

NOTES OF CONFERENCE

71-11140

QUEEN ELIZABETH WAY  
HUMBER RIVER TO ROYAL YORK ROAD  
DTC - W.P. 314-65-01

DATE Monday, January 10, 1972

PLACE Toronto Office

PRESENT	Messrs.:	W.C. Friedmann	Department of Transportation
		I. Tremain	and Communications
		J. Robertson	
		D. Aspinwall	
		C. Burkhardt	
		W. Lin	
		R. Carney	
		M. Lojkasek	
		G.K. Porter	
		R.S. Adachi	Foundation of Canada
		Z. Mekinda	Engineering Corporation
		K.E. Hutchinson	Limited

PURPOSE - Progress Meeting

ACTION  
BY

1. The Bridge Planning Section advised that foundation and soils investigations have been done for the new eastbound and westbound structures over Mimico Creek.

Foundation investigations will be carried out for the retaining wall in the very near future.

DTC

2. The Bridge Planning Section advised that they have contacted the Conservation Authority regarding provision of a vehicular path under the Mimico Creek structures. Vertical clearance of 10'-0" will be provided over a 10'-0" roadway width.

3. It was agreed that FENCO would prepare the preliminary bridge drawings for review by the Bridge Planning Section prior to proceeding with the detailed design.

FENCO

ACTION  
BY

13. FENCO proposed that the Oxford Road north edge of pavement adjacent to the new retaining wall No. 12 be curbed to match the existing section done during a previous contract. Agreement was reached on the above to be included as part of the DTC contract.
14. FENCO indicated that guide rail will be installed adjacent to the fence line in the areas where property requirements were restricted.

FENCO pointed out that the head light glare could be reduced by installing an aluminium anti-glare fence. Systems Design indicated that the normal chain link fence should be installed now but that an anti-glare panel could be considered at a later date. It was agreed that frangible base poles should be used in the areas where the guide rail protection is not available.

15. It was agreed that the existing storm sewer system will be abandoned where it falls under the collector roadway. The District advised that they have had problems in situations where man-hole covers fall under the travelled way.

16. The District requested clarification of the bridge demolition at Royal York Road and Grand Avenue, and requested that the centre supports be considered as piers for payment purposes. FENCO will incorporate into Special Provisions.

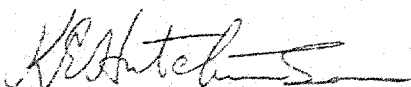
FENCO

17. It was agreed that the handling of the drums for the detours should be based on a price for lineal feet on the predetermined spacing. FENCO will incorporate into D-4.

FENCO

18. Next meeting will be held on Tuesday, February 1, 1972, at 9.30 a.m. The progress meeting will be in the morning session and detailed staging will be discussed in the afternoon.

3552-120

  
K.E. Hutchinson  
Secretary of the Meeting

# FENCO

1 Yonge Street  
Toronto Canada  
416-361-4722  
Cable 'Foundation'  
Telex 02 2814

January 24, 1972

Mr. M. Devata  
Materials and Testing Office  
Department of Transportation &  
Communications  
DOWNSVIEW 464, Ontario

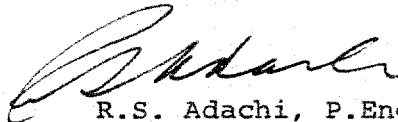
71-11140

Dear Sirs,

QUEEN ELIZABETH WAY  
W.P. 314-65-01  
RETAINING WALL NO. 12

As requested by Mr. D. Aspinwall, Systems Design, we enclose two  
(2) prints of plan and profile for retaining wall No. 12.

Yours very truly,  
FOUNDATION OF CANADA ENGINEERING  
CORPORATION LIMITED



R.S. Adachi, P.Eng.  
HIGHWAY ENGINEER

RSA/rhm  
3552  
Enc.

cc: Mr. D. Aspinwall  
DTC - DOWNSVIEW

Department of Highways Ontario  
Copy for the information of

PN L  
Jan 28/72

A. Stermac

G. Burkhardt,  
Reg. Bridge Planning Engineer,  
90 Floral Parkway.

Structural Office,  
West Bldg., Downsview.

January 27, 1972.

Re: E.B. Raap Bridge over Minico  
Creek (Bridge #11),  
W.P. #314-65-13, Site 37-992,  
Hwy. No. Q.E.W., District #6.

71-11140

~~71-11140~~

Attached herewith are prints of the Preliminary  
Bridge Plan Drawing D-37-992-P1 for the above-mentioned  
structure.

The estimated cost of the proposed structure is  
\$150,000.00, which includes tender, materials, engineering and  
sundry construction.

Any comments or revisions you may have should be  
submitted within three weeks.

C.S. Grabski,  
Structural Design Engineer.

CSE:er  
Attach.

C.C. A. Mohin  
B. Lavis  
A. Stermac (2)  
J. Anderson  
R. Fitzgibbons

Comments have been submitted in a letter.

PN - Anata  
Feb 8/72

Department of Transportation and Communications  
XXXXXXXXXXXXXXXXXXXXX

Mr. C. S. Grebski,  
Structural Design Engineer,  
Design Services Branch,  
West Bldg., Downsview.

Foundations Office,  
Design Services Branch,  
Central Bldg., Downsview.

February 8, 1972.

Proposed Structure at the Crossing of Ramp N.S.-W.  
and Mimico Creek (Bridge #12), Q.E.W. Reconstruction,  
Borough of Etobicoke, Metropolitan Toronto,  
District No. 6 (Toronto), W.O. 71-11140, W.P. 314-65-14.

We have reviewed the Preliminary Bridge Drawing #37-991-P1,  
dated January, 1972, for the aforementioned project and submit  
the following comments.

1. The two piers are to be founded on spread footings located within the upper weathered portion of the shale bedrock. In order to protect the integrity of the shale bedrock from the deteriorating effect caused by groundwater seepage or uncontrolled surface runoff it is recommended that a lean concrete working slab be poured as soon as the foundation level is reached. This working slab should be shown on the Bridge Drawings.
2. The abutments are to be supported on HP 12 x 74 steel H piles driven to bedrock. The allowable load per pile given on the drawing should be increased from 95 tons/pile to 100 tons/pile, in accordance with current D.T.C. practices.
3. Along the east approach the new fill will be placed over the existing sloping bank of Mimico Creek. In order to ensure the surficial stability of this new fill it is recommended that the topsoil, along this existing bank, be stripped and the new fill "keyed" into the existing slope in accordance with current D.T.C. practices. We recommend that this provision be shown on the Final Bridge Drawings.

MD/ac

cc: W. L. Lin  
G. C. E. Burkhardt  
Mr. Temple - Penco  
Foundations Files  
Documents

*M. Devata*  
M. Devata,  
SUPERVISING FOUNDATION ENGINEER.

Department of Transportation and Communications  
XXXXXXXXXXXXXXXXXXXXX

Mr. C. S. Grebski, P. Eng.,  
Structural Design Office,  
Design Services Branch,  
West Bldg., Downsview.

Foundations Office,  
Design Services Branch,  
Central Bldg., Downsview.

February 9, 1972.

Proposed Structure at the Crossing of  
E. B. Collector Lane and Mimico Creek (Bridge #11)  
Q.E.W. Reconstruction, Borough of Etobicoke,  
Metropolitan Toronto, District #6 (Toronto),  
W.O. 71-11140, W.P. 314-65-13.

We have reviewed the Preliminary Bridge Drawing No. 37-992-P1,  
dated January 1972, for the aforementioned project and submit  
the following comments.

1. The two piers are to be founded on spread footings located within the upper weathered portion of the shale bedrock. In order to protect the integrity of the shale bedrock from the deteriorating effect caused by groundwater seepage or uncontrolled surface runoff it is recommended that a lean concrete working slab be poured as soon as the foundation level is reached. This working slab should be shown on the bridge drawings.
2. The west abutment can be supported on a spread footing founded at about elevation 270 in the parent very stiff silty clay to clayey silt stratum. Footing founded here could be designed using an allowable bearing value of 3.5 t.s.f. in design. The spread footing scheme at this location should be investigated so that footing may not be located within the backfill material of the existing storm sewer in this area. Alternatively the abutment footing can be carried down to bear within the upper weathered portion of the bedrock; i.e., at or below elevation 266. A footing so founded could be designed using an allowable bearing value of up to 7.5 t.s.f. in design.
3. The east abutment is to be supported on HP 12 x 74 steel H piles driven to bedrock. The allowable load per pile given on the drawing should be increased from 95 tons/pile to 100 tons/pile, in accordance with current D.T.C. practices.

MD/ao

cc: W. L. Lin  
G. C. E. Burkhardt  
Mr. Temple (Fenco)

*M. Deveto*  
M. Deveto,  
SUPERVISING FOUNDATION ENGINEER.

MEMORANDUM

TO: Mr. G. C. E. Burkhardt, (2)  
Regional Bridge Planning Engineer,  
Central Region,  
90 Floral Parkway,  
Downsview, Ontario.

FROM:

Foundations Office,  
Design Services Branch,  
Central Bldg., Downsview.

ATTENTION:

DATE:

February 9, 1972.

OUR FILE REF.

IN REPLY TO

FEB 10 1972

SUBJECT:

FOUNDATION INVESTIGATION REPORT

For

Proposed Structures Nos. 11 & 12  
E.B. Collector Lane and Ramp  
N.S.-W. Crossing at Mimico Creek  
Retaining Wall No. R.W. 12 East of Islington Ave.  
QEW Reconstruction

Borough of Etobicoke, Metropolitan Toronto  
District No. 6 (Toronto)

W.O. 71-11140 - W.P.'s 314-65-14 (Ramp N.S.-W.)  
314-65-13 (E.B. Collector)  
314-65-12 (Retaining Wall)

Cont 74-33

Attached we are forwarding to you our detailed foundation investigation report on the subsoil conditions existing at the above-mentioned site.

We believe that the factual data and recommendations contained therein, will prove adequate for your design requirements. Should additional information be required, please do not hesitate to contact our Office.

ACS/ao

Attach.

cc: Messrs. D. W. Farren

B. R. Davis

A. Rutka

C. K. Hunter

H. Greenland

B. J. Giroux

T. J. Kovich

G. A. Wrong

B. A. Singh

De Leuw, Cather & Co. Ltd. (R. Burd)

Foundations Files

Documents

A. G. Stermac,  
PRINCIPAL FOUNDATION ENGINEER.

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7. MISCELLANEOUS.



# FOUNDATION INVESTIGATION REPORT

For

Proposed Structures Nos. 11 & 12

E.B. Collector Lane and Ramp

N.S.-W. Crossing at Mimico Creek

Retaining Wall No. R.W. 12 East of Islington Ave.

QEW Reconstruction

Borough of Etobicoke, Metropolitan Toronto

District No. 6 (Toronto)

W.O. 71-11140 - W.P.'s 314-65-14 (Ramp N.S.-W.)

314-65-13 (E.B. Collector)

314-65-12 (Retaining Wall)

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## 1. INTRODUCTION:

It is proposed to reconstruct the Q.E.W. from the Gardiner Expressway easterly. In connection with this programme, the Foundation Office carried out subsurface investigations at the structure crossings of reconstructed Q.E.W. and

i) Mimico Creek - W.J. 69-F-68 W.P. 314-65-04

ii) Park Lawn Rd. - W.J. 69-F-67 W.P. 314-65-05,

in the Borough of Etobicoke, Metropolitan Toronto. Foundation reports have been submitted on these projects.

As part of the reconstructed Q.E.W.-Mimico Creek - Park Lawn Rd. complex two additional structures have been proposed. These are the structures required at the ramp N.S.-W. and E.B. collector lane crossings with Mimico Creek, designated as Structures No. 12 and 11, respectively. Further, a retaining wall is proposed; this wall is to extend along the south side of the reconstructed Q.E.W. commencing at point east of the Islington Avenue interchange (R.W. #12). The Foundation Office was requested to carry out subsurface investigations at the three separate sites. This request was contained in a memo from Mr. G. C. E. Burkhardt, Regional Bridge Planning Engineer, Central Region, dated December 22, 1971. Investigations have been

carried out to determine the subsoil, bedrock and groundwater conditions at the respective sites.

All the factual data obtained from the investigations, together with our recommendations pertaining to the structure foundations, as well as the stability and settlement considerations associated with the approaches, are contained in this report.

## 2. DESCRIPTION OF THE SITE AND GEOLOGY:

Two of the sites under investigation are located immediately west of Park Lawn Rd. in the vicinity of Mimico Creek and the existing Q.E.W., in the Borough of Etobicoke, Metropolitan Toronto. In this area the three east and westbound lanes of the Q.E.W. are carried over Mimico Creek by means of twin three-span concrete arch-type structures which are separated by a 30-foot wide median. The existing approach fills are of the order of 28 to 32 feet in height with the side slopes being about  $1\frac{1}{2}$ :1.

Mimico Creek, in this area, is a shallow meandering stream with a channel width of between 30 and 40 feet; the depth of water in the creek typically ranges from 2 to 3 feet. The valley floor, across this region, has a maximum width of about 200 feet. The grass covered floor is gently undulating in relief between about elevations 258 to 264. Some 200 feet south of the existing crossing, the southerly direction of the creek is changed abruptly to an easterly direction. The natural, grass covered, valley banks of the Mimico Creek valley are approximately 18 to 24 feet in height with slopes that vary from  $1\frac{1}{2}$ :1 to  $2\frac{1}{2}$ :1. The table land, on top of the valley, has been developed for commercial as well as residential purposes, as such there are a number of single storey as well as multi-storey structures present in this area.

East of Islington Avenue, in the vicinity of the Q.E.W., the terrain is flat to gently undulating in relief between

about elevations 332 to 335. The surrounding area has been developed for commercial purposes.

Physiographically this region is situated in the "Iroquois Plain," specifically in the "Toronto" subsection. Bedrock is generally located at a shallow depth below ground surface (3 to 10 feet). The bedrock is primarily overlain by a thin glacial till sheet which, in some localized zones, is covered by shallow depths of sand and gravel which were interglacial outwash deposits formed by the major creeks which traversed this area. The banks of Mimico Creek are, however, composed of a clayey silt stratum of glacial origin.

The bedrock is composed of a grey shale of the Dundas formation (Humber Member), Ordovician Period.

### 3. FIELD AND LABORATORY WORK:

Eighteen boreholes were put down at the three sites during the recent investigations. These borings were advanced using conventional diamond drill rigs adapted for soil sampling purposes. In addition eight boreholes, put down during previous investigations in this area, are included because of their close proximity to the areas being investigated. Two gradall dug test pits were also carried out in the vicinity of Mimico Creek. These pits were extended into the bedrock so that the formation could be critically examined by a geologist.

Samples of the fill and parent overburden deposits were recovered, at required depths, in a 2" O.D. split-spoon sampler, which was hammered into the soil in accordance with the specifications for carrying out the Standard Penetration Test. Bedrock was proven, in the majority of the borings, by obtaining BXL size rock core samples.

The groundwater level conditions across the area, at the time of the investigations, were determined by recording the water levels in all the open boreholes.

Borelog sheets for the borings are contained in

Appendix I of this report. The location and elevation of all the borings were surveyed by personnel from the Toronto District Office. The borings are shown in plan on the following drawings:

- W.O. 71-11140 A - Ramp N.S.-W. (Bridge No. 12)
- W.O. 71-11140 B - E.B. Collector Lane (Bridge No. 11)
- W.O. 71-11140 C - Retaining Wall (R-12)

Estimated stratigraphical sections, inferred from the boring data, are also plotted on the aforementioned drawings. All elevations given in this report are referenced to a Geodetic datum.

All soil and bedrock samples were subjected to a careful visual examination in the field and subsequently in the laboratory. Following this examination, laboratory testing was carried out on selected representative soil samples to determine the following engineering properties of the overburden.

- Natural Moisture Content
- Grain-Size Distribution
- Atterberg Limits

The results of this testing are shown on the Record of Borelog sheets.

#### 4. SUBSOIL AND BEDROCK CONDITIONS:

##### 4.1) General:

The overburden conditions encountered vary markedly in the areas under investigation. North of the Q.E.W., along the floor of the Mimico Creek valley, a topsoil cover is followed by about 1 foot of stiff clayey silt then 2 to 3.5 feet of cohesive glacial till. South of the Q.E.W., in the immediate vicinity of Mimico Creek, the clayey silt - glacial till sequence is absent; here, a 3.5 to 5 feet thick compact to dense silty sand and gravel deposit is present. Along the natural banks of Mimico Creek, a 4 to 19 feet thick stiff to hard clayey silt to silty clay stratum was encountered. In some localized areas, up to 6 feet of fill was placed on top of the valley banks for site grading purposes.

At Islington Avenue the overburden thickness varies from 5 to 10 feet. The overburden is composed of a complex sequence of compact to dense silty sand and gravel and/or stiff to hard clayey silt, which in turn are underlain by a competent cohesive glacial till deposit.

The overburden is underlain by grey shale bedrock, the upper 1 to 11.5 feet of which is in a highly to moderately weathered condition.

The boundaries of the various deposits are shown on the accompanying borelog sheets. Inferred, stratigraphical sections, across the sites are shown on Drawings No. W.O. 71-11140 A, B and C.

From ground surface downward, the various soil types encountered are as follows.

4.2) Fill Material:

At those boreholes (B.H.'s #5 and 13), put down on the west bank of Mimico Creek, south of the Q.E.W., up to 6 feet of fill was encountered. This fill was placed when carrying out the site grading operations in connection with the L. J. McGuinness Co. Ltd. storage area. The fill is composed of a silty sand to sandy silt with a trace to some gravel. The standard penetration testing, carried out within the fill, gave 'N' values which ranged from 7 blows/ft. to 60 blows for 3 inches. This would indicate that the fill has been reasonably well compacted.

