LANDFILL CLOSURE DESIGN REPORT

Stantec

LANDFILL CLOSURE DESIGN REPORT

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1.0 Introduction

The Nation Municipality located within the United Counties of Prescott-Russell in Eastern Ontario operates a landfill on Lot 3, Concession 15 (Key Plan, Figure 1) within the former Township of South Plantagenet that reached capacity during 1998 and should be closed.

This design closure report was prepared to identify the work and costs involved with the closure of the landfill, and once approved by the Nation Municipality, would be submitted to the Ministry of the Environment for review and approval. The Ministry submission is a requirement under Section 31 of Regulation 232/98 made under the EPA.

2.0 Background Information

2.1 Landfill description and ownership

The landfill to be closed is situated on Lot 3, Concession 15 of the former Township of South Plantagenet and is shown in Figure 1. The landfill property limits and the surrounding land use are shown in Figure 2. The landfill has an approved waste footprint of 2.0 hectares within a total site area of 2.0 hectares. Figure 3 identifies the legal property limits of the landfill. The landfill property is entirely owned by the Nation Municipality and is identified under roll assessment # 15-012-50. Section 3 of Regulation 232/98 requires that the holder of a Certificate of Approval for a landfilling site must own the entire site in fee simple, unless the site is on Crown land.

2.2 Certificate of Approval conditions - closure details

The landfill is operated under Certificate of Approval no. A471802, last issued April 24, 1980. A copy of the Certificate is reproduced in Appendix A. The Certificate contains only one condition, and none of the conditions contain information on closure of the landfill.

2.3 Design and Operations Plan - Staged (progressive) Closure Plan

In 1992, a Design and Operations Plan was prepared by McNeely Engineering Consultants Ltd. for this landfill that conceptually described the closure of the landfill. Figure 4 shows the final contours, design cross section and sideslopes, and buffers for this previous conceptual design closure.

3.0 Closure design

3.1 Ministry guidelines (RUC, PWQO)

The Ministry of the Environment is responsible for issuing approval for the closure of the landfill. Section 46 of the Environmental Protection Act requires that no use be made of the land used for disposal of wastes within a period of 25 years from the year in which it ceased to be used, unless approval for the proposed use has been granted by the Ministry. During this time, the Ministry requires confirmation through annual post closure monitoring that impact to groundwater and surface water resources do not exceed the maximum contaminant levels specified within its Reasonable Use Concept and Provincial Water Quality Objectives. In some landfills, air quality may also be an important consideration.

3.2 Methodology for closure

3.2.1 Expected leachate quality and quantity

In order to satisfy the Reasonable Use Concept, the landfill must have an adequate attenuation zone contained within the landfill property to manage the leachate generated from the waste. The leachate strength at the property boundary is dependent on the dilution potential within the attenuation zone and the initial concentration and volume of leachate generated. The dilution potential is governed by the physical characteristics of the attenuation zone while the volume and concentration of leachate is governed by the

physical characteristics of the waste mound and its cover material. Generally, a landfill with a large attenuation zone does not require an engineered cover to stay in compliance with Ministry guidelines. Alternatively, a landfill with a small attenuation zone may require a thick final cover of low permeability soil or a synthetic membrane to reduce leachate volume to stay in compliance with Ministry guidelines.

In eastern Ontario, landfills using minimum cover designs are expected to allow between 200 to 250 mm. of infiltration through its cover. Using an infiltration of 200 mm. and a closed landfill footprint of 1.14 hectares, the Nation Municipality landfill would be expected to produce an average of 2280 cubic metres of leachate per year. The attenuation zone described in section 5.6 must be sufficiently large to manage this volume.

