

COMMITTEE OF THE WHOLE MAY 20, 2003

**KEELE VALLEY CLOSURE PLAN
GENERAL PLANNING FILE 22.9.3.9
CITY OF TORONTO**

Recommendation

The Commissioner of Planning, in consultation with the Maple Valley Implementation Committee, recommends:

- A. That the draft Closure Plan for the Keele Valley Landfill site as prepared on behalf of the City of Toronto be revised to provide for the following:
1. The preparation of an *end use plan, prepared in consultation with Vaughan*, designed to achieve the maximum public benefit which would include:
 - a) passive recreational opportunities and facilities such as trails and trail heads;
 - b) provision of significant landscaping including a planting program for shrubs and trees;
 - c) locations for pedestrian access to the site and fencing;
 - d) the sufficiency of soil cover material to adequately support vegetation such as trees and shrubs in addition to the minimal hydro seeding proposed; and
 - e) phasing and implementation of the plan in a coordinated fashion with the other operational requirements of the site.
 2. The role of the Keele Valley Liaison Committee to address community concerns and monitoring progress of the closure plan;
 3. Provisions in the Closure Program pertaining to the Teston Road purge well system including providing Vaughan with copies of the monitoring reports.
 4. That all buildings to remain on site operated by Toronto shall be used only for the purposes of maintenance and monitoring of the closed landfill;
- B. The Legal Department provide advice to Council with respect to any implications of exercising the option to acquire the surface rights to KVL for passive recreation purposes and a final determination be made by Council in this regard.

That Staff meet with representatives of the City of Toronto and the Ministry of Environment to review issues associated with the draft Closure Plan as defined above.

Purpose

To update Council on the draft Closure Plan for the Keele Valley Landfill site, and provide Vaughan with an opportunity to provide comments to the City of Toronto and MOE on the draft closure plan.

Background

On April 28, 2003 the Maple Valley Implementation Committee considered a similar report from the Commissioner of Planning.

The Draft Closure Plan for Keele Valley Landfill Site is intended to provide closure, post closure and end use plans for KVL and to define the activities, plans and programs that are necessary for the post closure period or until such time as controls may no longer be required. The Closure Plan acts as a guide to the future operation and use of the various engineering systems currently in place on KVL as part of the landfill operation. The Draft Closure Plan also includes the secondary buffer areas for KVL owned by York Major Holdings. A recent agreement between the City of Toronto and YMH stipulates that the City retains the necessary access to monitor the performance of KVL and install additional monitors or contingency measures, should they be deemed required on the golf course lands for the contaminating life of the KVL site. The contaminating life of KVL is currently projected to be in excess of 100 years.

The Landfill Standards Guideline of the Ministry of the Environment provides that the Closure Report include information, amongst other things, on:

- Completion and ongoing maintenance of the final cover and landscaping;
- The planned end use of the site;
- Construction of any environmental controls;
- Post closure operation and maintenance requirements including complaint contact and response procedures and contingency plans for control of methane gas and leachate.

This report examines those components of the draft Closure Plan of particular interest to the City of Vaughan being:

- End Use Planning;
- Buildings;
- Site Security (Fencing);
- Complaint Procedures;
- Final Rehabilitation and Final Cover.
- Leachate Control System (regarding the Teston Road Purge Wells)

The draft Closure Report contains a number of other sections with respect to Liner Performance, Groundwater Performance, Landfill Gas Collection System, Reporting and Contingency Plans. These sections examine the maintenance and operation of environmental engineering components of the site, which fall under the jurisdiction of the Ministry of Environment.

The Draft Closure Plan

End Use Planning

The end use plan for the KVL is of particular interest to the City of Vaughan. In this regard the Certificate of Approval for KVL issued by the Ministry of Environment in 1983 provides as follows:

“Condition 13

The final contours established for the completed landfill site shall be designed to approximate the land conformation as it existed before sand and gravel extraction commenced, with a maximum elevation not to exceed one thousand feet above sea level. Details of final grades shall conform to an end use plan, designed to achieve the maximum public benefit, and approved by the Town of Vaughan, prior to final approval by the Director.”