4.3) Sand to Silty Sand with Gravel:

Beneath a thin topsoil cover

- i) along the Mimico Creek Valley floor, south of the Q.E.W., and
- ii) in some localized zones east of Islington Ave. is a compact to dense ('N' values 18 to 36 blows/ft.) deposit composed of a sand to silty sand with a trace to some gravel throughout. Where encountered the thickness of this deposit varied from 2 to 5 feet. Numerous boulders are present throughout the deposit; these boulders ranged from 4 to 6 inches in size.

#### 4.4) Clayey Silt to Silty Clay:

A surficial stratum of silty clay to clayey silt is present at many locations throughout this region. North of the Q.E.W., along the Mimico Creek valley floor, the stratum was periodically encountered; here it was approximately 1 foot thick. It was also present in the natural creek banks, where the thickness ranged from 4 to 19 feet. A cohesive stratum is also present in a localized area east of Islington Avenue; here it varied from 2.5 to 8.5 feet in thickness. Numerous silt and sand seams and layers ranging from 1 inch to 1.5 feet in thickness, are present throughout the stratum. In addition, random boulders, up to 12 inches in size are present.

Two Atterberg limit tests were carried out within the cohesive stratum. The results are plotted on the borelog sheets. Based on this testing it is estimated that the cohesive material is inorganic and has a plasticity in the low to intermediate range. The natural moisture content is generally below the plastic limit, which would indicate that it is a soil that is highly preconsolidated.

Standard penetration testing was carried out within the stratum, the results of which are plotted on the Record of Borelog sheets. This testing gave 'N' values which range from 12 to 128 blows/ft. Based on these results it is estimated that the consistency of the clayey silt to silty clay ranges from stiff to hard.

#### 4.5) Glacial Till:

Along the valley floor of Mimico Creek, outside the limits of the creek flood plain, the overburden is underlain by a glacial till deposit. A similar till deposit was encountered beneath the surficial deposits in the area investigated east of Islington Avenue. The thickness of this deposit varies from 1.5 to 8.5 feet. The glacial till is basically cohesive in nature, being composed of a clayey silt binding sand and gravel. In some localized areas, however, zones were encountered where the till

is granular; i.e. composed of a heterogeneous mixture of silt, sand and gravel. Occasional boulders are present throughout the deposit; these vary from 4 to 6 inches in size.

Standard penetration testing was carried out within the glacial till; this gave 'N' values which ranged from 7 blows/ft. to 160 blows for 9 inches. Based on these results it is estimated that the consistency of the cohesive glacial till varies from stiff to hard. The relative density of the granular zones are believed to be in the compact to dense range.

#### 4.6) Shale Bedrock:

The overburden is directly underlain by grey-brown to grey shale bedrock of the Meaford-Dundas formation, Ordovician Period. The bedrock was proven in 19 of the boreholes by obtaining between 3 and 15.5 feet of BX size rock core samples.

The bedrock core samples were examined by Mr. K. Ingham, Geologist, Department of Transportation and Communications. Mr. Ingham presented the results of his bedrock examination, as well as an interpretation of the geologic conditions existing at this site, in a letter to this Office dated January 21, 1972. A copy of this letter is appended to this report. The bedrock description, presented in the paragraphs to follow, is an excerpt from this letter.

The surface of the bedrock is flat to gently undulating in relief between elevations 255 to 261 along the Mimico Creek valley floor. Outside of these limits the bedrock increases in elevation beneath the valley banks. At B.H. #4, located on the east bank north of the Q.E.W., the bedrock surface was encountered as high as elevation 272.5.

In the area investigated, east of Islington Avenue, the bedrock surface was found to be gently undulating in relief between elevations 321.5 to 325.5.

The upper 1 to 11.5 feet of the bedrock was in a weathered condition. The degree of weathering in this zone was quite variable transitionally ranging from an upper highly weathered area to a lower moderately weathered area. In the highly weathered zone it was often possible to obtain

split-spoon samples, while in the lower moderately weathered zone diamond drilling techniques were always required to advance the borings. Some of these transitional weathered zones are often absent at any given borehole location (refer to the individual borelog sheets and drawings). Below the upper weathered zone the bedrock is "unweathered" or "fresh". In this lower zone the bedrock core recovery was generally high.

Numerous seams and bands of limestone, varying from a fraction of an inch up to 1 foot in thickness, are randomly located throughout the shale bedrock.

#### 5. GROUNDWATER LEVEL CONDITIONS:

The groundwater level conditions across the site were carried out, during the period of the investigation, in the open boreholes. These observations are shown on the individual borelog sheets and are summarized on Drawings No. 71-11140 A, B and C, as well as in tabular form below.

<u>Location</u>	<u>Range in Ground- water Level Elevations</u>	<u>Depth Below Existing Ground Surface</u>
Mimico Creek Valley - North of QEW	260 to 265	1 to 24 ft.
Mimico Creek Valley - South of QEW	255.5 to 260.5	1 to 21 ft.
Q.E.W. - East of Islington Ave.	322 to 329	3.5 to 7.5 ft.

During the period of the investigation the Mimico Creek water level was at about elevation 256 to 257.

#### 6. DISCUSSION AND RECOMMENDATIONS:

##### 6.1) General:

It is proposed to reconstruct the Q.E.W. from the Gardiner Expressway easterly. In connection with this reconstruction a number of structures and related retaining walls will have to be built. Foundation reports for the majority of these has already been completed and submitted.



The discussion contained herein will be concerned with the three structures for which subsurface investigations have most recently been carried out; namely,

<u>No.</u>	<u>Location</u>	<u>W.P.</u>
Bridge #11	Crossing at E.E. Collector Lane and Mimico Creek	314-65-13
Bridge #12	Crossing at Ramp N.S.-W. and Mimico Creek	314-65-14
Retaining Wall #12	East of Islington Ave.	314-65-12

The location of, and preliminary details, for these structures were shown on drawings provided by Foundation of Canada Engineering Corporation Limited, Toronto, which will be referred to later in the report.

Along the valley floor of Mimico Creek, in the vicinity of the Q.E.W. and Park Lawn Rd., as well as east of Islington Ave., grey shale bedrock is located at a relatively shallow depth below the existing ground surface (3 to 10 feet). The overburden in these areas is composed of complexly inter-bedded deposits of stiff silty clay and dense sand and gravel, which are periodically underlain by a competent cohesive glacial till sheet. The banks of Mimico Creek, which are up to 25 feet high, are formed of a stiff silty clay. The upper portion of the bedrock is in a weathered condition.

Recommendations for each of the structures, pertaining to foundation design, as well as related considerations such as the stability and settlement factors associated with the approaches fills, will be discussed separately in the subsections to follow.

6.2) Structure at the Crossing of Mimico Creek and Ramp N.S.-W. (Bridge #12 - Refer to Drawing No. 71-11140A):

6.2.1) General:

This proposed three span (56.5' - 85.5' - 56.5'), 33 feet wide structure will be located approximately 60 feet north of the existing structure at the crossing of the Q.E.W.

and Mimico Creek. Preliminary design details for the scheme are shown on Drawing No. 3795-4T-102, dated January, 1972. The proposed profile grade of the ramp, in the vicinity of the structure will vary from elevation 296 to 300. At this grade, fills up to 30 feet in height will be required along the west approach, while only nominal fills (less than 10 feet) will be necessary to form the east approach.

The concrete lined Mimico Creek channel will be approximately 50 feet wide. The side slopes of the channel will be approximately 3:1; outside of this area the slopes will be maintained between 2:1 and  $2\frac{1}{2}$ :1. A 10 foot wide access road will be accommodated on the east bank.

#### 6.2.2) Pier Foundations:

The two proposed pier foundations will be located on the Mimico Creek valley floor. Shale bedrock is present at a shallow depth below ground surface in this area, therefore, each of these piers can be founded on a spread footing located within the upper weathered portion of the bedrock. Past experiences with weathered shales have indicated that they are very frost susceptible. In this regard it is recommended that at least 4 feet of earth cover should be provided above the underside of the footings in order to satisfy the frost protection requirements in this area. Taking the aforementioned into consideration the piers could be founded as follows:

<u>Pier Location</u>	<u>Approx. Station</u>	<u>Proposed Footing Founding Level</u>	<u>Reference</u>
East	849+35	at or below elev. 258	B.H.'s #3 and 7
West	850+71	at or below elev. 258	B.H. #2

These footings could be designed using an allowable bearing value of up to 7.5 t.s.f.

The footing excavations will extend through basically cohesive deposits (clayey silt and/or glacial till). Further, the base of the excavations will be located some 3 to 5 feet below the groundwater level recorded during the period of the investigation. Since the overburden is relatively impervious

no major dewatering complications are anticipated. Any minor groundwater seepage or surface runoff, occurring in the excavations, could be handled by conventional techniques such as pumping from sumps.

In order to protect the integrity of the shale bedrock from the deteriorating effect caused by groundwater seepage or uncontrolled surface runoff, it is recommended that a lean concrete working slab be poured as soon as the foundation level is reached.

6.2.3) Abutment Foundations:

It is understood that the abutment foundations will be located as follows:

<u>Abutment Location</u>	<u>Approx. Centre Line of Abut. Brgs.</u>	<u>Proposed Base of Foundation</u>
East	849+29	Elev. 282
West	851+27	Elev. 280

1) Spread Footing Support:

The west abutment may be 'perched' within the approach fill. It may be supported on a spread footing founded within a zone of well compacted granular fill using a safe bearing pressure of up to 2.5 t.s.f. The fill material below the tops of the footings should consist of well compacted granular 'A' material and should extend for a horizontal distance of at least 10 feet from the footing edges in the plane of the footing tops. This portion of the fill should be built with side slopes of 2:1. The remainder of the fill should be completed to about profile grade for a distance of about 50 feet behind the abutments before re-excavating for the abutment footing.

The east abutment is to be located within the east bank of Mimico Creek. At the proposed footing level the south portion of this foundation will be located in the parent hard silty clay stratum, while the north portion will be

founded in fill (refer to Section D-D, Drawing No. 71-11140 A). This abutment could be supported on a spread footing, partially founded in the parent cohesive subsoil and partially on fill using an allowable bearing value of 2.5 t.s.f. in design, if the following is adhered to:

- a) The fill along the north portion of the footing be placed and compacted as discussed for the west abutment.
- b) The topsoil along the natural slope be completely stripped prior to placing new fill.
- c) The new fill be properly "keyed" into the existing bank in accordance with current Department practices.
- d) The differential settlement occurring between that portion of the footing founded on fill and that on the parent cohesive subsoil be accommodated by placing a construction joint between these zones.

Differential settlement will occur between the spread footing supported abutments and adjacent piers. This differential settlement should not exceed 1 inch.

ii) Pile Support:

As an alternative to the spread footing scheme the abutments could be supported on end-bearing piles driven to practical refusal within the upper weathered portion of the bedrock. For estimating purposes the pile tip elevations can be assumed to range between the following elevations.

<u>Locations</u>	<u>Estimated Pile Tip Elev.</u>
East	Elev. 271 South End - Stepping down to - Elev. 261 North End
West	Elev. 260 to 262

The allowable loads will depend on the pile section chosen (e.g. 12BP74 steel H piles may be designed for 100 tons/pile).

No rock or bouldery fill should be placed within the plan limits of the piles. The pile caps should be provided with a minimum of 4 feet of earth cover for frost protection purposes.

#### 6.2.4) Approaches:

As discussed previously, up to 30 feet of fill will be required along the west approach while only nominal fills will be necessary along the east approach. No stability problems are anticipated provided the slopes are maintained no steeper than 2:1. Along the east approach the new fill will be placed over the existing bank of Mimico Creek. In order to ensure the surficial stability on this new fill it is recommended that the topsoil, along the existing bank, be stripped and the new fill "keyed" into the existing slope in accordance with current D.T.C. practices.

The fills will be placed over competent overburden deposits. Therefore, the settlement induced in these deposits, by the fill loading, should be negligible in magnitude and elastic in nature - i.e., take place during or shortly after the construction period.

#### 6.3) Structure at the Crossing of Mimico Creek and the E.B. Collector Lane (Bridge #11 - Refer to Drawing No. 71-11140 B):

##### 6.3.1) General:

This proposed three span (40.5' - 61.5' - 66'), 42.5 feet wide structure will be located approximately 40 feet south of the existing structure at the crossing of the Q.E.W. and Mimico Creek. Preliminary design details for the scheme are shown on Drawing No. 3795-3T-102 dated January, 1972. The proposed profile grade of the ramp, in the vicinity of the structure will vary from elevation 278 to 283. At this grade, fills up to 18 feet in height will be required along the east approach; the west bank will, however, have to be trimmed to accommodate the proposed scheme.

The concrete lined Mimico Creek channel will be approximately 50 feet wide. The side slopes of the channel will

vary from  $2\frac{1}{2}$ :1 to 3:1; outside of this area the slopes will be maintained between 2:1 and 4:1. A 20 foot wide access road will be accommodated on the east bank.

#### 6.3.2) Pier Foundations:

The two proposed pier foundations will be located on the Mimico Creek valley floor. Shale bedrock is present at a shallow depth below ground surface in this area, therefore, each of these piers can be founded on a spread footing located within the upper weathered portion of the bedrock. In order to satisfy the frost protection requirements in the area at least 4 feet of earth cover should be provided above the underside of the footings. Taking the aforementioned into consideration the piers could be founded as follows:

<u>Pier Location</u>	<u>Approx. Station</u>	<u>Proposed Footing Founding Level</u>	<u>Reference</u>
East	647+66	at or below elev. 255	B.H. #11
West	648+47	at or below elev. 254.5	B.H.'s #6 & 14

These footings could be designed using an allowable bearing value of up to 7.5 t.s.f.

At the west pier the footing excavations will extend through a relatively impervious silty clay stratum, while at the east pier the excavation will be carried out in basically granular deposits. Further, the base of the excavations will be located some 2 to 3 feet below the groundwater level recorded during the period of the investigation. Some groundwater seepage can be expected into the excavations, particularly at the latter location. Any groundwater seepage or surface runoff could be handled by conventional techniques such as pumping from sumps.

In order to protect the integrity of the shale bedrock from the deteriorating effect caused by groundwater seepage or uncontrolled surface runoff it is recommended that a lean concrete working slab be poured as soon as the foundation level is reached.

#### 6.3.3) Abutment Foundations:

- 1) West Abutment: (Refer to B.H.'s #5 and 13)

It is understood that this abutment will be founded at about elevation 270. At this elevation the abutment will be

located within the very stiff silty clay to clayey silt stratum. Since this is a competent deposit it could be supported on a spread footing using an allowable bearing pressure of up to 3.5 t.s.f. in design. The highly preconsolidated cohesive subsoil will settle due to the imposed footing pressure. Taking into consideration the size of the footing contemplated (15 feet wide) this settle will be negligible in magnitude and of a recompression nature - i.e. take place during or immediately following the construction period.

If a higher bearing value than that quoted above is required, then the abutment footing should be carried down to bear within the upper weathered portion of the bedrock. This would place the footing at or below elevation 266. A footing so founded could be designed using an allowable bearing value of up to 7.5 t.s.f. in design.

For reasons discussed previously it is recommended that the integrity of the foundation material be protected by pouring a mat of lean concrete as soon as the footing level is reached.

11) East Abutment (Refer to B.H.'s #24 and 25):

This abutment could be supported on end-bearing piles driven to practical refusal within the upper weathered portion of the bedrock. For estimating purposes the pile tip elevations can be assumed to range between elevations 253 and 254. The allowable loads will depend on the pile section chosen (e.g. 12BF 74 steel H piles may be designed for 100 tons/pile).

No rock or bouldery fill should be placed within the plan limits of the piles. The pile caps should be provided with a minimum of 4 feet of earth cover for frost protection purposes.

6.3.4) Approaches:

As discussed previously up to 16 feet of fill will be required along the east approach while nominal slope trimming will be necessary along the west approach. No stability problems are anticipated provided the slopes are maintained no steeper than 2:1.

The fills will be placed over competent overburden deposits. Therefore, the settlement induced in these deposits by the fill loading should not exceed 1 inch; it will be elastic in nature (i.e. take place during or shortly after the construction period).

6.4) Retaining Wall #12 (Refer to Drawing #71-11140 C):

This 1,140 feet long retaining wall will be located on the south side of the Q.E.W. adjacent to Oxford Street, immediately east of the Islington Avenue interchange, in the Borough of Etobicoke. This wall will retain the fill placed to form the eastbound collector road of the reconstructed Q.E.W. It is understood that the profile grade along the top of the wall will vary from elevation 334.5 (east end) to 340 (west end), while the ground line at the foot of the wall will range between elevations 330.5 and 334. At these grades the clear height of the wall will vary from 2 to 8 feet.

This wall could be founded on a spread footing located in the parent overburden deposits, which vary from a compact to dense silty sand in the western portion of the wall, to a stiff to hard clayey silt in the eastern portion. A minimum of 4 feet of earth cover should be provided above the underside of the footing for frost protection purposes. A wall so founded could be designed using an allowable bearing value of 2.5 t.s.f. in design.

The base of the footing excavation will be located above the groundwater level recorded during the period of the investigation; therefore, no major dewatering complications are anticipated. Any minor groundwater seepage or surface runoff into the excavation could be controlled using conventional techniques such as pumping from sumps.

The foundation subsoil will settle due to the imposed footing loading. Since the subsoil is limited in depth and competent in nature the induced settlement should not exceed  $\frac{1}{2}$  inch. This settlement will be elastic in nature; i.e. take



place during or immediately following the construction period.

