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G.I.-30 SEPT. 1976

GEOCRES No. 30M3-22

DIST. 4 REGION

W.P. No. 133-67

CONT. No.

W. O. No. 71-11028

STR. SITE No.

HWY. No. 20

LOCATION RICE ST TO LOOKOUT ST.

(TOWN OF PELHAM) FUNCT. PLANNING STUDY

No. of PAGES -

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OVERSIZE DRAWINGS TO BE INCLUDED WITH THIS REPORT.

REMARKS:

## MEMORANDUM

30M3-22

To: Mr. R. G. Burnfield,  
Regional Functional Planning  
Engineer - Central Region -  
TORONTO.

FROM: Foundation Section,  
Materials & Testing Office,  
Room 107, Lab. Bldg.

ATTENTION: Mr. E. J. McCabe,  
Sr. Project Planning Engr.

DATE: April 29, 1971

OUR FILE REF.

IN REPLY TO

## SUBJECT:

Functional Planning Study  
For Hwy. #20 Relocation  
Rice Street to Lookout Street  
Town of Pelham  
District No. 4 (Hamilton)  
W.O. 71-11028 -- W.P. 133-67

GEOCREs No  
30M3-22

As requested by you with regard to the preliminary study of the above mentioned project, we have reviewed all available subsoil and groundwater information, and submit the following comments:

Subsoil at the site, according to available information, consists of an extensive deposit of sand to silty sand having a total thickness of up to 320 ft. at Lookout Street (Sta. 40+00) and about 140 ft. at Rice Street (Sta. 268+00) in the Town of Pelham. This granular overburden is underlain by Dolomitic Limestone bedrock. The bedrock surface varies from elev. 440 to elev. 465. The groundwater level in the low-lying area between Pelham Street and Rice Street is close to the ground surface.

Numerous creeks are present in this area and the major one is the Twelve Mile Creek. As mentioned previously, the groundwater level is very close to the surface, which indicates a natural hydraulic gradient towards the depressions (creeks) - i.e., they control the drainage in this general area. In addition, there are several local spring water systems which feed the water to Twelve Mile Creek and other creeks in this area. It appears that the local residents as well as Conservation Authority feel that the new Hwy. #20 construction will damage the springs and thereby reduce the quantity of water in the creeks. In our opinion, such problems as blocking of spring water systems by the new roadway construction, can be prevented by adopting certain measures in the design and construction of the new highway. These will be discussed in the following paragraphs of this memo.

Mr. R. G. Burnfield,  
Regional Functional Planning Engr.,  
Central Region (Toronto) -  
Attn: Mr. E. J. McCabe

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April 29, 1971

Re: Functional Planning Study -  
Hwy. #20 Relocation - Rice St. to Lookout St.  
Town of Pelham - W.O. 71-11028 -- W.P. 133-67

Fill Sections:

Fills in the order of up to 50 ft. will be required for the proposed grade of new Hwy. #20 in this area. In addition, the new roadway will cross several creeks including Twelve Mile Creek.

The granular deposit is the predominant stratum across the site and therefore no deep-seated stability problems are anticipated for the proposed fills. However, such high embankments may require berms to prevent any failure within the fill material.

Structures or culverts will be required at the creek crossings without altering the natural drainage. At the Twelve Mile Creek the natural valley is of the order of 700 ft., and it may be advantageous to span this gap by constructing a multi-span structure.

The presence of spring water systems in the area of embankment construction will require certain drainage measures to prevent their free flow. This can be achieved by constructing a suitable drainage granular blanket at the base of the new roadway embankment. The granular blanket should be graded in such a way as to avoid any ponding of water. Any water collected in the drainage granular blanket should be led out and connected to the drainage system designed for the new roadway.

Cut Sections:

The maximum depth of the cut will be of the order of 25 ft. at the deepest section of the highway. The proposed cuts may intercept the various spring water systems in this area. If this is the case, water will emerge on the cut slopes. Due to action of this seepage through the slopes, erosion by surface water and frost-thaw cycles, failures of the cut slopes would occur in due course. These slope failures will result in preventing free flow of water from the springs. In order to control the seepage forces and consequent progressive failure of the slopes, a granular blanket consisting of Granular 'A' with a minimum thickness of 24 inches, should be provided on the cut slopes.

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Mr. R. G. Burnfield,  
Regional Functional Planning Engr.,  
Central Region (Toronto) -  
Attn: Mr. E. J. McCabe

3

April 29, 1971

Re: Functional Planning Study -  
Hwy. #20 Relocation - Rice St. to Lookout St.  
Town of Pelham - W.O. 71-11028 -- W.P. 133-67

Cut Sections: (cont'd.) ...

Adequately designed interceptor ditches should be constructed at the top of the cut section in order to prevent spill-over of surface run-off onto the surface of the cut slopes. In addition, an interceptor drainage ditch with a 8"  $\emptyset$  perforated sub-drain, should be constructed at the toe of the cut slopes.

Distance of Drawdown:

When cutting of the roadway is started, the water level is lowered for a certain distance and it is called drawdown distance. This distance will vary depending upon the permeability of the subsoil and the bank storage capacity.

The subsoil at the location of Hwy. #20 in the Town of Pelham is granular in nature. It should be noted that the permeability of granular material varies with the diameter and degree of assortment of the individual particles. In view of this, it can be assumed that the coefficient of permeability of granular soil at this site could vary from 1.0 cm/sec to  $10^{-4}$  cm/sec. The other factor which will influence the distance of drawdown is the bank storage capacity. This will be greatly affected by the presence of numerous spring water systems. According to the U.S. Bureau of Reclamation, for such conditions the coefficient bank storage will vary from 0.05 to 0.3.

An attempt was made to determine the maximum and minimum drawdown distances of groundwater due to roadway excavations in a wide range of granular soils.

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Mr. R. G. Burnfield,  
Regional Functional Planning Engr.,  
Central Region (Toronto) -  
Attn: Mr. E. J. McCabe

4

April 29, 1971

Re: Functional Planning Study -  
Hwy. #20 Relocation - Rice St. to Lookout St.  
Town of Pelham - W.O. 71-11028 -- W.P. 133-67

Distance of Drawdown: (cont'd.) ...

Type of Material	Coefficient of Permeability K cm/sec	Coefficient of Bank Storage S (Dimensionless)	Distance of Drawdown
Clean sand; sand and gravel	1.0	0.05	3,000 ft.
Clean sand; sand and gravel	1.0	0.3	1,000 ft.
Very fine sands, silts; mixture of sand, silt	10 <sup>-4</sup>	0.05	1,000 ft.
Very fine sands, silts; mixture of sand, silt	10 <sup>-4</sup>	0.3	500 ft.

According to available information, the subsoil is an extensive deposit of silty sand to sand and, based on the above estimates, the probable drawdown distances for the roadway cuts will be of the order of 500 ft. to 1,000 ft. from the toe of cut section. The preliminary information indicates that the proposed 25-ft. cuts will be well above the bedrock elevation and, therefore, no influence of any possible bedrock aquifer conditions can be anticipated.

The various comments outlined in this memo are for feasibility study purposes, based on limited information. It will be necessary to carry out detailed field investigation to determine the subsoil, groundwater conditions, together with pumping tests, if necessary, when the design details are available. In addition, detailed mapping of the spring water systems and creeks with watershed area will be necessary in order to provide adequate recommendations for drainage measures, which will ensure the requirements of local residents and the Conservation Authority.

If you have any further queries, or if any of the foregoing requires clarification, please do not hesitate to call us.

MD/MdeF

cc: Messrs. C. R. Robertson  
T. J. Kovich  
Foundations Files ✓  
Gen. Files

*M. Devata*  
M. Devata  
SUPERVISING FOUNDATION ENGR.  
For:  
A. G. Stermac  
PRINCIPAL FOUNDATION ENGR.

71-11128  
DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS 71-11028

MEMORANDUM

TO: Mr. L. Schwabl  
Head, Systems Planning  
Services Office

FROM: Feasibility Studies Section  
Environmental & Feasibility Studies Office

ATTENTION:

DATE: December 13, 1971.

OUR FILE REF. 263-50

IN REPLY TO

SUBJECT: New Highway 20 Bypass at Fonhill  
W.P. 133-67

Attached please find, for your information, a copy of the letter from Mr. W. Bidell to the Minister, outlining the conclusions and recommendations on this controversial project.

Also, I wish to take advantage of this opportunity to express my appreciation and thanks to all the members of the Project Team for their sincere effort and excellent contribution to the public presentations prepared for the resident groups of Fonhill.

I am confident that with a similar degree of internal collaboration, the Department will succeed in the implementation of the public participation programs involved in coming projects.

*Ignacio Ardizone*

IA:mcl

c. c.

L. Szabo  
D. McFarlane  
R. Oddson  
J. Cullen  
M. Devata ✓  
B. Darch  
J. Hughes  
I. Oliver

I. Ardizone  
for R. S. Pillar  
Chief Feasibility Planner

M.E.

The Hon. Charles MacNaughton  
Minister

W. Bidell  
Planning Division.

December 7, 1971.

New Highway 90 Bypass at Fonthill

CONCLUSIONS AND RECOMMENDATIONS

Since the meeting on April 20, 1971, in your office, with delegations from the Citizens for Conservation and the Committee of a Thousand, we have reviewed a number of alternatives for a bypass location and carried out extensive studies on the environmental impacts of these routes. Also, a concurrent public participation program with groups of residents from the area has been undertaken by members of our staff over the past 6 months.

From an evaluation of these studies, it has been concluded that the most suitable location for a bypass at Fonthill would be the northerly route (Line 'A') which is the alignment originally recommended by this Department. The evaluation recognized that the location of this route has some undesirable environmental impacts on the 'Short Hills' area, however, the incorporation of special design features during the design stage, such as a structure over the area of the springs and a drainage system to minimize silting, would alleviate these adverse effects in the ecologically sensitive area of the Twelve Mile Creek watershed.

One of the alternative routes (Line 'B') through the Merrit Road area of the Village of Fonthill has pronounced undesirable socio-economic effects on the structure of the community and jeopardizes the implementation of the proposed Town of Pelham Official Plan. Two pending subdivision plans are affected by this alignment.

The third route (Line 'C') to the south of the present Village of Fonthill (which actually penetrates the northwest corner of the City of Welland) has no adverse environmental effects, and at the present time, does not appear to create any socio-economic problems. However, from a transportation viewpoint, Line 'C' will not perform the highway function as assigned to this facility in the Niagara Peninsula Area Planning Study and may not appreciably alleviate future traffic congestion through the former Village of Fonthill.

P.P.

Based on these facts, which are supported by a very comprehensive study, I would recommend that the necessary steps be taken to protect the right of way required to implement the north bypass route, if and when the need for it arises. A highway designation plan was filed in the Registry Office for this alignment some time ago, and no further action is required for the present.

Considering the meeting which took place on December 2, 1971, in the office of the Hon. George Kerr, Minister for the Department of the Environment, (see minutes attached) I would suggest that the options for Quaker Road route (Line 'C') be kept open until the Regional Municipality of Niagara completes its Official Plan Study. Since it is not practical to designate both routes, I propose to protect for this option through control of future subdivision plans submitted to the Department of Municipal Affairs. This means, of course, that a decision on the preferred route cannot be publically announced at this time. This may present some problems to the Town of Pelham in their own Official Plan, but I think they will be satisfied if the hold on current draft plans of subdivision is lifted.

I have, therefore, given the necessary instructions to advise the Department of Municipal Affairs that our Department has no further objections to the processing of the affected subdivision plans in the Town of Pelham.

For your information and consideration, I am enclosing the following material:

- (1) Chronological summary of activities and events regarding this project in the last 3 months.
- (2) Copy of the report prepared by the Department of Lands and Forests.
- (3) Copy of the report prepared by the Department of the Environment.
- (4) Minutes of the meeting on December 2, 1971, between A. Scott of the Citizens for Conservation and the Hon. George Kerr, Minister, Department of the Environment.

W. Bidell  
Executive Director

W. Bidell

c.c.

L. C. Campbell

G. Ernesaks ✓



## MEMORANDUM

BYD

71-11028

TO: Mr. R. Pillar, P. Eng.,  
Chief Feasibility Studies Planner,  
Environmental and Feasibility  
Studies Office,  
East Building.

FROM: Foundation Office  
Design Services Branch,  
Central Building,

DATE: December 20, 1971.

ATTENTION: Mr. I. Ardizzone, P. Eng.  
OUR FILE REF.

IN REPLY TO

## SUBJECT:

Technical Questions Asked by the  
Committee of a Thousand Regarding  
New Hwy. # 20 - Fonthill By-Pass  
County of Welland  
District No. 4 (Hamilton)  
W.O. 71-11028      W.P. 133-67

Further, to your request we are pleased to submit our answers to those questions presented by the Committee of a Thousand, regarding the aforementioned By-Pass scheme. The questions were submitted on November 10, 1971. The answers to the pertinent questions are listed below:

1. Perforated subdrain pipe should be designed of sufficient gauge to withstand a maximum load of 45 pounds per square inch.
2. The length of pipe required in the spring area has already been estimated. It was shown on the visual aids of SCHEME # 2 for the spring area along the northern alignment.
3. The blanket material should be composed of a well graded granular filter material rather than the local sand deposit found in the spring area.
4. The gradation of the granular filter material, to be used in the blanket, as well as around the pipe will be designed to prevent fines from migrating through the blanket and plugging the perforations in the drainage pipe.
5. In our opinion the spring area need not be disturbed during the placement and compaction of the fill placed above this zone.
6. The filter blanket will itself provide a working mat for the fill placement and compaction phase where heavy construction equipment will be used.
7. The general area is not unstable or spongy. The granular filter blanket will ensure the integrity of the spring area. No difficulties are, therefore, anticipated.
8. The previous granular filter blanket-perforated pipe system will provide a continuous seepage zone for the springs, eventually

allowing the spring water to be carried to the Twelve Mile Creek tributary system. With this provision the springs will remain in an unclogged condition.

9. The area is basically stable. Properly compacted select granular material will be pervious and not impede spring water flow, further, it will be stable even with the fill loading above it.
- 10 to 13) No comment required from the Foundation Office.
14. The D.T.C. is constantly making cost estimates on engineering projects throughout the province. There are no inherent difficulties in making a cost estimate for either the structure or fill scheme over the spring area.
15. All the readily available geological information was gathered and assessed from an engineering point of view.
16. The area is characterized by extensive deposits of granular soils. No major foundation engineering or construction problems are, therefore, envisaged. It is not feasible to make specific recommendations pertaining to the support of the structure elements (abutments and piers) until design details, such as the alignment and structure locations, have been finalized. Once these factors have been determined a completion foundation investigation would be carried out, at which time the most feasible and economical foundation types would be adopted.
17. There could be some cut areas in the vicinity of Look Out Street; the cuts will be carried out within granular deposits. The depth of cut will range from 15 to 30 feet. It is our opinion that the water table in this area will not be significantly depressed.
18. Over the majority of the area fills will be required rather than cuts. The ground water regime will not be adversely affected in the fill areas. The groundwater level could be depressed in the immediate vicinity of the cut areas. As mentioned in 17) this very localized depressed level will be rather insignificant as far as the overall ground regime in the area is concerned.
19. In the footing areas, granular filter material will be placed at the base, as well as along the sides of the concrete footings. Properly designed subdrained will be installed within this granular filter zone in order to channel the groundwater away from the footing area. Using this standard technique the integrity of the spring water system can be ensured.
20. The foundation depth for pier and abutment footings will be determined during the foundation investigation phase (refer to answer # 16).
21. The survey carried out to date by the Department was of a reconnaissance nature, in which all available data was studied and evaluated. It was not within the Department's terms of reference to proceed

with detailed subsurface investigations in this area. Detailed foundation investigations will only be carried out once the alignment and design details have been finalized.

22. The construction of structure foundations need not adversely affect the groundwater table.

23. If the northern alignment is adopted, and if the spring area is spanned completely by constructing a structure, the structure will have approximately\* spans and be about\* feet long. It should be noted that the finalized structure details would be determined during the design stage.

24 to 33) No comment required from the Foundation Office.

We hope that these answers are sufficiently detailed. If further discussions are required on any of the specific comments please contact this office.

