

DOCUMENT MICROFILMING IDENTIFICATION

GEOCRES No. 30M3-209

DIST. 4 REGION

W.P. No.

CONT. No. 93-71

W. O. No.

STR. SITE No.

HWY. No. Q.E.W.

LOCATION Q.E.W. From Sixteen Mile Creek
Easterly to Hwy 406 - Groundwater

No of PAGES - Drawdown; Slope Stability

=====
OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT.

REMARKS:



Ontario

**Action
Memo**

Time _____

Date

Year

Month

Day

77 01 27

To

John

From (Name and City)

Tony

I.C.N. No.	Area Code	Telephone No.	Ext.	Message Taken By
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| <input type="checkbox"/> File | <input type="checkbox"/> Draft Reply For
My Signature | <input type="checkbox"/> Provide
More Details | <input type="checkbox"/> For Your
Information |
| <input type="checkbox"/> Type Draft | <input type="checkbox"/> For Your Approval
and Signature | <input type="checkbox"/> Keep Me
Informed | <input type="checkbox"/> Per Discussion |
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and Return | <input type="checkbox"/> Take
Appropriate Action | <input type="checkbox"/> Per Your Request |
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Copies | <input type="checkbox"/> Return
With Comments | <input type="checkbox"/> Note and
See Me | <input type="checkbox"/> Returned
With Thanks |
| <input type="checkbox"/> Please Answer | <input type="checkbox"/> Investigate
and Report | <input type="checkbox"/> Note and
Return | <input type="checkbox"/> |

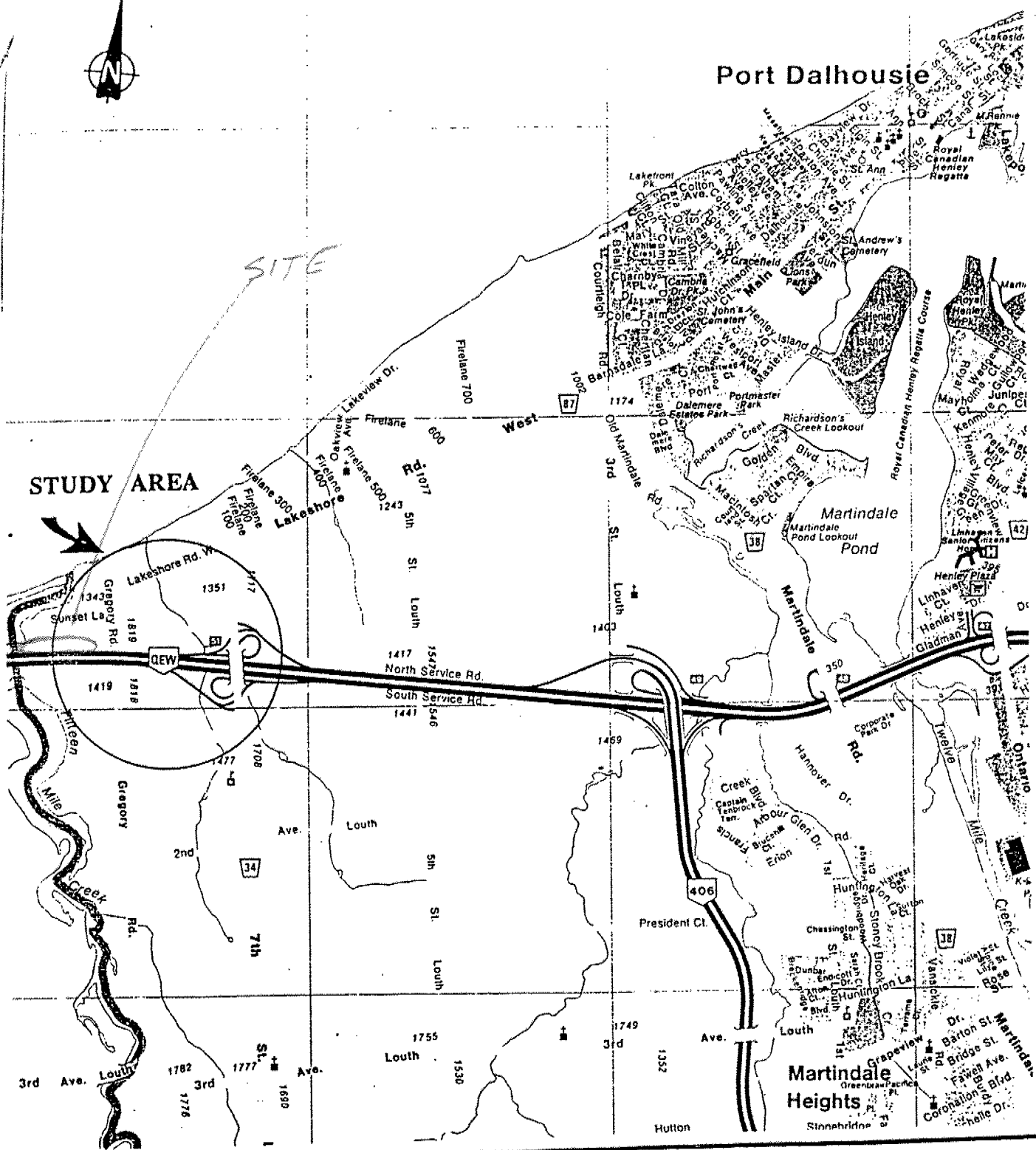
Comments

Attached please find a plan that illustrates the location of the site. In addition, I discovered that I have a file that contains borehole

Jan 27/97

logs and hydrogeological
monitoring results. This
project needs to be
completed.

