

CONSOLIDATED HEARINGS BOARD

IN THE MATTER OF Sections 2 and 3 and 6 (3) of the Consolidated Hearings Act, 1981, S.O. 1981, c.20;

— and —

IN THE MATTER OF Section 12(2) of the Environmental Assessment Act, R.S.O. 1980, c.140;

— and —

IN THE MATTER OF Sections 30, 35 and 38 of the Environmental Protection Act, R.S.O. 1980, c.141, as amended;

— and —

IN THE MATTER OF Sections 24 and 61 (2) of the Ontario Water Resources Act, R.S.O. 1980, c.361, as amended;

— and —

IN THE MATTER OF Section 28 (3) of, and Regulation 164 under, the Conservation Authorities Act, R.S.O. 1980, c.85, as amended;

— and —

IN THE MATTER OF Section 40(12) of the Planning Act, S.O. 1983, c.1, as amended; in connection with site plan control of the sanitary landfill site;

— and —

IN THE MATTER OF Section 22(1) of the Planning Act, 1983 in connection with a referral to this Board by the Honourable Bernard Grandmaitre, Minister of Municipal Affairs, on a request by the Regional Municipality of Halton to amend the Official Plan for the Town of Milton to redesignate a parcel of land comprising Part Lots 3 and 4, Concession 2 N.S. in the Town of Milton from "Agriculture" and "Conservation and Hazard Lands" to permit the construction, operation and maintenance of a landfill site, Minister's File No. 24-OP-0208-A01;

— and —

IN THE MATTER OF Section 34(11) of the Planning Act, 1983 in connection with an appeal to this Board by the Regional Municipality of Halton for an order directing an amendment to By-law 61-85 of the Town of Milton to rezone the lands situated at Lot 3 and part of Lot 4, Concession 2 N.S., in the Town of Milton from "Agriculture" to permit a regional sanitary landfill site and ancillary uses;

— and —

IN THE MATTER OF Section 15(1) of the Planning Act, R.S.O. 1980 ch.379 in connection with a referral by the Honourable Claude F. Bennett, Minister of Housing on a request by Tremaine Britannia Citizen's Group for consideration of part of the Official Plan for the Halton Planning Area with respect to Sections 1 to 5 inclusive, 7, 9 and 10 of Part III D3 Solid Waste Management, Minister's File No. OPC-0026;

— and —

IN THE MATTER OF Section 64 of the Ontario Municipal Board Act, R.S.O. 1980, c.347 as amended in connection with an application by the Regional Municipality of Halton for an order approving:

- a) the acquisition of land for the construction, operation and maintenance of a sanitary landfill site to contain 7.96 million cubic metres of waste in the Regional Municipality of Halton and to do so by one of two alternative methods as follows:
 - (i) landfilling at the site referred to in Halton's Environmental Assessment as Site F in the City of Burlington;
 - (ii) landfilling at the site commonly referred to in Halton's Environmental Assessment as Site D in the Town of Milton

at an estimated cost of \$12,775,000.00, and the borrowing of money by way of temporary advances not exceeding in the aggregate such estimated cost pending the sale of debentures, and

- (b) the issuance of necessary debentures to a maximum of \$12,775,000.00 for a term not to exceed fifteen years;

— and —

IN THE MATTER OF Section 193(5) and Paragraph 84 of Section 210 of the Municipal Act, R.S.O. 1980, c.302, as amended;

— and —

IN THE MATTER OF Sections 6, 7 and 8 of the Expropriations Act, R.S.O. 1980, c.148;

— and —

IN THE MATTER OF an undertaking of the Regional Municipality of Halton to provide facilities for the purpose of receiving, dumping and disposing of waste as required by section 137 of the REGIONAL MUNICIPALITY OF HALTON ACT, R.S.O. 1980, c.436, as amended, by acquiring the land for, constructing, operating and maintaining a landfill to contain 7.96 million cubic metres of waste in the Regional Municipality of Halton.

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OFFICIAL REPORTERS

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Nethercut & Co. Ltd.

Toronto, Ontario

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Flip chart prepared by witness

11419

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Burlington Landfill Site Continued
Use and Rehabilitation Concept Map

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14 S.O. 1983, c.1, as amended; in connection with site
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BEFORE: H. H. Lancaster, Q.C. - Chairman

Dr. D.J. Kingham - Member



Nethercut & Co. Ltd.

Toronto, Ontario

Hearing conducted at The Oakville
Granary Commercial Centre, 105 Robinson
Street, Oakville, Ontario, on
Wednesday, October 28, 1987

VOLUME 50

APPEARANCES:

T.R. Lederer and
H.D. Hodgson

for the Regional
Municipality of Halton
(Proponent)

J.R. Tidball

for the Ministry of the
Environment

T. Vigod
J.F. Castrilli

for the West Burlington
Citizens Group

D. Estrin,
F.E. Leitch and
H. Dahme

for the Corporation of the
Town of Milton

S.R. Garrod and
A. Nurvo

for the Milton Area Citizens
Coalition and several
affected Milton area
landowners

R.B. Tuer, Q.C.
E.A. Cronk and
F. Perrier

for National Sewer Pipe
Limited

L.F. Longo

for Azova Investments
Limited

M.J. McQuaid, Q.C.
and C.J. Tzekas

for the City of Burlington

C. Mansfield

for the Ministry of Natural
Resources

P. Renaud

for Cumis Limited



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Toronto, Ontario

APPEARANCES (Cont'd):

1	C. Stevenson	for Framgard Holdings,
2	P. Hancock	Fosseri Investments
3		Limited, Seriphos
4		Investments Limited and
5		Topic Investments
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Toronto, Ontario
M5V 1V3

Per: P. D. McQueen



1 --- Upon commencing at 9:30 a.m.

2 MR. LANCASTER: Good morning. Thank you,
3 please be seated. Ms Cronk, I believe it is your turn.

4 MS CRONK: Good morning.

5 JAMES AKIO HIRAISHI, (resumed):

6 CROSS-EXAMINATION BY MS CRONK:

7 Q. Mr. Hiraishi, would you get the
8 pens and the calculator out? It seems to me you could
9 go anywhere with a pen and now you have to go with a
10 calculator.

11 We, as you know, represent National
12 Sewer Pipe Limited and I have a number of questions
13 for you with respect to your design of Site F and with
14 respect to Site D but I am going to attempt this
15 morning to be very brief. Could I ask you first to go
16 to your report, the design and operations report on
17 Site F? You referred several times in your design
18 report concerning Site F, Mr. Hiraishi, to a decision
19 by the City of Burlington to carry out remedial works
20 to Bayview Park. Do you recall that?

21 A. Yes.

22 Q. Could I ask you, for example, to
23 turn to page 50 of that report? Commencing at the bottom
24 of page 49, you are discussing the buffer zones at
25 Site F and beginning over at page 50 you indicate that



1 since the start of the project other factors had super-
2 seded the assumptions regarding buffers that had earlier
3 been made. You indicate, and I quote:

4 "The primary one, (take that to be the
5 primary other factor,) had been the
6 decision by the City of Burlington to
7 carry out the remedial works to control
8 the off-site migration of the leachates
9 from the closed Bayview Site."

10 Just stopping there, the remedial work that you are
11 discussing there in that portion of your report as I
12 understand it comprise the leachate collection system
13 at Bayview Park of which we have heard something in
14 evidence; is that right?

15 A. That is correct.

16 Q. That was installed as I understand
17 it to control leachate springs that had developed at
18 Bayview Park?

19 A. Yes.

20 Q. The system went forward at the
21 urging of the Ministry of the Environment and upon an
22 agreement reached between National Sewer Pipe and the
23 City of Burlington; is that your understanding as well?

24 A. That is my understanding
25 although I wasn't a party to those discussions. That



1 was a decision that was subsequently made.

2 Q. The system itself is in fact
3 located on part of National Sewer Pipe's land?

4 A. Yes.

5 Q. That is part of the lands immediately
6 adjacent to Site F?

7 A. That is correct.

8 Q. Could I ask you to go to Drawing
9 5r of your revised drawings and I'm sorry, I think it
10 is H-42 B-5r and I'm not sure if you have that blocked
11 up or not. Could you just show the Board, if you would,
12 Mr. Hiraishi, exactly where that leachate collection
13 system is at Bayview Park?

14 A. I have noted in yellow part of it
15 and I will just mark it, mark the rest of it in the same
16 colour.

17 Q. Just looking at the beginning of
18 the collection system, the eastern portion of it, if
19 we are looking directly at Bayview, it's located on
20 National Sewer Pipe's land, am I right?

21 A. That is correct.

22 Q. Coming along to the immediate
23 south of Bayview Park, Mr. Hodgson suggests the west
24 and it is the west, depending on which site you are
25 looking at?



1 A. Right.

2 Q. Could you point out so that the
3 record is clear the section I am talking about immediately
4 adjacent to Site F?

5 A. The section that runs north to
6 south between Site F and the Bayview Landfill Site.

7 Q. Then as the collection system
8 moves across the bottom of the Bayview site it dips again
9 into National Sewer Pipe land?

10 A. Yes. I just missed another
11 pumping station and a section of the drain which goes
12 something like that (indicating).

13 Q. To the extent that that system is
14 partially situate on National Sewer Pipe's lands could
15 you confirm for me it was installed with the consent of
16 National Sewer Pipe?

17 A. I would imagine that is the case
18 although I can't be positive on that.

19 Q. Could I ask you now to look again
20 at page 50 of your report on Site F and looking at the
21 second sentence, carrying on, you indicate the effect
22 of the introduction of that leachate control system:
23 and I quote:

24 "Essentially, this has required an intro-
25 duction of a buffer varying from 30 to 50



1 metres between the closed Bayview site
2 and Site F. The area identified by the
3 City as being required to implement the
4 necessary works has been set aside as a
5 buffer."

6 So the 50 -- the 30 to 50-metre buffer zone that you
7 are discussing in that portion of your report then is
8 the zone that you have pointed out to the Board as
9 being immediately adjacent to Site F?

10 A. That is the way it shows on H-42
11 B-5r. The information that we used to make this plan
12 was given to us by the City of Burlington and it showed
13 the buffer on that strip, that north to south strip that
14 in fact did vary from 30 metres to 50 metres as we go
15 from the north to the south. We have allowed essentially
16 the works so that we would not be interfering with any
17 of the actual installation and operation of the system.

18 Q. That's the point I was coming to,
19 Mr. Hiraishi. First of all, we've had the location
20 clarified and your design for Site F has been done in
21 such a way as to accommodate a buffer anywhere between
22 30 and 50 metres should that prove necessary; is that
23 correct?

24 A. That's correct.

25 Q. You refer in the section of the



1 report to which I have drawn your attention to the area
2 identified by the City of Burlington as being required
3 to implement remedial works at Bayview Park. My question
4 to you is this: did you conduct any independent investi-
5 gation on your own part to determine the necessity of
6 those lands for the remedial work at Bayview Park or
7 were you simply relying on information that had been
8 provided to you by the City of Burlington?

9 A. We certainly relied upon the
10 information that was supplied to us by the City. We did
11 review the proposed plans that the City of Burlington
12 submitted. We had contemplated in our assessment the
13 needs to accommodate the works. We were also cognizant
14 of the buffer that the City had requested south of
15 Bayview so that all of those -- both of those considera-
16 tions were taken into account in our design.

17 Q. I will come to the area south of
18 Bayview in a moment but am I clear that with respect
19 to the necessity for the use of those lands for remedial
20 works at Bayview Park you were relying on information
21 provided to you by the City?

22 A. That is correct.
23
24
25



1 Q. You were attempting to accommodate
2 their expressed interest in the land?

3 A. That is correct.

4 Q. You did not conduct nor did your
5 firm conduct any independent investigations to pass in
6 your professional judgment on the necessity of the lands
7 for that purpose?

8 A. We did not.

9 Q. Could I ask you now to go to page
10 54 of your report? I direct your attention, Mr. Hiraishi,
11 to the second paragraph on page 54 where again you are
12 referring to a 30 to 50-metre strip of buffer along
13 the east side of the site, the east side of Site F
14 contiguous with the Bayview Site?

15 A. Yes.

16 Q. That is the same buffer zone we
17 have been discussing?

18 A. The same buffer zone.

19 Q. Continuing on:

20 "Allowances made for the construction of
21 the proposed leachate collection system
22 at the Bayview site although the strip
23 infringed onto Site F negatively impacting
24 the total available capacity of the site.
25 The proposed Site F facilities are



1 intended not to interfere with the
2 Bayview leachate collection system."

3 So I take it that with respect to Site F the expression
4 of interest by the City of Burlington for that 30 to
5 50-metre buffer zone was to reduce the total gross
6 capacity at Site F, that Site F might otherwise have?

7 A. Yes.

8 Q. You were none the less able to
9 meet in your design at Site F the waste quantity require-
10 ments the sizing requirements of the Region under your
11 design?

12 A. Yes.

13 Q. Without that buffer area?

14 A. That is correct.

15 Q. Over at page 56, again a paragraph
16 dealing with Bayview site remedial works and you indicate:

17 "Work is currently being undertaken by
18 the City of Burlington to implement
19 remedial measures to control leachate
20 migrating off-site from the closed Bayview
21 landfill. Presently, a notice for
22 expropriation has been made by the City
23 for lands immediately south of the
24 Bayview site within the Site F fill area
25 identified in the Stage 2C report and a



1 strip of land on the Site F property on
2 the west side of Bayview."

3 Let us just deal with the west side of Bayview strip
4 first. That is the buffer we have been discussing?

5 A. Yes.

6 Q. And the lands to the south of
7 Bayview Park in respect of which the City of Burlington
8 expressed an interest were contemplated at the Stage 2C
9 juncture to be included in Site F but under your final
10 design are not, do I have that correctly?

11 A. Contemplated for the actual fill
12 area, yes.

13 Q. As you have now defined Site F
14 and as you have presented it to the Board neither of
15 those areas would be required to meet the Region's needs?

16 A. Part of the buffer area that has
17 been identified by the City of Burlington will be
18 required, as I believe we discussed yesterday. That area
19 essentially is to the west of this intermittent stream
20 that is shown so that the -- approximately 100 metres
21 from the east boundary of cell 2 would be required as
22 a buffer and that buffer will be used primarily for
23 the stockpile as well as the leachate -- sorry -- the
24 stormwater retention pond.

25 Q. Apart from that area you have put



1 forward and satisfied yourself on a design that would
2 not require the rest of the lands to the south of
3 Bayview; is that correct?

4 A. That is correct. We wanted to
5 ensure that the physical works, that work to be implemented
6 would definitely not be part of the fill area that we
7 contemplated. We gave a little less attention to the,
8 shall we say the passive buffer that the City requested
9 so we didn't take that to be an absolute constraint.
10 We tried to accommodate it as much as we could.

11 Q. In that same section of your
12 report when you refer to the property needs of the City
13 of Burlington once again I take it that you were relying
14 on the City's expression of need with respect to the
15 area south of Bayview Park; is that correct?

16 A. That is correct.

17 Q. You did not conduct any independent
18 investigation or inquiry of your own to determine whether
19 in fact it was needed for the purposes of remedial works
20 at Bayview Park?

21 A. No, we did not.

22 Q. You refer as well to a notice of
23 expropriation having been made by the City of Burlington
24 with respect to those two areas. I take it, Mr. Hiraishi,
25 you are aware that that notice of expropriation has been



1 challenged by National Sewer Pipe and others and the
2 matter is now before the courts?

3 A. I was aware of that, yes.

4 Q. I take it you are also aware that
5 by order of the Supreme Court of Ontario in July, 1986
6 the City was restrained from taking any further steps or
7 seeking to enforce the intended expropriation pending
8 further order of the Court?

9 A. I wasn't aware of that.

10 Q. You are not. Are you aware or
11 can you confirm that National Sewer Pipe is also involved
12 in litigation now before the courts seeking damages from
13 the City of Burlington as a result of landfill waste
14 having been deposited on its land?

15 A. I was aware of that, yes.

16 Q. That matter is still before the
17 courts as well?

18 A. I understand that.

19 Q. Depending on the resolution of
20 the issues as between National Sewer Pipe and the City
21 of Burlington in those proceedings, National Sewer Pipe
22 could be in a position to convey those portions of its
23 lands to the Region if it desired to do so in the
24 future?

25 A. Yes.



1 Q. I take it as well we can agree
2 in light of those pending proceedings that the propriety
3 of the City of Burlington's request for either of those
4 two areas or the merits in engineering terms or the
5 necessity for the remedial works at Bayview Park has
6 certainly not been established?

7 A. I can't comment on that, Ms Cronk.

8 Q. We have heard something in general
9 terms as well, Mr. Hiraishi, about guidelines put forward
10 by the Ministry of the Environment for the construction
11 and operation of the landfill site which extend in part
12 to recommendations regarding buffer zones. Do you recall
13 that has come up in your testimony?

14 A. Yes.

15 Q. Those are, as I understand it,
16 guidelines only; they are not requirements put forward
17 by the Ministry for adherence?

18 A. That is correct.

19 Q. I am going to suggest to you,
20 Mr. Hiraishi, and I wonder if you can help the Board as
21 to your experience in this area that there are many
22 landfills in Ontario that are now operative or that
23 have been put forward for approval that have a whole
24 range of buffer zones of various sizes and dimensions?

25 A. Yes, that is true.



1 Q. Are you familiar with for example
2 the West Lincoln hazardous waste site?

3 A. No, I am not. I don't know any
4 of the details although I do know that that is a proposed
5 site for the OWMC but I have no other details other than
6 that.

7 Q. I am showing to you and I apologize,
8 Mr. Chairman, I have not yet made copies of this but I
9 will do so, a copy of a report prepared -- an extract
10 from a report prepared for the OWMC concerning that
11 site by M.M. Dillon Limited and dated November, 1986
12 and I would ask you just to look at the second page if
13 you would and confirm for me that the buffer zone
14 proposed at that site in that report is 50 metres?

15 A. Yes, the overall width of what
16 is shown here shows it to be 50 metres. If I can just
17 read this it says:

18 "Overall dimensions of recommended peri-
19 meter buffer."

20 Q. That is a hazardous waste site
21 that has not yet been approved but has been put forward
22 by the Ontario Waste Management Corporation?

23 A. That is my understanding, yes.

24 Q. You have spoken several times in
25 your evidence in passing about the Keele Valley Landfill.



1 The buffer area at that site I am told along the north
2 boundary is less than 30 metres wide. Can you confirm
3 that?

4 A. I can't confirm the 30 metres.
5 I am able to say that it wouldn't be 100 metres. That
6 is about all I know but I am not certain of the actual
7 dimensions of that buffer on the north side.

8 Q. That site is now operational; is
9 that right?

10 A. Yes.

11 Q. It is my understanding that refuse
12 has actually been deposited at that site, right to the
13 limit of the buffer area. Can you help me with that
14 or do you know?

15 A. I couldn't tell you that.

16 Q. The site is in part adjacent to
17 a former landfill site operated by the Town of Vaughan;
18 is it not?

19 A. That is true.

20 Q. That is in part the same situation
21 that would apply at Site F?

22 A. Generally it is the same simply
23 because it is contiguous.

24 Q. Are you familiar with the Brock
25 West landfill? I understood you to refer to it a couple



1 of times in your evidence as well.

2 A. I don't believe I made direct
3 reference to Brock West. I am not knowledgeable about
4 that site.

5 Q. You're not?

6 A. Several aspects of it but primarily
7 the gas collection system more than anything else.

8 Q. Are you familiar with the buffer
9 zones at that site?

10 A. No, I am not.

11 Q. What about the Haldimand-Norfolk
12 site?

13 A. No, I haven't had a chance to look
14 at that.

15 Q. That is a site that has already
16 been approved by the Environmental Assessment Board; is
17 it not?

18 A. I am not aware of that.

19 Q. I am going to show to you,
20 Mr. Hiraishi, a report of the Environmental Assessment
21 Board, dated March 17, 1987 concerning the matter of
22 the Haldimand-Norfolk proposal for an increase in the
23 service area of the existing waste disposal site in that
24 community. I am going to refer you to page 11 of that
25 report.



1 DR. KINGHAM: While you are doing that
2 perhaps someone at the back could partially close those
3 blinds. It is very difficult going back and forth from
4 the witness and looking out that window.

5 MS CRONK: Q. Mr. Hiraishi, can you
6 confirm for me from that portion of the Board's report
7 that at the Haldimand-Norfolk site which has been
8 approved there is a buffer of only 30 metres on the
9 north, west and south sides and 100 metres on the east
10 side of the site?

11 A. Yes.

12 Q. If you look at the date of that
13 report the Environmental Assessment Board approved that
14 site in January of 1987. It's on the back page.

15 A. I can't seem to find it, Ms Cronk.

16 MR. HODGSON: It would be faster if
17 Ms Cronk gave the evidence and Mr. Hiraishi asked the
18 questions.

19 THE WITNESS: There seems to be more than
20 one last page there.

21 MS CRONK: Q. It is important that I
22 check because I had the date wrong, Mr. Hiraishi, March
23 17, 1987 I suggest the date is?

24 A. Yes.

25 Q. Mr. Hiraishi, the import of all of



1 those and my purpose in referring you to them is simply
2 to suggest to you that there is considerable flexibility,
3 given the experience in Ontario, in determining the
4 extent of an appropriate buffer zone for a landfill site?

5 A. I believe that each site would
6 have to be assessed on its own merits and appropriate
7 buffer zones established based on the site-specific
8 conditions. I think that we had discussed this pre-
9 viously with Mr. Tidball inasmuch as that 100-metre
10 buffer zone in effect is simply a guideline as a first
11 order to establish some basis to direct the attention
12 of the buffer needs and requirements that in fact it
13 can be narrower and we discussed the essence of the
14 technical buffer as we have discussed. I would think
15 that that, the works which you showed us on the OWMC
16 prepared by M.M. Dillon would fall into that category.

17 I believe we also discussed the possi-
18 bility that it could in fact be wider than 100 metres,
19 depending on the site-specific conditions.

20 Q. So it is a site-specific inquiry
21 and given what we have reviewed there seemed to be
22 considerable variation in what is appropriate at
23 various sites?

24 A. That's been my experience, yes.

25 Q. Are you satisfied, Mr. Hiraishi,



1 that the buffer zones proposed for Site F are adequate
2 from a design and engineering point of view?

3 A. I am reasonably satisfied that
4 the buffer zones we have given are adequate for
5 engineering and design purposes and operational purposes,
6 that they would not be interfering with the operation,
7 the efficient operation of the site.

8 Q. I had a number of questions as
9 well for you, Mr. Hiraishi, concerning the sanitary
10 sewers at Site F. As I understand it one of the
11 design advantages of Site F is that those sewers are
12 actually in place. The trunk lines are already there?

13 A. The primary line would be there.
14 We need to extend that from the Site F location to the
15 existing end of the sewer. That is shown in the red and
16 it terminates or at least it is connected to the
17 existing sewer in the southwest of the site.

18 Q. What you are saying is that at
19 Site F you have got to do a hook-up?

20 A. Yes.

21 Q. But the primary line, the trunk
22 line across Highway 403, is already there; is it not?

23 A. There are actually two lines now.

24 Q. Let us deal with the one I asked
25 you about first, the trunk line across 403 is there?



1 A. That is true. We have made an
2 assessment through the Region of Halton to establish
3 the requirements or upgrading that may be necessary
4 downstream from our connection point.

5 Q. I will come to that, Mr. Hiraishi.
6 I am concentrating at the moment on what is there now
7 and where it is. The main trunk line across 403 is
8 there?

9 A. Yes.

10 Q. The line across from the North
11 Service Road is there and it hooks into the main trunk
12 line at 403; is that correct?

13 A. That is correct, yes.

14 Q. Just dealing with the trunk sewer
15 across 403, that was originally designed to accommodate
16 sewage from the Town of Waterdown, as I understand it;
17 is that your understanding as well?

18 A. I don't know what the basis for
19 the implementation of that trunk sewer is.

20 Q. Do you know what the capacity
21 requirements were at the time of the original sizing
22 of that trunk line?

23 A. No, I don't.

24 Q. Was the trunk line put in place
25 prior to regional government?



1 A. I wouldn't know either.

2 Q. My suggestion to you, Mr. Hiraishi,
3 and if you don't know by all means simply tell me, was
4 that at the time the trunk line across 403 was put in,
5 it was in fact over-size?

6 A. That would be the normal experience
7 in similar matters. Most of these trunk sewers would
8 be over-size.

9 Q. My suggestion to you further is
10 that with the introduction of regional government the
11 sewage requirements of the Town of Waterdown were re-
12 designed so that in fact although it was sized initially
13 for that town's refuse, that capacity is not being used
14 on that line now? You can't help me, I take it?