The Draft Closure Plan provides an outline of the end use planning for three distinct areas of KVL being the Disposal Areas, the Primary Buffer Areas and the Secondary Buffer Areas. The features of these areas as outlined in the Draft Closure Plan are summarized below together with comments pertaining to the City of Vaughan’s interests:

Disposal Areas and Final Contours

- The report states that Toronto intends to ensure that the disposal area of KVL will be rehabilitated in a manner that will allow future passive recreational uses;
- In 2003 the balance of the final cover will be constructed;
- The final cover system will consist of 900 mm thick layer of cover material and a 150mm thick layer of topsoil;
- Approximately 74% of the disposal area has had final cover placed on it by the end of 2002;
- Progressive rehabilitation has been ongoing since the late 1980's, the remaining areas to be capped are in the south central areas of Stages 3 and 4;
- There will be differential settlement on different areas of the disposal area, the greatest settlement occurring in areas closed and capped in the final years of landfilling;
- The first 5 years will be treated as a restricted end use period. Before the public is given access to the site it is recommended that initial settlement and other effects are allowed to be completed;
- During the first 5 years there will be two areas of the cap which will be treated as infiltration areas in the northerly parts of Phase 3 and 4 for the purpose of enhancing rapid stabilization in the more recently filled areas;
- No structures are recommended to be constructed on the fill area;
- A stockpile of 5,000 sq.m of cover material is recommended to be kept on site for cap repairs that may be required during the first 5 years;
- A random planting of seedlings shall be placed in the central and side slopes;
- Future passive recreational developments may entail removal/addition of trees and shrubs in subsequent phases of the post closure period.
- No permanent use of the lands that in any way restricts the post closure operating and maintenance activities for the KVL, including any contingency measures that may be contemplated, will be permitted.

Comments

The constraints on the site during the next five years are acknowledged. However **the draft Closure Plan does not provide any direction towards “an end use plan, designed to achieve the maximum public benefit”**. The random planting of seedlings is of limited value with no particular relationship toward an end use plan. The reference to “future passive recreational developments in subsequent phases” is so ill defined and open ended as to be of little value.

The Draft Closure Plan falls considerably short of both the requirements of the Certificate of Approval and the City's expectations based on discussions with Toronto with respect to establishing a major vegetation planting program on KVL. *An end use plan, designed to achieve the maximum public benefit* needs to be prepared to form part of the Closure Plan. It should identify passive recreational developments such as pathways and trailheads and a related landscape master plan comprised of trees, shrubs and grasses. This plan should be assessed against the operational requirements of both the short and longer term and a phasing plan established for its implementation. As certain areas of the Disposal Area have had final cover for almost 15 years there may be opportunities to implement portions of the landscape master plan now, in advance of public access, recognizing that other areas may be phased in at the end of the five year restricted use period.

The Maple Valley Implementation Committee noted that the City of Vaughan has the option of acquiring the surface rights to the Landfill site at a nominal cost for future passive recreational uses. The Legal Department should provide advice to Council with respect to any implications of exercising this option and a final determination be made by Council in this regard.

Primary Buffer Areas

- No public use within primary buffers due to the operations and maintenance of the systems installed in these areas;

- Toronto will require continued unobstructed access to all of these systems throughout the contaminating life span of KVL;
- Primary buffer requirements include:
 - Landfill gas header piping and gas probes;
 - Storm water management ponds;
 - Purge water force main;
 - Waterman;
 - Groundwater monitoring wells;
 - Liner monitoring systems and building;
 - Access roads;
 - Leachate collection system;
 - Landfill gas utilization facility (i.e. Eastern Power)
 - Administration and maintenance building;
 - Possible Region of York public drop off facility.
- The Teston Road purge well system is and will continue to be operated and maintained by the City of Toronto as long as required.

Comments

Vaughan has been aware since the initial approval of KVL that the primary buffer will function as an infrastructure and maintenance corridor around the disposal area. The continuation of this role into the future is understood. It may be necessary, as part of the passive recreational use of the disposal area, to have defined locations where the buffer must be crossed by the public. The suitable locations for such crossings should be defined in the Closure Plan as part of the “*end use plan*” including suitable locations for landscape material. Should the Region of York be permitted to establish its public drop off facility the landscape and facility plan for this operation should be integrated into the Closure Plan.

Secondary Buffer Area

The draft Closure Plan recognizes the various land uses that are now permitted through OPA 535 (Maple Valley Plan) and zoning bylaw 427-2000. These include:

- The golf course uses;
- Commercial and industrial uses to the west and south west;
- Municipal roads and servicing infrastructure;
- Monitoring locations pertinent to KVL.