↑
Note written by
T.S.



SITE LOCATION PLAN



TERRAPROBE LIMITED

Job no. 93215

Scale 1:25000

Date DEC. 1993

FIGURE 1

MEMORANDUM



GEOCREG No 30M3-209

To: G. Cautillo
Area Construction Engineer
Central Region

Date: October 26, 1993

From: Foundation Design Section
Room 315, Central Bldg.

Tel: 235-3731
Fax: 235-5240

Re: Groundwater Drawdown/Slope Stability
Contract 93-71
Q.E.W. From Sixteen Mile Creek Easterly
to Highway 406
District 4, Burlington

On Thursday, October 14, 1993, our office was contacted by both Richard Godden of the Claims Office and Norm Metcalfe, Construction Supervisor regarding public complaints of private water well depressurization in the area of the Q.E.W. and Gregory Road. The widening of the Q.E.W. is presently under construction as part of Contract 93-71. On Friday, October 15, 1993, the site was visited by the undersigned in an attempt to collect relevant data and information so that an accurate assessment could be made. A summary of the observations and recommendations addressing the geotechnical and hydrogeological considerations are provided below.

Site Description

The problem site area is located along and adjacent to the Q.E.W. approximately between Fifteen Mile Creek and Gregory Road. Following a detailed inspection of the site conditions that entailed an examination of the permanent south slopes and also the temporary slopes adjacent to the temporary concrete barrier, the problem area was further defined between approximately 16 + 400 and 16 + 570. Considerable soil sloughing was observed on the excavated 2H:1V permanent slope on the south side of the Q.E.W. adjacent to the South Service Road. Only minor groundwater seepage was evident at the time of the visit, but it is understood that seepage rates had been previously larger. Apparently, the excavation cut has existed for approximately one month prior to the site visit.

The temporary side slopes adjacent to the concrete barrier on the north side of the excavation were also inspected. In general, there were no visible signs of slope instability other than some localized surficial erosion.

Subsurface Conditions

The subsoil conditions present within the defined problem area consist of a surficial deposit of a brown heterogeneous mixture of clayey silt, sand and gravel approximately 1.5 metres in thickness. This deposit of glacial till origin is underlain by a silt deposit which appears to extend for the remaining

depth of excavation approximately 2.5 metres in thickness. The surficial metre or so of this stratum is brown and moist whereas the lower 1.5 metres or so of the stratum is grey and wet. The soil sloughing mentioned earlier has occurred within the grey wet silt. Consistent with these descriptions, the groundwater table appears to be approximately at the interface of the brown, moist silt and the grey, wet silt.

Based on discussions with the construction staff and a review of the geotechnical borings in the area it appears that the silt stratum is underlain by an impervious silty clay layer at approximate surface elevation of 82 to 83 metres.

It should also be noted that the stable slopes beyond stations 16 + 400 and 16 + 570 were comprised entirely of a heterogeneous mixture of clayey silt, sand and gravel and silt layers were not evident.

Recommendations

General

There are two major issues that are to be resolved at the site: hydrogeological and geotechnical. These issues are discussed below.

Hydrogeological

The silt stratum described above is a water bearing stratum and although groundwater flow rates and quantities are not perhaps as large within this material as more free draining materials such as sands and gravel, it is known that wells have been installed in these types of materials. In view of the legal implications associated with allegations of water well drawdown/depletion within nearby residential homes, it is recommended that a comprehensive hydrogeological study be considered to evaluate the groundwater regime at the site and to procure any information pertaining to the existing wells. The study shall be conducted by an impartial third party to avoid any bias. Our office can assist in defining the terms of reference and in providing any technical liaison and advice.

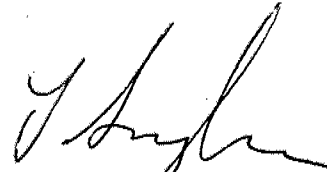
Once the study has been completed and conclusions forwarded and reviewed, the appropriate course of action can be taken. In the meantime, all measures shall be made to appease the property owners.

Geotechnical

In order to prevent soil sloughing and to preserve the long term stability of the excavated slope, it is recommended that the slope between stations 16 + 400 and 16 + 570 be covered with a 0.6 m granular 'A' blanket. The granular 'A' blanket will serve as both a drainage and filter layer, hence allowing water flow but inhibiting soil migration. The slope shall be regraded as necessary to facilitate the placement of the granular blanket. The granular blankets should be designed in conjunction with a permanent drainage system that will discharge drained water from the slope. Longitudinal toe drains installed within a trench of 0.6 m width can consist of a perforated pipe encased with a suitable geotextile filter fabric and in turn a granular 'A' soil filter material or

equivalent. The perforated pipe should be installed below the frost penetration depth of 1.2 m. The toe drains should then be connected to an appropriate integrated drainage system.

If you have any questions regarding the above comments or require additional information, please do not hesitate to contact this office.



T. Sanguiniano, P. Eng.
Foundation Engineer

for

P. Payer, P. Eng.
Sr. Foundation Engineer

TS\PP\mmj