THE CORPORATION OF NORFOLK COUNTY
COMMITTEE OF ADJUSTMENT

COMMENT REQUEST FORM

FILE NO.: AN-031/2008 ROLL NO.: 3310-334-030-74700

- ☒ Building Department
- ☒ Building Inspector (Sewage System Review)
- ☒ Forestry Division
- ☒ Treasury Department
- ☒ Public Works ➢ NOTE: If an agreement is required please attach the clauses you require in the agreement.
- ☒ GIS Section
- ☒ Norfolk Power
- ☐ Ministry of Transportation
- ☐ Railway
- ☒ Conservation Authority

This Committee has received a consent/minor variance application concerning land within your jurisdiction. The proposal is explained on the attached application. If you require further information, please feel free to contact this office. In order to properly consider this application, the Committee of Adjustment requires your comments by:

JULY 2nd, 2008

APPLICANT:
Larry DeKoning, 62 Denby Road Port Dover, ON N0A 1N4

AGENT:
R.C. Dixon, O.L.S., 51 Park Road Simcoe, ON N3Y 4J9

LOCATION:
Lot 18, Plan 118 PDOV
(112 Brown Street, Port Dover)

PROPOSAL:
FUTURE DEVELOPMENT REQUIRING RELIEF OF:
• To seek relief of 50 m (164 ft) from the required 50 m. (164 ft.) setback from top of bank as set out in Section 9.3.3 - Lakeshore Erosion prone areas

PLEASE REPLY BY EMAIL DIRECTLY TO:

SCOTT PECK, MCIP, RPP
Norfolk County, 22 Albert Street, Langton, ON N0E 1G0
(519) 875-4485 ext 1834
EMAIL: t.scott.peck@norfolkcounty.ca

COMMITTEE OF ADJUSTMENT DECISION:

If you wish to be notified of the Decision of Norfolk County, Committee of Adjustment in respect of the proposed consent, you must make a written request to:

Karen Judd, ACST (A), Secretary-Treasurer
P.O. Box 128, 22 Albert Street, Langton ON N0E 1G0
Phone: (519) 875-4485 ext 1835; Fax: (519) 875-4789
karen.judd@norfolkcounty.ca

APPEALS TO THE ONTARIO MUNICIPAL BOARD:

If a person or public body that files an appeal of a Decision of Norfolk County Committee of Adjustment in respect of the proposed consent or variance does not make written submission to the Norfolk County Committee of Adjustment, before it gives or refuses to give a provisional consent or variance, the Ontario Municipal Board may dismiss the appeal.

NOTE: ANY DEPARTMENT OR AGENCY THAT HAS NOT PROVIDED THEIR COMMENTS BY THE DEADLINE DATE WILL BE CONSIDERED AS HAVING NO COMMENT

CIRCULATION DATE: June 18th, 2008

Lot 18

MINOR VARIANCE

Office Use:

File Number: AN-031/2008

Related File:

Fees Submitted: June 9, 2008

Application Submitted: June 9, 2008

Sign Issued: June 9, 2008

Complete Application: June 9, 2008 mz

This development application must be typed or printed in ink and completed in full. An incomplete or improperly prepared application may not be accepted and could result in processing delays.

Property assessment roll number: 3310-334-030-14700

The undersigned hereby applies to the Committee of Adjustment under Section 45 of the *Planning Act, R.S.O. 1990, c. P. 13*, for relief as described in this application from by-law no. NW 1-2000

A. APPLICANT INFORMATION

Name of Applicant [1]: Larry De Koning — Phone #: (519)-583-1242

Address: 62 Derby Road — Fax #:

Town / Postal Code: Port Dover N0A 1N4 — E-mail:

[1] If the applicant is a numbered company provide the name of a principal of the company.

Name of Agent: R.C. Dixon, O.L.S. — Phone #: (519) 426-0842

Address: 51 Park Road — Fax #: 426-1034

Town / Postal Code: Simcoe On. N3Y 4J9 — E-mail: surveyors@amtelecom.net

Name of Owner [2]: — Phone #:

Address: — Fax #:

Town / Postal Code: — E-mail:

[2] It is the responsibility of the owner or applicant to notify the Planner of any changes in ownership within 30 days of such a change.

Please specify to whom all communications should be sent [3]: ☐ Applicant ☑ Agent ☐ Owner

[3] Unless otherwise directed, all correspondence, notices, etc., in respect of this development application will be forwarded to the Applicant noted above, except where an Agent is employed, then such will be forwarded to the Applicant and Agent.

Names and addresses of any holders of any mortgagees, charges or other encumbrances on the subject lands:

B. LOCATION/LEGAL DESCRIPTION OF SUBJECT LANDS

Geographic Township		Urban Area or Hamlet	Port Dover
Concession Number		Lot Number(s)	
Registered Plan Number	118	Lot(s) or Block Number(s)	18
Reference Plan Number		Part Number(s)	
Frontage (metres/feet)	15.2 m / 50'	Depth (metres/feet)	37.0 m / 121.5' ±
Width (metres/feet)	15.2 m. / 50'	Lot area (m^2 / ft^2 or hectares/acres)	0.113 ha / 12,150 ft^2
Municipal Civic Address	112 Brown St. Port Dover		

Are there any easements or restrictive covenants affecting the subject lands?