*B. T. Darch.*

B. T. Darch, P. Eng.  
Senior Foundation Engineer.

For:

M. Devata,  
Supervising Foundation Engineer.

MD/BTD/ck

\* to agree with figures given on  
Visual Aid for the Structure Scheme

DEPARTMENT OF HIGHWAYS ONTARIO

Form  
SB-QS-42  
70-1085

**ACTION SLIP**

DATE Oct. 18/71  
TO B. Curch - Materials Testing Off.  
FOUNDATION Section CENTRAL BLDG.  
FROM ARDIZONE

- |  |  |
|--|--|
| <input type="checkbox"/> NOTE AND FILE             | <input type="checkbox"/> PREPARE REPLY FOR MY SIGNATURE  |
| <input type="checkbox"/> NOTE AND RETURN TO ME     | <input type="checkbox"/> TAKE APPROPRIATE ACTION         |
| <input type="checkbox"/> RETURN WITH MORE DETAILS  | <input type="checkbox"/> PER YOUR REQUEST                |
| <input type="checkbox"/> NOTE AND SEE ME           | <input type="checkbox"/> FOR YOUR SIGNATURE              |
| <input type="checkbox"/> PLEASE ANSWER             | <input checked="" type="checkbox"/> FOR YOUR INFORMATION |
| <input type="checkbox"/> FOR YOUR APPROVAL         | <input type="checkbox"/> INVESTIGATE AND REPORT          |
| <input type="checkbox"/> RETURN WITH YOUR COMMENTS | <input type="checkbox"/> AS DISCUSSED                    |

COMMENTS

71-11028

# Little Revealed? In Fourth Meeting On Highway Bypass

By MARION LAMPMAN  
Standard Correspondent

PELHAM—The fourth meeting between highway officials and ratepayers concerned with the Fonthill bypass of Highway 20, held in A. K. Wigg School last night, revealed little more than the fundamentals of building a highway.

Lasting for more than three and a half hours, the meeting attended by approximately 175 ratepayers was chaired by Arthur Scott of the Citizens for Conservation Committee who spent a great deal of time in reviewing past events leading up to the series of meetings.

In 1966, he said, the ratepayers of St. John's had formed a community committee to work with the department of lands and forests to preserve the Short Hills which he said had been designated by four departments for conservation and recreation.

WITH THE original proposal by the department for a bypass to the north of Fonthill through the headwaters of the Twelve Mile Creek, the ratepayers had formed the present CPCC.

When the second proposal was presented taking the route to the south of the village, the Pelham South Bypass Committee was formed to protect the interests of the ratepayers who might be effected by the proposal which would cut directly through an urban area.

The series of meetings was set up as a result of the department's agreement to use local people as advisory in their further study of the bypass following an "on-side" investigation of the proposed northern route.

Two proposals to the south are now being studied.

BOTH ROUTES would cut off at the same point from the existing highway just east of Centre St. South of Canboro Rd. the Merritt Rd. route will form a large arc to the east to cross Hillcrest Rd. West and east to cut across Haist Rd. South and Woodstream Estates subdivision and then South Pelham just north of Nursery Lane and on to Highway 58.

The Quaker Rd. route would continue to a point approximately 900 ft. south of Welland Rd. and proceed east to again form another large arc to rejoin the Merritt Rd. route.

The northern route cuts away from the existing highway just east of Clare St. and forms a large arc to the northeast to cross Effingham St. and Look-

out St. just south of the microwave tower; then to cross Haist Rd. North; North Pelham St. to continue along Hurricane Rd. at a point 500 ft to the north. Both the northern and Quaker Rd. routes pass chiefly through farmlands, bypassing urban development.

The noise factor is of prime concern in all three proposed alignments. John Hughes, geography professor at the University of Toronto, said a 600-foot right-of-way on either side of the alignment would reduce the level from 90 to 65 or 70 decibels.

IT IS EXPECTED that 570 acres of orchards and 850 acres of vineyards will be affected by the highway realignment but orchards are more important since they are so scarce, Mr. Hughes pointed out.

Mr. Hughes said any of the three proposed alignments would reduce air pollution from traffic since it has been determined that the faster traffic moves, the less pollution there is created. The proposed four-lane route will have a 60 mph speed limit.

As to impact on schools, the department showed a table of all schools in the area of the alignments. None of the three proposals will effect E. L. Crossley Secondary School.

St. Alexander School children walking will not be affected either. But the A. K. Wigg School have 11 children from a total enrolment of 459 affected by the existing highway with an estimate of 65 in future, under the Merritt Rd. plan.

FONTHILL School is not expected to be affected, but existing crossings affect 17 from the 380 enrolment of the senior elementary school with a future number of 97 on the Merritt Rd. route.

School buses affected on the northern route would be less than either of the other two routes.

The greatest problem is located on the northern route where it is necessary to cross the "spongy" ground west of North Pelham St. where a number of surface springs exist, along the valley floor and west bank, feeding into the headwaters of Twelve Mile Creek.

The eastern end is not expected to present any problem, the engineers reported.

Two methods of crossing this area was presented by the department engineers. It could either be filled in with a 12-foot by 12-foot culvert to carry the flow on to the creek.

PERFORATED pipes could be imbedded in a four-foot gravel base, which would feed into lateral pipe lines that would carry the flow to the open base

culvert. A berm is required for any buildup over 35-feet, the engineer said. The 50-foot fill would require a 25-foot berm.

Barry Darch of the highway department said this method had been used by the department on Highway 403 near Hamilton and also at New Liskeard. "We've had no feed back as yet," he added.

Over-all cost, including fill, culvert, pipes, excavation and miscellaneous items, was estimated at \$435,000.

Another method was the proposed 400-foot bridge structure spanning the area. This too would require a three foot granular base under which the streams would flow. A berm would also be required on the east side buildup for stabilization. Total cost of this project was estimated at \$666,000. With spread foundations for structures, Mr. Darch said it was felt there would be no major problems in construction on the northern route.

IT WAS stressed by the department that the streams must not be stopped as they are considered to be the spawning place for trout.

Two forms of pollution into the Twelve Mile Creek are possible from the northern route, the engineers pointed out. Erosion of silt which would cover the trout eggs laid on the sandy bottom of the streams and salt runoff from the finished road could drain into the streams and destroy vegetation.

Research has revealed that salt runoff would create very little pollution and the granular blanket on the buildups and sodding of the slopes would reduce erosion of silt.

A settling basin with a capacity of 26,000 to 27,000 cubic feet at a cost of \$45,000 is proposed for the area west of North Pelham St., to reduce pollution from road runoff before it reaches the streams.

BILL CULLEN, department engineer, explained that according to a test made by the Ontario Water Resources Commission after five hours of settling, salt content in the water would be only 120 parts per million of water with fish able to survive in 2,000 parts per million.

Dr. D. W. Hurst, Hillcrest Rd., speaking for the Pelham South bypass committee asked for a "percentage of fish spawning" in the headwaters of Twelve Mile Creek but the engineers walked him around Robin Hood's barn with no reference to his question, although repeated several times. He also challenged the "pureness" of

the water.

"There's been a lot of talk about spawning to the north, but I'm concerned with the spawning of children to the south," Jack Smith, Haist Rd. South, said.

He added that the department showed too little concern for the school children. Surveys by him of school crossings during July, August and September showed a yearly crossing of 42,000. He said the Niagara South board of education would back up his statement.

Crossing to recreational facilities amounted to 125,000, if projected into the winter months, he said. Crossings for the northern route was given as 1,600, and the Merritt Rd. route as 13,200.

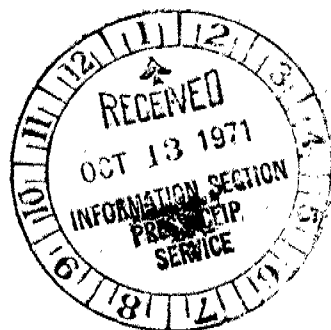
ONTARIO Provincial Police are preparing statistics for the Pelham South Bypass Committee. Mr. Smith said, which would deal with the problems of children going to school and recreation parks. Mr. Smith said they had reported 84 per cent less crossings with an overhead bridge at Haist Rd. North, and 92 per cent less for school buses and children. Dept. officials requested a copy of the OPP report.

"I'm not concerned with fish, I'm concerned with children," Mr. Smith repeated.

Representatives from the department of lands and forests and the department of environment were present but declined to speak.

Ecology experts from Brock University were present as well as a large representation from Thorold Council; Pelham Council, and candidates in the next provincial election, although none spoke. Norman Mithinson represented the Committee of a Thousand.

CUSTAVE YAKI, field representative for the Federation of Naturalists, questioned the need for a bypass and urged the people to ask themselves if "this is for your long-time good? Are you willing to pay this amount for a road to be obsolete before it's finished?"





Form  
SB-OS-62

DEPARTMENT OF HIGHWAYS OF CALIFORNIA

## ACTION SLIP

DATE NOV. 22, 1971

TO B. DARCH, MAT. & TESTING

FROM I. ARDIZONE, FEASIBILITY ST.

☐ NOTE AND  
FILE

☐ NOTE AND  
RETURN TO ME

☐ RETURN WITH MORE  
DETAILS

☐ NOTE  
AND SEE ME

☐ PLEASE  
ANSWER

☐ FOR YOUR  
APPROVAL

☐ RETURN WITH YOUR  
COMMENTS

☐ PREPARE REPLY FOR  
MY SIGNATURE

☐ TAKE APPROPRIATE  
ACTION

☐ PER YOUR  
REQUEST

☐ FOR YOUR  
SIGNATURE

☒ FOR YOUR  
INFORMATION

☐ INVESTIGATE AND  
REPORT

☐ AS DISCUSSED

COMMENTS

September 21, 1971.

71-11028

Division of Conservation

Department of Natural Resources

Lake Erie

*[Handwritten signature]*

PROPOSED BYPASS HIGHWAY 20 - FORT HILL

The area affected by the above topic has been surveyed by R. J. Manson - biologist Normandale Hatchery, geography student - J. Cooper, and Fish and Wildlife Deputy R. D. Townsend of Fort Hill. This area is part of the Short Hills region containing some unique geological features. Many of these features serve as the primary source of water for Twelve Mile Creek and are located in this area. The route of the proposed bypass incorporates an area containing six springs, thus any construction could have a serious effect on some if not all springs of this headwater area.

These effects could take place in the following ways: Alteration of the stream course affecting flow rates and addition of silt material. Secondly, partial or complete destruction of water flow from the major springs. Also, there would appear to be a possibility of some serious effects on the geological and ecological systems situated in this area.

R. J. Manson feels that Twelve Mile Creek is "the last remaining brook trout stream in the Niagara Peninsula". If so it is of extreme importance that this waterway and its headwaters be protected. Stream improvement by means of fish ladders has been proposed to facilitate movement of brook trout in this waterway. Two recommendations are strongly suggested: (1) relocation of the bypass to the south away from the Short Hills area and (2) designation of the area as a nature reserve either incorporated directly into the parks system or purchase of the area by Sport Fisheries Branch.

Copies of reports submitted are attached in the hope that additional information will be of assistance in order to preserve this area. On September 29, 1971, a meeting with the municipality and concerned groups will be held at Pelham. At this time views of this Department will perhaps be asked for.

RM/c  
att:

*[Handwritten signature]*  
W. B. M. Clarke,  
District Forester.

cc: Regional Director  
R. D. Townsend  
Parks Branch

RECEIVED SEP 22 1971 DISTRICT FORESTER
--

DATE

August 13

MEMORANDUM TO:

FROM: DEPARTMENT OF LANDS

Mr. J. H. Brown

P.O. Box 10592, Fonthill, Ont.

Fonthill Fish Hatchery

(416) 892-2658

TELEPHONE

Re: Fonthill Bypass

Enclosed are two copies of a preliminary report dealing with the proposed Fonthill Bypass. Needless to say, the shortage of time precluded a detailed study of the area, and as stated in the brief, a detailed study of the area is essential if a sound long term management proposal is to be made.

The Short Hills portion of the Niagara Region is unique and warrants preservation as a result of its uniqueness, and not (in my opinion) as a result of unfounded claims of pollution as suggested by the Committee of a Thousand.

The report was compiled by Jeff Coopman, Extension Biologist's Aide (Wildlife) who is stationed at the Fonthill office.

*leg. tanto*

  
R. Douglas Townsend  
Fish & Wildlife Dept.



September 6

ATTENTION: DR. PHIL STEVART

Outdoor Recreation Division,

Sport Fisheries Branch.

Normandale Hatchery - Lake Umbagog

426-3142

In response to your request regarding further information on the possible impact of the proposed Highway 20 Fonthill By-pass, we are pleased to forward the enclosed preliminary report as prepared by Sweep student, Mr. Jeff Coopman.

You will note a reference to Professor J. J. Flint, concerning the effects of highway construction upon the headwater springs. I have included the following data on trout abundance for your information:

NAME OF WATER	FLOW	TEMP.	SALMONIDS OVER 5" / 100 OF STREAM
12 Mile Creek	1.5 cfs	62° F.	0.8
Forbes Creek	1.0 cfs	58° F.	7.7
Fisher's Creek	3.0 cfs	54° F.	9.0
Normandale Creek	2.5 cfs	64° F.	5.0
South Creek	1.5 cfs	57° F.	1.2 *dewatering problem

You will note that 12 Mile Creek rates quite low on this list, in fact, its even below South Creek, which is known to have a serious dewatering problem. This low abundance of salmonids over 5 inches, and the near absence of fry would indicate that this water is already marginal for Brook Trout and probably will not withstand much further stress.

Since this is the last remaining Brook Trout stream on the Niagara Peninsula, we probably cannot afford to talk in terms of minimal effects of erosion, and the downstream dilution of pollutants. I recommend that

alternative location south of Fonthill would be preferable from a point of view.

Aside from any effects upon 12 Mile Creek itself, the construction of a major highway by-pass through the Short Hills would, as the attached report stresses, result in a reduction in the overall recreational potential of this unique area.

M. F. McKenzie,  
Fish & Wildlife Supervisor.

HJM/jmc  
Enc.

cc: Fonthill.

Short Hills Area:

Geological Formation - The Short Hills area stretches to the south of Lake Ontario in a large proglacial gap in the escarpment. They are terminated by the Kame Moraine at Fonthill. The actual edge of the escarpment is buried below tons of glacial debris which were deposited in this gap. The hills were created later when local drainage dissected the area and created the sharply rolling terrain. Throughout these hills, the Twelve Mile Creek flows clear from the springs located at the base of the moraine.

NIAGARA ESCARPMENT DRIVE FEASIBILITY STUDY

It is recommended that the provincial park being developed in the Short Hills area encompass much of the open land (Satellite Parks?) throughout the entire area preserving historical sites, the narrow gravel roads and the overall charm and beauty of the area. The southern end of the Hills should be planned for private commercial and recreational facilities, which together with public lands can combine to form an extensive recreational area and add substantially to the tourism industry in Pelham Township.

Explanation of "wilderness area"

The "wilderness areas" mentioned in this report can be described as heavily wooded parkland that has not been greatly affected by the surrounding farmland and residential areas. These areas can in the future be used for educational, recreational and interpretive purposes.

Re: Photographs

These pictures were taken to show the dense vegetation in different parts of the Short Hills area and to show chiefly (4)

the areas that would be either destroyed or disturbed by the highway. It also better express the beauty of the area than any description could.

#### NIAGARA 20 BYPASS - REPORT

In order to determine the effect of the proposed Highway 20 Bypass on the Short Hills area and the headwaters of Twelve Mile Creek, I walked the area that the bypass would traverse. Along with numerous springs and marshy areas in the valley, the slopes were heavily covered with brush (sumac, raspberry, wild grape, etcetera) and coniferous and deciduous trees. This region in my estimation is one of the most beautiful and interesting wilderness areas in the region. The highway would cut through this area of springs and according to Professor J.J. Flint of Brock University (Geomorphology and Surface Hydrology) the effect on the springs, due to salt runoff and erosion would be minimal. The waters could still be able to be piped into Twelve Mile Creek below the bypass and water from other tributaries would dilute any effect of construction or usage of the bypass itself.

In my estimation this pocket wilderness area, which is within the village limits of Fonthill, should be preserved. This has already been mentioned in The Niagara Escarpment Study (Cortler Report).

In regard to circulation (i.e. highways), it states that "the escarpment resource is a narrow fragile lineal parkland feature. Preservation of this feature is most important. Therefore a circulation system would try to reinforce this concept. Traffic arteries paralleling the linear escarpment feature would stand far enough back from the escarpment to lessen the impact of construction, development, visual disturbance and noise. Special features can be

connected by a cul-de-sac or dead end road from the parallel road.

In regard to the total Short Hills area:

Character: This area has the greatest diversity in recreational resources and the best potential for parkland.

Function: The Short Hills provide special features with potential for a major regional park.

Since the Gertler report a major park has been planned here it includes portions of this region including the area that is mentioned in this report. If it is possible these small pockets of wilderness areas should be acquired by the Department of Lands and Forests and be developed as "satellite" parks in order that the planned park be protected against water pollution. These wilderness areas usually have streams which are tributaries of the Twelve Mile Creek which flows through the proposed parkland. If this is not done, due to the rapid influx of commercial and industrial interest into this area the wilderness areas could be acquired by these interests and used for industrial purposes.

This is mentioned in the Gertler Report under Levels of Control.

