

DOCUMENT MICROFILMING IDENTIFICATION

G.I.-30 SEPT 1976

GEOCRES No. 40714-95

DIST 2 REGION Southwestern

W.P. No. 41-66-12

CONT. No. 78-66

W. O. No. \_\_\_\_\_

STR. SITE No. 19-540

HWY. No. 402

LOCATION Sharon Creek Bridge

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. 3

REMARKS: documents to be unfolded  
before microfilming

# FOUNDATION INVESTIGATION REPORT

For

Sharon Creek Bridge, Hwy. 402  
Twp. of Delaware, Dist. 2, London  
W.P. 41-66- 12~~77~~ Site 19-540

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## 1. INTRODUCTION

A request for a foundation investigation at the above site was received from Mr. A.P. Watt, Regional Structural Planning Engineer, Southwestern Region, London.

A field investigation was subsequently carried out by the Soil Mechanics Section to determine the subsoil conditions existing at the site. This report contains the results of our field and laboratory investigations, together with our recommendations relating to the design of the proposed structure foundations.

## 2. DESCRIPTION OF THE SITE

The proposed bridge is located 4 miles west of the Town of Lambeth where Hwy. 402 crosses Sharon Creek which flows in a steep sided ravine approximately 20 feet deep and from 200 to 400 feet in width. The land to the north and west is a level sand plain producing cash crops while to the south and east it is gently rolling with mixed farming predominating.

Physiographically the site lies on the border between the Caradoc Sand Plain and the Mount Elgin Ridges.

## 3. FIELD AND LABORATORY INVESTIGATION PROCEDURES

Field work consisted of nine sampled boreholes advanced employing hollow stem augers, as well as, seven dynamic cone penetration tests.

Disturbed samples were obtained using a 2-inch O.D. split spoon sampler driven according to the specifications for the Standard Penetration Test.

Field Vane Tests were attempted but did not fail at shear values in excess of 4000 p.s.f.

All boreholes were surveyed in the field by personnel from London Region Engineering Surveys Section. The locations and elevations of the boreholes are shown on Drawing No. 416612 & 13-A which accompanies this report.

All samples were visually examined and classified at the site as well as in the laboratory. Following this inspection, laboratory tests were carried out on selected representative samples to determine the following physical properties:

Atterberg Limits  
Natural Moisture Content  
Grain-size Distribution

The test results are summarized on the Record of Borehole Sheets contained in the appendix of this report.

#### 4. SUBSOIL CONDITIONS

In the vicinity of Sharon Creek there is a surficial aluvial deposit of up to 5 feet of loose sand and silt. Beneath this is approximately 120 feet of clayey silt to silty clay. It has a stiff to hard consistency with standard penetration 'N' values ranging from 13 to 84. Underlying this stratum is approximately 10 feet of dense sand and gravel overlying sound limestone bedrock.

#### 5. GROUNDWATER

Groundwater was encountered in the surficial sand and silt layer at an elevation corresponding to the creek level.

Water with an artesian head in excess of 5 feet was encountered in the sand and gravel layer found at a depth in excess of 120 feet.

## 6. RECOMMENDATIONS

### 6.1 Perched Abutments

It is recommended that the abutments for the Sharon Creek bridge be constructed within the approach fills supported on steel tube piles (12-3/4" X 1/4") driven to elevation 720. A safe design load of 25 tons per pile should be assumed for design purposes. Any horizontal loading should be resisted by battered piles.

### 6.2 Piers on Spread Footings

Any piers may be supported on spread footings at or below elevation 722. A safe net bearing pressure of 3 tons per square foot may be used for design purposes. Resistance to sliding may be determined using an adhesion design value of 2000 p.s.f.

### 6.3 Settlements

Total short and long term settlements of 2 inches at the abutments and 1 inch at the piers is anticipated.

### 6.4 Dewatering

No problems with heaving or boiling of the bottoms of the footing excavations at the recommended elevations is anticipated. However, seepage through the surficial sand and silt layer will occur.

### 6.5 Approach Embankments

No stability problems are anticipated with embankment fills (15 ft.) if 2:1 slopes are employed. Cobbles exceeding 3" diameter should be removed from fill placed at locations through which piles have to be driven.

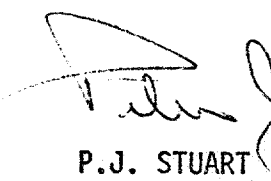
## 6.6 Frost Protection

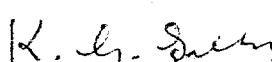
All pile caps or spread footings should be protected against frost action by a minimum 4 feet of cover.

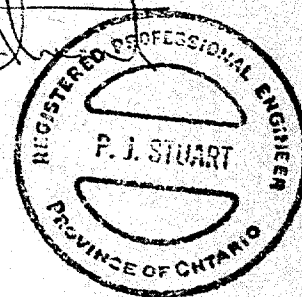
## 7. MISCELLANEOUS

The field work on this project was carried out June 9 to 23 under the supervision of Mr. R. Donnelly, Student Technician. This report was written by Mr. P.J. Stuart, Project Engineer and reviewed by Mr. K.G. Selby, Supervising Engineer.