The wall will be inherently stable with respect to a deep-seated rotational type of failure within the foundation subsoil.

In computing the sliding resistance between the base of the footing and the foundation subsoil, the following should be used.

Rough concrete and granular deposit - Coefficient of friction - 0.5

Rough concrete and clayey silt - Adhesion 2,500 p.s.f.

If the structure is designed as a rigid frame, then a coefficient of earth pressure at rest ( $K_0$ ) of 0.5 should be assumed for the granular fill material placed behind the wall when designing the wall section. However, if some movement of the top of the wall is permitted, then a coefficient of active earth pressure ( $K_a$ ) of 0.33 can be used.

In order to relieve the buildup of excess hydrostatic pressure behind the retaining wall, suitable drainage measures should be provided. Backfill behind the wall should be carried out in accordance with current D.T.C. practices, specifically Standard #S.D. 4-5C.

#### 7. MISCELLANEOUS:

The field work performed during the periods of December 16, 1971, to January 13, 1972, and January 28 and 31, 1972, was carried out under the immediate supervision of Mr. W. V. Urie, Field Technician.

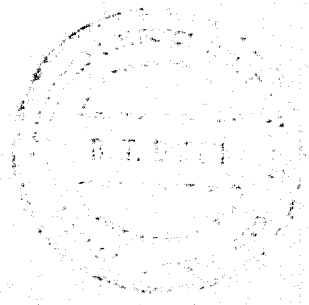
The drilling equipment was owned and operated by Master Soil Investigation Ltd., Toronto.

This report was written by Mr. E. T. Darch, Senior Foundation Engineer and reviewed by Mr. M. Devata, Supervising Foundation Engineer.

*E. T. Darch*  
E. T. Darch, P. Eng.

*M. Devata*  
M. Devata, P. Eng.

ETD/ao  
Feb. 3, 1972.



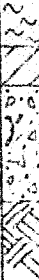
APPENDIX I

DATUM Geodetic

## FOUNDATION SECTION

Washboring-NX Casing-BXL Rock Core

CHECKED BY

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE			LIQUID LIMIT ——— $w_L$ PLASTIC LIMIT ——— $w_p$ WATER CONTENT ——— $w$			BULK DENSITY $\gamma$ P.C.F.	REMARKS	
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F.			WATER CONTENT %				
							○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE			$w_p$ ——— $w$ ——— $w_L$ WATER CONTENT %				
270.5	Ground Level													
269.5	Clayey Topsoil					270								
1.0	Clayey Silt. Stiff													
2.0	Clayey silt with sand & gravel (Glacial Till)		1	SS	58									
266.0	Hard													
4.5	Shale Bedrock		2	BXL	33%	265								
	bands of limestone up to 6" thick		3	BXL	50%									
	Grey	4	BXL	33%	260									
	Highly weathered	5	BXL	66%										
256.5														
254.5	Weathered					255								
252.5	Unweathered													
250.5						250								

265.

In open BH  
Dec.28/71

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 2

FOUNDATION SECTION

JOB 71-11140

LOCATION Co-ords. 183,009 N; 225,206 E.

ORIGINATED BY WU

W.P. 314-65-14


BORING DATE Dec. 22, 1971

COMPILED BY WU

DATUM Geodetic

BOREHOLE TYPE Washboring-BX Casing-BXL Rock Core

CHECKED BY *LR*

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE				LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$				BULK DENSITY $\gamma$ P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.				WATER CONTENT %					
							○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE				$w_p$ — $w$ — $w_L$					
262.6	Ground Level															
261.6	Clayey Topsoil		1	SS	4	260										261.9 in open BH Dec.22/71
1.0	Clayey Silt. Stiff															
1.7	Clayey silt with sand & gravel (Glacial Till)															
258.6	Very Stiff		2	SS	31											
4.0	Weathered															
5.0	Shale Bedrock															
	bands of limestone in upper 3 feet.		3	BXL	92%	255										
	Grey															
	Unweathered		4	BXL	98%	250										
247.6																
15.0	End of Borehole					245										

261.9  
in open BH  
Dec. 22/71



DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 1

FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 103.102 N; 225,331 E. ORIGINATED BY BU  
W.P. 314-65-14 BORING DATE Dec. 20, 1971 COMPILED BY BU  
DATUM Geodetic BOREHOLE TYPE Washboring-BX Casing -BXL Rock Core CHECKED BY

SOIL PROFILE		SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$			BULK DENSITY $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLT	NUMBER	TYPE		BLOWS/FOOT	SHEAR STRENGTH P.S.F.		WATER CONTENT % $w_p$ — $w$ — $w_L$			
292.5	Ground Level						○ UNCONFINED + FIELD VANE ○ QUICK TRIAXIAL × LAB. VANE					
291.5	Clayey Topsoil		1	SS	4							
1.0	Silty clay to clayey silt with a trace of sand.		2	SS	51	290						0 3 82 15
			3	SS	60	285						
	Brown		4	SS	12							0 6 77 17
			5	SS	16	280						
			6	SS	18							
			7	SS	120							19 10 45 26
	Hard					275						
272.5			8	SS	111.5"							
20.0	Highly Weathered		9	SS	105.1"	270						
			10	BXL	50%	265						268.7 in open BH Dec. 20/71
265.5												
27.0	Weathered											
263.0												
28.9	Shale Bedrock minor limestone bands down to elev. 261.5		11	BXL	100%	260						
	Grey											
			12	BXL	66%							
255.6	Unweathered											
36.9	End of Borehole					255						

FOUNDATION SECTION

ORIGINATED BY ,EU

COMPILED BY BU

CHECKED BY

[illegible]





DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 7 (11, 69-F-68) FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 183,048 N; 225,283 E. ORIGINATED BY VK  
 W.P. 314-65-14 BORING DATE March 2, 1970 COMPILED BY \_\_\_\_\_  
 DATUM Geodetic BOREHOLE TYPE Washboring with BX Casing CHECKED BY AK

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE					LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$			BULK DENSITY $\gamma$ P.C.F.	REMARKS		
ELEV. DEPTH	DESCRIPTION	STRAT. PLT.	NUMBER	TYPE	BLOWS/FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F.					WATER CONTENT %					
263.3	Ground Level						20 40 60 80 100					$w_p$ — $w$ — $w_L$					
							○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE										
0.0	Clayey silt with sand and gravel.		1	SS	10												
259.3	Stiff (Glacial Till)		2	SS	13		260										
1.0	Weathered		3	SS	110/8"												
257.8			4	BXL	100%		255										
5.5	Shale Bedrock with limestone inclusions and seams of weathering in the upper 2.5 ft. Grey		5	BXL	100%												
250.3	Unweathered																
13.0	End of Borehole					250											

P.C.F. GR. SA. SI. CL.

261.8

in open BH  
Mar. 2/70

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 8

FOUNDATION SECTION

JOB 71-11140

LOCATION Co-Ords. 182,737 N; 225,630 E.

ORIGINATED BY BU

W.P. 314-65-13

BORING DATE Jan. 4, 1972

COMPILED BY BU

DATUM Geodetic

BOREHOLE TYPE Washboring-BX Casing-BXL Rock Core

CHECKED BY *AK*

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT — $W_L$ PLASTIC LIMIT — $W_P$ WATER CONTENT — $W$		BULK DENSITY $\gamma$ P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.		WATER CONTENT %			
							$\phi$ UNCONFINED $\phi$ QUICK TRIAXIAL	+ FIELD VANE x LAB. VANE	$W_P$ — $W$ — $W_L$			
260.9	Ground Level											
259.9	Sandy Top Soil		1	SS	22	260						
1.0	Sand and gravel (boulders up to 4" in size)											
			2	SS	37							
254.9	Dense					255						
6.0	Highly Weathered		3	SS	100%							
			4	BXL	100%							
250.4	Weathered											
9.5	Shale Bedrock		5	BXL	100%	250						
	Bands of limestone throughout											
246.4	Grey Sand											
14.5	End of Borehole					245						

## FOUNDATION SECTION

ORIGINATED BY BU

COMPILED BY RU

CHECKED BY

[illegible]

DEPARTMENT OF HIGHWAYS - ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 10 (8,69-F-68) FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 182,794 N; 225,538 E. ORIGINATED BY VK  
 W.P. 311-65-13 BORING DATE March 6, 1970 COMPILED BY \_\_\_\_\_  
 DATUM Geodetic BOREHOLE TYPE Washboring with BX Casing CHECKED BY HE

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT ——— $w_L$		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLT	NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT	RESISTANCE	PLASTIC LIMIT ——— $w_p$	WATER CONTENT ——— $w$		
258.2	Ground Level											
0.0	Silty sand & gr vel and large boulders.	S.S.				255						GR SA SI. CL 257.2 in open BH Mar. 6/70
253.7	Dense											
4.5												
252.2	Weathered	H.H.										
6.0												
	Shale Bedrock		1	BXL	100%	250						
	Grey		2	BXL	100%							
243.7						245						
14.5	End of Borehole											
						240						

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 11 (9, 69-F-68) FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 182,743 N; 225,591 E. ORIGINATED BY VK  
 W.P. 314-65-13 BORING DATE March 3, 1970 COMPILED BY \_\_\_\_\_  
 DATUM Geodetic BOREHOLE TYPE Washboring with BX Casing CHECKED BY [Signature]

SOIL PROFILE		STRAT. PLOT	SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT					LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$			BULK DENSITY $\gamma$ P.C.F.	REMARKS	
ELEV. DEPTH	DESCRIPTION		NUMBER	TYPE	BLOWS / FOOT		20	40	60	80	100	SHEAR STRENGTH P.S.F.					WATER CONTENT %
							○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE										
259.6	Ground Level																
0.0	Clayey silt with sand and gravel.		1	SS	18	255											
	Very Stiff to Hard		2	SS	20												
255.6	Glacial Till		3	SS	72												
4.0	Weathered																
5.0	Shale Bedrock with limestone inclusions in the upper 2 ft.		4	BXL	100%												
	Grey		5	BXL	100%			250									
245.6			6	BXL	100%												
14.0	End of Borehole					245											

257.1

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 12

FOUNDATION SECTION

JOB 71-111h0

LOCATION Co-ords. 183,100 N; 225,280 E.

ORIGINATED BY BU

W.P. 314-65-14


BORING DATE Dec. 28 &amp; 29, 1971

COMPILED BY BU

DATUM Geodetic

BOREHOLE TYPE Washboring-BX Casing-BXL Rock Core

CHECKED BY

SOIL PROFILE		STRAT. PLOT	SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$		BULK DENSITY $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION		NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT		PLASTIC LIMIT — $w_p$			
							SHEAR STRENGTH P.S.F.		WATER CONTENT — $w$			
265.9	Ground Level						<input type="radio"/> UNCONFINED    + FIELD VANE	$w_p$ — $w$ — $w_L$	WATER CONTENT %			
							<input checked="" type="radio"/> QUICK TRIAXIAL    x LAB. VANE					
264.9	Sandy Topsoil		1	SS	6	265						P.C.F. GR. SA. SI. CL.
1.0	Clayey silt with sand & gravel (Glacial Till)											
261.9	Hard		2	SS	69							
4.0	Highly Weathered											
258.9			3	BXL	60%	260						
7.0	Weathered											▼ 259.6 In BH Dec. 29/71
256.9												
9.0	Shale Bedrock											
	bands of limestone up to 8" thick.	4	BXL	95%	255							
251.1	Gray Unweathered											
14.5	End of Borehole					250						

P.C.F. GR. SA. SI. CL.

 259.6  
 in BH  
 Dec. 29/71

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

# RECORD OF BOREHOLE No. 13

FOUNDATION SECTION

JOB 71-11150

LOCATION Co-ords. 182,702 N; 225,475 E.

ORIGINATED BY BU

W.P. 314-65-13

BORING DATE Dec. 23, 1971

COMPILED BY BU

DATUM Geodetic

BOREHOLE TYPE Washboring-MX Casing-BXL Rock Core

CHECKED BY

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT				LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$			BULK DENSITY $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.				WATER CONTENT % 10 20 30				
279.2	Ground Level														
278.2	Sandy Topsoil		1	SS	5										
1.0	Sand & gravel with trace of silt (Fill) Occ. pockets of silty clay & clayey silt)		2	SS	38	275									
272.7	Dense to Very Dense		3	SS	27										53 22 20 5
6.5	Silty clay to clayey silt, with a trace of sand and gravel.  Brown		4	SS	12	270									
266.7	Stiff to Very Stiff		5	SS	36										
12.5	Highly Weathered		6	SS	76	265									
265.1															
14.1	Bands of limestone up to 8" in size.		7	BXL	50	260									
259.6	Weathered														
19.6	Shale Bedrock Bands of limestone up to 6" in size.		8	BXL	97										258.2 In BH Dec. 23/71
255.1	Grey					250									
24.1	End of Borehole														

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 11

FOUNDATION SECTION

JOB 71-11140

LOCATION Co-ords. 182,767 N; 225,483 E.

ORIGINATED BY BU

W.P. 314-65-13

BORING DATE Dec. 30, 1971

COMPILED BY BU

DATUM Geodetic

BOREHOLE TYPE Washboring-BX Casing-BXL Rock Core

CHECKED BY CR

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. LOT	NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT	RESISTANCE	PLASTIC LIMIT — $w_p$	WATER CONTENT — $w$		
261.3	Ground Level											
260.3	Sandy Topsoil		1	SS	5	260						
1.0	Clayey silt with a trace of sand. Brown											
256.3	Very Stiff to Hard		2	SS	77							
5.0	Weathered					255						
6.0	Shale Bedrock		3	BXL	65%							
	Minor bands of limestone up to 2" thick down to elev. 255.)					250						
	Gray		4	BXL	94%							
245.8	Sound											
15.5	End of Borehole					245						

256.

in open BH  
Dec. 30/71



## RECORD OF BOREHOLE No. 15 (12, 69-F-68) FOUNDATION SECTION

JOB	71-11140	LOCATION	Co-ords. 183,066 N; 225,188 E.	ORIGINATED BY	JK
W.P.	314-65-14	BORING DATE	March 2, 1970	COMPILED BY	
DATUM	Geodetic	BOREHOLE TYPE	Washboring with BX Casing	CHECKED BY	<i>[Signature]</i>

SOIL PROFILE		SAMPLES			DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$		BULK DENSITY $\gamma$ P.C.F. GR S A SI CL	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE	WATER CONTENT % $w_p$ — $w$ — $w_L$		
264.9	Ground Level									
0.0	Clayey silt with sand and gravel. Very Stiff (Glacial Till)		1	SS	24					
260.9			2	SS	22					
4.0	Weathered		3	SS	32	260				
			4	EXL	70%					
255.4						255				
9.5	Unweathered Shale Bedrock Grey		5	EXL	100%					
250.9										
14.6	End of Borehole					250				

RECORD OF BOREHOLE No. 16

## FOUNDATION SECTION

JOB 71-11140

LOCATION Co-ords. 182,776 N; 225,583 E.

ORIGINATED BY BU

W P. 314-65-13

BORING DATE Jan. 5, 1972

COMPILED BY BU

DATUM Geodetic

BOREHOLE TYPE Washboring-BX Casing

CHECKED BY

[illegible]

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No.17

FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 181,320 N; 220,815 E. ORIGINATED BY BU  
W.P. 314-65-12 BORING DATE Jan. 3, 1972 COMPILED BY BU  
DATUM Geodetic BOREHOLE TYPE Washboring-BX Casing CHECKED BY AK

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$		BULK DENSITY $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ⊗ QUICK TRIAXIAL x LAB. VANE		WATER CONTENT % $w_p$ — $w$ — $w_L$			
322.5	Ground Level											
322.0	Sandy Topsoil		1	SS	3	330						P.C.F. GR SA SI CL
0.5	Clayey silt with some sand and gravel											
	Glacial Till		2	SS	36							
	Brown											
325.0	Hard		3	SS	74	325						
7.5	Glacial Till											
22.5	Brown Hard		4	SS	160	320						
9.0	End of Borehole Probably weathered bedrock											

327.5  
In open BH  
Jan. 3/72

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 18

FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 181,268 N; 220,673 E. ORIGINATED BY BU  
W.P. 314-65-12 BORING DATE Dec. 30, 1971 COMPILED BY BU  
DATUM Geodetic BOREHOLE TYPE Washboring-NX Casing-BX Rock Core CHECKED BY SL

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$		BULK DENSITY $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE	WATER CONTENT % $w_p$ — $w$ — $w_L$			
330.7	Ground Level										
0.0	Bandy Topsoil										P.C.F. GR. SA. SI. CL.
0.5	Clayey silt with sand & a trace of gravel		1	SS	2	330					
	Glacial Till		2	SS	100						
	Boulder		3	BXL	100%						
	Brown					325					
			4	SS	97						
321.7	Hard										
9.0	Moderately weathered		5	BXL	50%	320					
316.7											
24.0	Shale Bedrock										
	Gray		6	BXL	80%	315					
	Unweathered										
311.7											
307.1											

327.

In open BH  
Dec. 30/71

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF BOREHOLE No. 19

FOUNDATION SECTION

JOB 71-11140

LOCATION Co-ords. 181,238 N; 220,527 E.

