To: Chair and Members  
Public Works, Infrastructure & Environment Committee  
Outstanding Business Item No. HH and Issue: Status Report on City’s Closed Landfills  
PW05149

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Date: November 21, 2005

Re: Status Report on City’s Closed Landfills (PW05149) (City Wide)

Council Direction:

Public Works Infrastructure and Environment Committee gave direction to staff at its September 14th, 2005 meeting “to bring back to committee a status report within the next ninety (90) days on the City’s closed landfills, outlining such things as methodologies used; costs incurred (including future capital operating dollars recommended); and external/ internal conditions of each site”.

Information:

The City of Hamilton is responsible for monitoring and maintaining twelve closed landfill sites. Eleven of these sites operated as municipal landfill sites in the six area municipalities that now form the City of Hamilton. All of these sites were closed by 1980 when the Glanbrook landfill site went into operation. The twelfth site, 87 Acre Park, was used for disposal of construction and inert-type waste up until approximately 2000 after which it was formally closed.

Landfill sites require ongoing monitoring and remediation once they are closed. The City’s closed sites require attention because they were not designed to today’s landfill standards and are in generally low lying areas close to wetlands or in gravel pits and quarries. Our program involves regular monitoring and maintenance of the sites which includes the review and assessment of sample results from the monitoring work as well as observations noted from the regular inspections conducted to ensure that if any problems are present they are identified quickly and addressed in a pro-active manner.

Since closure of the sites various monitoring and remediation measures were implemented by the former municipalities and Region of Hamilton Wentworth. These activities are noted in the description of the sites that follows. Starting in 2001, the City of Hamilton, Waste Management Division has undertaken a comprehensive review of the closed landfill sites and based on the review has initiated remediation works at nine of the sites. As well Site Specific Risk Assessments (SSRA’s) have been completed or are at the final stage of completion for all twelve sites.
Since 2001 the City of Hamilton has spent $28.59 million of capital funds on closed landfills for studies and remediation. It is forecasted that the total amount of capital that will be spent on remediation of closed sites is $37.38 million by 2007. The City will be reimbursed for 50% of the total costs from the Provincial Millennium Funding Program, for a net cost to the City of $18.69 million dollars. All of the funds required for the work have been approved in the 2001 to 2005 Capital Budget.

In addition to the capital costs for the closed landfill sites, operating costs for annual monitoring programs at each of the sites are also incurred. Each year approximately $400,000 is spent for this activity.

For ease of reference all 12 landfills, their location and the capital costs spent since 2001 are listed in the following Table 1 and shown on the map in Figure 1. Additional information pertaining to each landfill is summarized following Figure 1:

**Table 1: Closed Landfills**

<table>
<thead>
<tr>
<th>Closed Landfill</th>
<th>Location</th>
<th>Ward</th>
<th>Capital Costs (2001 to Date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 87 Acre Park</td>
<td>lot 4, concession 5, Saltfleet Twp., Stoney Creek</td>
<td>11</td>
<td>$172,000</td>
</tr>
<tr>
<td>2) Ancaster (Ph I and II)</td>
<td>lot 35, concession 3, Ancaster</td>
<td>12 (Ph. II) 14 (Ph I)</td>
<td>$344,000</td>
</tr>
<tr>
<td>3) Beverly</td>
<td>lot 22, concession 6, former Twp. of Beverly</td>
<td>14</td>
<td>$88,000</td>
</tr>
<tr>
<td>4) Binbrook</td>
<td>Pt. lot 5, Bl. 4, concession 4, former Twp. of Binbrook</td>
<td>11</td>
<td>$95,000</td>
</tr>
<tr>
<td>5) Dundas</td>
<td>east and west sides of Olympic Dr. lot 20, concession 1, Dundas</td>
<td>13</td>
<td>$537,000</td>
</tr>
<tr>
<td>6) Edgewood</td>
<td>lot 12, concession 6, Flamborough</td>
<td>14</td>
<td>$168,000</td>
</tr>
<tr>
<td>7) Glanford</td>
<td>lot 6, concession 6, Glanbrook</td>
<td>11</td>
<td>$101,000</td>
</tr>
<tr>
<td>8) Rennie Street</td>
<td>south of Brampton St, east of Waterloo St., Hamilton, adjacent to the Brampton St. landfill</td>
<td>4</td>
<td>$10.57 million</td>
</tr>
<tr>
<td>9) Brampton Street</td>
<td>north of Brampton St, east of Waterloo St., Hamilton, adjacent to the Rennie St. landfill</td>
<td>4</td>
<td>$10.60 million</td>
</tr>
<tr>
<td>10) Stoney Creek</td>
<td>lot 12, concession 5, Stoney Creek</td>
<td>11</td>
<td>$730,000</td>
</tr>
<tr>
<td>11) Upper Ottawa</td>
<td>pts. Lot 3, 4, 8, concession 7, Hamilton (1289 Upper Ottawa St.)</td>
<td>6</td>
<td>$1.44 million</td>
</tr>
<tr>
<td>12) West Hamilton</td>
<td>pt. lot 19, concession 2 and pt. lot 20 concession 1, Hamilton</td>
<td>1</td>
<td>$3.74 million</td>
</tr>
</tbody>
</table>