☐ Yes ☑ No

If yes, describe the easement or covenant and its effect:

C. PURPOSE OF DEVELOPMENT APPLICATION

Please explain what you propose to do on the subject lands/premises which makes this development application necessary (if additional space is required, please attach a separate sheet):

The existing requirement in By-law NWT-2000 requires a 30m set-back from the top of bank which puts the set-back in the north part of Brown Street. Using armour rock (now installed) at the base, re-grading the land as well as pilings (the same as townhouses to the east) - there is no need for a set-back.

Please explain the nature and extent of the amendment requested (assistance is available):

This application seeks total relief from Section 9.3.3 of By-law NW-1-2000 and relief of the full 30 m required set-back from top of bank to allow for the regrading of the bank and the engineered position of structures.

Please explain why it is not possible to comply with the provision of the zoning by-law:

set-back as it currently exists would preclude any structure from being erected on site.

D. PROPERTY INFORMATION

Present official plan designation(s): 'Other Hazard Lands' and 'Residential'

Present zoning: 'R1-A' and 'HL'

Please describe **all existing** buildings or structures on the subject lands and whether they are to be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, height, etc. on your attached sketch which must be included with your application:

frame cottages exist on each lot - they are to be removed.

If known, the date existing buildings or structures were constructed on the subject lands:

unknown

If an addition to an existing building is being proposed, please explain what will it be used for (e.g. bedroom, kitchen, bathroom, etc.). If new fixtures are proposed, please describe.

—

Please describe **all proposed** buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, height, etc. on your attached sketch which must be included with your application:

unknow at this time

If known, the date the proposed buildings or structures will be constructed on the subject lands:
once approved timeline will be established

Are any existing buildings on the subject lands designated under the *Ontario Heritage Act* as being architecturally and/or historically significant?

☐ Yes ☑ No

If yes, identify and provide details of the building:

The date the subject lands was acquired by the current owner: unKnown

Present use of the subject lands: cottage

If known, the length of time the existing uses have continued on the subject lands: pre 1950.

Existing use of abutting properties: residential.

E. PREVIOUS USE OF THE PROPERTY

Has there been an industrial or commercial use on the subject lands or adjacent lands?

☐ Yes ☑ No ☐ Unknown

If yes, specify the uses:

Has the grading of the subject lands been changed through excavation or the addition of earth or other material?

☐ Yes ☑ No ☐ Unknown

Has a gas station been located on the subject lands or adjacent lands at any time?

☐ Yes ☑ No ☐ Unknown

Has there been petroleum or other fuel stored on the subject lands or adjacent lands at any time?

☐ Yes ☑ No ☐ Unknown

Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites?

☐ Yes ☑ No ☐ Unknown

Provide the information you used to determine the answers to the above questions:

local knowledge

If you answered yes to any of the above questions, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed.

Is the previous use inventory attached?

☐ Yes ☑ No

F. STATUS OF OTHER PLANNING DEVELOPMENT APPLICATIONS

Has the subject land or land within 120 metres of it been or is now the subject of an application under the *Planning Act, R.S.O. 1990, c. P. 13* for:

(a) a minor variance or a consent;
(b) an amendment to an official plan, a zoning by-law or a Minister's zoning order; or
(c) approval of a plan of subdivision or a site plan?

☐ Yes ☐ No ☑ Unknown

If yes, indicate the following information about **each application**:

File number: townhouses to east R4.8 w 2BL.

Land it affects:

Purpose:

Status/decision: approved

Effect on the requested amendment:

none

If additional space is required, please attach a separate sheet.

Is the above information for other planning developments applications attached?

☐ Yes ☑ No

G. PROVINCIAL POLICY

Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act, R.S.O. 1990, c. P. 13*?

☑ Yes ☐ No

If no, please explain:

Are the subject lands within an area of land designated under any provincial plan or plans?

☐ Yes ☑ No

If yes, does the requested amendment conform to or does not conflict with the provincial plan or plans:

Are any of the following uses or features on the subject lands or within 500 metres (1,640 feet) of the subject lands, unless otherwise specified? Please check the appropriate boxes, if any apply.

Use or Feature	On the Subject Lands		Within 500 Metres (1,640 feet) of Subject Lands (Indicate Distance)		
Livestock facility or stockyard (if yes, complete Form 3 – available upon request)	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Wooded area	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Municipal landfill	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Sewage treatment plant or waste stabilization plant	☐ Yes	☑ No	☑ Yes	☐ No	300m distance
Provincially significant wetland (class 1, 2 or 3) or other environmental feature	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Floodplain	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Rehabilitated mine site	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Non-operating mine site within one kilometre	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Active mine site within one kilometre	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Industrial or commercial use (specify the use(s))	☑ Yes	☑ No	☑ Yes	☐ No	300m distance
Active railway line	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Seasonal wetness of lands	☐ Yes	☑ No	☐ Yes	☑ No	____ distance
Erosion	☑ Yes	☐ No	☑ Yes	☐ No	____ distance
Abandoned gas wells	☐ Yes	☑ No	☐ Yes	☑ No	____ distance

H. SERVICING AND ACCESS

Indicate what services are available or proposed:

Water Supply
- ☑ Municipal piped water
- ☐ Communal wells
- ☐ Individual wells
- ☐ Other (describe below)

Sewage Treatment
- ☑ Municipal sewers
- ☐ Communal system
- ☐ Septic tank and tile bed
- ☐ Other (describe below)

Storm Drainage
- ☑ Storm sewers
- ☐ Open ditches
- ☐ Other (describe below)

If other, describe:

Have you consulted with Public Works & Environmental Services concerning stormwater management?