ORIGINATED BY BU

W.P. 314-65-12

BORING DATE Dec. 28/71

COMPILED BY RLB

DATUM Geodetic

BOREHOLE TYPE Washboring-BX Casing -BXL Rock Core

CHECKED BY *MR*

SOIL PROFILE		STRAT. PLT	SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT ——— $w_L$		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION		NUMBER	TYPE	BLOWS / FOOT		BLOWS / FOOT		PLASTIC LIMIT ——— $w_p$	WATER CONTENT ——— $w$		
329.1	Ground Level											
0.2	Sandy Topsoil											
0.5	Clayey silt with trace of sand.		1	SS	13							
326.1	Stiff											
3.0	Sand, some silt.											
324.6	Dense		2	SS	46	325						
1.5	Clayey silt with sand & gravel (Glacial Till)											
322.5	Hard											
6.6	Mod. weathered shale		3	SS	100	11"						
7.5	Shale Bedrock											
	Gray					320						
	Unweathered		5	BXL	100%	315						
322.0												
17.1	End of Borehole					310						

WATER CONTENT %

$w_p$  ———  $w$  ———  $w_L$

SHEAR STRENGTH P.S.F.

- UNCONFINED + FIELD VANE  
● QUICK TRIAXIAL x LAB. VANE

P.C.F.

GR.SA.SI.CL

322.1

In open BH  
Dec. 28/71

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

# RECORD OF BOREHOLE No. 20

FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 19° 105 N; 219,923 E. ORIGINATED BY VK  
W.P. 314-65-12 BORING DATE August 2, 1966 COMPILED BY \_\_\_\_\_  
DATUM Geodetic BOREHOLE TYPE Washboring CHECKED BY AK

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE					LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$			BULK DENSITY $\gamma$ P.C.F. GR. SA. SI. CL.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLT.	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F.					WATER CONTENT %			
230.9	Ground Level														
0.0	Topsoil					330									
1.0	Clayey silt with sand and gravel and fragments of shale Very Hard Glacial Till <i>Brown Grey</i>		1	SS	58										
						325									
321.4															
9.5	Weathered		3	RC	51%	320									
318.4															
12.5	Shale Bedrock interbeds of limestone up to 4" thick Unweathered Grey		4	RC	33%	315									
309.4			5	RC	57%	310									
21.5	End of Borehole					305									

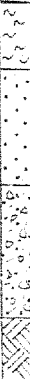
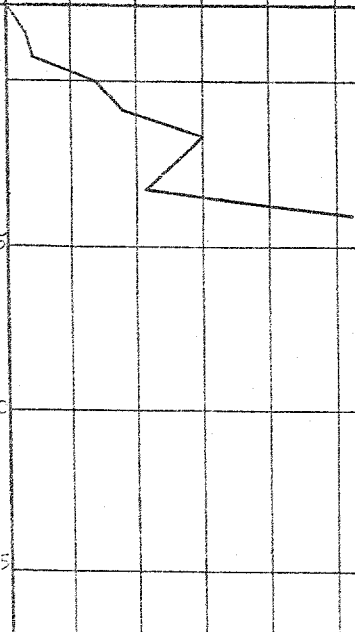
324.5  
in open BH  
Aug. 2/66

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 21

FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 181,152 N; 220,163 E. ORIGINATED BY V.K.  
W.P. 314-65-12 BORING DATE July 29, 1966 COMPILED BY \_\_\_\_\_  
DATUM Geodetic BOREHOLE TYPE Washboring CHECKED BY SL

SOIL PROFILE		SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT ——— $w_L$		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE		BLOWS/FOOT	BLOWS / FOOT	PLASTIC LIMIT ——— $w_p$	WATER CONTENT ——— $w$		
332.3	Ground Level						20 40 60 80 100				
							SHEAR STRENGTH P.S.F.		WATER CONTENT %		
							○ UNCONFINED + FIELD VANE		$w_p$ ——— $w$ ——— $w_L$		
							⊗ QUICK TRIAXIAL × LAB. VANE				
0.0	Black organic topsoil					330					Hole dry cave-in el. 329.7 Aug. 2, 1966
2.0	Fine Sand Dense		1	SS	31						
326.8	Brown		2	SS	48						
5.5	Clayey silt Very Hard Grey		3	SS	50/2	325					
322.7	Glacial Till										
9.6	Weathered		4	RC	62%	320					
313.0											
14.0	Shale Bedrock interbeds of limestone up to 1" thick. Grey		5	RC	82%	315					
303.3	Weathered										

Hole dry  
cave-in  
el. 329.7  
Aug. 2, 1966

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

RECORD OF BOREHOLE No. 22 (19,66-F-14) FOUNDATION SECTION

JOB 71-11140 LOCATION Co-ords. 181,053 N; 219,803 E. ORIGINATED BY VK  
W.P. 314-65-12 BORING DATE February 16, 1966 COMPILED BY VK  
DATUM Geodetic BOREHOLE TYPE Washboring-BX Casing CHECKED BY MR.

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$		BULK DENSITY $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F.		$w_p$ — $w$ — $w_L$ WATER CONTENT %			
332.0	Ground Level						<input type="radio"/> UNCONFINED    + FIELD VANE <input type="radio"/> QUICK TRIAXIAL    x LAB. VANE					
0.0	Silty sand Compact to Dense		1	SS	18	330						
			2	SS	43							
326.1	Clayey silty sand & gr.											
325.1	V. Stiff-Hard Glac. Till		3	SS	80							
6.6	End of borehole Probable Bedrock					325						

326.0  
in open BH  
Feb. 16/66



DEPARTMENT OF HIGHWAYS- ONTARIO

MATERIALS &amp; TESTING OFFICE

## RECORD OF BOREHOLE No. 23 (18, 66-P-14) FOUNDATION SECTION

JOB 71-11140

LOCATION Co-ords. 181,019 N; 219,710 E.

ORIGINATED BY V.K.

W.P. 314-65-12

BORING DATE February 17, 1966

COMPILED BY

DATUM Geodetic

BOREHOLE TYPE Washboring, BX Casing

CHECKED BY

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT ——— $w_L$		BULK DENSITY	REMARKS	
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FOOT		BLOWS / FOOT		PLASTIC LIMIT ——— $w_p$				
							SHEAR STRENGTH P.S.F.		WATER CONTENT ——— $w$				
334.5	Ground Level												
0.0	Silty Sand  Compact to Dense		1	SS	20	330							
			2	SS	33								
			3	SS	40								
326.6			4	SS	100								
325.6	Stiff-Hard Glac. Till												
5.0	End of Borehole Probable Bedrock					325							

▽ 327.0

in open BH

Feb. 17/66

JOB 71-11140 LOCATION Co-prds. 182,776 N; 225,629 E. ORIGINATED BY RRB  
W.P. 314-65-13 BORING DATE Jan. 28, 1972 COMPILED BY RRB  
DATUM Geodetic BOREHOLE TYPE Auger-Washboring-BX Casing-BXL Rock Core CHECKED BY SR

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$		BULK DENSITY $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FOOT		BLOWS / FOOT		PLASTIC LIMIT — $w_p$			
							SHEAR STRENGTH P.S.F.		WATER CONTENT — $w$			
							<input type="radio"/> UNCONFINED    + FIELD VANE		$w_p$ — $w$ — $w_L$			
							<input checked="" type="radio"/> QUICK TRIAXIAL    x LAB. VANE					
										WATER CONTENT %		
263.1	Ground Level										P.C.F.	GR SA SI CL
0.0	Clayey Topsoil											
0.5	Clayey silt with sand and gravel (Glacial Till) Gray		1	SS	4	260						
			2	SS	5							
			3	SS	33							
254.1	Stiff to Hard					255						
9.0	Weathered		4	SS	40							
	Shale Bedrock		5	BXL	95%	250						
	Gray		6	BXL	95%	245						
242.5	Unweathered											
239.5	Unweathered											
236.5	Unweathered											

256.5

in open BH  
Jan. 31/72

FOUNDATION SECTION

ORIGINATED BY RRB

COMPILED BY RRB

CHECKED BY

SOIL PROFILE		SAMPLES			DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT ——— $w_L$ PLASTIC LIMIT ——— $w_p$ WATER CONTENT ——— $w$		BULK DENSITY Y P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	SHEAR STRENGTH P.S.F. O UNCONFINED + FIELD VANE @ QUICK TRIAXIAL x LAB. VANE	WATER CONTENT % $w_p$ ——— $w$ ——— $w_L$		
262.7	Ground Level									
0.0	Clayey Potssoil		1	SS	54	260				
0.6	Clayey silt with sand and gravel									
	Glacial Till		2	SS	7					
	Grey									
254.9	Stiff		3	SS	11	255				
7.8	Weathered		4	BXL	30%					
	Shale Bedrock		5	BXL	35%					
250.5	Grey Unweathered		6	BXL	95%					
12.2	End of Borehole					250				

FOUNDATION SECTION

ORIGINATED BY RRB

COMPILED BY RRB

CHECKED BY *[Signature]*

SOIL PROFILE		STRAT. PLOT	SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT		LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$		BULK DENSITY $\gamma$ P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION		NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB. VANE		WATER CONTENT % $w_p$ — $w$ — $w_L$			
261.7	Ground Level											
0.0	Clayey Topsoil		1	SS	10	260						
0.5	Clayey silt with sand and gravel											
	Glacial Till		2	SS	6							
	Grey											
254.7	Stiff		3	SS	12 1/2"	255						
7.0	Shale Bedrock											
	Highly weathered		4	SS	60 1/2"							
252.1	Weathered											
11.4	End of Borehole					250						

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF TEST PIT No. 1

FOUNDATION SECTION

JOB 71-11140

LOCATION Co-ords. 182,945 N; 225,130 E.

ORIGINATED BY KWI

W.P. 314-65-14

BORING DATE January 13, 1972

COMPILED BY WU

DATUM Geodetic

BOREHOLE TYPE Gradall Dug Test Pit

CHECKED BY

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$		BULK DENSITY	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT	BLOWS / FOOT	BLOWS / FOOT	PLASTIC LIMIT — $w_p$	WATER CONTENT — $w$		
267.0	Ground Level										
266.0	Clayey Topsoil										
1.0	Clayey Silt Stiff										
1.7	Clayey silt with sand & gravel (Glacial Till) (boulders throughout - flat slabs shale) Hard					265					
263.0	Interbeds of limestone up to 1" thick										
1.0	Grey. Moderately weathered					260					
260.3	Shale Bedrock										
259.3	End of Test Pit										
7.7						250					

## OFFICE REPORT ON SOIL EXPLORATION

DEPARTMENT OF HIGHWAYS- ONTARIO  
MATERIALS & TESTING OFFICE

## RECORD OF TEST PIT No. 2

FOUNDATION SECTION

JOB 71-11110

LOCATION Co-ords. 182,721 N; 225,622 E.

ORIGINATED BY KWI

W.P. 314-65-13

BORING DATE January 13, 1972

COMPILED BY BU

DATUM Geodetic

BOREHOLE TYPE Gradall Dug Test Pit

CHECKED BY *SK*

SOIL PROFILE			SAMPLES			DYNAMIC PENETRATION RESISTANCE		LIQUID LIMIT — $w_L$		BULK DENSITY $\gamma$ P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLT.	NUMBER	TYPE	BLOWS / FOOT	ELEV. SCALE	BLOWS / FOOT	PLASTIC LIMIT — $w_p$			
								WATER CONTENT — $w$			
								$w_p$ — $w$ — $w_L$ WATER CONTENT %			
259.1	Ground Level										
258.8	Sandy Topsoil										
258.3	Sand and gravel boulders up to 6" in size. Dense										
3.1	(moderated weathered)					255					255.5
253.6	Shale Bedrock (occ. bands of limestone) Sound										WL in open test pit
5.8	End of Test Pit					250					Jan.13/72

255.5

WL in open  
test pit  
Jan. 13/72

APPENDIX II

APPENDIX II



Mr. M. Devata,  
Su. Foundation Engineer.

K. W. Ingham

January 21, 1972

Foundation Investigation 71-11140;  
Q.E.W. and Mimico Creek

The bedrock encountered at the site was identified as belonging to the Dundas shale formation: most probably the Humber member, which is the thickest and is exposed elsewhere in the area. The shale is dark grey or dark bluish grey, medium bedded and interbedded with limestone and silty limestone. The limestone beds are lens-like but covering a relatively wide area. The thickness is variable; 1.0 ft. is the approximate maximum thickness observed.

The upper layers of the bedrock are weathered. A zone of highly weathered rock at the surface is underlain by a moderately weathered zone and then the unweathered rock. Mimico Creek has cut down through most of the weathered material which is now prominent only in the high banks on either side of the creek. The boundaries between these successive zones are, of course, gradational, however the elevation has been fixed as accurately as possible in the soil profile. Shale in the highly weathered zone is typically soft and badly fractured, the limestone bands are conspicuously weathered and badly fractured also. Layers of shale in the upper 1.0 ft. are weathered to clay consistency and this layer is frequently till-like in appearance. The moderately weathered zone is present in the banks of the Creek and to some extent in the valley floor. It is typified by moderate fracturing of the shale and limestone bands, the shale is moderately hard but is recognizeably weathered into platy beds.

The weathered zones appear to be relatively uniform, following the general dip of the rock. A list of bedrock elevations is given below for each hole or test-pit together with the appropriate level of the unweathered rock.

North Structure

<u>Hole No.</u>	<u>Bedrock Elevation</u>	<u>Unweathered Rock Elevation</u>
4	272.5	263.6
12	261.9	256.9
3	259.5	257.0
2	258.6	257.6
1	266.0	254.5
9	261.1	-
Test Pit No. 1	263.0	260.3
Section* No. 1	264.0	263.0

\* Stream bank 200' north of Test-Pit No. 1.

South Structure

5	267.7	-
13	266.7	259.6
6	254.8	253.3
14	256.3	255.3
8	254.9	250.4
16	256.0	254.7
Test Pit No. 2	256.3	255.3
Section 2 *	-	260.0

\* Stream bank 500' south of Test-Pit No. 2.

In the valley floor the bedrock is covered by a layer of very stony stream gravel 1.0 to 4.0 ft. in thickness containing sand, silt and clay. In some places the silt and clay matrix gives the gravel the appearance of till. The gravel is overlain by 1.0 to 4.0 ft. of alluvial clay-silt and sand and 1.0 ft. of topsoil.



KWI:mv

K. W. Ingham,  
Geologist.

## ABBREVIATIONS USED IN THIS REPORT

### PENETRATION RESISTANCE

STANDARD PENETRATION RESISTANCE 'N' - THE NUMBER OF BLOWS REQUIRED TO ADVANCE A STANDARD SPLIT SPOON SAMPLER 12 INCHES INTO THE SUBSOIL, DRIVEN BY MEANS OF A 140 POUND HAMMER FALLING FREELY A DISTANCE OF 30 INCHES.

DYNAMIC PENETRATION RESISTANCE - THE NUMBER OF BLOWS REQUIRED TO ADVANCE A 2 INCH, 60 DEGREE CONE, FITTED TO THE END OF DRILL RODS, 12 INCHES INTO THE SUBSOIL, THE DRIVING ENERGY BEING 350 FOOT POUNDS 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/FT.</u>	<u>c LB./SQ. FT.</u>	<u>DENSENESS</u>	<u>'N' BLOWS/FT.</u>
VERY SOFT	0 - 2	0 - 250	VERY LOOSE	0 - 4
SOFT	2 - 4	250 - 500	LOOSE	4 - 10
FIRM	4 - 8	500 - 1000	COMPACT	10 - 30
STIFF	8 - 15	1000 - 2000	DENSE	30 - 50
VERY STIFF	15 - 30	2000 - 4000	VERY DENSE	> 50
HARD	> 30	> 4000		

### TYPE OF SAMPLE

S.S.	SPLIT SPOON	T.W.	THINWALL OPEN
W.S.	WASHED SAMPLE	T.P.	THINWALL PISTON
S.B.	SCRAPER BUCKET SAMPLE	O.S.	OESTERBERG SAMPLE
A.S.	AUGER SAMPLE	F.S.	FOIL SAMPLE
C.S.	CHUNK SAMPLE	R.C.	ROCK CORE
S.T.	SLOTTED TUBE SAMPLE		
	P.H.	SAMPLE ADVANCED HYDRAULICALLY	
	P.M.	SAMPLE ADVANCED MANUALLY	

### SOIL TESTS

Qu	UNCONFINED COMPRESSION	L.V.	LABORATORY VANE
Q	UNDRAINED TRIAXIAL	F.V.	FIELD VANE
Qcu	CONSOLIDATED UNDRAINED TRIAXIAL	C	CONSOLIDATION
Qd	DRAINED TRIAXIAL	S	SENSITIVITY

# ABBREVIATIONS USED IN THIS REPORT

## SOIL PROPERTIES

$\gamma$	UNIT WEIGHT OF SOIL (BULK DENSITY)
$\gamma_s$	UNIT WEIGHT OF SOLID PARTICLES
$\gamma_w$	UNIT WEIGHT OF WATER
$\gamma_d$	UNIT DRY WEIGHT OF SOIL (DRY DENSITY)
$\gamma'$	UNIT WEIGHT OF SUBMERGED SOIL
G	SPECIFIC GRAVITY OF SOLID PARTICLES $G = \frac{\gamma_s}{\gamma_w}$
e	VOID RATIO
n	POROSITY
w	WATER CONTENT
$S_r$	DEGREE OF SATURATION
$w_L$	LIQUID LIMIT
$w_p$	PLASTIC LIMIT
$I_p$	PLASTICITY INDEX
s	SHRINKAGE LIMIT
$I_L$	LIQUIDITY INDEX = $\frac{w - w_p}{I_p}$
$I_C$	CONSISTENCY INDEX = $\frac{w_L - w}{I_p}$
$e_{max}$	VOID RATIO IN LOOSEST STATE
$e_{min}$	VOID RATIO IN DENSEST STATE
$I_D$	DENSITY INDEX = $\frac{e_{max} - e}{e_{max} - e_{min}}$
	RELATIVE DENSITY $D_r$ IS ALSO USED
h	HYDRAULIC HEAD OR POTENTIAL
q	RATE OF DISCHARGE
v	VELOCITY OF FLOW
i	HYDRAULIC GRADIENT
k	COEFFICIENT OF PERMEABILITY
i	SEEPAGE FORCE PER UNIT VOLUME
$m_v$	COEFFICIENT OF VOLUME CHANGE = $\frac{-\Delta e}{(1+e)\Delta\sigma}$
$C_v$	COEFFICIENT OF CONSOLIDATION
$C_c$	COMPRESSION INDEX = $\frac{\Delta e}{\Delta \log_{10} \sigma}$
$T_v$	TIME FACTOR = $\frac{C_v t}{d^2}$ (d, DRAINAGE PATH)
U	DEGREE OF CONSOLIDATION
$\tau_f$	SHEAR STRENGTH
$c'$	EFFECTIVE COHESION INTERCEPT
$\phi'$	EFFECTIVE ANGLE OF SHEARING RESISTANCE, OR FRICTION
$c_u$	APPARENT COHESION
$\phi_u$	APPARENT ANGLE OF SHEARING RESISTANCE, OR FRICTION
$\mu$	COEFFICIENT OF FRICTION
$S_r$	SENSITIVITY