The equipment used was owned and operated by Master Soils Investigation Limited.

  
P.J. STUART  
Project Engineer

  
K.G. SELBY  
Supervising Engineer



July 1975

RECORD OF BOREHOLE NO 1

W.P. 41-66-12 ~~477~~

LOCATION Co-ords. 15,587,662 N; 1,302,326 E.

ORIGINATED BY RD

DIST. 2 HWY. 402

BORING DATE June 9 - 10, 1975

COMPILED BY RD

DATUM Geodetic

BOREHOLE TYPE Hollow Stem Auger

CHECKED BY *CP*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS Art. Head % 737.9
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	N' VALUES		20	40	60	80	100	$w_p$	$w$	$w_L$		
732.9	Ground Level															
0.0	Clayey silt to silty clay, trace of sand and gravel.		1	SS	5	730										2 32 44 22
			2	SS	26											5 15 43 37
			3	SS	28											
			4	SS	18											
			5	SS	21	720										
	Firm to Hard		6	SS	19											
			7	SS	23											
			8	SS	30	710										1 11 59 29
			9	SS	31											
			10	SS	53	700										
			11	SS	21	690										
			12	SS	23	680										
			13	SS	30	670										
			14	SS	25	660										1 9 44 46
			15	SS	69	650										
628.9						640										
104.0						630										

## RECORD OF BOREHOLE NO 1 Continued

W.P. 41-66-12 ~~470~~

LOCATION Co-ords. 15,587,662 N; 1,302,326 E.

ORIGINATED BY RD


DIST 2 HWY. 402




BORING DATE June 9 - 10, 1975

COMPILED BY RD

DATUM Geodetic

BOREHOLE TYPE Hollow Stem Auger

CHECKED BY 

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	$w_p$	$w$	$w_L$		
628.9	Continued															
104.0	Clayey silt to silty clay, trace of sand and gravel.  Hard		16	SS	84	620										
			17	SS	50											
610.9	Sand and Gravel. Very Dense					610										Artesian Encountered
122.0																
601.4	Sound Limestone Bedrock		18	SS	204	600										46 30 19 5
131.5			19	RC BXL	91%											
537.6	End of Borehole															
135.3																

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS-ONTARIO  
ENGINEERING SERVICES BRANCH-GEOTECHNICAL OFFICE-SOIL MECHANICS SECTION

RECORD OF BOREHOLE NO 2

W.P. 41-66-12 423 LOCATION Co-ords. 15,587,710N; 1,302,222 E. ORIGINATED BY RD  
DIST. 2 HWY. 402 BORING DATE June 11, 1975 COMPILED BY RD  
DATUM Geodetic BOREHOLE TYPE Hollow Stem Auger CHECKED BY *OP.*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT				LIQUID LIMIT $W_L$ PLASTIC LIMIT $W_P$ WATER CONTENT $W$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	N' VALUES		20	40	60	80	100	$W_P$	$W$	$W_L$	
732.5	Ground Level														
0.0	Silt and Sand.														
728.0	Very Loose		1	SS	4	730									3 64 25 8
4.5			2	SS	18										2 17 48 33
	Clayey silt to silty		3	SS	19										
	clay, trace of sand		4	SS	16										
	and gravel.		5	SS	21	720									
			6	SS	15										
			7	SS	20										
	Stiff to Hard		8	SS	25	710									
			9	SS	33										
			10	SS	15	700									
			11	SS	16	690									
			12	SS	30	680									4 8 36 52
671.0															
61.5	End of Borehole														



RECORD OF BOREHOLE NO 3

W.P. 41-66-12 *12/27*

LOCATION Co-ords. 15,587,618 N; 1,302,235 E.

ORIGINATED BY RD

DIST. 2 HWY. 402

BORING DATE June 10, 1975

COMPILED BY RD

DATUM Geodetic

BOREHOLE TYPE Hollow Stem Auger

CHECKED BY *SP*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	$w_p$	$w$	$w_L$		
732.3	Ground Level															
0.0	Silt and Sand.															
727.8	Very Loose		1	SS	4	730										3 13 47 37
4.5	Clayey sil		2	SS	22											
	clay, trace		3	SS	16											
	and gravel.		4	SS	18											
			5	SS	18	720										
			6	SS	21											
	Stiff to Hard		7	SS	22											1 11 49 39
			8	SS	29	710										
			9	SS	31											
			10	SS	33	700										
			11	SS	27	690										
						680										
675.8			12	SS	29											3 9 45 43
56.5	End of Borehole															

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS-ONTARIO  
ENGINEERING SERVICES BRANCH-GEOTECHNICAL OFFICE-SOIL MECHANICS SECTION

RECORD OF BOREHOLE NO 4

W.P. 41-66-12 412 LOCATION Co-ords. 15,587,678 N; 1,302,127 E. ORIGINATED BY RD  
DIST. 2 HWY. 402 BORING DATE June 12, 1975 COMPILED BY RD  
DATUM Geodetic BOREHOLE TYPE Hollow Stem Auger CHECKED BY CP