**Total** $28.59 million
87 Acre Park

Background

The site is located northeast of the intersection of 10th Road East and Green Mountain Road in Stoney Creek. Although not originally intended as a landfill, the site accepted construction and inert-type waste since the 1980’s. The waste fill is confined to an approximate 0.81 ha (hectare) area and the site is registered with a Section 46 approval from the Ministry of the Environment acknowledging the deposition of waste fill with the intention to redevelop as a park.

Investigative work and monitoring at the site has been undertaken by Terraprobe Ltd. over the last 4 years. To date there has been no indication of any impact from the site to either the surface water or groundwater. Remedial work was undertaken in 2004/2005 to clay cap any area of exposed waste and to remove any loose waste from the site as well as vegetate areas which were clay capped.

Summary of Remedial Work Undertaken to Date and Associated Costs

- Investigative work by Terraprobe Ltd. (ongoing - to be completed by 2006) as per a Provincial Officers Order from the Ministry of the Environment (MOE)
- Re-capping waste and compost hydro-seeding by Pal Tech Engineering Ltd.-2004-2005
Summary of Future Work to be Undertaken

- Ongoing semi-annual monitoring as per MOE order and direction
- Request MOE to allow reduction in monitoring frequency
- No additional remedial work identified at this time

Costs to Date/Future Costs

Approximately $172,000 spent and committed 2001 for the Investigative work undertaken by Terraprobe Ltd. and the Re-capping by Pal Tech Engineering Ltd. This site is eligible for Millennium Funding from the Province of up to 50% total capital.

Ancaster Landfill Phase (I and II)

Background

Phase I of the Ancaster landfill is located on the south side of Jerseyville Road and extends from Jerseyville Road to Hwy 403 in Ancaster. Phase I was filled from the early 1970’s (exact date when the landfill first started operating is unknown) until the late 1970’s. Phase II is located south of Hwy 403 and was filled from the late 1970’s to 1982. Both Phase I and II accepted municipal and industrial waste from the former Township of Ancaster. In total the landfill footprint for both phases is approximately 7.5 ha. (hectare). A leachate collection system was installed on the west side of Phase 1 in the early 1980’s after closure and is attached to the sanitary sewer via forcemain.

A Site Specific Risk Assessment (SSRA) was undertaken on both Phase I and II by Conestoga Rovers and Associates (CRA) in 2003. The report recommended re-grading/re-capping of the landfill cover as well as repair and maintenance of the existing leachate collection system. Ongoing groundwater, surface water and leachate monitoring were also recommended as it was noted that there was an impact to the groundwater and surface water on an adjacent property from the site. Although CRA had recommended that the City obtain an agreement with the landowner of this property to obtain the groundwater rights or his land for the purposes of establishing a Contaminant Attenuation Zone (CAZ) the MOE had requested that the City undertake additional monitoring and investigation prior to implementation and establishment of a CAZ. The MOE has approved the re-grading and re-capping work and the establishment of soccer fields over the final clay cap as appropriate end-use.

Summary of Remedial Work Undertaken to Date

- SSRA by CRA - 2003
- Leachate collection system repaired - 2004
- Engineering design for grading and clay capping and end-use by SNC Lavalin - 2005
- Contract awarded to Rankin Construction Inc. for grading and clay capping and end-use. Work commenced early October 2005 and is scheduled to be completed by December 2005

Summary of Future Work to be Undertaken

- Ongoing bi-monthly surface water and semi annual groundwater monitoring as required by MOE
Costs to Date/Future Costs

- Approximately $344,000 spent and committed since 2001. Total future cost of $1.36 million for the re-grading and re-capping portion of the work. The establishment of the soccer fields will be funded through a consortium of partners involved with this project and coordinated through Councillor Ferguson. The re-grading and re-capping costs are eligible for 50% reimbursement by the Province under the Millennium Funding Program.