Comments

This is consistent with OPA 535 and is therefore satisfactory.

Buildings

The Closure Plan provides for the existing administrative building to remain at least throughout the first 5 year post closure period. Temporary buildings will be relocated from the site progressively during final rehabilitation and maintenance activities. The easterly weigh scale will be decommissioned following site closure. The westerly weigh scale house may be required for the Regional public drop off facility which would also include the household hazardous waste facility. Should these not be required these facilities would also be decommissioned.

A weather tower in the northwest corner of the site will remain. The gazebo will be relocated to the southeast portion of the site.

Comments

There are no major issues associated with the treatment of buildings on site. The Closure Plan should confirm that remaining buildings will only be used for purposes related to the maintenance and monitoring of the closed landfill.

Site Security (Fencing)

The draft Closure Plan states as follows:

- A minimum 1.5 metre fence will enclose the site – the existing site fencing will remain;
- The litter control fence will be removed as rehabilitation of the site progresses;
- Fence around the gas utilization plant will remain;
- Subsequent plans that may be submitted to identify future passive use of the fill area of the KVL will have to address security and access restrictions to cross the primary buffer lands at controlled locations.

Comments

The fencing requirements should form part of an “*end use plan, designed to achieve the maximum public benefit*” and coordinated with landscaping and passive recreational activities such as trails in order to define access arrangements for future public use.

Complaints

The draft Closure Plan states as follows:

- Complaints will be accepted by phone or email to Toronto staff at the on-site administrative building, to Toronto’s 24 hour phone line and to the Ministry of Environment;
- Each complaint is documented and investigated and remedial action taken as required;
- A summary of complaints and action taken is provided in post closure reports.

Comments

The Keele Valley Liaison committee has served a very valuable role in communicating and discussing issues pertaining to the operation of KVL during the past 15 - 20 years. The continuation of the Liaison Committee through the next five year closure period could be beneficial with respect to addressing and communicating concerns and monitoring progress of the closure plan from the community perspective.

Final Rehabilitation and Final Cover

The draft Closure Plan states as follows:

- The majority of final rehabilitation activities, including the placement of final cover will occur within two years of site closure;
- Rehabilitation will include:
 - Placement of final cover;
 - Completion of leachate collection access locations;
 - Surface water controls;
 - Completion of the landfill gas collection system;
- Final cover is intended to control infiltration, leachate mounding, gas migration, vectors, and to support an aesthetically acceptable vegetated cover suitable for passive recreational uses;
- Cover material will comprise 900 mm of cover material, 150mm of top soil (which may contain compost material) and a hydro seeding mixture of various grasses.

- Final cover will initially be inspected monthly to rectify areas of settlement, erosion or areas where garbage has become exposed. Once vegetation becomes established on site these inspections will occur semi-annually.

Comments

The top soil and hydro seeding proposed is a minimal standard and not acceptable given the objective of establishing an *"end use plan, designed to achieve the maximum public benefit"*. A comprehensive assessment of final cover is required which determines the necessary topsoil depth to support trees and plants, identifies tree species best suited to the environment of the site and defines the planting and maintenance requirements to ensure their survival. This assessment should form part of a master landscape plan prepared in consultation with the City of Vaughan.

Leachate Collection System

This section of the draft Closure Report provides an outline of the management, monitoring, maintenance and inspection of the leachate collection system. There is no specific reference to the Teston Rd. purge well system that intercepts leachate from the former township landfill and it is not included on the plan identifying the Leachate Collection System Layout.

Comments

The Certificate of Approval provides that Toronto shall install and operate the Teston Road purge well system to the satisfaction of the Ministry of Environment. Accordingly, the Ministry of Environment should be satisfied that the system is appropriately addressed in the Closure Plan. The City of Vaughan should be circulated copies of the monitoring reports on a regular basis.

Liner Performance, Groundwater Performance; Landfill Gas Collection System, Reporting and Contingency Plans

No comments – Ministry of Environment Review Required;

- The Closure Report notes that Eastern Power Limited utilizes the majority of the landfill gas collected and generates 35MW of electricity. The EPL plant is expected to continue for a minimum of 20 years. The need for landfill gas control will extend well beyond 20 years and possibly 50 years or more. Toronto retains ultimate responsibility for landfill gas emissions and migration.