SOIL PROFILE		STRAT. PLOT	SAMPLES		GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION		NUMBER	TYPE		20	40	60	80	100	$w_p$	$w$	$w_L$		
730.0	Ground Level														
0.0															
	Clayey silt to silty		1	SS	14										
	clay, trace of sand		2	SS	20										
			3	SS	23										
	and gravel.		4	SS	22										
			5	SS	23										
	Stiff to Hard		6	SS	24										
			7	SS	28										
			8	SS	31										
			9	SS	29										
			10	SS	29										
			11	SS	29										
			12	SS	15										
			13	SS	30										
626.0															
104.0															

20  
15  $\phi$  5 % STRAIN AT FAILURE  
10

Continued

OFFICE REPORT ON SOIL EXPLORATION

RECORD OF BOREHOLE No 4 Continued

W.P. 41-66-12 LOCATION Co-ords. 15,587,678 N; 1,302,121 E. ORIGINATED BY RD  
 DIST. 2 HWY. 402 BORING DATE June 12, 1975 COMPILED BY RD  
 DATUM Geodetic BOREHOLE TYPE Hollow Stem Auger CHECKED BY CP

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	$w_p$	$w$	$w_L$		
626.0	continued															
104.0	Clayey silt to silty clay, trace of sand and gravel.  Stiff to Hard		14	SS	45	620										5 0 40 55
608.0						610										
122.0	Sand and Gravel															Artesian encountered Elev. 608.0
601.0																
129.0						600										
595.0																
135.0	End of Borehole															

# RECORD OF BOREHOLE NO 5

W.P. 41-66-12 RD LOCATION Co-ords. 15,587,615 N; 1,302,159 E. ORIGINATED BY RD  
 DIST. 2 HWY. 402 BORING DATE June 15, 1975 COMPILED BY RD  
 DATUM Geodetic BOREHOLE TYPE Hollow Stem Auger CHECKED BY OP

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	'N' VALUES		20	40	60	80	100	$w_p$	$w$	$w_L$		
732.6	Ground Level															
0.0	Silt and Sand.					730										1 38 43 18
726.1	Dense		1	SS	32											3 19 46 32
6.5	Clayey silt to silty		2	SS	20											
	clay, trace of sand		3	SS	13											
	and gravel.		4	SS	15	720										
	Stiff to Very Stiff		5	SS	19											
			6	SS	21	710										
701.1			7	SS	26											2 11 40 47
31.5	End of borehole															
	Note: Water Level not established.															

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS-ONTARIO  
ENGINEERING SERVICES BRANCH-GEOTECHNICAL OFFICE-SOIL MECHANICS SECTION

## RECORD OF BOREHOLE NO 6

WP. 41-66-12 LOCATION Co-ords. 15,587,723 N; 1,302,280 E. ORIGINATED BY RT  
 DIST. 2 HWY. 402 BORING DATE June 16, 1975 COMPILED BY RD  
 DATUM Geodetic BOREHOLE TYPE Hollow Stem Auger CHECKED BY [Signature]

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	VALUES		20	40	60	80	100	$w_p$	$w$	$w_L$		
732.6	Ground Level															
0.0	Silt and sand.															
729.6						730										9 15 43 33
3.0	Clayey silt to silty clay, trace of sand and gravel.		1	SS	15											
			2	SS	17											
			3	SS	17											1 11 48 40
			4	SS	21	720										
	Stiff to Hard		5	SS	27											
			6	SS	28	710										
701.1			7	SS	36											
31.5	End of Borehole Note: Water Level not established.															

## RECORD OF BOREHOLE No 7

W.P. 41-66-12 *AM* LOCATION Co-ords. 15,587,646 N; 1,302,116 E. ORIGINATED BY RD  
 DIST. 2 HWY. 402 BORING DATE June 23, 1975 COMPILED BY RD  
 DATUM Geodetic BOREHOLE TYPE Hollow Stem Auger CHECKED BY *CP*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	N' VALUES		20	40	60	80	100	$w_p$	$w$	$w_L$		
731.3	Ground Level															
0.0	Silt and sand.		1	SS	7	730										
725.3			2	SS	21											
6.0	Clayey silt to silty clay, trace of sand and gravel.		3	TW	PH	720										
			4	SS	36											
	Very Stiff to Hard		5	SS	27	710										
			6	SS	31											
			7	SS	36	700										
689.8			8	SS	26	690										
41.5	End of Borehole Note: Water level not established.															

## RECORD OF BOREHOLE NO 8

W.P. 41-66-12

LOCATION Co-ords. 15,587,783 N; 1,302,005 E.