15 A. No.

16 Q. Can you help the Board as to where
17 the Town of Waterdown is?

18 A. I can give you general directions
19 but I believe some -- it ...

20 Q. Mr. Hodgson says north.

21 A. It is generally in the northwest
22 direction.

23 Q. Is it in proximity to the site
24 in location to the -- or do you know?

25 A. Yes, I believe it is.



1 Q. I take it then in light of the
2 answers you have given me that you really can't assist
3 me as to the excess capacity or excess sizing currently
4 available in that trunk line across 403?

5 A. I can't. However, the assessment
6 was done on the downstream sewer capacity to accept the
7 leachate given the present flows and our experience in
8 trunk sewers to accept the leachate from Site F. That
9 has been completed and we are reasonably satisfied that
10 that assessment is correct.

11 Q. That is the line that hooks up
12 with the main trunk line across 403?

13 A. That is correct.

14 Q. Could we address then the discharge
15 end of what you are proposing at Site F?

16 A. Yes.

17 Q. As I understand it, the leachate
18 will be taken from Site F along, first of all -- I'm
19 sorry -- the hook-up will be put in place. That is the
20 first step?

21 A. Yes.

22 Q. That is obviously designed simply
23 to get the Site F location hooked up in a physical sense
24 to the existing lines?

25 A. Yes.



1 Q. From Site F then the sewage and
2 the refuse and the leachate will flow through the hook-
3 up of the sewer line through the part on the North
4 Service line to the main trunk line at 403?

5 A. That's our proposal.

6 Q. That's the route now utilized in
7 the area, is it not?

8 A. Yes.

9 Q. In fact there is refuse coming
10 into those lines from the currently-operated Burlington
11 facility and from Bayview Park?

12 A. The leachate part, yes, currently
13 operating in Burlington Landfill Site, yes.

14 Q. Then from that point it goes, if
15 I understand your proposal, to the Skyway water pollution
16 control plant?

17 A. That is correct.

18 Q. Could you show the Board where
19 that is, please?

20 A. The Skyway plant.

21 Q. All right, just directionally
22 indicate.

23 A. It is towards the southwest or
24 directly south.

25 Q. That treatment plant, as I



1 understand it, currently accepts leachate as you con-
2 firmed from the Burlington plant, from the Burlington
3 facility that is currently operating the landfill site?

4 A. Yes.

5 Q. It also takes leachate from the
6 Bayview landfill, doesn't it?

7 A. By a different route but it does
8 accept the leachate from the Bayview Landfill Site, yes.

9 Q. That is where both are currently
10 accepted?

11 A. Yes.

12 Q. That is where Site F leachate
13 would ultimately end up?

14 A. Yes.

15 Q. And your report, your opinion, as
16 I understand it, is that there is sufficient capacity
17 at that facility to accommodate that leachate from Site
18 F?

19 MR. HODGSON: That is not this witness'
20 evidence.

21 THE WITNESS: Hydraulically it can
22 certainly be accepted, yes.

23 MS. CRONK: Q. As the final cover is put
24 on the Burlington Landfill Site, Mr. Hiraishi, am I
25 correct that the flows of leachate generated at that



1 site will gradually decrease as the cap is put on, the
2 cover is put on?

3 A. In theory that would be true, yes.

4 Q. Is that your expectation of how
5 these landfills work that once the cover goes on there
6 is a decrease in production of leachate?

7 A. That would be a function of the
8 design of the final cover but the expectation is that
9 one has to place the final cover in a way that dis-
10 courages infiltration of precipitation and therefore
11 we expect that there will be a reduction in the quantity
12 of leachate, yes.

13 Q. That is what the engineers try to
14 do in designing a final cover?

15 A. That is what we try to do and
16 that is what we have estimated as well.

17 Q. Now, there is final cover obviously
18 on the Bayview site because it has been closed for some
19 time. It is my understanding there are plans to improve
20 the cover on that site, are you aware of those?

21 A. I am not aware of any of the
22 details of the cover, no.

23 Q. If -- perhaps I will put it on
24 this basis -- if the final cover introduced at Burlington
25 is such as has been designed to try and encourage the



1 reduction of leachate production I would ask you to
2 assume that the cover at Bayview is improved with the
3 same purpose in mind. I take it then that the amount
4 of leachate going into the Skyway treatment plant from
5 those two facilities will over time decrease?

6 A. Yes, that would be the expectation,
7 yes.

8 Q. As those events transpire
9 obviously there will be a capacity free-up if I can
10 express it that way to some extent at the Skyway
11 facility?

12 A. Once again I don't believe capacity
13 would be an issue at the Skyway plant. My understanding
14 is that that has adequate capacity to accept any
15 quantities of leachate that may result from the three
16 landfill sites in the area.

17 Q. That is today?

18 A. Yes.

19 Q. I am suggesting to you in the
20 future there would be even more capacity because the
21 amounts coming in from the other two facilities are
22 going to decline over time?

23 A. The situation should improve, yes.

24 Q. Thank you. Can we also when we
25 are discussing Site F discuss for a few moments the



1 shale reserves located on the site? Your cost calcula-
2 tions which you presented to us or the breakdown which
3 you gave to us this week indicate, as I read them, that
4 to a certain degree there is a cost efficiency saving if
5 you excavate the shale at Site F and sell it. The cost
6 per ton at Site F is going to be somewhat less than if
7 you don't do that. Is that a fair interpretation of
8 what your numbers show?

9 A. I don't believe that is what we
10 have said. The cost estimate as provided in the
11 document Mr. Watson prepared simply assumes that any
12 excess shale amounts that were excavated would be sold
13 essentially at the same cost that it took to excavate
14 in the first place, so that we simply assumed there
15 would be no increase in the cost for excess shale
16 excavation.

17 Q. Perhaps I have misunderstood it
18 then, Mr. Hiraishi. I would like to be fair about it.
19 As I have read about it under the excavation scenario
20 the final cost per ton you made to be \$7.75. That is
21 under the excavation and resale scenario. Am I right?

22 A. That is under any scenario.

23 Q. It happens to be the scenario
24 that includes excavation and resale, does it not?

25 A. As I say, it applies to both. We



1 did not differentiate whether or not the excess shale
2 was to be excavated. We simply assumed that whatever
3 excess shale was excavated would be sold at the same
4 price it was excavated for.

5 Q. Leaving aside what sale price
6 could be realized in comparison to excavation cost am
7 I right that -- I am referring to Exhibit H-268, your
8 operating cost estimate.

9 A. Yes.

10 Q. That the difference between the
11 two scenarios for Site F that are explained in this
12 document is 25 cents a ton. That is what we are
13 talking about, that is the difference?

14 A. I'm sorry, where is that in
15 reference to?

16 Q. Perhaps we had better go through
17 it. Could you look at page 2, Exhibit H-268, the
18 breakdown of your operating cost estimates that you
19 provided us over at page 2?

20 A. Yes.

21 Q. When you deal first, as Mr. Leitch
22 discussed with you, you deal first with the cost of
23 excavation at Sites D and F?

24 A. Yes.

25 Q. I am not interested in that for



1 the moment but that's dealt with at the top of page 2.

2 A. Yes.

3 Q. You then establish a cost per ton
4 at Site F of \$7.75; am I correct?

5 A. Yes, right.

6 Q. That amount is the same amount
7 per ton, as I understand it, as you first postulated
8 in your costing at Site F as reported upon in Exhibit
9 H-45, \$7.75 a ton?

10 A. Yes.

11 Q. That original costing was done on
12 the basis of excavating the shale and selling it?

13 A. No.

14 Q. You're saying that played no part
15 in that costing?

16 A. No, it did not. If we can go
17 through this exhibit I would like to perhaps clarify.
18 I am not sure whether there is mass confusion here but
19 if we can it will show that what we have assumed
20 simply, what I've stated before, that the cost of
21 excavation for the excess shale is simply the same cost
22 as the sale of that shale so that ultimately we simply
23 assume that there would be no increase or decrease in
24 the overall operating cost. Therefore, we just assume
25 that the shale, whether it is excavated as a resource



1 or otherwise would not impact on the operating cost.

2 Q. As I understood it under the
3 second scenario which you have costed which is now
4 before us, there were increased excavation costs. You
5 were moving more earth around at Site F and in the end
6 it affected your costing per ton at Site F?

7 A. Is this the same?

8 Q. Yes.

9 A. Once again I would have to explain
10 that the \$8 per ton, I gather that is the difference you
11 are referring to, \$8 per ton versus \$7.75?

12 Q. Yes.

13 A. That difference arises because --
14 not because of the excess shale that would be excavated
15 for shale resource, that excess shale would be excavated
16 for purposes of filling in the valleys and the reason it
17 is higher by 25 cents per ton is because the quantities
18 that we need to excavate and use as part of the site
19 design and operations now turns out to be more than in
20 our original scenario in which we have a better cut and
21 fill balance if one assumes that all of the excess shale
22 will be sold at the same price it was excavated for.

23 Q. Perhaps we have come to it indi-
24 rectly then but the differential of the two tonnage
25 rates is related to the excavation of the shale?



1 A. It is not a direct relationship
2 in that sense because if I were to establish some
3 scenario in which the excess shale that would be used
4 as a resource were either sold for less quantity, less
5 cost per ton than it was excavated for then the first
6 \$7.75 figure would then increase proportionately.

7 Q. Mr. Hiraishi, let us leave it
8 aside for the moment because frankly this may be a mis-
9 understanding on my part. Let us leave aside what it
10 is sold for. The proposition I am putting to you is
11 simply this that if the shale was excavated and sold
12 for the same price of excavation which is the first
13 scenario you costed, the price would be \$7.75 a ton?

14 A. That is correct.

15 Q. Whereas if you do not do that it
16 is \$8?

17 A. Correct.

18 Q. So having said that, as I under-
19 stand it, whether you call that a direct relationship,
20 an indirect relationship or a coincidental relationship,
21 the fact is that the removal of the shale or the non-
22 removal of the shale influences that costing per ton?

23 A. If one assumes that all that
24 excess shale will be sold, yes.

25 Q. That is the assumption you made,



1 wasn't it, that was made by you, right?

2 A. Only with respect to simplicity
3 and expedience in attempting to find what amount of
4 shale could be sold, would be sold and at what price.

5 Q. Leaving aside these assumptions ...

6 A. Right.

7 Q. ... that scenario would require
8 the Region in effect to be in the business of selling
9 shale; right?

10 A. Yes.

11 Q. There may be, I suggest, certain
12 limitations, legal or otherwise, which would prevent the
13 Region from doing that?

14 A. That has been suggested but I have
15 no way of confirming or knowing anything more than that.
16 That has been stated previously.

17 Q. It is also possible, I suggest,
18 Mr. Hiraishi, that the shale, if excavated at Site F,
19 could perhaps by agreement be sold by National Sewer
20 Pipe on behalf of the Region? That's a possibility,
21 isn't it?

22 A. That's been discussed as well, yes.

23 Q. There is also a possibility that
24 if the authorities were agreeable and if National Sewer
25 Pipe was prepared to do it they might pick up the shale



1 and sell it for their own profit?

2 A. Yes.

3 Q. Those are all arrangements between
4 the Region and National Sewer Pipe that could be explored?

5 A. Yes.

6 Q. The marketability of the shale
7 you would agree I take it is dependent both on the
8 quantity available and its quality?

9 A. That would be my understanding,
10 yes.

11 Q. National Sewer Pipe has an active
12 quarry operation on the east side of King Road at the
13 moment, does it not?

14 A. Yes.

15 Q. It has also taken shale out of
16 Site F, has it not?

17 A. That is my understanding, yes.

18 Q. So it is in the business of
19 quarrying and selling shale?

20 A. Yes.

21 Q. That is right now?

22 A. Yes.

23 Q. Its prices for the shale you can't
24 speak to I take it, that's not in your area of expertise?

25 A. No, I cannot.



1 Q. If the Region was however required
2 to stockpile that shale on Site F as has been suggested
3 to you for resale purposes and if there were no limita-
4 tions on the way in which it was required to sell that
5 shale it could actually move all that shale onto the
6 market at once, couldn't it?

7 A. Right.

8 Q. In fact it could fire sale that
9 shale, couldn't it?

10 A. If they so choose I suppose so.

11 Q. Those are all within the realms
12 of possibility?

13 A. Yes.

14 Q. Right beside Site F, the current
15 landowner of Site F is carrying on an active, competitive
16 quarrying sale of shale business?

17 A. Yes.

18 Q. Would you agree with me, Mr. Hiraishi,
19 that if that were to happen, were the Region to be
20 placed in a position, assuming for the moment it were
21 possible, assuming the Region were placed in the position
22 where for the first time it would be in the business of
23 selling shale it could move shale onto the market and
24 alter the current arrangement that exists between
25 suppliers and purchasers in that field?



1 A. Yes.

2 Q. What I'm clearly suggesting to you
3 is it might very well have an adverse effect on the
4 competitive position of National Sewer Pipe?

5 A. I couldn't tell you.

6 Q. The irony of that is that National
7 Sewer Pipe today owns the shale?

8 A. Yes.

9 Q. Could we come then to Site D,
10 please? During the course of your discussion with
11 Mr. Estrin, you were asked, as I recall it, about your
12 prior experience with hydraulic traps of the type
13 envisaged for Site F. Do you recall that?

14 A. Yes.

15 Q. You were referred in the context
16 of discussing that with Mr. Estrin to the Walker Brothers'
17 site, do you remember that?

18 A. The Walker Brothers' site, yes.

19 Q. Were you intending to suggest in
20 that discussion, Mr. Hiraishi, because I was unclear,
21 that the Walker Brothers' quarry site functions or is
22 intended to function according to hydraulic trap
23 principles similar to that proposed for Site D?

24 A. I believe the only reference I made
25 was it is my understanding the Walker Brothers' quarry



1 operates on the basis, it is a discharge zone rather
2 than a recharge zone so groundwater and leachate
3 essentially can be contained within that site itself.

4 Q. Its design, however, as I
5 suggest is in no way similar to that proposed for Site D?

6 A. That's absolutely true.

7 Q. There is no hydraulic trap?

8 A. Not in the sense that we have at
9 Site D, no.

10 Q. Could I ask you to turn if you
11 would, please, in your report on Site D, Exhibit H-41?
12 Could I ask you to go to page 6, if you would, please,
13 Mr. Hiraishi? Do you have that?

14 A. Yes.

15 Q. As I understand it beginning at
16 the top of page 6 under the title "Site Operations" you
17 have set out the works that will be required before any
18 landfilling at all can commence at Site D. Do I have
19 that correctly?

20 A. That is correct.

21 Q. So each and every of these items
22 must be accomplished before you start to fill at cell 1?

23 A. That is outlined as shown on the
24 site preparation plan, yes.

25 Q. I would like to review each of



1 these briefly with you then. If we can deal first with
2 the access -- if I can just come back. Cell 1 is
3 obviously the first cell, as I recall your evidence,
4 that is to be filled at Site D?

5 A. The site works required prior to
6 any landfilling takes place is given on that H-41D-3.

7 Q. If we could look first at the first
8 one that you have set out at page 6 because I would like
9 to have a better understanding with respect to some of
10 these items in this order. Dealing first with the
11 access road that is required referred in your evidence
12 as a primary access road to Site D from Highway 25?

13 A. Yes.

14 Q. That is not needed at Site F as
15 I understand it because there is already one there
16 leading to the current regional facility?

17 A. That is in the proposal, yes.

18 Q. Am I right as well that this access
19 road at Site D carries with it a price tag of at least
20 \$100,000 for the construction of that road?

21 A. That \$100,000 is in reference only
22 to the access improvement. I don't believe the whole
23 road, the primary access road, would be in addition to
24 that cost.

25 Q. That was going to be my question



1 to you, Mr. Hiraishi. Perhaps you could look at Exhibit
2 H-45 where your costing for Site D is set out at page
3 A-5.

4 A. Yes.

5 Q. The only cost in that section
6 dealing with access roads that I can relate in any way
7 to this primary access road was item No. 4 which is
8 described as Highway 25 improvement, lump sum \$100,000.
9 Do you see that?

10 A. Yes.

11 Q. Is that then just the improvement
12 to the road, Highway 25?

13 A. That is simply ...

14 Q. Yes. What are the full cost
15 consequences at Site D from having to build that primary
16 access road or have you costed that?

17 A. We have costed that in item C-1
18 and item C-2. If you want to include other roads which
19 are gravel-top roads, we have noted that being secondary
20 gravel roads. It is only secondary in terms of the
21 fact that one is gravel and the other is paved. They
22 could in fact also be primary access roads as well for
23 at least part of the blue that is shown here on H-41D-3.
24 The total cost for the paved areas is in the order of
25 about \$320,000.



1 Q. That is item 1 under C?

2 A. C-1, yes. That paved access road
3 extends essentially just past the main buildings and
4 the weigh scale.

5 Q. So you are saying to me then as I
6 understand it that that first item under C includes a
7 proportion of the \$320,000 is attributable to doing the
8 main access road?

9 A. Well, I suppose that depends on
10 how you want to define the main access road but as far
11 as -- for our purposes the primary access road only
12 refers to the fact that it is going to be used by the
13 haul vehicles and not there for emergency vehicles or
14 other vehicles. So essentially it is primary in that
15 it is a main road into the landfill site and in that
16 sense the cost for that is in the order of \$320,000.
17 I would say it requires another \$100,000 to improve
18 the entrance into the site.

19 DR. KINGHAM: While you are on that,
20 Mr. Hiraishi, can you clear up a minor mystery for us
21 and tell us whether there is any significance between
22 the light blue and the dark blue on H-41D-3?

23 THE WITNESS: My colleague simply decided
24 that that dark blue was simply too dark for us to read
25 the words that are printed on the road, so there is no



1 significance other than that this section here simply
2 says "Main Paved Access Road" and this section here says
3 "East Service Road."

4 DR. KINGHAM: Thank you. It was a mystery.

5 MS CRONK: Q. Mr. Hiraishi, I think the
6 easiest way to go through this is, could you clear those
7 two exhibits away and get the flip chart in front of
8 you? Thank you. I am going to ask you as we go through
9 this together to make some recordings on the flip chart
10 so that we will have the numbers clearly established.
11 So just dealing then with the first item that you have
12 listed as being a necessary initiating work, the access
13 road, we know that that carries with it a price tag of
14 \$100,000 for the improvement to Highway 25?

15 A. Yes.

16 Q. That is \$100,000 that need not be
17 spent at Site F because the road is there, am I right?

18 A. Yes.

19 Q. Could you then perhaps put two
20 columns on the flip chart and put extra cost Site D on
21 one side and extra cost Site F on the other?

22 A. Would that be satisfactory?

23 Q. Thank you. Then we have the
24 first item under D is access road \$100,000. The next
25 item you indicate at page 6 is the scale and the scale



1 house?

2 A. Yes.

3 Q. That is the weigh scale?

4 A. That's right.

5 Q. Neither of those facilities are
6 currently available at Site D?

7 A. Yes.

8 Q. But they are already in place at
9 the regional site adjacent to Site F?

10 A. Yes.

11 Q. Your proposal as I understand it
12 is to make use of those existing facilities at the
13 regional site for the purposes of the Site F develop-
14 ment?

15 A. That's right.

16 Q. So that the price tag attached to
17 the weigh scale and the scale house at Site D again is
18 a cost that need not be spent at Site F?

19 A. Yes. We have just allowed for
20 a small, marginal allowance to upgrade the scale house
21 at Site F if that would be required but it is simply an
22 allowance at this point.

23 Q. Could I ask you to look at page
24 A-5 again of your costing for Site D? As I read it
25 the price tag associated with the weigh scale and the



1 scale house at Site D is \$350,000?

2 A. That is correct.

3 Q. Could you put that down under
4 Site D? Then the next item that you have listed in
5 your report is the bulk bin area. Once again, those
6 are presently situate or in existence at the regional
7 site adjacent to Site F?

8 A. Yes.

9 Q. Your intention is to make use of
10 those for the Site F development?

11 A. That is true.

12 Q. There are none at Site D so to
13 that extent it is a cost at Site D that is not associated
14 with Site F?

15 A. That is correct.

16 Q. Looking at page A-5 of Exhibit
17 H-45 as I read it the actual construction cost as opposed
18 to any paving costs associated with it, but the actual
19 construction cost is under site services D No. 4,
20 \$100,000?

21 A. Yes.

22 Q. Could you add that as well? Now,
23 you also, as I understand it, have to pave the bulk
24 bin area in order to make it accessible to those who are
25 going to be using it and you have to do the appropriate



1 grading and those costs, you have set out in your costing
2 under the access road section in your paving costs,
3 item number 2, \$182,000.

A. Yes.

4 Q. Would you add that as well?

5 A. For that paving and a part of that
6 is noted as the parking area and not the bulk bin area.
7 I have no way of establishing what portion of that
8 \$182,000 would be directly associated with the paved
9 area of the bulk bin.

10 Q. There will be I take it a parking
11 area near the bulk bin, will there not?

12 A. The parking area is as shown which
13 would be used primarily for staff and that is adjacent
14 to the scale house.

15 Q. Are there as well to be parking
16 facilities near the bulk bin?

17 A. We don't anticipate a requirement
18 for parking in the bulk bin area. Parking is done at
19 the bin itself.

20 Q. You have told us you cannot help
21 us as to what the breakout is between the grading and
22 paving expenses for the bulk bin area and those for
23 the parking area at large?

24 A. I can state that it would be
25 most of the \$182,000 which would be borne by the bulk



1 bin area rather than the paved area simply just by the
2 area that it does cover.

3 Q. Would you then put under Site D
4 extra costs the amount that you consider appropriate
5 for that expenditure for the bulk bin area?

6 A. I am merely providing a guess here
7 and nothing more. I will put \$165,000.

8 Q. Then you have told us with respect
9 to the access road that you discussed a few moments ago,
10 that a certain portion of the paving costs are associated
11 with establishing a main access route?

12 A. Yes.

13 Q. Can you help me as to which -- how
14 much of the \$320,000 is associated with that cost as
15 opposed to other paving costs?

16 A. Again that will depend on how you
17 would like to define what the cost to the primary access
18 road. We have established the termination point of
19 the paved area to be at this point, near the maintenance
20 building and the site office (indicating).

21 Q. Could you perhaps put an arrow on
22 the exhibit, Exhibit H-41D-3 and where you have drawn
23 the area is -- I am sorry -- where you have drawn the
24 arrow you are indicating is what?

25 A. That is the end point for the



1 paved area. So, if you want to then consider that to be
2 the primary access road then it would of course be the
3 total sum which is shown here which would be \$320,000.

4 Q. It's your opinion, Mr. Hiraishi,
5 I am interested in. So, could we step back for a moment
6 and we know that temporary access roads are going to be
7 needed at both Sites F and D?

8 A. Yes.

9 Q. There are costs associated with
10 these temporary facilities and we will come to those?

11 A. Yes.

12 Q. But those costs include paving costs?

13 A. For the temporary, no, it doesn't.

14 Q. The paving expenses you are show-
15 ing does not apply to any of the temporary facilities?

16 A. That's right.

17 Q. We know at Site F there is a
18 primary or direct access route already available that
19 can be utilized?

20 A. That's true.

21 Q. At Site D we do not have that.
22 We have to put it in and we have to pay to put it in, am
23 I right?

24 A. That would be true but for
25 comparison purposes the paved area at the existing



1 landfill site extends beyond the weigh scale. What we
2 will be using as part of the proposed Site F operations
3 would be to use that paved area essentially to the weigh
4 scale that is located now. We would need to extend some
5 of that paved area in Site F towards the north and
6 towards the first cell. So there is some paved area
7 that would be required on the site.

8 Q. You have included that in your
9 costing for Site F?

10 A. Yes.

11 Q. Mr. Hiraishi, I am trying to under-
12 stand from you what costs are associated just on that
13 item to put Site D in the future in the same position
14 as Site F is in today. I would wish to know from you
15 what the costs are associated with building that road.

16 A. The primary access road, as you
17 have described it, for my purposes comprised both the
18 paved road and the gravel road, the difference being
19 that we wanted to establish the road system so that we
20 can eliminate or reduce as much as possible instances
21 where dust and such are on dirt roads and easily-
22 maintainable roads but at the same time being cognizant
23 that vehicular traffic in the way of off-site vehicles
24 and compactors and scrapers would need to travel. We
25 were not prepared to place asphalt in areas in which



1 that traffic would occur. So, in this sense what we have
2 is the maintenance and site office located, being
3 located approximately 150 metres or so from the scale
4 house to the west, this area in here (indicating). They
5 would be required to travel along within the fill area
6 so that we don't expect them to cross the paved road.
7 We wanted to make sure that some compromise was made
8 so that we could maximize the paved area and at the same
9 time reduce potential problems with off-road vehicles
10 on paved roads. It would be easier on gravel roads
11 than paved roads.