Conclusion

The draft Closure Plan provides a framework for the proposed management and operation of the Keele Valley Landfill site now that it is closed from receiving waste. The primary issue from the perspective of the City of Vaughan is the lack of *"an end use plan, designed to achieve the maximum public benefit"* as referenced in the Certificate of Approval. Notwithstanding that a stated objective of the Closure Report is "to ensure that the disposal area of KVL will be rehabilitated in a manner that will allow future passive recreational uses" there is no explicit plan in the document to define how that objective is to be achieved. Preparation of an *end use plan* is properly required as part of the Closure Plan.

The following requirements need to be addressed in the Closure Plan.

1. The preparation of an *end use plan, designed to achieve the maximum public benefit* which would include:
 - a) passive recreational opportunities and facilities such as trails and trail heads;
 - b) related landscaping including grasses, wild flowers, shrubs and trees;
 - c) site access locations and fencing;

- d) the sufficiency of soil cover material to adequately support vegetation such as trees and shrubs in addition to the minimal hydro seeding proposed;
 - e) phasing and implementation of the plan in a coordinated fashion with the other operational requirements of the site.
2. The role of the Keele Valley Liaison Committee to address community concerns and monitoring progress of the closure plan;
 3. The adequacy of the Closure Program as it pertains to the Teston Road purge well system.
 4. That all buildings to remain on site operated by Toronto shall be used only for the purposes of maintenance and monitoring of the closed landfill;

The Maple Valley Implementation Committee also addressed the desirability of the City exercising its option to acquire the surface rights to KVL for passive recreation purposes. The Legal Department should provide advice to Council with respect to any implications of this prior to a final determination be made by Council.

Attachments

1. Location Map
2. Proposed FINAL CONTOUR PLAN
3. Keele Valley Landfill, Primary and Secondary buffer areas and well locations
4. Keele Valley Landfill, Stages and Monitoring Instrumentation