☐ Yes ☑ No

Has the existing drainage on the subject lands been altered?

☐ Yes ☑ No

Does a legal and adequate outlet for storm drainage exist?

☑ Yes ☐ No ☐ Unknown

Existing or proposed access to subject lands:

- ☐ Unopened road
- ☑ Municipal road
- ☐ Provincial highway
- ☐ Other (describe below)

If other, describe:

Name of road/street: Brown Street

I. OTHER INFORMATION

Is there a time limit that affects the processing of this development application?

☐ Yes ☑ No

If yes, describe:

_____

Is there any other information that you think may be useful in the review of this development application? If so, explain below or attach on a separate page.

_____

_____

_____

_____

Zoning Deficiency

Norfolk CityView Web

Roll Number 33-10-334-030-747-00-0000

IMPORTANT: THIS FORM IS NOT COMPLETE UNLESS IT IS ACCOMPLANIED BY AN ATTACHED "LOT DIAGRAM PLAN" INDICATING ALL APPLICABLE SITE CONDITIONS.

Property Information

Issue Date:

Owner	DE KONING LARRY	Property Lot	18	Former Municipality	Port Dover
		Block		Plan	118
Civic Address	112 BROWN ST	Part		Reference Plan	
Legal Description	PDOV PLAN 118 LOT 18	Concession		Extension to a Non-conforming use?	
Zoning	R1-A / Haz	Current Use of Property	~~Cottage~~ SFD.	Township	
By-law	NWL-2000	Proposed Use of Property	SFD.		Nanticoke.

Zoning Deficiency

DEVELOPMENT STANDARDS	Required (Meters/Feet)		Proposed		Deficiency	
a) Lot Area						
b) Lot Frontage						
c) Front Yard Setback						
d) Exterior Side Yard						
e) Interior Side Yard (Rt)						
f) Interior Side Yard (Lt)						
g) Rear Yard						
h) Dwelling Unit Area						
i) % Lot Coverage						
j) Height of Building						
k) Accessory Building						
Accessory Building Comments						
l) Parking						
m) Other 4.3.3	50 m	164 ft	Ø m	Ø ft	50 m	164 ft

Other Clause: | Other Description:

The "PROPOSED" information and any supporting documents have been provided by the owner/applicant. The above information is only in respect to "Zoning" (Minor Variance, Zone Change, etc.) and does not relieve the applicant/owner from obtaining all other permits and/or approvals, such as Health Approval, entrance Permits, Building Permit, etc.

I, the Owner/Applicant take full responsibility for the accuracy of the "PROPOSED" information provided on this form.