12 Q. Stopping there, what you are saying
13 to us is to get the cost figure we have to look at the
14 paving cost but as well the gravelling cost?

15 A. That is correct.

16 Q. What are the costs associated with
17 the paving?

18 A. Again, I am doing it for comparison
19 purposes. It is fair to simply include these costs in
20 total rather than trying to break it down. Secondary
21 roads, as we have shown them, could be reduced I suppose
22 in absolute terms only because probably three-quarters
23 of that road, as we have envisioned, is essentially for
24 emergency vehicle access rather than haul vehicles. It
25 is not necessarily required for day-to-day operation but



1 we are suggesting it be implemented right away for
2 emergency situations.

3 Q. All right. Could we come back to
4 the flip chart then and take this item by item? I have
5 understood you to say then that in answer to the question
6 I put to you we should be taking the entire paving
7 costing that you have shown of \$320,000?

8 A. Yes.

9 Q. All right. Could you add that,
10 please? I have understood you to say as well that we
11 should be taking approximately three-quarters of the
12 gravelling road expense which you show in total to be
13 \$248,000?

14 A. Yes.

15 Q. I make three-quarters of the 248
16 to be \$186,000. Could you do your own calculation and
17 put on the appropriate amount?

18 A. I am sorry, I referred to the
19 three-quarters as being that quantity of gravel road
20 that would not be required for the day-to-day operations,
21 not that would be required.

22 Q. Let me be clear then. The dis-
23 tinction you have drawn is between the amount of gravel
24 road that emergency vehicles will need as opposed to the
25 haulage vehicles?



1 A. Right.

2 Q. Is it not your intention to put in
3 the roads for the emergency vehicles before you begin
4 filling in case something goes wrong?

5 A. Yes.

6 Q. Am I right that the gravel roads
7 that are going to be used by the emergency vehicles are
8 still a start-up cost at Site D?

9 A. Yes, all these costs are start-up
10 costs.

11 Q. It is your point then that the
12 route for emergency vehicles has to be put in at Site
13 F or is it not already there? It is already there,
14 isn't it?

15 A. The entranceway would be there.
16 We haven't assessed whether any improvement would be
17 required at this point.

18 Q. But you don't have to build gravel
19 roads at Site F or paved roads at Site F to provide
20 immediate ready access to emergency vehicles because it
21 is there?

22 A. No, not entirely. We are antici-
23 pating an emergency access road off King Road at Site F.

24 Q. Have you included that in your
25 costing for Site F?



1 A. Yes.

2 Q. I wish to be fair, Mr. Hiraishi.

3 The number I wish to have from you then is I wish to
4 know which portion of the gravel road expense of \$248,000
5 that you are showing are monies that must be expended
6 just to put Site D in the beginning in a comparable
7 position to where Site F is today. Is it one-quarter
8 of that or is it three-quarters?

9 A. Can I clarify whether you are
10 assuming that what we have proposed here is the way it
11 is going to go or are you trying to minimize?

12 Q. Based on your design.

13 A. Based on that design the \$248,000
14 for the secondary road still stands. That is the road
15 that loops around the actual fill area. If you are
16 referring to the real cost that must be borne rather
17 than we would like it to be borne, then, of course, we
18 could drastically reduce the secondary road that would
19 be required for the day-to-day operations.

20 Q. I am sorry. You have made certain
21 proposals for certain facilities at Site D?

22 A. Yes.

23 Q. Those you have costed?

24 A. Yes.

25 Q. Those are what we are looking at?



1 A. This is the H-41D-3. All of these
2 works that are shown on this plan is what we have pro-
3 posed would be implemented prior to the disposal startup.
4 There is under no circumstances a commitment or a
5 requirement, rather, by anyone else that we must build
6 all of those roads. There are certain roads that we
7 must have prior to accepting the waste and there are
8 also roads that we would like to have for purposes such
9 as emergencies and other vehicular access that could
10 occur and we like to think that the proposal here
11 accounts for some happenings that may or may not be
12 anticipated but one would -- we like to think that we
13 have accommodated. So, if you are referring to the
14 basic need for roads then I suggest that this secondary
15 gravel road cost of \$248,000 could be significantly
16 reduced from the \$248,000.

17 Q. What proportion of that figure,
18 Mr. Hiraishi, reflects the cost -- just wait until I
19 finish my question -- reflects the cost that must be
20 expended before you can do any fill? Not best of all
21 worlds, not desirable road pattern, must be expended?

22 A. The only portion of the road that
23 we absolutely must have, the bare-bones proposal would
24 be from this arrow location to the entranceway to cell 1.
25 That is the only section that we must have. All the



1 other roads that are shown in blue with the exception
2 of the temporary access road into cell 1 as well as
3 this access road that is located on the dyke between
4 cell 1 and cell 2 of course are itemized under C-5.

5 Q. What proportion of the \$248,000
6 is attributable to the portion of the road that is
7 mandatory?

8 A. To be, as you say, fair, we have
9 the total secondary roads at approximately 3,100 metres.
10 The section of the road that we absolutely have to have
11 is approximately 330 metres. That would be the ratio
12 that we would have to have. In other words it would
13 be -- it would be in the order of about \$25,000.

14 Q. For the mandatory part?

15 A. Yes, approximately ten per cent.

16 Q. Can we go back to our flip chart,
17 please? Would you add in the \$25,000, the mandatory
18 part of the road that you don't need at F but you do
19 need at D?

20 MR. TZEKAS: I don't want to misunder-
21 stand the chart that is being prepared. I didn't hear
22 the witness say that it doesn't require gravel roads at
23 F. I have an item for that in Exhibit H-266. Could
24 I just ask for clarification as to what the number is?
25 I really don't know at this point.



1 MS CRONK: I thought I had made it clear,
2 Mr. Chairman, what the intent of the exercise was and
3 I was trying to frame my questions to get a fair answer.
4 If I haven't done that by all means I can go back and
5 do it.

6 Q. Let us deal with the roads. I
7 think we were fine until we got to the roads,
8 Mr. Hiraishi. It is clear that the road in existence
9 at the regional site which you proposed can be utilized
10 and should be utilized for Site F; am I right?

11 A. That would be the portion of the
12 road that goes up to the scale house, yes.

13 Q. And you told me and I confirmed
14 with you that in your view ultimately that might have
15 to be extended and you had costed that for Site F?

16 A. They will be extended, yes. That
17 will be again a basic requirement prior to Site F being
18 in operation.

19 Q. And you have included that in your
20 costing for Site F?

21 A. Yes.

22 Q. Then with respect to Site D my
23 question to you was, what are the costs associated with
24 putting Site D at startup in the same condition that
25 Site F is now? In other words, I want to know what you



1 have to expend at D on that road at D which you didn't
2 have to spend on F which was already there. As I
3 understood your answer, I understood there were two
4 components, there were paved roads and gravel roads.
5 Do I have that correctly?

6 A. Yes.

7 Q. Let us deal with the \$320,000 for
8 paved road. As I understood what you told me those
9 are monies that have to be expended at Site D to put in
10 paved roads that are already in at Site F; is that
11 correct?

12 A. No, I think you have misunderstood.
13 There is a section of paved road at Site F that will have
14 to be constructed.

15 Q. Then Mr. Tzekas' point is well-taken
16 then and I want the numbers to be accurate.

17 A. I assumed that ...

18 Q. Never assume anything when you are
19 on that side of the podium, Mr. Hiraishi, and I am over
20 here. Take the \$320,000, are you clear on the question
21 I am now asking, you have to put a road in at D that is
22 now there at F. I want to know what it costs.

23 A. I would much rather go through the
24 D first and then go through the F. I believe if you
25 add the items on D and you add the items on F the



1 difference will be the answer that you are looking for.
2 To do it item by item is very confusing.

3 Q. We are not going to do it all item
4 by item, Mr. Hiraishi. I am concentrating now on the
5 facilities that are already in existence at Site F that
6 could be utilized and those that are not at Site D.
7 So there are items that clearly must be built at D when
8 they are there at F. With respect to the paved roads,
9 is it \$320,000 worth of paving that must be done at
10 Site D that is already done at F or is it some propor-
11 tion of the \$320,000?

12 A. The \$320,000 on D has nothing to
13 do with what is required at F. If you want to know the
14 difference in the paved road between them it is simply
15 the difference that is given in this item here on page
16 A-10. That is the difference if you wanted to only
17 assume the paved road requirements. So that the
18 difference in effect is approximately -- I guess it is
19 \$294,000. That would be the difference that you are
20 referring to. We have a small section on F that must
21 be built and we are proposing that it be paved. Again,
22 in addition to that, we have the secondary roads or
23 the gravel roads which will have to be implemented as
24 well at Site F. That is why I am suggesting to you that
25 we go by sites rather than comparing them item by item.



1 DR. KINGHAM: I think we are a bit con-
2 cerned now as to what you are assuming, Mr. Hiraishi, in
3 giving these answers in light of what you just said.
4 For instance, you gave an answer on scales saying
5 \$350,000 and you had an item on scales on page A-10.

6 THE WITNESS: Yes?

7 DR. KINGHAM: Are you assuming then that
8 you are going to come back and put a 50,000 on the other
9 side of that chart?

10 THE WITNESS: That's precisely the reason
11 I set up the chart this way so that we add these items
12 here.

13 DR. KINGHAM: You are not assuming that
14 is the excess or extra cost as it says at the top of
15 the chart on D; you're saying that's the total cost?

16 THE WITNESS: Yes.

17 MR. TZEKAS: Strictly dealing with that
18 can we deal with it? Mr. Hiraishi referred to the cost
19 of paved access roads being \$26,000 in his last equation.
20 On his flip chart it says -- as long as we understand.

21 DR. KINGHAM: I think Ms Cronk has been
22 very clear in stating what she is trying to get on this
23 chart. It raises some doubt in our mind as to whether
24 Mr. Hiraishi is answering those questions in that way
25 and I think we would like to know, Mr. Hiraishi.



1 MS CRONK: I am grateful.

2 Q. Mr. Hiraishi, the fault being in
3 large part mine, could we start again and explain to
4 you quite clearly as to what it is I wish you to assist
5 me with? Dealing with the items which you have
6 indicated in your report that have to be built at Site
7 D before any landfilling can commence, you have given
8 us a list of what those facilities are?

9 A. Yes.

10 Q. I am just dealing for the moment
11 with those that I understand -- those items that must
12 be put in at Site D but which need not be duplicated
13 at all or in the same way at F because they are already
14 there. Are you clear?

15 A. Yes.

16 Q. Could we deal with the first one
17 then? Let us come back to the access road, the very
18 first item, the access road, and you told me that an
19 improvement to Highway 25 was required at Site D and
20 that that would cost \$100,000; right?

21 A. Yes. If we are attempting to
22 establish what the costs are for initiating the land-
23 filling at either site, the costs are here. They are
24 not for the purpose of dissecting them for comparison
25 purposes. The difference is essentially taking the



1 costs for the access road for Site D and subtracting
2 the access road costs for Site F and that will provide
3 you with the difference in the cost for that item.

4 Q. Mr. Hiraishi, please understand
5 I recognize that in the costing that you have done you
6 have done the initial costing for Site F and the initial
7 costing for Site D and I am going to come to that but
8 I don't wish to deal with that item by item, so I would
9 just like to deal with a small category of items that
10 distinguish Site D from Site F. That is what I am
11 attempting to do right now. May I ask for your co-
12 operation and deal with these four or five items?

13 A. I don't want to be argumentative,
14 Ms. Cronk. It is simply that we have in front of us this
15 revised one which Mr. Tzekas suggested we use, an item
16 for access roads and there are three items here that
17 are going to be required for the development of Site F
18 and we also have five items on page A-5 of Mr. Watson's
19 document, costs that will be required for access roads
20 at Site D. If you are attempting to come up with a
21 difference, it is simply the addition of those five
22 items on D and the three items on F and that will be
23 the difference.

24 MR. HODGSON: Six hundred and two thousand
25 dollars.



1 MS CRONK: Q. Mr. Hiraishi, can we deal
2 with it this way, please? There is a road existing
3 at the regional site which you have now told me several
4 times can be used for Site F?

5 A. Yes.

6 Q. That is currently in place?

7 A. Yes.

8 Q. There is no such road at Site D?

9 A. Yes.

10 Q. Therefore to put in that road at
11 Site D am I right that that is with respect just to
12 that road and that the costs will not be incurred at
13 Site F?

14 A. Yes, and once again it is simply
15 the difference.

16 Q. What then -- I will ask you for
17 it again -- what then is the cost of that road at Site D
18 which we can fairly describe as being cost associated
19 only with Site D and not Site F? What number do you
20 put on it?

21 A. I can't answer that question in
22 terms of how much extra road you would have to have on
23 Site D that we don't have on Site F. The difference on
24 the paved road is the \$320,000 that is given on A-5 and
25 the \$68,000 that is given on the updated requirement in



1 the June 12th, 1987 document, the secondary road, the
2 \$(inaudible) on Site F and the \$248,000 we are proposing
3 on Site D. In addition we have a paved parking area
4 and bulk bin area which, to be fair then, it would be
5 required to have the same item on the Site F costs. We
6 did not allow for any paving of the bulk bin area at
7 Site F primarily because it already existed and we
8 didn't feel that it would be required and if they wanted
9 to pave it subsequently they could do so on a contingency
10 fund but it was not going to be a major item. Then we
11 have the temporary access road allowance for the bulk
12 site which is essentially an allowance that we think
13 is adequate but again it is an allowance. So that I
14 am really not very sure of what the exercise is here in
15 trying to say what is the extra road that would be
16 required on Site D that is not required on Site F.
17 Those are very specific items on the cost estimate and
18 there is no apparent need, as far as I am concerned,
19 to try and dissect what those items are.

20 Q. Forgive me, Mr. Hiraishi, but I
21 am entitled to approach my cross-examination in the manner
22 I think best for my client. In fairness to you may I
23 put a series of suggestions to you and if we cannot
24 reach agreement on it I will leave the matter? First,
25 let us deal with the clearest items. On the matter of



1 the scale, the weigh scale and the scale house ...

2 A. Yes?

3 Q. ... they are in place at Site F,
4 they are not at Site D; am I right?

5 A. Yes.

6 Q. Now, at Site D you have told us
7 there is a lump sum cost of \$350,000?

8 A. Yes.

9 Q. I am going to ask you to use a
10 new page, not the one you are working with now. On the
11 Site F new costing proposal you have said that there is
12 an upgrading of the scales and the scale house required
13 at \$50,000. Now I have it then that there is a net cost
14 at Site D in comparative terms of \$300,000 that will
15 not be incurred at Site F with respect to the weigh
16 scales and the scale house?

17 A. Yes.

18 Q. Fine. Would you put \$300,000 down
19 as an extra cost at Site D? Similarly, Mr. Hiraishi,
20 with the next item, with the bulk bin area, there is in
21 existence now at the regional site a bulk bin facility
22 as I understand it; am I right?

23 A. Yes.

24 Q. It is your proposal that that
25 would be used at Site F when operational?



1 A. Yes.

2 Q. At Site D, however, it has to be
3 built?

4 A. That is correct.

5 Q. But there is an upgrading you have
6 told us for Site F. Could we just look at those two
7 numbers so it is very clear for the Board? On Site D
8 you have indicated that there is a lump sum construction
9 cost for the bulk bin of \$100,000?

10 A. Yes.

11 Q. At Site F you have told us that
12 you assumed the use of the existing bulk bin area but
13 you have to upgrade it and you have allowed \$25,000; am
14 I right?

15 A. Yes.

16 Q. So doing it this way is there a
17 net incremental cost at Site D of \$75,000?

18 A. Yes.

19 Q. Could you list that then as an
20 extra cost at Site D? And we are clear so far that
21 those numbers represent additional monies to be expended
22 at D that need not be expended at F?

23 A. That is correct.

24 Q. Thank you, sir. Could we go to
25 the third item and that is the matter of the access road



1 -- sorry -- just before we leave the bulk bin, that
2 \$75,000 is the net incremental construction cost; am I
3 right?

4 A. Yes.

5 Q. But there is, you have told us,
6 in addition a grading and a sub-grading cost associated
7 with the bulk bin area. That is item No. 2 on your
8 access roads?

9 A. Yes.

10 Q. Is there any grading or sub-grading
11 cost associated with the bulk bin at Site F?

12 A. No.

13 Q. So I take it then that a propor-
14 tion of the \$182,000 that you have given for paving the
15 parking area and for the bulk bin area is purely incre-
16 mental at Site D and will not be incurred at Site F?

17 A. That is correct.

18 Q. I had understood you to tell me
19 earlier in our discussion that the appropriate proportion
20 was \$165,000 of the \$182,000. That \$165,000 was
21 attributable to the grading expenses; am I right?

22 A. Yes.

23 Q. Therefore am I right that that
24 \$165,000 are monies that will not be spent at Site F
25 but will be spent at Site D on the bulk bin area?



1 A. Yes.

2 Q. Could we add then \$165,000 to Site
3 D? Then we come to the matter which caused us some
4 trouble before and that is the question of the roads.
5 Mr. Hiraishi, I accept and indeed I have been inviting
6 you to give me your best judgment on the costing for
7 that factor, so let me just be very clear about the
8 question I am asking. There is a road currently in
9 place at Site F that can be utilized at Site F and there
10 is not at Site D, so there are some mandatory, immediate
11 costs at Site D associated with putting in the minimum
12 road that you will need to start operations at the site.
13 I wish to know what that number is however you wish to
14 calculate it with reference to what you have given us
15 before.

16 A. Shall we just add the items?

17 Q. I'm sorry, it's your judgment I
18 am asking so you tell me what the number is.

19 A. Four hundred and seventeen
20 thousand dollars difference.

21 Q. Four hundred and seventeen
22 thousand dollars?

23 A. Yes, and that is inclusive of the
24 difference in the bulk bin area that we would need to
25 have a parking area and since that item is included on



1 Site F it cancels each other out. In any case, it
2 is -- what did I just say?

3 Q. Four hundred and seventeen
4 thousand dollars.

5 A. Yes.

6 Q. Now, let us be very clear those
7 are monies that have to be expended at Site D in
8 association with that primary access road that need not
9 be expended at Site F because it is there?

10 A. They would be all the access roads
11 I would refer to. If you are asking my opinion we are
12 going with the site preparation plan as proposed so the
13 secondary roads will also be constructed at the same
14 time.

15 Q. So that is incremental cost at D
16 over F for the roads?

17 A. Yes. To be precise it will be
18 \$416,200 because I have got an \$800 item here.

19 Q. Let us put the number up first.

20 A. Shall I just say \$416,000?

21 Q. Does that include the \$100,000
22 improvement to Highway 25 at Site D?

23 A. It does.

24 Q. Does it include the gravel roads
25 we talked about a few moments ago?



1 A. Yes.

2 Q. Does it include that portion of
3 the paved roads that you regard as mandatory?

4 A. Yes.

5 Q. And is that \$416,000 a net number
6 meaning cost incremental at D over what would have to
7 be spent at F for access road requirements?

8 A. That is true.

9 Q. Is it then accurate to say,
10 Mr. Hiraishi, that the numbers you have indicated
11 collectively represent cost that must be expended at
12 Site D but will be saved at Site F by utilization of
13 existing facilities?

14 A. Yes.

15 Q. Could I then have the aggregate,
16 please? Nine hundred and fifty-six thousand dollars,
17 Mr. Hiraishi?

18 A. That is correct.

19 Q. This may be very small consolation
20 to you but when I did this exercise we were only \$10,000
21 off. At this point I suggest we take our morning
22 break. Thank you.

23 MR. LANCASTER: Fifteen minutes.

24 --- Recess

25 MR. LANCASTER: Be seated, please.



1 MR. HODGSON: Mr. Chairman, I just wonder,
2 Mr. Lederer is out here because Mr. Watson was going to
3 be on today. I just wanted to clarify whether or not
4 that was likely. It seemed to me it was unlikely.

5 MR. LANCASTER: It was unlikely, you say?

6 MR. HODGSON: It is unlikely. I under-
7 stand Mr. Tzekas will be three or four hours.

8 MS VIGOD: Less than one.

9 MR. HODGSON: Will the Board have any
10 questions of this witness?

11 MR LANCASTER: Just a few.

12 MR. HODGSON: Can we agree that if we
13 get through him today we will not start another witness?

14 MR. LANCASTER: I have a dinner in
15 Niagara Falls so I must leave.

16 MS CRONK: Mr. Chairman, I would ask that
17 the flip chart we were discussing just before the break
18 be marked as an exhibit.

19 MR. LANCASTER: I was going to suggest
20 that before we left. Do you want to scrap the first one?

21 MS CRONK: I think it wise.

22 --- EXHIBIT NO. N-270: Flip chart prepared by witness

23 MS CRONK: Q. Mr. Hiraishi, I am going
24 to discuss another topic with you and that has to do
25 with the visual impact analysis for Site D that was



1 carried out and certain of the final contours that have
2 been planned for that site. The visual impact analysis
3 for the site was carried out by Landplan Collaborative
4 Limited; is that correct?

5 A. That is correct.

6 Q. They suggested limiting the height
7 of the landform at Site D to 15 metres?

8 A. Yes.

9 Q. That is 15 metres above the grade
10 of the existing site, I take it?

11 A. That is correct.

12 Q. That recommendation was based, as
13 I recall their report, on the fact that there are at
14 least 69 houses within one kilometre of Site D which
15 would suffer, in the opinion of those consultants, high
16 impacts if Site D was approved. Do you recall that?

17 A. Yes, I recall that is the implica-
18 tion but the implication for that 15 metres lies ...

19 Q. I am sorry, I can't hear you.

20 A. The basis for that 15-metre-height
21 restriction was developed not because of the visual but
22 because of the landfilling requirements and then sub-
23 sequently the visual analysis was undertaken to assess
24 that 15-metre height.

25 Q. Do I have it though that the



1 recommendation of the visual impact consultants was,
2 given the opportunity for high impact on certain resi-
3 dences, the elevation should be no higher than 15 metres
4 above existing grade?

5 A. That is correct, yes. The assess-
6 ment that was done on the visual was based on that 15
7 metres. They had no assessments done for any heights
8 that were higher than that.

9 Q. I see.

10 A. The impact on surrounding residences
11 are not known beyond that 15-metre height.

12 Q. I am referring you to Exhibit H-23.
13 I don't think you need to take it out, Mr. Chairman, but
14 that is the visual analysis for Site D. At page 5, I
15 would refer you to the full paragraph at the bottom of
16 the page. Can we just confirm and refresh our
17 memories that the conclusion of the consultant was that
18 there are 69 residences within one kilometre of Site D
19 and if D was approved would suffer high impact?

20 A. Yes, that is correct.

21 Q. That residential population within
22 one kilometre of Site D is a distinguishing feature from
23 Site F, is it not, as there are no residences within
24 one kilometre of Site F?

25 A. Strictly with respect to the high



1 impact, yes.

2 Q. Could I ask you to turn then to
3 Drawing No. 5 in your Site D report, 5 of 8? You have
4 put up Exhibit H-41D-5. That shows on the legend on the
5 right-hand side of the drawing a base contour line of
6 179.5 metres above sea level?

7 A. Yes.

8 Q. Overall I suggest if you look at
9 the contours within the Site D area it is about 181
10 metres as the existing ground level elevation?

11 A. It will vary almost five metres
12 across the site but 181 could be a point of departure,
13 yes.

14 Q. Do you agree that that is a fair
15 representation of the average?

16 A. I really can't comment on that.
17 I don't know what the average would be.

18 Q. I'm sorry, Mr. Hiraishi, my under-
19 standing is that 181 is the lowest.

20 A. Yes, on the site.

21 Q. And that is located near First
22 Line?

23 A. That is correct.

24 Q. Then, if we look at Section G on
25 the same drawing that shows the height of the highest



1 lift in that cross-section as 198 metres?

2 A. That is correct, yes.

3 Q. So that, just dealing with those
4 numbers for the moment, is 17 metres higher than the
5 existing elevation of 181 at First Line?

6 A. Yes.

7 Q. Could I ask you now to go to
8 Drawing No. 8, if you would, please? You have put up
9 H-41-8 and that shows a spot elevation of 202 metres
10 above sea level; correct?

