

RECEIVED

28 JUN 1983

Dillon

Consulting Engineers & Planners

HALTON REGION
PUBLIC WORKS

OUR FILE: 9100-51-4
YOUR FILE:

27 June 1983

The Regional Municipality
of Halton
P.O. Box 7000
1151 Bronte Road
Oakville, Ontario
L6J 6E1

Attention: Mr. G. Woodburn, P.Eng.
Manager, Waste Disposal

Burlington Landfill Capacity
Update

Dear Sirs:

We are pleased to provide, the latest site capacity update and volume utilization calculations for the Burlington Landfill. The study data, based on 30 October 1982 and 29 April 1983 photography, was produced by Northway-Gestalt and analyzed by Dillon. Operating results during this period were:

Refuse density achieved	520 kg/m ³
Refuse to cover ratio	10:1
Estimated site closure	Earliest: June 1984 Latest: August 1984
Future cover material required	10,740 m ³

Outlines of the calculations undertaken are attached.

The lower than expected refuse density and high refuse to cover ratio are probably due to an underestimation of imported fill (cover material). Accurate records of incoming cover material have not been available. Therefore, estimates only have been used in the capacity update program. It is suggested that the Region upgrade site records to improve the accuracy of these calculations.

continued...

DILLON

The Regional Municipality
of Halton

- 2 -

27 June 1983

The refuse density calculated is lower than what might be expected for the type of operation undertaken. In order to assure the best estimate of capacity and life remaining we have used a waste density based on data averaged from previous capacity updates.

The refuse to cover ratio calculated in this update was 10:1. To use this ratio in the capacity calculations, we suggest, would give a false picture of actual capacity. The average ratio of previous updates was 6:1. Traditionally our calculations have been based on a 4:1 ratio. In order to provide a conservative estimate of future cover material requirements, we have continued with the 4:1 ratio for these calculations.

The site closure date in our prior estimates was April/May 1984. The calculation of the closure date was based on waste quantity estimates expected in 1983. The Region originally predicted that 15,000 tonnes/month would be received. Site records for the first four months of 1983, however, indicate that only 13,000 tonnes/month on average are actually being received. We have therefore provided calculations based on the original waste quantity estimate and the revised estimate. The earliest expected closure dated based on 15,000 tonnes/month is June 1984. The latest closing date based on 13,000 tonnes/month is August 1984.

We would be pleased to respond to any questions.

Yours truly,

M.M. DILLON LIMITED

W. F. Wells

W.F. Wells, P.Eng.
Project Manager

WFW:w1

A. BURLINGTON LANDFILL

16 June 1983

A.1 Volume Utilization

Total Volume used between photos

128,080 m³

Net Fill Used:

i)	fill excavated at site (No excavation carried out between photo dates)	0 m ³	
ii)	from previous stockpiles	7,890 m ³	
iii)	fill, including kiln dust, trucked in (less 25% for on-site compaction)	13,140 m ³	
iv)	less fill left in stockpiles	<u>(7,280 m³)</u>	
	Gross Fill Used	13,750 m ³	
	Less 15% for losses (Infilling of refuse voids etc.)	<u>(2,063 m³)</u>	
	Total Net Fill Used	11,690 m ³	<u>(11,690 m³)</u>

REFUSE VOLUME.....116,390 m³

Waste Received at Site	=	60,617 tonnes
<u>Density Achieved</u>	=	<u>520 kg/m³</u>

A.2 Refuse: Cover Ratio

From A.1, Fill used for Intermediate and
Daily Cover (No final cover placed in
photo areas studies)

11,690 m³

. . 116,390 m³ Refuse: 11,690 m³ Fill

OR 10:1 Refuse to Cover

A.3 Remaining Capacity

Volume remaining to final contours (includes future excavation)	428,020 m ³
Less 0.6 m final cover	(51,000 m ³)
Refuse, intermediate and daily cover	377,020 m ³
Less Cover at 4:1 refuse to cover ratio	(75,400 m ³)
Refuse Volume Available	301,620 m ³
Refuse tonnage capacity (assuming 700 kg/m ³ density)	211,130 tonnes
Average rate of fill (assumed constant)	15,000 tonnes month
Remaining Operation Life	14 months

Estimated Site Closure - June 1984

If waste quantities are reduced to 13,100 tonnes/month, the site closure date would become August 1984.

A.4 Future Fill Required

Final Cover at 0.6 m	51,000 m ³
Intermediate and daily cover (4:1 refuse to cover ratio)	75,400 m ³
Less Fill available in current stockpiles (not including Phase II's topsoil stockpile)	(7,280 m ³)
Total Fill Required	119,120 m ³

Fill available from future Phase II excavations (including 15% bulking factor) amounts to 108,380 m³, producing a net fill deficit.

$$\underline{\text{Future Fill Required}} = 10,730 \text{ m}^3$$