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DIST. 6 REGION Central

W.P. No. 127-66-10

CONT. No. 76-120

W. O. No. 73-11038

STR. SITE No. _____

HWY. No. _____

LOCATION Hwy. 403 Ramp ^{S-E} ~~W-E~~

Overpass over Hwy. 401 E.B.

Collector and Subcollector

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. 3

REMARKS: documents to be unfolded
before microfilming

FOUNDATION INVESTIGATION REPORT

For

Hwy. 403 W.B. Over Hwy. 401 E.B.
Bridge #27
W.P. 127-66-10, Site #24-318
District #6, Toronto

INTRODUCTION

This report contains the results of a foundation investigation carried out at the site of the above mentioned project. Field work was carried out during the period of June 12th to 18th, 1973, using conventional diamond drilling equipment adapted for soil and rock sampling purposes. BXL size rock core samples (1 21/32 inch diameter) were obtained to prove bedrock.

SITE DESCRIPTION AND GEOLOGY

The site is located about 1 mile east of the existing Hwy. 401 and Hwy. 10 interchange, in the City of Mississauga.

Topographically, the general area is flat to gently undulating. The land is utilized for farming purposes.

Physiographically, the site is located in the region referred to as the "Peel Plain." Across this plain rivers and streams have cut deep valleys and consequently there are no large undrained depressions, swamps or bogs, although in many of the interstream areas the drainage is imperfect.

The characteristic geological material of this region is a glacial till containing large amounts of fragments of shale and limestone. The overburden is underlain by dark grey shale bedrock of the Meaford-Dundas Formation.

SUBSURFACE CONDITIONS

Subsoil at the site consists of a relatively shallow deposit ranging in thickness from 2 to 3 feet of glacial till which is a heterogeneous mixture of clayey silt, sand and gravel, followed by shale bedrock. A description of the overburden and bedrock encountered in each borehole is shown on the individual Record of Borehole Sheets in the Appendix of this report. The

inferred subsurface stratigraphy, together with the locations and elevations of all boreholes is shown on Drawing #24-318-2 of the Contract Drawings. A description of overburden and bedrock is as follows:

Heterogeneous Mixture of Clayey Silt, Sand and Gravel
(Glacial Till)

This deposit was encountered immediately below a thin layer of topsoil down to the bedrock surface. The thickness of this overburden ranges from 2 to 3 feet. The lower boundary was found to vary between elevation 590 and elevation 588.

The material in the stratum consists of clayey silt, sand and gravel.

Bedrock - Shale

The glacial till deposit is underlain by a shale bedrock. The surface of the bedrock varies between elevation 590 and elevation 588.

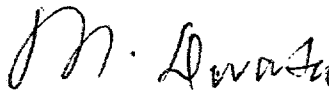
The upper 5 to 7 feet portion of the bedrock appears to be weathered and below this it is generally sound.

The bedrock is composed of dark grey interbedded shale and limestone.

GROUNDWATER CONDITIONS

Groundwater level observations were carried out during the period of the field investigation (June, 1973) in the open boreholes. The results indicate that the groundwater level varies between elevation 589 and elevation 585 which correspond to levels ranging from 2 to 6 feet below the existing ground surface.

No artesian or downward drainage conditions were encountered .


M. Devata, P. Eng.
Supervising Engineer



MD/gs
December, 1976

HIGHWAY ENGINEERING DIVISION - ENGINEERING MATERIALS OFFICE - SOIL MECHANICS SECTION

RECORD OF BOREHOLE NO 1

WP 127-66-10 LOCATION Co-ords. N.856,769 E.958,681 ORIGINATED BY VK
 DIST 6 HWY 401 & 403 BORING DATE June 12, 1973 COMPILED BY VK
 DATUM Geodetic BOREHOLE TYPE Drill with tricone and BXL Bits CHECKED BY *So*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT w_L PLASTIC LIMIT w_p WATER CONTENT w $w_p \rightarrow w \rightarrow w_L$ WATER CONTENT %	UNIT WEIGHT Y	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100			
591.5	Ground Level													
0.0	Het. mix. of clayey si.													
588.5	sa. & gravel (Glac. Till)													
3.0			1	SS	100%									
	Weathered													
	Sound		2	RC	Rec. 100%									
	Shale Bedrock			BXL										
	with interbedded													
	limestone layers		3	RC	Rec. 100%									
571.1				BXL										
20.4	End of Borehole													

20
15 ϕ 5 % STRAIN AT FAILURE
10

HIGHWAY ENGINEERING DIVISION - ENGINEERING MATERIALS OFFICE - SOIL MECHANICS SECTION

RECORD OF BOREHOLE NO 2

WP 127-66-10

LOCATION Co-ords. N.856,783 E.958,622

ORIGINATED BY VK

DIST 6 HWY 401 & 403

BORING DATE June 13, 1973

COMPILED BY VK

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

CHECKED BY *VB*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT — w_L PLASTIC LIMIT — w_p WATER CONTENT — w			UNIT WEIGHT γ	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	w_p	w	w_L		
591.6	Ground Level					590										
589.9	Glacial Till															
1.7	Weathered															
	Sound		1	RC BXL	Rec 100%	580										
574.4	Shale Bedrock with interbedded limestone layers		2	RC BXL	Rec 100%											
17.2	End of Borehole					570										

20
15 5 % STRAIN AT FAILURE
10

HIGHWAY ENGINEERING DIVISION - ENGINEERING MATERIALS OFFICE - SOIL MECHANICS SECTION

RECORD OF BOREHOLE NO 3

WP 127-66-10

LOCATION Co-ords. N.856,703 E.958,627

ORIGINATED BY VK

DIST 6 HWY 401 & 403

BORING DATE June 14, 1973

COMPILED BY VK

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

CHECKED BY

SOIL PROFILE			SAMPLES			GROUND WATER	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT W_L PLASTIC LIMIT W_P WATER CONTENT w			UNIT WEIGHT γ	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT. PLT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	w_p	w	w_L		
591.3	Ground Level					ELEV										GR SA SI CL
0.0	Het. mix. of clayey si. & grav. (Giac. Till)					590										
588.8																
2.5	Weathered															
	Sound		1	RC BXL	Rec 100%	580										
	Shale Bedrock with interbedded layers of limestone		2	RC BXL	Rec 100%											
572.5																
18.8	End of Borehole					570										

20
15 \diamond 5 % STRAIN AT FAILURE
10

HIGHWAY ENGINEERING DIVISION - ENGINEERING MATERIALS OFFICE - SOIL MECHANICS SECTION

RECORD OF BOREHOLE NO 4

WP 127-66-10

LOCATION Co-ords. N.856,573 E.958,627

ORIGINATED BY WV

DIST 6 HWY 401 & 403

BORING DATE June 14, 1973

COMPILED BY VR

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

CHECKED BY AD

SOIL PROFILE			SAMPLES			GROUND WATER ELEV	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT — w_L PLASTIC LIMIT — w_p WATER CONTENT — w			UNIT WEIGHT γ	REMARKS
ELEV DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	SHEAR STRENGTH ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB VANE				
592.3	Ground Level															
0.0	Het. mix. of clayey si.															
589.4	sa. & grav. (Glac. fill)		1	SS	100%	590										
2.9	Weathered															
	Sound															
	Shale Bedrock		2	RC	Rec	580										
	with interbedded			BXL	90%											
	limestone layers		3	RC	Rec											
573.6				BXL	95%											
18.7	End of Borehole					570										

20
15 \diamond 5 % STRAIN AT FAILURE
10

RECORD OF BOREHOLE NO 3

CHECKED BY LD

15 $\frac{20}{10}$ 5 % STRAIN AT FAILURE

FOUNDATION INVESTIGATION REPORT
For
Bridge No. 27
The Proposed Hwy. 403 Ramp E-S Overpass
Over Hwy. 401 E.B. Collector & Sub-Collector
Town of Mississauga, County of Peel
District #6 (Toronto, Ont.)
W.O. 73-11038 -- W.P. 127-66-10X

1. INTRODUCTION:

The present proposals for the construction programme of Hwy. #401-Hwy. #403 complex will require a major interchange in the vicinity of the intersection of Hwy. #401 and Heart Lake Road. This interchange, designated as 401/410/403 complex, will incorporate some twenty-one structures.

A request for a foundation investigation at the site of the proposed Bridge #27 (Hwy. 403 Ramp E-S overpass over Hwy. 401 E.B. Collector) was received from Mr. G.C.E. Burkhardt, Regional Structural Planning Engineer, in a memorandum dated May 17, 1973.