3.2.2 Description and restrictions on use of attenuation zone

The Nation Municipality proposes to use the 20.4 hectare parcel of land identified as "Natural attenuation zone" in Figure 7 to manage the leachate generated at this landfill. Unless otherwise approved by the Ministry, the Nation Municipality during the contaminating lifespan of the landfill (25 years) shall refrain from doing the following activities within the attenuation zone;

- extract water for consumption or irrigation purposes,
- erect any structure that would pose an explosion hazard or inhibit implementation of future remedial measures,
- construct new drainage ditches, install tile drainage or grant an easement for utilities that could discharge contaminated groundwater to nearby watercourses

3.2.3 Landfill Gas

Landfill gas is generated by the decomposition of waste and is a process that will continue at this landfill for many years even though final cover is placed over the waste. Section 15(1) of Regulation 232/98 requires that all landfills with more than 3 million cubic metres of total waste disposal volume be equipped with facilities for the collection and for the burning or use, of landfill gas generated by the site during site operation and following site closure. The total waste disposal volume of the Nation Municipality landfill is 34,200 (147.5 metres by 240 metres long) cubic metres and the requirement to have a gas collection system does not apply.

The potential for landfill gas migration needs to be considered given the permeable nature of the soils underlying the waste and its continuity on surrounding properties. As shown in Figure 2, the nearest house/ structure is located 875 metres from the closed waste footprint and as such does not represent an explosion hazard. Any land use within 500 metres of the waste footprint could be considered to be within a zone potentially impacted by the landfill operation.

3.2.4 Selection of cover type

Given that a suitable attenuation zone is expected to be put in place to manage the leachate and there is minimal potential for impact by gas migration, the final cover design should consists of the minimum Ministry requirements, as described in section 29 of Regulation 232/98 and section 5.3 below.

3.2.5 Intended end use

Table 1 describes the existing land use surrounding the landfill.

Table 1
Existing land use surrounding landfill

Direction	Description
North	Bush
South	Road allowance for local road
East	Open field used for agriculture

West	Bush

The intended final use of the landfill is to return the landfill to natural vegetation that is visually compatible with surrounding land use. This will be done by shaping the existing waste mound to provide stable long term sideslopes and applying sufficient cover to sustain vegetative growth.

4.0 Approvals

4.1 Amendment to Certificate of Approval and review by MOE

An amendment to the Certificate of Approval is required to reflect the closure and post closure activities at the landfill. The Nation Municipality shall ensure that a written report on activities for the closure of the site and post closure care is prepared not later than the date 90 per cent of the total waste disposal volume is reached or two years before the anticipated date of closure, whichever comes first. This report (including the design drawings) and a completed application form supported by a resolution of Council are to be submitted to the Ministry of the Environment for review and approval for closure.

4.2 Amend Zoning, Official Plan and municipal by-laws

The Nation Municipality shall ensure that the total site area of the landfill and the attenuation zone are incorporated into the zoning by-law and Official Plan of the municipality and the UCPR. As a minimum, the zoning by law should reference the restrictions listed in section 3.2.2, the setback distances required for protection against gas migration, and the anticipated duration (25 years) of the contamination.

The Nation Municipality should ensure that the application for the amendment to the Certificate of Approval for the closure accurately reflects the size of the waste footprint (2 ha.), the total site area of the landfill (30 ha.), including the attenuation zone (20.4 ha.). The municipality has purchased additional property (the Kampaurios) but has not requested an amendment to the Certificate to include the additional land as part of the landfill property.

The Nation Municipality should revise its waste by-law to reflect the closure of this landfill and the fact that it no longer accepts waste at this site. It should specify penalties for illegal dumping at this location.

4.3 Permission to access private land

All closure work is restricted to municipal property and no permission is required to access private land.

5.0 Closure Details

5.1 Site plan, facilities and surrounding land uses

The aerial photo shown in Figure 2 identifies the landfill site and surrounding land uses (as described in Table 1). The area surrounding the landfill is rural and there are no residences within 500 metres of the waste footprint. The only impact foreseen by closure activities may be damage to the roads from haulage of the borrow material.

5.2 Final site contours and cross sections

Figure 5 shows the contours for final cover. Some shaping and waste relocation will be required to achieve the 4H:1V sideslopes and the 20H:1V topslope.