ORIGINATED BY RD

DIST 2 HWY. 402

BORING DATE June 23, 1975

COMPILED BY GP

DATUM Geodetic

BOREHOLE TYPE Hollow Stem Auger

CHECKED BY

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT $w_L$ PLASTIC LIMIT $w_p$ WATER CONTENT $w$		UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT. PLOT	NUMBER	TYPE	VALUES		20	40	60	80	100	WATER CONTENT %			
730.7	Ground Level														
0.0	Clayey silt to silty clay, trace of sand and gravel.		1	SS	12	730									
			2	SS	16										
	Stiff to Hard		3	TW	PH	720									
			4	SS	25										
709.2			5	SS	38	710									
21.5	End of Borehole														



MINISTRY OF TRANSPORTATION AND COMMUNICATIONS-ONTARIO  
ENGINEERING SERVICES BRANCH-GEOTECHNICAL OFFICE-SOIL MECHANICS SECTION

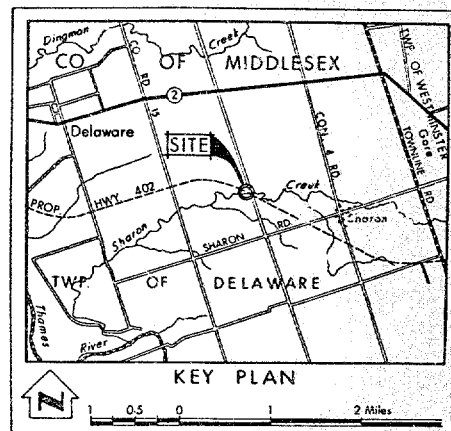
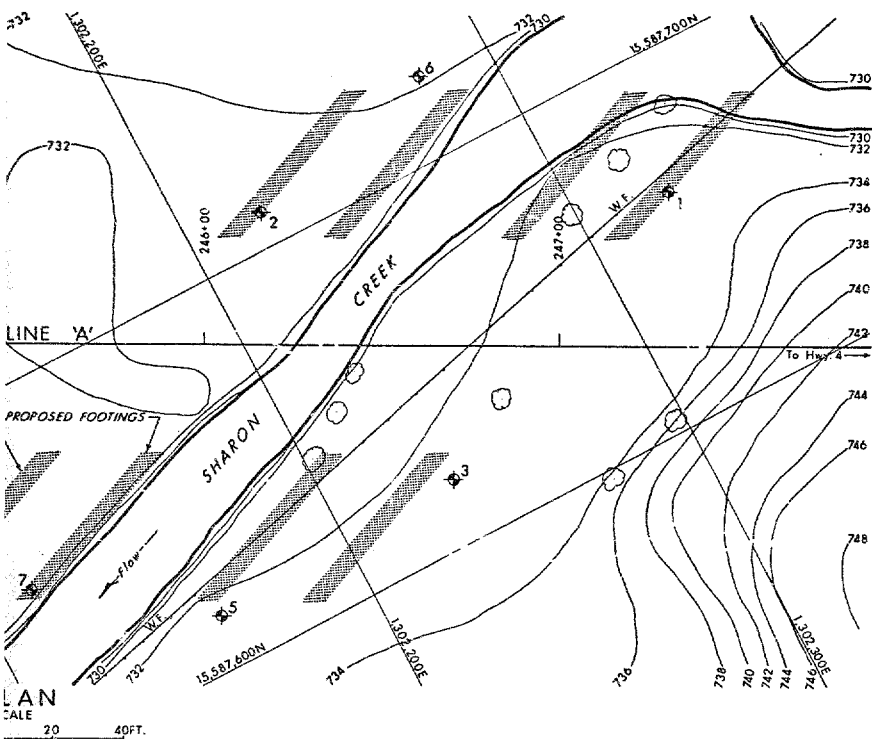
RECORD OF BOREHOLE NO 9

W.P. 41-66-12 *47M* LOCATION Co-ords. 15,587,851 N; 1,301,872 E. ORIGINATED BY RD  
DIST. 2 HWY. 402 BORING DATE June 23, 1975 COMPILED BY GP  
DATUM Geodetic BOREHOLE TYPE Hollow Stem Auger CHECKED BY *CP*

SOIL PROFILE			SAMPLES			GROUND WATER ELEV.	DYNAMIC CONE PENETRATION RESISTANCE PLOT					LIQUID LIMIT — $w_L$ PLASTIC LIMIT — $w_p$ WATER CONTENT — $w$			UNIT WEIGHT $\gamma$	REMARKS
ELEV. DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	'N' VALUES		20 40 60 80 100					$w_p$ — $w$ — $w_L$				
							SHEAR STRENGTH					WATER CONTENT %				
							○ UNCONFINED + FIELD VANE ● QUICK TRIAXIAL x LAB VANE									
732.3	Ground Level														GR SA S' CL	
0.0	Clayey silt to silty clay, trace of sand and gravel.  Very Stiff to Hard		1	SS	30	730										
			2	SS	36											
			3	SS	33											
			4	SS	29											
							720									
				5	SS	23										
710.8			6	SS	25											
21.5	End of Borehole  Note: Water level not established.															