- 1) Complete: Acquisition of the land is recommended to control the nodal area where several landscape resources meet.
- 2) Selective: Scenic and access easements should be used to protect the lands around the acquired park area and to link it to the escarpment.
- 3) Regulatory: Development in the Short Hills should be carefully controlled to be compatible with and benefit from the character of the environment. Potential exists for a large lot or cluster residential development, private recreational facilities and country clubs. This area of control should cover the w

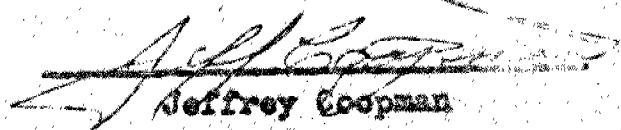
the short Hills area.

If it is not practical for the Department of Lands and Forests to acquire these lands, then they should be brought to the attention of the Regional Government (Regional Municipality of Niagara) and the Town of Pelham in order that they be given the opportunity of acquiring this land for public recreation or nature study.

But by whatever means these areas specifically the 'spring' area north of Fonthill should be preserved. The highway bypass should not run through this area. Alternate routes have been suggested to the south of Fonthill, specifically along the Queen's Road line and should be reconsidered since any damage to this area north of Fonthill would be a loss to the region.

This report is just a summary of what I have observed first-hand and although I do not have the projected growth in population or traffic at my disposal nor the engineering difficulties that may be present, I feel that it would be a shame to lose this area and possibly others to our highways or industrial complexes.

Also a more intensive study should be made by all factions involved with this area so that it may be preserved for the public.

  
Jeffrey Cooperman

INDEX TO MAPS

- MAP I - Spring Area Immediately North of Fonthill
- MAP II - Map Showing Route of Bypass
- MAP III - Map Showing the Short Hills Area and Proposed Bypass
- MAP IV - Map of Underlying Geological Formation of Niagara Peninsula

1 - SEE PHOTOGRAPHS

12 MILE CREEK

VILLAGE LIMITS

PROPOSED BYPASS

FRUIT CROPS

HURRICANE RD

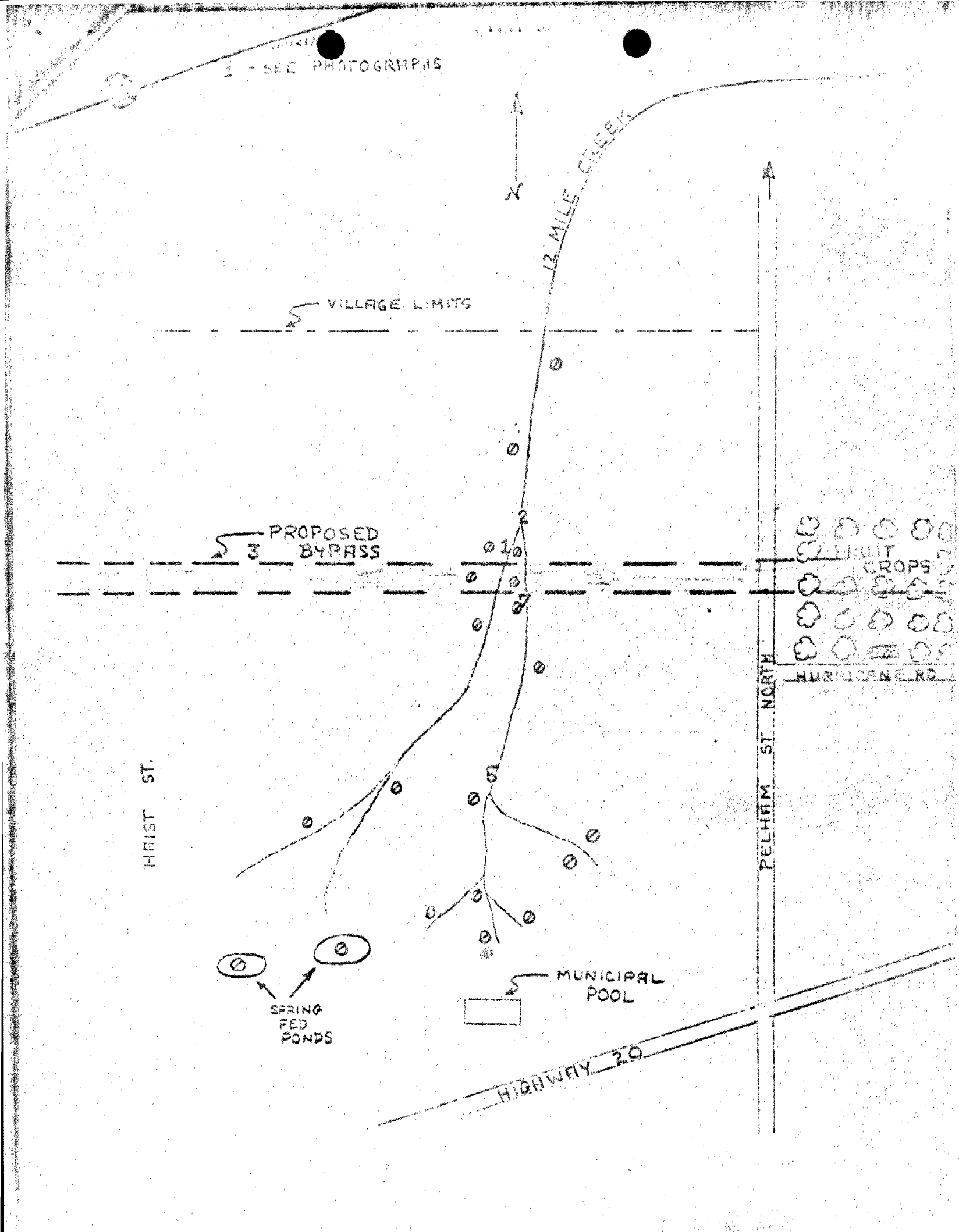
HAIST ST.

PELHAM ST. NORTH

MUNICIPAL POOL

SPRING FED PONDS

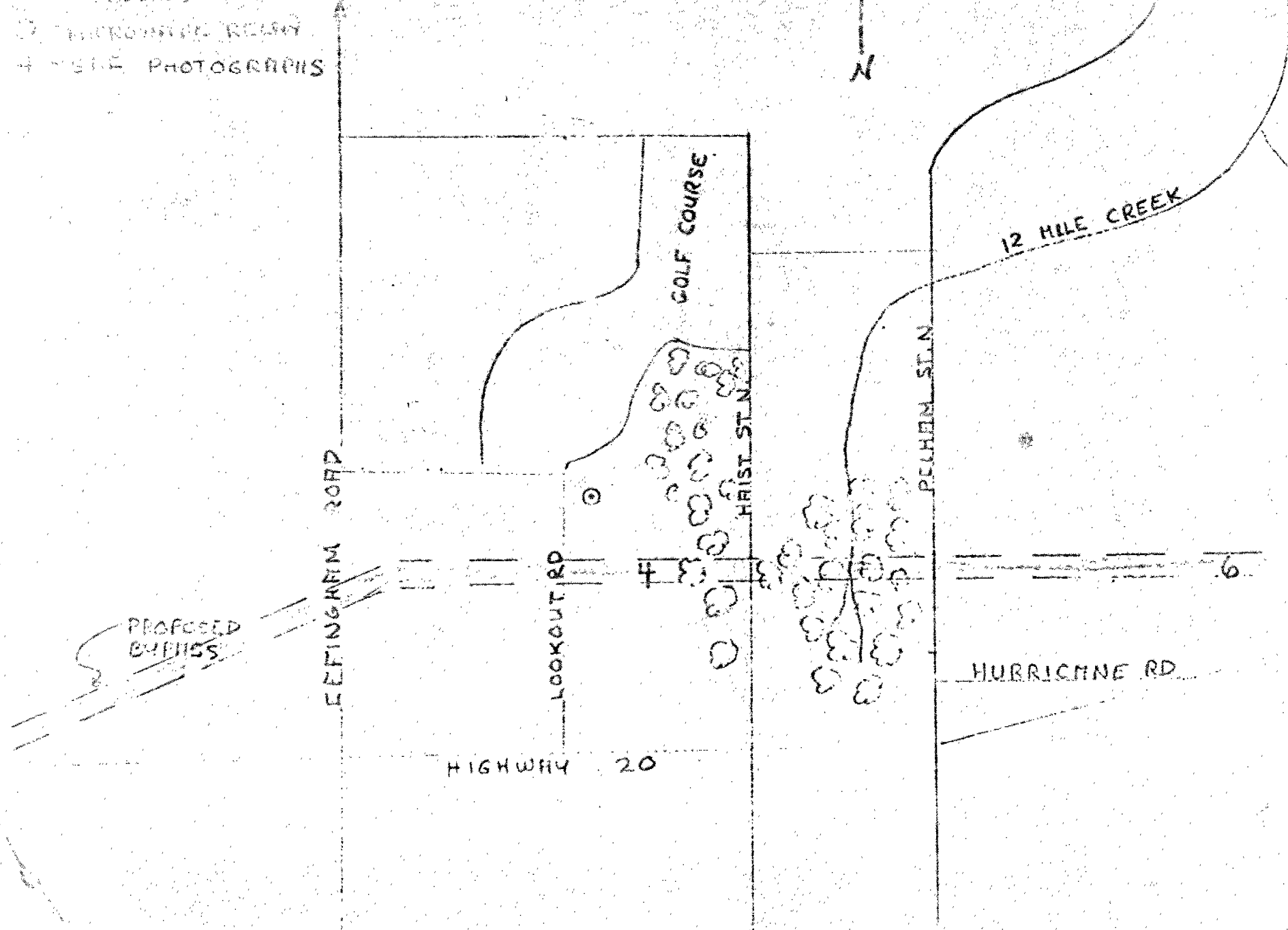
HIGHWAY 20





MHP-31

4 - MICROWAVE RELAY  
4 - 35mm PHOTOGRAPHS





# MAP IV

# LAKE ONTARIO



1. Onondaga and Colusalet Group  
 - buff + grey sandstones  
 - grey shale  
 - buff dolomite

2. Lockport - AMABEL FORMATION  
 - buff + grey dolomite

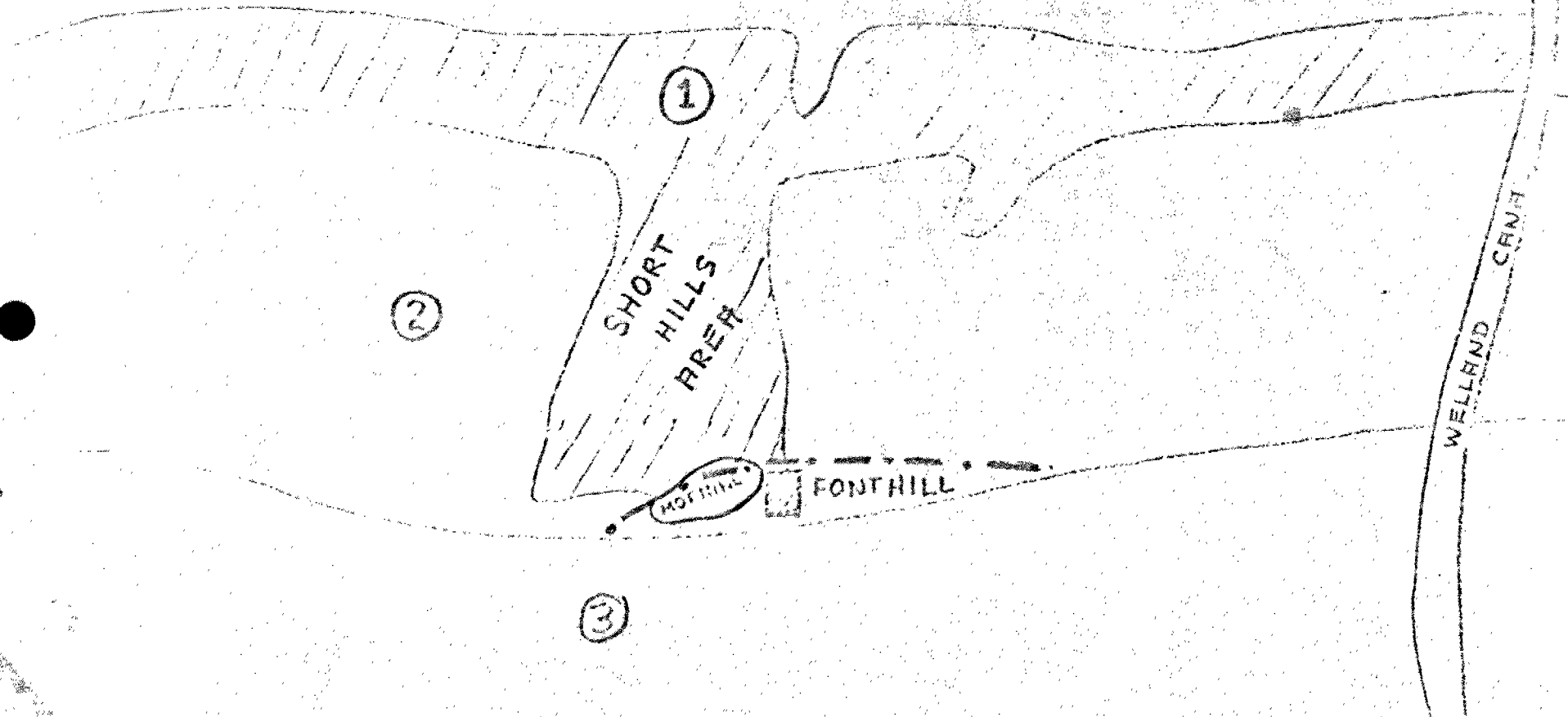
3. Guelph Formation  
 - cream to buff dolomite

4. Red Shale



NIAGARA ESCARPMENT

BYPASS



DEPARTMENT OF HIGHWAYS ONTARIO

Form  
SB-OS-62  
70-1085

# ACTION SLIP

DATE

Nov. 17/1971

TO

B. Darch - Foundation Sect. - Materials Testing  
CENTRAL BLDG.

FROM

L. ARDIZONE - Feasibility Studies Section

☐ NOTE AND  
FILE

☐ NOTE AND  
RETURN TO ME

☐ RETURN WITH MORE  
DETAILS

☐ NOTE  
AND SEE ME

☐ PLEASE  
ANSWER

☐ FOR YOUR  
APPROVAL

☐ RETURN WITH YOUR  
COMMENTS

☐ PREPARE REPLY FOR  
MY SIGNATURE

☐ TAKE APPROPRIATE  
ACTION

☐ PER YOUR  
REQUEST

☐ FOR YOUR  
SIGNATURE

☒ FOR YOUR  
INFORMATION

☐ INVESTIGATE AND  
REPORT

☐ AS DISCUSSED

COMMENTS

These are the questions  
referred to in our telephone  
conversation.

Thank you for your cooperation

Quacis

Questions asked by the Committee of a Thousand in their brief as presented at the meeting of November 10, 1971 at the Americana Motel.

Embankment Scheme

1. What amount of pressure the perforated pipes will have to withstand under a 50' fill?
2. How much length of perforated pipe will be used in the spring area?
3. How do the characteristics of the blanket material compare to that of the existing surrounding seepage spring area?
4. Will the fines filter down through the blanket and plug the perforated pipe system?
5. Since fill materials have to be compacted to avoid settling, how can the present spring and seepage area remain as a base for this fill?
6. In order to place the fill, heavy equipment will have to be used over the existing springs. How do you anticipate working in the area without getting the heavy equipment bogged down, thus causing more damage to the area?
7. How can an extensive mass of fill material be floated on top of the spongy, unstable area of springs and seepage?
8. Will not the weight of the compacted fill eliminate springs and seepage?
9. How can the fill be stabilized with a base such as the proposed blanket? If the layer is water absorbing, it is not good as fill, and if it is compacted it is no longer water absorbing to permit seepage of the springs.
10. Have the D. T. C. consulted with external authorities (chemists, biologists, geologists, etc.) with respect to the construction methods over the springs as proposed by the D. T. C. engineers?
11. Has the D. T. C. consulted with people who are competent in both engineering and ecology?
12. Who is going to determine the ecology specifications that must be met when designing the highway?
13. Who will provide the very necessary constant supervision of contractors to insure that environmental and ecology specifications are met?
14. How can the D. T. C. possibly estimate the cost in dollars of either building a structure or a fill over the springs.

15. Did the D. T. C. read reports regarding the drilling of wells in the area? If so, did the D. T. C. find them incorrect? If the answer is "yes" explain why.

