

SCHEDULE 11

Known Hazardous Substances

This Schedule consists of the attached report of R. V. Anderson Associates Limited dated March 1995



R.V. Anderson Associates Limited

consulting engineers and architect

Suite 400, 2001 Sheppard Avenue East, Willowdale, Ontario M2J 4Z8.
Telephone (416) 497-8500 Fax (416) 497-0342

March 14, 1995

RVA 4010.10

Ministry of Transportation of Ontario
Highway 407 Project
Mail Room, Box 407
1201 Wilson Avenue
Downsview, Ontario
M3M 1J8

Attention: Mr. E. Ellard
Manager of Highway 407 West Project

Dear Sir:

Re: Highway 403 Property Request and Value Engineering
Soil Contamination Investigation Report
W.P. 412-85-00 and 413-85-00

We enclose herewith a copy of soil contamination investigation report for the Highway 403 corridor from Highway 5 to Highway 403/407 interchange for your comment. This report outlines the methodology undertaken to identify the potential soil contamination issues and sites along the 403 corridor, the findings and the recommendations.

Should you have any questions, please do not hesitate to contact our office.

Yours very truly,

R. V. ANDERSON ASSOCIATES LIMITED

T.H. McColm, P.Eng.
Project Manager

PCWL/THM/kis
Encl.

CC : P.T. - R.A.

SOIL CONTAMINA
FROM HIGHW

RVA 4010.10

INTRODUCTION

Pursuant to our proposal to MTO dated August 30, 1994, we have conducted a "Phase I" site investigation of the properties traversed by the proposed Highway 403 right-of-way from east of Trafalgar Road to Highway 5. The purpose of this investigation was to identify the potential soil-contamination issues which may be of concern during the construction of Highway 403.

METHODOLOGY

The investigation consisted of the following:

- Review of existing documentation;
- Review of aerial photographs;
- Site inspection

The review of existing documentation was for background information purposes and to obtain information regarding the current land use of the properties traversed by the proposed highway and the condition of the lands. A listing of the existing documentation which was reviewed appears in Appendix A.

Aerial photographs from 1954, 1978 and 1994 were reviewed in addition to the aerial photographs appended to the MTO report entitled: Highway 403 From Freeman Interchange Easterly to Highway 403/Oakville Link. Preliminary Design Report (July 1983 with May 1984 Addendum).

Since virtually all of the lands to be traversed by the proposed highway are still rural in land use, insurance drawings and municipal directories were not available for review. Given that the lands did not appear to have been subjected to industrial activity, the review of aerial photographs provided sufficient information for the purposes.

An inspection of the properties within the proposed Highway 403 right-of-way was conducted. This inspection was not detailed in that the entire route of the proposed highway was not walked. Instead, the properties were viewed from existing roads and from the CNR right-of-way between Appleby Line and Tremaine Road. Since the properties consisted of lands under cultivation and woodlots, the above method of inspection in conjunction with the review of aerial photographs was deemed to be sufficient.

FINDINGS

As stated above, the lands proposed to be traversed by the Highway 403 extension from east of Trafalgar Road and Highway 5 are being used primarily for agricultural purposes. Some areas have not been cleared and are heavily wooded.

Upon review of the aerial photographs from 1954 to the present, it is clear that the land use has not altered significantly in the past 40 years. It does not appear that any of the lands included within the proposed Highway 403 right-of-way were used for industrial purposes.

On the basis of the visual inspection which we conducted, we observed no evidence of contamination of the surface soils and no evidence of illegal waste dumping.