**Beverly Landfill**

**Background**

The site is located on the north side of the 6th concession between Valens Side Road and Hwy 52 in Flamborough. The site was filled from the early 1970’s up until 1980. The site accepted mainly local household waste and a minor amount of commercial, agricultural and brush wastes. In total the landfill footprint is approximately 0.8 ha.

A preliminary SSRA was undertaken on the site by Azimuth Environmental in 2004/2005. The report concluded that the landfill was not creating any human health or environmental impact and that no remedial action needs to be undertaken. It was recommended that additional monitoring not be undertaken as the landfill posed no off-site concern and appears to have reached the end of its leachate generating life cycle. The site has been completely fenced to comply with Ministry of the Environment Regulations. The MOE has agreed that monitoring of the site is no longer necessary.

**Summary of Future Work to be Undertaken**

- Abandonment of existing monitoring wells and continued semi-annual inspection of site to check cover, fencing, vegetation etc.
- No additional remedial work identified at this time

Costs to Date/Future Costs

- Approximately $88,000 spent and committed since 2001. Estimated $10,000 for future well abandonment scheduled to be completed in early 2006. These costs are eligible for 50% reimbursement by the Province under the Millennium Funding Program.

**Binbrook Landfill**

**Background**

The site is located on the east side of Fletcher Road just south of Kirk Road in Glanbrook. Waste filling at the site is estimated to pre-date the 1970's although the exact date of filling is unknown. The site serviced the former Township of Binbrook and the majority of waste disposed at the site was domestic in origin. Apparently there were a small proportion of commercial wastes disposed at the site as well. The site operated until closure in 1980. In total the landfill footprint is approximately 0.4 ha.

The site was fenced as per MOE regulations in 2004.

A SSRA was undertaken by Stantec Consulting Ltd. in 2004/2005. The report concluded that the landfill was not creating any human health or environmental impact and that no remedial action be undertaken. However it was recommended that ongoing
groundwater, surface water and leachate monitoring be continued at the site but at a reduced level.

Summary of Future Work to be Undertaken

- Reduced ongoing monitoring pending direction from MOE. Presently the groundwater and surface water are monitored at the site on a semi annual basis
- No additional remedial work identified at this time

Costs to Date/Future Costs

- Approximately $95,000 spent and committed since 2001 for fencing and SSRA related investigative work. These costs are eligible for 50% reimbursement by the Province under the Millennium Funding Program
- No future remedial costs expected

Dundas Landfill Phase (I and II)

Background

The Dundas landfill consists of two waste fill areas. The first is east of Olympic Drive in Dundas and it operated from the early 1970’s to 1976. The second area of fill is found west of Olympic Drive and contains waste disposed prior to 1971. The landfill accepted mainly domestic and commercial wastes. Olympic Park (baseball diamonds and a soccer field) is located over top of the west landfill and a soccer field is located over top of the east landfill. An arena is immediately adjacent to the east landfill and a passive gas venting system was constructed in the late 1970’s between the landfill and the arena to prevent methane gas from migrating to the arena.

A SSRA has been undertaken on the East landfill by Conestoga Rovers and Associates (CRA). As a result of the risk assessment CRA found that leachate may be impacting adjacent lands to the east owned by Ontario Hydro and the Royal Botanical Gardens (RBG). Further study is being undertaken in this area on the RBG property by CRA to more fully assess the potential impact from landfill leachate on adjacent properties. The results of this additional work are currently being evaluated by CRA. They will be providing us with their conclusions and recommendations regarding potential off site impacts (if any) by the end of 2005.

With respect to the West landfill, remedial work was undertaken on the site in 2004 to prevent methane gas generated in the landfill from migrating in the sub-surface onto residential properties along York Road that are adjacent to the landfill. The remedial work involved design and construction of a passive gas venting system between the west landfill and the four eastern most properties along York Road. Based on routine gas monitoring conducted by City staff the remediation works appears to have been effective. Although most of the monitors between the landfill and the properties along York Rd were installed in 2004 (or before) two additional monitors were installed in the late winter of 2005. A full year of monitoring data is required at all of the monitors in order to confirm the system is adequate therefore a full assessment of the system and its effectiveness cannot be made until early 2006.