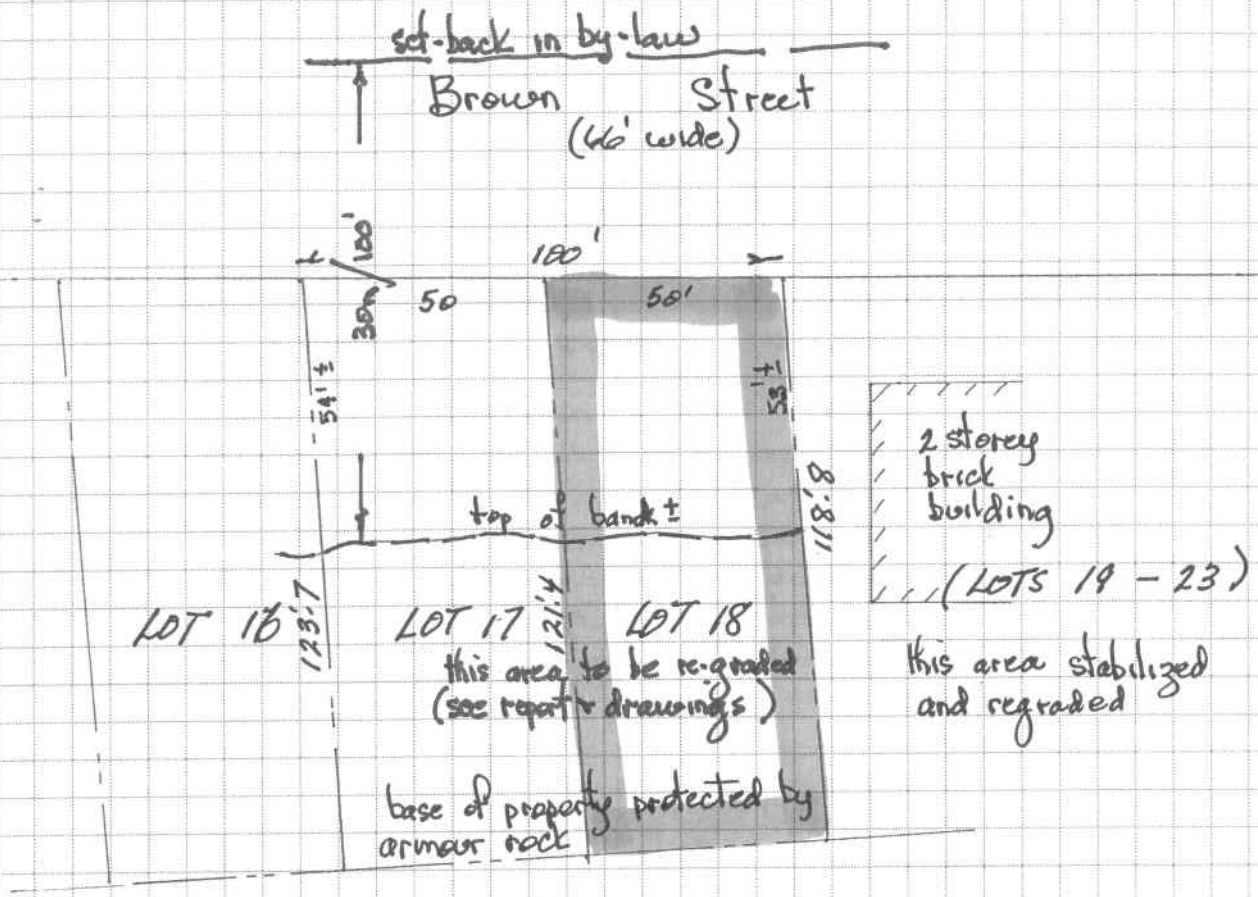
Signatures: _____ Owner/Applicant

Bruce Little June 10/08
Building Inspector

Instructions:
1. Owner/Applicant to complete unshaded areas.
2. Building Inspector to complete shaded areas.
3. The Owner/Applicant to submit completed form to the Area regional Planner or the secretary to Committee of Adjustment. Your contact in this regard is:

Name Address

T. Dover RP. 118 Lots 17-18
Large Detaining



MC ENGINEERING
P.O. Box 1002
Simcoe, Ontario
N3Y 5B3

Report On
GEOTECHNICAL INVESTIGATION
to
ASSESS SLOPE STABILITY
110 BROWN STREET
PORT DOVER, ONTARIO

Ref.: 1-3903

February 19, 2007

ATKINSON, DAVIES INC. *Since 1980* *Consulting Geotechnical, Environmental and Construction Materials Engineers*

60 Meg Drive, Unit 12, London, Ontario, N6E 3T6 **Telephone:** (519) 685-6400 **Fax:** (519) 685-0943
Website: www.atkinsondavies.com **Email:** atkinsondavies@atkinsondavies.com

February 19, 2007

Ref.: 1-3903

MC Engineering
P.O. Box 1002
Simcoe, Ontario
N3Y 5B3

Attention: Mr. Ryan Morrison, P.Eng.

Dear Sirs:

Re: Geotechnical Investigation to Assess Slope Stability at 110 Brown Street Port Dover, Ontario

We have completed this project in accordance with your instructions and authorization. This report contains a record of our findings and presents our conclusions with regard to the stability of the existing slope.

FIELD WORK

The field work, consisting of one sampled borehole, was carried out on February 6, 2007, at the location shown on Enclosure 2. The borehole was advanced to the sampling depths by a power auger machine, which was equipped with hollow-stem augers and conventional soil sampling equipment.

Standard penetration tests were performed at frequent intervals of depth, as detailed in Appendix 'A', and the results are recorded on the borehole log as *N* values. The split-spoon samples were stored in airtight containers, which were transferred to our laboratory for classification, testing and storage.

The field work was supervised by a geotechnologist, who referred the strata changes to the ground surface at the borehole location. A profile of the existing slope was supplied by the client.

SUBSURFACE CONDITIONS

Detailed descriptions of the strata, which were encountered in the borehole, are given on the borehole log comprising Enclosure 3. The following notes are intended only to amplify this data.

The borehole encountered a surface layer of topsoil, 150mm thick, followed by sand and gravel fill which extends to a depth of 1.4 metres. The sand and gravel is underlain by soft clayey silt fill to a depth of 2.9 metres, and the moisture content of the clayey silt was determined to range from 17% to 23%. The fill materials are underlain by grey silty clay containing seams of silt which extends to a depth of 9.0 metres, and the consistency of the grey silty clay is described as *stiff* based on *N* values ranging from 8 to 11 blows per foot. The natural moisture content of the stiff grey silty clay was determined to range from 25% to 30%.

The stiff grey silty clay is underlain by grey silty clay to clayey silt, which extends to the lower limit of the borehole at a depth of 15.7 metres. The consistency of the grey silty clay to clayey silt is described as *very stiff* to *hard* as indicated by *N* values ranging from 15 to 31 blows per foot, and

the natural moisture content of the *very stiff* to *hard* grey silty clay was determined to range from 13% to 25%.

GROUNDWATER CONDITIONS

Due to the impermeable nature of the silty clay and clayey silt subsoil, the borehole remained dry throughout the drilling operation, and a considerable period of time would be required for the water level to stabilize in the open borehole. Furthermore, the level could be distorted by surface seepage.

Based on an inspection of the soil samples the lowest level reached by the groundwater table is indicated by the change in colour of the subsoil from brown to grey at a depth of 2.9 metres below the ground surface, however during periods of excessive rainfall or surface run-off, a perched water table condition may be encountered within the surface layers of fill.

DISCUSSION AND RECOMMENDATIONS

Bank Stability

A slope profile was provided by MC Engineering and the profile indicates that the slope has a gradient of 25°. Based on our previous experience it is assumed that a stable slope for a factor of safety of 1 is close to 2:1 (26.5°), and in order to provide a factor of safety of 1.35, which is the mid-range for residential development, the slope angle from the toe of the slope to the building foundation must be 20 degrees or less.