11 A. That is the point within approxi-
12 mately cell 4, the highest elevation there was at 204.

13 Q. So the highest elevation then is
14 204 metres. Could you show the Board where that is,
15 please?

16 A. It is in the lower portion of cell
17 2.

18 Q. If we compare that then to the
19 lowest base elevation of 181, which we saw from the
20 previous drawing, we have in fact an elevation of some
21 23 metres above existing grade?

22 A. From the lowest to the highest
23 points, yes.

24 Q. That is eight metres higher than
25 that recommended by the visual impact consultants?



1 They recommended 15?

2 A. Taken in that context, that is
3 true.

4 Q. Now, your design concept at Site F
5 as indicated in your direct evidence requires that
6 leachate be stored on-site until it is trucked off the
7 site; is that correct?

8 A. That is correct.

9 Q. I take it that in the interests of
10 the proper working of the design concept at Site D that
11 it is important that a certain amount of the leachate
12 actually be stored in the tank until it is siphoned off
13 and removed by truck from the site?

14 A. Yes.

15 Q. So you have to allow a certain
16 amount of buildup before you take it off and of course
17 to the extent you allow it to build up it minimizes
18 the trucking expense?

19 A. Minimizes the inefficient use of
20 trucks, yes.

21 Q. By the same token there is perhaps,
22 if I could put it this way, an inherent dilemma in that
23 because as you allow it to build up the greater height
24 to which it builds you begin to approach the point where
25 it could present a problem from a hydrogeological point



1 of view?

2 A. That has been accounted for in
3 the design.

4 Q. Whether or not it has been
5 accounted for in the design that is the risk, the higher
6 you build it up?

7 A. If one were not to pump the
8 leachate out in accordance with what we conceive to be
9 the schedule that is required for that then, yes, that
10 would result in buildups that would not be to the benefit
11 of the operations.

12 Q. Of course we have had a great deal
13 of discussion in the evidence that you can actually get
14 the buildup to a point where you have reverse flows and
15 have problems with that?

16 A. That is the ultimate scenario, yes.

17 Q. I suggest, Mr. Hiraishi, that what
18 is really required at Site D is a very delicate balance
19 indeed because, on the one hand, to minimize, for
20 example, trucking costs you want build up to take
21 place but you have to very carefully monitor that to
22 make sure you don't cross that line into where it becomes
23 a risky proposition from the safety point of view?

24 A. With respect to the trucking costs,
25 the trucking costs are based on a load and my only



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1 reference previously to the efficient use of that vehicle
2 was that if one were to pump out it would not result in a
3 full tank load and that would be an inefficient use of
4 that vehicle. The only reference I made to that -- we
5 suspect that any time one truck load can be filled up with
6 leachate that would comprise a more productive use of
the pump vehicle.

7 Q. I understand, Mr. Hiraishi, my
8 only point is this; that from a design point of view
9 your design contemplates on-site storage?

10 A. Yes.

11 Q. On a continuing basis?

12 A. Yes.

13 Q. For really years into the future
14 after site closure, isn't that so?

15 A. We would anticipate that, yes.

16 Q. By the same token from a hydro-
17 geological and environmental safety point of view it
18 is desirable not to have too much buildup in that
19 system?

20 A. That's right.

21 Q. I suggest therefore that when we
22 step back and take a look at the design as a whole of
23 Site D it really imposes the requirement to maintain a
24 very delicate balance between those interests.

25 A. I'm not sure I would describe it as



1 being delicate. There are certain safety margins and
2 factors that we would want to consider and we have
3 incorporated those into our design. While it may be
4 necessary to be more vigilant in terms of leachate
5 handling and disposal, I am not sure whether I would like
6 to describe that as a delicate situation. I think it is
7 one of the requirements, an absolute requirement on the
8 part of the operations and if that operation was to be
9 undertaken in accordance with the principles that we
10 have established in our conceptual design, I do not see
11 any major problems with that particular handling of
12 the leachate method.

13 Q. There is however a balance to be
14 maintained ...

15 A. Absolutely.

16 Q. ... between the on-site storage
17 concept and the early preventative removal?

18 A. Yes.

19 Q. And to the extent that those two
20 come into conflict there is a potential for problems at
21 Site D?

22 A. That is correct.

23 Q. And your proposition or your
24 proposal for Site D is that the leachate will be pumped
25 out of the trap itself and then trucked out to what you



1 describe as the nearest discharge point?

2 A. Yes.

3 Q. Ultimately, as I understand it, you
4 propose that it will be discharged in the Oakville
5 Southwest Water Pollution Control Plant?

6 A. Yes.

7 Q. Can you help me, please, where is
8 the "nearest" discharge point that you have referred to
9 in your report? Where is it you envisage that this will
10 be taken out?

11 A. The location is approximately in
12 the area that is proposed for the mid-Halton treatment
13 plant, that is the top end of the sewer as it now
14 exists. If you would like, I would like to confirm
15 the precise location if I could but I don't have that
16 information in front of me.

17 Q. Perhaps over the noon hour if it
18 would be available.

19 A. If it is possible to do so, yes.

20 Q. Now the mid-Halton plant as I
21 understand it is in the planning stages only; correct?

22 A. That is my understanding, yes.

23 Q. It is several years away from
24 implementation assuming all approvals are obtained?

25 A. Several years meaning within ...



1 Q. ... a minimum of four, maybe longer?

2 A. My understanding is it is at least
3 a minimum of four. There is no precise scheduling as
4 I understand it associated with the development of the
5 mid-Halton plant.

6 Q. Assuming for the moment it is not
7 in place in sufficient time to provide that discharge
8 point drop-off that you spoke about or is it -- I am
9 sorry -- perhaps I formulated that badly. Is the
10 discharge point that your design relies upon actually
11 at and part of the mid-Halton facility or is it simply
12 geographically in the vicinity?

13 A. It is geographically in the
14 vicinity but at the same time the development of that
15 mid-Halton plant and should that plant go into operation,
16 the discharge point is proposed to then be diverted to
17 the new plant rather than going down to the southwest
18 plant.

19 Q. Do I understand then that there is
20 a discharge point in the vicinity of the mid-Halton
21 plant that you propose to use regardless of when that
22 plant comes on-stream?

23 A. That is correct.

24 Q. How far is that discharge point
25 from Site D?



1 A. I believe it is in the order of
2 about ten to 11 kilometres.

3 Q. What route would vehicles be
4 required to take in just broad terms to access that
5 discharge point from the site?

6 A. I believe the access road would
7 be along Highway 25.

8 Q. Could I ask you to turn to Table 3
9 in your Site D report which is right after page 59? It
10 deals with leachate storage and disposal. You have
11 looked at this before with others, Mr. Hiraishi, but
12 there are just one or two items that I require your
13 assistance on. If we look at the third column
14 "Estimated Time When Capacity Exceeded in Years", as I
15 understand it, this indicates that after two years of
16 site operation capacity will be exceeded and trucking
17 will have to begin; is that correct?

18 A. That is the proper interpretation
19 of that, yes.

20 Q. You told Mr. Estrin, as I recall
21 your evidence, you thought trucking might actually have
22 to start earlier than the time set out in that estimated
23 time column?

24 A. Because of our attempting to
25 maintain the integrity of the hydraulic trap it is my



1 opinion that any time that leachate buildup exceeds that
2 of the capacity for one truckload vehicle that will be
3 undertaken at that time.

4 Q. One pump-out vehicle, one truck?

5 A. Yes.

6 Q. So you are saying if we don't have
7 enough to fill one truck that pumping of that truck
8 should begin?

9 A. Trucking should begin at that
10 point and then continue as required as the buildup
11 continues and another vehicle available to discharge
12 the capacity of that pump-out.

13 Q. Is it for that reason then that
14 you hold the view that the need for trucking may well
15 arise before the times estimated in this column?

16 A. Absolutely.

17 Q. So we could at Site D really be
18 looking at the need to truck almost immediately?

19 A. That is a distinct possibility.
20 There are a number of schools of thought on that issue
21 and what we are addressing in these particular columns,
22 we call them available storage and estimated time, is
23 based on a book value that estimates the time that the
24 fill would reach field capacity and that a pumping would
25 be required or leachate disposal would be required at



1 that time. So, it is merely an estimate to provide
2 some indication of the time required to reach field
3 capacity. However, through a number of studies and
4 site-specific work we are aware of some instances where
5 field capacities would have been supposedly reached at
6 a lot later time than when leachate first started to
7 emerge. So that again it is a site-to-site kind of a
8 situation and we are not in a position to provide you
9 with an exact schedule of when the pumping should start.
10 It is part of the visual monitoring and monitoring that
11 would be required to establish when leachate needs to
12 be pumped out rather than relying on these times.

13 Q. If however the trigger for the
14 commencement of trucking is one truckload ...

15 A. Yes?

16 Q. ... I suggest it is probable indeed
17 that we are going to be looking at a trucking scenario
18 virtually from startup.

19 A. It could very well be that it is
20 almost immediate.

21 Q. Then, looking at the estimates
22 which you have in fact made based on truckloads, using
23 a truck with a capacity of 12 cubic metres, you have
24 set out in column four as I understand it the number
25 of trucks per day that you estimate will be required at



1 Site D to remove the leachate that will be generated?

2 A. Yes, that column four, the number
3 of trucks per day, is based on a smaller size, a 12-
4 cubic-metre capacity. Column five is based on 22-cubic-
5 metre capacity.

6 Q. So just for example then in column
7 four you have at two years nine trucks per day if you
8 are talking about the smaller trucks and five, essentially,
9 if you are talking about the larger capacity?

10 A. That is correct.

11 Q. And the site we know will operate
12 six days a week; is that correct?

13 A. Yes.

14 Q. Will they truck six or seven days
15 a week?

16 A. In this scenario under these
17 conditions we have outlined here on Table 3 it will be
18 a seven-day requirement for truckings.

19 Q. A seven-day requirement for truck-
20 ing?

21 A. It would be required to truck every
22 day, in other words.

23 Q. So what we are looking at then is
24 the probability that trucking will begin immediately and
25 that it will be required every day of every week for at



1 least the site life of 20 years and I believe you told
2 Mr. Estrin, likely 20 years beyond that?

3 A. Yes, that is a possibility.

4 Q. Looking at the issue of truck
5 capacity, let us deal first with the larger of the two,
6 the 22-cubic-metre capacity truck. That is 22,000 litres;
7 is that right?

8 A. Yes, approximately 5,000 gallons,
9 less than 5,000 gallons.

10 Q. Less than 5,000 gallons?

11 A. Yes.

12 Q. Just less or virtually 5,000?

13 A. To be precise it is 4,840 but our
14 intent here was to just provide you with a rounded-out
15 number and that is why we used the 22 cubic metres
16 rather than 21. ...

17 Q. It may simply be helpful to me.
18 On the 48 trucks -- sorry -- on the 12-cubic-metre
19 capacity trucks that is 12,000 litres. How many gallons?

20 A. That would be about 2,640.

21 Q. Two thousand, six hundred and forty
22 gallons?

23 A. Yes.

24 Q. Am I right that is 12,000 litres?

25 A. That is correct.



1 Q. Is there, based on landfill experience
2 to date with which you are familiar, Mr. Hiraishi, have
3 you preferred sizing for these trucks, is there a mix for
4 the two or is there a preference for the larger versus
5 the smaller or vice versa?

6 A. Clearly from my point of view the
7 larger the vehicle the better. As far as Mr. McLeod
8 would be concerned, he would also I am sure, would like
9 the larger size. We have provided these two sizes only
10 to show that there are different sized capacities of
11 pump-out vehicles available. A 12-cubic-metre capacity
12 is, in my opinion, the very minimum and, therefore,
13 provides an indication of the worst case of the number
14 of vehicles that will be needed to pump the leachate out.
15 The 22-cubic-metre capacity is much more in the realm
16 of possibility rather than the worst case. So, if one
17 were to ask what size pumper vehicle that we would
18 require, we would definitely specify in the order of
19 up to the 22-cubic-metre capacity rather than the 12.

20 Q. Physically, as I understand it,
21 unlike the dumptrucks, dumptrucks that we have heard
22 a great deal about in the last day or two, the kind of
23 pumping truck you are talking about in your disposal
24 recommendations are large tank trucks; are they not?

25 A. That is correct.



1 Q. Would you be able to provide the
2 Board, based on your experience and knowledge of these
3 vehicles, give any indication of their size as distinct
4 from their volume? What are we talking about in terms
5 of length or do you know?

6 A. In terms of length I can't give you
7 a specific answer to that except to perhaps say that the
8 12-cubic-metre capacity trucks would be about the same
9 size as a dumptruck. It wouldn't be much bigger than
10 that, perhaps a foot or two longer. Whereas, the 22-
11 cubic-metre capacity trucks would probably be a third
12 or so larger. Exact dimensions and specifications I
13 can't provide, nor have we investigated the availability
14 of those.

15 Q. Could I ask you now to turn if
16 you would to Exhibit H-42B which is your addendum
17 regarding Site F, to Table 2R which sets out your
18 estimated leachate production rates at Site F? I think
19 it is 2R, Mr. Hiraishi.

20 A. Yes.

21 Q. Do you have that?

22 A. Yes.

23 Q. If you could just leave that open
24 and if you could open the Site D report, Table 2 which
25 is opposite page 52. If you could have the two out



1 together. Do you have the two there?

2 A. Yes.

3 Q. Dealing first with the Site F
4 production rates and let us just deal with the revised
5 addendum calculations that you have given us, after we
6 read across the table, the second-last column dealing
7 with estimated leachate production rate ...

8 A. Yes.

9 Q. ... as I understand it, that is
10 what you are estimating to be the average leachate
11 production rate as distinct, to be distinguished from
12 the peaks which you set out in the last column?

13 A. That is correct.

14 Q. So just dealing first then with
15 the average leachate production rates after three years
16 of operation your estimate is that there will be 85
17 litres per minute of leachate generated at Site F; is
18 that correct?

19 A. That is correct.

20 Q. At Site D for the same three-year
21 period of time your estimate is 78 litres per minute?

22 A. That is correct.

23 Q. Let us just go through the Site F
24 ones then. For nine years your estimate is 160.2 litres
25 per minute?



1 A. Yes.

2 Q. For 11 years, 156.7?

3 A. Yes.

4 Q. For 18 years, 306.2 litres per
5 minute?

6 A. Yes.

7 Q. Then by year 20 we are beginning
8 to get a decline. It is only 283.8 litres per minute;
9 is that correct?

10 A. Yes.

11 Q. I recognize, Mr. Hiraishi, that
12 for comparative purposes the years that you have used
13 for your Site D estimates are not directly the same as
14 the years that you have used for Site F but in some
15 instances they are very close, if not the same. So,
16 for example, just looking at three years, we start off
17 with slightly higher leachate production quantities at
18 Site F by some seven litres per minute after three
19 years?

20 A. Yes.

21 Q. If we move out to nine years at
22 Site F we are getting 160.2 litres per minute, whereas,
23 at Site D after 9.5 years, we are getting 225 litres
24 per minute; is that correct?

25 A. Yes.



1 Q. So we are beginning to see a
2 larger production generation at Site D in roughly the
3 same time frame?

4 A. That is correct.

5 Q. Then if we move to 13.5 years at
6 Site D we see that at Site D we are getting leachate
7 generation of 313.9 litres per minute?

8 A. Yes.

9 Q. That leachate production at 13.5
10 years has no direct comparison for Site F because we
11 haven't done a 13-year scenario but it does greatly
12 exceed, I suggest, the production rate at 11 years
13 recognizing the two-and-a-half-years difference between
14 the two sites?

15 A. Yes.

16 Q. Indeed, at Site D at 13.5 years
17 with a generation of 313.9 litres per minute I suggest
18 you are getting a much higher production rate at 13.5
19 years than you would get at Site F even after 18 years;
20 am I right?

21 A. Yes.

22 Q. We agree then on the basis of the
23 comparative numbers, Mr. Hiraishi, there is a much
24 higher leachate generation production rate at Site D
25 that comes on-stream much sooner than at Site F?



- 1 A. Yes.
- 2 Q. By 19 years at Site D we are up
- 3 to a leachate generation rate of 394.7 litres per minute?
- 4 A. That would be the peak.
- 5 Q. I'm sorry, it's in the average
- 6 column.
- 7 A. Peak meaning the highest average.
- 8 Q. The highest that will be achieved
- 9 on average?
- 10 A. Yes.
- 11 Q. That is at year 19?
- 12 A. Yes.
- 13 Q. That is higher than any of the
- 14 production rates estimated as likely to occur at Site F?
- 15 A. That is correct.
- 16 Q. If we look at the peaks we see
- 17 the same trends, do we not, if we compare the Site D
- 18 to the Site F rates?
- 19 A. Yes.
- 20 Q. I would like to look at the last
- 21 year of site life if I could and compare the two sites,
- 22 Mr. Hiraishi. At Site F you have used 21 years, whereas,
- 23 at Site D you have used 20. Can we agree that they
- 24 are roughly comparable?
- 25 A. They are roughly comparable and



1 there is really no discernible difference between them.
2 It is 21 years simply because it was rounded off to 21
3 years. I believe the site life is a little less than
4 21 years.

5 Q. So then at the end of the site
6 life at Site F we are getting a leachate generation
7 production rate of 300 -- I'm sorry -- 283.8 litres
8 per minute?

9 A. Yes.

10 Q. Whereas at Site D it is almost
11 100 litres per minute higher?

12 A. That is correct.

13 Q. Could we just look at the impli-
14 cations of that surplus leachate generation at Site D?
15 Let us take -- in actual fact the difference between the
16 two sites is about 99 litres, to be fair, at 20 or 21
17 years; am I right?

18 A. It would be, yes.

19 Q. That is 99 litres per minute more
20 leachate per minute at Site D than F. How much is that
21 an hour? Could you just do the math, please?

22 A. Almost 6,000 litres per hour.

23 Q. And per day?

24 A. Approximately 143,000.

25 Q. How many trucks is that going to



1 require at your maximum capacity?

2 A. Approximately six-and-a-half
3 vehicles per day based on the 22 cubic metres per vehicle.

4 Q. And that is seven days a week as
5 you have told us?

6 A. Yes.

7 Q. How many of these smaller-sized
8 trucks? It would be double, wouldn't it?

9 A. Not quite, no.

10 Q. About 12?

11 A. It would be about 12, yes.

12 Q. There is one more aspect,
13 Mr. Hiraishi, and that is I would ask you to look at --
14 let us deal with Site F first. The leachate generation
15 rate at year 18 compared with the leachate generation
16 rate at year 20, as I make it, first of all there is
17 a decline as already indicated?

18 A. Yes.

19 Q. At Site F there is a drop I
20 suggest, just in that two-year time period, if we use
21 that as the measurement, it works out to about 22.4
22 litres over the two years?

23 A. Yes.

24 Q. Or 11.2 per annum?

25 A. I suppose you could say that, yes.



1 We wouldn't think in those terms but that is an inter-
2 pretation you can make, yes.

3 Q. I would like to understand that.
4 Would it be your view that the rate of decline would be
5 greater in the second year than in the first so it is
6 inappropriate?

7 A. It would be misleading to make --
8 take that number and average it out because the closure
9 would be the primary mechanism that affects the leachate
10 production rate. So that if we were to leave that area
11 open in that period of time that the reduction in the
12 leachate, production would not occur until very nearly
13 the twentieth year. While, at the same time, if we
14 were to progressively close off that last phase of
15 operations then we would expect to have a reduction in
16 leachate much sooner than that.

17 Q. Then let us take it over the two-
18 year time frame to meet that issue. On Site F on the
19 numbers we have just looked at we have a decline I make
20 it of 22.4 litres...

21 A. That is correct.

22 Q. ... per minute?

23 A. Yes.

24 Q. If you look at Site D for a
25 comparable period the drop is, I make it 5.8 litres.



1 That is actually per year. So over the two years it
2 would be ...

3 A. ... 11.6.

4 Q. Eleven point six. So, in addition
5 to a larger buildup of leachate at Site D we have on
6 the basis of your figures I suggest a faster decline
7 rate at Site F or at least a larger rate of decline?

8 A. That is partly a function of our
9 analysis of the operations in that we are incorporating
10 a larger working area at Site F at the years 18 to
11 closure than at Site D. That just simply influences
12 the leachate quantities to the extent that we have
13 different quantities with respect to final cover place-
14 ment and with respect to the open areas of fill.

15 Q. Whatever your reason, Mr. Hiraishi,
16 the fact is that based on the design proposals that you
17 have made you are going to get greater decline at F in
18 the closure years than you are at D; isn't that correct?

19 A. That is correct.

20 Q. Given that Site D is going to have
21 larger quantities of leachate virtually from year nine
22 out, if not earlier, the rate of decline, proportionately,
23 will be at F more material than at Site D?

24 A. Yes.

25 Q. Could I ask you now to turn if you



1 would, please, to -- I am not sure you actually have to
2 go to it, Mr. Hiraishi, but I would like to discuss with
3 you very briefly the contingency plans that you have for
4 Site D. As I understand your evidence, Mr. Hiraishi,
5 the first contingency system planned for Site D is the
6 natural attenuation capabilities of that site according
7 to Mr. Sobanski?

8 A. Yes.

9 Q. And the second level of contingency
10 are the perimeter drains?

11 A. Yes.

12 Q. And the third level are the purge
13 wells in the upper and lower granular units?

14 A. Yes.

15 Q. As I understand your design report
16 with respect to Site D, if the first two systems fail
17 at Site D the purge wells can only remove five per cent
18 of the maximum daily leachate production at that site;
19 am I correct?

20 A. Yes, that is correct.

21 Q. Let us put that in the context
22 of the leachate production generation rates that you
23 have indicated for Site D at the same table. If we
24 take the year, nine-and-a-half years, just for example,
25 we have a leachate generation rate of 225 litres per



1 minute?

2 A. Yes.

3 Q. How much is that a day, please?

4 A. Approximately 324,000 litres.

5 Q. If the first two contingency
6 systems at Site D fail, do not work as hoped, only five
7 per cent of the 324,000 litres per day will be cleared
8 out by the purge wells?

9 A. No, that is not -- I believe that
10 is not the interpretation that can be made. These
11 figures of five per cent merely adds to the total
12 quantities that we expect to collect out of the leachate
13 collection system. So it is an increase in the quantity
14 of leachate expected to have to be handled by the system
15 at Site D. It is not a replacement, if you will, of
16 the underdrain system in terms of quantities.

17 Q. Would you go for me, if you would,
18 to page 94 of your report?

19 A. Yes.

20 Q. Do you have that, Mr. Hiraishi?

21 A. I do.

22 Q. In the bottom paragraph--you are
23 talking throughout this page, are you not, about the
24 contingency systems planned for Site D?

25 A. Yes.



1 Q. In the final paragraph at that page
2 you are talking about the purge well capacity, the yields?

3 A. Yes.

4 Q. You suggest that they can yield
5 a maximum of 20 litres per minute or about five per cent
6 of the maximum daily leachate production?

7 A. Yes.

8 Q. Are you saying then that they will
9 actually produce leachate in addition to that set out
10 in your leachate generation table?

11 A. That is correct.

12 Q. What proportion then do they
13 actually take out?

14 A. Well, the purge wells in associa-
15 tion with the perimeter drains are expected to take out
16 all that is produced at the landfill site. The difference
17 here is that with the introduction of the purge wells
18 and the perimeter drains we can expect to add an
19 additional 20 litres per minute to the quantities that
20 are already established in Table 3 -- I'm sorry --
21 Table 3-2.

22 Q. That would be true from the point
23 of time when they are introduced, the purge wells are
24 introduced?

25 A. Yes.



1 Q. If we want then to know what the
2 leachate production rates are estimated to be under --
3 with the contingencies in place, you would have to go
4 back and add to your leachate production rates, 20
5 litres per minute if these contingencies fail?

6 A. Correct.

7 Q. My assumption to you was that I
8 asked you to make as if you assumed the first two
9 contingency systems of the site do not work, that is
10 the natural attenuation and the perimeter drains, how
11 much then can those purge wells take out?

12 A. Again, they are intended to take
13 out all of the quantities that are produced.

14 Q. Is it then your evidence,
15 Mr. Hiraishi, that in the event that contingencies are
16 (a) required, and that is the first assumption you have
17 to make and, secondly, they have been implemented, the
18 first engineering-type of contingency is the
19 perimeter drains?

20 A. Yes.

21 Q. By the time they go in you are
22 relying really on two types of contingencies?

23 A. Yes.

24 Q. And they have not been successful
25 to remove all the leachate or you wouldn't move to the



1 third?

