

G.I.-30 SEPT. 1976

GEOCRES No. _____

DIST. 6 REGION _____

W.P. No. _____

CONT. No. _____

W. O. No. 94-11008STR. SITE No. 37-818HWY. No. 427LOCATION Retaining Wall Repair
at Hwy 427 / Hwy 401 RampNo. OF PAGES - 1

OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT. _____REMARKS: _____

memorandum



To: V. Bochnke
Head, Structural Section
Central Region

Attn: A. Liu
Sr. Structural Engineer

From: Foundation Design Section
Room 315, Central Building

Re: Contractor Proposal for Retaining Wall Repair
Contract 20-95-633, Hwy 427 and Hwy 401
District 6, Toronto

Date: 95 09 26

The proposal prepared by Holloway Philip Construction Ltd. for the installation of the deadman anchors has been reviewed.

Regarding the sequence of installation outlined in the proposal, it has been assumed that item 4 follows item 2, i.e. the tricone is advanced using the water and bentonite slurry. It is also assumed that one anchor will be installed at a time.

The following are our concerns regarding the proposal:

- The soil conditions found at the site from an earlier investigation suggest that the use of a bentonite slurry during drilling should prevent the collapse of the hole. Timing is critical in this situation and the installation of each anchor should proceed to completion without delay.

This is especially true for the upper row of anchors, since collapse of the open hole may adversely affect the overlying pavement. The contractor should have a remedial plan of action in the event that open holes are not stable, e.g. injection of grout while withdrawing casing.

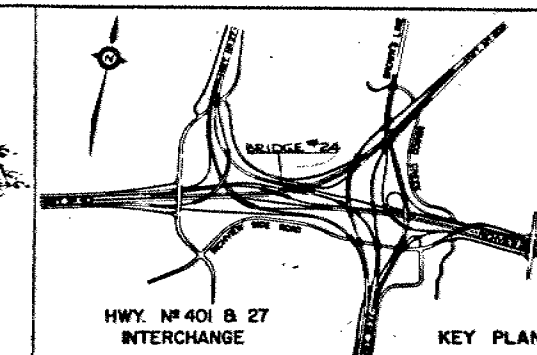
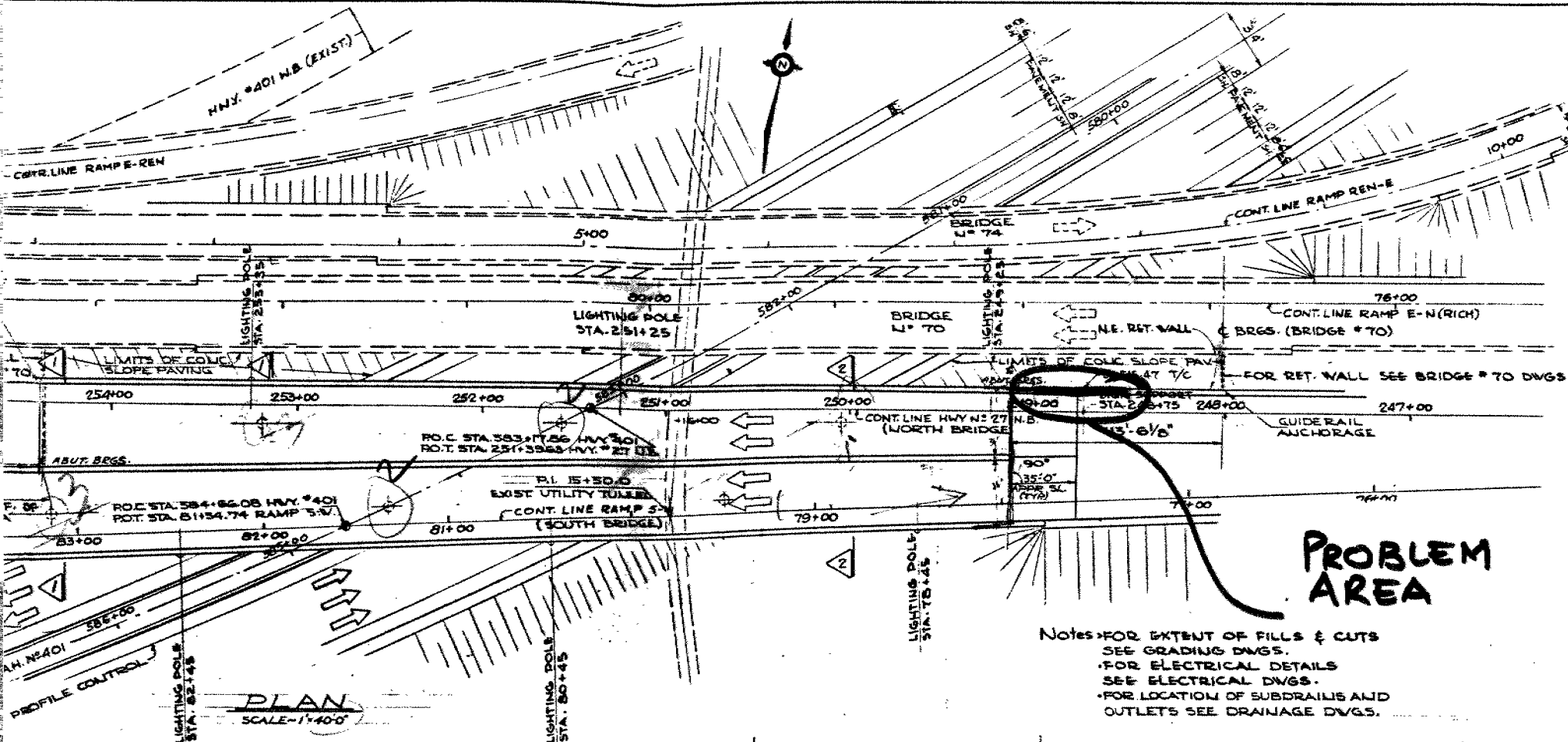
- It is possible that advancing the hole with a tricone and slurry will result in a diameter greater than 5-3/4". For the upper row of anchors, consideration should be given to using a tricone of smaller diameter to minimize soil disturbance.
- It has not been identified how the bentonite slurry will be contained and/or recycled. This is an environmental aspect that requires addressing.