Following this request a field investigation was carried out by the Foundations Office to determine the subsoil, bedrock and groundwater conditions existing at the site.

This report contains the results of this investigation and our recommendations pertaining to the design of the proposed structure foundations and the stability of the approach fills and cuts.

2. DESCRIPTION OF THE SITE AND GEOLOGY:

The site of the proposed structure is located about 1 mile east of the existing Hwy. #401 & Hwy. #10 interchange, in the Town of Mississauga.

Topographically, the general area is flat to gently undulating. The land is utilized for farming purposes.

Physiographically, the site is located in the region referred to as the "Peel Plain." Across this plain rivers and streams have cut deep valleys and consequently there are no large undrained depressions, swamps or bogs, although in many of the interstream areas the drainage is imperfect.

The characteristic geological material of this region is a glacial till containing large amounts of shale and limestone. The overburden is underlain by dark grey shale bedrock of the Meaford-Dundas Formation.

3. FIELD AND LABORATORY INVESTIGATION PROCEDURES:

A total of six sampled boreholes was carried out during the course of the field work. Boring was achieved by means of a conventional diamond drilling equipment adapted for soil sampling purposes. During the field work, disturbed samples were obtained by means of a standard split-spoon sampler; the energy used in driving it conformed to the requirements of the Standard Penetration Test (SPT).

The bedrock was proven at all borehole locations using BXL rock coring equipment.

All boreholes were surveyed in the field by District #6 (Toronto) Construction Personnel. The locations referenced to a coordinate system and elevations referenced to Geodetic Datum and are shown on Drawing No. 73-11038A which accompanies this report.

All samples were visually examined and classified at the site as well as in the laboratory.

4. SOIL TYPES AND SOIL CONDITIONS:

4.1) General:

Generally uniform subsoil conditions were found to prevail over the site area. The subsoil consists of a relatively shallow

deposit ranging in thickness from 2 to 3 ft. of glacial till which is a heterogeneous mixture of clayey silt sand and gravel, followed by shale bedrock.

The boundaries of the different deposits are shown on the Record of Borehole sheets attached to the Appendix. The estimated stratigraphical profile of Drawing #73-11038A is based upon this information.

From ground level downward, the various strata are described in some detail with regard to soil types and physical properties as follows:

4.2) Heterogeneous Mixture of Clayey Silt Sand and Gravel (Glacial Till):

This deposit was intersected in all borings and extends from immediately below a thin layer of topsoil down to the bedrock surface. The thickness of the zone ranges from 2 to 3 ft. The lower boundary was found to vary between elevation 590.9 (B.H. #6) and elevation 588.5 (B.H. #1).

The material in the stratum consists of clayey silt, sand and gravel.

4.3) Bedrock - Shale:

The glacial till deposit is underlain by a shale bedrock at all of the boring locations. The surface of the bedrock varies between elevation 590+ and elevation 588+.

The core recovery ranged from 90% to 100% at the borehole locations. Based on the core recovery and inspection of the core samples the upper 5 to 7 ft. portion of the bedrock appeared to be weathered.

The bedrock is composed of dark grey interbedded shale and limestone.

5. GROUNDWATER CONDITIONS:

Groundwater level observations were carried out during the period of the field investigation (June), in open boreholes. The observed water levels are presented on the individual Record

of Borehole sheets as well as on Drawing No. 73-11038A. The results indicate that the groundwater level varies between elevation 589+ and elevation 585+ which correspond to levels ranging from 2 to 6 ft. below the existing ground surface.

No artesian or downward drainage conditions were encountered.

6. DISCUSSION AND RECOMMENDATIONS:

6.1) General:

It is proposed to build a three-span (96' - 127' - 76') overpass structure at this location. This structure (Bridge #27) or Ramp E-S will carry the traffic over the reconstructed Hwy. #401 E.B. collector and sub-collector.

Bridge #27 will be part of the proposed Hwy. #401 and Hwy. #403 interchange complex.

The proposed profile grade of Hwy. #401 in the vicinity of the structure will be at approximate elevation 574.0. The proposed profile grade of Ramp E-S varies between elevation 598 and elevation 600. The elevation of the existing ground level ranges from elevation 592 to elevation 591. In order to accommodate these grades fills up to 7 ft., cuts up to 19 ft. will be required.

As described in the previous paragraphs of this report, the subsoil at the site consists of a relatively shallow deposit (2 - 3 ft.) of glacial till followed by shale bedrock.

6.2) Foundations - Ramp E-S Structure:

6.2.1) Abutments:

The abutments of the proposed structure may be supported on spread footings placed on well compacted, suitable granular material within the approach fills. A safe design load of 2.5 t.s.f. may be assumed. The granular material should consist of Granular 'A' and should be fully compacted according to current standards. A detailed construction scheme is outlined on Figure 1 of the Appendix.

As an alternative the abutments for this structure may be perched within the approach fills and supported on end-bearing steel 'H' piles driven to bedrock. The allowable capacity of a pile will be dependent on the pile section chosen. For example, 12 BP 74 steel 'H' piles may be designed for a safe design load of 95 tons. For estimating purposes, it can be assumed that the piles will meet the bedrock surface at the following elevations:

North Abutment	El. 588 - El. 590	(B.H.'s #1 & #2)
South Abutment	El. 589 - El. 591	(B.H.'s #5 & #6)

Since the pile caps of the perched abutments will be formed within the approaches, no dewatering problems are anticipated.

No ~~bedrock~~ or rock fill material should be placed in that portion of the approaches through which piles are to be driven.

6.2.2) Piers:

The excavation for the reconstructed Hwy. #401 E.B. collector and sub-collector in the vicinity of the pier locations will be carried out into the shale bedrock.

The footings of the proposed piers may be founded on the sound bedrock. The base of the footing excavations should be carefully inspected to ensure that all the probable weathered or fractured part of the shale bedrock is removed. Frost protection (min. 4 ft.) should be provided for the underside of the footings, since the shale is considered susceptible to frost action. To prevent the shale from being softened by uncontrolled surface runoff water at foundation level it may be advantageous that a concrete working slab be poured immediately after the excavation reached the required foundation level. If these procedures are followed, safe design loads up to 10 t.s.f. may be used for design purposes.

A coefficient of friction of 1.0 between the rough concrete surface and sound shale may be assumed in order to compute the horizontal resistance of the footings.

The settlement of the footings will be negligible in magnitude.

The level of the groundwater in the overburden as established during the field investigation is well above the

footing excavation bases. This condition, however, should not present any major dewatering problems, due to the relatively impervious nature of the subsoil. Any seepage into the excavations could be easily handled by employing conventional techniques, such as pumping from sumps.

6.3) Approaches:

As described previously the approaches will consist of partial fill and cut sections. The maximum fill height is about 7 ft. and the deepest portion of the cut is in the order of 19 ft.

6.3.1) Fills:

The underlying subsoil (glacial till) is competent to support the proposed 7 ft. high embankment constructed with 2:1 forward and side slopes.

The settlement due to consolidation of the subsoil caused by embankment loading will be negligible in magnitude and it is assumed that major portion of the settlement will take place immediately following the completion of the fill placement.

The fill should consist of well compacted acceptable material.

The topsoil and any soft surficial material should be removed in accordance with the pertinent standards within the construction area.

6.3.2) Cuts:

The cuts for Hwy. #401, up to 19 ft. deep will be made through the glacial till and into the shale bedrock. Since the shale when it is exposed to air, frost action and weathering tends to erode and disintegrate quickly, should be treated as earth cuts.

It is recommended, therefore, that the cut slopes be constructed with 2:1 slopes and be protected with an adequate cover of topsoil and sodded.

7. MISCELLANEOUS:

The field investigation was carried out during the period

of June 12 to 18, 1973, under the supervision of Mr. V. Korlu, Project Foundations Engineer.

Equipment was owned and operated by Canadian Longyear Ltd.

This report was written by Mr. J. T. Bangs, Project Foundations Engineer.

The entire project was under the general supervision of Mr. M. Devata, Supervising Foundations Engineer, who also reviewed this report.

J. T. Bangs
J. T. Bangs

M. Devata
M. Devata, P. Eng.

JTB/ao
Sept. 5, 1973.

DESIGN SERVICES BRANCH

FOUNDATIONS OFFICE

RECORD OF BOREHOLE NO 1

JOB 73-11038

LOCATION Co-ords. 856,769 N; 958,681 E.