#### Structure Construction

16. Piling for a structure have to be put down to bedrock - how far down?
17. Is the water table going to be lowered. How can you?
18. What did the D. T. C. do (studies, research etc.) to determine to what level the water table in this area would be returned to? Will this be compatible with the highway construction, or perhaps the D. T. C. planning gave no consideration whatsoever to this important issue.
19. How are the footings and piers of the structure going to be constructed without damaging the springs and seepage area?
20. How deep footings have to go to provide a firm foundation.
21. Have the D. T. C. taken soil samples to establish the type and depth of material through which the highway is located. If not, how can question No. 20 be answered?
22. Will the water table be affected by the construction of footings and piers.
23. How many piers will be needed for the structure and how long will the structure be?

#### Settling Basins

24. Where are the basins to be built?
25. How many and what size?
26. What are the size requirements based upon?
27. What flow rainfall and run-off.
28. If basins are built in the ground, how can they be kept from being filled by springs?
29. What are the settling basins for. If they are not waterproof, the water will sink into the ground anyway.
30. If they are built waterproof, who is going to keep the salt from building up in the bottom.

31. How build-up of heavy salt concentration can be avoided in the basins. If there are outlets from the basins, concentrated salt solution will be carried downstream.
32. If there is a dry spell, will not the basins become stagnant with resulting stench and mosquitoes?
33. Will the basins be fenced as per regulations applying to swimming pools. How will this fencing complement the area.

#### General

The Committee of a Thousand investigated the reference made to springs (as per D.T.C. letter of July 22, 1971) in the Hwy 403 near Ancaster. They could find no evidence of springs or local ratification that there ever were springs in this area.

See attached Committee of a Thousand Report.

Mrs Ardizzone

From the beginning, last January, when the citizens of the area came to us for help in their campaign over the proposed No. 20 around Fonthill, the Committee of A Thousand tried to make the D.T.C. and our local governments realize the importance of preserving our ecology and environment and placing necessary highways where they would do the least damage not only to our generation but to future generations. Once a four-lane highway goes through areas such as the Short Hill Twelve Mile Creek wetlands, those areas are destroyed forever.

By means of walks through the area to the north of Fonthill the proposed route (from Rice Road to Hwy. 20) including the surrounding areas especially between North Pelham and Haight Road, detailed briefs (including excellent descriptions of this area by local residents and market gardeners (the Orlin Cryslers), we have tried to make our way of thinking understood.

And it still remains as we stated at the meeting last month with the D.H.C. and the D.H.C. (now D.T.C. 'The D.T.C. has an interest in, or conception of, ecology'. Mr. John Hughes, an excellent representative of our last meeting on October 6th learning what we have been saying but all the D.T.C. is concerned with is us that can build a highway here. This has been already pointed out to the U.S. Corps of Army Engineers with such disastrous results the country - we can supply any number of examples. We are trying to get them to follow the thinking <sup>of</sup> other departments of the government. Our own government seems to be so aware (as was Mr. Nixon's pre-election campaign) of the need to preserve "The Beautiful natural resources which are fast running out". (quotes from the

Mr Pillar and Mr. Ardizzone will easily recall the struggle to get them to tell us where they had built a highway over springs in a similar area before. Their first reply was that these are far too remote for us to investigate. Then they said (and repeated in a letter to us of July 22/71). "As it was previously mentioned to you it will be practically impossible to inspect visually these springs since they are now covered by existing roads". However, they had said that they had constructed



highways right on top of springs and these springs were still 'percolating' and as said again at the Oct. 6th meeting 'these springs were still operating as we have had no feedback to the contrary'. However, at this same meeting, they omitted to mention the Kimberley location and substituted one at New Liskeard. One revealing statement made by them earlier was 'There is no other area like this in Ontario' - here, briefly, sums up our whole point - There is no other area like this in Ontario.

WHY DESTROY IT?

We have investigated the two locations shown to us on the maps sent to us by the D.T.C. in July and have excellent means of obtaining a detailed report from New Liskeard. We have already requested maps showing this location from the D.T.C. in our letter of Nov. 3rd.

The Committee of A Thousand investigated the 'springs' area along Highway 403 near Ancaster as shown on the map from below the escarpment up to and including the Mohawk Road and 403 interchange and then driving on up to the Fiddlers Green Crossover.

Along the section of 403 from below the escarpment up to Mohawk Rd., there was no indication of any springs. Although where the highway goes down the escarpment, there were numerous culverts under the road with no sign of water in any of them. An engineer for the Township of Ancaster has known this area since he played there as a boy and he maintains that there never were springs there. This was definitely no area of springs other than for an odd typical escarpment deep-well type of which we saw no sign. This section certainly has no similarity to that at Fonthill.

The next part of our survey consisted of walking the area of the interchange at 403 and Mohawk. This is basically a conventional interchange with the exception that the take-off for Mohawk Road East and West use the same exit on each side (even though the signs do not tell you this).

Under each of the main arteries of Hwy. 403 and Mohawk Rd. to the west is a concrete culvert approximately 12 feet wide and 5 feet high, and under each interchange roadway is a corrugated steel culvert approx. 2 - 2 1/2 feet in diameter. Water was flowing through each of the concrete culverts but no water was flowing through the steel ones although water was standing in some of them. All Culverts contained a considerable amount of washed-out material such as silt and gravel - in fact one of the culverts

culverts was half full of such material and there was a long-handled shovel standing at the entrance to it - the reason for the shovel was very obvious.

The stream bed for the water flowing through the concrete culverts was not a very healthy or natural looking one - it looked just like a man-made drainage ditch and as we found out later, this is exactly what it is.

Nowhere in the area designated on the map was there any indication of a spring but there were many indications of bank erosion, sections of staked-down sod that had not become established, and many areas where silt is still being washed down. One of the concrete culverts had a layer of silt 3 inches deep on the part not under the roadbed and this was practically flowing over the edge into the stream bed. All this still going on after the highway has been built for at least 5 or 6 years.

The engineer for the Township of Ancaster supplied us with names of people in the area familiar with, or involved in, this construction. The first one we talked with was a market gardener whose father had the farm before him and whose farm was adjacent to the 403 and Mohawk Rd. interchange. This man did not know of any springs in the section where the highway had been built but did show us where there were springs in the opposite direction from the highway. He did say that problems had occurred during construction of Mohawk Road immediately to the east of the interchange as it had been a wet year and when the construction blocked the natural drainage, all the heavy equipment was constantly getting bogged down.

The second person we questioned was a retired engineer who lives only a few houses from the 403 and whom we had been informed had watched the construction. This man had often walked this section before the freeway was built and had taken his grandchildren for walks across this area. Again no springs and no stream. He advised us to talk with another man whose farm had been expropriated for this interchange and who still lives in the area. He told us the same thing - no springs in this area taken by the highway.

When questioned concerning the flow of water through the concrete culverts, they all said that it was strictly run-off. It had rained the night before causing the stream we saw; ordinarily, the ditch had no water running in it.

We also talked with persons at Ancaster on the telephone. One of these had been a field man for the consulting firm that had engineered this section of the highway. Again, he did not know of any springs in the area of 403 as shown on the D.T.C. map but he did mention some problems that had been encountered during construction that had not been foreseen by the D.T.O.

near the 403 rd. 2, a tract of roughly 100 ft. wide entered where all the heavy ground had to be excavated and then backfilled. Between Green Rd. and Mohawk Rd., the water table was just about 7 ft. below the surface so before work could begin, the water table had to be lowered. However, it wasn't lowered for just the section where the highway was going - it was lowered over an undetermined area affecting any number of people. All that water drained and still being drained at a time when the shortage of water is considered critical just because the D.T.C. decided that a highway was going through. Fiddlers Green and the 403 is another example where the original contractor went broke trying to pump the water table down to put in footings. A much larger company, at a much higher cost, was brought in to drain the water away. Incidentally, the pilings had to be sunk to bedrock. One other point mentioned was the fact that a mill on a stream by No. 2 and Mohawk had to close down because of all the silt being carried during construction of the 403.

A gentleman of 92 at Vineland has in his possession a series of photographs of the 20 mile creek (above Ball's Falls) and of the many mills which were in operation along it before the 20 was destroyed by the indiscriminate filling in of the swampy areas and cutting down of the trees thereby destroying the springs and lowering the water table. We are not blaming the D.T.C. for the end of this stream but it shows what will happen to the 12 Mile Creek if this highway is allowed to be constructed through this area and the Short Hills are not preserved. The market gardeners of this valley will go the way of the mills of the Twenty.

The Committee of A Thousand

Bryce W. Taylor

MEMORANDUM

*M.D. M. Devata - Systems Design  
Foundation Office -  
Central Bldg.*

71-11028

TO: MEMO TO FILE

FROM: I. Ardizone  
Feasibility Studies Section

ATTENTION:

DATE: October 21, 1971

OUR FILE REF. 263-50

IN REPLY TO

SUBJECT:

Minutes of the 5th Meeting with Fonthill Residents Groups  
Highway 20 - W.P.133-67, District 4, Hamilton

Place: A.K. Wigg Public School Auditorium, Fonthill

Date & Time: October 6, 1971 at 7.30 p.m.

Present: Representatives of Citizens for Conservation  
South Bypass Committee  
Committee of a Thousand  
Town of Pelham Council  
Town of Thorold Council  
Approximately 175 to 200 residents  
Representatives of the Department of Environment  
Department of Lands & Forests

E. Morningstar, M.P.P. Welland

Representing the D.T.C were:

R.S. Pillar	Environmental & Feasibility Studies Office
I.V. Oliver	" "
J. Hughes	" "
H. Vander Kooij	" "
I. Ardizone	" "
L. Zsabo	Systems Planning Branch
B. Darch	Systems Design Services - Foundation Office
J. Cullen	Systems Design Office, Central Region

Mr. A. Scott, acting as Chairman, opened the meeting at 7.30 p.m. He Addressed the audience advancing the sequence of the presentation and establishing the way questions from the floor would be answered at the end of the presentation. Mr. Scott then reviewed the development of events leading to this 5th presentation, emphasizing the fact that probably this was the most critical meeting since the

ecological and social considerations which were the main concern of residents were going to be presented. The review of "his" concerns lasted about half an hour.

Mr. Scott next introduced Mr. Pillar who briefly explained the main topics to be discussed. He said that the presentation involved the environmental considerations of the three corridors being investigated and also the presentation of possible engineering solutions to those ecological problems encountered in the proposed north bypass of Fonthill (Line 'A'), namely the springs and the waters of the Twelve Mile Creek.

Mr. I. Oliver then approached the microphone and said a few words about the nature of their investigations, the type of data tabulated, the sources of their information and the titles of the experts (from outside the Department) contacted during the evaluation of the relevant information gathered in the investigation process. He also emphasized the objective evaluation of the data collected, and the fact that we were not trying to say whether a particular corridor was better or worse than another. The idea of the presentation being exclusively an objective review of the facts tabulated.

Mr. J. Hughes took over at this point and presented to the audience an excellent review of the large number of facts and figures collected during his investigation (for a breakdown of the topics covered in his presentation, see attached summary).

The audience showed an extremely keen interest in all the issues presented and seemed fully aware of all the consequences and conclusions. A well deserved, spontaneous round of applause for the speaker ended the  $1\frac{1}{2}$  hours of his presentation.

Mr. B. Darch presented the two engineering solutions envisaged to resolve the springs' problem present in Line 'A'. He first explained the geological characteristics of the area, describing the thickness of the sand and gravel layers and the depth of the bedrock. The ground water level and the expected "draw down" effects in cuts was also discussed.

Mr. Darch reviewed the origin of his data and emphasized that the characteristics described also equally applied to the other corridors south of Fonthill. He summarized his geological considerations by stating that no foundation problems were anticipated either for structures or for placing embankments on any of the alignments.

Mr. Darch then presented Scheme No. 1 which is the provision of a 475' long structure spanning over the Twelve Mile Creek and the springs located west of the creek. The estimated cost of the structure and approaching fills were also described.

Next, Mr. Darch presented the more complex Scheme II which consists of a special 5' granular blanket treatment laid down over the springs and under the 50' fill, combined with a system of perforated pipes embedded in the blanket which will direct the thus uncontaminated spring waters to the Twelve Mile Creek. He mentioned that similar treatments have been successfully applied in other parts of Ontario to treat spring areas (New Liskeard; Hwy. 403 west from Hamilton). Anticipated estimated costs for this scheme were also discussed.

Mr. J. Cullen finalized the presentation by explaining the possible solution to avoid silt and salt contamination from the road run-off of the water courses feeding the headwaters of the Twelve Mile Creek.

He first identified the basin areas and tentative location and number of culverts required along the 2 mile length of roadway draining into the Twelve Mile Creek tributary system. Mr. Cullen explained the system of dikes proposed along the ditches to reduce the velocity of run-off and the ten silting basins required to permit the settlement of silting materials before the run-off is permitted to join the streams.

In general, the audience appeared to understand the solutions presented by Mr. Darch and Mr. Cullen and expressed their appreciation to the speakers with sincere applause.

After a break of a few minutes, representatives from the different groups commented and questioned some of the factors presented. The following persons addressed the audience:

Dr. Hurst: Spokesman for the South Bypass Committee.

The emphasis of his dissertation was directed to the fact that the waters of the Twelve Mile Creek are contaminated almost as much as those of the Welland watershed. He quoted an O.W.R.C. report. (This may be true downstream in the St. Catharines area, but chemical analysis of the waters in the Fonthill area showed waters are very pure). Dr. Hurst made reference also to the number of people affected by the Line 'B', and the fact that residential development is now moving to the south of Fonthill. Dr. Hurst indicated that the percentage of the total watershed area affected by the different routes was not estimated.

Mr. J. Smith: Spokesman for the South Bypass Committee

Mr. Smith presented some statistics and analysis of the number of school children crossings as related to the alternative routes of the Hwy. 20 Bypass at Fonthill. This statistical report will be sent to the Department for our information.

The conclusion of his evaluation was that 92% of the children crossings will be eliminated if the Line 'A' (alignment to the north of Fonhill) is recommended.

Dr. Bainfield : (Brock University) Spokesman for the Committee of a Thousand.

Dr. Bainfield questioned where the necessary fill materials for the deep embankments on Line 'A' will be obtained. His concern was the possibility of upsetting the geological balance of the escarpment if granular needs are taken from the nearby areas.

Mr. Darch answered this question satisfactorily by saying that this depends on the contracts which the Department might have in the area during the construction period. With the structure scheme opening the Twelve Mile Creek tributary, an approx. estimate of quantities would likely be achieved.

Mr. M. Mitchinson: President, Committee of a Thousand

Mr. Mitchinson offered a few words of congratulations to the Department representatives for presenting such a thorough evaluation of the ecological factors and said that his questions had been answered during the course of the presentation.

Mr. A. Scott: President of Citizens for Conservation

Mr. Scott brought forward the following comments and questions:

- (1) Has the Town of Pelham Official Plan been officially approved. -(No)
- (2) Severance of orchards and vineyards not tabulated in the presentation.
- (3) Solutions for noise control devices not included in the presentation.
- (4) Pollution of wells in the nearby areas.
- (5) Salt spray effect on trees. Difficulties to re-establish vegetation after construction.
- (6) Estimated cost of the structure on Scheme I was questioned (ie \$16/SF)

Mr. Yaki: Federation of Naturalists

The approach of Mr. Yaki to the presentation was very much out of place. He tried to induce comments from the audience by asking if a bypass was really necessary, by making reference to truck traffic, traffic volumes, burden on taxpayers, etc. No constructive criticism or comments could be drawn from his dissertation.

The formal meeting adjourned at 11.30 p.m.

Afterwards, a brief discussion was held with A. Scott and E. Bergenstein and a tentative date of October 27th, 1971 was suggested for the next meeting. Both agreed to get together and select a time, place and agenda for this meeting.



I. Ardizzone  
Sr. Feasibility Planner

c. c.

I. Oliver

J. Hughes

L. Zsabo

B. Darch

J. Cullen

R. Oddson

C.R. Robertson (Dist. 4, )

P.S. A separate memo to file has been prepared which summarized the work to be done for the next meeting and also some comments on the effectiveness of this type of presentation.



FONTHILL BYPASS

SELECTED ENVIRONMENTAL IMPACTS

1) EFFECT ON GENERAL LAND USE

2) IMPACT ON ORCHARDS AND VINEYARDS

3) EFFECT ON RESIDENTIAL DEVELOPMENT

- direct impact
- noise pollution

4) INSTITUTIONAL FACTORS

- schools
- parks, recreation areas

5) NATURAL ENVIRONMENTAL IMPACTS

- topography, landforms
- drainage
- ecology

Meeting with the Provincial Department  
of Transportation and Communications  
on the Subject of the Fonthill Highway 20  
By-Pass.