Based on the evaluation of aerial photographs it appears that the extent of waste fill in the Dundas area to the west and south of the West landfill may extend beyond the Olympic Park area and towards the Desjardins canal and possibly King Street.
completely delineate any additional areas of potential buried municipal waste in these areas the City has retained the firm of Marshall Macklin Monaghan to review historic records, aerial photographs and perform borehole and geophysical testing to confirm limits of waste.

Summary of Remedial Work Undertaken to Date and Associated Costs

- Investigation and Engineering design for passive venting system, Earth Tech Inc. 2003/2004
- Contract awarded to Hard Rock Remediation for passive venting system 2004
- SSRA-East landfill, CRA –to be complete by the end of 2005
- Additional waste delineation (Marshall Macklin Monaghan) – to be completed by the end of 2005/early 2006

Summary of Future Work to be Undertaken

- Ongoing monthly gas monitoring at the West landfill and semi-annual surface water monitoring at the East landfill. Any additional work will be dependant on direction from MOE after completion of the waste delineation and SSRA

Costs to Date/Future Costs

- Approximately $537,000 spent and committed since 2001. Any additional costs will be dependant on direction from MOE after completion of the waste delineation work and SSRA. These costs are eligible for 50% reimbursement by the Province under the millennium funding program

Edgewood Landfill

Background

The site is located on the west side of Edgewood Road between Safari Road and concession 6 in Flamborough. The site received waste from the early 1950s to 1978. The waste accepted at the site was mainly domestic with a minor amount of agricultural, commercial and brush. In total the landfill footprint is approximately 2.4 ha.

The site has been fenced as per MOE requirements.

A SSRA was undertaken by Golder Associates in 2004/2005. The investigation indicated that additional investigation and ongoing monitoring had to be undertaken to better delineate any potential migration of leachate to adjacent groundwater and surface water resources.

To improve the site conditions and minimize any impact to the environment and adjacent properties the City has retained Associated Engineering to re-grade and construct a clay cap over portions of the landfill. The design and construction work will be complete by late 2005/ early 2006.

Summary of Remedial Work Undertaken to Date and Associated Costs

- Site Specific Risk Assessment (SSRA) by Golder Associates-2004/2005

Summary of Future Work to be Undertaken

- Design, re-grading and capping of portions of landfill. Work to be completed by the late 2005/ early 2006
Ongoing maintenance
Ongoing semi-annual monitoring work. Specific details of recommended additional investigative and monitoring work are pending direction from the Ministry of the Environment after their review of the SSRA

Costs to Date/Future Costs
- Approximately $168,000 spent and committed since 2001. Estimated $100,000 for grading and clay capping
- Additional investigative and costs for groundwater surface water and ecological-related monitoring work to be confirmed pending MOE review of SSRA. The investigative costs are eligible for 50% reimbursement by the Province under the millennium funding program

Glanford Landfill

Background
The site is located on the north side of Chippewa Road just east of Highway 6 in Glanbrook. The site was operated in the 1970’s and possibly before, however the exact date the site was opened is unknown. The site was closed in 1980. The site accepted mainly domestic wastes however some commercial waste was also accepted at the site. In total the landfill footprint is approximately 1.1 ha.

The site has been fenced as per MOE requirements.

A SSRA was undertaken on the site by Aquafor Beech Ltd. in 2004. The report concluded that based on the data collected to date the landfill was not creating any human health or environmental impact and therefore no remedial action was required. However, it was recommended that ongoing groundwater, surface water and leachate monitoring be continued at the site for a period of time to better confirm this conclusion since many of the sample stations were only recently established and there is not a lot of historical data available at this time.

Summary of Remedial Work Undertaken to Date and Associated Costs
- SSRA by Aquafor Beech Ltd. - 2004

Summary of Future Work to be Undertaken
- Ongoing monthly gas monitoring for the balance of one year and re-evaluate frequency pending MOE review of results
- Request MOE to allow reduction in existing semi-annual monitoring program to annual for groundwater and a 2 year frequency for surface water as per recommendations in the SSRA
- No additional remedial work identified at this time

Costs to Date/Future Costs
- Approximately $101,000 spent and committed since 2001. These costs are eligible for 50% reimbursement by the Province under the millennium funding program
Rennie & Brampton Landfills

Background

Although the Rennie and Brampton landfills are separate sites they are side by side and the majority of remedial work undertaken to date applies to both sites. The Rennie landfill is located between Rennie Street and Brampton Street immediately west of the Red Hill Creek in Hamilton. The exact date the landfill first started operating is unknown, however records indicate the site appears to have been operated in the mid 1950’s up until closure in 1971. The Brampton landfill is located immediately north of the Rennie Street Landfill. The site started operating immediately following closure of the Rennie Street landfill up until closure in the mid 1970’s.