ORIGINATED BY VK

W.P. 127-66-100

BORING DATE June 12, 1973

COMPILED BY VK

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

CHECKED BY

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE			LIQUID LIMIT W_L			BULK DENSITY γ	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FOOT		BLOWS / FOOT			PLASTIC LIMIT W_p				
591.5	Ground Level						SHEAR STRENGTH P.S.F.			W_p — W — W_L				
							○ UNCONFINED + FIELD VANE							
							● QUICK TRIAXIAL x LAB VANE							
0.0	Het. mix. of clayey si.					590								
588.5	sa. & grav. (Glac. Till)		1	SS	100	3"								
3.0														▼ 585.5
581.0	Weathered													
10.5	Sound		2	BXL	100%	580								
	Shale Bedrock													
571.1			3	BXL	100%									
20.4	End of Borehole					570								

OFFICE REPORT SOIL EXPLORATION

DESIGN SERVICES BRANCH

FOUNDATIONS OFFICE

RECORD OF BOREHOLE NO 2

JOB 73-11038

LOCATION Co-ords. 856,783 N; 958,622 E.

W.P. 127-66-100

BORING DATE June 13, 1973

ORIGINATED BY VK

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

COMPILED BY VK

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 γ P.C.F.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS / FOOT		SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB VANE		w_p — w — w_L WATER CONTENT %			
591.6	Ground Level											
589.9	Glacial Till					590						
1.7												
584.5	Weathered Sound											
7.1			1	BXL	100%	580						
	Shale Bedrock		2	BXL	100%							
574.4												
17.2	End of Borehole					570						

OFFICE REPORT ON SOIL EXPLORATION

DESIGN SERVICES BRANCH

FOUNDATIONS OFFICE

RECORD OF BOREHOLE N^o3

JOB 73-11038

LOCATION Co-ords. 856,703 N; 958,627 E.

ORIGINATED BY VK

W.P. 127-66-100

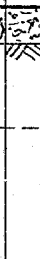
BORING DATE June 14, 1973

COMPILED BY VK

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

CHECKED BY

SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT				LIQUID LIMIT — w_L PLASTIC LIMIT — w_p WATER CONTENT — w w_p — w — w_L				BULK DENSITY γ P.C.F.	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 %					
591.3	Ground Level					590										
0.0 588.8	Het. mix. of clayey si. sa. & grav. (Giac. Till)															
2.5																
582.5 8.8	Weathered Sound		1	BXL	100%	580										
572.5	Shale Bedrock		2	BXL	100%											
18.8	End of Borehole					570										

OFFICE REPORT ON SOIL EXPLORATION

DESIGN SERVICES BRANCH

RECORD OF BOREHOLE NO 4

FOUNDATIONS OFFICE

JOB 73-11038

LOCATION Co-ords. 856,573 N; 958,627 E.

ORIGINATED BY VK

W.P. 127-66-100


BORING DATE June 11, 1973

COMPILED BY VK

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

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 γ	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FOOT		SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB VANE			W_P W W_L WATER CONTENT %				
592.3	Ground Level													
0.0 589.4	Het. mix. of clayey cl. sa. & grav. (Glec. Till)		1	SS	100%	590								GR SA. SI. CL
2.9														589.3
583.5 8.8	Weathered Sound		2	BXL	90%	580								
	Shale Bedrock		3	BXL	95%									
575.6 18.7	End of Borehole					570								

OFFICE REPORT SOIL EXPLORATION

DESIGN SERVICES BRANCH

FOUNDATIONS OFFICE

RECORD OF BOREHOLE NO 5

JOB 73-11038

LOCATION Co-ords. 856,473 N; 958,633 E.

ORIGINATED BY VK

W.P. 127-66-100



BORING DATE June 15, 1973

COMPILED BY VK

DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

CHECKED BY *[Signature]*

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 / FCOT	SHEAR STRENGTH P.S.F.	PLASTIC LIMIT — w_p	WATER CONTENT — w		
592.3	Ground Level						○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE		w_p — w — w_L		γ	
0.0	Het. mix. of clayey silty sand & grav. (Glac. Till)					590						P.C.F. GR SA SI CL
2.7												589.3
583.4	Weathered											
8.9	Sound											
578.4	Shale Bedrock		1	BXL 90%		580						
13.9	End of Borehole											

OFFICE REPORT ON SOIL EXPLORATION

DESIGN SERVICES BRANCH

FOUNDATIONS OFFICE

RECORD OF BOREHOLE NO 6

JOB 73-11038

LOCATION Co-ords. 856,481 N; 958,574 E.

ORIGINATED BY VK

W.P. 127-65-100


BORING DATE June 18, 1973

COMPILED BY VK

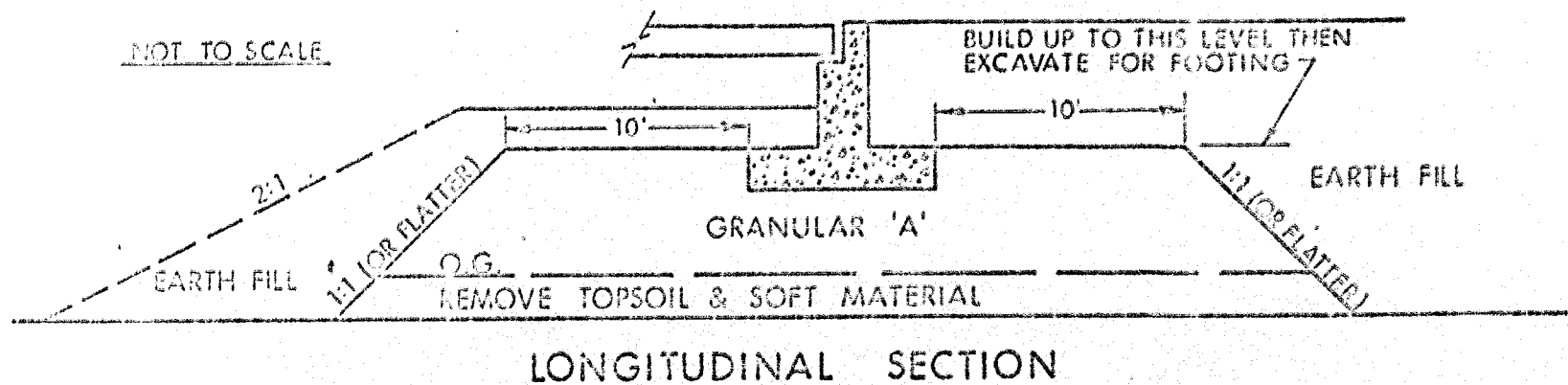
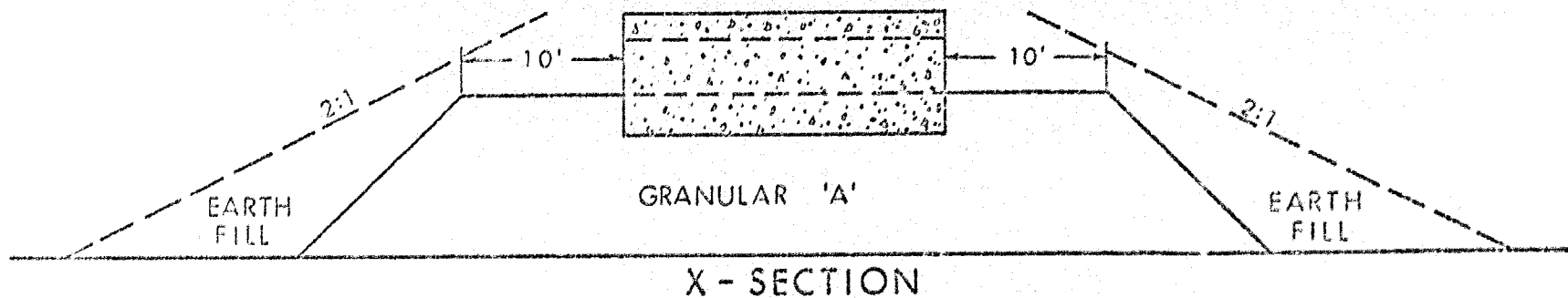
DATUM Geodetic

BOREHOLE TYPE Drill with tricone and BXL Bits

CHECKED BY [Signature]

