

M E M O R A N D U M

TO: WEST BURLINGTON FILE

FROM: FRANK GIORNO

RE: SITE SELECTION PROCESS - PHASE 4A
TECHNICAL APPENDIX SURFACE WATER CONSIDERATIONS
CANDIDATE SITE LF-4N

DATE: FEBRUARY 4, 1987

Flood Susceptibility

- p.106
 - Site LF-4N is fairly flat, gentle slope from 186 metres a.s.l northeast to 182 metres a.s.l in southeast corner.
 - It is moderately well drained with a permanent wetland on the southeast corner.
 - 2 ha in the extreme northwest and southwest are part of the Indian Creek flood plain.
 - A minor tributary of Indian Creek exists to the east but it is not significant.
 - 4 swales conveying runoff eventually flow into Indian Creek.
- p.108
 - Inadequate culvert outlets near the site. Because of the flatness of the site, overlapping of the roads results in on-site flooding.
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 - Recommends siting the landfill facility to the east away from potential flood area adjacent to Bell School Line.

Drainage Improvements

- Improvements required to on-site drainage system.
- Peak flows will increase because of developments of on-site slopes from landfilling.
- Some downstream channel and culvert improvements can be expected.

p.113 Surface Water Use

- Information gained from walk and talk survey and from questionnaire.
- Surface water from Indian Creek used for livestock.
- Domestic use wells drawn from drilled, bored or dug wells supplemented by cisterns.
- There appears to be low potential for interference with potable waters because no surface waters were identified for potable purposes downstream from the storm water outfall.

Regional Water Use

- Based on permits to take water (PTTW) issued by MOE.
- 12 PTTW identified in study areas: 11 for irrigation purposes such as agricultural crops, market gardening, tree nursery and golf course.
- No municipal or industrial permits were identified.

Downstream Water Users Index (DSWUI)

- This index identifies low volume sensitive water users downstream, i.e., potable water supplies.
- The total stream length through rural, wooded and recreational land would provide an index of the extent of potential sensitive water use.
- The DSWUI was calculated for streams downstream from projected storm water outfall for each site.
- The DSWUI was used to allow inter-site water use comparisons.
- The DSWUI for LF-4N is 21.4.

Access Routes and Stream Crossings

The stream crossing distances for alternative routes to LF-4N are:

Preferred access route to LF-4N	
from Highway 401	- 2,210 metres
from QEW	- 3,985 metres
LF-4N to P1-13N	- 2,185 metres

Rail Access

- Rail access crosses 1 to 2 minor streams.
- No floodplains or wetlands are crossed.

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SUMMARY OF FINDINGS

Flood Susceptibility

- LF-4N is characterized by poor topographic relief.
- Is considered only moderately well drained.
- There is a permanent wetland near the south boundary.
- Small areas in the extreme northwest and southwest are designated floodplains.
- Inadequate culvert capacity can cause flooding.
- Swales downstream from culverts #16 and #17 do not appear to have sufficient capacity to prevent flooding.

Drainage Improvements

- Drainage can be conveyed by perimeter ditching to existing outlets.
- Or all site run-off can be rerouted to Indian Creek outlet at the southwest.
- No rerouting of runoff or major channelization or ditching around the perimeter is anticipated.
- 1,400 metres of downstream channelization may be required if existing outlets are maintained, except if run-off is rerouted to Indian Creek.
- Four culverts require replacement, if existing outlets are maintained, but only 2 if run-off is rerouted to Indian Creek.
- Stormwater management ponds may be used to reduce post development flows.

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Water Use

- Local water use is considered to be relatively minor.
- Surface is not used for potable supplies.
- Streamwater is used for livestock.
- 12 MOE PTTW were identified.
- Regional use of water is mainly for irrigational purposes.
- No municipal water intakes were identified.
- The DSWUI - 21.4.

Access Routes

- Access routes cross streams with a significant potential for interference in the event of an accidental spill.
- There are 3 major stream crossings.
- Stream crossing distances range from 400 to 3,985 metres.
- The access road DWSUIs range from 87.4 to 350.9.
- Rail access crosses 1 to 2 minor streams.