Both landfills are known to contain mainly domestic waste. However industrial and commercial wastes were also accepted at both sites. Sludge from the Hamilton Wastewater Treatment Facility and foundry sands were accepted at the Brampton site.

In addition a Community Liaison Committee (CLC) with representatives from the neighbourhood was established as a requirement of the site Certificate of Approval for the duration of remediation activities. The CLC met monthly for the duration of the remediation works to provide public input to City staff and their consultant pertaining to the construction. The remediation is now complete and the City of Hamilton has been a recipient of a number of awards from various associations for the remediation works.

Summary of Remedial Work Undertaken to Date and Associated Costs

- Abandonment of sewers and buried conduits in site
- Gas barrier trench installed along western property boundary to prevent off-site migration of gas from the landfill
- Geosynthetic clay capping of the Rennie landfill
- Construction of leachate collection system around the toe of both landfills and connection of the leachate collection system to a forcemain where it is pumped and treated at the Wastewater Treatment Facility
- Re-location and redesign of Red Hill creek channel to accommodate the works and minimize erosion
- Geotextile capping and re-vegetation of slopes on both Rennie and Brampton landfills to minimize erosion
- Additional work has been undertaken at the site to remove the southern portion of the Rennie Street Landfill to facilitate the Red Hill Valley Parkway. This additional work has been undertaken and managed as part of the Red Hill Valley Project. The Waste Management Division has monitored the progress and provided technical input to the Red Hill Valley team on an as required basis through this phase of development.

Summary of Future Work to be Undertaken

- Ongoing monitoring/maintenance as per MOE Certificate of Approval. The monitoring frequency involves quarterly, semi annual and annual monitoring of groundwater and surface water, monthly gas monitoring at the western property boundary, monthly collection of leachate samples and quarterly maintenance activities on the leachate collection system
End-use design and implementation in conjunction with Red Hill Valley Project. End-use to be determined late 2005 early 2006. Completion date is dependant on choice of end-use

- Re-vegetation work
- Millennium funding extended to 2008 for end-use and final rehabilitation work

Costs to Date/Future Costs

- Approximately $21.17 million spent and committed since 2001. Estimated future cost of $500,000 for final rehabilitation and end use. All of these capital costs are eligible for 50% reimbursement by the Province under the millennium funding program

Stoney Creek Landfill

Background

The Stoney Creek landfill is located north of 6th Road and Green Mountain Road in Stoney Creek. The site was operated throughout the early to mid 1970’s until closure in 1978 serving the former Saltfleet Township. It is likely that the site operated prior to 1970, however the exact date the site was opened is unknown. The site accepted mainly domestic wastes with some minor commercial and agricultural wastes. The total landfill footprint is approximately 2.8 ha. The site is located in the Vinemount wetland complex.

A number of remedial activities have been undertaken at the site to date to minimize leachate seeps in isolated areas at the toe of the landfill slopes. These activities have involved installation of hydraulic connections within the toe of the slope and re-grading of the slope in 2001-2003 by Gartner-Lee Ltd. In 2004 and 2005 SNC Lavalin designed the replacement and re-location of cover material on the side slopes of the landfill and clay capping of the landfill. This work was performed by Rankin Construction and involved the importation of clay cover to be placed on the landfill to prevent infiltration of precipitation and therefore minimize the generation of leachate. As well a SSRA was undertaken at the site by Azimuth Environmental in 2005 for the purposes of assessing the risk to the environment from the landfill. The report recommended additional monitoring for a period of time to confirm extent of leachate impact to the south and east of the site and assess the effect of the existing remedial works in controlling leachate impact.

Summary of Remedial Work Undertaken to Date and Associated Costs

- Engineering design for re-location of existing cover, grading and clay capping by SNC Lavalin-2004
- Contract awarded to Rankin Construction for grading and clay capping
- SSRA by Azimuth Environmental

Summary of Future Work to be Undertaken

- Ongoing semi-annual monitoring and maintenance as per MOE Certificate of Approval
- Additional monitoring and work is pending and to be based on direction from MOE upon their review of the SSRA work
Costs to Date/Future Costs

- Approximately $730,000 spent and committed since 2001. These capital costs are eligible for 50% reimbursement by the Province under the millennium funding program.