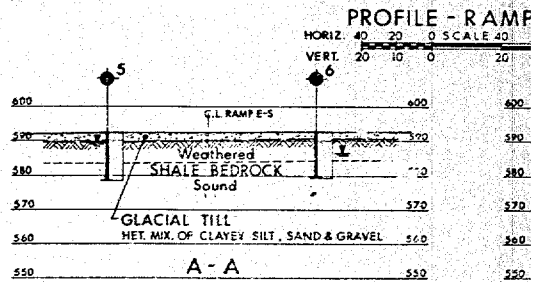
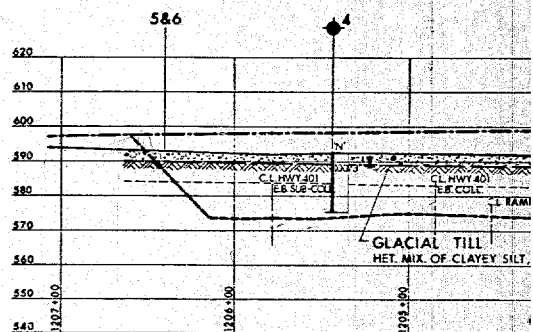
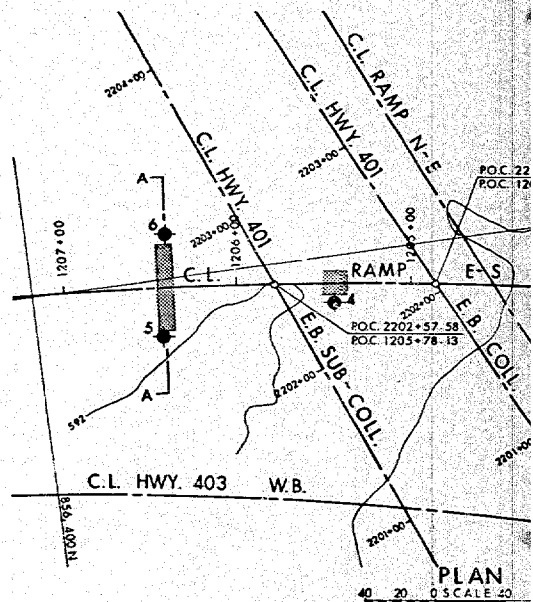
SOIL PROFILE			SAMPLES			ELEV. SCALE	DYNAMIC PENETRATION RESISTANCE BLOWS / FOOT				LIQUID LIMIT ——— w_L PLASTIC LIMIT ——— w_p WATER CONTENT — w w_p ——— w ——— w_L WATER CONTENT %				BULK DENSITY γ P.C.F. GR. SA. SI. C.	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	BLOWS/FOOT		SHEAR STRENGTH P.S.F. ○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL × LAB VANE									
592.9	Ground Level															
590.9	Glacial Till					590										
2.0																
584.4	Weathered Sound															
8.5																
579.5	Shale Bedrock		1	BXL	100%	580										
13.4	End of Borehole															
						570										

ABUTMENT ON COMPACTED FILL SHOWING GRANULAR 'A' CORE



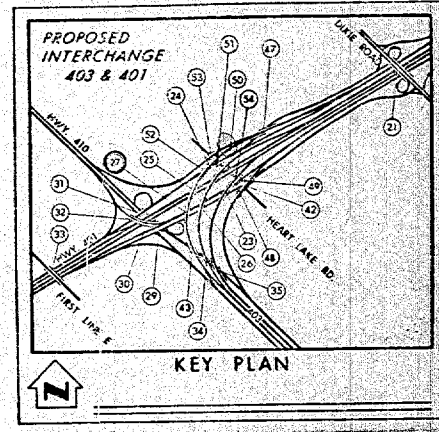
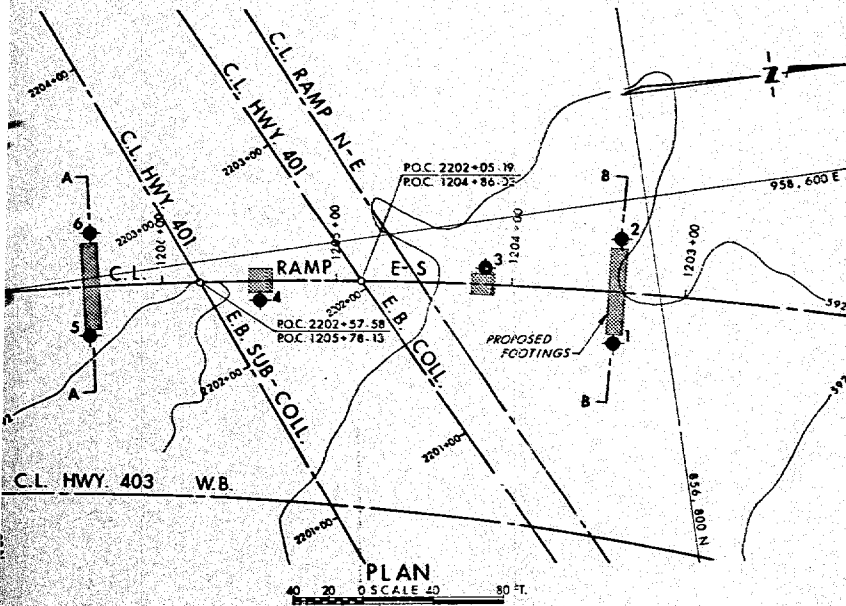
NOTES

- 1 - REMOVE TOPSOIL &/OR SOFT SUBSOIL UNDER AREA OF COMPACTED GRANULAR 'A'.
- 2 - PLACE GRANULAR 'A' TO TOP OF FOOTING LEVEL, COMPACTED ACCORDING TO CURRENT M.T.C. STANDARDS.
- 3 - EXCAVATE COMPACTED GRANULAR 'A' MATERIAL FOR FOOTING



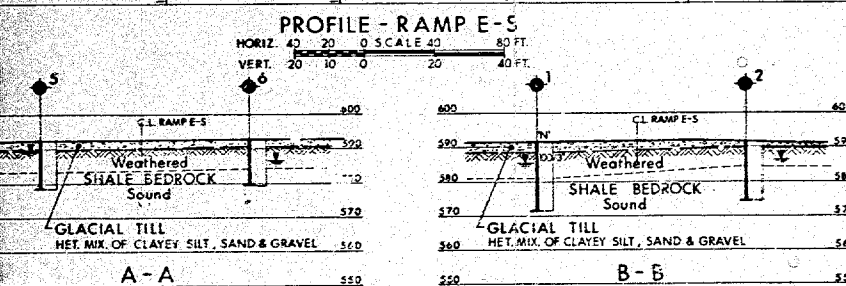
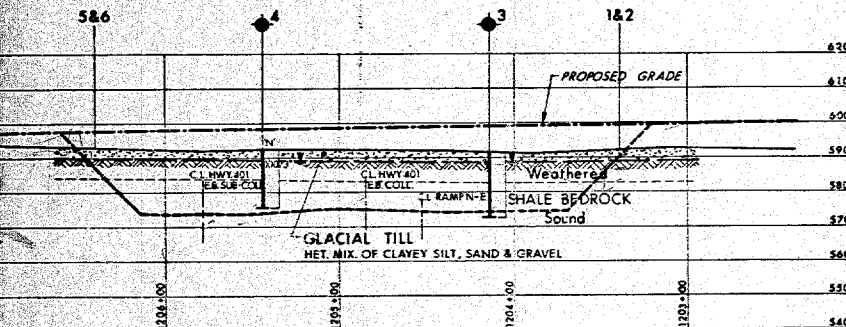
SECTIONS

0 SCALE 20



LEGEND			
◆	Bore Hole		
⊕	Cone Penetration Test		
◆	Bore Hole & Cone Test		
↓	Water Level, established at time of field investigation, June 1973		

NO.	ELEVATION	CO-ORDINATES	
		NORTH	EAST
1	591.5	856,769	958,681
2	591.6	856,783	958,622
3	591.3	856,703	958,627
4	592.3	856,573	958,627
5	592.3	856,473	958,633
6	592.9	856,481	958,574



NOTE

The boundaries between soil strata have been established only at Bore Hole locations. Between Bore Holes the boundaries are assumed from geological evidence.

CONTRACT DOCUMENT NOTE

The complete soil investigation report for this structure may be examined at the Structural and the Foundations Office, Downsview, and at the Toronto District Office.