### LEGEND

- Bore Hole
- Dynamic Cone Penetration Resistance Test
- Bore Hole & Cone Test
- Water Levels established at time of field investigation, June 1975
- Head Arterial Condition Encountered

NO.	ELEVATION	CO-ORDINATES	
		NORTH	EAST
1	732.9	15,587,662	1,302,326
2	732.5	15,587,710	1,302,222
3	732.3	15,587,618	1,302,235
4	730.0	15,587,678	1,302,121
5	732.6	15,587,615	1,302,159
6	732.6	15,587,723	1,302,280
7	731.3	15,587,646	1,302,116
8	730.7	15,587,783	1,302,005
9	732.3	15,587,851	1,301,872

### NOTE

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

### NOTE: FOR CONTRACT DOCUMENT

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

REVISIONS	DATE	BY	DESCRIPTION

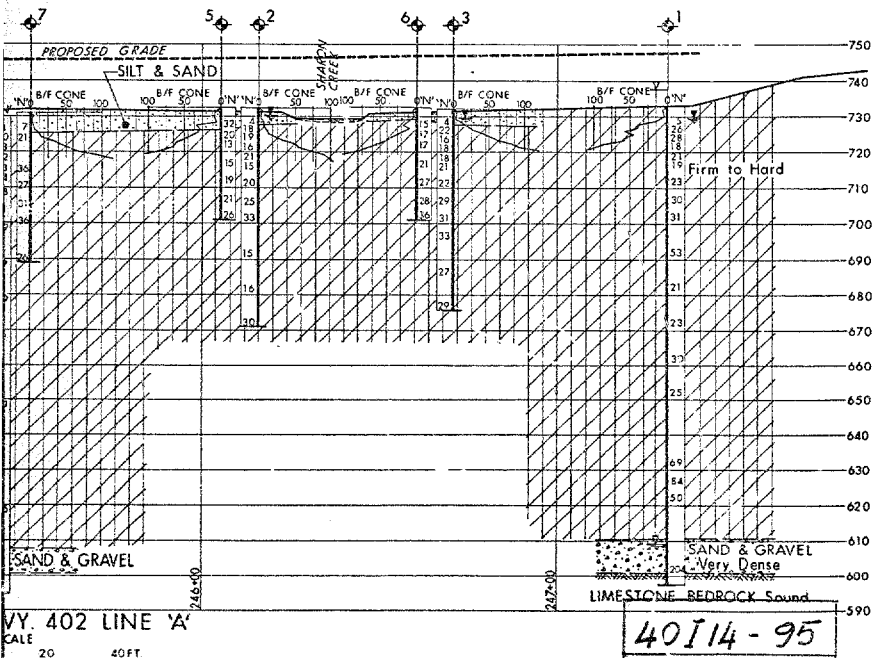
MINISTRY OF TRANSPORTATION AND COMMUNICATIONS—ONTARIO  
ENGINEERING SERVICES BRANCH—GEOTECHNICAL OFFICE—SOIL MECHANICS SECTION

### SHARON CREEK

HIGHWAY NO. Prop. 402 LINE 'A' DIST. NO. 2  
CO. MIDDLESEX  
TWP. DELAWARE LOT. 9 CON. II

### BORE HOLE LOCATIONS & SOIL STRATA

SUBMIT P.J.S.	CHECKED	WP NO. 41-06-12	DRAWING NO.
DRAWN	CHECKED	NO. NO.	416612-A
DATE	JULY 7, 1975	SITE NO. 19-520	BRIDGE DRAWING NO.
APPROVED		CONT. NO.	



40114-95

GEOCRE No.

REF. NO. E-5374-1, Feb 1975

## Memorandum

To: Mr. A. Watt,  
Regional Structural Planning Engineer,  
London.

From: Materials and Testing Office,  
London.

Attention: Mr. S. Jants.

Date: November 14, 1975.

Our File Ref.

In Reply to

Subject: W.P. 41-66-12, Highway #402,  
Sharon Creek Structure, Delaware  
Township, London District.  
-----

Confirming the recommendations discussed with you today re bedding and backfill for the above structure.

The structure at this location, Station 246 + 36, is to consist of a two cell box culvert (20' x 14' each cell). Invert elevations are 727.0 at the north end and 726.5 at the south end. Proposed grade is approximately 3-1/2' above the culvert.

- (i) The foundation soil is a stiff to hard clayey silt to silty clay. No bedding is required provided that the site is well drained and any sloppy soft material is removed prior to placing the concrete. The use of a working slab or a granular bedding pad would have to be determined at the time of construction.
- (ii) Because the backfill area will likely be small and confined, Granular "C" is recommended as backfill so that adequate compaction can be obtained adjacent to the culvert walls.

JGF:hp.

c.c.- A. Wittenberg,  
D. P. Collins,  
G. A. Wrong,  
J. McKeown,  
File.

*J. G. Forster*

J. G. FORSTER,  
SENIOR SOILS ENGINEER.

RECEIVED  
STRUCTURAL PLANNING

NOV 17 1975

SOUTHWESTERN REGION



Memorandum

To: Mr. K. G. Selby, Supvr. Eng.  
Soil Mechanics Section  
Geotechnical Office  
West Bldg., Downsview

From: Structural Planning Office  
Southwestern Region

Attention:

Date: April 23, 1975

Our File Ref.