## GENERAL

$\pi$	= 3.1416
e	BASE OF NATURAL LOGARITHMS 2.7183
$\log_e a$ OR $\ln a$	NATURAL LOGARITHM OF a
$\log_{10} a$ OR $\log a$	LOGARITHM OF a TO BASE 10
t	TIME
g	ACCELERATION DUE TO GRAVITY
V	VOLUME
W	WEIGHT
M	MOMENT
F	FACTOR OF SAFETY

## STRESS AND STRAIN

u	PORE PRESSURE
$\sigma$	NORMAL STRESS
$\bar{\sigma}$	NORMAL EFFECTIVE STRESS ( $\bar{\sigma}$ IS ALSO USED)
$\tau$	SHEAR STRESS
$\epsilon$	LINEAR STRAIN
$\gamma$	SHEAR STRAIN
$\nu$	POISSON'S RATIO ( $\mu$ IS ALSO USED)
E	MODULUS OF LINEAR DEFORMATION (YOUNG'S MODULUS)
G	MODULUS OF SHEAR DEFORMATION
K	MODULUS OF COMPRESSIBILITY
$\eta$	COEFFICIENT OF VISCOSITY

## EARTH PRESSURE

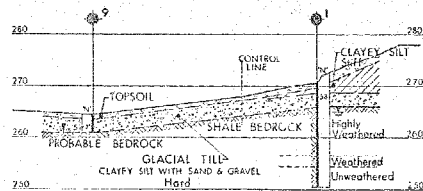
d	DISTANCE FROM TOP OF WALL TO POINT OF APPLICATION OF PRESSURE
$\delta$	ANGLE OF WALL FRICTION
K	DIMENSIONLESS COEFFICIENT TO BE USED WITH VARIOUS SUFFIXES IN EXPRESSIONS REFERRING TO NORMAL STRESS ON WALLS
$K_0$	COEFFICIENT OF EARTH PRESSURE AT REST

## FOUNDATIONS

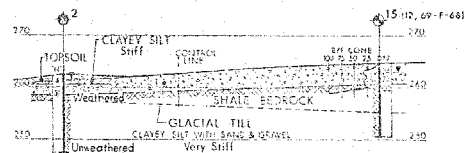
B	BREADTH OF FOUNDATION
L	LENGTH OF FOUNDATION
D	DEPTH OF FOUNDATION BENEATH GROUND
N	DIMENSIONLESS COEFFICIENT USED WITH A SUFFIX APPLYING TO SPECIFIC GRAVITY, DEPTH AND COHESION ETC. IN THE FORMULA FOR BEARING CAPACITY
$k_s$	MODULUS OF SUBGRADE REACTION

## SLOPES

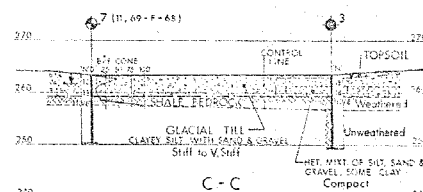
H	VERTICAL HEIGHT OF SLOPE
D	DEPTH BELOW TOE OF SLOPE TO HARD STRATUM
$\beta$	ANGLE OF SLOPE TO HORIZONTAL



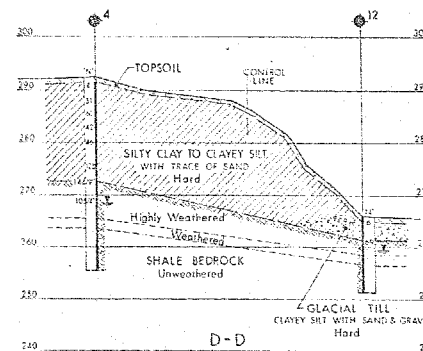
A-A



B-B



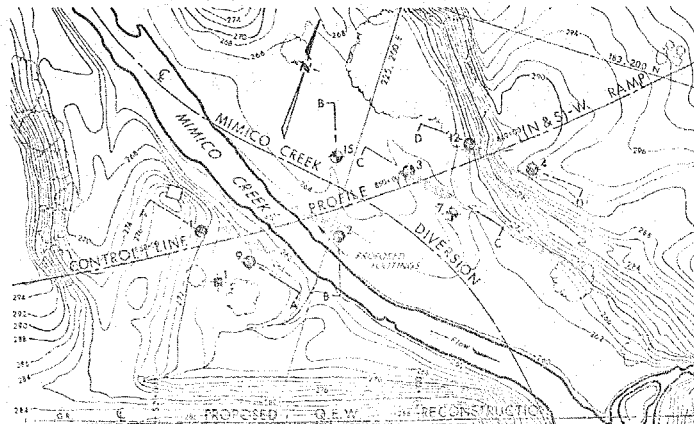
C-C



D-D

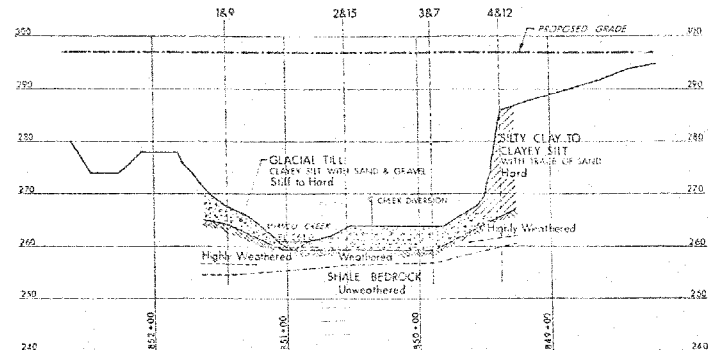
SECTIONS

10 5 0 SCALE 10 30 FT.



PLAN

40 20 0 SCALE 40 50 FT.

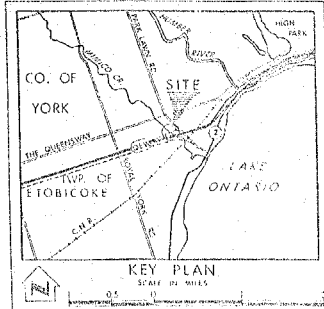


CONTROL LINE PROFILE

HORIZ. 40 20 0 SCALE 40 50 FT.  
VERT. 10 5 0 10 20 FT.



REF. No. J552-12A-2



LEGEND

- ⊙ Bore Hole
- ⊕ Cone Penetration Test
- ⊖ Bore Hole & Cone Test
- ⊗ Water Levels indicated at time of field investigation - March 1964
- ⊕ Test Pit

NO.	ELEVATION	C.O. - ORIGINATES	
		NORTH	EAST
1	770.5	167,979	725,305
2	765.6	163,009	725,209
3	765.5	163,073	725,243
4	762.5	163,102	725,331
7	763.3	163,048	725,281
9	764.7	162,968	725,185
12	765.9	163,160	725,160
15	764.9	163,066	725,166
TEST PIT			
1	767.0	167,945	725,110

NOTE

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

DATE	BY	DESCRIPTION

DEPARTMENT OF TRANSPORTATION & COMMUNICATIONS  
DESIGN SERVICES BRANCH - FOUNDATION OFFICE

BRIDGE 136.12

N&S - W RAMP over MIMICO CREEK

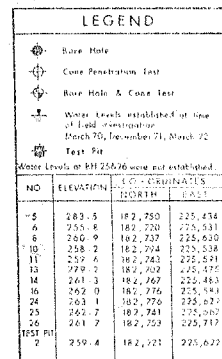
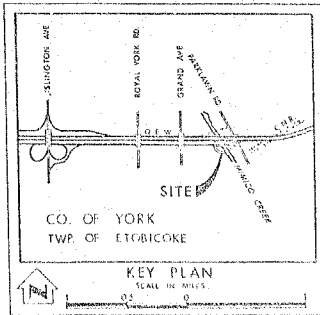
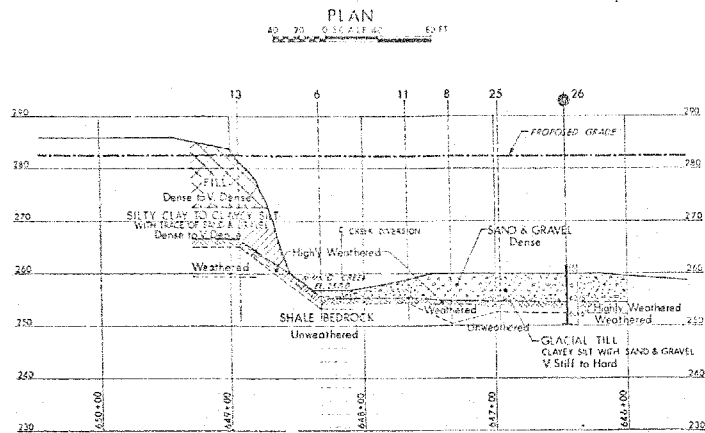
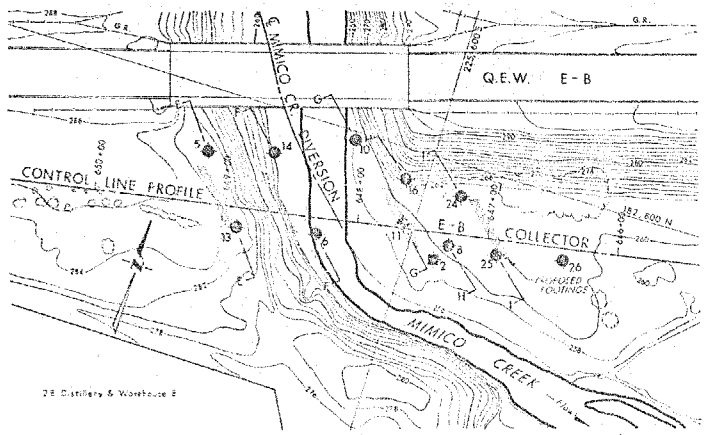
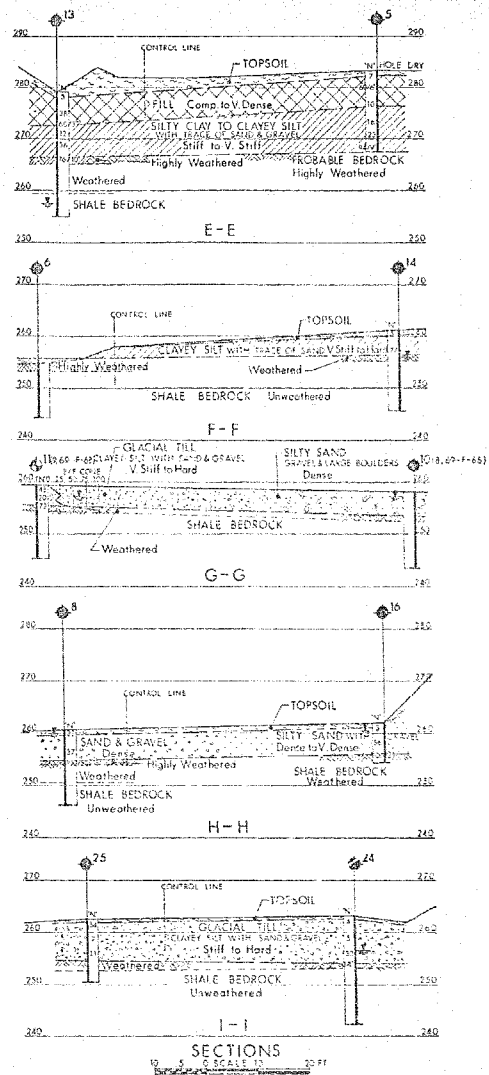
HIGHWAY AND G.W. RECONSTRUCTION - DIST. NO. 6

CO. YORK

TWP. ETOBICOKE

BORE HOLE LOCATIONS & SOIL STRATA

RECORD NO. 11140A  
DRAWN BY: [Name]  
CHECKED BY: [Name]  
DATE: [Date]  
SCALE: [Scale]



-- NOTE --

The boundaries between soil strains have been established only at Bare Hile locations. Between Bare Hile the boundaries are assumed from geological evidence and may be subject to considerable error.

DEPARTMENT OF TRANSPORTATION & COMMUNICATIONS		
DESIGN SERVICES BRANCH - CONSTRUCTION OFFICE		
E.B. COLLECTOR over MIMICO CREEK		
HIGHWAY NO. <u>Q.E.W. RECONSTRUCTION</u> DIST. NO. <u>6</u>		
CO. <u>YORK</u>		
TWP. <u>ETOBICOKE</u>	LOT	CON.
BORE HOLE LOCATIONS & SOIL STRATA		
STARTED BY <u>CHECKED</u>	DATE <u>SEP. 12 - 65</u>	DRAWING NO.
DRAWN & CHECKED BY <u>W.D. 71-11140</u>	DATE <u>SEP. 12 - 65</u>	<u>71-11140 B</u>
SCALE <u>RED. 3/1972</u>	SHEET NO.	NOTES DRAWING NO.
APPROVED BY <u>W.D.</u> PROJECT NO.		

E.B. COLLECTOR over MIMICO CREEK

HIGHWAY NO. Q.E.W. RECONSTRUCTION DIST. NO. 6  
 CO. YORK

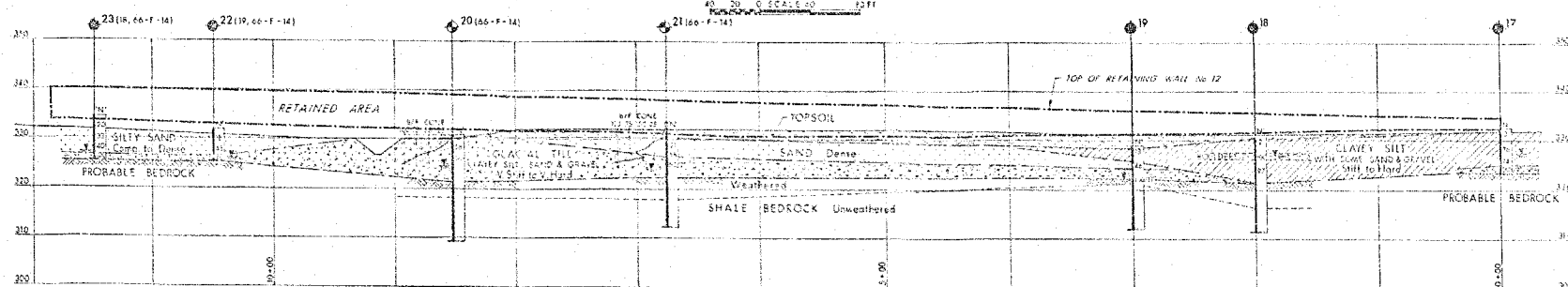
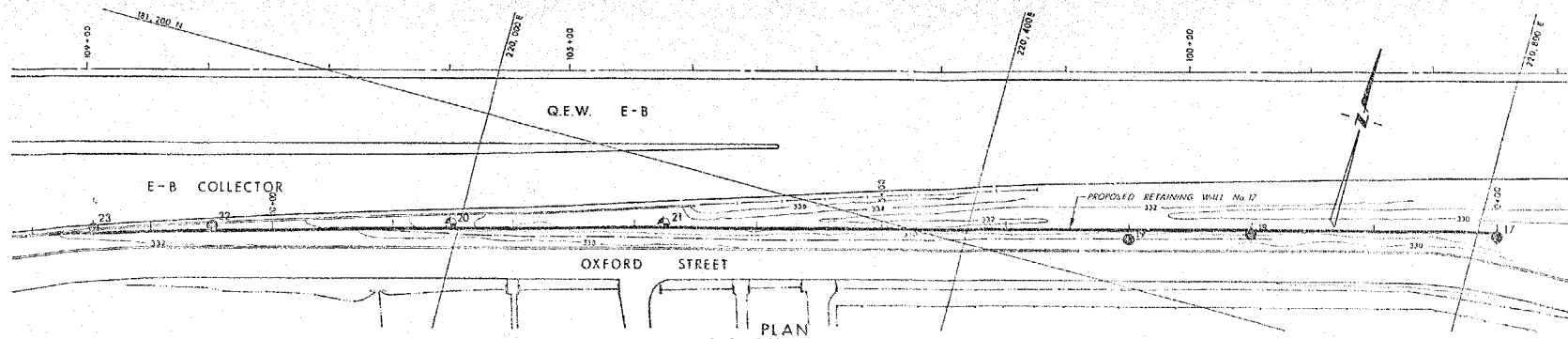
TWP. ETOBICOKE LOT. CON.