The contractor's proposal is acceptable provided that the above concerns are considered.

If there are questions regarding these concerns, please advise.

A handwritten signature in cursive script, appearing to read "Betty Bennett".

Betty Bennett, P.Eng.
Foundation Engineer



GENERAL NOTES

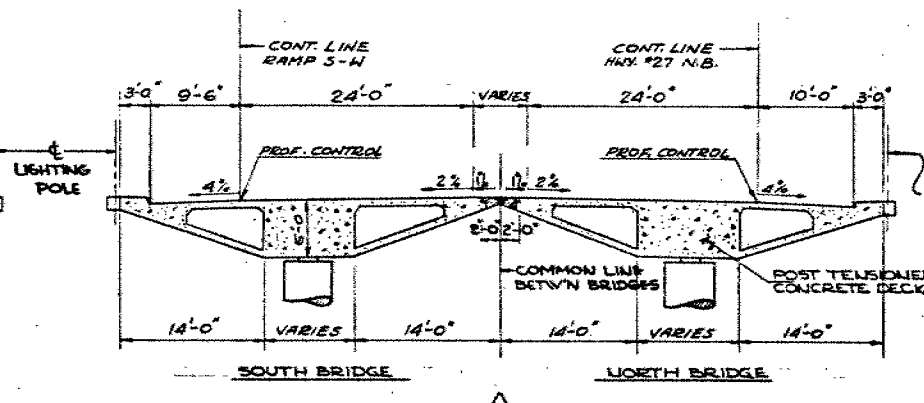
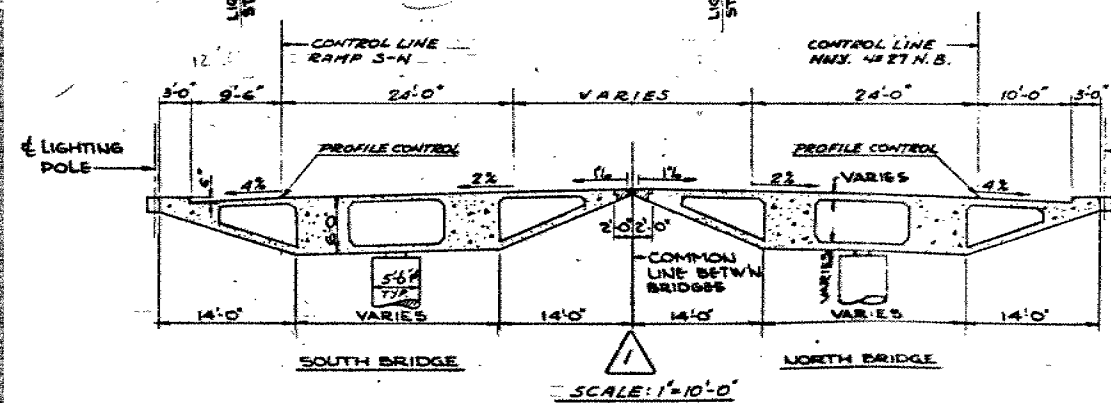
CLASS OF CONCRETE:
 DECK, CURBS, PARAPET WALLS, APPROX. SLABS & PIER COLS. - 5000 PSI.
 REMAINDER - 5000 PSI.

CLEAR COVER ON REINFORCING STEEL:
 FOOTINGS, ABUTMENTS & PIERS - 3"
 CURBS - 2"
 DECK - TOP - 2", BOTT - 1 1/2"

LIST OF DRAWINGS

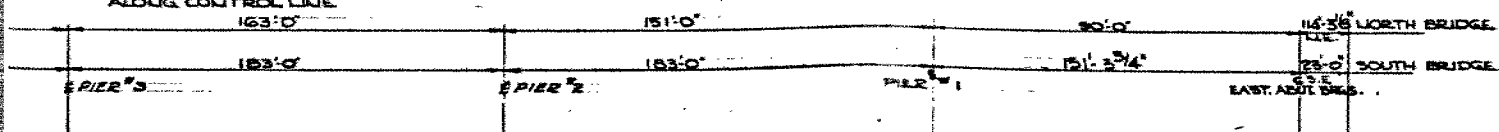
1. GENERAL PLAN.
2. FOOTING LAYOUT AND DIMENSIONS.
3. ABUTMENT AND PIER FTG. REINFORCING.
4. EAST ABUTMENT AND VINGWALLS.
5. S-V. ABUTMENT AND WALLS.
6. N-V. ABUTMENT AND RETAINING WALL.
7. N-E. AND S-V. RETAINING WALLS.
8. PIER DETAILS.
9. DECK DIMENSIONS.
10. SLOPE ELEVATIONS.
11. NORTH DECK REINFORCEMENT.
12. SOUTH DECK REINFORCEMENT.
13. LONGITUDINAL CABLE DETAILS.
14. TRANSVERSE CABLE DETAILS.
15. PARAPET WALL DETAILS.
16. 35 FT. APPROACH SLAB TYPE A-B.
17. 35 FT. APPROACH SLAB TYPE A-W.
18. STANDARD DETAILS.
19. DETAILS OF CONC. SLOPE PAVING - 1.
20. DETAILS OF CONC. SLOPE PAVING - 2.
21. STANDARD STEEL PARAPET RAIL.
22. ELECTRICAL LIGHTING I.
23. ELECTRICAL LIGHTING II.

Notes: FOR EXTENT OF FILLS & CUTS SEE GRADING DWGS.
 FOR ELECTRICAL DETAILS SEE ELECTRICAL DWGS.
 FOR LOCATION OF SUBDRAINS AND OUTLETS SEE DRAINAGE DWGS.