In Reply to

Subject: W.P. 41-66-12/13, Bridge Site 19-540  
Sharon Creek Structures  
4.8 miles west of Hwy. 4  
Highway 402  
District 2, London

Would you kindly arrange to have a foundation investigation conducted at the above location.

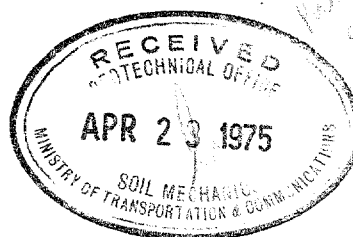
I have enclosed 2 prints of the bridge site plan E-5374-1 with the probable footing locations marked in red. Also enclosed is the Field Reconnaissance Report and pictures of the bridge site.

*S. Jants*

S. Jants  
Structural Planning Supervisor

SJ:sm  
Enc.

cc A. Crowley  
J. Anderson  
J. Forster



DOCUMENT VIEWS GRABED IDENTIFICATION

GEOCRES No. 40314-95

DIST. 2 REGION Southwestern

W.P. No. 41-66-12

CONT. No. 78-66

W. O. No. \_\_\_\_\_

STR. SITE No. 19-540

HWY. No. 402

LOCATION Sharon Creek Bridge

\_\_\_\_\_

OVERLAY DRAWINGS TO BE INCLUDED IN THE REPORT 3

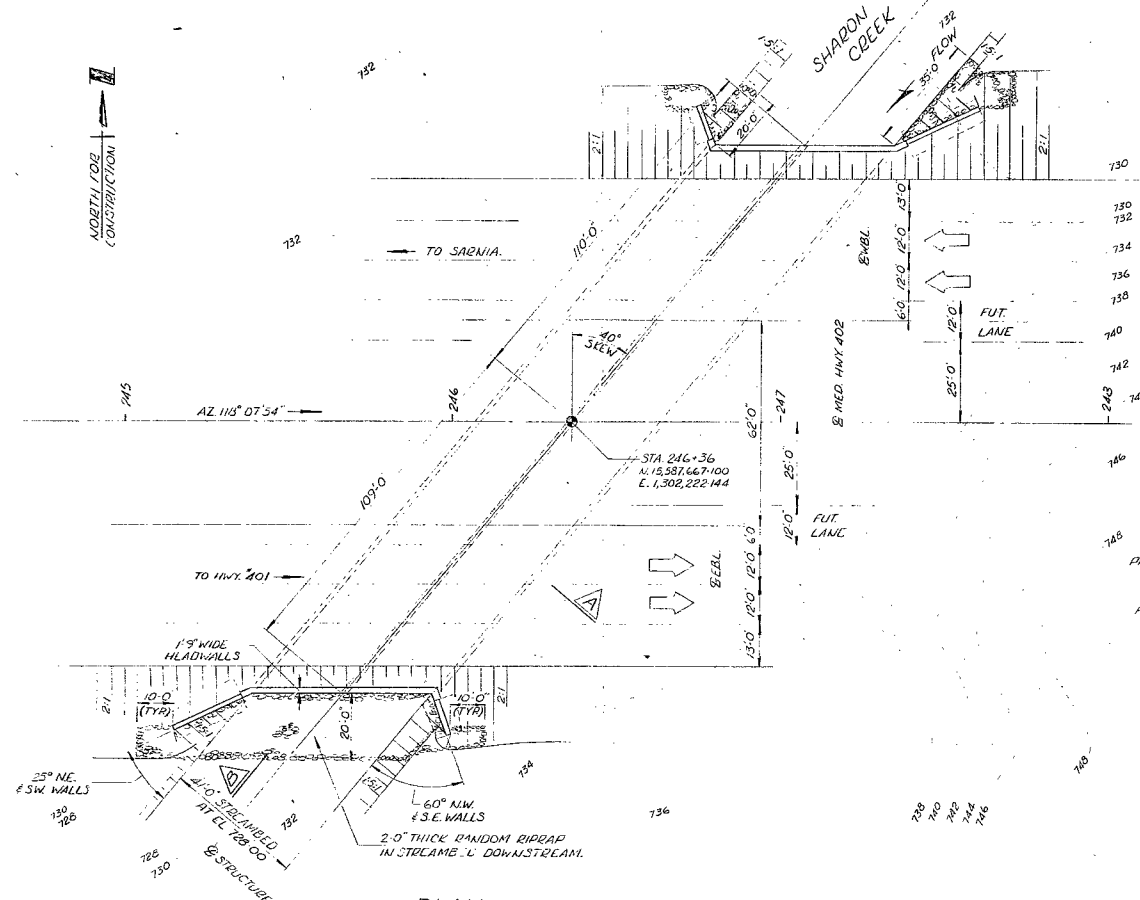
REMARKS: \_\_\_\_\_

\_\_\_\_\_

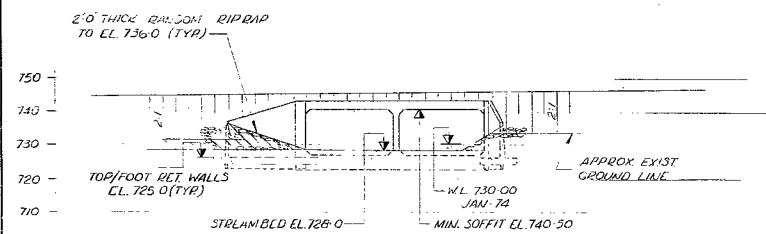
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40314-95