Figure 6 provides cross sections at several locations.

5.3 Cover material description, quantities and approved sources

Table 2 provides a description of the type and quantities of soil material required for closure.

Table 2
Soil Material Quantities

Description	Area – sq.m.	Thickness –m.	Quantity	Specification	Source
Borrow	11400	0.6	6840 c.m.	OPSS	Nearby South Plantagenet pit
Topsoil	11400	0.15	1710 c.m.	OPSS 570	Local Source
Seeding	11400	N/A	115 kg.	OPSS 572	Local Source

5.4 Shaping of waste

Approximately 4800 cubic metres of waste will require shaping to achieve the desired sideslope and topslope. The final cross section and elevations are designed to achieve a balanced cut and fill. No waste material is to be removed from the landfill.

5.5 Installation of monitors (air and groundwater) and protection of existing monitors

While gas migration is not considered a serious threat, as a precaution, no structures should be erected within 100 metres of the toe of the future waste footprint. Given that the final design allows for a permeable cover, gas vents on the final cover are not required.

Figure 10 shows the location of groundwater monitors. The closure does not affect any of the existing monitors. The Contractor completing closure will be requested to find and flag with fluorescent tape all monitors within the landfill before commencing any work on site.

5.6 Buffer areas and attenuation zone

The Ministry requires a 100 metre buffer between the toe of the waste and the property boundary. The buffer distance can be reduced to 30 metres if a report shows the landfill has adequate space for vehicle entry, exit, turning, access to all areas of the site; adequate space for anticipated structures, equipment and activities; adequate space to ensure landfill operations do not have any unacceptable impact outside the site.

With regard to the above at this landfill, 100 metre buffers are specified for the east and north limits while 95 metres and 50 metres wide buffers are specified along the west and south limits respectively.

5.7 General site cleanup

As part of the closure activities, the Contractor shall undertake a general cleanup of the entire site to remove all wind blown debris, remove or demolish the custodian shelter, recycle tires, recycle all scrap metal, recycle any propane tanks and lead acid batteries. An inspection of the drainage ditches shall be done and the ditches cleaned as necessary to ensure positive drainage.

All berms or soil stockpiles within the cleared area surrounding the waste footprint that are not required for closure purposes or required for visual screen shall be levelled or used as borrow for cover.

5.8 Clearing

Figure 7 shows the area where trees will need to be cleared for activities such as flattening the waste sideslopes, excavating drainage ditches or equipment movement. Approximately 600 square metres of area require clearing.

5.9 Site drainage, grading and piping

Figure 7 shows the areas where site improvements are required. Site improvements consist of the following activities;

- ditch relocation along the west side of the existing waste footprint
- filling in the existing ditch along the east side of the waste footprint
- installing protective steel casing on groundwater monitors

5.10 Signs

A new sign approximately 122 cms high by 244 cms wide on 19 mm. thick painted plywood shall be erected at the entrance to the landfill near the location shown in Figure 7. The sign shall be supported by two 10 cms square pressure treated wood posts extending into the ground at least 1.5 metres.
Figure 8 identifies the wording that should appear on the sign.

5.11 Gate, lock and keys, physical barriers and security

Once closure is completed, the only activities that are planned for the site are:
- annual groundwater monitoring,
- maintenance for the final cover.

As a minimum, the Nation Municipality should replace the padlock and keys to the existing gate to ensure that only authorized personnel have access to the site. Table 3 provides recommendations for improving security and preventing scavenging and illegal dumping. Since most of the cover maintenance will occur within two years following closure, the Nation Municipality at this time may want to improve security further by constructing a berm across the road at the site entrance.