A slope assessment rating was carried out in accordance with the Shoreline Policy of the MNR (Terraprobe Study, 994), and the values of the 7 components for the slope are as follows:-

COMPONENT	DATA	RATING
1. Slope Inclination	25°	6
2. Soil Stratigraphy	Till	9
3. Seepage from Face	None	0
4. Slope Height (m)	15m	8
5. Vegetation Cover	Light	4
6. Table Land Drainage	Flat	0
7. Proximity of Water Course to Toe	less than 15m	6
8. Previous Landslide Activity	No	0
Total		**33**

The 33 rating places the site in the slight potential category which requires a site inspection and survey together with a detailed report by a professional engineer.

Setback Requirements

The normal setback requirements have 3 components which are namely the toe erosion component, the slope stability component, and the erosion access component. These are discussed as follows:-

Erosion Component

The site has a concrete block erosion protection wall which will be extended above the high water level of Lake Erie at EL. 178, and above this level the lower section of the slope will be protected by rip rap to a height of 1.5 metres above the high water level. It may therefore be assumed that the

erosion component will be a zero, however it is recommended that the shoreline protection be inspected annually as indicated on the shoreline protection drawings from MC Engineering.

Slope Stability Component

As mentioned previously, the factor of safety against slope failure for residential construction must be in the range 1.3 to 1.4, and using a factor of safety of 1.35 the setback requirement from the top of the slope for a footing at a depth of 2.9 metres (EL. 187.0±) is estimated to be 6.0 metres (i.e. minimum erosion access requirement).

Erosion Access Component

The maintenance component provides for maintenance of the slope should there be any instability, and this is normally set at 6 metres (20 feet). It is estimated that the existing slope has a factor of safety of about 1.1, and the setback requirement for the slope stability component of 6 metres therefore lies within the range 1.1 at the top of the existing slope to 1.35 at the nearest face of the residence. The factor of safety required for passive land use is indicated in the guideline as 1.1 and the 6 metre setback for bank stability therefore also meets the requirement for erosion access.

The factor of safety for light non-habitated structures such as garages, swimming pools and sheds must be a minimum of 1.2 to 1.3, and using a factor of safety of 1.25 the required setback for these types of structures must be at least 4.3 metres.

General Recommendations

The following normal levels of procedure should be incorporated in the development.

1. No vegetation or existing trees shall be removed from the slope or from the tableland on top of the slope without approval of the geotechnical consultant and the local authority.

2. No fill should be placed on the tableland within 20 feet of the top of the slope without approval from the geotechnical consultant.

3. No drains, sewers or drainage systems shall be outletted on the existing slope, and the site grading should direct surface flows away from the slope.

4. All footings shall be supported on competent native subsoil (i.e. at a depth of 2.9 metres at Borehole 1 location. The depth of fill probably increases towards the lake and the footing depth must be confirmed by the geotechnical consultant.

We trust that this report contains sufficient information for your design and approval requirements, however if further discussion is required, please do not hesitate to contact us. The Statement of Limitation, Appendix 'B', should be read in connection with the report.

Yours very truly,

ATKINSON, DAVIES INC.

C.J.W. Atkinson, M.Sc., P.Eng.

CJWA/wrs

Enclosures

THE STANDARD PENETRATION TEST

In order to determine the relative density of non-cohesive soils, such as sands and gravels, the standard penetration test has been adopted. The test also gives an indication of the consistency of cohesive soils.

A two inch (50.8mm) external diameter thick-walled sample tube is driven into the ground at the bottom of the borehole by means of a 140 lb. (635 kg) hammer falling freely through 30 inches (760mm). The tube is first driven an initial 6 inches (150mm) to allow for the presence of disturbed material at the bottom of the borehole. The number of standard blows (*N*) required to drive the sampler a further 12 inches (300mm) is recorded. The sample tube is one originally developed by Raymond Concrete Pile Company in the United States, where a sufficient number of tests have been made in conjunction with field investigations to show that the results, although essentially empirical, may be applied to foundation design.

For Sands:-

Values of *N*	**Density**
Less than 10	*Loose*
Between 10 and 30	*Compact*
Between 30 and 50	*Dense*
Greater than 50	*Very dense*

STATEMENT OF LIMITATION

The conclusions and recommendations in this report are based on information determined at the borehole locations and on geological data of a general nature which may be available for the area investigated. Soil and groundwater conditions between and beyond the boreholes may differ from those encountered at the borehole locations and conditions may become apparent during construction which could not be detected or anticipated at the time of the soil investigation. The passage of time also must be considered, and it must be recognized that, due to natural occurrences or direct or indirect human intervention at the site or distant from it, actual conditions discovered may quickly change. The information contained within this report in no way reflects the environmental aspect of the site or soil, unless specifically reported upon.

The comments given in this report on potential construction problems and possible methods of construction are intended only for the guidance of the designer. The number of test holes may not be sufficient to determine all of the factors that may affect construction methods and costs (e.g. the thickness of surficial topsoil and fill layers can vary markedly and unpredictably). The contractors bidding on this project or undertaking the construction should therefore make their own interpretations of the presented factual information and draw their own conclusions as to how the subsurface conditions may affect their work.