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Respectfully submitted,

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Commissioner of Planning

JOANNE R. ARBOUR
Director of Community Planning

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 SUBJECT LANDS

Location Map

Location: Part Lot 24,
Concession 4

APPLICANT:
CITY OF TORONTO



Community Planning Department

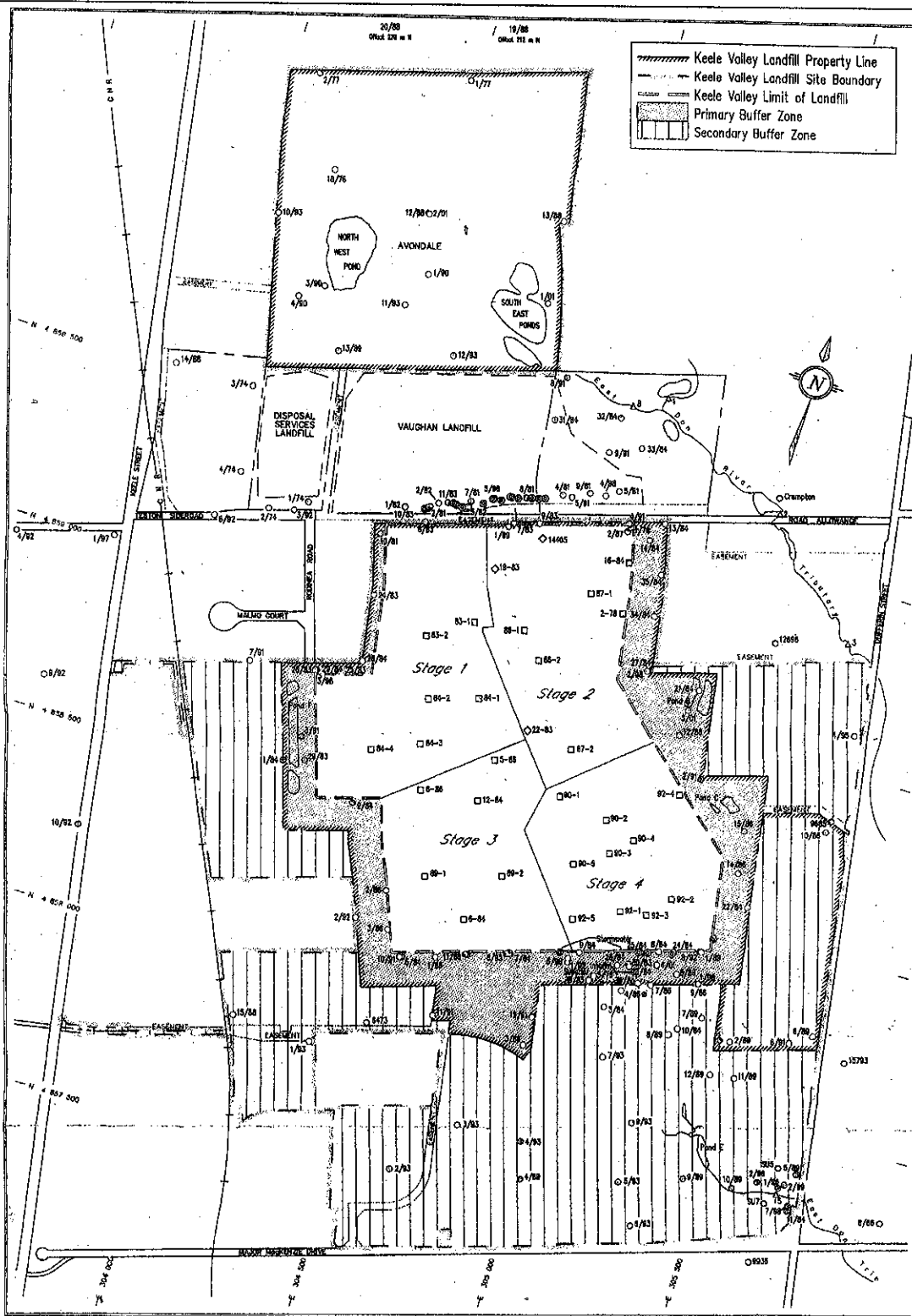
Attachment

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April 7, 2003

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<ul style="list-style-type: none"> ○ Private Well ○ Observation Well ⊠ Abandoned □ Water Sampler Nest ◇ Vibrating Wire Piezometer ⊙ Purge Well ⊕ Non-Operational Purge Well △ Stream Sampling Station 	metres 0 50 100 250 500	CITY OF TORONTO KEELE VALLEY LANDFILL SITE LOCATION MAP 2001 WELL LOCATIONS
	PREPARED BY: DIXON HYDROGEOLOGY CITY OF TORONTO DRAWING No.	Drawn: J.P.R. Job No. T01 L01 Date: 14 Jan 02 ACAD: SM102001:LT