2 A. Correct.

3 Q. You now have the third contingency
4 in place and that is your purge wells?

5 A. Yes.

6 Q. Are you saying that those purge
7 wells in your judgment will be sufficient to remove all
8 of the leachate generated according to this production
9 rate?

10 A. That would be the interpretation
11 one must make of the contingency plan, yes.

12

13 Q. The choice of language is causing
14 me some concern. Perhaps you are telling me yes. Is it
15 your professional opinion those purge wells will be
16 capable to do that?

17 A. I am merely going by the recommen-
18 dations made by Mr. Sobanski and the 20 litres per minute
19 and five per cent are his numbers and not my own. The
20 contingency plans are intended to collect and dispose
21 of all the leachate that is produced at the site. So,
22 my interpretation of that means that the tables given
23 in the report, this Table 2 would then be required to
24 be increased by five per cent plus to provide a total
25 quantity of leachate that will be extracted from the site



1 once the contingency plans are implemented.

2 Q. Do I understand then, because I
3 was interested in really the remedial capability, if
4 you will, of those purge wells.

5 A. Yes.

6 Q. Do I understand you to be saying
7 that it is Mr. Sobanski's opinion, you have not referred
8 an opinion to the Board on this issue but rather it is
9 his that those purge wells will be sufficient to
10 accommodate the leachate to be generated at the various
11 years indicated in Table 2?

12 A. The intent for those secondary and
13 tertiary contingency plans was that they would be put
14 into place in accordance with the needs at the time,
15 the monitoring shows need, so what Mr. Sobanski is
16 suggesting is that in a worst case scenario both the
17 purge wells and the perimeter drains, those are the
18 drains that we talked about that are external to the
19 actual fill area, would be in place at the same time.
20 It is an and/or scenario in the sense that depending on
21 the type of problem that one would encounter that either
22 one or the other could be in place which would then add
23 to the total quantities that would be collected and that
24 required that if the leachate was deeper than thought
25 we would be dealing with the purge well scenario which



1 would mean that both systems would be going in and
2 thereby increasing the leachate production by 20 litres
3 per minute. The intent is still to contain all of that
4 leachate and collect it through the purge well and the
5 perimeter drains.

6 Q. I understand the intent,
7 Mr. Hiraishi, and I am now trying to focus on the
8 realism of that. I don't intend to go back over
9 Mr. Sobanski's evidence. I am interested in your views
10 as a civil engineer who has designed this system and
11 is proposing it to the Board. Can you direct your mind
12 in that capacity to the adequacy of the purge wells to
13 remove these kinds of leachate generation rates at this
14 site, assuming the other two contingencies don't work?
15 Have you independently considered that?

16 A. No, I have not. I have referred
17 it to Mr. Sobanski. It was his assessment and his
18 recommendations. I'm merely implementing this as part
19 of the engineering works.

20 Q. So you don't know apart from
21 Mr. Sobanski's opinion whether those purge wells can do
22 in fact what he hopes they will do?

23 A. By the mere definition of the
24 contingency plans I can only assume that they are intended
25 to control the leachate migration in its total.



1 Q. I am not talking about intention,
2 Mr. Hiraishi, I am talking about engineering capability.
3 You do not know, you cannot assist the Board as to
4 whether they perform that function because you have
5 not addressed that issue?

6 A. That can't be done until you
7 actually do a pumping test and determine what sort of
8 quantities you get out. We talk in terms of intent
9 because this is at the conceptual stages and not the
10 detail design. Once we get into a situation of getting
11 more field data and making those assessments, we are
12 not going to be able to establish either rates or the
13 total quantities of expected leachate. That will need
14 to be done in actual pumping tests at various levels
15 and determining the effectiveness of those purge wells.
16 The purge wells themselves are intended to capture all
17 the leachate that is migrating horizontally off-site.

18 Q. I understand that. Using the
19 leachate, the estimates of leachate production, quantities
20 that you have made in your report, I take it your
21 evidence is that until pumping tests are actually done
22 in the field you could not determine whether or not the
23 purge wells would be adequate to take all of that out?

24 A. The purge wells will be designed
25 so that will suffice in taking all that leachate out.



1 It is not a question of installing one purge well. It
2 it is a question of how many purge wells and the pumping
3 rate that is most effective. Again, it is the intent
4 and I keep going back to it, the intent is to design
5 a purge well system that will look after 100 per cent
6 of the leachate that is produced at Site D.

7 Q. The consequences if the purge wells
8 are not, from an engineering point of view, sufficient
9 to accomplish that task is that the leachate can escape
10 into the upper and lower granular unit; is that correct?

11 A. That is my understanding, yes.

12 Q. As to the capability of the purge
13 wells to achieve that function you are deferring to
14 Mr. Sobanski?

15 A. That is correct.

16 Q. Mr. Hiraishi, you have also given
17 some evidence concerning the proposed after-use of Site
18 D and we have heard much evidence that that is intended
19 to be an agricultural use; is that correct?

20 A. That is correct.

21 Q. In your experience, Mr. Hiraishi,
22 I suggest -- I will rephrase that question to you. Am
23 I correct it is very rare in the Province of Ontario
24 to have an agricultural after-use proposed for a
25 municipal landfill site?



1 A. I am not aware of another one.

2 Q. To that extent it is in fact
3 unprecedented?

4 A. If one were to, strictly speaking,
5 look at the agricultural, yes, but there are a number of
6 examples of other uses that are similar to agriculture
7 and I am thinking in terms of golf courses and such.

8 Q. I'm thinking in terms of food.
9 Can you think of any other landfill facility in the
10 Province of Ontario where the after-use is forage crops?

11 A. Not to my knowledge.

12 MS CRONK: Mr. Chairman, I hope to be
13 finished, with your indulgence, I intend to be finished
14 by the noon break.

15 Q. Mr. Hiraishi, another brief matter.
16 Can I ask you to go back to Exhibit H-268 which we
17 talked about briefly this morning and that was your
18 operating costs for Site F and Site D?

19 A. Yes.

20 Q. I don't propose to deal with it at
21 any great length but I did have one question for you.
22 Could I ask you to go to page 2?

23 A. Yes.

24 Q. As I understood your evidence
25 yesterday with Mr. Leitch, the first part of the exercise



1 that you undertook was to determine an appropriate cost
2 of excavation for both sites?

3 A. Yes.

4 Q. You did so at Site D and the
5 result of your numbers was \$4.50?

6 A. Yes.

7 Q. And for Site F the first part of
8 the scenario, \$8?

9 A. Yes.

10 Q. As I understand it from what you
11 told Mr. Leitch one of the principal reasons for the
12 differential in that rate between the two sites is the
13 need at Site D to deal with the actual topography, the
14 type of soil, the type of shale that you thought was
15 harder to dig?

16 A. It is mostly with respect to F it
17 was topography assuredly but it was also primarily a
18 function of the shale being more difficult to excavate
19 than the clay till.

20 Q. In certain portions of the site
21 and area that would require excavation I suggest that in
22 fact you would be dealing with weathered shale; isn't
23 that correct?

24 A. That is correct.

25 Q. When you are dealing with material



1 of that kind clearly it is far less difficult to deal
2 with from an engineering point of view than more
3 impermeable, deeper situate shale?

4 A. Massive shale, yes.

5 Q. I suggest to you that -- well, let
6 me ask you. You have applied the \$8 rate as an excava-
7 tion cost uniformly to the total area to be excavated?

8 A. Yes.

9 Q. I suggest to you, Mr. Hiraishi,
10 that if one wanted to obtain a better fix on what the
11 cost really would be there is in fact a range of
12 excavation costs only some of which would be at \$8?

13 A. There would be, yes.

14 Q. Some would be far lower and closer
15 to the Site D rate; isn't that so?

16 A. There are some clay tills there
17 that would be at a lower rate, yes.

18 Q. Have you in your own calculations
19 either in preparing this or prior to coming to testify
20 at the hearing in fact examined what categories there
21 would be in that range of excavation costs at Site F?

22 A. Well, for Site F the only diffe-
23 rential we can make at this point in time is between
24 the clay and the shale. We did not incorporate the clay
25 portion of it which would in fact result in a lower overall



1 cost primarily because the numbers that we have had to
2 work with that is shown in the report is to the extent
3 that it is preliminary. In that sense it was my opinion
4 that having a higher rate at this point in time would
5 be more applicable to the work that Mr. Watson was
6 undertaking rather than to differentiate on the basis
7 of clay and shale at this time that would perhaps be
8 misleading. In fact we might be way off in our excava-
9 tion numbers. So that for the purposes of this
10 exercise to allow Mr. Watson to carry out the financial
11 feasibility we simply used the \$8 which is in essence
12 only applicable to the shale.

13 Q. Let us deal with that for the
14 moment, Mr. Hiraishi, and I am not concerned so much
15 with the reasons why it was done but just to have it
16 clear on the record as to what in fact was done. As
17 I understand what you said, had you taken or attempted
18 to arrive at an estimate for the excavation costs for
19 those clay portions of Site F in fact the rate would
20 be lower, would it not?

21 A. We have already determined what
22 that rate is going to be and I have provided that
23 information to Mr. Watson. I believe he will be giving
24 testimony to that effect; so that the numbers I am
25 giving you are the numbers that I have produced for



1 Mr. Watson. They are not necessarily the numbers that
2 he apparently has used.

3 Q. Did you produce for Mr. Watson the
4 number, the excavation cost for clay?

5 A. Well, the excavation cost for clay
6 at Site F would be the same we would assume because it
7 is the same type of material as at Site D.

8 Q. Four fifty?

9 A. Four dollars and fifty cents per
10 cubic metre.

11 Q. Did you give that number to
12 Mr. Watson or did he understand it?

13 A. The number that was given to
14 Mr. Watson -- he fully recognizes of course that the
15 4.50 would be applicable to both Sites D and F and
16 that is the basic assumption we have made at the
17 beginning.

18 Q. So he knows?

19 A. What I provided to Mr. Watson was
20 a lower figure than the \$7.75 per ton, if one were to
21 use the breakdown between the shale and clay that is
22 found in the Site F report. The difficulty with that
23 from my point of view is the real accuracy of that
24 breakdown of the quantities between the clay and the
25 shale. For my purposes and for the purposes of providing



1 some numbers to Mr. Watson to work with it was my opinion
2 that the higher number would give him some margin of
3 error that we may not have had if we had in fact used
4 the Site F numbers the way it is presented in the design
5 report.

6 Q. I don't necessarily disagree with
7 that, Mr. Hiraishi. I just want to make it clear that
8 that number does provide for a margin of error.

9 A. Which number?

10 Q. The \$8.

11 A. That is another issue that can be
12 addressed separately. It could be providing a margin
13 of error. It could be that it is also given low.
14 Overall, we hope that if we have erred, we hope to have
15 erred on the high side. If you interpret \$8 as being
16 the highest figure that could be expected to be in
17 place for the shale excavation then I would agree with
18 you that it could be lower.

19 Q. In point of fact, Mr. Hiraishi,
20 there are three types of materials at least that are
21 going to be excavated to some degree at Site F in your
22 proposal I suggest?

23 A. Yes.

24 Q. The first is weathered shale; is
25 that correct?



1 A. Yes.

2 Q. Then we have clay?

3 A. Yes.

4 Q. Then we have hard shale?

5 A. Yes.

6 Q. You told me that with respect to
7 clay the appropriate excavation cost is in fact the same
8 number as at Site D, \$4.50?

9 A. That is true.

10 Q. Even that number is only your best
11 estimate, I understand?

12 A. Yes.

13 Q. You didn't go out to contractors
14 and get estimates as to what they would charge any end
15 user to actually excavate?

16 A. That would not be a very useful
17 exercise. At this point in time I would only mention
18 that we did solicit opinions from the contractors as
19 to what they could expect the cost would be on a cubic-
20 metre excavation basis but the fact of the matter is
21 that those numbers will not be confirmed until we
22 actually go out to tender and get the real prices
23 because they again will vary in accordance with the
24 quantities we are talking about, the season and the type
25 of material, as well as dozens of other factors that will



1 go into the contractor's assessment of the cost for
2 excavation.

3 Q. They are your best estimates?

4 A. They are the best estimates that
5 we have at this time. There are indications from con-
6 tractors that they in fact could do it at a lower per
7 unit cost but again it is a function of the expectations
8 that the contractor has.

9 Q. Let me be clear in terms of what
10 you have done, Mr. Hiraishi. They are estimates that
11 you have provided and the actual contract cost could
12 be lower?

13 A. We definitely hope it is lower.
14 We certainly hope it is not any higher.

15 Q. You confirmed for me that the
16 excavation cost for the clay at Site F is the same,
17 \$4.50 based on your estimate for the materials on Site D?

18 A. That is only for the purposes of
19 providing a cost estimate.

20 Q. That is what we are talking about,
21 Mr. Hiraishi, so that is the number?

22 A. That is the number I assumed.
23 Again that is subject to site-specific conditions and
24 opinions that are of the contractors.

25 Q. That is as true of D or F?



1 A. That is correct.

2 Q. Then I am going to suggest to you
3 that the cost to extract or excavate the weathered
4 shale similarly is going to be less than what you have
5 put for really the deep shale cost of \$8?

6 A. That \$8 is not a massive shale
7 cost, as a shale excavation cost, that was for the
8 weathered zone. In all our design we have
9 attempted to identify as best we could the difference
10 between the weathered zone and the unweathered zone,
11 and the direction given to me by Mr. Sobanski was that
12 for design purposes and for operation purposes and
13 definitely for the excavation purposes we should be
14 within that zone so \$8 is a reference to the weathered
15 zone and not the massive shale.

16 Q. All right then. So what we have
17 is a range between \$4.50 and \$8 for the weathered shale
18 but you can't assist us as to how large a quantity of
19 each material we are talking about so as to determine
20 the actual overall excavation costs?

21 A. The \$4.50 is for the clay and the
22 \$8 is for the shale and there would be a range and I
23 cannot provide you with that.

24 Q. So to that extent then, recognizing
25 you are talking about the \$8 as being the weathered shale



1 number, the real cost of excavation if we had that other
2 information is certainly lower than, and I suggest could
3 be significantly lower than the \$12 million figure that
4 you set out at page 2?

5 A. It could be significantly lower and
6 it may only be marginally lower.

7 Q. But you don't know?

8 A. We know only to the extent of the
9 numbers that we have, that is in the Site F report.
10 Because of the need to carry out further site investiga-
11 tions at the time of the detail design to confirm those
12 quantities, I really can't provide you with what the
13 actual numbers would be or what we would actually expect
14 that it would be.

15 Q. That's fair, Mr. Hiraishi. My
16 only final point on this issue is that when you talk in
17 this document about a premium for operation at Site F,
18 would it be fair of me to suggest that it is most
19 important that we bear this discussion in mind, that
20 in fact the premiums that you have set out have been
21 calculated uniformly at the rate of \$8 when in fact
22 the applicable and ultimate rates may be very different
23 than that and much lower?

24 A. That would be correct. Much lower
25 I am not quite sure. The calculations that we provided



1 to Mr. Watson was that the \$7.75 per ton could in fact
2 be reduced to approximately \$7.40 per ton based on
3 again the figures that we had in Site F which outlines
4 the quantity, quantities of both clay and shale.

5 Q. Just dealing with the premium for
6 operation that you have set out in this document, you
7 have provided two premium estimates. One on the basis
8 of excavation costs at \$8 for Site F and the second
9 with a different amount of fill being excavated but at
10 the same rate of \$8; correct?

11 A. Yes.

12 Q. I am suggesting to you merely that
13 looking at those premium calculations with respect to
14 Site F we must remember that in fact that \$8 is on the
15 high side and it could well be lower given what you have
16 said?

17 A. That is correct.

18 Q. Mr. Leitch asked you briefly
19 yesterday, Mr. Hiraishi, whether you had, in arriving at
20 these calculations, given any consideration to the
21 revenue that might be produced by selling or making
22 available for resale the timber on the National Sewer
23 Pipe lands if it was felled for the purposes of putting
24 a landfill in. As I understood your answer was that
25 was something you had not taken into account?



1 A. That is correct.

2 Q. I take it that although you referred
3 in some instances in which local municipalities require
4 gifts or donations of lumber to be made or timber to be
5 made that you have not conducted an investigation as to
6 the extent of the timber available in the areas to be
7 excavated on Site F?

8 A. No, we have not.

9 Q. You don't know what the mix is or
10 what it would fetch on the market?

11 A. No, we have not.

12 Q. You would agree, however, that if
13 a portion or some of it or all of it was to be sold that
14 is a recovery prospect not taken into account?

15 A. That is true. Under most normal
16 circumstances, however, when it comes to development of
17 areas that require felling of trees it is usually done
18 on the basis that the trees are given away rather than
19 sold.

20 Q. Surely that is because,
21 Mr. Hiraishi, of how much is there and what kind it is?

22 A. No, that depends on what the local
23 municipality feels about it.

24 Q. You have no idea what it is worth?

25 A. Absolutely none.



1 Q. You have indicated in your report,
2 Mr. Hiraishi, that the primary engineering issue of the
3 landfill is the leachate collection system itself from
4 an engineering point of view?

5 A. Yes.

6 Q. So that is your primary concern?

7 A. Yes.

8 Q. Would it be fair of me to suggest
9 that dealing with that as the fundamental engineering
10 issue, that includes consideration first of the type of
11 system to use?

12 A. Yes.

13 Q. Its suitability for the site?

14 A. Yes.

15 Q. Thirdly, its feasibility given the
16 site conditions?

17 A. Yes.

18 Q. Four, its potential for failure?

19 A. Yes.

20 Q. And fifth, it's impact in the event
21 of failure?

22 A. Yes.

23 Q. Those are all issues that are part
24 and parcel of the fundamental engineering issue, the
25 appropriate leachate collection system for a particular



1 site?

2 A. They would be, yes.

3 Q. Would it also be fair of me to
4 suggest, Mr. Hiraishi, that given if one assumes
5 attention is given to all of those factors at arriving
6 at a recommendation for an appropriate leachate collec-
7 tion system, that system failure is really one form of
8 an engineer's nightmare, that has to be a very worrying
9 aspect?

10 A. I have had a few in my lifetime,
11 yes.

12 Q. I am not sure whether I should
13 express condolences or not so I will move right along.

14 Assuming that an engineering system
15 failure at Sites D or F were to take place, Mr. Hiraishi,
16 and assuming that contingencies were not in place, can
17 we agree that Site F is clearly to be preferred in
18 engineering terms under those scenarios?

19 A. I would agree with that scenario,
20 yes.

21 Q. That is because I suggest quite
22 simply it is safer, there is less risk attendant on Site
23 F in those circumstances than there is on Site D?

24 A. Under the circumstances you des-
25 cribed I agree with you.



1 Q. You have made it clear,
2 Mr. Hiraishi, that it is your opinion that from the
3 pure design point of view you can engineer a system that
4 you believe will work at both of these sites? That is
5 your evidence as I understand it?

6 A. That is the evidence and quite
7 frankly we wouldn't be here otherwise.

8 Q. Only one of those two designs I
9 suggest carries with it significant risks in the event
10 of failure, risks to public health and safety and that
11 is at Site D; isn't that so?

12 A. That would be my understanding
13 although I have not made that assessment myself.

14 MS CRONK: Thank you. Those are all my
15 questions, Mr. Chairman.

16 MR. LANCASTER: We will adjourn for lunch
17 but before we do just one small point of clarification I
18 have and I refer to plan H-42B-5r, Site F. Just refresh
19 my memory. You were referring to H-42, page 54 and
20 that is Section 5.3, the property boundaries. The
21 last sentence reads:

22 "Revised total site plan area is approxi-
23 mately 96 hectares."

24 I think we have been mentioning that the boundary south
25 of the Bayview site is a hundred metres east of the cell.



1 THE WITNESS: Yes.

2 MR. LANCASTER: I just want to be sure
3 of what is the 96 hectares.

4 THE WITNESS: Ninety-six hectares,
5 Mr. Chairman, is given approximately by this hatched line
6 that is shown here that surrounds the site. So that
7 includes even the access road here as well as the bulk
8 bin area on the west side and carries on back up
9 (indicating).

10 MR. LANCASTER: That's what I wanted to
11 get clear. It does say the revised total?

12 THE WITNESS: That revision essentially
13 refers to a strip of land that is required to accommo-
14 date the bulk bin area that we are proposing to include
15 as part of this application rather than as part of the
16 Region of Halton's current landfill site. Along with
17 this there are -- there will be a strip contiguous to
18 the Site F and between the Burlington and Site F property.
19 It also includes a small section approximately here that
20 is part of the current property boundary that is appli-
21 cable to the current regional site that we have had to
22 accommodate with Site F because that area, if left
23 alone, would be a major pothole. It is a low-lying area
24 that would have created a hole. So, we have taken that
25 into account and assessed that we will be filling that



1 area.

2 MR. LANCASTER: That is part of the
3 Burlington site?

4 THE WITNESS: That is currently part of
5 the Burlington site property. Mr. Chairman, I should
6 also perhaps mention that we have had a legal survey
7 carried out for this property and the actual figure
8 that we have is now 103.8054 hectares. The reason for
9 the difference between the 96 hectares and the approxi-
10 mately 104 hectares involves a piece of property known
11 as the Azova property to the north. When we investi-
12 gated the Azova property itself we found it extended
13 beyond the line that is shown here. So that for the
14 purposes of establishing the total site as being 104
15 hectares, approximately, the line would now be extended
16 to the actual Azova property so that would be in this
17 approximate area here.

18 DR. KINGHAM: So it is everything shown in
19 that hatched line, including the southeast leg of the L
20 and the 103.8054 hectares would include a portion not
21 shown on that diagram to the northwest of the hatched
22 line?

23 THE WITNESS: That is correct, Dr. Kingham.

24 MR. HODGSON: Mr. Chairman, if I could
25 put my oar in here it is even more complicated than that.



1 MR. LANCASTER: I thought I was going to
2 clarify that.

3 MR. HODGSON: Unfortunately not. This is
4 a loose end. The Region apologizes in that we haven't
5 been able to finalize. We had intended as part of the
6 Region's case to file a survey which would form part
7 of -- form a necessary part of the record for the
8 purposes of you making an expropriation order with
9 respect to both of these sites, one done for Site D and
10 another one for Site F. This survey of the site has
11 been done and it is proper to file at any time. The
12 survey of Site F is somewhat complicated in this
13 respect: first of all, the triangle of land at the
14 south of cell 2 is in fact to the south of an existing
15 Ontario Hydro right-of-way. It only came to our
16 attention after we had done the survey that that also
17 belonged to National Sewer Pipe. Ms. Cronk has
18 indicated her opinion formally that her clients would
19 prefer if the Region were to expropriate the rest of
20 her client's property, they would just as soon have
21 that triangle taken away. So, potentially that
22 triangle of land will then become included in the site
23 plan area, notwithstanding the design.

24 THE WITNESS: This is this triangle
25 (indicating).



1 MR. HODGSON: The other complication
2 has to do with the designs of the City of Burlington.
3 The City of Burlington first announced an intention to
4 expropriate land that has formed part of the site plan,
5 interestingly in July of 1985. The notice of expropria-
6 tion wasn't issued until I believe the summer of 1986
7 and when the notice came out it became clear that the
8 City of Burlington wanted to take three parcels of
9 land. They wanted a strip down the east side of the
10 Bayview site which they called their parcel A. They
11 wanted a narrow strip across the south ...

12 THE WITNESS: That is the west side.

13 MR. HODGSON: I'm sorry, the west side
14 of Bayview. They called that parcel A. Another strip
15 across the south side, a narrow strip across the south
16 side of Bayview that they called their parcel B and
17 then as their parcel C they wanted a huge chunk of Site
18 F forming something like one-half to two-thirds of the
19 property to the right of cell 2. The City of Burlington
20 to this day hasn't indicated what their current inten-
21 tions are. Ms Cronk has tried to indicate to you in
22 her cross-examination this morning that there is a bit
23 of litigation going on between her clients and the City
24 of Burlington.

25 MS CRONK: If I had known you were going



1 to give the rest of our evidence for me, you could have
2 done it all.

3 MR. HODGSON: You can cross-examine me
4 when I'm finished.

5 The point of this recitation is simply
6 to make clear to the Board that that is something that
7 has to be clarified. I assume that the City of Burlington
8 still wants to expropriate land and thereby own that
9 portion of land on which they have already installed a
10 perimeter collection system for Bayview. If that is
11 correct then it is going to be necessary for the Region
12 to amend the survey that it has done to exclude from
13 the site plan area those portions which Burlington now
14 says that it wishes to own. That is something we will
15 attempt to get clarified and I hope by the time
16 Mr. Walker is in the witness box we will be able to
17 advise the Board of what the Region says is the amount
18 of land it is asking this Board to expropriate.