A. K. Wigg School  
7:15 p.m.  
October 6, 1971.

AGENDA:

- 7:15 - Chairman's opening remarks and introduction of the  
Representative Groups in attendance.
- 7:30 - Presentation of Part I of the Environmental, Ecological and  
Socialological Study, by the Department of Transportation and  
Communications Representatives.
- 9:00 - 10 minute intermission.
- 9:10 - Questions and comments by area representatives.
- 9:50 - Brief Summarization of conclusions achieved at the evening's  
meeting.
- 10:00 - Setting of the date of the next meeting concerning Part II of  
the Environmental, Ecological and Socialological Phase of the  
Highway location study.

A. B. Scott, Chairman.

71-11028

Mr. I. Ardizzone,  
Senior Feasibility Planner,  
Environmental & Feasibility Studies Office,  
East Bldg., Downsview.

Foundations Office,  
Design Services Branch,  
Central Bldg., Downsview.

November 10, 1971.

Spring Treatment on  
Two D.T.C. Projects

The accompanying militia maps show the location of two areas where springs emanated at the ground surface. In each case the Department placed a granular filter drainage blanket over these springs. The water collecting in the blankets was led either to a river or to a positive sewer system. Perforated drainage pipes were located within the filter blanket to collect the water.

The two projects are listed below:

- A. Structure at Blanche River and Hwy. #624  
Town of Englehart, Ontario,  
District #14 (New Liskeard)  
W.P. 113-62, Contract 68-45
- B. Development Road #783-1  
Between Eugenia and Kimberley  
Artemesia Township - Grey County  
District No. 5 (Owen Sound)

BTD/ao  
Attach.

*B.T. Darch*  
B. T. Darch, P. Eng.,  
Senior Foundation Engineer.



## MEMORANDUM

TO: MEMO TO FILE

FROM: Feasibility Studies Section  
Environmental & Feasibility  
Studies Office.

ATTENTION:

DATE: November 1, 1971

OUR FILE REF. 263-50

IN REPLY TO

SUBJECT: Minutes of Meeting  
New Highway 20 bypass at Fonthill  
W. P. 133-67, District 4, Hamilton

Place: Town of Pelham Municipal Offices

Date: October 27th, 1971

Time: 2.30 p.m.

Agenda: See attached

Present:

Chairman -	E. Bergenstein (Pelham South Bypass)
Town of Pelham	Alderman D. Alsop
Pelham South Bypass representatives	
Mr. R. Pillar	
Mr. I. Oliver	
Mr. J. Hughes	
Mr. I. Ardizzone	

The Chairman opened the meeting by informing those present about the absence of Citizens for Conservation who had decided to boycott the meeting because of disagreement with the date selected.

The date of October 27, 1971 had originally been accepted by the resident groups, however, 2 or 3 days prior to the meeting, Mr. Scott (Chairman of Citizens for Conservation) requested that the meeting be postponed because the reports being prepared by members of his group were not yet finalized.

The Pelham South Bypass Committee felt that because of the urgency involved to settle a definite bypass location, the meetings should proceed as scheduled.

Mr. D. Atop, spokesman for the Town of Pelham Council, announced that Council will be calling for a public meeting at the A.K. Wigg Public School on November 10, 1971 at 7.30 p.m.

He said the meeting will be chaired by Council, who will allow 30 minute periods to the Citizens for Conservation, Pelham South Bypass Committee and the D.T.C., to present a summary of their standing. Following this, it is their intention to pass a resolution regarding the bypass location and approach the Minister at his earliest convenience to get this matter resolved.

Mr. Ardizzone answered the outstanding questions raised at the previous meeting. These were:

1. Proposed noise barriers through the urban section crossed by the line 'B' alignment (Merrit Road corridor).
2. Updating of the total cost of lines 'A' and 'B'. Additional cost to line 'A' was composed of the cost of the structure over the springs valley and the settling basins (Total revised cost \$4,623,000.). Additional cost to line 'B' was composed of additional earthwork, structure under CNR and Line Rd. and noise barriers. (Total revised cost \$4,568,000.).
3. The increase of critical flow in the Twelve Mile Creek watershed with and without the highway was explained. Figures are fairly insignificant and irrelevant.

Mr. J. Hughes answered the following outstanding questions:

1. Severance of orchards were included in the previous presentation, however, the public failed to recognize them on the tables shown. Mr. Hughes reviewed this item once more.
2. The results of the investigations on trees and salt spray on trees were presented:

Line 'A'	affects 10.4 acres of excellent/good trees
Line 'B'	affects 18.4 acres                      "      "
Line 'C'	affects 13.2 acres                      "      "

The effect of salt spray on trees is minimum at distances 100' away from the surface of the road (r/w 300'). Salt tolerant vegetation established within the right of way will protect first rows of trees beyond the right of way.

3. The concentrations of Sodium Chloride in p. p. m. (parts per million) presented in the last meeting have an even smaller effect than previously thought since the thresholds established by the O. W. R. C. referred to concentrations of ions of Chloride in P. P. M. The ionization of the Sodium Chloride of the figures previously quoted will actually produce smaller quantities of Chlorine ions, therefore increasing the margin of safety with respect to the safe thresholds as established by the O. W. R. C.

Mr. Pillar explained the system that will be used in the evaluation process to be presented at the November 10th meeting. Next he explained the meaning of goals, objectives and factors and their relationship. He then read the list of objectives and factors that will be considered in the evaluation of alternatives for the Fonthill Bypass.

Copies of the objectives and factors were distributed. No relevant questions were put forward.

A representative of the Pelham South Bypass Committee read a resolution reached in their last meeting. The resolution stated their full support to the Town of Pelham Council to proceed with the approval of the north alignment as originally recommended by the D. T. C. and approved by Council.

The meeting adjourned at 4.45 p. m.

IA:mcl  
c. c.  
W. Bidell  
I. C. Campbell  
L. Szabo  
I. Oliver  
J. Hughes  
B. Darch  
R. Oddson  
J. Cullen

for

*Ignacio Ardizone*  
I. Ardizone  
R. S. Pillar  
Chief Feasibility Planner



Agenda for the October 27th Bypass meeting  
\*\*\*\*\*

2.30.p.m.

Chaired by the Pelham South Bypass Committee

1. Answers to any outstanding questions , (by the representatives of the Department of Transportation and Communications), raised at the previous meeting.
2. An explanation by the Department of the evaluation methods to be used in the final decision concerning the bypass location.
3. Comments and questions by the representatives of the Citizens for Conservation .
4. Comments and questions by the representatives of the Pelham South Bypass Committee .
5. Comments by a member of the Town of Pelham council ( in the absence of Mayor Black).

B. T. Darch

71-11028

Feasibility Studies Office,  
Downsview 464, Ontario,  
December 23, 1971.

Mr. M. Mitchenson,  
President,  
Committee of a Thousand,  
Box 185,  
Niagara Falls, Ontario.

Our Ref. 263-50  
New Hwy. 20 Bypass at Fonthill

Dear Mr. Mitchenson:

For your information and as requested in the last meeting we had in the Ameri-Cana Motel last November 10, 1971. I am enclosing the answers to the questions raised by representatives of your group.

I wish to point out that approximately 50% of the questions contained in your brief, dated November 10, 1971, were answered previously on October 8, 1971 at the public meeting held in the A.R. Wigg Public School at Fonthill (questions No. 2-3-4-8-9-11-16-17-19-23-24-25-26-27-33). Also I believe it is necessary to clarify that many of the questions raised, relate to design details which are not usually analysed in depth at the planning study stage. Our experience in the engineering field permit us to predetermine the feasibility of construction methods without getting into the actual detail design of the facility under consideration. This is a standard approach in almost any planning project regardless of the engineering discipline being dealt with.

The answers to the questions asked are as follows.

Yours truly,

L. Ardizzone,  
For: R. S. Pillar,  
Chief Feasibility Planner.

IA/RSP/hs  
Encl.

c.c. Mr. J. P. Cullan  
Mr. B. Darch  
Mr. J. Hughes



## Embankment Scheme

Quest. 1. What amount of pressure the perforated pipes will have to withstand under a 50' fill?

Ans. 1. Perforated subdrain pipe should be designed of sufficient gauge to withstand a maximum load of 45 pounds per square inch.

Quest. 2. How much length of perforated pipe will be used in the spring area?

Ans. 2. Approximately 2,300 feet.

Quest. 3. How do the characteristics of the blanket material compare to that of the existing surrounding seepage spring area?

Ans. 3. The blanket material should be composed of well graded granular filter material rather than the local sand deposit found in the spring area.

Quest. 4. Will the fines filter down through the blanket and plug the perforated pipe system?

Ans. 4. The gradation of the granular filter material, to be used in the blanket, as well as around the pipe will be designed to prevent fines from migrating through the blanket and plugging the perforations in the drainage pipe.

Quest. 5. Since fill materials have to be compacted to avoid settling, how can the present spring and seepage area remain as a base for this fill?

Ans. 5. In our opinion the spring area need not be disturbed during the placement and compaction of the fill placed above this zone.

Quest. 6. In order to place the fill, heavy equipment will have to be used over the existing springs. How do you anticipate working in the area without getting the heavy equipment bogged down, thus causing more damage to the area?

Ans. 6. The filter blanket will itself provide a working mat for the fill placement and compaction phase where heavy construction equipment will be used.

Quest. 7. How can an extensive mass of fill material be floated on top of the spongy, unstable area of springs and seepage?

Ans. 7. The general area is not unstable or spongy. The granular filter blanket will ensure the integrity of the spring area. No difficulties are, therefore anticipated.

Quest. 8. Will not the weight of the compacted fill eliminate springs and seepage?

Ans. 8. The previous granular filter blanket-perforated pipe system will provide a continuous seepage zone for the springs, eventually allowing the spring water to be carried to the Twelve Mile Creek tributary system. With this provision the springs will remain in an unclogged condition.

Quest. 9. How can the fill be stabilized with a base such as the proposed blanket? If the layer is water absorbing, it is not good as fill, and if it is compacted it is no longer water absorbing to permit seepage of the springs.

Ans. 9. The area is basically stable. Properly compacted select granular material will be pervious and not impede spring water flow, further, it will be stable even with the fill loading above it.

Quest. 10. Have the D. T. C. consulted with external authorities (chemists, biologists, geologists, etc.) with respect to the construction methods over the springs as proposed by the D. T. C. engineers?

Ans. 10. The Department has experience in constructing highways over springs areas. If any unforeseen problems would arise requiring advice from experts in other fields, this would be done during the design stage.

Quest. 11. Has the D. T. C. consulted with people who are competent in both engineering and ecology?

Ans. 11. A limnologist, A Sr. Biologist (Dept. Environment-Conservation Authority Branch), a Research Chemist, and a specialist in fish and wildlife (Dept. of Land & Forest) were contacted during the planning process of the study.

Quest. 12. Who is going to determine the ecology specifications that must be met when designing the highway?

Ans. 12. Members of the Environmental Branch of the Department will be involved in the design and preparation of contact drawings in so far as ecology specifications are concerned.

Quest. 13. Who will provide the very necessary constant supervision of contractors to insure that environment and ecology specifications are met?

Ans. 13. The Department will make construction inspectors aware of the ecology specifications to be met.



Quest. 14. How can the D. T. C. possibly estimate the cost in dollars of either building a structure or a fill over the springs.

Ans. 14. The D. T. C. is constantly making cost estimates on engineering projects throughout the Province. There are no inherent difficulties in making a cost estimate for either the structure or fill scheme over the spring area.

Quest. 15. Did the D. T. C. read reports regarding the drilling of wells in the area? If so, did the D. T. C. find them incorrect? If the answer is "yes" explain why.

Ans. 15. All the readily available geological information was gathered and assessed from an engineering point of view.

#### Structure Construction

Quest. 16. Piling for a structure have to be put down to bedrock-how far down?

Ans. 16. The area is characterized by extensive deposits of granular soils. No major foundation engineering or construction problems are, therefore, envisaged. It is not feasible to make specific recommendations pertaining to the support of the structure elements (abutments and piers) until design details, such as the alignment and structure locations, have been finalized. Once these factors have been determined a completion foundation investigation would be carried out, at which time the most feasible and economical foundations types would be adopted.

Quest. 17. Is the water table going to be lowered. How can you?

Ans. 17. There could be some cut areas in the vicinity of Look Out Street; the cuts will be carried out within granular deposits. The depth of cut will range from 15 to 30 feet. It is our opinion that the water table in this area will not be significantly depressed.

Quest. 18. What did the D. T. C. do (studies, research etc.) to determine to what level the water table in this area would be returned to? Will this be compatible with the highway construction, or perhaps the D. T. C. planning gave no consideration whatsoever to this important issue.

Ans. 18. Over the majority of the area fills will be required rather than cuts. The ground water regime will not be adversely affected in the fill areas. The groundwater level could be depressed in the immediate vicinity of the cut areas. As mentioned in 17 this very localized depressed level will be rather insignificant as far as the overall ground regime in the area is concerned.

Quest. 19. How are the footings and piers of the structure going to be constructed without damaging the springs and seepage area?

Ans. 19. In the footing areas, granular filter material will be placed at the base, as well as along the sides of the concrete footings. Properly designed subdrains will be installed within this granular filter zone in order to channel the groundwater away from the footing area. Using this standard technique the integrity of the spring water system can be ensured.

Quest. 20. How deep footings have to go to provide a firm foundation.

Ans. 20. The foundation depth for pier and abutment footings is determined during the foundation investigation phase (refer to answer #16).

Quest. 21. Have the D. T. C. taken soil samples to establish the type and depth of material through which the highway is located. If not, how can question No. 20 be answered?

Ans. 21. The survey carried out to date by the Department was of a reconnaissance nature, in which all available data was studied and evaluated. It was not within the Department's terms of reference to proceed with detailed subsurface investigations in this area. Detailed foundation investigations will only be carried out once the alignment and design details have been finalized.

Quest. 22. Will the water table be affected by the construction of footings and piers?

Ans. 22. The construction of structure foundations need not adversely affect the groundwater table.

Quest. 23. How many piers will be needed for the structure and how long will the structure be?

Ans. 23. If the northern alignment is adopted, and if the spring area is spanned completely by constructing a structure, the structure will have 2 spans and be about 475' long. It should be noted that the finalized structure details would be determined during the design stage.

#### Settling Basins

Quest. 24. Where are the basins to be built?

Ans. 24. The basins would generally be located on the north side of the highway in the area where watercourses cross the proposed route. Run-off collected in the southern highway ditch together with median drainage would be piped to the basins. The principle adopted was to collect all highway right-of-way drainage and discharge it into the basins for treatment before being released into the water-courses.



Quest. 25 How many and what size?

Ans. 25 There would be eleven basins ranging in size from a maximum of 36,000 cu. ft. to 9,000 cu. ft.

Quest. 26 What are the size requirements based on?

Ans. 26 The basin sizes are based on the areas being drained, intensity of storm selected and detention period.

Quest. 27 What flow rainfall and run-off?

Ans. 27 Because the transportation of silt and sand would be drastically reduced once vegetation was established after construction, a five (5) year storm with a duration of five (5) hours (period required to reduce turbidity level in run-off to an acceptable level) was selected in designing the basins. The run-off varied from 2.0 cu. secs. to 0.5 cu. secs.

Quest. 28 If basins are built in the ground, how can they be kept from being filled by springs?

Ans. 28 Only the basin within the spring area might be affected. We would attempt to locate the basin in a non-spring area or in such a position that it would not be necessary to excavate.

Quest. 29 What are settling basins for? If they are not waterproof, the water will sink into the ground anyway.

Ans. 29 The purpose of the basins is to prevent silt and sand from entering the fish streams.

Since there is no salt problem, we see no reason why run-off collected in the basins should be prevented from seeping away.

Quest. 30 If they are built waterproof, who is going to keep the salt from building up in the bottom?

Ans. 30 Salt is not a problem - reference Mr. Hughes' analysis.

Quest. 31 How can heavy salt concentration be avoided in the basins? If there are outlets from the basins, concentrated salt solutions will be carried downstream.

Ans. 31 See answer to Question 30.

Quest. 32 If there is a dry spell, will the basins not become stagnant with resulting stench and mosquitoes?

Ans. 32 The water-levels in the basins would be controlled by manually operated sluice gates. The basins would be drained after each storm. Accumulated silt and sand would be removed periodically. In this way, the problems anticipated would be resolved.

Quest. 33 Will the basins be fenced as per regulations for swimming pools?  
How will this fencing complement the area.

Ans. 33 No.

We do not feel the basins would pose a safety hazard. For example, no particular precautions are taken where highways run near lakes, rivers or ponds.

## MEMORANDUM

71-11028.

To: Mr. B. Darch,  
Senior Foundation Engineer,  
Foundation Section.

From: Chemical Section,  
Materials and Testing Office.

ATTENTION:

DATE: October 5, 1971.

OUR FILE REF. 11-7-5

IN REPLY TO

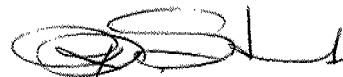
SUBJECT: Creek Water Samples

Attached are the test results of four water samples taken on October 1, 1971 from the Twelve Mile Creek (at Fonthill) and vicinity.