Table 3
Security Measures

Item	Condition and description	Improvements under closure
Gate and supports	Gate in adequate condition but supports are tilted.	Adjust gate supports so that gate is level.
Chain , padlock and keys	Chain padlock in satisfactory condition. Number of keys available is unknown.	Padlock to be replaced.
Ease of entry around gate	Satisfactory	None.
Structures on site & security	Custodian shelter in poor condition. No other security issues.	Remove custodian shelter.
Fences	Fence in poor condition along road and along east side.	New fence along south side and repair fence along the east side.

5.12 Fences

The Ministry recommends that the landfill site be fenced. Repairs are required to the 680 metres of fence along the east side and 150 metres of new fence is required along the south side. The fence shall generally consist of page wire on steel posts and be installed according to OPSS 541.

5.13 Landscaping and berms

Landscaping shall generally consist of the creation of a screen to improve visual aesthetics and may include;

- planting of trees
- creating berms

Since the landfill is in a rural area and is adequately screened from the road by the existing trees, no further trees or berms are required.

5.14 Rodent control

A rodent control program using a licensed exterminator should be implemented (continued) at the landfill for a period of one year following closure. Upon the exterminator's recommendation, this program should be extended for a second year if rodents still persist after one year. This recommendation should be included in the post closure monitoring report.

5.15 Roads, traffic and noise

Closure will require that significant quantities of soil be hauled to the landfill. To minimize the impacts from hauling, the following requirements will be enforced;

Table 4
Mitigative Measures

Item	Recipient/location	Improvement
Noise	Residences along road	Hauling can only be done between the hours of 7:00 a.m. and 6:00 p.m.
Damage to road	Concession 15 road	Construction to be restricted to the period June to September.
Traffic hazard	Entrance to landfill	Temporary signs to be placed on both approaches to landfill entrance to indicate truck turning.

5.16 Notices and consultation

The Nation Municipality shall post a bilingual Notice in the local newspaper advising residents that the landfill is permanently closed and no further waste is to be accepted at this site. The Notice should inform residents where to take future waste and advise them that penalties will be laid against those found guilty of illegal dumping.

5.17 Phasing of closure activities

All closure activities will be completed in one year. A guarantee of one year following closure will be requested for the seeding.

5.18 Estimated closure cost (Year 1999)

The estimated cost for closure is described in Table 5

Table 5
Closure Costs (estimated in 1999 $)

Item	Unit	Quantity	Unit Cost	Total Cost $
Clearing	sq. meter	600	2	1200
Drainage	Metre	320	5	1600
Shaping and grading	c.m.	4800	2	9600
Borrow	c.m.	6840	8	54720
Topsoil	c.m.	1710	12	20520
Seeding	Kg	115	100	11,500
Fence	M	500	10	5000
Culvert	M	Ø		0
Plant material (trees)	Each	Ø		0
Gate, padlock, keys	l.s.	1	50	50
Signs	Each	1	250	250
Site improvements	l.s.		10,000	10,000
Gas monitors	Each	Ø		0
Steel casing for groundwater monitors	Each	5	500	2500
Granular A	Tonne	20	9	180
Granular B Type II	Tonne	20	8	160
Calcium chloride flake	Kg	30	20	600
Survey				2000
Engineering				2000
Tender services				1500
Contract supervision				2500
Subtotal				127320
GST				8912
Total				136,232

6.0 Post Closure Monitoring Programs

6.1 Contaminating Life Span

Section 46 of the EPA states that no land use should occur within the landfill for a minimum of 25 years following closure, unless approved by the Ministry. The municipality's zoning by law and Official Plan should contain some reference to the date on which the twenty five year ends.

6.2 Groundwater monitoring schedule

The annual groundwater monitoring program shall consist of a spring and fall monitoring of the monitors shown in Figure 10 for the parameters described in Table 6.

6.3 Surface water monitoring schedule

The annual surface water monitoring program shall consist of a spring and fall monitoring of the locations shown in Figure 10 for the parameters described in Table 7.

6.4 Air quality monitoring schedule

No air quality monitoring is required.