REV	DATE	BY	DESCRIPTION

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS-ONTARIO
DESIGN SERVICES BRANCH-FOUNDATIONS OFFICE

BRIDGE No. 27

HWY. 403 RAMP E-S OVER HWY. 401 E.B. COLL. & SUB-COLL.

HIGHWAY NO. 403 & 403 DIST. NO. 6

CO. PEEL

TOWN OF MISSISSAUGA LOT. CON.

BORE HOLE LOCATIONS & SOIL STRATA

SUBMIT V.K.	CHECKED	W.P. NO. 127-60-10	DRAWING NO.
DRAWN S.R.	CHECKED	W.O. NO. 73-11038	73-11038A
DATE AUG. 25, 1973	SITE NO.	BRIDGE DRAWING NO.	
APPROVED	DESIGNER	SOIL NO.	

BOARDROOMS E-1 & E-2
Downsview, Ont

November 26, 1976

✓ WP. 127-66-10

Contract 76-120

Highway 403

Type of Work: Grading, Drainage, Granular Base, Hot Mix Paving & Structures

Location: Highway 401 & 403 Interchange

District: 6

Advertising Date January 12, 1977

Attendance

R.S. Pillar	J.E. Callaghan	W. Lin	E. Cross
J.R. Wear	R.A. Verscheure	W. Bennett	W. Berkis
E.J. Willis	G. Wrong	J. Crannie	B. Giroux
Fenco	N. Sen	D. Hopper	D. Miehme
			M. Devata

Points of Discussion

1. Region is to pursue disposition of stripping material - maybe Peel Region have a need?
 2. Curb and gutter to show 12" depth (working of granular grade)
 3. Supply of secondary electrical cable - Mr. Wilkes agreed that contract to remain as presented, with Contractor supplying, without the necessity of inserting a special provision advising of difficulty in supply. Electrical Design Section is requested to contact Municipalities with the idea of arranging that everyone adopt MTC standard thereby easing supply situation.
 4. Key Plan on structure drawings #1 & #2 shows ultimate scheme. If possible replace ** with that used for grading drawings.
 5. Rock line on drawings with payment based on theoretical was suggested by Mr. Crannie. Contract presently permits a field interpretation (although rock is reasonably substantiated). Mr. Wilkes said he would confer with the Regional Director in order to resolve what is beneficial for the contract.
- Post Review - Dialogue between Messrs Wilkes, Allen & Callaghan resulted in choice of designating rock line as the pay line. Region to supply special provision to cover.
6. Mr. Adachi is preparing a special provision to clarify if double handling is required for topsoil.
 7. W. Berkis said that items for rock and earth in contract, encountered in pole installation, did not specify individual installation. It was confirmed, Post Review, that it is preferable to identify individual poles which are affected and would be standard Ministry practice to show information where available.
 8. a) Structural Office Special (not titled) reference sequence of erection was accepted ** in principle but was thought to be a little 'hairly' so the following versions are published as alternates and one will be selected, for inclusion, by the Structural Review Committee.

cont.....

c.c. F.G. Allen
M.R. Ernesaks
D. Gunter
H. Greenland
R.C. Minaker
Fenco
J. Heffernan
G. Wrong
C. Mirza

B. Giroux
J. Crannie
E.J. Willis
M. Stoyanoff **
W.R. Bennett
R.S. Pillar
P. McWatt
V.A. McCullough *

E.J. Willis
Supervisor,
Contract Documentation
for
J.R. Wear
Head,
Contract Review Section



SCHEDULE OF WORK

Sequence of Structure Erection

Bridge 48 (low elevation structure) shall be constructed following the removal of Bridge 42 falsework (higher elevation structure)

SCHEDULE OF WORK

Sequence of Structure Erection

Falsework as will be required to construct the concrete deck of Bridge 42 shall not be permitted to bear on, be supported through or from beneath the concrete deck of Bridge 48.

- b) Fenco Special "Maintenance of Existing Drainage" is to be deleted as Form 100 covers.
 - c) Operational Constraint to be revised as discussed at review.
 - d) Shale Rock Compaction - Special adopted as read with addition from R. Adachi.
9. Payment for rock to be to the earth tolerance rather than 10% allowance for o'break. Special Provision to be inserted by Project Review.
10. The question of one or two items required for mass concrete was resolved post review (this for footings). A special is to be added telling Contractor that concrete to be placed directly after completion of excavation.

Mr. C.S. Grebski
Structural Design Engineer
Structural Design Section
Structural Office, West Building

Mr. W. Lin

Soil Mechanics Section
Geotechnical Office
West Building, Downsview

September 28, 1976

Hwy. 403 W.B. Over Hwy. 401 E.B.
(Bridge #27)
W.P. 127-66-10, Site 24-318
Hwy. 401, District 6, Toronto

We have reviewed the final bridge drawings for the above mentioned structure. A meeting was held in our Office on September 27, 1976 with Messrs. W. Lin, M. Devata and V. Korlu to discuss the elevation of footings for south and north abutment.

It was concluded, because of the geometric requirements, that the south abutment will be located as shown on the final drawings. However, further consideration should be given with regard to footing elevation of the north abutment as outlined in our memorandum dated March 22, 1976.

It is recommended that a lean concrete working slab should be placed once the footing excavation is completed to prevent deterioration of shale from exposure to the atmospheric condition.

V. Korlu
Project Engineer

For: M. Devata
Supervising Engineer

MD/VK/gs

cc: G. Burkhardt
A. McKim
Files
Record Services

MINUTES OF MEETING 76-6

HIGHWAYS 401/403 INTERCHANGE
W.P.'S 127-66-10 & 37; W.P. 36-74-01

DATE Wednesday September 22, 1976 at 9:00 a.m.

PLACE FENCO Conference Room
1 Yonge Street, 11th Floor
Toronto, Ontario

PRESENT Messrs. N. Close)
W. Lin)
N. Sen)
I. Tremain)
W. Kelly)
R. Jeffries) M.T.C.
J. Martin)
P. Penev)
M. Delsey)
W. Berkis)
G. Burkhardt)

R. Adachi)
Z. Mekinda)
A. Minchev) FENCO
B. Bendall)
B. Stone)

PURPOSE OF MEETING: Progress meeting.

ACTION BY

GENERAL

1. Completion date for W.P. 127-66-37 is the end of June 1977.

HEART LAKE ROAD CLOSING

2. Meeting was held on September 16, at which Mr. Swedak of Mississauga saw no problem with closing Heart Lake Road and Mr. Sen is to request in writing council resolution for the road closing.
3. Mr. Adachi pointed out the staging of the other jobs in the area, that is Matheson Boulevard construction and Highway 410 construction, regarding the closing of Britannia Road. He wondered if Mississauga had taken them into account when considering the road closing.

Mark

*Marky
Please see 4th sheet.
"Soto"*



ACTION BY

The Ministry said that Mississauga knows all the staging and timing of the contracts but Mr. Sen will include in his letter scheduling for each of the construction projects in the area.

M.T.C.

4. There was then some discussion on the award dates for the projects. The structure contract is to be awarded in late August 1977 whereas Matheson Boulevard is now ahead of the structure contract in July. The meeting was concerned with the possible program changes to these award dates and the dates will be confirmed by Mr. Sen prior to writing his letter to Mississauga.

M.T.C.

5. The work remaining for each of the contracts was quickly reviewed regarding the number of hours left for finalizing the contracts. Mr. Adachi will be writing a letter to Mr. Sen summarizing each of the projects and hours required in each of the Ministry's financial years.

FENCO

SECTIONS

1. Matheson Boulevard section under and between structures, Granular 'A' surfaces to be continued from the pavement edge to the abutment face and the slope previously shown adjacent to the abutments is to be removed. Side slopes to the roads have to be steepened slightly to remove the grading inside the structures but no changes are to be made to the structure walls.

DESIGN INVESTIGATIONS,
MATHESON BOULEVARD

1. Fencing is not to be included in Matheson Boulevard contract around the structures of Highway 403, this fencing is to be left until Highway 403 grading contract (-37).
2. The need for a barrier at the east end of Matheson Boulevard was discussed. The decision of the meeting was that no post or rails will be required as a road-side ditch on the east side of Matheson Boulevard will be sufficient for delineation.

