

GEOCRETS No. \_\_\_\_\_

DIST. 43 REGION \_\_\_\_\_W.P. No. 6-93-00, 01, 02

CONT. No. \_\_\_\_\_

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

STR. SITE No. \_\_\_\_\_

HWY. No. 401LOCATION Hwy 401 - 3.2 km E of Hwy 30  
Westerly to 0.8 km W of Little Lake Rd.No of PAGES -       

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OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. \_\_\_\_\_REMARKS: \_\_\_\_\_  
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# MEMORANDUM



To: R. McCluckie, P. Eng.  
Area Engineer  
Planning and Design Section, Eastern Region

April 17, 1997

Attn: W. Kong, P. Eng.  
Structural Engineer

From: Pavements and Foundations Section  
Room 315, Central Bldg.

Tel: (416) 235-5267  
Fax: (416) 235-5240

Re: Technical Review Comments  
*Hwy 401 Resurfacing and Median Barrier,*  
*3.2 km east of Hwy 30, westerly to 0.8 km west of Little Lake Road*  
WP 6-93-00

Contract drawings and documents for the above mentioned project have been reviewed as requested in Cumming Cockburn Limited letter dated April 9, 1997. We are hereby forwarding our comments to your office.

## Jacking and Boring

Item 21 in the contract calls for 155 metres of jacking and boring required to facilitate the installation of 825 mm concrete sewers as tabulated in Table 1 below. Our office has no record of any foundation investigation and design reports conducted at these locations. We are concerned that the jacking and boring is to be carried out without a knowledge of the subsurface and groundwater conditions at the site. Conventionally, the subsurface and groundwater conditions are determined to:

1. assist in the design of the jacking and boring tunnel
2. to assist the Contractor in selecting an appropriate construction procedure.

The factual component of the Foundation Investigation and Design Report that includes the subsurface and groundwater conditions are conventionally included in the Contract Documents. In fact, the end result specification for Jacking and Boring recently completed by our office, states that "*A foundation investigation and design report regarding subsurface conditions will be provided to the Contractor. This will include a description of the soil, rock and groundwater conditions*". It is therefore recommended that the issue of foundation information be further investigated.

Regarding, the end result specification for Jacking and Boring recently completed by our office, it is recommended that this NSSP be included in the contract documents. There is presently no special provision for this item in the contract documents.

Table 1 - Jacking and Boring (825 mm Concrete Sewer)

Location	Length(m)	Depth to Invert(m)
Station 18+300	30	4-4.5
Station 18+475	35	4
Station 19+800	30	3
Station 13+306	30	3
Station 16+606	30	2

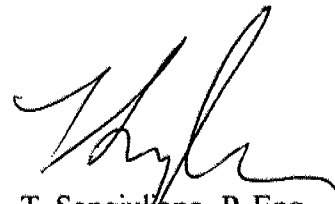
Inclusion of End Result Specifications

As we proceed into the implementation phase of the MTO Re-engineering initiatives, it is important that re-engineering measures be adopted into contracts. Our office has produced a number of foundation related end result specifications that can be included as NSSP's in this contract. Table 2 attached identifies the foundation related end result specifications produced by our office. In reviewing the contract documents, some of the items in the contract that can incorporate the foundation related NSSP's include:

- Pipe Subdrains
- Rigid Pipe Sewers
- Manholes, Catchbasins and Ditch Inlets
- Jacking and Boring (as mentioned previously)
- Pipe Culverts
- Precast Concrete Box Culverts
- Unshrinkable Backfill

Inclusion of these specifications can be coordinated with the Contract Preparation and Control Office.

If you have any questions regarding this memorandum, please do not hesitate to contact this office.



T. Sangiuliano, P. Eng.  
Foundation Engineer

for

D. Dundas, P. Eng.  
Senior Foundation Engineer

Table 2 - Foundation Related End Result Specifications

#	Item	Related OPSS
1	Retained Soil System	
2	Dewatering	OPSS 517
3	Control of Water	OPSS 518
4	Shoring and Bracing	OPSS 538
5	Protection Schemes	OPSS 941
6	Rip Rap, Rock Protection and Gravel Sheet piling	OPSS 511
7	Concrete Footings For High Mast Poles	OPSS 631
8	Excavation and Backfilling - Structures	OPSS 902
9	Clay Seal	OPSS 1205
10	Unshrinkable Backfill	OPSS 1359
11	Pipe Subdrains	OPSS 405
12	Pipe Sewer Construction By Open Cut Method	OPSS 406
13	Excavation, Backfilling and Compacting For Manholes, Catch Basins, Ditch Inlets and Valve Chambers	OPSS 407
14	Sewage Force main Construction By Open Cut Method	OPSS 412
15	Tunnelling	OPSS 415
16	Jacking and Boring	OPSS 416
17	Pipe Culverts	OPSS 421
18	Precast Reinforced Concrete Box Culverts and Box Sewers	OPSS 422
19	Trenching and Backfilling	OPSS 514
20	Rock Excavation Utilizing Blasting	OPSS 515
21	Watermain Construction by Open Cut Method	OPSS 701
22	Piling	OPSS 903
23	Anchors	