The test results showed relatively low chloride and iron contents except for the iron content in the natural spring water. The iron content in this water sample had the maximum suggested limit of 0.3 ppm Fe in drinking water.

All four samples could be rated as relatively hard water. The pH values showed a slight alkalinity caused by the presence of carbonate and bi-carbonate ions.

The present conductivity was well below the limit of 1,000 micro-mho/cm which figure seems to be the proposed limit if the water is used for spraying of orchards and/or vegetables.



R. Sterk,  
Chemical Engineer.

RS/mm  
c.c.files  
Attch.

Appendix

Test Results of Water Samples

Location: Twelve Mile Creek, Fonthill

<u>Lab. No.</u>	71-S-9742B	71-S-9743B	71-S-9744B	71-S-9745B
<u>ppm Chloride</u> (Cl')	58	58	14	14
<u>ppm Carbonate</u> (CO <sub>3</sub> " )	6	6	7	trace
<u>ppm Bi-carbonate</u> (HCO <sub>3</sub> ' )	280	280	240	284
<u>ppm Sulphate</u> (SO <sub>3</sub> )	53	53	35	29
<u>ppm Calcium</u> (CaO)	109	116	84	72
<u>ppm Magnesium</u> (MgO)	53	52	44	49
<u>ppm Iron</u> (Fe)	0.1	0.1	0.1	0.3
<u>ppm Total Hardness</u> (as CaCO <sub>3</sub> )	327	336	259	251
<u>pH</u>	8.6	8.7	8.7	8.7
<u>Conductivity at 65°F</u> (micromho/cm)	610	634	388	385
<u>Sample Description</u>	Twelve Mile Creek up- stream, 30 ft. South of centre line	Twelve Mile Creek, near centre line	West tribu- tary to Twelve Creek	natural spring, 100 ft. West of Twelve Mile Creek, Vicinity of Hwy. #20 crossing.

NOTE: Laboratory tap water has a total hardness of approximately 130 ppm CaCO<sub>3</sub> and a conductivity of approximately 280 micro-mho/cm at 65°F.



DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS

MEMORANDUM

*In Devata*

TO: MEMO TO FILE FROM: R. S. Pillar  
Feasibility Studies Section.  
ATTENTION: DATE: September 21, 1971  
OUR FILE REF. IN REPLY TO

SUBJECT: Highway 20 - Fonthill Bypass

The following staff members attended a public meeting in the Town of Pelham on September 15, 1971:

R. S. Pillar	Feasibility Studies Section
I. Ardizone	" " "
L. Szabo	Systems Planning
D. Callan )	
J. Hughes )	observers.

Prior to the meeting (12.30p.m.) I. Ardizone and myself visited the home of Mr. E. Morningstar, MPP for Welland South, at his request. We were informed that Mr. Morningstar was attending a meeting of the Niagara Parkway Commission in Niagara Falls that morning. I left my card with Mrs. Morningstar. [Mr. Morningstar showed up later on at the public meeting in Fonthill (about 3.00 p.m.) and I discussed this project with him after the meeting]. He was concerned about the effect of the Niagara Official Plan Study on this project. I advised him that this matter had been discussed with the Regional representatives a few weeks ago. It was the Region's opinion that the Official Plan would have no bearing on the Fonthill question whatsoever. Mr. Morningstar seemed satisfied with this information].

The meeting was chaired by Mr. Eric Bergenstein, of the South Bypass Committee. A copy of the agenda prepared by this Committee for the meeting is attached. The discussion was divided into two major groups:

(a) Finalization of Traffic Data from Previous Meetings

L. Szabo made a brief presentation, commenting on four specific points raised by the Citizens for Conservation at the last meeting:

- (1) Up to date traffic assignment- data from O-D stations incomplete at this time regarding local movements in Fonthill area. Analysis of field sheets however, does not reveal any data which conflicts with assumptions made in 1962 study.

- (2) Weber Rd. access to Welland - recent turning movements at Regional Rd. #24 and Hwy. 20 were presented. There did not seem to be any appreciable change from 1970 data.
- (3) Region of Niagara advised us that no changes to the local street network <sup>were</sup> ~~was~~ anticipated in the Fonthill area.
- (4) Further, it was the Region's considered opinion that their future transportation plans would not be affected by an alignment decision at Fonthill.

This presentation generated considerable discussion about signing, possible truck routes, etc. Mr. Denton, representing the Citizens for Conservation, advised that he wished to digest this information at his convenience and suggested that the next part of the presentation continue.

Mr. Bergenstein, as a final comment, informed us that the local traffic data collected by his group would be sent to the D.T.C. as soon as contact could be made with Bill Roberts who was presently in Australia.

(b) Engineering Factors

I Ardizzone presented an evaluation of the three corridors (North, Merritt Rd. and Quaker Rd) from an Engineering viewpoint. It was suggested that the following meeting would be reserved to discuss the environmental and socio-economic impacts.

Most of the questions arising out of this presentation related to intersection designs, derivation of costs, right of way widths. Mr. Denton requested and received a verbal listing of the alignment controls.

Several developers were represented at the meeting and from the discussion it was learned that:

- (a) The lands south of Quaker Rd. (in Welland) have been assembled for development, but no subdivision plans have been submitted.
- (b) The developer(s) on the north are still interested in spite of rejection of their plans by the Town of Pelham.

A Town Councillor, W.L. Brezesse, representing Pelham, made a motion that the Merritt Rd. corridor be abandoned at this point. He requested that each Committee represented (Citizens for Conservation, South Bypass and Committee of 1000) consider this proposal and reply to the Town of Pelham in writing as soon

as possible. If there is <sup>full</sup> ~~to be~~ concurrence with this proposal, the Town intends to bring this matter before the Minister. Based on the discussion at the meeting, agreement is not likely.

Discussion then drifted to a possible date for the next meeting. Mr. Mitchenson of the Committee of 1000 complained that he had not been advised of this meeting. I explained that it has been agreed previously (in the Minister's office) that future communication would be directed through the Citizen's for Conservation Committee. Mr. Mitchenson advised that his group was primarily interested in the environmental aspects and that he intended to invite to the next meeting, as observers, technical experts such as Dr. Gertler, etc. It was finally agreed that the D.T.C. would see that the Committee of 1000 was informed about the next meeting.

This concluded the formal public meeting.

Mr. Bergenstein, Mr. Brezesse, Mr. Denton and myself then met to discuss the next meeting and the subsequent development of the study. I advised the group that at the present rate of progress, the study would not be concluded until March, 1972 even if meetings were held bi-weekly. Everyone agreed that the public involvement should be condensed.

After a brief discussion, it was concluded that two meetings would likely be sufficient to discuss the environmental aspects and that a final meeting be reserved for a summation and evaluation. I explained that the final output of these meetings, desirably, should be some sort of "statement" of public opinion on the alternatives presented. The final decision, however, would rest with the local municipal and Provincial officials. No one disagreed with this position.

Several possible methods of evaluation and public assessment were discussed and it was finally decided that:

- (a) Both Committees would consider the manner in which the views of their members could be best expressed. A plebescite was ruled out by the Town of Pelham. One suggestion was that each Committee prepare a brief to be submitted at the conclusion of the study.
- (b) The D.T.C. would consider if it is practical to present a complete evaluation of all factors (i.e. rating, ranking, etc. of the alternatives) at the last meeting for comment and discussion by the public. It was not considered expedient to involve the public in an evaluation technique.

Finally, it was agreed that the next meeting would be tentatively scheduled for Wednesday, October 6, 1971 at 7.15 p.m. The night meeting was

suggested by Mr. Bergenstein to allow some of the working public to attend. It was further suggested that the High School Auditorium be obtained for this meeting. I had no objections to this proposal and the local committees agreed to make all the arrangements and advise me in writing as soon as possible.

It was suggested that the Town of Pelham chair this meeting but Mr. Brezesse declined. Mr. A. Scott of the Citizens for Conservation was then appointed.

Mr. Bergenstein asked if the exhibits used at today's meeting could be left in the municipal offices for a more detailed review. I Agreed (we have slides of the exhibits).



R. S. Pillar  
Chief Fesibility Studies Planner

RSP:mcl

C.C.

L. Schwabl

R. Oddson

I. Oliver

M. Devat

J.P. Cullen

Note to I. Ardizone

- (1) Work out a sequence with I. Oliver for the October 6, 1971 presentation
- (2) See E. Geisler re likely evaluation technique
- (3) If (2) is feasible, select an impartial rating panel.

AGENDA  
September 15, 1971

For meeting of September 15th, 1971 \*\* Pelham Municipal Office

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- 1:30 Chairman's opening remarks and introductions
- 1:40 Presentation of reply from Department to four specific questions re Traffic raised by Mr. Denton at July meeting.
- 2:00 Further questions or comments from Mr. Denton or other representatives on Traffic, and replies by Department.
- Questions from floor to Department on Traffic and answers from Department representatives.
- 2:30 Presentation of data by Department on Engineering Considerations of three possible "corridors"
- \*\* northern bypass as planned
  - \*\* southern bypass terminating at Merritt Road
  - \*\* southern bypass terminating at Quaker Road.
- 3:00 10 minute recess
- 3:10 Discussion of Department presentation between Department representatives and other representatives.
- 3:40 Questions from the floor on 2:30 report and data presented by Department representatives.
- 4:00 Adjournment

## DEPARTMENT OF TRANSPORTATION AND COMMUNICATIONS

## MEMORANDUM

*M. Devata*  
71-11028

TO: FILE

FROM: I. Ardizzone,  
Project Planning Engineer,  
Functional Planning Section,  
Central Region.

ATTENTION:

DATE: July 22, 1971.

OUR FILE REF.

IN REPLY TO

SUBJECT:

RE: STAFF MEETING REGARDING HIGHWAY 20 BY-PASS  
AT FONTHILL. W. P. 133-67,  
DISTRICT NO. 4, HAMILTON.

A meeting was held in Mr. R. Pillar's office to discuss the line of action to follow in our future meetings with resident groups in the Town of Pelham Municipal Offices.

Those in attendance were:

- R. Pillar
- I. Oliver
- J. Hughes
- L. Szabo
- M. Devata
- I. Ardizzone

The writer presented two alternative possible locations for the southern By-Pass in the vicinity of Merrit Road.

It was suggested by the writer that the most southerly alternative alignment be considered as the feasible alignment in the vicinity of Quaker Road since it is located approximately 1,800 north of the latter road.

Mr. Pillar suggested that an alternative alignment south of Quaker Road should be investigated from traffic, location and environmental stand-points.

I. Ardizzone will look into what aerial photography or mosaic is required to cover this study. Right now, there is not sufficient coverage on the mosaics available.

Mr. L. Schwabl or Mr. Pillar will arrange a meeting with Mr. C. Eidt, from the Regional Municipality of Niagara early in August to discuss the following points:

1. The effect of the New Highway #20 on the Regional Road Program and its relation to other municipal roads which may require improvements because of its location.
2. Proposals on Weber Road.
3. Any traffic data including vehicular classification, that may be available on the Regional Offices for their road system.
4. Determine if the planning for the Town of Pelham can be segregated from the rest of the Niagara Peninsula overall planning.

With respect to meetings with resident groups, it was agreed that the following sequence of presentations will be carried out:

1. Functional Plan presentation of alternative alignments.
2. Environmental and social study presentation on the alternative alignments.
3. Problems involved in each alignment and proposed solutions, i. e. drainage, springs, noise, etc.
4. Evaluation of alignments in view of all facts presented.

Mr. Pillar will prepare a tentative schedule and agenda for these meetings. The possibility of advancing to residents, a summary of the material to be presented in the next consecutive meeting will be investigated.

Based on the experience obtained with the traffic study presentation, it is anticipated that each of the above four presentations may require two or three meetings at two weeks interval.

*Ignacio Ardizzone*

IA/mv

I. Ardizzone,  
Project Planning Engineer.

c. c. - All present  
L. Schwabl  
W. Roters

FONTHILL BY-PASS - TENTATIVE SCHEDULEPROJECT RE-EVALUATION

<u>Phase</u>	<u>Approx. Date for Meeting</u>	<u>Purpose of Meeting</u>
Area Studies		
Traffic Assignments (Corridors)	June 30/71 July 14/71 Sept. 15/71	Presentation by D. T. C. Evaluation and presentation of alternate proposals Final evaluation & Consensus
Engineering Factors (Alternate Alignments in Feasible Corridors)	Oct. 1/71 Oct. 15/71 Nov. 1/71	Presentation by D. T. C. Evaluation & presentation of alt. proposals Final evaluation and Consensus
Environmental and Socio-Economic Factors	Nov. 15/71 Dec. 1/71 Dec. 15/71	Presentation by D. T. C. Eval. & presentation of alt. proposal Final evaluation and Consensus
Evaluation of Alternate Alignments	Jan. 1/72 Jan. 15/72	Discussion on evaluation methods Evaluation & selection of one or more alignments
Detailed Analysis of One or More Alignments	Feb. 1/72 Feb. 15/72 Mar. 1/72	Presentation by D. T. C. Eval. & Presentation of alternatives Final Evaluation and Selection
Final Appraisal and Summary	Mar. 15/72	Determine future course of action



DEPARTMENT OF HIGHWAYS ONTARIO  
MEMORANDUM

*M. Devata*  
71-11028 *AAS*

To: FILE

From: I. Ardizone,  
Project Planning Engineer,  
Functional Planning Section,  
Central Region.

ATTENTION:

DATE: July 20, 1971.

OUR FILE REF.

IN REPLY TO

SUBJECT:

RE: MINUTES OF THE SECOND MEETING WITH  
FONTHILL RESIDENTS,  
RE: NEW HIGHWAY #20 BY-PASS AT FONTHILL,  
W.P. 133-67, DISTRICT NO. 4, HAMILTON.

The meeting was held at 1:00 p.m., July 14, 1971 in the Town of Pelham Municipal Offices.

In attendance were:

Mr. A. Scott	Acting Chairman, representing the Citizens for Conservation.
Mr. W. Roberts	Representing the Pelham South Residents
Mr. H. Black	Representing the Town of Pelham Council
Mr. H. Mitchinson	Representing the Committee of a Thousand
Mr. L. Schwabl )	
Mr. L. Szabo )	
Mr. M. Encsaks )	Representing the Department
Mr. R. Pillar )	
Mr. I. Ardizone )	

Approximately 20 residents and 3 members of the Press were also present in the meeting.

Mr. Scott summarized the information presented in the previous meeting and stated the questions regarding traffic projections and future highway needs for which the Department was seeking a consensus of opinion before proceeding with further meetings.

Cont'd.../2

Mr. Schwabl said a few words regarding the southern by-pass route, emphasizing that this was not a proposal of the Department, but a corridor established to get traffic information for alternate alignments located south of the former Village of Fonthill

Mr. Roberts made a presentation of the traffic data recently obtained by residents. Weekday traffic counts and vehicle classification data were taken between 8:00 a.m. and 5:00 p.m. at different locations in and around Fonthill. Mr. Roberts indicated that although the size of the sample was small, it was sufficient to convey some ideas for the traffic problems in the area.

At the request of Mr. Schwabl a copy of this information will be sent to the Department.

Mr. Roberts then made an evaluation of the merits of a southern by-pass from the traffic standpoint.

1. Analysis of the through traffic.
2. Analysis of the local congestion in Fonthill.

For the first part Mr. Roberts made use of a time-distance comparison between the existing Highway #20 and a southern route. He said that although the operating speed will be higher in the southern route, the time factor will be counterbalanced by out-of-way travel and possible delays caused by signalized intersections (7 signalized intersections were indicated in the diagram presented). In other words, a vehicle approaching Fonthill from the west and following the existing Highway 20 will reach the Canal crossing at the same time that a vehicle following a southern by-pass route. His conclusion was that a southern route will not attract through trips and therefore, will not relieve future traffic congestion at Fonthill.

For the second part Mr. Roberts said that industrial-commercial vehicles through Fonthill are the main cause of the congestion at Fonthill. He pointed out that the destination of gravel trucks is mainly the City of Welland and locations along the Canal.

Mr. Roberts suggested that this local problem may be resolved by forcing industrial traffic to use the north-south county road system. The route between the gravel pits in Fonthill and Welland, via county roads, will be improved when Weber Road is extended across the Welland River. This east-west road will penetrate the City of Welland at the west side.

With regard to industrial traffic using Highway 20 to reach locations along the Canal, Mr. Roberts said that this traffic will probably decrease in the future when construction along the Canal terminates.

Mr. Roberts concluded by saying that if the Department would explore other possibilities to handle industrial traffic it is quite possible that the need for additional lanes to Highway #20 and the need for a by-pass would be avoided.