19 DR. KINGHAM: While we are attempting
20 to clarify on this issue, Mr. Hiraishi, can you find
21 that exhibit that has the questionable pink fluorescent
22 orange line that you drew to the northeast of an earth
23 berm in the south portion of Site F? That would be
24 on H-42, probably about 8 -- 9r.

25 Mr. Hodgson, have you been telling us



1 anything that would conflict with the position of that line
2 for the holding pond in terms of Burlington's intentions?
3 I know it's in litigation but you indicated a portion.

4 MR. HODGSON: Well, I think Mr. Hiraishi
5 very roughly can show you what portions the City of
6 Burlington issued a notice, an intention to expropriate
7 in respect of that. It's a very badly constructed
8 sentence but I think you can probably sketch it on there.
9 I don't know if you want the sketch or not.

10 MS CRONK: If that is going to happen,
11 sir, there is very significant litigation going on about
12 it. I would prefer it be done to scale, we get it right
13 and I may have some submissions to make to clarify the
14 matter as well. I have no difficulty at all clarifying
15 it. I just suggest it be done over the noon hour and
16 let's get it right, if we do it.

17 DR. KINGHAM: We would like to get it
18 right.

19 MR. LANCASTER: Mr. Tzekas, 2:00 o'clock.

20 --- Luncheon recess at 12:40 p.m.

21 --- Upon resuming at 2:00 p.m.

22 THE CHAIRMAN: Be seated, please.

23 MR. HODGSON: Mr. Chairman, to go back
24 to the topic we left off with before lunch, I have now
25 been able to clarify instructions from the Region and



1 they are that the Region will be filing before the end
2 of its case a survey for the purposes of your making
3 an expropriation order. In connection with Site F
4 what the Region will be asking you to permit the Region
5 to expropriate will be in connection with the site plan
6 area for Site F, it will exclude everything to the east
7 of the pink-orange line, whichever it is, that
8 Mr. Hiraishi has drawn on H-42B-9r. The Region in fact
9 will be dropping a perpendicular, to us an expression
10 of Dr. Kingham's, along the right-hand side of the
11 fill area so that the Region in effect will have a
12 100-metre buffer from the fill area. It does not believe
13 it requires any land east of that 100-metre buffer.
14 The Region also will not be seeking to include the
15 triangular piece of land I mentioned before lunch to
16 the south of the site and also ...

17 MR. TZEKAS: I am sorry, will or will not?

18 MR. HODGSON: Will not. Also the Region
19 will not be seeking to expropriate any land beyond the
20 line that Mr. Hiraishi has drawn to the north of what
21 he has described as the site plan area. That is to say
22 there is a portion of Azova's lands that will not be
23 required and the Region will not be seeking to expro-
24 priate any land it does not require.

25 MR. LANCASTER: Thank you.



1 DR. KINGHAM: We will leave the area
2 defined on page 54 then in question marks until we
3 received that.

4 MR. LANCASTER: Is that northerly berm
5 that goes around the corner, is that not on part of
6 the Azova lands that would be expropriated?

7 MR. HODGSON: Yes, that area is Azova
8 land. I believe just roughly, Mr. Chairman, if you
9 follow the blue road that appears to go into the middle
10 of the green area, from approximately that line north
11 you find Azova land and the lands go all the way down
12 into Falcon Creek Valley to the north of the northern-
13 most line drawn by Mr. Hiraishi.

14 MR. LANCASTER: Thank you.

15 THE WITNESS: I believe for the Board,
16 I believe Ms Cronk requested clarification of where dis-
17 charge would occur for the disposal of pumped out
18 leachate. That description is approximately 640 metres
19 south of Upper Middle Road and Bronte Road which defines
20 the closest discharge point.

21 DR. KINGHAM: Could you give that to us
22 again?

23 THE WITNESS: Six hundred and forty metres
24 south of Upper Middle Road on Bronte Road. That would
25 be approximately in the area of the regional offices, a



1 little north of the regional offices. That is a point that
2 we used for our purposes but again it is subject to modifica-
3 tion only because it might not be a totally appropriate
4 area for discharge but it will be in that area.

5 CROSS-EXAMINATION BY MR. TZEKAS:

6 Q. Mr. Hiraishi, may I begin by
7 reviewing a portion of your witness statement, your
8 CV, under the heading "Project Experience." Now, the
9 first heading under "Project Experience" refers to
10 various design and operation reports and I take it that,
11 Mr. Hiraishi, these are all design and operation reports
12 that you have been involved in?

13 A. Yes, they are.

14 Q. Now, can I take you through these
15 and ask you in each case what was the nature of the
16 material that was being excavated at each of these sites
17 and what the material was that the landfill site is
18 actually founded on?

19 Now, the first reference is to the Region
20 of Halton and I take it that that is this hearing, so
21 let us ignore that. With respect to the Guelph land,
22 can you tell us what was involved in that in terms of
23 extraction and foundation material?

24 A. That is a current site that is
25 being operated by the City of Guelph. There is no



1 excavation of material, per se, on the landfill area because
2 the area has already been filled, excavated to required
3 depths of fill but the underlying area below the land-
4 fill is essentially sand and gravel material.

5 Q. With respect to the Essco Limited
6 site, where is that site, first of all? We are not
7 familiar with it.

8 A. That is a plant in Port Hope and
9 that is a proposed mono-fill on the property that is
10 owned by Essco Limited and I believe the material -- I
11 could be incorrect in this but the underlying material
12 is silty sand material.

13 Q. What would be excavated there,
14 what kind of material?

15 A. The silty sand material would be
16 excavated.

17 Q. Now, over on page 2 of the CV we
18 have reference to a site or some work done in connection
19 with a site in the Town of Huntsville.

20 A. Yes.

21 Q. Can you tell us what is being
22 excavated, if anything, and what is the site founded on?

23 A. The material that is being
24 excavated is, I believe, sandy-type material with some
25 granular or gravel-type material underneath.



1 Q. And the City of Cornwall site?

2 A. The City of Cornwall site is
3 primarily founded on clay till. The material that would
4 be excavated there would be essentially clay till.

5 Q. What is that site founded on, the
6 same till as well?

7 A. Yes.

8 Q. And the Sault Ste. Marie site?

9 A. The Sault Ste. Marie site is one
10 that is operated privately but one that is also used
11 exclusively by the City. The material underlying it is
12 sand with some silty material I believe.

13 Q. Quinte Sanitation in Belleville?

14 A. Quinte Sanitation site is primarily
15 founded on limestone bedrock, and consequently there are
16 no excavations to be contemplated for that.

17 Q. Two Essex County sites?

18 A. The Maidestone Landfill Site is
19 of material that is I believe tending towards the clay
20 type and relatively impermeable material. The other one
21 which is in Leamington is primarily sandy material.

22 Q. And the Elliot Lake site?

23 A. The Elliot Lake site is primarily
24 in sand overlying bedrock.

25 Q. Now, I take it from that that,



1 Mr. Hiraishi, you have not been involved in the design
2 of a site in which there will be a significant amount
3 of shale extraction? Is that fair?

4 A. That is correct, yes.

5 Q. Are you aware of any municipal
6 sites which have been designed and intentionally planned
7 around the concept of large scale shale extractions?

8 A. Not to my knowledge, Mr. Tzekas.

9 Q. Now, if I may refer to your
10 witness statement, it is part of Exhibit 8B -- I would
11 like to refer you to page 3 of the statement and discuss
12 with you the guidelines, the MOE guidelines which have
13 already been referred to by some of the solicitors.
14 Looking at the second sentence in the first paragraph
15 I read that as saying that you looked to the guidelines
16 to establish some of the technical contents of the
17 design and operations reports; is that correct,
18 Mr. Hiraishi, is that what you did?

19 A. I used the guidelines primarily
20 as a check on the work that I do and not necessarily
21 use it as a manual to follow. The fact of the matter
22 is that the guideline that is referenced here is one
23 that is, as I understand it, undergoing modifications
24 and updating and therefore many of the principles
25 embodied within that document are now out of date or



1 not the state of the art. The thinking behind the
2 updating is to bring together all of the current
3 thinking and thoughts on the design and operations so
4 that we can have a document that can be described as
5 being state of the art.

6 Q. In light of that comment can I
7 read you the next sentence and ask you some questions
8 on it? The final sentence of paragraph one states:

9 "Although this document is currently
10 undergoing updating and revision, I, none
11 the less, relied on these guidelines to
12 provide a basis for the work contained
13 in the design and operations report ."

14 Now, is that statement, was it accurate at the time it
15 was written, Mr. Hiraishi?

16 A. It was accurate at the time and
17 it still remains accurate. I would expand on it to the
18 extent that the guidelines, as stated here, are used
19 for my purposes to establish the scope of work that
20 would be necessary for various items under consideration.
21 I also would be using some direction and opinions that
22 would be expressed by the Ministry of the Environment
23 in terms of the types of areas that need to be covered
24 and to what extent those areas need to be covered.

25 Q. In fairness I think you have already



1 said on cross-examination that this is a general docu-
2 ment and it is not intended to be a site-specific, it
3 is not intended to establish site-specific criteria?

4 A. It is basically generic in nature,
5 yes.

6 Q. That document contains a statement
7 at the very beginning under the heading "Scope of
8 Guidelines." Perhaps I could read it to you and get your
9 impressions of it. I don't think you need to refer to
10 it. It is just a very small -- if you would like to read
11 along it is at page 1 of the guideline, at Chapter 1.2
12 under the heading "Scope of Guidelines" -- sorry --
13 "Scope of Guideline."

14 A. Yes.

15 Q. "The guideline represents minimum
16 levels of performance required at any
17 waste disposal landfill site and it dis-
18 cusses commonly-used methods of achieving
19 them."

20 Now, is that statement consistent with your understanding
21 of what these guidelines intend to represent?

22 A. I would think that that is in
23 general true, yes.

24 Q. Now, referring to Site F, and
25 specifically with the question of the buffer zones,



1 Mr. Hiraishi. In your discussions in cross-examination
2 I think you indicated to the MOE's counsel that there
3 were two functions for the buffer zone, the first
4 function being a technical function, that is housing
5 the facilities and the second function being a planning
6 function. That is something that segregates land uses?

7 A. Yes.

8 Q. I think you discussed with
9 Mr. Garrod the planning considerations in segregating
10 landfill sites from other land uses. I think your point
11 was in general it was a good idea to try to do that.

12 A. It should be one of the considera-
13 tions, yes.

14 Q. May I turn you to your witness
15 statement at page 7? There is a discussion there of
16 the hundred-metre-wide buffer and you make this statement:

17 "The Phase II, Stage 2C Report No. 7
18 stated that the intent of the buffer is
19 to provide adequate separation between
20 the actual landfill operations and the
21 surrounding land use to provide visual
22 and noise separation, leachate attenuation
23 zone and area for monitoring and installa-
24 tion of environmental control works."

25 Now, do I read that as a recognition of these two



1 functions, that is the planning and technical function
2 for the buffer zone?

3 A. I can't answer that directly,
4 Mr. Tzekas. This statement is contained in that report
5 and I was not an author of that report and I have no
6 basis from which the statement arose. Again, reading
7 into that, I would think that it would be considered
8 both as you suggest.

9 Q. Now, with respect to the 100-metre-
10 wide buffer, that particular figure I take it is referred
11 to in the MOE guidelines?

12 A. I believe that is the case, yes.

13 Q. If I may refer you to page 43 of
14 those guidelines if you have them available. Again I
15 would just like to read into the record one small
16 extract from this report at page 43 under the heading
17 "Fencing and Neutral Zone or Greenbelt." The second
18 sentence of that paragraph:

19 "The area between the boundaries of the
20 site and the landfilling area is the
21 neutral zone or greenbelt. This is owned
22 and maintained by the site operator or
23 owner. The neutral zone between the
24 actual disposal area and the property
25 limits should be at least 100 metres wide."



1 Now, in designing your site I take it you had this
2 particular guideline in mind?

3 A. For Site D, yes. For Site F, I
4 was basing my work in the previous stage which was
5 Stage 2C in which buffer zones were discussed and
6 essentially established that there would be no buffer
7 zones on some contiguous area.

8 Q. I would like to discuss that with
9 you in more detail but just to stop on a point that you
10 had made, I take it that with respect to Site D there
11 was no difficulty in complying with that particular
12 guideline? The hundred-metre buffer zone could be
13 established around the perimeter of the site?

14 A. There are adequate lands to
15 establish at least a 100-metre buffer, yes.

16 Q. I take it that that conclusion
17 is confirmed in the very final sentence at page 7 of
18 the witness statement where you say:

19 "I believe that the present location
20 meets the intent and purpose of the buffer
21 zone in providing an adequate separation
22 of the landfill from the surrounding land
23 uses."

24 That is a recognition on your part of the planning
25 function of a buffer zone?



A. Yes.

1 Q. Now, let us deal with Site F and
2 so that we understand what we are dealing with,
3 Mr. Hiraishi, is there a map which you can point to that
4 shows the width of the buffer zones at Site F?

5 A. I believe it is given in descrip-
6 tive form in the report.

7 Q. To help us visualize it I would
8 prefer it, if you could, if you could point us to one
9 of the exhibits. The one that is up at the moment I
10 take it shows to some extent the buffer zone?

11 A. Yes.

12 Q. What is the width of that buffer
13 zone, for example, at the east end -- sorry -- the west
14 end of Site F?

15 A. The way we have computed it it
16 would vary because it doesn't parallel the actual till
17 area but at the widest point, Mr. Tzekas, it would be
18 approximately 65 metres and at the narrowest point it
19 would be approximately 30 metres.

20 Q. Is there an even narrower point
21 further north?

22 A. At the very north?

23 Q. Yes.

24 A. You are correct, it is approxi-
25 mately 20 metres.



1 Q. Is there a significant difference
2 between the width of that buffer and the width of the
3 buffer on the west side of the site at the cell 1 level?

4 A. I'm sorry, we were doing it on the
5 west side here.

6 Q. I'm sorry, the east side. My
7 apologies.

8 A. There would be some difference,
9 yes. The 100 metres, we have respected the hundred
10 metres as you suggest up in this brown section which is
11 shown as the stockpile. However, lower down adjacent
12 to the Bayview site that buffer would then be reduced
13 approximately 50 metres at the narrowest point.

14 Q. In that portion where the buffer
15 is 100 metres, am I right in thinking that almost all
16 of that buffer zone will be used for technical purposes;
17 that is, the storage of material stockpiling?

18 A. That is correct.

19 Q. May I turn you to your witness
20 statement, page 8?

21 A. Yes.

22 Q. At the very top of that page there
23 is the statement:

24 "In Report No. 7 of Phase II, Stage 2C
25 for Site F, the buffer zone separating the



1 the fill area from the existing regional
2 landfill site and the closed Bayview
3 landfill site were eliminated since the
4 use and intent of the buffer was believed
5 to be redundant in light of the current
6 uses of these areas."

7 Now, you are commenting here on somebody else's work,
8 but as I read that, Mr. Hiraishi, you can tell me if
9 this is your understanding, in light of the existing
10 regional landfill site and the closed landfill site the
11 authors of that report felt that it was unnecessary to
12 have any segregation of lands?

13 A. Yes, and I would further say,
14 Mr. Tzekas, that that was in reference to, as you
15 suggest, the planning aspects of it and not necessarily
16 the technical aspects.

17 Q. Then you became involved and I
18 think the next sentence explains how you modified or
19 what you did with that concept. The next sentence says:

20 "However, for the design and operations
21 of Site F, I have modified this and have
22 incorporated a buffer to accommodate some
23 specific needs."

24 You then go on to describe those needs but is it fair for
25 me to say, Mr. Hiraishi, that all of those needs are



1 technical in nature?

2 A. That is correct.

3 Q. It refers to the access roads and
4 the accommodation of leachate control systems and the like?

5 A. Yes.

6 Q. I take it that the concept that
7 was set out in that plan or Phase II, Stage 2C reports,
8 with respect to no buffer for segregation purposes,
9 that was something you maintained in your design and
10 operations report?

11 A. I'm sorry, I didn't understand the
12 question.

13 Q. I will try to rephrase it. The
14 concept that is described in that first sentence on page
15 8 of your witness statement ...

16 A. Yes?

17 Q. ... I take it that that is a
18 concept that you were satisfied to continue in your work?

19 A. Initially that would have been my
20 view but as you have mentioned that has been subsequently
21 modified because of other needs of a technical nature.

22 Q. Of a technical nature but you
23 didn't change the planning perspective?

24 A. No, I did not.

25 Q. What would the imposition of a 100-



1 metre buffer along cell 1, both to the east and the west
2 side, do to the capacity of Site E?

3 A. I can't provide that information
4 to you but it will have some impact on its life, yes.

5 Q. I take it that that impact, would
6 I be fair in describing it as significant?

7 A. If you can describe or explain
8 what you refer to as significant, whether it is one year,
9 five years or ten years capacity.

10 Q. I am looking at the map that is
11 up before us, Exhibit H-42B-9r and I am trying to
12 visualize an extension of that hundred-metre buffer that
13 appears on top and I see that there would be a substan-
14 tial elimination of capacity along the west side adjoining
15 Bayview Park and if that 100-metre buffer were extended
16 down the west side of the site it would also be what
17 I would consider to be a fairly significant impact on
18 capacity. By that I mean we are talking about the loss
19 of a year, if not years, capacity?

20 A. That would be my impression, yes.

21 Q. Now, when you were preparing this
22 particular concept, Mr. Hiraishi, I take it you were
23 informed of what was intended for the property to the
24 west, that is the existing landfill site?

25 A. In what terms?



1 Q. In an after-use sense.

2 A. I wasn't aware of any formal plans
3 that had been submitted for the after use. I think
4 conceptually the after-use plan. for the Burlington
5 site is in accordance with the after-use concepts
6 developed for Site F, in other words, passive recreation.

7 Q. Do you know with respect to the
8 existing site when these uses will be in place, when it
9 is anticipated they will be in place?

10 A. I am not able to answer that
11 question except to say that I naturally expect the after-
12 use concepts to be initiated shortly after the site
13 closure which would be in keeping with the start-up of
14 the Site F plan.

15 Q. That site is going to close very,
16 very soon I understand. Is it fair for me to suggest
17 then that those after-use concepts, they would be on
18 their way to being established during the operation of
19 Site F?

20 A. Yes.

21 Q. Assuming that the intended use
22 of the existing site is passive recreation purposes.
23 Assuming that that kind of use is also made on
24 the existing Bayview part,

25



1 Mr. Hiraishi, as someone who designs landfill sites
2 wouldn't you agree that this kind of recreational use
3 is one which should be segregated from the active face
4 of the landfill?

5 A. Yes.

6 Q. I take it your design doesn't
7 really accomplish this?

8 A. I'm not sure what you mean by that.
9 We have no intention of having passive recreational uses
10 nor any uses other than that landfill on landfill Site F
11 during its operation. We also don't intend to interfere
12 with the passive recreational uses on adjacent properties
13 if that were to take place. We try to accommodate as
14 much as we can some of the recreational uses that have
15 been noted that occur on the Bayview Landfill Site.

16 Q. I am not suggesting you are
17 attempting in some way to interfere with it but do you
18 agree with me that a buffer that is at times as narrow
19 as 20 metres does not do much to segregate those
20 different kinds of land uses?

21 A. Yes.

22 Q. I take it from what we have said,
23 Mr. Hiraishi, that you would agree with me that really
24 no design for a landfill at Site F could accomplish
25 this kind of segregation without some serious impact on



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19 as 20 metres does not do much to segregate those
20 different kinds of land uses?

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22 Q. I take it from what we have said,
23 Mr. Hiraishi, that you would agree with me that really
24 no design for a landfill at Site F could accomplish
25 this kind of segregation without some serious impact on



1 the capacity of the site? That is one of the trade-offs
2 that were made?

3 A. Not in accordance with the plans
4 that we have presented.

5 Q. I understand.

6 A. Some modification of that can be
7 made to perhaps salvage some capacity as you suggest.
8 That is another iteration of this work here.

9 Q. Now, I would like to then discuss
10 the question of the access road with you. Much discus-
11 sion has been had with respect to that road and in
12 particular with respect to its costs. Now, just dealing
13 with general principles for the moment would you agree
14 with me that it would -- it makes sense to limit the
15 use of internal roadways at landfill sites to those
16 vehicles involved in the waste disposal process?

17 A. Yes.

18 Q. I take it at Site D this is
19 accomplished?

20 A. Yes.

21 Q. It is intended for Site F as well?

22 A. Yes.

23 Q. Were you aware, Mr. Hiraishi, at
24 the time you prepared your design and operations report
25 of this particular report which deals with the landfill
closure and after use of the existing landfill site?



1 A. No, I wasn't aware that this was.
2 However, Mr. Stevens should have been aware that it was
3 and I am sure he was.

4 Q. The one day I want Mr. Stevens
5 to identify a document he disappears on me.

6 A. This wouldn't be part of my
7 concerns, Mr. Tzekas, because I was interested in Site
8 F. I left the concepts of after use and the uses of
9 those compatible with both Bayview and Burlington up
10 to Mr. Stevens and the land planner.

11 Q. So you didn't think that this was
12 of any concern to you and you didn't consider that?

13 A. In the sense that for our purposes
14 we are in effect using the recommendations and the
15 thoughts which Mr. Stevens has with respect to the after
16 use at Site F and that our mandate is to try and
17 accommodate that as much as we can in the form of pro-
18 viding a suitable landform for Mr. Stevens to work with.

19 Q. One of the things that Mr. Stevens
20 recommended and one of the things that is contained in
21 the after-use report with respect to the existing site
22 is a proposal to use your access road to access the
23 existing site for recreational purposes. If I can just,
24 for discussion purposes only, is there a way we can put
25 this plan up?



1 DR. KINGHAM: Can you put another clip
2 on that and turn it so that we have the same orientation?
3 We have had enough trouble with east and west already.
4 Put it on the left-hand board and rotate it 90 degrees
5 clockwise.

6 MR. TZEKAS: Q. Now, Mr. Hiraishi, at
7 the bottom right-hand portion of that particular map
8 there is a roadway.

9 DR. KINGHAM: For the record, this is a
10 map of the present Burlington Landfill Site, the bottom
11 right-hand corner would be the southeast corner.

12 MR. TZEKAS: It is as well, for the
13 record, Map 6 taken from the Landfill Closure and After-
14 Use Report, dated December, 1985.

15 Q. Mr. Hiraishi, that roadway leads
16 to a parking lot on that particular plan. Is that the
17 access road that you propose to use at Site F?

18 A. I suspect that is, Mr. Tzekas.

19 Q. Without taking you through the
20 details of that report, would you assume for the moment,
21 Mr. Hiraishi, that that is the only public access to be
22 provided to the existing landfill site in its after use?
23 Would you agree with me that if that is in fact the
24 case that that is not a desirable situation from your
25 perspective?



1 A. If this were to be implemented in
2 the form that it is presented it would be a basic con-
3 flict in the use of the access road, yes.

4 Q. Would you agree with me that in
5 order to resolve that conflict one of two things would
6 have to happen; either your design and operations report
7 would require a new access concept or the access concept
8 into this recreational area would have to be changed?

9 A. That is correct.

10 Q. Now, in fairness, Mr. Hiraishi,
11 would you agree with me that if the imposition of a
12 landfill site at Site F requires the Region or results
13 in the Region having to construct another access road
14 into this recreational area that the cost of that
15 other road should be taken into account?

16 A. Yes.

17 Q. I take it that that is not some-
18 thing that you did, sir?

19 A. That is correct.

20 Q. Now, even assuming that that is
21 done, that some other access road is constructed into
22 this area, do I take it as a general principle that
23 these access roads are designed with a certain lifespan
24 in mind?

25 A. They usually have a usable life,



1 yes.

2 Q. How long has the access road that
3 we have been discussing, how long has it been used for
4 to this point?

5 A. I couldn't answer that question.

6 Q. Is it fair to say that some portion
7 of its usable life has been extended already?

8 A. Sure.

9 Q. Is there any estimate in your
10 cost figures for the upgrading of that particular road-
11 way?

12 A. There is in the operational concept
13 I presented to you before which includes the maintenance
14 and repair of on-site roads that would be part of the
15 operating costs that was given as a per tonne figure.

16 Q. In taking that figure did you have
17 the reconstruction of this roadway in mind?

18 A. No, it is standard maintenance and
19 repair.

20 Q. I am right in thinking,
21 Mr. Hiraishi, am I, that at Site D whatever the cost of
22 the access road is it is going to be a brand new facility,
23 whereas, here you are really inheriting something that
24 has already been used to some extent?