BORE HOLE LOCATIONS & SOIL STRATA

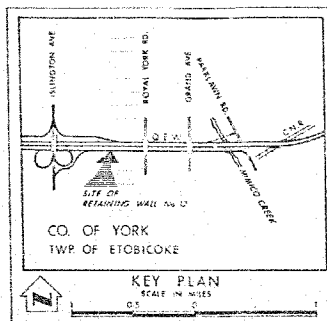
SUBNO. W. U.	CHECKED	WF NO	314-65-11	STAMPING NO
DRAWN S. E.	CHECKED	JOB NO	71-11140	71-11140 B

DATE FEB. 3, 1972 VLN NO. ORDER DRAWING NO.  
APPROVED *[Signature]* COUNTY NO.

REF. NO. 3532-12A-2



LEGEND				
◆	Bore Hole			
◆	Cone Penetration Test			
◆	Bore Hole & Cone Test			
+	Water Levels established at time of field investigation Feb. July & Aug 1966, Dec. 1971 & Jan 1972.			
NO.	ELEVATION	CO-ORDINATES		
		NORTH	EAST	
17	332.5	181,320	220,615	
18	330.7	181,268	220,623	
19	329.1	181,228	220,327	
20	330.9	181,105	219,943	
21	332.3	181,182	220,163	
22	332.0	181,053	219,803	
23	334.5	181,019	219,710	



NOTE

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence and may be subject to considerable error.

DATE	BY	REVISION

DEPARTMENT OF TRANSPORTATION & COMMUNICATIONS  
DESIGN SERVICES BRANCH - CIVIL ENGINEERING OFFICE

**RETAINING WALL No. 12**

HIGHWAY NO. Q.E.W. RECONSTRUCTION DIST NO. 6  
CO. YORK  
TWP. ETOBICOKE

**BORE HOLE LOCATIONS & SOIL STRATA**

SANDY SILT (CONSISTENT) 314' - 65' 12"  
CLAYEY SILT (CONSISTENT) 65' 12" - 114' 0"  
DATE JANUARY 31, 1972 SITE NO. 71-11140C  
APPROVED: [Signature] DIST NO. 6  
PROJECT NO. 71-11140C



DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS

Copy for the information of

A. Stermac

C. Burkhardt,

Reg. Bridge Planning Engineer,  
90 Floral Parkway.

Structural Office,  
West Bldg., Downsview.

March 10, 1972.

Re: N & S-W Ramp Bridge over Mimico Creek  
Bridge #12,  
W.P. 314-55-14, Site 37-991,  
Hwy. No. D.E.W., District #6.

71-11740

Attached herewith are prints of the Preliminary Bridge  
Plan Drawing D-37-991-P2 for the above-mentioned structure.

The estimated cost of the proposed structure is  
\$125,000.00, which includes tender, materials, engineering and  
survey construction.

Any comments or revisions you may have should be  
submitted within three weeks.

C.S. Grebski,  
Structural Design Engineer.

CSG:er  
Attach.

c.c. A. McKim  
B. Davis  
A. Stermac(2)  
J. Anderson  
R. Fitzgibbon

Comments submitted in a memo  
to your office.  
D. Davis  
March 22/72

FOUNDATION OFFICE

ADVISE OF DESIGN DRAWINGS:

314-65-14  
71-11140

Foundation Report By:

B.T. DARCH

Review of Design Drawings By:

B.T. DARCH

Design Drawing No.'s.:

Preliminary  
D 37-991-P2

1. Does footing design comply with our report or subsequent memos? YES
2. If answer to 1. is No, is present design acceptable? —
3. Has sufficient field work been done? YES
4. Are estimated pile lengths shown on Drawings correct? if not, make a new list. Preliminary Drawing. NO estimates given for pile lengths at the abutments.
5. If excavation of unsuitable soil is recommended, is this shown on Drawings? NOT APPLICABLE
6. Are approaches designed in accordance with our report? Check slopes and berm lengths. YES- SEE NOTE under item #8.
7. Do you anticipate any construction problems? i.e. dewatering, stability of temporary slopes or excavations. NO.
8. Summarize your comments; on separate sheet if necessary.

- ① The piers are to be on spread foundations located <sup>within</sup> the weathered bedrock. Report recommends the use of a working pad of lean concrete.
- ② The fill along the east bank should be protected by stripping the topsoil and keying the new fill into the existing slope in accordance with current D.T.C. practices. — letter attached.

Drawings Received ... March 10, 1972

Reviewed ... March 22, 1972

Signed B.T. Darch

Mr. C. S. Grebski, P. Eng.,  
Structural Design Engineer,  
Design Services Branch,  
West Bldg., Downsview.

Foundations Office,  
Design Services Branch,  
Central Bldg., Downsview.

March 23, 1972.

Structure at the Crossing of Mimico Creek  
and Ramp N.S.-W. (Bridge No. 12), Borough  
of Etobicoke, Metropolitan Toronto,  
District No. 6 (Toronto )  
W.O. 71-11140      --      W.P. 314-65-14

We have reviewed the Preliminary Bridge Plan Drawing (No. D37-991-P2) for the aforementioned structure and submit the following comments.

1. The piers are to be founded on spread footings located in the upper weathered portion of the bedrock. In order to protect the integrity of the shale bedrock from the deteriorating effect caused by groundwater seepage or uncontrolled runoff, it was recommended (in the foundation report) that a lean concrete working slab be poured as soon as the foundation level is reached. This slab should be shown, in plan, on the final drawings.
2. The abutments are to be supported on end-bearing piles driven to bedrock. A note should be appended to the final bridge drawings stating that "no rock or bouldery fill should be placed in areas where piles are to be driven."
3. Along the east approach the new fill will be placed over the existing bank of Mimico Creek. In order to ensure the surficial stability of this new fill it was recommended that the topsoil, along the existing bank, be stripped and the new fill "keyed" into the existing slope in accordance with current D.T.C. practices. This should be shown on the final bridge drawings.

BTD/ao

cc: W. L. Lin  
G. C. E. Burkhardt  
W. C. Friedman  
Foundations Files  
Documents

*B. T. Darch*  
B. T. Darch,  
Senior Foundation Engineer,  
For: M. Devata,  
Supervising Foundation Eng.

Department of Highways Ontario

Copy for the information of

Foundation Office

A. Stermac,  
Principal Foundation Engineer,  
Room 107, Central Bldg.

Structural Office,  
West Bldg., Downsview.

March 30, 1972.

Re: E.B. Ramp Bridge over Mimico  
Creek (Bridge #11),  
W.P. 314-65-13, Site 37-992,  
O.E.W., District #6.

71-11-140

Attached herewith we are submitting the final  
bridge drawings which show the foundation design for  
this structure.

Kindly give us your comments at your earliest  
convenience.

C.S. Grebski,  
Structural Design Engineer.

CSG:sr  
Attach.

c.c. Foundation Office.

Increase length of piles from  
13' 0" to 15' 0"

Desg. 71-11-140 B-  
10 May 72  
df

APC  
2574172  
D. Devata  
April 26/72

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS

MEMORANDUM

TO: A. Stermac,  
Principal Foundation Engineer,  
Room 107, Central Bldg.

FROM: Structural Office,  
West Bldg., Downsview.

ATTENTION:

DATE: April 20, 1972.

OUR FILE REF.

IN REPLY TO

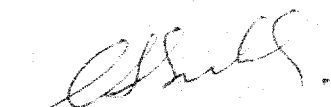
SUBJECT:

Re: Retaining Wall No. 13,  
W.P. #314-65-12, Site 37-11,  
Q.E.W., District #6.

~~69-F-120~~  
71-11-140

Attached herewith we are submitting the final bridge drawings which show the foundation design for this structure.

Kindly give us your comments at your earliest convenience.

  
C.S. Grebski,  
Structural Design Engineer.

CSG:sr

c.c. Foundations Office.

NO further action required, please  
advise us of any comments.  
to the design engineer.

7/1/72

FOUNDATIONS OFFICE

REVIEW OF DESIGN DRAWINGS:

W.P. .... 314-65-14  
W.O. .... 71-11140... (BR.#12)

Foundation Report By: ..... B.T. DARCH.....  
Review of Design Drawings By: ..... A. PRAKASH...  
Design Drawing No.'s: ..... 37-991-1, 2, 4, 4.....

1. Does footing design comply with our report or subsequent memos? Yes
2. If answer to 1. is No, is present design acceptable? NA
3. Has sufficient field work been done? Yes
4. Are estimated pile lengths shown on Drawings correct? If not, make a new list. Yes
5. If excavation of unsuitable soil is recommended, is this shown on Drawings? Yes
6. Are approaches designed in accordance with our report? Check slopes and berm lengths. Yes
7. Do you anticipate any construction problems? i.e., dewatering, stability of temporary slopes or excavations. No
8. Summarize your comments; on separate sheet if necessary.

Drawings Received .... April 25 ..... 19.72..  
Reviewed .... April 25 ..... 19.72..

Signed ..... Prakash.....

FOUNDATIONS OFFICE

REVIEW OF DESIGN DRAWINGS:

W.P. .... 314-65-12  
W.O. .... 71-11140 (RET. WALL#12)

Foundation Report By: ..... B.T. DARCH .....

Review of Design Drawings By: ..... A. PRAKASH .....

Design Drawing No.'s: ..... 37-1, 2, 3 & 6 .....

1. Does footing design comply with our report or subsequent memos? YES
2. If answer to 1. is No, is present design acceptable? NA
3. Has sufficient field work been done? YES
4. Are estimated pile lengths shown on Drawings correct?  
If not, make a new list. NA
5. If excavation of unsuitable soil is recommended,  
is this shown on Drawings? N.A.
6. Are approaches designed in accordance with our  
report? Check slopes and berm lengths. N.A.
7. Do you anticipate any construction problems?  
i.e., dewatering, stability of temporary slopes  
or excavations. NO
8. Summarize your comments; on separate sheet if necessary.

NO comments

Drawings Received ... April 25, 1972 ...

Reviewed ... April 25, 1972 ...

Signed ..... A. Prakash .....

FOUNDATIONS OFFICE

REVIEW OF DESIGN DRAWINGS:

W.P. ..314-65-13.....  
W.O. ..71-11140... (BR. # 11)

Foundation Report By: .....B. T. DARCH.....  
Review of Design Drawings By: .....A. PRAKASH.....  
Design Drawing No.'s: ..37-992-1, 3, 4, 4.....

1. Does footing design comply with our report or subsequent memos? YES
2. If answer to 1. is No, is present design acceptable? NA
3. Has sufficient field work been done? YES
4. Are estimated pile lengths shown on Drawings correct? If not, make a new list. NO
5. If excavation of unsuitable soil is recommended, is this shown on Drawings? NA
6. Are approaches designed in accordance with our report? Check slopes and berm lengths. YES
7. Do you anticipate any construction problems? i.e., dewatering, stability of temporary slopes or excavations. NO
8. Summarize your comments; on separate sheet if necessary.

TOTAL LENGTH OF PILES

VERT	4 x 15' 0"	= 60' 0"
BATTER 1:3	10 x 15' 0"	= 150' 0"
BATTER 1:8	4 x 15' 0"	= 60' 0"
	TOTAL	= 270' 0"

Drawings Received ....April 25.....1972..  
Reviewed ....April 25.....1972..

Signed .....APRAKASH.....



71-11-140

Planning  
Engineering  
Project Management

# FENCO

1 Yonge Street  
Toronto Canada  
416-361-4722  
Cable 'Foundation'  
Telex 02 2814

April 28, 1972

Mr. A.T. Stermac, P.Eng.  
Principal Foundation Engineer  
Ontario Department of Transportation  
& Communications  
West Building  
Downsview 464, Ontario

Attention Mr. M. Devata, P.Eng.  
Supervising Foundation Engineer

Dear Sirs,

BRIDGE #12 - Q.E.W. ROYAL YORK ROAD  
TO HUMBER RIVER  
W.P. 314-65-14 - PILE LENGTHS AT E.  
ABUTMENT AS SHOWN ON DRAWING 37-991-3

During a phone call with Mr. Temple on April 26, your Mr. Prakash pointed out that the pile lengths listed for the east abutment do not correspond with the tip elevations given in the Soils Report no. W.O. 71-11140 Page 12.

We agree but feel that since we do not give pile tip elevations and since the reduction would be only in the order of 25 l.f. in 576 l.f., the lengths shown are close enough. We have discussed this matter Mr. Lin and he is agreeable to leaving the drawing as it is.

Yours very truly,  
FOUNDATION OF CANADA ENGINEERING  
CORPORATION LIMITED

*B.T. Phalp*

B.T. Phalp, P.Eng.  
SECTION ENGINEER

BTP/tf  
3795

cc: Mr. W. Lin, P.Eng.  
Regional Structural Design Engineer  
Ontario Department of Transportation  
& Communications  
Downsview 464, Ontario

Foundation of Canada Engineering Corporation Limited

Vancouver · Calgary · Edmonton · Hamilton · Toronto · Ottawa · Montreal · Fredericton · Saint John · Halifax · St. John's

Date May 15, 1974

## APPROVED SCHEDULE FOR 1974 - 75

Page 15 of 16

## PROGRAM OF CONSTRUCTION

DISTRICT No. 6, TORONTO

W.P. No.	HWY. No.	Type of work	LOCATION	Date of		Tend. open.	CONT. No.
				Advert.	Award.		
314-65-14 314-65-15 314-65-18 106-73-04	QEW	G.D. GB. Pav. Str., Ret. Wall & Deck Wpf.	North & Southwest Ramp to Park Lawn Rd. - 0.1 Mi. Incl. North & Southwest Ramp, Bridge #12 over Mimico Creek and Islington Ave. U'pass.	Apr. 24/74	May 29/74	9	74-33

[illegible]

REMARKS:-

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE Park Lane Rd BOREHOLE No. 2 GROUND ELEVATION 262.56

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	2-1 1/2	1/2	-	0	30	70	Mod. Well	Low	Brk	Orange Brown	Strong		CLAYEY SILT WITH SAND, SOME DEBRIS	CL		
2	3-4	1/2		10	15	75	Hard	Low	SL	Earth Brown	Mild		CLAYEY SILT, SOME SAND, SOME GRAVEL	CL		
														</		

NOTES:- VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

[illegible]

REMARKS:-

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE Parliament Square BOREHOLE No. 4 GROUND ELEVATION \_\_\_\_\_

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	2-2	-	-	0	30	70	MED	DULL	QUICK	NO	EARTHY	BROWN	MILD		CLAYEY SILT SOME SAND, TRACE ORGANIC MATR	CL
2	3-4 1/2	-	-	0	10	90	HIGH	DULL	MED	SLI	EARTHY	BROWN	MILD		CLAYEY SILT, TRACE SAND	CL
3	6-7 1/2	-	-	0	10	90	HIGH	DULL	MED	SLI	EARTHY	BROWN	STRONG		CLAYEY SILT, TRACE SAND	CL
4	9-10 1/2	-	-	0	20	80	HIGH	DULL	QUICK	SLI	EARTHY	BROWN	STRONG		CLAYEY SILT SOME SAND	CL
5	12-13 1/2	-	-	0	10	90	HIGH	DULL	QUICK	SLI	EARTHY	BROWN	STRONG		CLAYEY SILT, TRACE SAND	CL
7	15-4' 4 1/2	-	-	0	10	90	HIGH	DULL	SLOW	SLI	EARTHY	BROWN	MILD		CLAYEY SILT, TRACE SAND	CL
8	20-20 1/2	-	-	0	10	90	HIGH	DULL	SLOW	SLI	EARTHY	BROWN	STRONG		CLAYEY SILT, TRACE SAND	CL

NOTES:- VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE PARK LAWN: DEW BOREHOLE No. 4 GROUND ELEVATION 292.50

SAMPLE NO.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0'-2'	200	—	0	0	100	MED	DULL	NIL TO SLOW	LOW	ORGANIC	LIGHT BROWN	NIL		CLAYEY SILT, TRACES ORGANIC	CL
2	3-4 1/2'	200	—	0	0	100	MED	DULL	NIL TO SLOW	LOW	EARTHY	BROWN	STRONG		CLAYEY SILT ✓	CL
3	6-7 1/2'	200	—	0	0	100	MED	DULL	NIL TO SLOW	LOW	EARTHY	BROWN	STRONG		CLAYEY SILT ✓	CL
4	9-10 1/2'			0	5	95	MED	DULL	NIL TO SLOW	LOW	EARTHY	BROWN	STRONG		CLAYEY SILT, TRACE SAND	CL
5	12-13 1/2'	200		0	5	95	HARD	DULL	NIL TO SLOW	LOW	EARTHY	BROWN	MED		CLAYEY SILT, TRACE SAND	CL
7	15'-16 1/2'	200		0	5	95	MED	DULL	NIL TO SLOW	LOW	EARTHY	BROWN	MED		CLAYEY SILT, TRACE SAND	CL
8	20'-22'	200		0	5	95	MED	DULL	NIL TO SLOW	LOW	EARTHY	BROWN	MED		CLAYEY SILT, TRACE SAND TO LIGHT WEAT SHALE	CL

NOTES:— VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:—



DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE PARK LAWN DEW BOREHOLE No. 5 GROUND ELEVATION \_\_\_\_\_