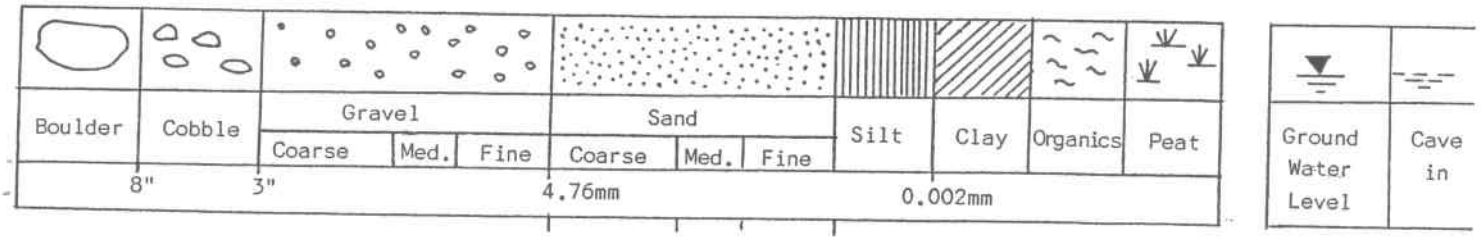
We recommend that we be retained to ensure that all necessary stripping, subgrade preparation and compaction requirements are met, and to confirm that the soil conditions do not deviate materially from those encountered in the boreholes. **In cases where this recommendation is not followed, the company's responsibility is limited to interpreting accurately the information encountered at the boreholes.**

This report is applicable only to the project described in the introduction, constructed substantially in accordance with details of alignment and elevation quoted in the text.

ATKINSON, DAVIES INC.
Enclosure 1

LIST OF SYMBOLS, ABBREVIATIONS AND NOMENCLATURE

Soil Components and Ground Water Conditions



U.S. Standard Sieve Size: No.4 No.10 No.40 No.200

SAMPLE TYPES

AS	Auger sample	RC	Rock core	TP	Piston, thin-walled tube sample
CS	Sample from casing	%	Recovery	TW	Open, thin-walled tube sample
ChS	Chunk sample	SS	Split-spoon sample	WS	Wash sample

SAMPLER ADVANCED BY: static weight : w
" pressure : p
" tapping : t

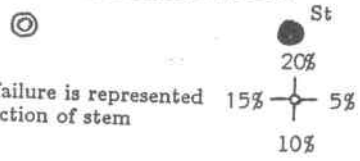
OBSERVATIONS MADE WHILE CORING: Steady pressure; No pressure; Intermittant pressure; Washwater returns; Washwater last

SOIL PROPERTIES

W%	Water content	γ	Natural bulk density (unit weight)	k	Coefficient of permeability
LL%	Liquid limit	e	Void ratio	C	Shear strength — in terms of total stress
PL%	Plastic limit	RD	Relative density	ϕ	Angle of int. friction — in terms of total stress
PI%	Plasticity index	c_v	Coeff. of consolidation	C'	Cohesion — in terms of effective stress
LI	Liquidity index	m_v	Coeff. of volume compressibility	ϕ'	Angle of int. friction — in terms of effective stress

UNDRAINED SHEAR STRENGTH
- DERIVED FROM -

TRIAXIAL / UNCONFINED COMPRESSION TEST



Strain of failure is represented by direction of stem

LABORATORY / FIELD VANE TEST: X St, + St

POCKET PENETROMETER TEST: ▲

$$St : \text{sensitivity} = \frac{\text{shear strength in undisturbed state}}{\text{shear strength in remoulded state}}$$

SOIL DESCRIPTION

COHESIONLESS SOILS:	RD:
Very loose	0 - 15%
Loose	15 - 35%
Compact	35 - 65%
Dense	65 - 85%
Very dense	85 - 100%

COHESIVE SOILS:	C p.s.f.
Very soft	less than 250
Soft	250 - 500
Firm	500 - 1000
Stiff	1000 - 2000
Very stiff	2000 - 4000
Hard	over 4000

Enclosure 2
Ref.: 1-3903

LOTS 17 & 18
REGISTERED PLAN 118
IN THE
TOWN OF PORT DOVER
IN THE
IN THE COUNTY OF NORFOLK

ATKINSON, DAVIES INC. CONSULTING SOILS AND MATERIALS ENGINEERS
12 - 60 Meg Drive, London ON N6E 3T6 PHONE (519) 685-6400 FAX (519) 685-0943

REF. NO.: 1-3903
CLIENT: MC Engineering
PROJECT: Planned New Residence
LOCATION: 110 Brown Street, Port Dover
DATUM ELEVATION: Ground Surface

LOG OF BOREHOLE NO. 1

Encl. No. 3 (Sheet 1 of 2)
DRILLING DATA: Track Mount Rig
METHOD: Hollow Stem Augers
DIAMETER: 200mm
DATE: Feb 6, 2007

Elev. metres	Depth metres	DESCRIPTION	SYMBOL	GROUND WATER	NUMBER	TYPE	"N" Blows/ft	Penetration Resistance Blows/ft (20 40 60 80) / Undrained Shear Strength kPa ▲ Field Vane Test ★ Compression Test (20 40 60 80)	PLASTIC LIMIT %	NATURAL WATER %	LIQUID LIMIT %
	0	150mm TOPSOIL.									
		Compact, sand & gravel FILL with concrete fragments.			1	ss	18				
	1										
		Soft, clayey silt FILL with concrete fragments.			2	ss	33			23	
	2										
					3	ss	2			17	
	3										
					4	ss	11			29	
	4										
		Stiff, grey silty CLAY, lower silt seams.			5	ss	9			30	
					6	ss	10			25	
	5										
	6				7	ss	8			29	
	7										
					8	ss	8			27	
	8										
					9	ss	18			22	
	9										