25 A. Yes, and from an engineering



1 perspective that would be the proper way of doing it,
2 to maximize the use of whatever facilities are there.

3 Q. That would require in this parti-
4 cular case, and I don't disagree with your earlier
5 statement but it would require in this particular case
6 the construction of some new access?

7 A. For either one use or the other,
8 yes.

9 Q. I would like to deal now with the
10 visual impacts of the proposed landfill site and in
11 order to do that I would like to refer you to an exhibit
12 that I think went in through the MOE, that is Exhibit
13 265.

14 MR. HODGSON: I hope my friend doesn't
15 get into visual impacts. I thought we dealt with visual
16 impacts through another witness. I don't think it would
17 be appropriate in that this witness hasn't been qualified
18 to give evidence in that area.

19 MR. TZEKAS: My intention, Mr. Chairman,
20 because Mr. Hiraishi discussed with Mr. Tidball certain
21 operational and design characteristics that he had
22 incorporated in order to mitigate the visual impact on
23 this particular site, it is those aspects of the work
24 that I am exploring. He made that statement and I would
25 like to see to what extent it really bears out.



1 MR. LANCASTER: That is fine.

2 MR. TZEKAS: Q. Now, Mr. Hiraishi, do
3 you have a copy of Exhibit 265 before you?

4 A. I do.

5 Q. As I understood your evidence to
6 the Ministry's counsel you have designed this particular
7 landfill site so that the visual impacts from the south
8 would be minimized and the concept, as I understood it,
9 was to have the work that was being carried out at the
10 site placed behind certain berms or visual barriers?

11 A. Yes.

12 Q. Right. Am I right when I look
13 at Exhibit 265, the first page, that the south is
14 towards the left-hand side of the page?

15 A. That is correct.

16 Q. And the right represents the north.
17 Now, can you tell me how that particular proposal would
18 have any effect on the visual impacts that might be
19 experienced from someone sitting in the existing area
20 once it becomes a recreational use? I am thinking of
21 this northeast corner of the existing area. Can you
22 tell me, how does your concept assist with the visual
23 impacts from that perspective?

24 A. From that perspective, from that
25 particular point it will not assist in mitigating anything



1 visual.

2 Q. From the perspective of someone
3 travelling along the Bruce Trail--do you know,
4 Mr. Hiraishi, where the Bruce trail is in relation to
5 Site F?

6 A. Relatively but again it is an area
7 in which Mr. Wright investigated and I merely took his
8 investigations and his thinking on the matters. I really
9 couldn't tell you where the views are from nor could I
10 tell you what his thinking was in establishing the
11 recommendation that he did make.

12 Q. I take it that same comment applies
13 with respect to the houses located, the exact location
14 of the houses you wouldn't be aware of?

15 A. That's right.

16 Q. Can we deal with it in this general
17 way, Mr. Hiraishi? Is it true that the land to the
18 north of this particular site slopes up, it is elevated
19 above the site?

20 A. There is a section that actually
21 slopes down and then it gradually goes up.

22 Q. That section is right at the
23 Falcon Creek and then you get the escarpment?

24 A. That's right.

25 Q. As a general principle is it fair



1 for me to suggest that anyone who can see the site from
2 that location would not be aided in any way in terms of
3 the visual impacts, by the design schematic which you
4 have created here?

5 A. I can't answer that either,
6 Mr. Tzekas. I did not make the assessment from the
7 view of the visual analysis taken from the north or
8 from the east or from the west. This schematic is as
9 provided by the Ministry of the Environment and is
10 contained in our drawings is essentially to the south.
11 So the discussions of any other visual analysis wouldn't
12 be applicable and hasn't been assessed.

13 Q. I take it from that comment there
14 was really no assessment of the visual impacts on the
15 Bayview Park area?

16 A. Well, it was done on the basis of
17 attempting to mitigate whatever visual impacts that we
18 had as much as we could. In that sense it is my under-
19 standing that the tree cover and the berms that we have
20 shown before, it is my understanding that they do help
21 and that in that sense it makes it a little better than
22 it would otherwise have been.

23 Q. How does the tree cover to the
24 south, that is the tree cover located on cell 2 assist
25 someone in Bayview Park?



1 that I have put up from the 1985 after-use report that
2 there is a proposal for a parking area. Can you confirm
3 that that is in the vicinity of the existing bin area?

4 A. I believe that would be about the
5 same location, yes.

6 Q. Is that area paved?

7 A. Not at the present time, no.

8 Q. That is something, if you were to
9 use that facility, that is something you would have to
10 do in any event?

11 A. I would imagine it would be
12 desirable to do that. Whether or not you actually carry
13 it out is something else.

14 Q. Would it be fair for me to conclude
15 that that would be another feature that will have to be
16 reproduced in some other place if indeed Site F takes
17 advantage of the existing facilities?

18 A. That is true.

19 Q. Now, I would like to deal with
20 the question of the cutting and the excavation that
21 is going to be required at both Sites D and F. First
22 of all, are there any technical difficulties anticipated
23 with respect to the excavation of Site D?

24 A. Not that we anticipate at the
25 moment, no.



1 Q. With respect to Site F, the excava-
2 tion will involve the removal of a substantial amount
3 of shale. You have indicated that?

4 A. Yes.

5 Q. Is it possible in carrying out
6 this operation that a contractor might encounter out-
7 croppings or portions of the massive shale?

8 A. That is a possibility that you
9 will have to discuss with Mr. Sobanski. I wouldn't
10 know. I simply go by what he recommends to me. My
11 understanding is that such massive shale outcrops would
12 not occur but the probability of that, I really can't
13 say.

14 Q. If they were to occur, Mr. Hiraishi,
15 what would be the excavation technique to get rid of
16 that material?

17 A. That would depend on the extent
18 and the quantity of it to be removed.

19 Q. Would it or could it involve very
20 different types of equipment and very different types of
21 excavation techniques?

22 A. It could, yes.

23 Q. Is it also possible, and perhaps
24 even probable that in excavating the weathered shale
25 the contractor might encounter limestone lenses?



1 A. That would be a distinct possibility,
2 yes.

3 Q. How does he deal with that distinct
4 possibility?

5 A. I believe that the limestone lenses
6 are not extensive enough to warrant any techniques to
7 excavate it, to change from that being used for the
8 shale.

9 Q. You say that these lenses are not
10 extensive enough. What information is that comment
11 based on?

12 A. That is based on Mr. Sobanski's
13 observations and his knowledge of the site.

14 Q. Is it possible that if limestone
15 lenses of some size were encountered that this would
16 require, amongst other things, blasting in order to have
17 it removed?

18 A. The possibility exists although I
19 can't comment on it. It is principally a contractor's
20 responsibility to remove it and he will have guidelines
21 and specifications to follow, so that advance, speci-
22 fication reads that if there is no explosive material
23 to be used he will have to do it by other means. If it
24 was left open then I suppose he would have an option of
25 using whatever technique was most cost effective.



1 Q. Now, if we can just go to the map
2 that is behind the after-use plan. Mr. Chairman, we
3 could -- I could undertake to the Board to have this
4 plan proved in a more formal way at some subsequent
5 stage. On the basis of that undertaking may I suggest
6 that it be put in as an exhibit at this stage?

7 MR. LANCASTER: This is the Burlington
8 Landfill Site?

9 DR. KINGHAM: The study or the map or
10 both?

11 MR. TZEKAS: Just the map at the present
12 time.

13 MR. LANCASTER: It will be B-271.

14 --- EXHIBIT NO. B-271: Burlington Landfill Site
15 Continued Use and Rehabilitation
Concept Map

16 MR. TZEKAS: I am told, Mr. Chairman,
17 that plan was actually part of a report that was adopted
18 by Regional Council so there won't be any difficulty in
19 proving it.

20 Q. Mr. Hiraishi, I would like to
21 discuss with you the cross-examination carried out by
22 the counsel for the MNR in light of the new information
23 that we have been given about dropping the perpendicular
24 and limiting the size of Site F. Questions were put
25 to you by the Ministry of Natural Resources as to the



1 possible extraction of additional quantities of shale.
2 I think that that concept was actually integrated in
3 one of your earlier reports or in the earlier reports?

4 A. That is correct.

5 Q. If that were to take place at the
6 present time, and assuming that the boundary of the site
7 is where the pink line on Exhibit H-42B-9r is, where
8 would that material be stored?

9 A. That would depend on how the site
10 was to be operated and it would depend on how much of
11 the shale can be sold during the site operations. Assuming
12 the shale wouldn't be sold during the site operation
13 we would be very hard-pressed to find any area that
14 would be suitable for storage. However, if we can assume
15 that the shale would be sold during the first, say, 14
16 or 15 years of life or so, then we do have storage
17 immediately below cell 2, a storage area below cell 2
18 for that purpose.

19 Q. Now, let me ask you again some-
20 thing while I think about it because the design is new
21 to me. From an engineering point of view, I take it
22 that it is a generally accepted principle that you should
23 have for emergency purposes a second access point to any
24 particular site?

25 A. That has always been the principle



1 that I personally have been attempting to incorporate
2 in the designs that I am involved in. That is not
3 always the case and quite often you will find only one
4 access road into a landfill site.

5 Q. Given the new configuration for
6 Site F, where would the second access point be? Where
7 could it be if you were interested in incorporating one?

8 A. At the present time we have a
9 second access road off the King Road, approximately in
10 the area of that northern stockpile.

11 Q. Is that shown on the map?

12 A. It is shown here, Mr. Tzekas. I
13 will colour that in in blue.

14 Q. In blue, because I missed it. I
15 must say sitting back here I didn't see it.

16 A. It should have been coloured in in
17 blue before.

18 Q. Now, Mr. Tidball spoke to you about
19 the expansion or possible expansion of both Site F and
20 Site D. Now, may I begin by just asking you,
21 Mr. Hiraishi, I take it you have had some experience in
22 the expansion of existing landfill sites?

23 A. That is correct.

24 Q. I take it that this is a relatively
25 common, in fact one might almost say a normal phenomenon



1 in this province. Is that a fair statement?

2 A. That has been my experience, yes.

3 Q. Given the difficulties encountered
4 in establishing such sites is there some merit in
5 considering expansion possibilities in the design and
6 engineering operations stage of the work?

7 A. That would be the normal considera-
8 tion. It again depends on the municipality's point of
9 view as to what constitutes a reasonable expansion
10 possibility. It is simply that in some locations
11 expansion would not be easily accomplished and the
12 municipality would be well aware of that prior to
13 entering into an undertaking such as this.

14 Q. Given the new constraint that we
15 have been informed of with respect to Site F I take it
16 that there is very little expansion prospect with the
17 site as it is now described?

18 A. Could you explain the first part
19 of that statement as to the "new"?

20 Q. Sure. I am thinking of Mr. Hodgson's
21 statement that the property line will now be where the
22 red or pink line is on that Exhibit H-42B-9r.

23 A. That wouldn't be in my area to
24 comment on. I can only surmise that that pink line is a
25 direct recognition by the Region that they are willing to



1 accept the capacity presented in the design.

2 Q. Let me approach it this way. I
3 take it when you began your work there were three options
4 that you considered for the landfill site at Site F?

5 A. Yes.

6 Q. Without that eastern portion of
7 the L, I take it that the option that was selected is
8 really the only option that could be considered?

9 A. Under the same circumstances,
10 that would be true. There were considerations made for
11 each of those and each of them had advantages and dis-
12 advantages. It was simply my opinion at the proposal
13 here which shows the landfilling in a north-south
14 direction using two-thirds of the site plan area was
15 best suited to the lands that we had and having consi-
16 dered all the other factors that have been presented to
17 me during this report development with reference to the
18 potential expansion, I believe I did state that at the
19 present time we have conceived the final land-
20 form in the final contours at our top elevation.
21 In cell 1 it is in the order of about 183 metres
22 which is essentially the same top elevation that can
23 be found in the buffer zone to the north. Where this
24 G is located and if one were to then use that assessment
25 of the fact that it is a reasonably flat area at the top,



1 and considering the fact that the adjacent Burlington
2 Landfill Site is higher than that and I could make it a
3 judgment that we will have some capacity available should
4 we choose to go up as high as the proposed Burlington
5 final contour.

6 Q. So you are suggesting that there
7 is still the possibility of expansion in Site F by
8 increasing the height of the landfill?

9 A. That is one and the other of course
10 is going down a little deeper as we had in the original
11 design. That would be required in a sense that as this
12 refinement design is concerned we have essentially a
13 cover material balance and therefore if we were to expect
14 to have a greater capacity than had been intended then
15 we would need to go deeper to achieve cover material
16 balance once again or, conversely, to rely on imported
17 materials for cover material.

18 Q. The present site as it is designed
19 as I understand, Mr. Hiraishi, has a balance in the cover
20 material?

21 A. That is what the numbers show, yes.

22 Q. You either have to go and get
23 additional materials if you are to extend the site
24 upwards by excavating deeper ...

25 A. That is correct.



1 Q. ... or by importing materials?

2 A. That is correct.

3 Q. You will agree with me that given
4 the new property line that has been presented there is
5 no prospect for a lateral expansion of this site into
6 that area to the east of the present proposal?

7 A. That is true.

8 Q. It was that area to the east of
9 the present proposal that was considered in two of
10 your three options?

11 A. That is correct.

12 Q. Now, with respect to Site D, are
13 there any -- is there a similar kind of constraint with
14 respect to the lateral expansion of that site? I think
15 you have got one of the exhibits there that may be of
16 assistance, H-41-8.

17 A. There are considerations to be
18 taken for the area of expansion. I believe I testified
19 earlier with Mr. Tidball that my preference in the case
20 of Site D was the possibility for expansion but my first
21 choice would be to go higher because in this case we
22 have excess materials that need to be used and we have
23 no need to go any deeper in the present fill area that
24 is shown. However, going towards the east, that is
25 east of cells 4 and 5, the base contours that would be



1 necessary to achieve the hydraulic trap is much deeper
2 than the areas that we are contemplating on filling.
3 So, again that impact means that we will have far more
4 excess cover material than we would likely have or
5 likely want to have. Therefore for the aerial expansion
6 from that point of view and as well as from the desir-
7 ability of minimizing the leachate production would seem
8 to me to suggest that the best expansion possibility for
9 D is higher, notwithstanding the noise and the visual
10 problems.

11 Q. I will be getting into the area
12 of the depth of cut at D in a short while. Am I right
13 in thinking, Mr. Hiraishi, that the roadway, this
14 specific location of that roadway and the other services
15 within that area could be moved to accommodate an expan-
16 sion of the site towards the east?

17 A. Yes, it could. That is merely a
18 rendition that looks nice on the plan but in effect it
19 may differ considerably. There may be only constraints
20 to the development of that access road is a desire on
21 our part to block off some of the views from the highway
22 itself and to keep that entrance road as located, as
23 shown on this plan which was the recommendation that
24 Mr. McLeod made in his transportation assessment.

25 Q. May I refer you and ask you to put



1 up Exhibit H-42B-5r? I would like to discuss with you
2 for a moment the collection system that has been outlined
3 in blue on that particular exhibit. It is my understand-
4 ing, Mr. Hiraishi, that that system will be installed at
5 a very early stage in the preparation of this site, that
6 is prior to the filling of the valleys; is that correct?

7 A. Yes.

8 Q. Can you tell me how deep the piping
9 at the southern end of cell 1 will be?

10 A. I couldn't at the moment but I
11 could get that for you fairly easily.

12 Q. Am I right in thinking it might
13 be four or five metres deep?

14 A. Yes.

15 Q. What material is placed on top of
16 that collection system prior to the garbage being placed
17 on top of it?

18 A. We are anticipating that the
19 valleys would be filled with clayey till material, our
20 intent being to attempt to minimize the bypassing or
21 missing the upper drain trenches so that my preference
22 would be specified for a relatively impermeable material
23 to be placed on top.

24 Q. Does the ease of placement and
25 compaction of the clay material also influence that



1 decision?

2 A. That would be part of it as well.

3 Q. Now, once that material is placed
4 in the valley on top of this collection system and once
5 the waste is put on top of that, how deep does the pipe
6 get buried in the final result?

7 A. It could be upwards of perhaps 35
8 metres or so.

9 Q. Is there any way that that parti-
10 cular collection system can be monitored, Mr. Hiraishi?

11 A. That would be very difficult to do.
12 The reason that the valley system -- the lower collection
13 system was in use as the primary header system was
14 precisely for that reason because it would be difficult
15 to monitor and difficult to maintain.

16 Q. I take it that there is really no
17 way that it can be flushed or cleaned?

18 A. It would be very difficult to flush
19 and clean. As you can see the access points are rather
20 far apart although some maintenance can occur at manhole
21 10A which is a temporary lift station as well as 27A
22 and it can also be undertaken at manhole 20, aside from
23 the small sections that you see on the east side. For
24 the most part it would not be able to be maintained in
25 the manner that I would like to see.



1 Q. Is it fair in saying that in
2 essence once that system is installed it is there and
3 it is really on its own?

4 A. That is correct.

5 Q. Now, mention was made of a Walker
6 Brothers' site on a couple of occasions. Are you familiar
7 with that particular site, sir?

8 A. I am familiar with some of the
9 design concepts and some of the features of the site.
10 I did not, nor was I ever involved in the development.

11 Q. One of the features I think you
12 mentioned to Ms Cronk was that it was a discharge condi-
13 tion at that particular operation?

14 A. Yes.

15 Q. I take it that that implies there
16 were upward gradients?

17 A. Yes, that is correct.

18 Q. Do you know or do you have any
19 information, Mr. Hiraishi, as to whether or not a liner
20 was required as part of the recent approval to extend
21 that site?

22 A. A liner has always been required
23 at that site as far as my knowledge goes, Mr. Tzekas.

24 Q. A liner was always required and
25 what is that particular site founded on?



1 A. It is an old quarry but I couldn't
2 tell you what the old quarry material is.

3 Q. If I suggested to you it was
4 excavated limestone founded on shale do you have any
5 information?

6 A. No, I don't.

7 Q. I would like you to assume as a
8 hypothetical, Mr. Hiraishi, that a liner is to be
9 installed at Site F.

10 A. Yes?

11 Q. Just to preface that I understand
12 you were directed not to consider that possibility?

13 A. My knowledge of that is from
14 Mr. Sobanski's recommendation that he believed a liner
15 would not be required.

16 Q. If a liner were to be installed
17 at Site F, can you give us some indication as to how it
18 might be constructed at this particular site?

19 A. Could you explain how it would be
20 constructed for construction techniques?

21 Q. What kind of material would be used?

22 A. In my opinion, and this is purely
23 my opinion because it is not based on any knowledge other-
24 wise, is that on this site the lining material would
25 have to be imported clay or some alternative such as that



1 rather than other alternatives such as artificial membrane.

2 Q. Have you considered the shale
3 material as a liner?

4 A. That was discussed at one point
5 but I believe that is not possible.

6 Q. Can you explain why?

7 A. The liner material is predicated
8 on the hydraulic conductivity being better than the
9 material that you find in situ. So that if we are to
10 construct a liner we would expect to see permeabilities
11 in the order of 10^{-7} and lower. I don't believe that
12 shale, either weathered or otherwise, would provide you
13 with an assurance that it would be 10^{-7} or more.

14 Q. In your very short sentence from
15 Schedule K that appears at page 3-3 with respect to the
16 cost of a liner and I will just ask you if you agree
17 or disagree with that particular statement. It appears
18 at the very bottom of that page 3-3.

19 A. Yes.

20 Q. It states:

21 "Hydrology Consultants have indicated
22 that a liner is not required for Site F;
23 if it were ordered for the site, it is a
24 major expense and would affect both the
25 cash flow and the affordability analysis."



1 Is that something that is consistent with what we have
2 just indicated about construction of the liner and your
3 experience?

4 A. It would, yes.

5 Q. While we are at that page, may I
6 ask you about one of the figures that appears on it,
7 that is under the category "Contingency", No. 13?

8 A. Yes.

9 Q. There is a contingency for site
10 capital cost, I think it is \$1,239,000. Were you
11 involved in the preparation of that particular figure?

12 A. I wasn't involved in the prepara-
13 tion of this table at all, Mr. Tzekas. From what I
14 understand Mr. Watson took the figures that I had
15 provided which is contained in an appendix at the back
16 of the report to develop his own numbers so I can't
17 comment on his use of those numbers.

18 Q. Fair enough. In terms of the
19 creation of a liner at Site F if it were to be required,
20 Mr. Hiraishi, is there enough clay material on site to
21 facilitate the construction of that liner?

22 A. There would be, yes.

23 Q. Would there be enough clay material
24 on site to facilitate the construction of the liner to
25 fill the valleys and to provide an appropriate topping?



1 A. If you are presenting to me a
2 scenario with a liner, I have to precede my answer by
3 stating that the design as you see it would not be the
4 design I would present. In other words, some of the
5 areas that would be different would be that we would
6 not, I would anticipate at this point in time, just
7 responding to your suggestion, we will not be filling
8 up the valleys with clay material, that we will line
9 the valleys with clay and use the valleys as part of
10 the waste fill. We would also be looking in terms of
11 increasing the height of the land so thereby minimizing
12 the area, the extent of the actual fill area. There
13 would be a number of major changes to the concepts that
14 I have presented should a liner be required at Site F.

128B 15 Q. With these liners, Mr. Hiraishi,
16 from your experience are you able to tell me what
17 depth this material might be?

18 A. The thickness of the liner?

19 Q. Yes.

20 A. It would normally be one metre
21 effective depth at the minimum.

22 Q. Do you have any or can you give us
23 any ballpark estimates as to what the cost of that kind
24 of liner would be at this site?

25 A. I must confess the scenario for a



1 liner with attendant costs I had given to Mr. Watson and
2 that I believe he will be testifying to that, in fact
3 what the impact is. I cannot provide you with an accurate
4 number that I provided to him but it generally means that
5 we expect the total capital costs to essentially double
6 from what was given in the affordability analysis.

7 Q. May I turn to the question of
8 services and ask you some questions about those and in
9 particular how they relate to Site D? First of all,
10 Mr. Hiraishi, am I right in thinking that from a design
11 and operations point of view that you prefer a system of
12 disposal through a sewer connection rather than trucking?

13 A. That would be preferable in my
14 view but I also recognize the fact that it is not always
15 possible to do so at landfill sites, usually because of
16 its remoteness and usually because people would expect
17 a lot greater distances between that landfilling and
18 any services. Usually it is not possible.

19 Q. Now, you made a statement in
20 cross-examination, I can't recall to whom, it might have
21 been Mr. Leitch, that you did not expect the trucking of
22 leachate at Site D to continue for the active life of
23 the site.

24 A. That is correct.

25 Q. Did I record it correctly that you



1 didn't expect it would continue past about the tenth
2 year?

3 A. That is a number that has no basis
4 other than my own opinion. That analysis I believe
5 would be part of Mr. Watson's assessment of the trucking.
6 I do know that he has made a number of different
7 scenarios and established some scenarios of the nature
8 that he could reasonably assist you in this area.

9 Q. Is it fair for you to say that in
10 preparing your design and operations report that you
11 have an anticipation that at some point there would be
12 a sewer attachment at Site D?

13 A. I believe in continuing with the
14 trucking at Site D for the period of the landfill, the
15 site life as well as post-closure would not make
16 economic sense. I am saying that without being an
17 economic expert on it but simply that the capital costs
18 for a potential sewer connection would be a small portion
19 of the total amounts that would have been spent in
20 trucking.

21 Q. Now, you also made a statement in
22 cross-examination that the construction of the sewer
23 to Site D concurrent with its opening is not feasible.
24 I think that is the word that you used. Can you explain
25 what you meant by that?



1 A. That was my assessment at the time
2 we were doing the work and it was predicated on the
3 knowledge that the trunk sewer that was proposed to
4 service Milton in the future had not been recommended
5 or firmed up, although a feasibility analysis was done.
6 I believe the recommendation was that it was premature
7 to consider and similarly the mid-Halton plant, the
8 timing of that mid-Halton plant was not sure and
9 although it is at the pre-design stage, it was also
10 clear that because of the scheduling problems we would
11 not be able to count on mid-Halton being on-stream.
12 The use of trunk sewers to service the Site D, I believe
13 to be premature at the time we were doing this because
14 we had not done any analyses nor had we done any inves-
15 tigations to determine the sizing or the location of
16 that. At the same time, we were very cognizant that
17 there are development pressures in the area and that
18 currently the Milton area is being studied in terms
19 of servicing needs. I understand that to be completed
20 within a about a year and a half. My belief is still
21 that any consideration of the sewer, whether it is
22 dedicated or otherwise to service Site D is premature
23 in my opinion. I don't think the landfill should be
24 leading the pipe to have a sewer to it, a sewer to be open.