Primary & Secondary Buffer Areas & Well Locations

APPLICANT:
CITY OF TORONTO

Location: Part Lot 24
Concession 4

City of Vaughan
Community Planning Department

Attachment

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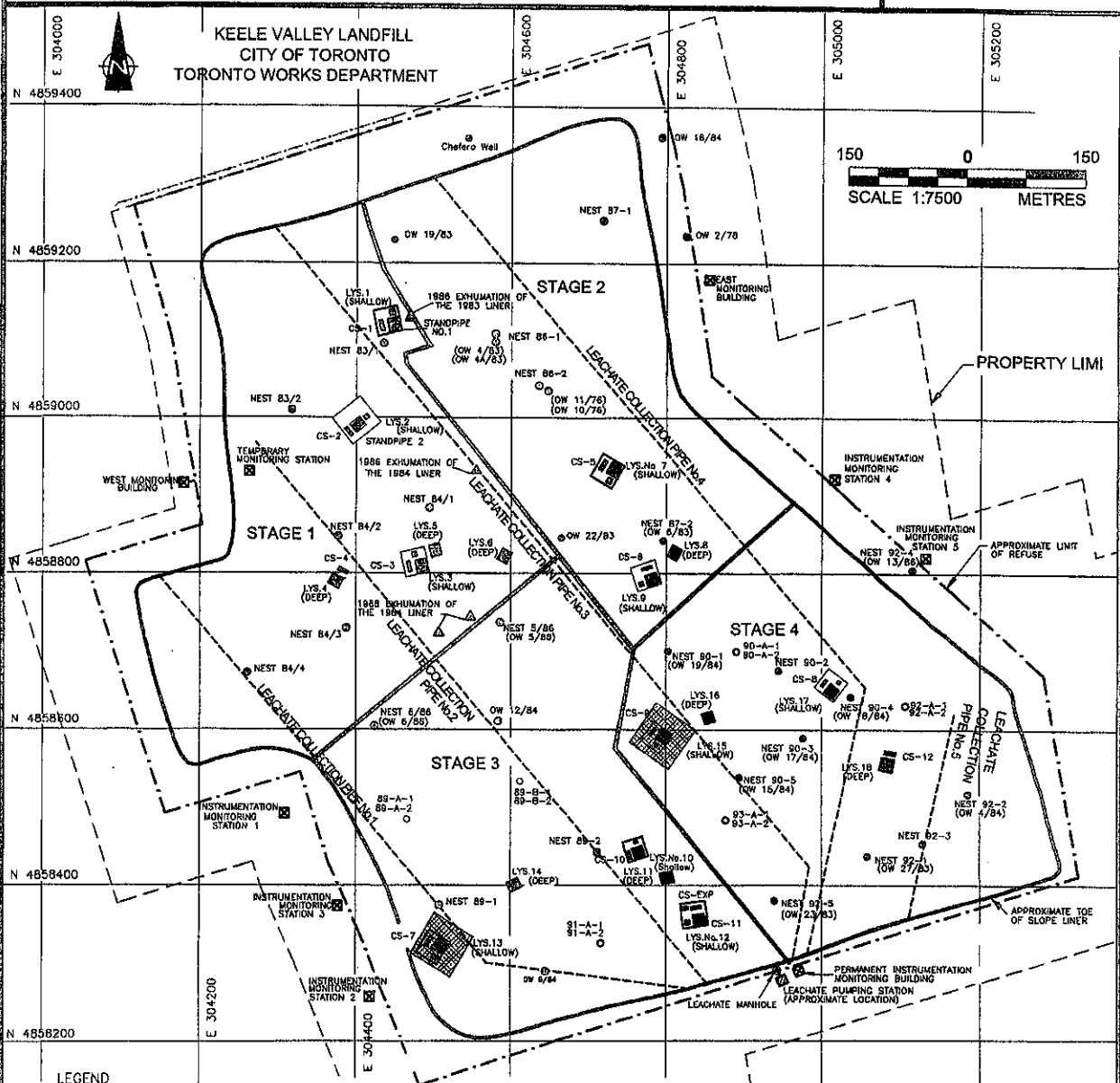
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LOCATION OF LINER PERFORMANCE MONITORING INSTRUMENTATION

FIGURE ES-1



LEGEND

- THICKENED AREA OF LINER AT LYSIMETER LOCATIONS
- LYSIMETER WITH VIBRATING WIRE PIEZOMETER (LYS.1 TO LYS.18)
- DUMMY LYSIMETER (AT SHALLOW LYSIMETER)
- CONDUCTIVITY SENSOR NEST (CS-1 TO CS-12)
- SUB-LINER SAMPLER (WITH WVP IN SAMPLER NEST)
- VIBRATING WIRE PIEZOMETER RANDOMLY LOCATED ABOVE-LINER
- STAGE BOUNDARY
- 60m x 60m WINDOW IN DRAINAGE BLANKET
- STANDPIPE INSTALLATION (WITH WVP)
- LINER EXHUMATION LOCATION
- INSTRUMENTATION MONITORING STATION LOCATION
- LEACHATE MANNHOLE
- BELOW LINER WVP INSTALLED IN A PREVIOUS OBSERVATION WELL

NOTE

THE LOCATIONS OF THE MONITORING INSTRUMENTATION ARE APPROXIMATE ONLY AND ARE PRESENTED AS AN OVERALL INDICATION OF THE EXTENT OF MONITORING. ACTUAL LOCATIONS AND ELEVATIONS ARE GIVEN IN THE YEARLY INSTRUMENTATION INSTALLATION REPORTS AND ON FIGURE 1 OF ANNUAL REPORT 901-1576-14.

DATE: DEC.2002

PROJECT: 021-1388



CAD: TDR

CHK: CO

PLOT DATE: iber 16, 2002
 FILENAME: T:\Projects\2002\0211388\1388ps1.dwg

Stages & Monitoring Instrumentation

APPLICANT:
CITY OF TORONTO

Location: Part Lot 24
Concession 4



Attachment

FILE No.: 22.9.3.9

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April 7, 2003

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