NOTE:
 SPACIS ARE MEASURED ALONG CONTROL LINE

Augustine 5504





memorandum

(416) 235-3731

To: V.F. Boehnke, P. Eng.
Head, Structural Section
Central Region

1995 05 18

Attn.: Augustine Liu, P. Eng.

From: Pavements and Foundations Section
Room 315, Central Building
Downsview, Ontario

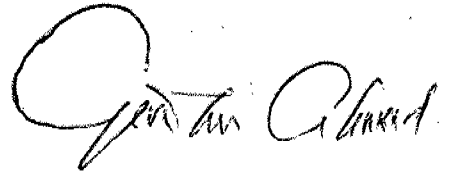
Re: Retaining wall Repair at
Highway 27/401 Ramp, Bridge No. 24,
W.P. C10-94-01, Site 37-818
Central Region

We have reviewed the draft contract document (structural portion only) dated May 09, 1995. As requested, our comments are as follows:

Based on some short probe holes which were dug on 1995 05 16 at the site, the soil within the zone of proposed anchors is dry to moist clayey silt to sandy silt fill mixed with sand and gravel. The water table is expected to be well below the zone of proposed excavation.

The annular space between the sheathing of the anchors and the borehole walls should be grouted. The objective of grouting is to fill the voids between the sheathings and the borehole walls, any suitable material can be used for this purpose including bentonite slurry or lean concrete. A standard grouting technique should be used for filling the voids i.e. injecting the grout into the voids with pressure.

If you have any questions please call our office.

A handwritten signature in black ink, appearing to read 'K.S.Q. Ahmad', written in a cursive style.

K.S.Q. Ahmad, P. Eng.
Foundation Engineer

For

D. Dundas, P. Eng.
Senior Foundation Engineer

MEMORANDUM

(416)235-3731

To: V.F. Boehnke, P. Eng. 1994 10 14
Head, Structural Section
Central Region

Attn.: Augustine Liu, P. Eng.

From: Foundation Design Section
Room 315, Central Building
Downsview, Ontario

Re: Retaining wall Repair at
Highway 427/Highway 401 Ramp, Bridge No. 24,
W.O. 94-11008, Site 37-~~1395~~ 818
District 6, Toronto

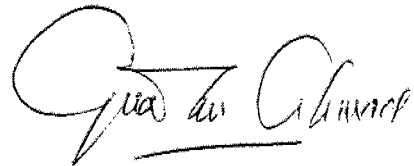
This is further to our site visit of June 20, 1994 and your recent request to provide information to design an anchorage system for a 15m long segment of a 35m long and 3m high retaining wall in the northeast quadrant of the above mentioned bridge. The 15m long segment of the wall which has moved also supports an overhead sign. Since the details of the soil behind the retaining wall and the abutment is not available, we have made the following assumption in our analyses:

The soil behind the retaining wall is a fill
The fill is a granular material with $\phi = 32^\circ$
There is no hydrostatic pressure beside the retaining wall due to weeping holes
Unit weight of the soil $\gamma = 21.5 \text{ kN/m}^3$

An at rest condition was applied to calculate the required forces to anchor the wall. A pre-stress force of 50 kN per linear metre should be used to design the anchorage system. This force will hold the wall from further movement due to soil pressure.

The anchorage system should be capable of providing a minimum load of 3 times the pre-stress design load of 50 kN per linear metre. It is expected that such stress will not cause any structural distress to the retaining wall. The anchorage system should be structurally designed to evenly distribute the pressure on the wall.

If you have any questions please call our office.

A handwritten signature in black ink, appearing to read 'K.S.Q. Ahmad', with a horizontal line underneath.

K.S.Q. Ahmad, P. Eng.
Foundation Engineer

For

D. Dundas, P. Eng.
Senior Foundation Engineer



BRIDGE #24.

SITE 37-818