25 Q. Do you base that comment,



1 Mr. Hiraishi, on planning perceptions?

2 A. I make that comment from a realis-
3 tic point of view. We wanted to have this site in
4 operation in as short a period as possible. It is my
5 opinion that we cannot have the same thing as far as
6 the sewer connection is concerned to dovetail at the
7 same time.

8 Q. I want to understand why exactly
9 because from an engineering point of view I don't see
10 any reason why a sewer can't be constructed out there.

11 A. From an engineering point of view
12 a sewer can be constructed at any time.

13 Q. So I take it that when you say
14 you don't foresee or it is not feasible to have a sewer
15 at Site D concurrent with the opening, you are dealing
16 with matters other than matters of engineering?

17 A. To a certain extent. I am also
18 aware that in the first years of the landfill site life
19 the quantities of leachate we expected to remove would
20 be relatively small and that therefore having a
21 sewer at the time of the site opening is again premature
22 in my view. It could just as well be done during the
23 site life and be just as effective and better in fact.

24 Q. You are speaking then of economic
25 feasibility?



1 A. Again, I am referencing that but
2 by no means am I qualified to speak on the topic.

3 MR. TZEKAS: Mr. Chairman, this would be
4 an appropriate time for a short break if you intended
5 to take a short break.

6 MR. LANCASTER: I thought we would not
7 go right through but maybe we can take a short break.

8 DR. KINGHAM: If we are going to take a
9 break you could find the comment where you said there
10 was a nicely curved road going into Site D which you
11 said was put there because it was required by the traffic
12 analysis.

13 THE WITNESS: The entrance point that
14 we envisaged at this point, Dr. Kingham, is at the
15 location as is shown on Highway 25. The loop is simply
16 a means of getting to the facility.

17 DR. KINGHAM: Understood but the basis
18 for that entry point being the entry on Highway 25?

19 THE WITNESS: The transport matter that
20 was given due consideration by Mr. McLeod.

21 DR. KINGHAM: Would we find that in the
22 transportation exhibit? He gave that to you, did he?

23 THE WITNESS: Actually when we were
24 initiating the location of the access road we had it
25 further up north than the location that is shown. The



1 comment from Mr. McLeod was that the location that we
2 had initially chosen would not be as safe as the location
3 that is shown here because of site views and the grade
4 of the road. Therefore we were permitted to establish
5 the location in the safest point possible which was the
6 recommendation that Mr. McLeod gave to us.

7 --- Recess

8 MR. TZEKAS: I am sorry, Mr. Chairman,
9 we are missing some lawyers.

10 DR. KINGHAM: While we are waiting for
11 them to come, Mr. Hiraishi, can you tell me where I can
12 find that information on the point of entry on any of
13 the exhibits, are you aware of it?

14 THE WITNESS: Yes, Dr. Kingham, on page
15 64 of H-32, the second paragraph, I suppose, about a
16 third of the page down is the recommendation that was
17 made by Mr. McLeod.

18 MR. LANCASTER: Mr. Tzekas?

19 MR. TZEKAS: If it is of assistance as
20 well the location of that access point was
21 also the subject of cross-examination during Mr. McLeod's
22 testimony. That is my recollection as well.

23 Q. Mr. Hiraishi, I would like to deal
24 with a number of miscellaneous points that emerged
25 during cross-examination, your cross-examination by



1 Mr. Estrin and others.

2 First of all, Mr. Estrin posed questions
3 to you as to the final contouring of Site D and the
4 flatness of that final contouring and its impact on
5 agricultural uses. Do you recall that discussion?

6 A. Yes.

7 Q. There was some discussion or
8 cross-examination on the possibility of installing a
9 drainage system at the top of Site D?

10 A. Yes.

11 Q. May I refer you to your report on
12 Site D, Exhibit H-41 at page 63?

13 A. Yes.

14 Q. The very last sentence on that
15 particular page states:

16 "The top of the fill area has slopes
17 ranging from 1.1 per cent to 2.9 per cent
18 to maximize the area for potential agri-
19 cultural after use."

20 That is a little different from the discussion that you
21 had with Mr. Estrin as I heard it. From the reading
22 of this do I take it then that the top of Site D
23 is going to be sloped to some extent?

24 A. I believe the reference that
25 Mr. Estrin made and the point he was trying to make was



1 that perhaps it would be a little flatter than one might
2 expect a finished contour of a landfill site. That was
3 the only reference that I would attach to his comments.

4 Q. Is it possible, Mr. Hiraishi,
5 in the final design stage if it were deemed appropriate,
6 to create an even greater slope at the top of Site D?

7 A. If we were to be allowed to go a
8 little higher we could. The fact of the matter is it
9 is not a very difficult exercise to perhaps increase
10 that top slope if that were to be required. Comments
11 to that effect that it was too flat perhaps have not
12 been made to me and it is only my opinion based on
13 what the Ministry would normally be wishing to see,
14 that it is a little less than that figure that they
15 would want.

16 Q. Their figure is -- normally they
17 look to a figure of about five per cent slope?

18 A. That is the current thinking.
19 Again, that is something that has evolved over the
20 years. Prior to, say, four or five years ago, that
21 these top slope elevations, top slopes that we have
22 proposed here would have been about the acceptable
23 range at that time.

24 Q. Now, Mr. Estrin also posed a
25 series of questions to you with respect to the migration



1 of leachate into the storage ponds at Site D.

2 A. Yes.

3 Q. He referred you to an exhibit that
4 showed the storage ponds in a cross-section. I am sorry,
5 I don't have the number of that. Could you put that up
6 for us?

7 A. This would be H-41D-4.

8 Q. Right. Now, first of all,
9 Mr. Hiraishi, in order for the leachate to migrate into
10 the storage pond and I believe that you and Mr. Estrin
11 were discussing the middle diagram, can you tell me
12 how far it would have to travel?

13 A. From the storage pond to the
14 landfill site?

15 Q. Yes.

16 A. That I suppose can be better deter-
17 mined by this plan, H-41D-5 and the distance that this
18 plan shows would be no more than about ten or 12 metres.

19 Q. What would the leachate be
20 travelling through at that point?

21 A. At the present time our suspicions
22 are that the material would be a weathered zone of the
23 upper till.

24 Q. Now, in discussing Exhibit H-41D-4
25 with you, Mr. Estrin made reference to the base elevation



1 of the storage pond.

2 A. Yes.

3 Q. I would have thought a more signi-
4 ficant elevation would be the level of the water in that
5 storage pond.

6 A. In the sense that there is to be
7 permanent storage in that, that is correct.

8 Q. Isn't it the level of the water
9 that determines the hydrological flows?

10 A. Yes.

11 Q. Can you tell me what that water
12 level is and how it relates to the level of the leachate
13 now?

14 A. I believe that the level of the
15 water which would accommodate the permanent storage,
16 this is for firefighting purposes as I believe we
17 discussed before, is approximately, I believe a metre
18 and a half above the elevation that is shown. So that
19 the actual level of water that one can conceivably
20 establish for the most part, assuming no use of the
21 storage, would be in the order of about 180.3 --0.5.

22 Q. How does that relate to the level
23 of the leachate?

24 A. That would be approximately the
25 same level.



1 Q. In that circumstance I take it
2 there would be an equilibrium in hydrological terms?

3 A. I couldn't answer that. That
4 would probably be correct, yes.

5 Q. With respect to gas migration
6 there was a number of questions put to you on that. Am
7 I right in thinking that you do not anticipate that
8 this would be a problem at either site?

9 A. That is correct. However, as
10 contingency measures and for monitoring purposes we are
11 recommending that gas probes be placed in strategic
12 points surrounding the site to measure potential migra-
13 tion. We are not, however, expecting migration of
14 significance.

15 Q. Mr. Estrin discussed with you the
16 implications that such migrations might have to the
17 agricultural crops. With respect to Site F, Mr. Hiraishi,
18 were you aware that there were in the after-use proposals
19 suggestions to revegetate or reforest fairly significant
20 sections of Site F?

21 A. Yes, I was.

22 Q. Some of the plant material, as I
23 understand it, would be mature, fairly mature and would
24 have a mature root system?

25 A. That would be planted initially?



1 Q. That will be planted at Site F.

2 A. I am really not aware of that,
3 Mr. Tzekas.

4 Q. I understood there was a range of
5 plantings that they were going to try and impose on the
6 site. If we can assume that I am correct in that and
7 that there will be some vegetation that is mature that
8 will be part of that after-use concept, can you tell me,
9 did you conduct any studies as to the sensitivity of
10 that kind of plant material to gas migration?

11 A. No, I didn't. It has been discussed
12 with Mr. Stevens over the period of time that we were
13 developing these after-use concepts and he is well aware
14 of the potential problems. Any recommendations arising
15 from his assessment would have been contained in his
16 report.

17 Q. You seemed to, during the course
18 of your cross-examination, make some sort of qualitative
19 comparisons between the impacts, the possible impacts
20 on crops at D as opposed to F. I am wondering if in
21 light of the last comment whether you have any real
22 expertise in this area at all?

23 A. I have no expertise other than
24 the fact that we know that potential problems do exist
25 and those must be accounted for, otherwise we experience



1 vegetative stress and vegetation kill because of the
2 migration of gases towards the root systems.

3 Q. So your opinion is based really
4 on the information given to you by others in regard to
5 this issue?

6 A. That is correct.

7 Q. It would be Mr. Stevens with
8 respect to Site F and Dr. MacKintosh with respect to
9 Site D?

10 A. We spoke of all of these possi-
11 bilities and potential problems in terms of the impact
12 we would have on the landfill site and they are well
13 aware of the potential problems that could arise should
14 root systems extrude into the fill itself and I believe
15 Mr. Stevens' preference in establishing the vegetative
16 system is to have vegetation that would not, in other
17 words, they would all be shallow-root systems rather
18 than deep-root systems. I really can't specify what
19 goes on.

20 Q. Now, I would like to refer you to
21 one of the articles that Mr. Estrin put to you. It is
22 at tab 4 of his collection of materials and I would like
23 you to go to page 20, if you could. Mr. Estrin stopped
24 reading at the top of that particular page but I would
25 like to refer you to the second paragraph, Mr. Hiraishi,



1 and ask you for your comments on it. First of all,
2 beginning with the first sentence in paragraph 2, it
3 says:

4 "Design engineers who were familiar with
5 the agricultural drainage systems thought
6 it would be inappropriate to draw conclu-
7 sions as to the expected performance and
8 service life of the LCS based on experience
9 with the agricultural drainage systems
10 because of the differences in design,
11 construction and maintenance practices
12 for the two systems."

13 Now, is that a comment that you agree with?

14 A. In general terms I would, yes.

15 Q. Am I right in thinking -- I got
16 the impression just skimming through these that one of
17 the problems or one of the differences with these two
18 types of systems was that in the agricultural drainage
19 system there was very little attention paid to the
20 maintenance of the system?

21 A. That is correct.

22 Q. I take it that that situation is
23 very different at a landfill site?

24 A. Yes.

25 Q. What implications would that have



1 on the life of a particular collection system?

2 A. In our collection systems we are
3 of course anticipating the maintenance and operation of
4 that system to be in accordance with what we believe
5 would be our minimum requirements. That means standar-
6 dized and perhaps scheduled maintenance programs so that
7 our intent is to attempt to minimize as much as possible
8 problems that may arise due to clogging as Mr. Estrin
9 suggested. Hopefully we can resolve it before the
10 problem gets to the point where we will not be able to
11 implement effective remedial measures that would totally
12 correct the problem.

13 Q. Then referring to paragraph 3 on
14 that particular page, it goes on to describe the actual
15 experience at municipal sites and it seems to suggest
16 that clogging was a problem of major concern at only
17 one site, a unique co-disposal facility handling a
18 significant volume of liquid industrial wastes with
19 two hazardous waste facilities. Do you see in the middle
20 of the paragraph where I am referring?

21 A. Yes.

22 Q. I won't read that entire paragraph
23 but am I right in thinking that the American experience,
24 what experience there is, seems to suggest that the
25 kinds of problems that were being discussed with Mr. Estrin,



1 the clogging and that kind of thing, had not been
2 experienced in a major way in the United States?

3 A. I can't comment on that,
4 Mr. Tzekas, I don't know the details of this and I don't
5 know the basis from which the statement was made. The
6 subject matter is under discussion as far as the EPA
7 is concerned and they are attempting to establish very
8 specific rules and regulations for the development and
9 operation of landfill sites and specifically hazardous
10 waste landfill sites. So that analogies can always
11 be drawn but they may not be totally applicable in every
12 instance to municipal landfill sites.

13 Q. Would you agree with me though
14 that the state of the art is relatively new?

15 A. Yes.

16 Q. The design of leachate systems and
17 it is for that reason that design engineers, such as
18 yourself, put in contingency systems for this kind of...

19 A. That is correct.

20 Q. Now, Mr. Estrin also asked you
21 questions with respect to the mounding of leachate at
22 Site D and whether it would or could exceed the height
23 of the dykes. Do you recall that cross-examination?

24 A. Yes.

25 Q. Now, how likely is it that that



1 kind of mounding would actually occur?

2 A. Well, if the system continues to
3 be operational to the extent that we expect there would
4 be no mounding over those dykes.

5 Q. Did you assume or did you have in
6 mind a worst case scenario in sizing those dykes?

7 A. No, we did not. The dykes are
8 there primarily because the native ground was there and
9 we are not attempting to raise those dykes. We are
10 simply using those dykes as a separation for the cells
11 and also temporary access into those cells. So there
12 was no consideration of mounding or whether the mound
13 would go over the top of the dykes or discussions of
14 that nature. We were primarily concerned by establishing
15 those cells that given the hydrogeologic considerations
16 that Mr. Sobanski has made in his recommendations, that
17 in fact those dykes were more helpful than not and
18 therefore we kept them in. Because we did not require
19 the excess capacity that had been taken up by those
20 dykes nor did we require the cover material that would
21 come out from those dykes if we were to remove them, we
22 left them in.

23 Q. May I ask you to turn to Exhibit
24 H-14, if you have it with you? This particular analysis
25 was prepared in January of 1987. Mr. Hiraishi, by that



1 date how far has your work progressed in design and
2 operations?

3 A. We had completed both the design
4 and operations for Sites D and F but we had not
5 commenced our refinement of Site F.

6 Q. That refinement deals essentially
7 with the decision to excavate it at a different depth?

8 A. That is right.

9 Q. I take it though that the basic
10 elements of your design and operations report were
11 completed by the date of this particular assessment?

12 A. That is correct.

13 Q. May I ask you to turn to Appendix
14 A? I am sorry I can't give you a page number. I am
15 interested in page 2 of Appendix A if we can get to
16 that.

17 A. Page 2 of Appendix A, yes.

18 Q. May I refer you to the fourth
19 paragraph by way of introduction to this and the fourth
20 paragraph states:

21 "From the outset we clearly state that
22 both Sites D and F have been designed and
23 engineered to be environmentally acceptable
24 to serve as a regional landfill."

25 I take it, Mr. Hiraishi, that that is an opinion that you



1 share?

2 A. Yes.

3 Q. Were you involved in the actual
4 preparation of this document?

5 A. I was asked for my input but I did
6 not prepare this document.

7 Q. It is signed by Mr. Sobanski. Do
8 I take it from what you said then that he asked you for
9 your input prior to his preparation of this?

10 A. Yes.

11 Q. Now, Mr. Sobanski at the bottom of
12 page 2 goes on to list some advantages of both of the
13 sites. May I review those with you and get your opinions
14 on them?

15 First of all, he indicates that at Site D
16 the soils will be easier to excavate. Is that a view
17 that you share, sir?

18 A. That is a view that I share and
19 that is also resulting in the difference in the
20 excavation costs at Site D versus Site F.

21 Q. Am I right in categorizing this
22 advantage as one that really falls within the design and
23 operations category?

24 A. Yes.

25 Q. Then, if we look at advantage No. 2



1 under Site D, surface water will be -- control will be
2 easier to achieve. That too is a matter of design but
3 I take it it is something that Mr. Crysler dealt with?

4 A. That is correct.

5 Q. Would I be fair in saying that
6 this too is a matter of landfill design and operation?

7 A. It is a matter of landfill design
8 and if I were qualified to deal with the surface water
9 I would have done so but I felt that Mr. Crysler was
10 more qualified than I and therefore he carried that
11 function out.

12 Q. Now, advantage No. 3, the design
13 is simpler and more straightforward. I think that at
14 this point Mr. Sobanski was referring to your design
15 of Site D?

16 A. Yes.

17 Q. I take it that he was suggesting
18 that it is simpler and more straightforward than the
19 design that was proposed for Site F?

20 A. Yes.

21 Q. Now, these are Mr. Sobanski's views
22 of course but is that a comment that you agree with?

23 A. It is a comment that I would agree
24 with in general although I would expand on that by
25 saying that there is a component of that design which is



1 the leachate collection disposal system that I would have
2 to state that the Site F design of the leachate collec-
3 tion system perhaps may be a little more secure than the
4 one at Site D.

5 Q. We will get to that because that
6 is also listed as one of the advantages but from your
7 answer, you agree with Mr. Sobanski that in general the
8 design of Site D is simpler and more straightforward
9 than that of Site F?

10 A. Yes.

11 Q. Maybe I should ask you while you
12 are here, what makes it simpler and more straightforward?

13 A. I believe the reference would be
14 to the fact that we have self-contained units within
15 those cells and that we expect that the installation,
16 the subsequent operation of that perhaps might be a little
17 easier to establish than at Site F. It is essentially
18 the concept which says that we are going to establish a
19 design, install a leachate collection system in an
20 environment, in this case a clay till. That makes it
21 a little easier so that from our point of view the
22 topography and the type of soils that you would have
23 would then make it simpler to initiate. It is not meant
24 in terms, I don't believe, of the operations or monitor-
25 ing aspects of the systems.



1 Q. The reference to the clay materials
2 being something that makes the design a little simpler,
3 may I relate that back to the comment that we began with
4 in terms of your experience in various materials? Am I
5 also right in thinking that the placement of landfills
6 on this kind of clay material, the kind of clay material
7 that is proposed for Site D, is also much, much more
8 common than proposals to place landfills on sites which
9 are shale based?

10 A. That would be true. As far as
11 other materials are concerned I couldn't comment on
12 materials such as gravel or sand.

13 Q. Do I take from that, Mr. Hiraishi,
14 as well that the experience that we have had, the
15 limited experience that exists with respect to the
16 design and operation of these systems would be much more
17 extensive for clay-based systems than for shale-based
18 systems?

19 A. I would believe that to be the
20 case although in as far as we are concerned with Site F
21 we are going essentially by the performance of the
22 collection systems that had been installed at both the
23 regional site and now currently the Bayview site.

24 Q. A portion I take it of the
25 existing site is shale based?



1 A. Yes.

2 Q. Do you know, I take it they didn't
3 intentionally set out to do that or do you know the
4 history, Mr. Hiraishi?

5 A. No, I don't know the background
6 to that, Mr. Tzekas. It is a landfill site that has
7 been progressively expanded over a number of years. I
8 believe that the overriding principle there was they
9 would rather be in the location they are now rather than
10 looking for another site at that time.

11 Q. Now, the fourth advantage listed
12 by Mr. Hiraishi under Site D was that the installation
13 of the tile collector system is more straightforward.

14 A. Yes.

15 Q. Is that a comment that you agree
16 with, sir?

17 A. Yes.

18 Q. Can you explain to us, as the
19 design engineer responsible for that tile collector
20 system, what it is that makes it more straightforward?

21 A. Simply by the nature of the soils
22 that we will be excavating to create those trenches.
23 One is in the clay and in the case of Site D which I
24 noted before was in the order of \$4.50 per cubic metre
25 to excavate versus shale at Site F. We suspect it is



1 going to cost in the order of \$8 per cubic metre and
2 requiring special techniques other than just straight
3 trenching methods that we would make that comment and
4 stand by that.

5 Q. Now, the fifth advantage which
6 Mr. Sobanski lists is at the top of page 3 and he states
7 that the leachate tile collection system would be very
8 efficient because of hydrogeologic conditions -- I'm
9 sorry -- because hydrogeologic conditions are suitable
10 for the installation of the hydraulic containment system.
11 Do you agree that that is an advantage which Site D has
12 over Site F?

13 A. That reference, Mr. Tzekas, I
14 believe is to the point that I believe Mr. Sobanski made
15 that at Site D we will not only be collecting 100 per
16 cent of the leachate, we will in effect be collecting
17 100 per cent plus of that leachate because of the dis-
18 charge conditions we will find due to the hydraulic
19 trap, whereas at Site F I believe the testimony is that
20 we are to collect approximately 95 per cent of the
21 leachate that will be generated.

22 Q. At Site D the anticipation is
23 collection of not only all of the leachate but some of
24 the groundwater?

25 A. Some of the groundwater. That is



1 the case as well with Site F to a lesser extent but I
2 believe again that the testimony is that 95 per cent
3 will be collected rather than in the case of Site D
4 which will be 100 per cent plus.

5 Q. All of the elements listed as
6 advantages by Mr. Sobanski in this particular matter
7 would you agree with me are elements of design and
8 operation?

9 A. Yes.

10 Q. And four of the five relate to
11 elements that you dealt with in your two reports?

12 A. Yes, we discussed them in general
13 terms. I cannot recall whether these are my words or
14 in fact Mr. Sobanski's words. I believe these are the
15 words Mr. Sobanski put into print based on our conversa-
16 tion.

17 Q. Now, may I turn to the Site F
18 advantages and there are a number listed there, some of
19 which seem to be external to the site itself. For
20 example, the first advantage.

21 A. Yes.

22 Q. Now, in looking for advantages
23 that relate to the design and operations, am I right
24 in thinking that there are really only two, the first
25 is the groundwater flow system, is merely unidirectional,



1 that is advantage No. 6?

2 A. Yes.

3 Q. The second is that the sewer is
4 available near the site to receive leachate?

5 A. Yes.

6 Q. Those two factors are matters of
7 design and operation?

8 A. Yes.

9 Q. The sixth advantage, the ground-
10 water flow system, I take it that relates to your
11 system of toe drains?

12 A. I believe that refers to the
13 hydrogeologic conditions that Mr. Sobanski described
14 in his report rather than any reference to a particular
15 design. I believe that this statement would impact the
16 design but that is not a comment on the design.

17 Q. That is a fairer way to say it and
18 I accept that. It is a condition that impacts on the
19 design?

20 A. Yes.

21 Q. Now, with respect to the sewer,
22 I take it that that is an advantage for Site F that
23 you recognize?

24 A. That is a major advantage to the
25 site that we recognize, yes.



1 Q. If a sewer were to be installed
2 to service Site D, I take it that particular advantage
3 would disappear?

4 A. That would be true.

5 Q. That particular advantage then,
6 based on our discussion, would disappear in your
7 estimation -- maybe "estimation" is the wrong word --
8 but in your anticipation, some point during the
9 life of the site?

10 A. Yes, and certainly as far as the
11 Region is concerned it would be in their interest to
12 install that sewer at a time which is economically
13 effective for them. When it goes as far as we are
14 concerned we still anticipate that the leachate can
15 be trucked for however long the Region would dictate.
16 Economically speaking, I believe Mr. Watson can elabo-
17 rate on this, that would not be the case.

18 Q. In terms of the economics,
19 Mr. Hiraishi, of that particular sewer, did you do any
20 analysis of that?

21 A. Yes.

22 Q. Was that the analysis that you
23 had given to Mr. Watson and he has the exact numbers
24 and so on?

25 A. Yes.



1 Q. Would it be possible for you to
2 bring those numbers with you tomorrow?

3 A. It is possible for me to give it
4 to you right now if you would like.

5 Q. It's not for me, it's for my
6 partner. Is that an extra copy?

7 A. No, it is not. I believe Mr. Watson
8 will -- it is a copy I believe Mr. Watson will append
9 to his document.

10 Q. May I take this and distribute
11 copies to the other counsel here?

12 A. If you wish.

13 MR. TZEKAS: Mr. Chairman, I have one
14 other area of cross-examination. It will take approxi-
15 mately I think a half an hour and it is a little
16 technical in nature, so I would prefer to do it tomorrow
17 morning.

18 MR. LANCASTER: I would prefer to do it
19 tomorrow morning as well. Adjourned until 9:30 tomorrow
20 morning.

21 --- Adjournment at 4:18 p.m.

22

23

CERTIFIED CORRECT

24

25


P. D. McQueen