Upper Ottawa Landfill

Background

The Upper Ottawa landfill is located north of Stonechurch Road and east of Upper Ottawa Street in Hamilton. The northern boundary of the site abuts Red Hill Creek. The site accepted domestic and commercial waste as well as industrial solid and liquid waste from 1952 to 1980 until closure. In total the landfill footprint is approximately 16 ha.

Upon closure in 1980 the site was capped, methane vents were installed and slope protection measures were implemented. A perimeter leachate collection system was installed around the landfill in 1988 and in 1989 a gas collection system with a blower and flare was constructed. In 1998 a retaining wall equipped with a new leachate collector was built at the toe of the landfill to prevent leachate and waste from slumping into the adjacent Red Hill Creek. The gas collection system and flare were decommissioned in 2004 due to a reduction in the rate/volume of gas generated. Leachate seep remediation and hydraulic connection and barrier trenches were installed in 2003 and 2004 to prevent any off-site migration. The crown of the landfill was re-contoured and capped with clay in 2005 to reduce leachate production by minimizing precipitation infiltration into the waste. Additional groundwater monitoring wells have been installed around the site to regularly evaluate the continued effective operation of the leachate collection system and whether or not any additional works are necessary. Additional investigations in the area have identified further waste and leachate seeps west of the main waste mound and remediation efforts are presently being made to extend the existing leachate collection system westward.

Summary of Recent Remedial Work Undertaken to Date and Associated Costs

- Construction of retaining wall in 1998 by the City at toe of landfill adjacent to Red Hill Creek
- Seep remediation and clay barrier wall by Red Hill Creek, Pal Tech Engineering, 2003
- Feasibility of continued operation of Gas Flare system, SNC Lavalin, 2003/2004
- Decommissioning of Gas Flare by SNC Lavalin 2004
- Seep remediation and hydraulic connections on south slope, Pal Tech Engineering, 2004
- Engineering design for grading and clay capping by SNC Lavalin-2004/2005
- Contract awarded and completed by IMS for grading and clay capping in 2005
- Additional groundwater monitoring wells installed around site in 2005 as part of the grading and clay capping contract
- Engineering design of westerly extension of retaining wall and leachate collection system, UEM consulting, 2005
Construction of retaining wall and leachate collection system extension awarded to Rankin Construction

Summary of Future Work to be Undertaken

- Ongoing monitoring of Groundwater on an annual basis based on Blackport recommendations
- Ongoing monitoring of surface water and leachate on a semiannual basis as per MOE Certificate of Approval
- Ongoing methane gas monitoring as per SNC Lavalin recommendations to confirm migration of methane gas is not occurring. Although recent results indicate there is no impact to adjacent buildings, a number of the gas monitoring stations have been recently established and ongoing monitoring is recommended for a period of time until a consistent data base confirming trends can be established
- Due to the presence of recently identified buried waste west of the main waste mound adjacent to Red Hill Creek, the existing retaining wall and leachate collection system is being extended to ensure leachate from this recently identified waste area is captured. The construction of the retaining wall and leachate collection system extension is to be complete by 2007 with the majority of work occurring in 2006
- Millennium funding deadline extended to 2007

Costs to Date/Future Costs

- Approximately $1.44 million spent and committed since 2001. Estimated $2 million for the retaining wall and leachate collector extension. These capital costs are eligible for 50% reimbursement by the Province under the millennium funding program

West Hamilton Landfill

Background

The West Hamilton landfill is located on the east side of Hwy 403 between the Cathedral and Desjardins canal in Hamilton. Kay Drage Park is located on top of the site. The site was operated as a landfill from the 1940's up until closure in the mid 1970's. The site accepted mainly domestic, commercial and industrial solid wastes from the local area. The landfill footprint occupies an area of approximately 23 ha.