DIST. 2		
CONT No		
WP No	41-63-12	
SHARON CREEK STRUCTURE		SHEET
4.8 miles west of highway 4		
GENERAL LAYOUT AND DETAILS		



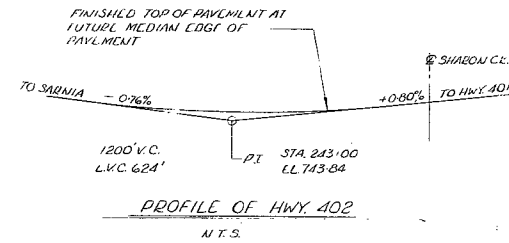
PLAN  
SCALE 20 FT. = 1 IN.



SOUTH ELEVATION  
SCALE 20 FT. = 1 IN.

FUNCTIONS OF SKEW ANGLE

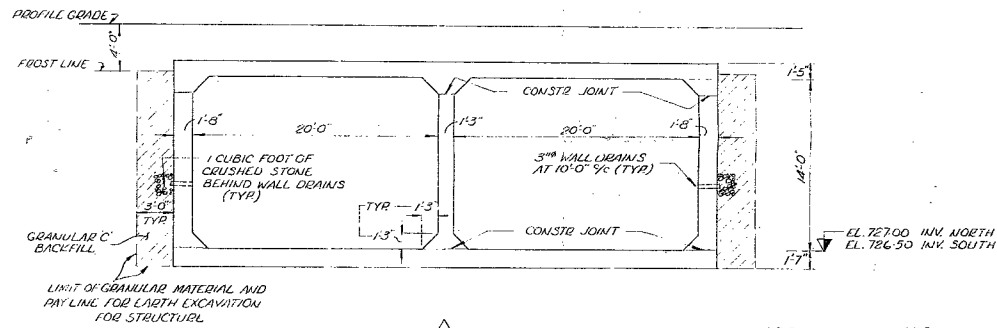
40° 00' 00"  
SIN 0.6427876  
COS 0.7660444  
TAN 0.8390996



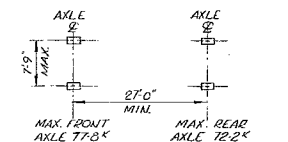
PROFILE OF HWY 402  
N.T.S.

NOTES

CLASS OF CONCRETE 3000 P.S.I.  
CLLAR COVER ON REINFORCING STEEL  
DECK SLAB BOT. 1 1/2" HEADWALL 2" REMAINING 3"  
CONSTRUCTION NOTES:  
WALL DRAINS SHALL BE BITUMINIZED FIBRE.  
VERTICAL LOCATION OF WALL DRAINS SHALL BE  
DETERMINED IN FIELD BY THE ENGINEER.  
FILL SHALL BE PLACED AT BOTH SIDES OF THE  
STRUCTURE SIMULTANEOUSLY.  
RETAINING WALL FOOTINGS SHALL BE PLACED  
ON AND AGAINST UNDISTURBED GROUND.



A SCALE 3/16 IN. = 1 FT.



MAX. CONST. EQUIPMENT LOADING

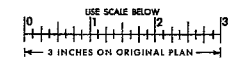
- 1) CONSTRUCTION TRAFFIC ON THE STRUCTURE WILL BE RESTRICTED TO THE ABOVE LOADING LIMITS AND WILL BE PERMITTED ONLY ON DESIGNATED AREAS OF THE STRUCTURE.
- 2) A MINIMUM OF 3'-0" OF WELL COMPACTED FILL SHALL BE PLACED ON TOP OF THE STRUCTURE TOP SLAB BEFORE ALLOWING CONSTRUCTION TRAFFIC TO USE THE STRUCTURE.
- 3) ONLY ONE VEHICLE WILL BE ALLOWED ON ANY 40'-0" WIDTH OF THE STRUCTURE AT ONE TIME, AND THE VEHICLES SHALL BE KEPT AT LEAST 20 FT. FROM THE EDGE OF THE STRUCTURE.