In addition to the cultivated lands and woodlots which comprise the majority of the properties within the proposed highway right-of-way, we note the following:

- There are some dwellings and outbuildings on the west side of Fourth Line within the proposed right-of-way;
- As the proposed right-of-way crosses Burnhamthorpe Road, there are 2 sets of dwellings and outbuildings on the north side of Burnhamthorpe Road which are within the proposed right-of-way. Also, there is one dwelling with outbuildings on the south side of Burnhamthorpe Road which is on the edge of the proposed right-of-way;
- There is one residence on the west side of Highway 25 which is within the proposed right-of-way;
- There was 1 set of farm buildings on the east side of Appleby Line which would fall within the proposed right-of-way according to the 1954 and 1978 aerial photographs and the air photos included in the 1983 MTO predesign report entitled: Highway 403 From Freeman Interchange Easterly to Highway 403/Oakville Link, Preliminary Design Report. These buildings were not evident on the 1994 aerial photograph and were not observed during the site inspection;
- There was 1 set of farm buildings on the north side of Dundas Street west of Walkers Line which would fall within the proposed right-of-way according to the historical aerial photographs. However, these buildings did not appear on the 1994 aerial photograph and were not observed during the site inspection;
- There is 1 crossing of railway tracks between Appleby Line and Tremaine Road east of Bronte Creek.

DISCUSSION

There are very few potential soil contamination issues, which have been identified with respect to the lands which will fall within the proposed Highway 403 right-of-way.

With regard to the dwellings and outbuildings which are (or were) within the proposed right-of-way, the potential exists for some localized soil contamination due to leaks and spills associated with refueling and maintenance of farm vehicles and equipment. The extent of the contamination (if any) is expected to be minor; however, a detailed inspection of each of the properties is recommended. If visual evidence of soil contamination is detected, then soil sampling and analysis is recommended.

There is the potential for the soils in the vicinity of the railway track crossing to be contaminated with polynuclear aromatic hydrocarbons (PAHs). These compounds are associated with heavy oil products such as the creosote used to preserve railway ties. Sampling and analysis of surficial soils (1 or 2 samples) in the vicinity of the railway tracks is recommended.

There is the potential of soil contamination associated with agricultural operations. While pesticides may have been used historically on agricultural lands which would fall within the proposed highway right-of-way, it is not likely that the organic component of the pesticides will have persisted in the soil. However, there have been cases where elevated levels of heavy metals such as arsenic were found in agricultural soils. Some preliminary sampling and analysis of soils from the lands under cultivation would be useful to determine if a concern exists.

Except in cases where gross soil contamination was discovered, in which case the soil would have to be removed, the above potential soil contamination issues would not be of great concern as long as the soil was being moved from one place to another within the highway right-of-way (i.e. cut and fill). However, if excess soil material was to be moved off the right-of-way, a number of provincial regulations and guidelines would come into play to help determine the acceptable fate of the materials. The regulations and guidelines include:

- Guidelines for the Protection and Management of Aquatic Sediment Quality In Ontario (Lakefill Guidelines);
- Interim Guidelines for the Assessment and Management of Petroleum Contaminated Sites In Ontario;
- Proposed Policy for Management of Excess Soil, Rock and Like Materials;
- Ontario Regulation 347, General - Waste Management.

The Lakefill Guidelines will govern in the case of soils which are intended to be used as fills around water courses, such as Bronte Creek and Sixteen Mile Creek. The soils will require testing and the suitability of soil will be assessed against a set of criteria contained in the guideline document.

The Interim Guidelines for the Assessment and Management of Petroleum Contaminated Sites in Ontario sets out a sampling and analysis protocol as well as assessment criteria for petroleum contaminated soils. The suitability of contaminated soils for fill or landfill applications is determined in accordance with this guideline document.

The Proposed Policy for Management of Excess Soil, Rock and Like Materials is only a discussion document at this time. However, it is mentioned because the policy is likely to be adopted in the near future and almost certainly by the time that the Highway 403 extension is constructed. This proposed policy provides guidelines for classifying soils in classes such as: inert fill (no restrictions on use except where Lakefill Guidelines govern), urban residential fill (may be used for fill on residential sites), urban industrial fill (may be used for fill on industrial sites) and controlled fill (may be used only on sites which have received a Certificate of Approval from the Ministry of Environment and Energy).

Ontario Regulation 347, General-Waste Management is a regulation pursuant to the Ontario Environmental Protection Act. It provides criteria for classifying waste materials. If contaminated soil is discovered on the site, leachate testing in accordance with Ontario Regulation 347 will be required in order to identify the disposal options for this soil. Depending on the quality of the leachate resulting from the leachate test, the soil may be classified as

hazardous waste, registerable waste or non-registerable waste. Disposal of these wastes must be at approved sites.

