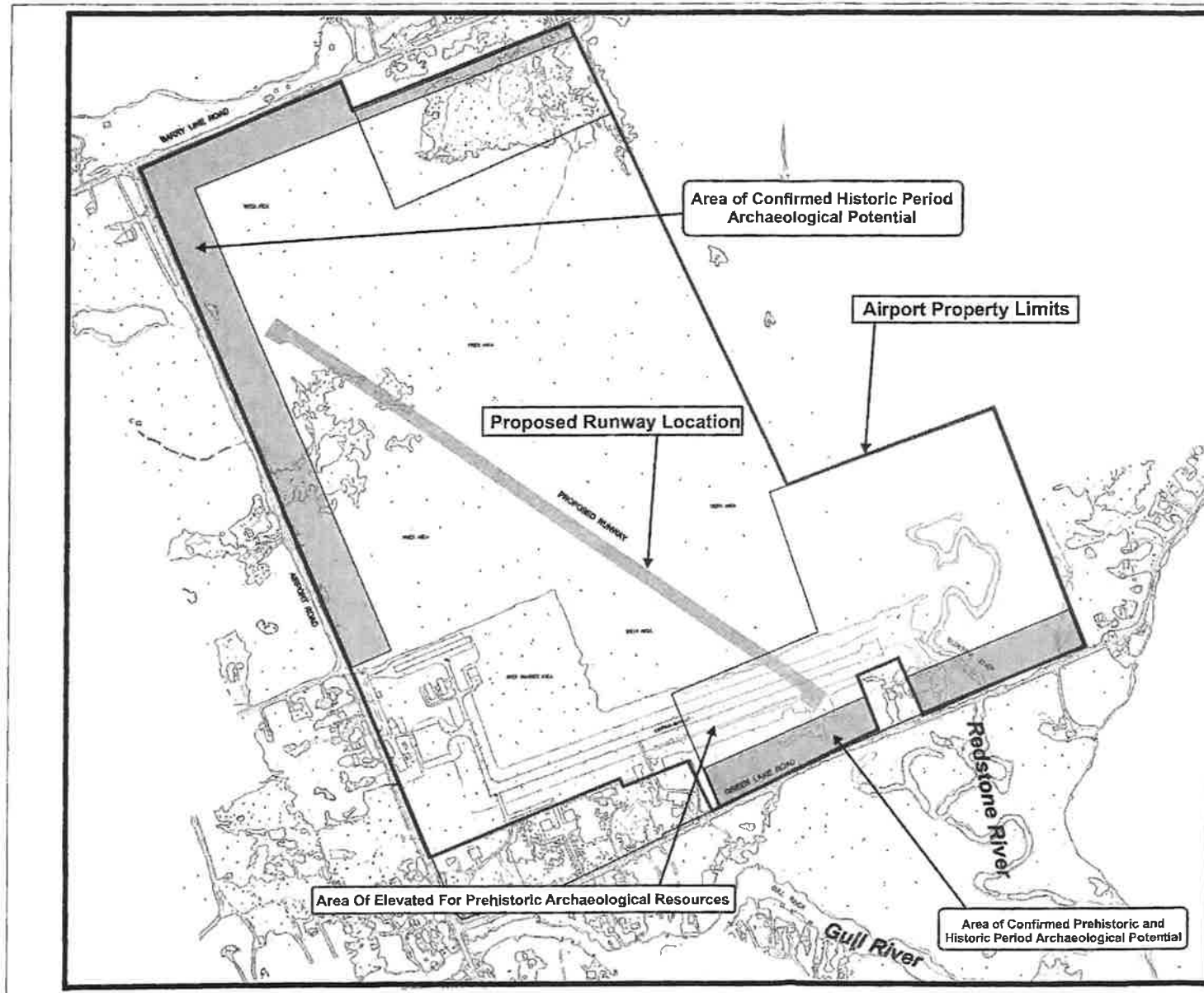
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## 5.0 RECOMMENDATIONS

→ For those areas of the proposed project which will require below grade ground disturbances (e.g. clearing and grubbing for the runway and storm water management pond) Stage 2 archaeological assessment is recommended. For the portion of the runway within 300 m of the watercourses at the south end of the project Stage 2 assessment using a systematic test pit excavation strategy will be required. In this instance standard archaeological test pits, 30 x 30 cm or larger in diameter must be excavated through the topsoil and 5 cm into the subsoil layer at 5 m intervals. All soils excavated must be passed through a screen of 6 mm mesh to allow for the recovery of small artifacts. Positive ( i.e. artifact bearing) test pits are to be recorded using a GPS or appropriately scaled mapping. ←

→ For the remainder of the runway it is recommended that the a visual assessment be made, with spot testing by test pit excavation of any areas deemed to have archaeological potential. In the event that any resources such as foundations, cellars etc. are identified they should be documented with photographs and scaled drawings.

Jacques Whitford cautions, however, that it is possible that deeply buried archaeological resources, such as human burials, could exist within the limits of the proposed project area. Should any archaeological materials be uncovered during project related activities, all work in the area should cease immediately and Ministry of Culture personnel be notified immediately. In the event that human remains are uncovered both the Ministry of Culture and the Registrar of the Cemeteries Regulation Act of the Ministry of Government Services should be contacted. Jacques Whitford archaeological staff will also be available to give advice and guidance should such accidental discoveries occur.



**Figure 4.1 - Identified Areas of Confirmed Archaeological Potential**

(Original Courtesy of Richardson Foster Ltd.)





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## 6.0 CLOSURE

This report has been prepared for the sole benefit of the Township of Algonquin Highlands, and may not be used by any third party without the express written consent of Jacques Whitford Limited and the Township of Algonquin Highlands. Any use which a third party makes of this report is the responsibility of such third party.

This report is filed with the Minister of Culture in compliance with sec. 65 (1) of the Ontario Heritage Act. The ministry reviews reports to ensure that the licensee has met the terms and conditions of the licence and archaeological resources have been identified and documented according to the standards and guidelines set by the Ministry of Culture, ensuring the conservation, protection and preservation of the heritage of Ontario. It is recommended that development not proceed before receiving confirmation that the Ministry of Culture has entered the report into the provincial register of reports.

We trust this report meets your current requirements. Please do not hesitate to contact us should you require further information or have additional questions about any facet of this project.

Yours truly,

JACQUES WHITFORD LIMITED

## ***SIGNED ORIGINAL ON FILE***

Christie Uchiyama, B.A.  
Assistant Archaeologist

Colin Varley, M.A., R.P.A.  
Senior Archaeologist and Heritage  
Planning Consultant

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