Mr. Roberts presentation was well developed insofar as stating reasons against a southern by-pass alignment. His suggestion about a "do nothing" scheme on Highway 20 was applauded by the public.

Mr. Pillar emphasized that the main reason for the new Highway #20 study is to investigate the alternatives to the potential problem and secure one solution in case the need would materialize in the future. He said that the "do nothing" scheme with no protection for a solution is not a satisfactory answer to the problem.

Mr. Mitchinson enquired about the origin of the south alignment idea. Mr. Pillar emphasized and clarified this point once more.

Mr. Denton, spokesman for the Citizens for Conservation requested that the alternative alignment along Quaker Road not be abandoned, since the traffic assignments indicate that this route would attract as much traffic as the one along Merrit Road. He said that the residual traffic on the existing Highway 20 varies very little from assignments either along Merrit Road or Quaker Road.

Mr. Pillar agreed to have this route further investigated.

Mr. Denton suggested that the Department investigate possibilities other than the expansion of the Highway 20 corridor by co-ordinating highway proposals with Regional road proposals. He also mentioned the fact that the possibility of a Regional rapid transit system has not been considered in the Department studies.

Mr. Denton also requested that a representative of the Regional Municipality of Niagara be present at the following meetings.

Mr. Black said he will be glad to make arrangements with the Regional Municipality of Niagara in this respect.

Mr. Scott requested that the next meeting be scheduled for the second week in September because of the summer holidays. A definite date will be arranged at the end of August.

Mr. Scott asked Mr. Roberts to Chair the next meeting. Mr. Roberts said he will give his answer in a few days.

The meeting adjourned approximately at 5:00 p. m.

The Department will investigate the following matters before the next September meeting:

1. Alignment along Quaker Road.
2. Regional Road proposals, specifically Weber Road.

IA/mv

I. Ardizone,  
Project Planning Engineer.

c. c. - W. Bidell  
G. Johnston  
L. Schwabl  
I. Oliver  
C. Robertson  
W. Roters  
M. Devata

(a) Definition

The Hazard Lands designation includes all lands having inherent environmental hazards, such as poor drainage, organic soils, flood susceptibility, erosion, steep slopes or any other physical condition which leads to the deterioration or degradation of the environment. Lands so designated are intended primarily for preservation and conservation of the natural land and/or recreation, nursery gardening, forestry and the conservation of soil or wildlife, shall be permitted. In addition, public or private parks or other outdoor recreation functions such as golf courses, shall also be permitted. No buildings nor the placing nor removal or fill of any kind, whether originating on the site or elsewhere, shall be permitted in areas subject to periodic flooding or physical limitations of any kind without the written consent of the Conservation Authority having jurisdiction in the area. It is recognized that the lands so designated by their nature are to be managed in such a fashion as to complement adjacent land uses and protect them from any physical hazards or their effects.

(b) Policies

- (i) In the absence of more detailed floodline, swamp or valley contour mapping, the boundaries of the Hazard Lands as shown on Schedule "A" will be used as guides for the preparation of zoning by-law provisions, which will implement the policies of this Section. When more detailed mapping becomes available, the Municipality will amend this Plan and the implementing zoning by-law, as required.
- (ii) Where land designated Hazard Lands is under private ownership, this Plan does not indicate that this land will necessarily remain as such indefinitely, nor shall it be construed as implying that such areas are free and open to the general public or will be purchased by the municipality or other public agency. An application for the redesignation of Hazard Lands for other purposes may be given due consideration by the municipality after taking into account:

(A) the existing environmental and/or physical hazards;

(B) the potential impacts of these hazards; and

(C) the proposed methods by which these impacts may be

overcome in a manner consistent with accepted engineering technique and resource management practices;

There is no public obligation, however, either to redesignate or to purchase any land if there is an existing or potential hazard that would be difficult or costly to overcome.

- (iii) Where new development is proposed on a site, part of which has physical or environmental hazards, then such hazard lands shall not necessarily be acceptable as part of the 5 per cent dedication for Open Space under the Planning Act. All lands dedicated to the Town shall be conveyed in a physical condition satisfactory to the Town. Where an open watercourse is involved, adequate space shall be provided for maintenance and operation.

Planning Division,  
Downsview 464, Ontario.

July 13, 1971.

Tel: 248-3585.

Mr. J. Lampman,  
St. John's,  
R.R. #1,  
Fonthill, Ontario.

Dear Mr. Lampman:

This will acknowledge your letter of June 28, 1971 which has been forwarded to me for a reply in the Minister's absence.

Your knowledge and comments on the intersection of North Pelham Street with the northern by-pass are very interesting and appreciated. However, we do not anticipate operational problems at this intersection which will be channelized with a small island on the south-east quadrant. Preliminary design drawings indicate that adequate visibility will be available at this location from all four approaches. The widening of North Pelham Street to four lanes is not incorporated in the design of this intersection.

The southerly alignment you referred to in your letter is one of a number of alternate alignments to be considered in the review of the Highway No. 20 by-pass study. It is not a proposal of the Department.

In coming meetings with representatives from a number of concerned resident groups we hope to present information indicating the relative merits of alternate by-pass alignments, the environmental impact in alternate locations and the suggested highway drainage treatment contemplated to minimize contamination of the waters feeding the tributaries of the Twelve Mile Creek.

By making known the details of the alternate routings and providing answers to the environmental problems foreseen on each, we trust a consensus will be reached as to which is the desired alignment for a Highway No. 20 by-pass at Fonthill.

Your comments on this controversial subject are most appreciated.

Yours sincerely,

W. Bidell

WB/LA/my

W. Bidell,  
Executive Planning Director.

c. c. - Minister (2)  
W. Bidell  
G. Johnston  
W. Wigle  
J. Walter  
G. K. Hunter  
C. R. Robertson  
M. Devata  
W. Roters  
I. C. Campbell  
R. G. Burnfield



ST. JOHN'S, ONT.

R.R. 1, Fonthill

JUNE 28, 1971

The Hon. Charles McNaughton,  
Minister of Transport & Communication,  
Toronto, Ont.

Dear Sir:

As residents of St. John's for the past 21½ years,  
we would like to voice our opinion re the Fonthill bypass.

We have never agreed with the opinion that the northerly  
route would permanently destroy the Twelve Mile Creek. However,  
we do feel that there is one aspect, and one aspect only, which  
could concern the people of St. John's. This is the hazardous  
highway crossing at the crest of Giles Hill. Even now this  
is treacherous in winter.

If the bypass were to go through at this point it could  
create a nasty situation for travellers successfully reaching  
the crest of that hill following a winter storm, only to be  
faced at the top by a lineup of cars waiting for a stop light.

We are definitely not in favor of North Pelham St. being  
widened to a four-lane approach at this point as we feel it  
would involve too many homes.

These facts were pointed out to E.J. McCabe, senior planning engineer for the DHO in a telephone conversation.

However, we are of the feeling that this hazard could be eliminated by sloping the hill similar to the Nursery Hill on South Pelham St.

Under this suggestion no homes would be involved and it would certainly eliminate the travelling back and forth from one end of Hollow Rd. to the other to find the easiest way out of the valley after a winter storm.

Re the disruption of the countryside beauty, we would regret this deeply and would certainly be in favor of leaving the highway as it is.

This, however, is none of our business. It is something for the engineers and town council to decide.

The alternative route, however, to the south is, in our opinion, a "spider's parlor". Someone will be forced into their way of thinking.

It is so fantastically "asinine" that we feel the plan will be finalized if immediate and definite steps are not taken to bring them to an abrupt halt.

Re the noise pollution which has been referred to in the northern route, I would like to point out that there already is a motorcycle race track on the hills directly to the north of Hurricane Rd.; a mini bike track on McSherry's Lane, and the Merrittville Speedway on Holland Rd., all within a mile radius of the proposed northerly bypass route.

As to the pollution of Twelve Mile Creek, there is already runoff from the present highway into the headwaters of that creek. The NPCA also has built a concrete dam in the tributary to the creek to create a pond for their fish.

Authorities have said the water running beyond that dam is "the purest in Ontario". This would seem to knock into a cocked hat, the theory that building the bypass through the same type of spring fed ground would permanently pollute the creek.

This letter is in no way to be construed as a reversal of opinion. Our intention is to simply express our own views rather than have them interpreted by a group of people.

In our opinion any human being capable for a split second of feeling compassion for a fellow human being could not possibly let go unchallenged the totally ridiculous proposal to the south when compared with the northerly proposal.

We are in no way denying that we signed a petition against the northerly route, strictly for the reasons here stated. However, since the department has decided to "toss down the apple" we feel we must explain our stand personally and we would hope more clearly.

Sincerely,

*Jacob Lampman*  
*Marion Lampman*  
*Wayne Lampman*

Note: A copy to go to Pelham Council

*Derata*

Functional Planning Section  
Central Region  
Downsview 464, Ontario  
July 15, 1971

Telephone: 248-3581

Dr. A. Lissey  
Associate Professor of Geology  
Department of Geological Sciences  
Brock University  
St. Catharines, Ontario

Dear Sir:

Thank you for your letter of July 7th, 1971, and your kind offer to participate in the study for the proposed Fonthill By-pass.

As was brought out at the meeting with yourself and Mr. E. J. McCabe at the Offices of the Regional Municipality of Niagara, last June 30, 1971, the Department presently has a very experienced staff in your particular field.

In the event you wish to pursue this matter for your own interest, I am enclosing a plan and profile showing the location and preliminary grade of the northerly route for new Highway No. 20 between Rice Road and Lookout Street in the former Village of Fonthill.

The Department is presently carrying out further soil investigations in the area of the Twelve Mile Creek and more particularly in locations where spring water systems are present. These studies are aimed at determining the best possible treatments to minimize interference with the flow of the springs into the Twelve Mile Creek Watershed.

Also, drainage studies have been initiated to consider the feasibility of diverting the surface run-off from the proposed new Highway 20 to the Welland watershed by means of a storm sewer.

Continued.....

The members of our staff that will be working on this specific problem are: Mr. M. Devate, Supervising Foundation Engineer, Foundation Section, Materials and Testing Office, Room 107, Lab. Bldg. Telephone: 248-3282, and Mr. W. Roters, Sr. Design Systems Engineer, Regional Systems Design Office, Telephone: 248-3415.

If you wish to obtain any further information which may be available in our offices, please do not hesitate to contact us.

Thank you very much for your co-operation on this matter.

Yours very truly,



R. S. Pillar

RGB/RSP/ss

c. c. (Attach.)

Dr. J. J. Flint, Dept. of Geological Sciences  
Brock University, St. Catharines

H. E. Black, Box 400, Fonthill

C. Eidt, Reg. Mun. of Niagara

M. Mitcheson, Box 185, Niagara Falls

A. Scott, P. O. Box 982, Fonthill

C. Robertson, District 4, Hamilton

A. Stermac, Foundation Section

Materials and Testing

M. Devate

I. Oliver

G. K. Hunter

W. Roters

FOR: R. G. Burnfield

Regional Functional Planning Engineer

DEPARTMENT OF HIGHWAYS ONTARIO

Form  
SB-OS-62  
70-1085

**ACTION SLIP**

DATE July 19, 1971

TO M. DEVATA-FOUNDATION SECT.  
LAB. BLDG.

FROM L. ARDIZONE-FUNCT. PLANN.-CENT. REC.

- |  |  |
|--|--|
| <input type="checkbox"/> NOTE AND FILE             | <input type="checkbox"/> PREPARE REPLY FOR MY SIGNATURE  |
| <input type="checkbox"/> NOTE AND RETURN TO ME     | <input type="checkbox"/> TAKE APPROPRIATE ACTION         |
| <input type="checkbox"/> RETURN WITH MORE DETAILS  | <input type="checkbox"/> PER YOUR REQUEST                |
| <input type="checkbox"/> NOTE AND SEE ME           | <input type="checkbox"/> FOR YOUR SIGNATURE              |
| <input type="checkbox"/> PLEASE ANSWER             | <input checked="" type="checkbox"/> FOR YOUR INFORMATION |
| <input type="checkbox"/> FOR YOUR APPROVAL         | <input type="checkbox"/> INVESTIGATE AND REPORT          |
| <input type="checkbox"/> RETURN WITH YOUR COMMENTS | <input type="checkbox"/> AS DISCUSSED                    |

COMMENTS

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# CORAL

CLEAN OUR RIVERS AND LAKES



Committee of A Thousand · P.O. Box 185 · Niagara Falls · Canada ·

June 24, 1971.

The Honourable Rene Brunelle,  
Minister, Lands and Forests,  
Queen's Park,  
Toronto, Ontario.



Dear Mr. Brunelle:

The Committee of A Thousand is very pleased to see that the Department of Lands and Forests has introduced legislation giving the cabinet powers to protect any species of flora or fauna that may be threatened with extinction by reason of destruction or change of its habitat or by the use of chemicals.

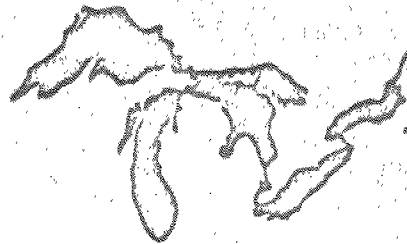
This is one of the points the Committee of A Thousand has been stressing in the controversy over the Department of Highway's proposal for the No. 20 Highway by-pass to the north of Fonthill: the elimination in this area of the flora and fauna which should be preserved as evidenced by the following references.

In the Gertler Report on the preservation of the Niagara Escarpment specific reference is made to the importance of saving this section of the escarpment right up to Fonthill - the same area through which this highway is to be built.

A group of scientists at Brock University were given a grant in 1970 by the Department of University Affairs to conduct a study during 1970 and 1971 of the Twelve Mile Creek watercourse. According to a noted biologist who is a member of this team, the headwaters of this stream are amazingly pure, in fact the only pure headwaters left in this area, and are rich in unique aquatic fauna. Again, the very section over which the proposed by-pass with the resultant silt, calcium chloride and herbicides will be constructed. This biologist asserts that this fauna will be completely destroyed by a project such as a throughway.

We are all aware of the problems being encountered with heavy run-off of water in spring and the drying up of headwaters in summer. Studies have been made by many specialists in this field and one well-known geologist at the University of Toronto has written comprehensive articles on the adverse effect on headwater springs of removing trees and ground cover so that rains and the melting snow in spring have no chance to collect and percolate down to the water tables. Once more this proposed road will eliminate the very source of the 12 Mile Creek since the road-bed will cover the springs and the levelling of the short Hills will remove the water collection systems.





Committee of A Thousand · P.O. Box 185 · Niagara Falls · Canada ·

- 2 -

June 24, 1971.

These people are all considered as noted authorities by the government when chosen to do these studies and yet when the results are finalized, no attempt is made to carry out any of their recommendations. Is not this really just another means of appeasing the public to make it appear that the government is concerned with the environment? Maybe the word should be 'fooling' rather than 'appeasing'.

The Committee urges you to strongly consider all the evidence that is available to prove the disastrous effects that the construction of a highway through this area to the north of Fonthill will have on the environment. This is not just an attempt by a group of people to keep a road out of their immediate vicinity but is an honest and sincere effort to show that this construction must not be allowed to take place because of the irreparable damage that will affect this generation and all those yet to come.

Yours respectfully,

*Bryce W. Taylor*

Bryce W. Taylor.

BWT/aet

cc -- Hon. Wm. Davis, Prime Minister  
Hon. Chas. MacNaughton  
Hon. G. Kerr





*M. Devata ✓*  
*Materials & Testing*  
*Lab. Bldg.*

*71-11028*

## DEPARTMENT OF HIGHWAYS

Functional Planning Section  
Central Region  
Downsview 464, Ontario  
May 6, 1971

Telephone: 248-3581

Mr. A. Scott  
Chairman  
Citizens for Conservation  
P.O. Box 982  
Fonthill, Ontario

Dear Mr. Scott:

Following the presentation of your brief at the Minister's Office April 13, 1971, it was agreed that the Department would study the features which the Citizens for Conservation feel are objectionable in the Department's plan for the relocation of Highway No. 20 to the north of the former Village of Fonthill.

On several occasions, it has been suggested a field inspection be made of the portion of the alignment crossing the Twelve Mile Creek watershed. Therefore, we propose to commence the study by making this field inspection and we would appreciate it if a few of your representatives were available to accompany us.

Would you please confirm if you are available on Wednesday, May 19, 1971 at 1:30 P.M. We suggest a meeting place on Rice Road immediately north of present Highway No. 20.

Mr. Bryce Taylor has advised the Minister that he has obtained the property owners signed permission to enter for the purpose of this survey.

A copy of this letter is being forwarded to the Mayor of Pelham, who by this letter is also invited to send a representative to accompany us on behalf of the Town.