DESIGN INVESTIGATIONS,
MATHESON BOULEVARD (cont'd)

3. Mr. Sen mentioned that the developer maybe constructing Matheson Boulevard east of the Second Line prior to the Ministry's contract. In this case, the sewer work would have to be included with the developers contract and may therefore be removed from the -10 project. Decision will not be known in time for the submission in November.
4. The hydro property on the west side of the Highway 403 corridor should be fenced parallel to Matheson Boulevard to enclose the hydro property. Fencing will be highway fence and gates should be provided for access by hydro for maintenance purposes.

EARTHWORKS AND GRADING

1. Advanced structure contract is balanced in terms of earthworks because material is now obtained from the westbound detour and by grading for the 'W-Dixie' ramp between Bridges 48 and 27.
2. Matheson Boulevard provides a surplus of 130,000 cu.yds. of material. This material was destined to go to the south and be placed at the culvert at Station 1269+00± and just north of Eglinton Avenue in the low area. Since no material is required to the north of Matheson Boulevard and no property is available south of Eglinton Avenue, FENCO still recommend the surplus material be placed between Matheson and Eglinton Avenue and the culverts be included Matheson Boulevard contract. Mr. Sen is to check further to see if clearance can be obtained from the right-of-way division to place material in this area. Mr. Sen says that if the Ministry is held to the commitment of not placing any material south of Matheson Boulevard, the material could be stockpiled north of Matheson Boulevard. Mr. Tremain said that it would be better to place the material for future embankments even if slight modifications are required at the time of construction. Otherwise, it would be better to have the material stockpiled than to be wasted and to require to obtain material for the contracts at a later date.

M.T.C.

ACTION BY

EARTHWORKS AND GRADING

3. Highway 410 at the present time has a surplus of 140,000 cu.yds. of material. By widening side slopes for the northbound roadway, this surplus can be reduced to approximately 60,000 cu.yds. and a reduction in section of the two lane in cut in the Highway 401 area could further reduce the available material approximately bringing this project to a balance.
4. Landscaping for the structure contract was discussed and a recommendation made that all landscaping would be left until the end of the construction within the area, that is until after construction of Highway 403 grading and paving contract.
5. Drawings showing recommended seeding and sodding areas for the advanced structure contract and the Matheson Boulevard contract were given to Mr. Tremain for comment. These drawings are to be returned to FENCO for estimating.

M.T.C.

PROPERTY

1. Permission is required to enter areas outside the requested property along Matheson Boulevard in order to improve water courses draining to and from the roadway. FENCO is to plot these areas on a print of the property plan and submit to Mr. Sen.

FENCO

SOILS

1. Mr. Penev said that all borings required for the advanced structure contract are now completed and road profiles are updated with the rock line, with the exception of Ramp 'E-N', west of Station 1204+00 for which Mr. Penev requires a mylar. Copies of the borehole data for the structure contract was supplied by Mr. Penev to FENCO.
2. Mr. Penev requested that the request for soils data for grading Highway 403 grading contract be requested separately in the near future.

FENCO

FENCO

*major
Soil holes
not boreholes*

*This are soil
boring for sample
to find out rock elev,
Peter Penev is sorry for
the 1204 St. boring.*

*Regional M & T
Doing
foundation
investigation ?*

ACTION BY

SOILS (cont'd)

3. The fill areas on the north side of Highway 401 are not all suitable immediately for road construction. Mr. Penev requested prints of the cross sections for Ramps 'Dixie-W' and 'E-N' in order that unsuitable areas can be marked for construction personnel and also to be included on the road profiles for the contract drawings.

FENCO

M.T.C.
FENCO

STRUCTURES

1. It is confirmed that no asphalt, waterproof membrane or approach slabs will be provided for structures which are not open to traffic. Bridges 47 & 53 which are in use during the structure contract as a detour for 401 WB traffic would be completed in the structure contract.

The other structures will have the approach slabs, membrane and asphalt placed under the Highway 403 grading and paving contract.

2. Mr. Jeffries has checked with the Structure Office regarding the drainage adjacent to the extended wing wall in the south-east corner of Bridge 42. No swale has been provided in the asphalt and drainage will be adjacent to the concrete retaining wall. The special transition section for curbing will therefore be not required at the east end of the structure.

FENCO

ILLUMINATION

1. The summary of underpass illumination provided for Heart Lake Road was reviewed by Mr. Bendall, for the meeting. This data was forwarded to Mr. Sen in writing on August 31, 1976.
2. Illumination will be provided for Ramp 'E-N' and Loop 'N-E', to north Britannia Road where the two ramps combine to form the two way two lane Highway 410.
3. Power supply for Ramp 'W-Dixie' is being investigated as being from Britannia Road then feeding southerly under Structures 29 & 31. Distribution would also be reviewed for Highway 410 from Britannia Road.

FENCO

ACTION B

4. Highway 403 westbound between Bridges 47 & 52 is to be completed with the exception of asphalt surfacing, this means that the light poles will be placed for this section of roadway although power will not be supplied until the completion of the Highway 403 grading contract. FENCO
5. Illumination of the westbound detour west of Bridge #53 will be temporary. Mr. Tremain will check with District Maintenance Forces to see if this illumination is to be placed under a sundry item or whether it will be included as a contract item. Mr. Burkis has requested a written reply with this decision. M.T.C.

ESTIMATING AND CONTRACT DOCUMENTS

1. FENCO requested titles for each of the contracts to be placed on the title sheets and contract documents. Mr. Kelly will forward these titles to FENCO. M.T.C.
2. Mr. Delsey queried the topsoil depths required for these contracts noting the present standard Ministry is two inches.
Mr. Close indicated that 2" is a minimum requirement and will provide the depth of topsoil to be used on these contracts. M.T.C.
3. FENCO questioned whether the temporary guiderail along Highway 401 should be removed under the contract as an item or whether it would be removed by the District. It was agreed that this guiderail should be removed by the Contractor and FENCO can contact Mr. O'Grady at the Field Office for the existing installations. New temporary guiderails will be included under a supply and install item in the contract. FENCO
4. Mr. Jeffries pointed out that Foundation report noted that there may be some unsuitable material at culvert No. 1 south of Matheson Boulevard which would have to be removed, and asked how this is covered in the documents. Mr. Penev will review immediately how much of this material is unsuitable and it should be covered under the culvert excavation item. M.T.C.

ACTION BY

ESTIMATING AND CONTRACT DOCUMENTS (cont'd)

5. Mr. Lin noted that the Little Etobicoke Creek Culvert Extension and Retaining Wall #5 have been designed as an integral system, and that construction should be handled as a culvert under a road item.

FENCO

The other Retaining Walls #2 & #3 will be handled separately as structures.

SIGNING

1. Preliminary signing drawings for advanced structure contract and for the Highway 403 contract were given to Mr. Martin.
2. Mr. Bendall requested the Dixie Road bridge drawings so that sign mounting design can be undertaken. Mr. Bendall also requested design drawings for all retaining walls as soon as possible
3. Signing for the west to east transfer lane is being reviewed by Regional Traffic Office to see whether ground signs or overhead signs will be required. The overhead sign required ultimately for Ramp 'W-N' could be installed west of Bridge #27 and used for the transfer lane signing under these initial contracts.
4. An overhead sign will be required on Highway 403 southbound prior to the exit of Eglinton Avenue. The sign location however can be placed immediately south of the paving limits of the 127-66-37 project and therefore be installed with the Eglinton Avenue interchange contract.

M.T.C.

M.T.C.

There was no date set for the next progress meeting which will be arranged for mid October.



BTS/cm
6536-120

B.T. Stone
Secretary of the Meeting

Mr. C.S. Grebski
Structural Office
West Building, Downsview

Soil Mechanics Section
Geotechnical Office
West Building, Downsview

Mr. W. Lin

March 22, 1976

127-66-10

Ramp E-S over Hwy. 401
Bridge #27
W.P. 127-66-10, Site 24-318
District 6, Toronto

We have reviewed the preliminary drawing and our comments are as follows:

South Abutment

At this location the weathered shale bedrock varies from elev. 590.9 to elev. 589.6. We recommend that the footing be placed in the weathered shale at elev. 589.0 using an allowable load up to 5.0 t.s.f.

North Abutment

The weathered shale at this location varies from elev. 589.9 to elev. 588.5. The footing can be raised to elev. 588.0 using an allowable load up to 5.0 t.s.f.

In both cases a lean concrete working slab should be placed once the footing excavation is completed to prevent deterioration of shale from exposure to the atmospheric conditions.