B.M. EL. 732.26 GEODETIC DATUM  
MIN. IN NW SIDE OF 20' WILLOW  
190'-0" BT. OF STA 244+81

LIST OF DRAWINGS

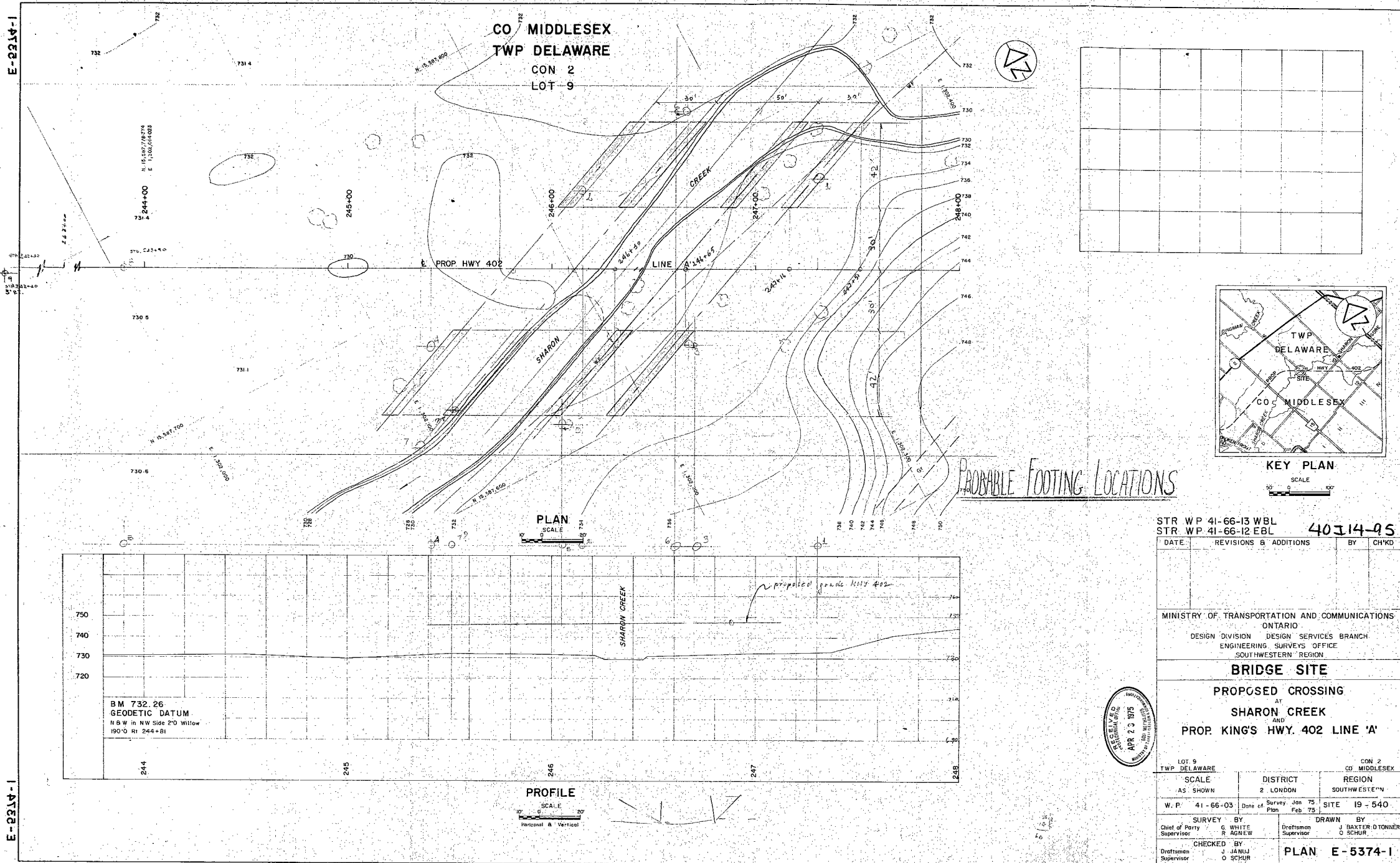
- 19-540-1 - GENERAL LAYOUT & DETAILS
- " 2 - BORE HOLE LOCATIONS & SOIL STRATA
- " 3 - STRUCTURE REINFORCING
- " 4 - HEADWALL DETAILS & CONST. SEQUENCE
- " 5 - RETAINING WALLS
- 19-540-6 - STANDARD DETAILS

FOR REDUCED PLAN



REVISIONS	DATE	BY	DESCRIPTION
DESIGN	11/01	CHECK	11/01
DRAWING	11/01	CHECK	11/01





STR WP 41-66-13 WBL  
STR WP 41-66-12 EBL

DATE	REVISIONS & ADDITIONS	BY	CHK'D

MINISTRY OF TRANSPORTATION AND COMMUNICATIONS  
ONTARIO  
DESIGN DIVISION DESIGN SERVICES BRANCH  
ENGINEERING SURVEYS OFFICE  
SOUTHWESTERN REGION

**BRIDGE SITE**  
**PROPOSED CROSSING**  
**AT**  
**SHARON CREEK**  
**AND**  
**PROP. KING'S HWY. 402 LINE 'A'**

LOT 9 TWP. DELAWARE	CON 2 CO. MIDDLESEX
SCALE AS SHOWN	DISTRICT 2 LONDON
W. P. 41-66-03	DATE OF SURVEY Jan 75
SURVEY BY Chief of Party Supervisor	BY G. WHITE R. AGNEW
CHECKED BY J. J. WILU O. SCHUR	DRAWN BY J. BAXTER-DONNER O. SCHUR
	PLAN E-5374-1