LOG OF BOREHOLE 1-3903.GPJ ATK_DAV.GDT 9/2/07

A INSON, DAVIES INC. CONSULTING SOILS AND MATERIALS ENGINEERS
12 - 60 Meg Drive, London ON N6E 3T6 PHONE (519) 685-6400 FAX (519) 685-0943

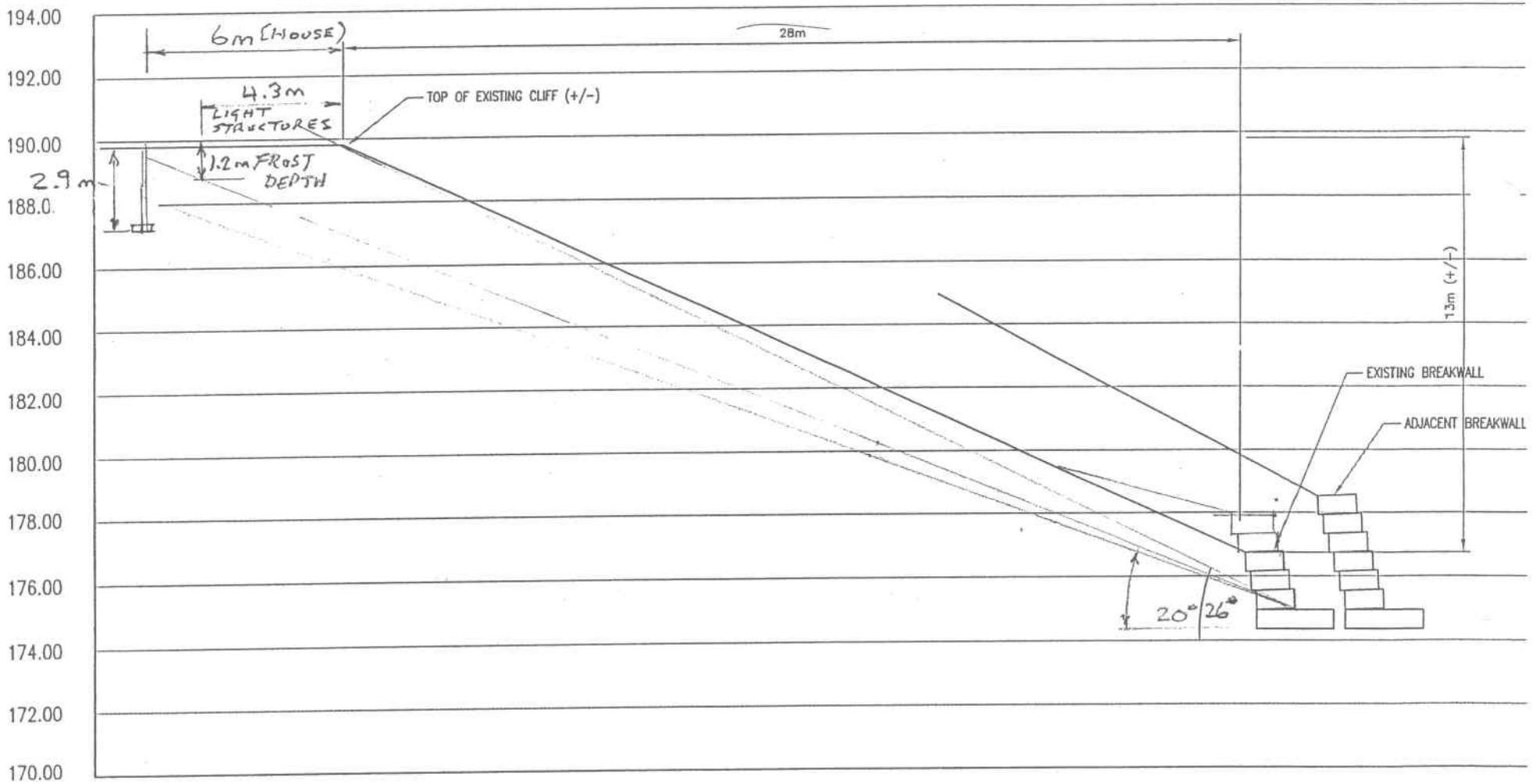
REF. NO.: 1-3903
CLIENT: MC Engineering
PROJECT: Planned New Residence
LOCATION: 110 Brown Street, Port Dover
DATUM ELEVATION: Ground Surface

LOG OF BOREHOLE NO. **1**

Encl. No. 3 (Sheet 2 of 2)
DRILLING DATA: Track Mount Rig
METHOD: Hollow Stem Augers
DIAMETER: 200mm
DATE: Feb 6, 2007