Yours very truly,

*E. J. McCabe*

E. J. McCabe  
Sr. Project Planning Engineer

EJM/ss  
c.c. C. Robertson, W. Bidell  
M. Devata, I. Oliver, I. C. Campbell

File

Ian V. Oliver,  
Traffic and Transportation Planning  
Office.

May 19, 1971.

Highway No. 20 - Fonthill Bypass and Course of Action  
in dealing with Citizens for Conservation

Representatives of Functional Planning and the Environmental Group met in Mr. McCabe's office on Monday, May 17th, 1971, to discuss the manner in which to deal with the Citizens for Conservation and their objections to the proposed Fonthill Bypass. Those present were: Ed. McCabe, Bob Pillar, I. Ardizzone, Dennis Callan, Murty Devata, Ian Oliver and John Hughes.

It was decided that a series of meetings involving representatives of Department and local groups would be the best course of action. The following tentative format was set up:

Meeting #1 - Representatives of Functional Planning and the Environmental Group will "walk the line" of the proposed bypass with Citizens for Conservation members on May 19, 1971.

Meeting #2 - A presentation will be made to the Citizens for Conservation. Lou Schwabl's group will review areawide system requirements and give a comparative traffic evaluation of the three alternate corridors to the north, to the south, and through town. The Environmental Group will assess, comparatively, the overall environmental impacts of the three alignments.

Meetings #3, 4, 5, etc. These meetings will each isolate a specific area of objectionable environmental impacts due to the proposed northern bypass and will consist of a D. H. O. presentation and subsequent discussion. Examples of such topics are the impact on the headwaters of the Twelve Mile Creek Watershed, stream pollution and preventative measures, noise and air pollution, and landscape and aesthetic disruption in the area.

Only the headwaters impact was discussed in any detail, and Mr. Devata advised that he could involve himself in this presentation, including the preparation of visual display material. This would include such items as plans showing creeks, watershed area, spring outlets, ground water profiles, cut and fill examples, drawdown effects, etc.

cont'd.

To: File

-2-

May 18, 1971

The scheduling of these meetings was uncertain. It was felt that we should aim at Meeting #2 in about a month's time but that the actual date should not be set until after consulting Mr. Schwabl's group and the Citizens for Conservation. Hopefully, the subsequent meetings would be scheduled at about two week intervals.

The above plan is only tentative and can be readily modified and adapted to meet the desires of all parties concerned.

for: John Hughes,  
Ian V. Oliver,  
Environmental Planner.

C. C.  
Messrs. Ed. McCabe  
L. Ardizzone  
Murty Devata  
J. Hughes



ONTARIO

DEPARTMENT OF HIGHWAYS

Functional Planning Section  
Central Region  
Downsview 464, Ontario  
May 27, 1971

Telephone: 248-3581

Mr. A. Scott  
Chairman  
Citizens for Conservation  
Box 982  
Fonthill, Ontario

71-11028

Dear Mr. Scott:

This will confirm our field meeting of Wednesday, May 19, 1971, with members of your conservation group in which we walked the route of the proposed Highway No. 20 By-pass at Fonthill. All Department representatives attending the field meeting are now much more familiar with the features of the proposed route. I feel this experience will undoubtedly be of great value in our future discussions.

We intend to hold a series of meetings with a few members of your group to present our views on the items which you have brought to our attention in your brief. At our next meeting, we would like to discuss with you the traffic justification for the proposed routing of Highway No. 20. We also hope to compare in reasonable detail the merits of the various alignments for Highway No. 20 in and around Fonthill. Following our presentation at this next meeting, we would like to obtain your thoughts on this particular subject with a view to finding a common ground to resolve the problems you anticipate in the construction of new Highway No. 20.

I expect our next meeting will be some four weeks hence. We will propose a meeting date when our material is ready for presentation.

Since our May 19th field meeting, I have contacted Mayor H.E. Black of Pelham and informed him of our proposed meetings. He has kindly agreed to provide a place for our further meetings at the Town of Pelham Municipal Offices. The Town will be sending representation to participate in these meetings.

On behalf of the Department personnel attending the field meeting, I should like to express our thanks for your group's hospitality and co-operative approach to the review of the Department's Highway No. 20 proposal.

Yours very truly,

E. J. McCabe

RGB/EJM/ss  
C.C.  
Mayor Black-Pelham  
C. Robertson  
W. Bidell  
M. Devate  
I. Oliver  
I.C. Campbell

FOR: R.G. Burnfield  
Regional Functional Planning Engineer

Distance of Drawdown will depend on

a) Coefficient of Permeability (K)

b) Coefficient of Bank Storage (S)

Coefficient of Permeability (K cm/sec) for various materials.

Soil Types	Permeability Coeff. cm/sec
1. Clean gravel	$1-10^2$
2. Clean sands; sand and gravel	$10^{-3}-1$
3. Very fine sands; silts; mixture of sand, silt, and clay; stratified clay deposits	$10^{-6}-10^{-3}$
4. Homogeneous clays	$<10^{-7}$

After Terzaghi and Peck (1948).

The permeability of granular material varies with the diameter and degree of assortment of the individual particles. A well-sorted gravel has a much higher permeability than a well-sorted coarse sand. However, gravel with a moderate percentage of medium- and fine-grained material may be considerably less permeable than a uniformly sized coarse sand. In graded material, the particles of moderate size fill the pore spaces between the larger particles, and in turn the resultant pore spaces are filled by the fine materials, thus forming a compactly knit and impervious mass such as is obtained in good concrete.

According to U.S. Bureau of Reclamation, the coefficient of bank storage will vary from 0.05 to 0.3 taking into account the numerous spring systems.

Length of drawdown for two extreme cases are as follows:

Type of Material	K	S	Length of Drawdown
clean gravel )	1.0	0.05	3,000 ft.
to clean sand & gravel)	1.0	0.3	1,000 ft.
Fine sands and	$10^{-4}$	0.05	1,000 ft.
silty sands	$10^{-4}$	0.3	500 ft.

Based on the above information, it can be assumed that the anticipated drawdown distance for granular materials, such as sand to silty sand, will be in the order of 500 to 1,500 ft. from the top of the cut.

M. Devata  
27th April 71

MEMORANDUM

71-11028.

To: Mr. M. Devata,  
Sup. Foundations Engineer,  
Room 107, Laboratory Bldg.

From: Soils Section,  
Materials and Testing Office,  
Room 134A, Laboratory Bldg.

ATTENTION:

DATE: March 19, 1971.

OUR FILE REF.


IN REPLY TO

SUBJECT:

Fonthill By-pass

Further to our conversation, I am attaching a Station to Station Analysis of the By-pass area in question. This study was made from airphotos taken at a scale of 1" = 1,320'.

Please feel free to let us know if we can be of any further assistance in this matter.

  
B. Sen Mathur, P. Eng.,  
AIRPHOTO INTERPRETATION ENGINEER.

BSM/sd  
Attached (2)

DRAINAGE AND INSTABILITY ANALYSIS

FONTHILL BY-PASS (Hwy. #20)

Station 50+00 to Station 260+00

<u>Station No.</u>	<u>Ref. Point</u>	<u>Analysis</u>
50+00	-	① Sand & Gravel ✓ Fair to good drainage. No drainage or instability problems anticipated in this cut area. Material is predominantly sand and gravel.
41+15	Lookout Road	✓ ① -do-
30+00	-	It is a fill area. No problems because of drainage or instability are anticipated.
26+20	Haist Road	① -do-
22+00 16+40 13+70	-	① Small gullies at these locations. Adequate drainage should be provided in these areas in order to avoid any instability problems.
7+00	-	① A major gully traverses at this location. Adequate drainage will be necessary in order to avoid any instability problems.
308+90 (0+00)	Pelham Street	No problems are anticipated at this location.
307+10	-	Small gully. Adequate drainage should be provided.
291+10	-	-do-



<u>Station No.</u>	<u>Ref. Point</u>	<u>Analysis</u>
287+20	-	Adequate drainage will be necessary at this location. No instability problems are anticipated.
275+60	-	-do-
270+45	-	-do-

71-11028

DEPARTMENT OF HIGHWAYS ONTARIO  
MEMORANDUM

TO: A. Stermac  
Principle Foundation Engineer  
Lab. Bldg.

FROM: R.G. Burnfield  
Regional Functional Planning Engineer  
Functional Planning Section, Central  
Region

ATTENTION:

DATE: February 26, 1971

IN REPLY TO

OUR FILE REF.

SUBJECT: W.P. 133-67  
HIGHWAY NO. 20, RELOCATION  
NIAGARA FALLS TO FONTHILL  
DISTRICT NO. 4, HAMILTON


This office has recently completed a study for relocation of Highway No. 20 in the above-noted area.

Considerable objection is being received from those concerned with preservation of the upper reaches of the Twelve Mile Creek Watershed. Our recommended alignment passes through this watershed at two locations between Rice Road and Lookout Street in Pelham. In particular, we have received much comment on the damage that new Highway No. 20 would have on the existing springwater systems which feed the Twelve Mile Creek Watershed.

Would you please review the enclosed plans and profiles and offer us your comments in this regard.

Since the subject of new Highway No. 20 in Fonthill is a sensitive matter to many residents, we ask that no field work, other than visual inspection from public roads, be carried out at this time.

RGB/EJM/ss  
c.c.  
C. Robertson  
T. Kovich

  
E.J. McCabe  
FOR: R.G. Burnfield  
Regional Functional Planning Engineer

## MEMORANDUM

No. 71-11028

To: Mr. M. Devata,  
Supt. Foundation Engineer,  
Room 107, Laboratory Bldg.

From: Soils Section,  
Materials and Testing Office,  
Room 134A, Laboratory Bldg.

ATTENTION:

DATE: February 22, 1971.

OUR FILE REF.

IN REPLY TO

SUBJECT:

Further to your request regarding the general soils and drainage conditions in the Fonthill area, I am enclosing a report prepared from the study of airphotos. I hope that the information contained therein will give you an over-all picture about the nature of materials involved and the drainage conditions of the area.

Please feel free to let us know incase you need any further information. No field work was carried out during the compilation of this report.

  
B. Sen Mathur,  
AIRPHOTO INTERPRETATION ENGINEER.

BSM/sd  
Enclosed

PRELIMINARY AIRPHOTO INTERPRETATION REPORT  
ON GENERAL SOILS & HYDROLOGICAL CONDITIONS  
OF FONTHILL AREA AND VICINITY

LOCATION:

The area under consideration is in the vicinity of Fonthill and also includes the Townships of Thorold and Pelham. This study area can also be referred to on the Niagara militia sheet.

TOPOGRAPHY:

The topography in general is undulating with numerous small ridges and depressions.

SOILS AND DRAINAGE:

The surficial deposits in the general area consist of till in the form of small ridges with subdued relief. The till material consists of a heterogeneous mixture of clay, silt and sand with some stones.

There is a large flat ridge-like deposit extending from Fonthill in west-southwesterly direction for approximately 2.5 miles. This ridge consists of sand and gravel deposited by the fluvio-glacial agencies.

The intervening troughs between the ridges are floored with impervious mixtures of silt and clay thus impeding the vertical drainage.

The surface drainage in the area is controlled by the modest ridges which direct the flow along the sloughs in somewhat parallel fashion. There are several shallow undrained depressions where the drainage is restricted. The pattern of these wet areas can be seen on the attached mosaic.

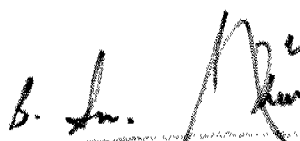
CONCLUSION:

There are several wet depressions which may need attention during the relocation of Highway 20. It is felt, however, that these areas should not pose any serious drainage problems. Normal cuts and fills are involved in a terrain of this nature to achieve a smooth vertical alignment. Deep stagnant drainage areas if encountered should be investigated.

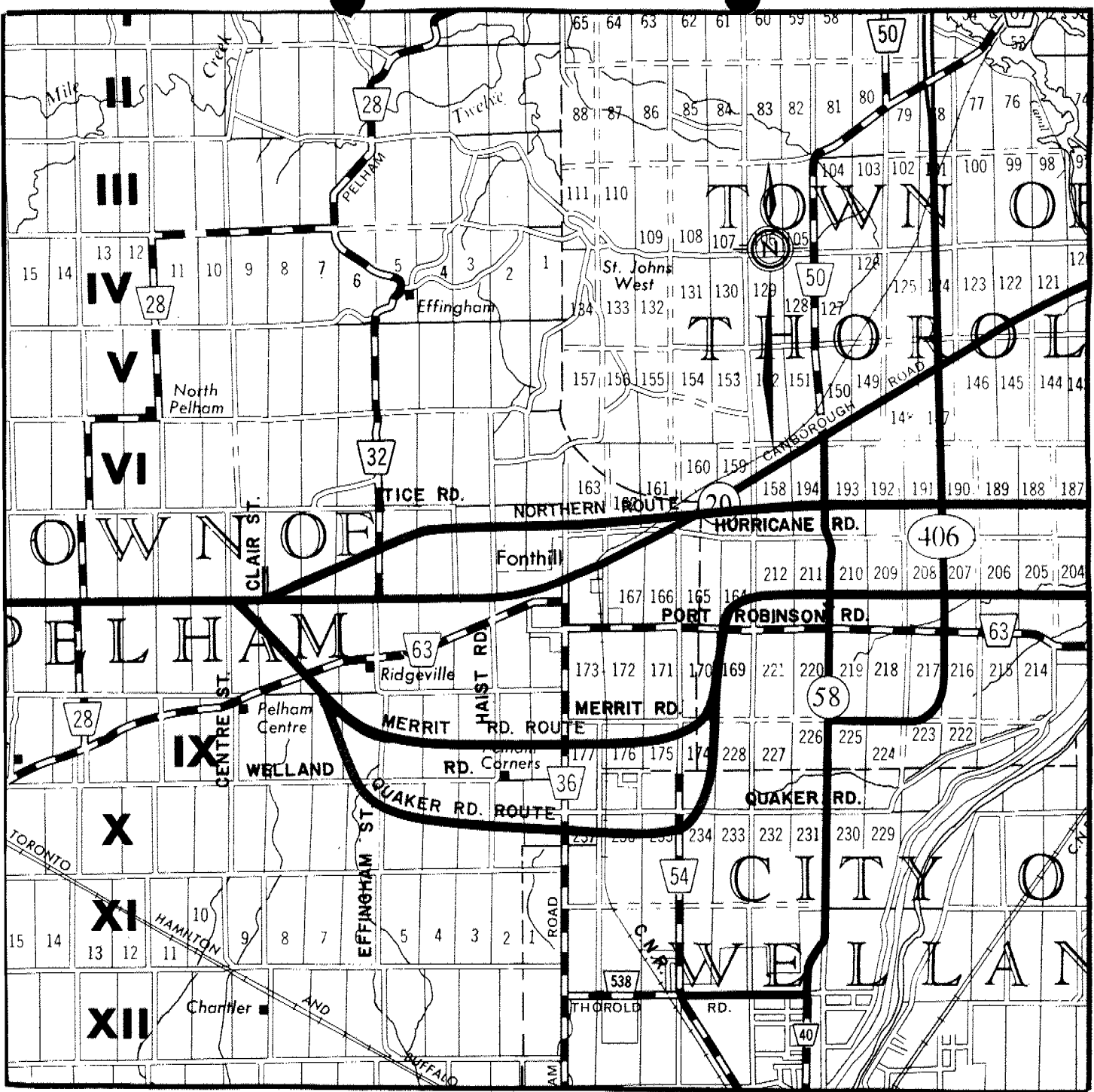
Material encountered in the vicinity of the study area should be normally consolidated and having a variable shear strength. Bearing capacities are generally expected to be in the higher range but can vary.

Ground water should not pose any serious problem to the roadbed. For foundations of small structures spread footings should be adequate in many cases.

Problems of any serious nature caused by instabilities or erosion are not anticipated in the area.



B. Sen Mathur, P. Eng.,  
AIRPHOTO INTERPRETATION ENGINEER.



SCALE: 1 2 3 MILES

## MAP OF STUDY AREA

EXHIBIT I



TOWN OF PELHAM

TOWN OF THOROLD

NORTHERN ROUTE

FONTHILL

HURRICANE RD

HWY 20

LOOKOUT ST

HWY 20

RICE RD

DANBORO RD

PORT ROBINSON RD

HILLCREST RD

HAIST RD

PELHAM ST

C.N.R.

MERRIT RD

ROUTE

MERRIT RD

WELLAND RD

HAIST RD

CLIVE RD

QUAKER RD

QUAKER RD

ROUTE

CATARACT RD

HWY 58

FOSS RD

CITY OF WELLAND

PLAN

FEET  
1000

SCALE :

0

1000

2000

EXHIBIT 4

CENTRE ST N

CLAIR ST

EFFINGHAM ST