6.5 Maintenance inspections

A maintenance inspection should be done at least once a year, preferable during the month of September to inspect and report on condition of drainage and ditches, erosion of cover, settlement within the waste footprint, vegetation, rodents, wind blown debris, fences, and indications of scavenging or trespassing.

6.6 Annual Reporting

Section 32 of Regulation 232/98 requires the preparation of an annual post closure monitoring report to be submitted to the Ministry. The report should summarize the results of the groundwater and surface water monitoring and maintenance inspections.

7.0 Contingency Plan for groundwater and surface water programs

A contingency plan to deal with groundwater and surface water monitoring during post closure shall be developed by the hydrogeological consultant and submitted for review with the first post closure monitoring report.

Ministry of the Environment
Ontario

Provisional Certificate No. A 471802

PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE

Under The Environmental Protection Act, 1971 and the regulations and subject to the limitations thereof, this Provisional Certificate of Approval is issued to:

Corporation of the Village of St. Isidore de Prescott
P.O. Box 9
St. Isidore de Prescott, Ontario
K0C 2B0

for the use and operation of a 2.0 hectare landfilling site.

all in accordance with the following plans and specifications:

1. General location map entitled "Waste Disposal Site"
2. Site plan entitled "South Plantagenet Twp., Lot 3, Concession XV, Village of St. Isidore W.D.S.".

Located: S.W.1/4 Lot 3, Concession 15
Township of South Plantagenet
County of Prescott and Russell
"as more particularly described in Schedule "A" attached hereto"

which includes the use of the site only for the disposal of the following categories of waste (NOTE: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval) domestic and commercial waste.

and subject to the following conditions:

1. No operation shall be carried out at the site after sixty days from this condition becoming enforceable unless this Certificate including the reasons for this condition has been registered by the applicant as an instrument in the appropriate Land Registry Office against title to the site and a duplicate registered copy thereof has been returned by the applicant to the Director.

Dated this 24th day of April, 1980.

Director, Section 39,
The Environmental Protection Act, 1971

Ministry of the Environment
Ontario

Provisional Certificate No. A 471802

PROVISIONAL CERTIFICATE OF APPROVAL
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K0C 2B0

for the use and operation of a 2.0 hectare landfilling site.

all in accordance with the following plans and specifications:

1. General location map entitled "Waste Disposal Site"
2. Site plan entitled "South Plantagenet Twp., Lot 3, Concession XV, Village of St. Isidore W.D.S.".

Located: S.W.1/4 Lot 3, Concession 15
Township of South Plantagenet
County of Prescott and Russell
"as more particularly described in Schedule "A" attached hereto"

which includes the use of the site only for the disposal of the following categories of waste (NOTE: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval) domestic and commercial waste.

and subject to the following conditions:

1. No operation shall be carried out at the site after sixty days from this condition becoming enforceable unless this Certificate including the reasons for this condition has been registered by the applicant as an instrument in the appropriate Land Registry Office against title to the site and a duplicate registered copy thereof has been returned by the applicant to the Director.

Dated this 24th day of April, 1980.