SAMPLE NO.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-1 1/2	1/4	ANGULAR	0	30	70	MED	DULL	SLOW	SL	ORIGINAL BROWN	BROWN			CLAYEY SILT SOME SAND, TRACE GRAVEL	CL
2	3-3 1/4	1/4	ANGULAR	30	50	20	SL	DULL	QUICK	SL	EARTH	D. BROWN	MILD		SAND AND GRAVEL SOME FINE (FILL MATEL)	SP
3	5 1/2-7	3/4	ANGULAR	20	50	30	MED	DULL	QUICK	SL	EARTH	L. BROWN	STRONG		FILL MATEL 1/2' UNIFORM SAND SOME FINE	CU
4	9-10 1/2	-	-	-	20	80	HIGH	DULL	NO	SL	EARTH	L. BROWN	STRONG		SILTY CLAY TO CLAYEY SILT, SOME SAND	CL G.T.
5	12-13 1/2	3/8	ANG	5	20	80	HIGH	DULL	SLOW	SL	EARTH	L. BROWN	STRONG		SILTY CLAY TO CLAYEY SILT, SOME SAND	CL
6	15-15 1/4	-	-	0	10	90	MED	DULL	SLOW	SL	EARTH	GREY	STRONG		CLAYEY SILT, TRACE SAND (RIGHT UNDER SAND)	

NOTES:- VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-



MINISTRY OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE PARK LAWN E. QEW BOREHOLE No. 8 GROUND ELEVATION \_\_\_\_\_

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-1 1/2'	1 1/2"	ANGULAR	20	15	65	MED	DULL	SLOW	MED	EARTHY	BROWN	STRONG		SOME ROOTS CLAYEY SILT, SOME GRAVEL SAND	CL
2	3-4 1/2'	2"	ANGULAR	40	45	15	SLI	DULL	SLOW	MED	EARTHY	BROWN	STRONG		POORLY GRADED SAND, AND GRAVEL, SOME FINES	SP
3	6-6.5'	2"	SUB ANGULAR	10	75	15	SLI	DULL	SLOW	SLI	EARTHY	GRAY	MILD		SAND, TRACE SILT GRAVEL, TIP HIGHLY WEAT. SHINE	SC

NOTES:— VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:—

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE PARK LANE & QUEEN BOREHOLE No. 9 GROUND ELEVATION 264.7

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-1	-	-	0	10	90	MED	DULL	MED	MED	ORGANIC	DARK BROWN	MILD		TOP SOIL (CLAYEY-SILT)	PT
2	3-3.6	1	SUB ANGULAR	30	30	40	MED	DULL	SLOW	MED	EARTH	L. BROWN	NO		CLAYEY SILT, WITH GRAVEL & SAND	CL

NOTES:— VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:—

DEPARTMENT OF HIGHWAYS -- ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE PARK LAWN CDDG BOREHOLE No. 12 GROUND ELEVATION 265.9

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-1 1/4	-	-	0	30	70	SL	DULL	QUICK	MED	ORGANIC	D. GRAVEL TRACE GREEN	MILD		ORGANIC SILT	OL
2	3-4 1/2	1 1/2	ANGULAR	70	15	15	MED	DULL	SLOW	MED	EARTH	BROWN TO GREY	N. MILD		GLACIAL TILL (FINE SILT SAND & GRAVEL)	CL

NOTES:- VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-1140 SITE PERKINS ROAD BOREHOLE No. 13 GROUND ELEVATION \_\_\_\_\_

SAMPLE NO.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	2 1/2	1/2	SUB ANGULAR	10	80	10	SW	Dull	Med	SW	Earth	Brown	ST-DM		Uniform Sand, Trace Gravel, Salt	SW
2	3-4 1/2	1"	ANGULAR	5	40	45	SW	Dull	Med	SW	Earth	Grey	M-LO		Clayey Silty And Uniform Sand Trace Gravel	CL
4	6 1/2-8	1 1/2	ANGULAR SUB	20	15	65	Med	Dull	Med	Med	Earth	Grey	ST-DM		Gravelly Silty Clayey Silty Sand Some Sp. Sand	CL
5	9-10 1/2	1/2	ANGULAR	10	25	65	Med	Dull	Med	Med	Earth	Brown	M-LO		Clayey Silty, Trace Gravel, Some Fines	CL
6	12-13	-	-	0	30	70	Med	Dull	Med	Med	Earth	Brown	ST-DM		Clayey Silty Sand To Highly Wet Shale	

NOTES:- VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE

PROJECT 71-11140 SITE Park Lawn GC BOREHOLE No. 1st GROUND ELEVATION \_\_\_\_\_

[illegible]

NOTES:- VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:—

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE PARK LAWN CREEK BOREHOLE No. 16 GROUND ELEVATION \_\_\_\_\_

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-2'	-	-	0	10	90	LOW	DULL	LOW	LOW	EARTH	BROWN	STONE		SILTY SAND (UNIFORM) SOME ROOTS	S <sub>1</sub>
2	3-5	7"	ANGULAR	30	50	20	LOW	DULL	LOW	SLT	EARTH	BROWN	STONE		SILTY UNIFORM SAND TIP ROCK	S <sub>1</sub> F
4	73"-83"														ROCK	

NOTES:- VISUAL CLASSIFICATION MUST BY CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 7-11140 SITE OXFORD BOREHOLE No. A GROUND ELEVATION \_\_\_\_\_

SAMPLE NO.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-2										ORIGINAL	BLACK			TOP SOIL	PS
2	2-4 1/2	1/2"	Angular	5	75	20	Hard	Shiny	No	30	Earth	Brown	Strong		CLAYEY SILT, SOME SAND	CL
3	4-7 1/2	1/2"	Angular	5	12	85	Hard	Shiny	No	20	Earth	Brown	Mild		CLAYEY SILT, TRACE SAND & GRAVEL	CL
4	8-9	1"	Angular	10	20	70	Hard	Shiny	No	30	Earth	Brown	Strong		(GLACIAL TILL) CLAYEY SILT, TRACE GRAVEL, SOME SAND	CL

NOTES:- VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-



DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11190 SITE OXFORD BOREHOLE No. B GROUND ELEVATION \_\_\_\_\_

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DIALATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-6"										ORGANIC	Black	NO		TOP SOIL	PE
	6"-1 1/2'	-	-	0	30	70	MED	DULL	MED	SCI	EARTHY	BROWN	NO		CLAYEY SILT WITH SAND, TRACE ROOTS	CL
2	3'-4'	1"	ANGULAR	20	30	60	HIGH	DULL	MED	SCI	EARTHY	BROWN	MILD		CLAYEY SILT, SOME GRAVEL & SAND	CL
3	4-5'														ROCK (BOLDER)	-
4	6'-8'	1 1/2"	ANGULAR	10	20	70	HIGH	DULL	ROCKY	SCI	EARTHY	BROWN	MILD		CLAYEY SILT TRACE GRAVEL, SOME SAND	CL

NOTES:- VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-



DEPARTMENT OF HIGHWAYS — ONTARIO  
MATERIALS AND TESTING OFFICE  
**VISUAL CLASSIFICATION SHEET**

PROJECT 71-11140 SITE OXFORD ST. BOREHOLE No. C GROUND ELEVATION \_\_\_\_\_

SAMPLE No.	DEPTH	GRAIN SIZE DISTRIBUTION					DRY STRENGTH	SHINE	DILATANCY	TOUGHNESS	ODOR	COLOUR	ACID TEST	CONSISTENCY OR UNDRAINED SHEAR STRENGTH	CLASSIFICATION WITH DESCRIPTION	SYMBOL
		LARGEST GRAIN SIZE	SHAPE	PERCENTAGE												
				GRAVEL	SAND	SILT & CLAY										
1	0-1 1/2	-	-	0	30	60	Med	Low	QUICK	SLT	CLAYEY EARTH	L BROWN	MILD		CLAYEY SILT WITH SAND	CL
2	3-4 1/2	-	-	0	60	30	Low	Dark	QUICK	SLT	EARTH	L BROWN	MILD		SAND (UNIFORM) WITH SILT	SC
3	6'-6 1/2"	1/2"	ANGULAR	15	30	55	High	Dark	SLOW	SLT	EARTH	GREY	MILD		GLACIAL TILL - CLAYEY SILT, GRAVEL SILT	CL

NOTES:- VISUAL CLASSIFICATION MUST BE CARRIED OUT ON ALL SAMPLES BY THE ENGINEER AS SOON AS POSSIBLE AFTER THE SAMPLES REACH THE LABORATORY.

REMARKS:-

DOCUMENT MICROFILMING IDENTIFICATION

GEOCREs No. 30M11-100

DIST. 6 REGION CENTRAL

W.P. No. 314-45-12, 13, 14

CONT. No. 74-33

W. O. No. 71-11140

STR. SITE No. 37-992, 37-991

HWY. No. Q.E. 42

LOCATION WASHINGTON AVE. & ROYAL VEEY RD.

(E.B. COLLECT) RETAINING WALL #12, MINICK CREEK

TR. #11 (E.B. COLLECT) + 12 (N.E. 2nd RAMP)

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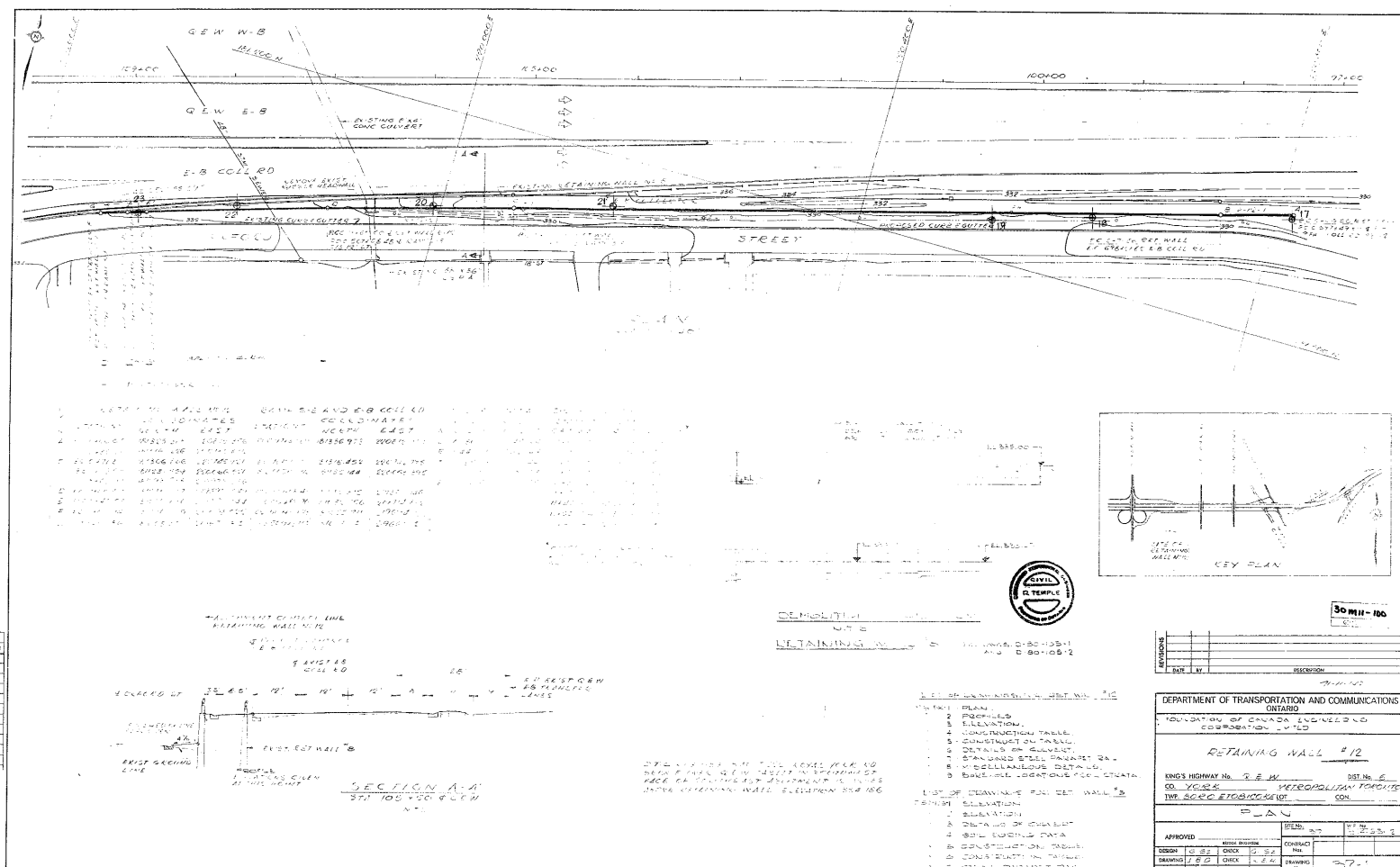
OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. 13

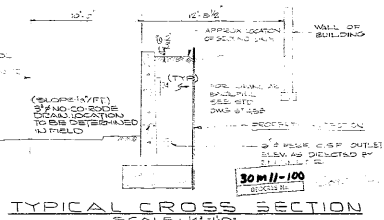
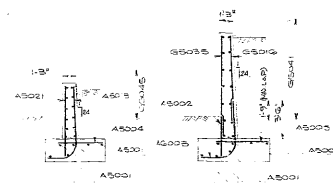
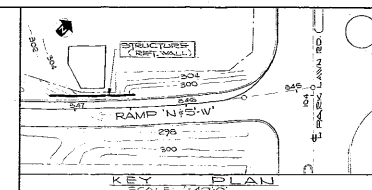
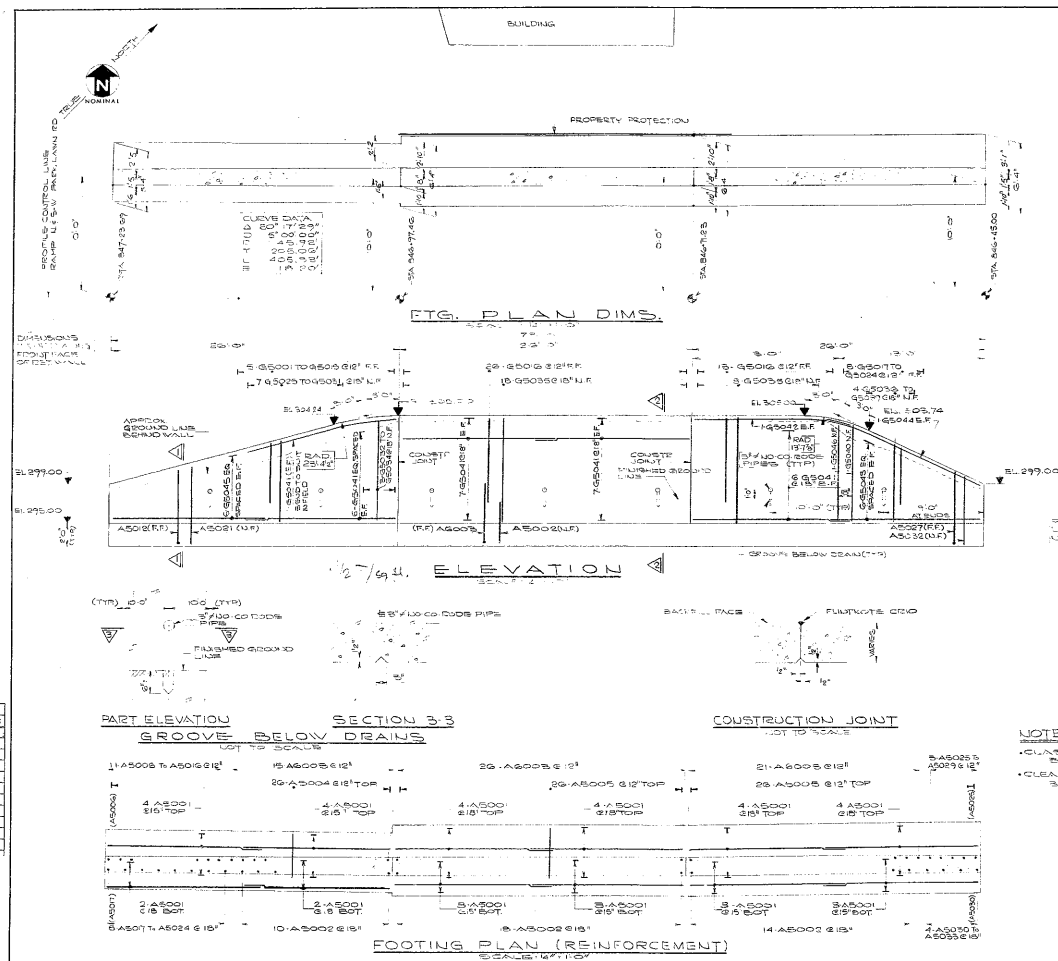
REMARKS: DOCUMENTS TO BE UNFOLDED BEFORE