Elev. metres	Depth metres	DESCRIPTION	SYMBOL	GROUND WATER	NUMBER	TYPE	"N" Blows/ft	Penetration Resistance Blows/ft (20 40 60 80) / Undrained Shear Strength kPa ▲ Field Vane Test ★ Compression Test (20 40 60 80)	PLASTIC LIMIT %	NATURAL WATER %	LIQUID LIMIT %
	10										
	11	Very stiff to hard, clayey SILT to silty CLAY with silt seams and sandy seams. *(continued)*			10	ss	15			25	
	12				11	ss	31			20	
	13										
	14				12	ss	24			21	
	15										
		End of Borehole. Hole dry at compeltion.			13	ss	19			13	

LOG OF BOREHOLE 1-3903.GPJ ATK_DAV.GDT 9/2/07


194.00
192.00
190.00
188.0
186.00
184.00
182.00
180.00
178.00
176.00
174.00
172.00
170.00
6m (HOUSE)
28m
4.3m
LIGHT STRUCTURES
TOP OF EXISTING CLIFF (+/-)
1.2m FROST DEPTH
2.9 m
13m (+/-)
EXISTING BREAKWALL
ADJACENT BREAKWALL
20°
26°

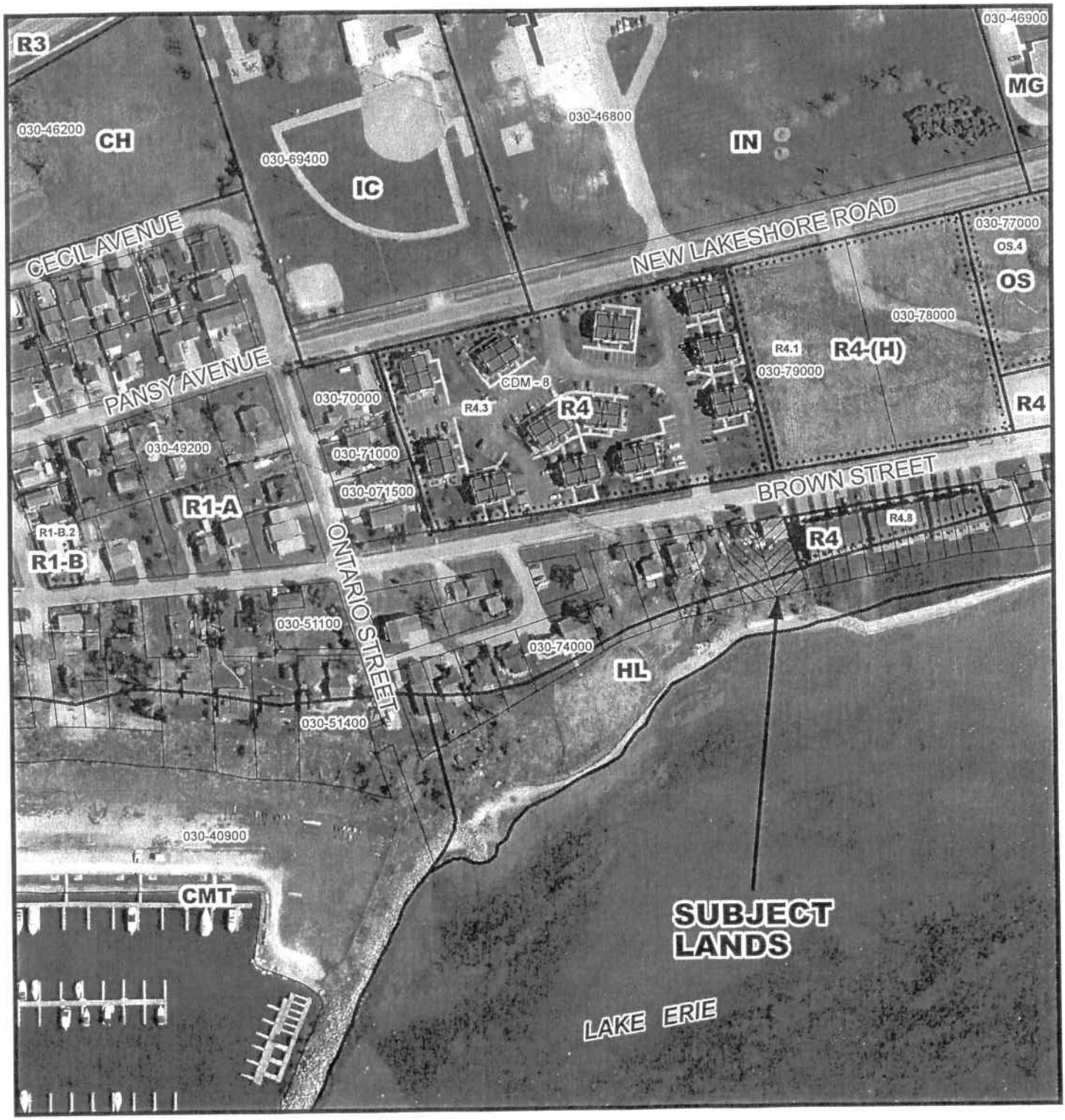
Ref.: 1-3903

MAP 1
File Number: AN-031/2008 & AN-032/2008
Urban Area of PORT DOVER

MAP 2
File Number: AN-031/2008 & AN-032/2008
Urban Area of PORT DOVER

N
W E
S
10 5 0 10 20 30 40
Meters

1:2,500



MAP 3
File Number: AN-031/2008 & AN-032/2008
Urban Area of PORT DOVER

N
W E
S
4 2 0 4 8 12 16 Meters

1:750