V. Korlu
Project Engineer

For: M. Devata
Supervising Engineer

cc: Files
Record Services

Mr. C.S. Grebski
Structural Design Engineer
Structural Office
West Bldg., Downsview
Mr. M. Lin

Soil Mechanics Section
Geotechnical Office
West Bldg., Downsview
January 27, 1976

Bridge No. 27
Ramp E-S over Hwy. 401
W.P. 127-66-10, Site 24-318
District #6

We present the following comments on the Preliminary Bridge Plan Drawing No. 24-318-P2 for the above mentioned structure:

1. The founding level of the footing for the south abutment is shown to be at about elevation 575.5. We believe that the footing could be placed on sound shale bedrock at elevation 583.0 (Refer B.H.'s 5 & 6).
2. The base of the footing for the north abutment is located at about elevation 588.0. At this level, weathered shale bedrock is present. We recommend that the base of the footing be founded within sound bedrock at about elevation 580.0 (Ref. B.H.'s 1 & 2).
3. The approximate bedrock surface in the vicinity of the south abutment as shown on Dwg. 24-318-P2 does not comply with our Drawing 73-11038 A.

H. Shah
Project Engineer
For: M. Devata
Supervising Engineer

HS/bp

cc: Files
Record Services

6-172 5/11/79

DOCUMENT WORKING IDENTIFICATION

GEOCRES No. 36 H 12-74

DIST. 6 REGION CENTRAL

W.P. No. 127-66-10

CONT. No. 76-120

W. O. No. 78-1103.8

STR. SITE No.

HWY. No.

LOCATION HWY 403 RAMP S-E

OVERPASS OVER HWY 401 E.R. COLLECTOR

AND SUB-COLLECT

OVERLAY DRAWINGS TO BE PROVIDED WITH THIS REPORT 3

REMARKS:

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS BRIDGE 20-76-15 1-76

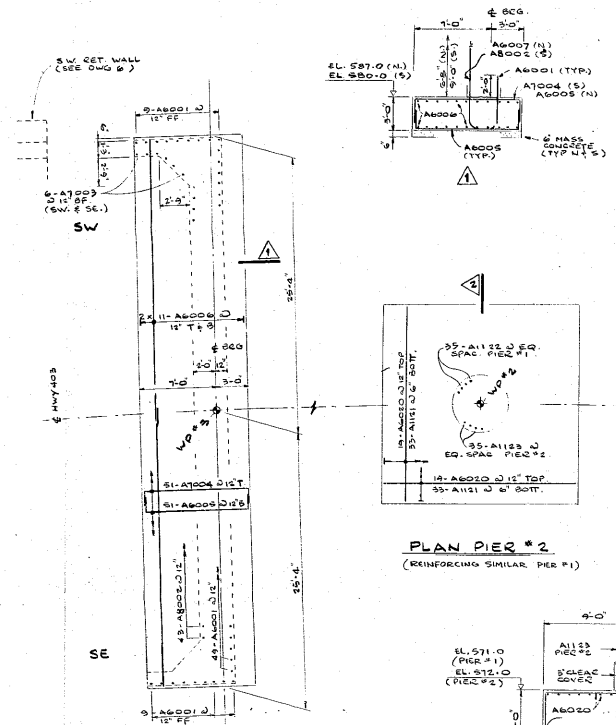
30M12-74

DIST 6	CONT No WP No 127-66-10	SHEET
405 WS OVER 401 EB. 80.065 27 FOOTING 3		

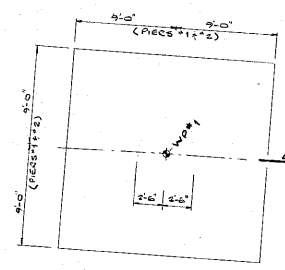
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NORTH	856 480.30	856 976.74	856 701.13	856 769.70
EAST	758 608.12	758 610.16	758 656.21	758 650.24
STA.	1206 + 35.0	1205 + 42.0	1204 + 16.0	1205 + 46.0

CURVE DATA

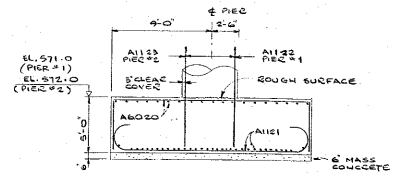
RADIUS	2291.831	DEGREE	2° 30' 00"
LENGTH	1061.602	DELTA	26° 32' 34.17"
TANGENT	540.500	BACK	208' 4' 42"
EXTERNAL	62.873	AHEAD	181' 32' 17.83"
LONG CHORD	1052.136		
MID. ORD.	61.154		



PLAN PIER #2
(REINFORCING SIMILAR PIER #1)



PLAN PIER #1



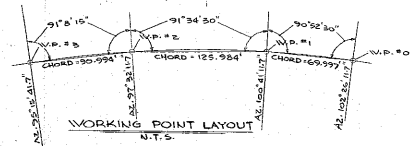
SCALES 1/4"=1'-0"

NOTE: 6" MASS CONCRETE & SIDES OF ALL FOOTINGS TO BE CAST AGAINST UNDISTURBED NATURAL MATERIAL.
• PLACE 6" MASS CONCRETE WITHIN 3 HOURS AFTER EXCAVATING.
• PIER REINFORCING STEEL A1122 & A1123 TO BE GRADE 60.

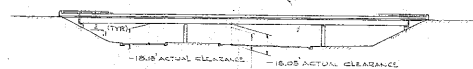
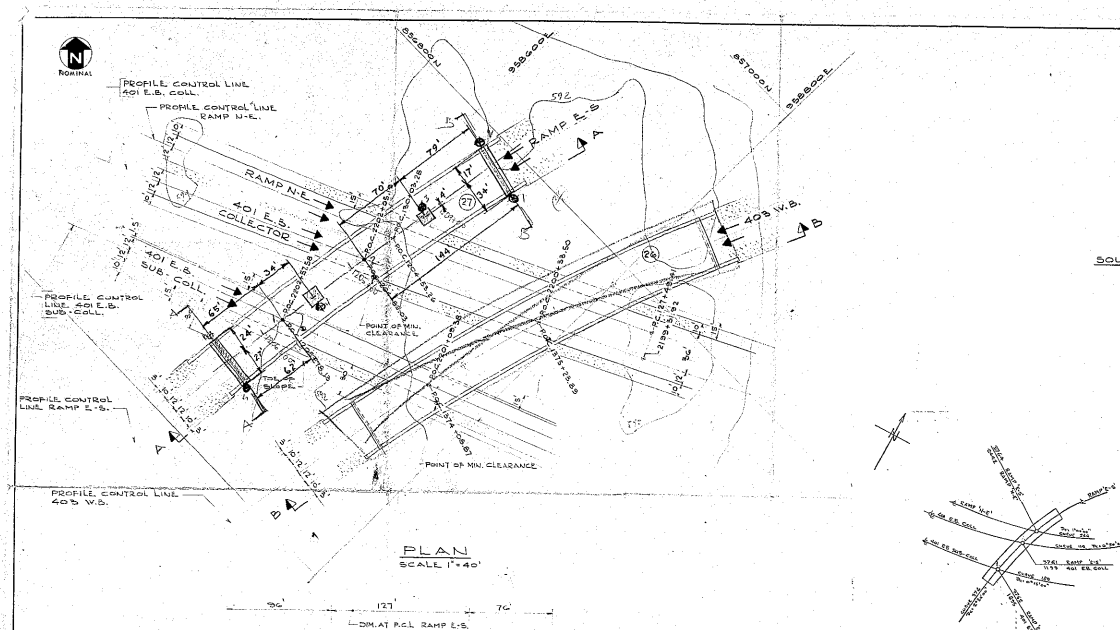


FOR REDUCED PLAN

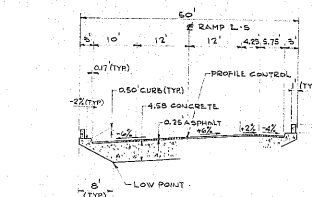
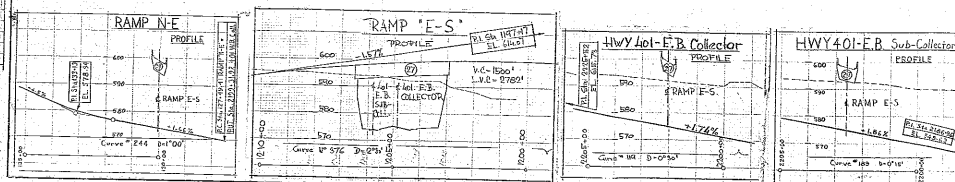
DATE	BY	DESCRIPTION
DESIGN 3M	CHECK DES	LOADING 40-50-44 DATE 1/1/76
DRAWING 3B	CHECK 3B	13176, 110 24-518, 1206 3



WORKING POINT LAYOUT
N.T.S.