MICROFILMED

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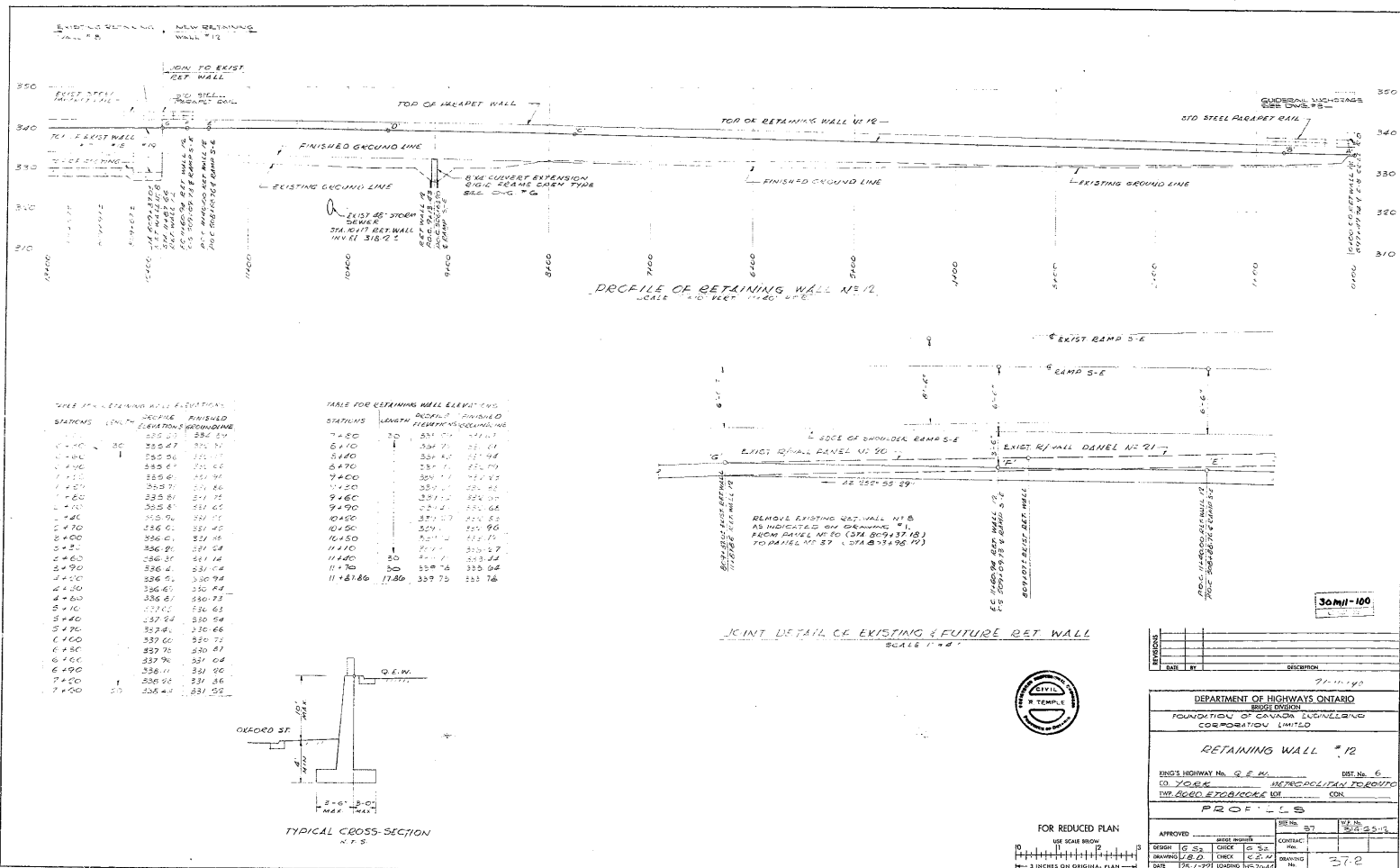
**NOTES:**

- 1. CLASPS OF CONCRETE TO BE 1\"/>



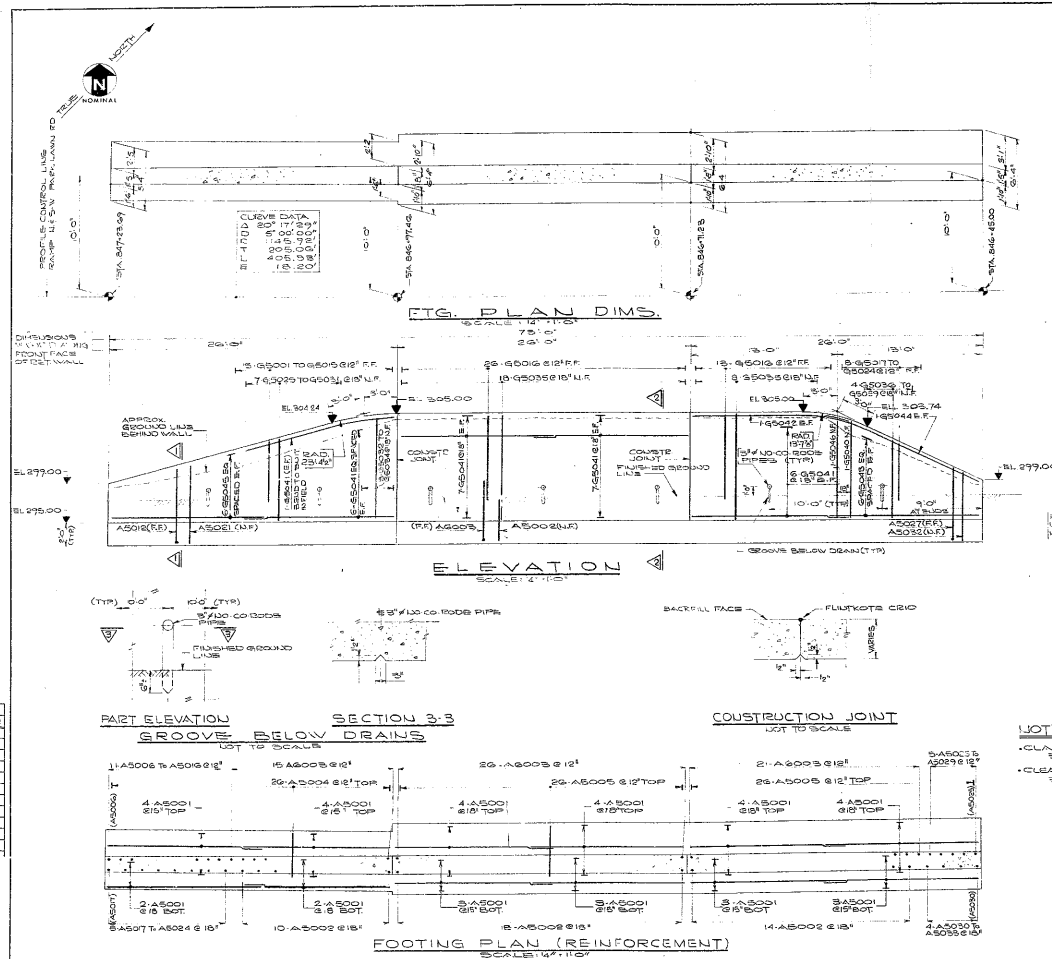
FOR REDUCED PLAN  
SEE SCALE BELOW  
1/4\"/>

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS			
FOUNDATION OF CANADA ENGINEERING CORPORATION LIMITED			
RETAINING WALL #13			
PROJECT HIGHWAY No. 401		EST. No. 10	
CD. 101-1		CD. 101-1	
TWO LANE HIGHWAY BRIDGE #101		CD. 101-1	
RETAINING WALL			
APPROVED	DESIGNED	CHECKED	DATE
3/7	3/7	3/7	3/7
DRAWING No. 37-1			







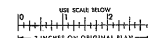


#### NOTES:

- CLASS OF CONCRETE 3000 P.S.I.
- GRADE COVER TO REIN. STEEL 3" FOOTING 4" WALL



FOR REDUCED PLAN

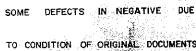


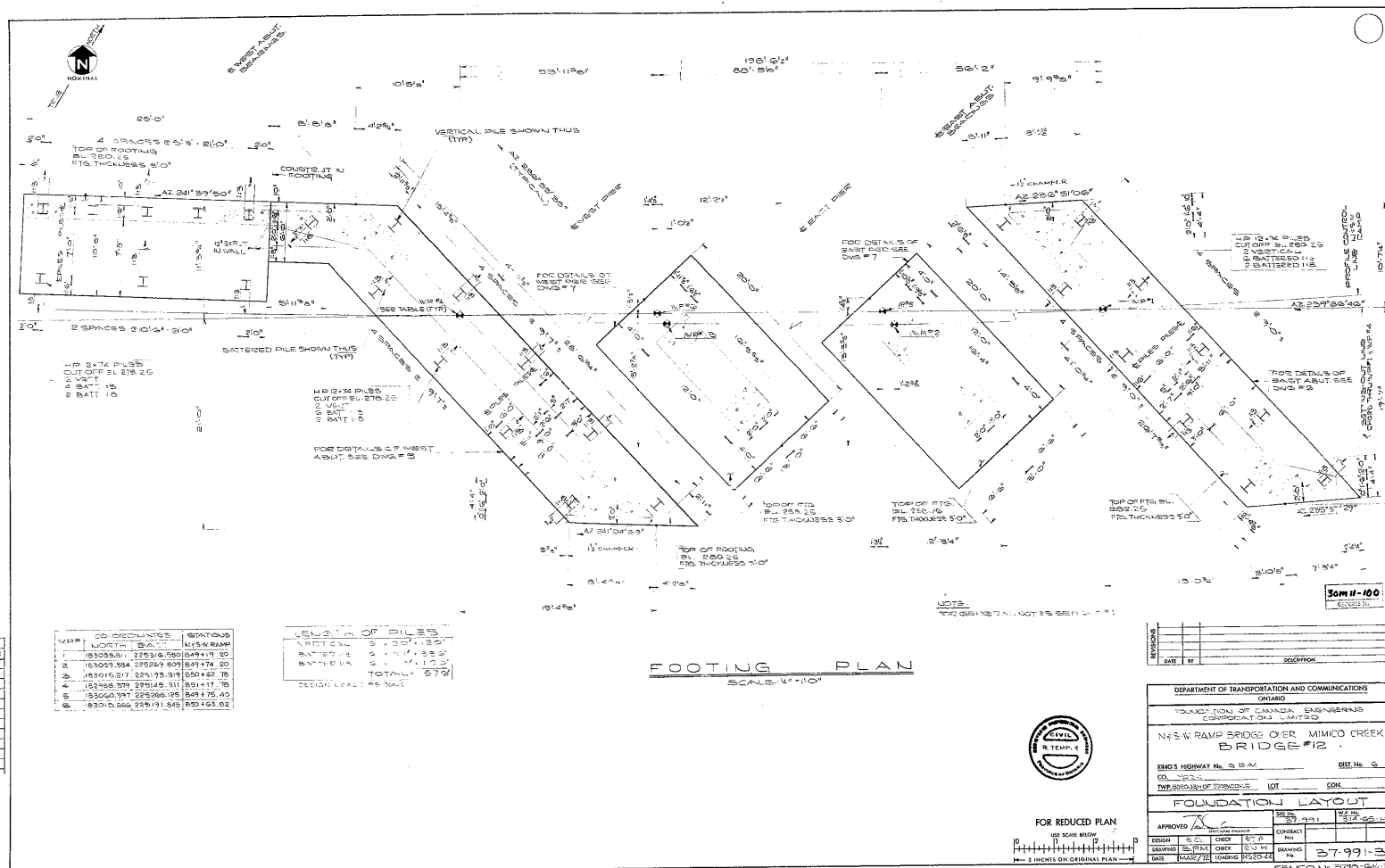
REVISIONS	DATE	BY	DESCRIPTION

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS			
ONTARIO			
FOUNDATION OF CANADA ENGINEERING CORPORATION - LIMITED			
RETAINING WALL #13			
KINGS HIGHWAY No. 26 N.W.		DIST. No. 2	
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TYP. SECTION OF STORMWATER DRAIN			
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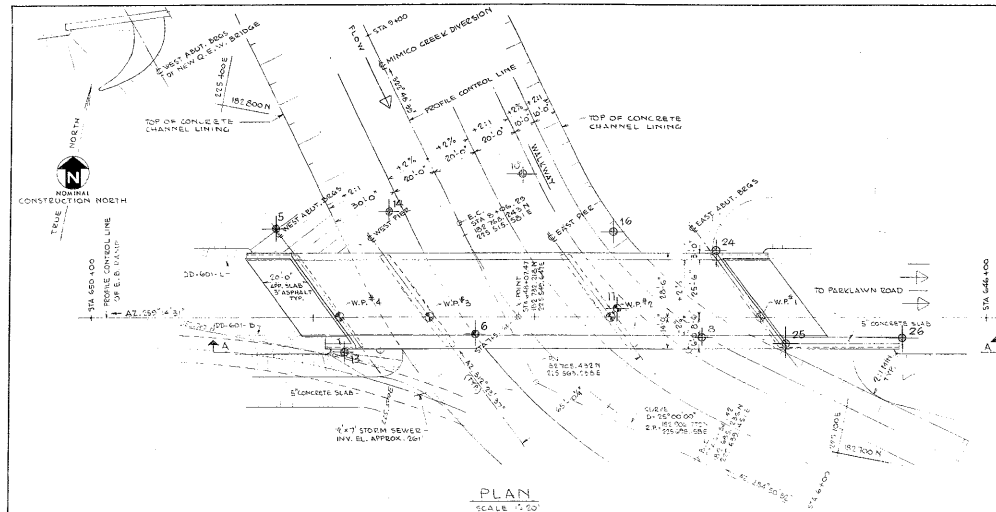
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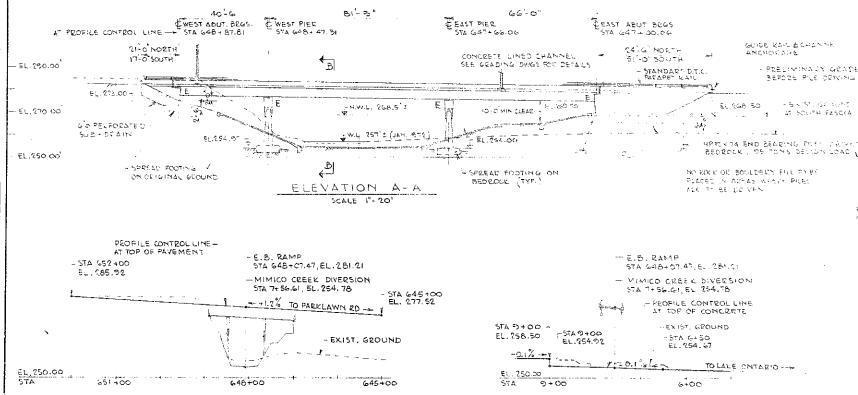




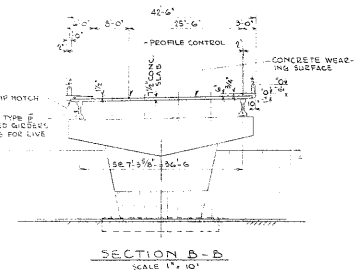




PLAN  
SCALE 1" = 20'



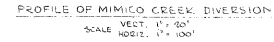
ELEVATION A-A  
SCALE 1" = 20'



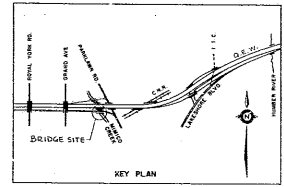
SECTION B-B  
SCALE 1" = 10'



PROFILE OF E.B. RAMP  
SCALE VERT. 1" = 20'  
HORIZ. 1" = 100'



PROFILE OF MIMICO CREEK DIVERSION  
SCALE VERT. 1" = 20'  
HORIZ. 1" = 100'



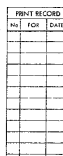
- LIST OF DRAWINGS
- 1. GENERAL ARRANGEMENT
  - 2. FOUNDATION LAYOUT
  - 3. FOUNDATION SECTION
  - 4. WEST ABUTMENT
  - 5. EAST ABUTMENT
  - 6. WEST PIER
  - 7. EAST PIER
  - 8. WEST RAMP
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- GENERAL NOTES
- 1. CLASS OF CONCRETE
  - 2. REINFORCING BARS UNDER PIER
  - 3. REINFORCING BARS UNDER PIER
  - 4. REINFORCING BARS UNDER PIER
  - 5. REINFORCING BARS UNDER PIER
  - 6. REINFORCING BARS UNDER PIER
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CIVIL R. TEMPLE		30m/100 DESIGN
DATE	BY	DESCRIPTION

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS	
ONTARIO	
FOUNDATION OF CANADA ENGINEERING CORPORATION LIMITED	
E.B. RAMP BRIDGE OVER MIMICO CREEK	
BRIDGE # 11	
KING'S HIGHWAY No. 6 E.W.	Dist. No. 6
CO. YORK	
THE SURVEYOR OF HIGHWAYS	LOT
GENERAL ASSURANCE	
APPROVED	BY
DESIGN	CHECK
TRAINING	CHECK
DATE	DATE

FOR REDUCED PLAN  
USE SCALE BELOW  
1" = 1 INCHES ON ORIGINAL PLAN



W.P. NO	COORDINATES		STA. ON
	NORTH	EAST	S.B. RAMP
1	182,752.267	225,355.169	647-00.00
2	182,739.948	225,320.320	647-66.00
3	182,724.781	225,310.507	648-47.81
4	182,717.222	225,307.718	648-57.50



SECTION A-A  
SCALE: 1/4" = 1'-0"

NOTE: FOR GENERAL NOTES  
SEE DWG # 1

TOTAL LENGTH OF PILES	
VERT	4 x 13.0' = 52.0'
BATTER 1:5	10 x 13.0' = 130.0'
BATTER 1:8	4 x 13.0' = 52.0'
TOTAL L = 234.0'	



FOR REDUCED PLAN

[illegible]

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS  
ONTARIO  
FOUNDATION OF CANADA ENGINEERING  
CORPORATION LIMITED

E. B. RAMP BRIDGE OVER MIMICO CREEK  
BRIDGE #11

KING'S HIGHWAY No. Q. E. W. DIST. No. 6  
CO. YORK

TWP. BOBOLING OF EIDBICOCKE LOT. CON.

FOUNDATION LAYOUT

APPROVED		SHEET NO. 37-002		W.P. NO. 514-68-12	
DESIGN		CHECK		CONTRACT	
B. G.		H. P.		Nix	

DRAWING	H. B. W.	DISC	E. V. H.	DRAWING	37-992-3
DATE	11-11-60	LOADING	10-11-60	No.	

RENGO N° 3736 - 3K. 33