Once again, the above guidelines, policy and regulation become important considerations when excess soils are to be removed from the highway right-of-way and placed elsewhere. Except in cases where high levels of contamination are found, excess soils should be suitable for reuse within the highway right-of-way.

CONCLUSIONS

Based on the investigation which we conducted, we have reached the following conclusions:

1. Most of the lands within the proposed highway right-of-way are under cultivation or are wooded;
2. There is no evidence that any of the lands within the proposed highway right-of-way have been subjected to industrial activity;
3. There is no evidence of illegal disposal of wastes on the lands within the proposed right-of-way;
4. There are some dwellings and outbuildings within the proposed right-of-way and evidence of others which no longer exist.

RECOMMENDATIONS

Based on the foregoing conclusions, we have formulated the following recommendations:

1. The present and former sites of dwellings and outbuildings should be inspected for evidence of soil contamination;
2. If soil staining is discovered, samples of the soil should be obtained and analyzed and the results compared to the criteria set out in the Interim Guidelines for the Assessment and Management of Petroleum Contaminated Sites in Ontario;
3. Some soil samples (perhaps 10) should be obtained from the cultivated lands within the proposed right-of-way. These samples should be analyzed for the metals and nutrients parameters listed in the Lakefill Guidelines;
4. One soil sample should be obtained from the vicinity of the railway tracks and tested for polynuclear aromatic hydrocarbons;
5. No further soil testing is recommended at this time. Additional testing may be required if soil is to be transported offsite during construction.

APPENDIX A - EXISTING DOCUMENTATION

1. Ecological Services for Planning Ltd., Initial Environmental Inventories of the Highway 403 Corridor at Bronte Creek and Sixteen Mile Creek (May 1991).
2. Cumming Cockburn Limited, Hydrology and Hydraulics Bronte Creek at Proposed Highway 403 Crossing (Sept. 1990).
3. Acres International Limited, Foundation Investigation for Proposed Highway 403/CNR Subway District #4, Burlington WP 408-85-01, Site 10-478 (March 1991).
4. Acres International Limited, Foundation Investigation for Proposed Structures at the Crossing of Highway 403 and Bronte Creek District #4, Burlington WP 410-85-01/02 Site 10-220 (Feb. 1991).
5. McCormick Rankin, Investigation of Structure Alternatives for the Bronte Creek Bridges Highway 403 W.P. 410-85-01 WBL Structure W.P. 410-85-02 EBL Structure, Site 10-220 District 4, Burlington (March 1991).
6. MTO, Structural Design Report for the Appleby Line Underpass Highway 403 W.P. 411-85-02, Site 10-229, District 4, Burlington (August 1990).
7. MTO, Structural Design Report for the Highway 25 Underpass Highway 403 W.P. 409-85-02; Site 10-479, District 4, Burlington (August 1990).
8. MTO, Structural Design Report for the Bronte Creek Bridges Highway 403, W.P. 410-85-01; WBL Structure, W.P. 410-85-02; EBL Structure, Site 10-220, District 4, Burlington (Dec. 1990).
9. MTO, Structural Design Report for the CNR Subway Highway 403 W.P. 408-85-01; Site 10-478, District 4, Burlington (Jan. 1991).
10. MTO, Structural Design Report for the Walkers Line Underpass Highway 403, W.P. 411-85-04; Site 10-228, District 4, Burlington (August 1990).
11. MTO, Structural Design Report for the Regional Road, 22 (Tremaine Road) Underpass, Highway 403 W.P. 409-85-04; Site 10-230, District 4, Burlington (August 1990).
12. Ecological Services for Planning Ltd., Environmental Inventory for the Highway 403 Crossing of Bronte Creek (Dec. 1991).
13. McCormick Rankin, Environmental Study Report. Fourth Line/Neyagawa Boulevard Highway 5 to Highway 403 (April 27, 1994).
14. MTO, Highway 403 From Freeman Interchange Easterly to Highway 403/Oakville Link, Preliminary Design Report (July 1983 with May 1984 Addendum).