NOTE:
ALLOWANCE FOR FALSEWORK
WHILE SLAB APPROX. 5'



SOUTH

NORTH

TYPICAL DECK SECTION BRIDGE N° 27
SCALE 1"=10'

POINT	STATION	ELEVATION	REMARKS
1	100+00	100.00	START OF BRIDGE
2	100+10	100.10	END OF BRIDGE
3	100+20	100.20	START OF RAMP
4	100+30	100.30	END OF RAMP
5	100+40	100.40	START OF SUB-COLLECTOR
6	100+50	100.50	END OF SUB-COLLECTOR
7	100+60	100.60	START OF COLLECTOR
8	100+70	100.70	END OF COLLECTOR
9	100+80	100.80	START OF RAMP
10	100+90	100.90	END OF RAMP
11	101+00	101.00	START OF BRIDGE
12	101+10	101.10	END OF BRIDGE
13	101+20	101.20	START OF RAMP
14	101+30	101.30	END OF RAMP
15	101+40	101.40	START OF SUB-COLLECTOR
16	101+50	101.50	END OF SUB-COLLECTOR
17	101+60	101.60	START OF COLLECTOR
18	101+70	101.70	END OF COLLECTOR
19	101+80	101.80	START OF RAMP
20	101+90	101.90	END OF RAMP

30M12-74

FOR READING ONLY

73-11038

DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS
ONTARIO

FOUNDATION OF CANADA ENGINEERING
CORPORATION LIMITED

HIGHWAYS 401 AND 403
WEST LIMITS OF HWY 401-27 INTERCHANGE TO HWY 10
PREDESIGN REPORT

BRIDGE N° 27 AND (27)

APPROVED: [Signature] DATE: [Date]

CHECKED: [Signature] DATE: [Date]

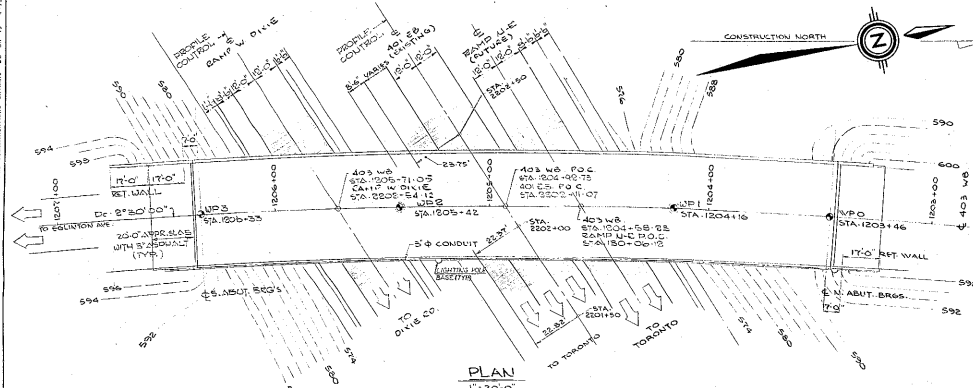
DRAWN: [Signature] DATE: [Date]

FOR REDUCED PLAN
SCALE 1"=40'
3 INCHES ON ORIGINAL PLAN

ENCLOSURE 5083-2K-5

30M12-74

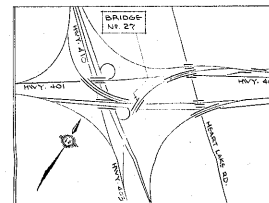
DIST N° 4	
CONT No	
WP No 127-56-10	
403 WB OVER 401 EB	
BRIDGE N° 27	
GENERAL LAYOUT	SHEET



DRAWING LIST

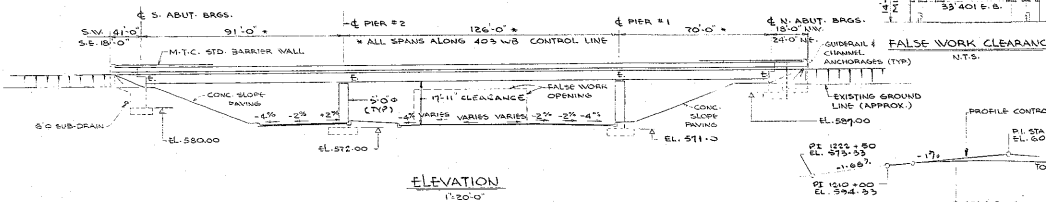
1. GENERAL LAYOUT
2. SOIL DATA
3. FOOTINGS
4. WEST ABUTMENT
5. SOUTH ABUT
6. DECK & JCT WALLS
7. DECK DETAILS
8. CABLES I
9. CABLES II
10. DECK DETAILS
11. 20 FT. APPROACH - L&B
12. BACKED WALL
13. BACKED RAILING
14. DETAILS OF CONC. S. PAVING
15. BEARING PLATES
16. AS CONSTRUCTED ONLY EL'S
17. STANDARD DETAILS I
18. STANDARD DETAILS II

NOTE:
ASPHALT, WATERPROOFING AND APPROACH
SLABS ARE NOT PART OF THIS CONTRACT.

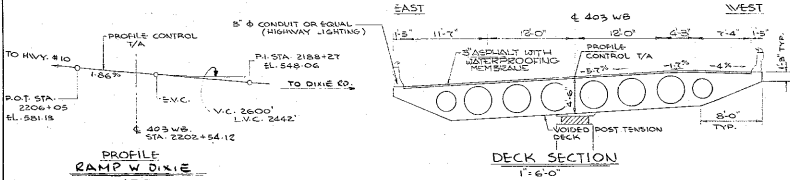


KEY PLAN

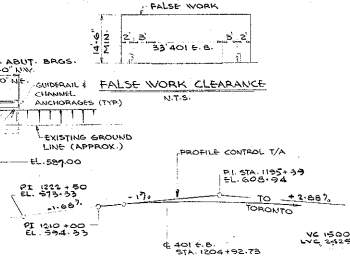
PLAN
1"=20'-0"



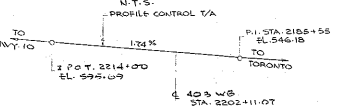
ELEVATION
1"=20'-0"



DECK SECTION
1"=6'-0"



PROFILE HWY 403 WB
N.T.S.



PROFILE
401 EB
N.T.S.

GENERAL NOTES

CLASS OF CONCRETE

- DECK, BARRIER WALLS & COLUMNS : 5000 P.S.I.
 - PIER FOOTINGS & APPR. SLAB : 4000 P.S.I.
 - REINFORCER : 3000 P.S.I.
 - REINFORCING STEEL CLEAR COVER
 - FOOTINGS, ABUTMENTS & PIERS : 3"
 - DECK - TOP : 1 1/2"
 - DECK - BOTTOM : 1 1/2"
 - REINFORCING STEEL FOR COLUMNS : 6" & 8"
 - OTHERS : 6" & 8"
- TO ACHIEVE THE MIN. CLEAR COVER OF 2" SPECIFIED THE TOP LAYER SHALL BE PLACED PRIOR TO CONCRETING WITH A CLEAR COVER OF 2 1/2" ± 1/2" TOLERANCE.

CONSTRUCTION NOTES

THE CONTRACTOR IS RESPONSIBLE FOR FINISHING THE BEARING SEATS TO THE SPECIFIED ELEVATIONS WITH A TOLERANCE OF ± 1/2".

NO CONCRETE SHALL BE PLACED ABOVE THE ABUTMENT BEARING SEATS UNTIL THE CONCRETE IN THE DECK HAS BEEN PLACED.

CONCRETE QUANTITIES

- 1. CONCRETE IN PIER : 31 CU YD (20.751)
- 2. CONCRETE IN DECK : 216 CU YD (200.751)
- 3. CONCRETE IN BARRIER WALLS : 108 CU YD (80.751)
- 4. CONCRETE IN SLOPE WALLS : 77 CU YD (58.751)



FOR REDUCED PLAN
USE SCALE BELOW
1"=20'-0"

DATE	BY	DESCRIPTION
DESIGN	JM	CHECK ON LOADINGS 15-20-84
DRAWING	GM	CHECK ON DATE 24-24-85