A number of remedial activities have been undertaken at the site to date to assess impact and minimize leachate seeps. A SSRA was undertaken by Gartner-Lee Ltd in 2000/2001 identifying leachate seeps from the western landfill side slopes into Chedoke Creek. In addition a number of storm sewers beneath the landfill were noted as being in need of repair or abandonment as they were potential pathways for leachate to discharge to Chedoke Creek. A pond north of the landfill was also identified as a concern and potential receptor of leachate. Upon further Risk Assessment work undertaken by Dillon Consulting in 2002/2003 for the purpose of developing a remediation plan for the site, recommendations were made to remediate the leachate seeps that were discharging into Chedoke Creek through installation of a leachate purge well and forcemain to pump leachate into the sanitary sewer and to abandon or repair any leaking storm sewers and conduits beneath the landfill. In addition
recommendations were made to re-grade and cap the landfill with clay (and re-establish the sports fields overtop the landfill) to prevent rainwater infiltration and resultant generation of leachate. It was also recommended to fill in the pond north of the landfill to prevent the migration of leachate in this area. Once the pond is filled in and capped with clay, leachate will not impact this area. A drainage ditch will be constructed overtop the filled-in pond to direct any storm water away from the landfill and to the north.

The landfill abuts the Chedoke Creek and bank erosion of the landfill in certain areas was found to be a major concern. Works have been subsequently initiated to further prevent bank erosion adjacent to the creek.

Summary of Recent Remedial Work Undertaken to Date and Associated Costs

- SSRA by Gartner-Lee Ltd. - 2000/2001
- Additional SSRA work and remedial option assessment by Dillon Consulting-2002/2003
- Design of grading, clay capping and purge well by Dillon consulting - 2004
- Seep remediation and installation of purge well and forcemain on West Bank - 2005-2006. Contract awarded to Elgin construction
- Contract awarded to AIM Environmental for grading and clay capping work (and re-establishment of sports fields overtop the site)

Summary of Future Work to be Undertaken

- Ongoing semi-annual monitoring of groundwater, surface water and leachate
- Geotechnical assessment of Chedoke Creek west bank stability by Peto MacCallum
- Remediation of west bank area
- Re-lining/abandonment of sewers beneath landfill
- Extend deadline for millennium funding to 2008

Costs to Date/Future Costs

- Approximately $3.74m spent and committed since 2001. Estimated $4 million for bank stabilization. These capital costs are eligible for 50% reimbursement by the Province under the millennium funding program

Future Requirements

The works and studies completed to date are putting the City in a good position with respect to compliance with federal and provincial environmental laws and regulations. As well, by undertaking the remediation activities and risk assessment studies the City is being pro-active and due diligent. Through the ongoing monitoring and/or inspections and maintenance programs that are in place at the closed sites they can be regularly evaluated for environmental compliance and risk and if necessary actions taken prudently to mitigate any environmental concerns and risk to the public.

It should be noted that the City of Hamilton has adopted the recommendations of the Public Sector Accounting Board (PSAB) of the Canadian Institute of Chartered Accountants (CICA) for the reporting and disclosure of solid waste landfill liabilities. The liability costs are calculated annually based on capital budget estimates for closure and post closure costs such as monitoring, maintenance and remediation. The estimated
liability for the closure and post closure of the City’s twelve closed landfill sites and one active landfill site as of December 31, 2003 was $43.53 million (net present value) as reported in the City's 2003 annual Financial Report. As a result of works noted in this report that were completed in 2004, the estimated liability costs were reduced by $3.63 million to $39.9 million for 2004 as per the City’s 2004 annual Financial Report. Liability cost will continue to be reduced as the remediation works noted in the report are completed.

It is important to be aware that the MOE is currently undertaking a Province wide investigation on the effect of leachate on wastewater treatment plants. This was the result of an application under the Environmental Bill of Rights from a community group asking the Province to review laws and policies in this regard. As part of this study, which is currently in progress, the MOE is collecting samples from the City’s landfill sites that have leachate collection systems that discharge leachate to the sanitary sewer. These sites include the Glanbrook landfill (currently open) and the Upper Ottawa, Ancaster, Rennie St., and Brampton St. closed landfills. The West Hamilton closed landfill will also likely be included in this study as the leachate purge well is expected to be operational by the time the MOE completes their field sampling work.

The City is also undertaking its own internal review of the impact of leachate from the City's closed and open landfills on the City’s Wastewater Treatment Plant (WWTP). Although the preliminary conclusions from this study indicate that the existing leachate discharges do not have an inhibitory effect on the biological treatment processes at the WWTP, the MOE study, once completed, may recommend some form of leachate pre-treatment at landfill sites. Such a requirement would have an impact on future costs for the closed sites.

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