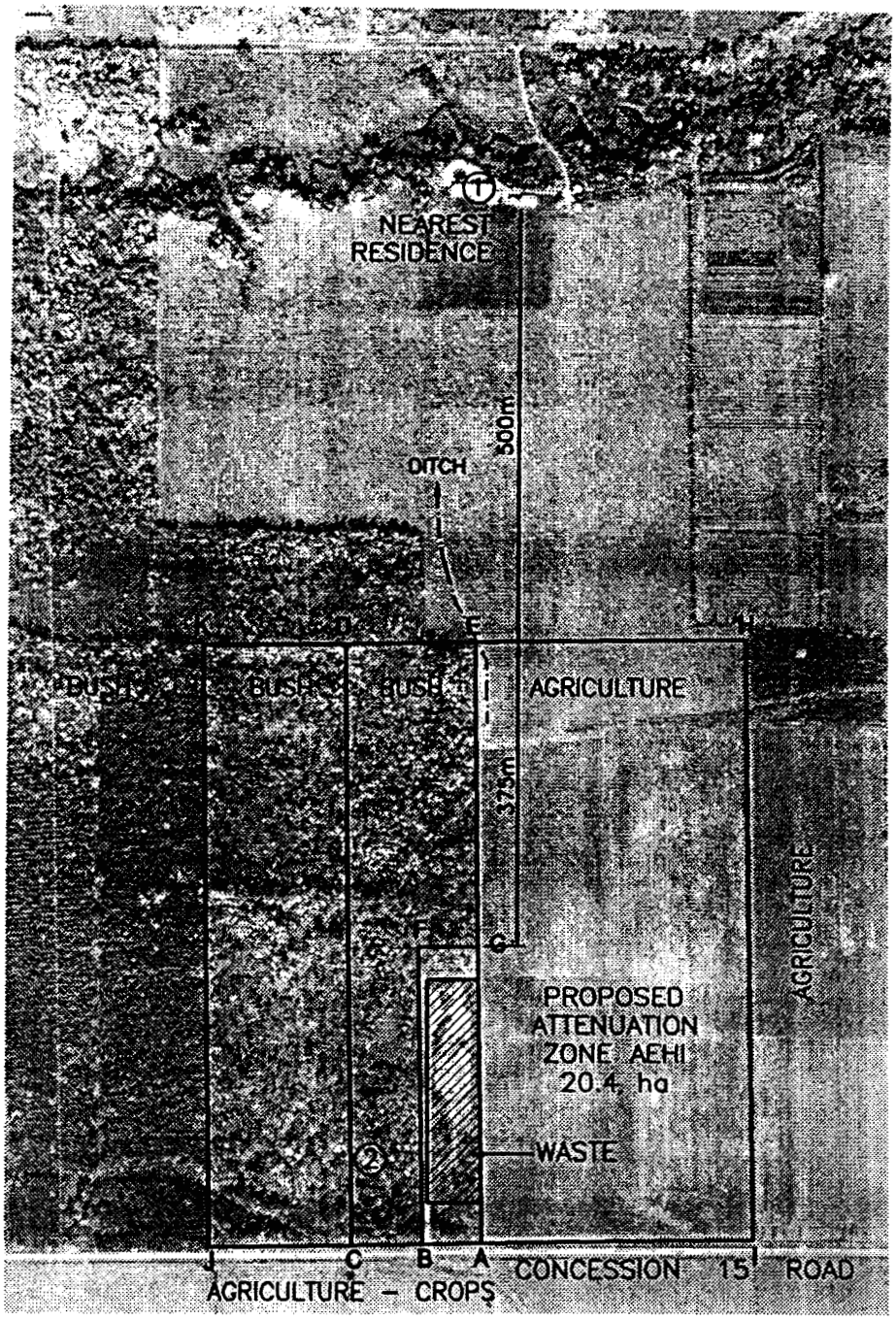
Director, Section 39,
The Environmental Protection Act, 1971

Stantec

Client/Project
NATION MUNICIPALITY
VILLAGE OF ST. ISIDORE
WASTE DISPOSAL SITE

Figure No.
1.0

Title
KEY PLAN



NOTES:

1. NATION MUNICIPALITY OWNS ALL LAND CONTAINED WITHIN AREA AJKE.
2. 1980 CERTIFICATE OF APPROVAL SPECIFIES A 2.0 HECTARE LANDFILL SHOWN AS ABFG
3. BUFFER ALONG WEST AND NORTH SIDES 8 ha, AREA BCDEGF
4. PROPOSED ATTENUATION ZONE ON EAST SIDE 20 ha, AREA AEHI

LOCATION ON MAP:

(1) NEAREST RESIDENCE–875 METRES FROM CLOSED FOOTPRINT

(2) FORMER HOUSE OWNED BY KAMPOURIOS NOW DEMOLISHED

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Client/Project

NATION MUNICIPALITY

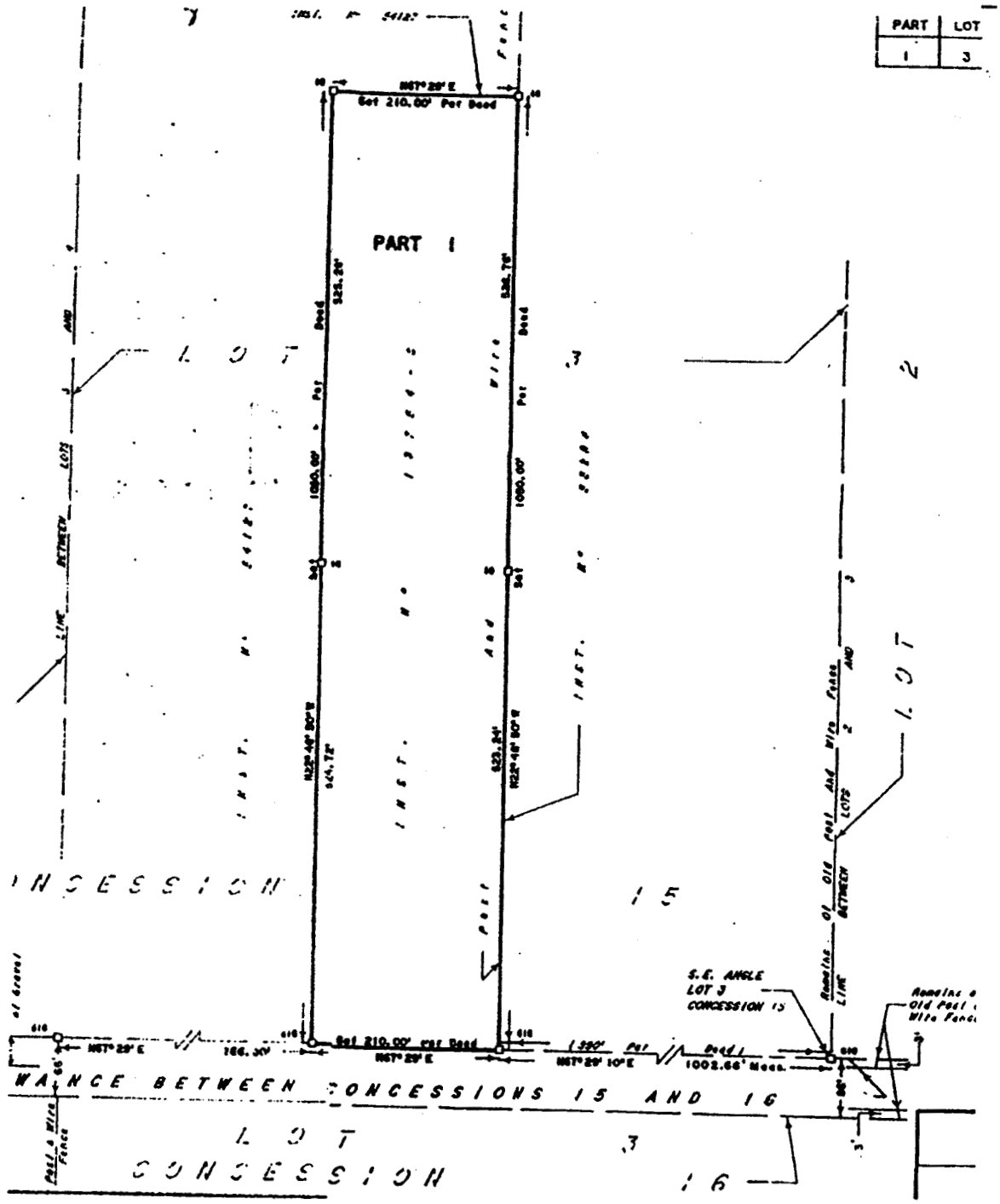
VILLAGE OF ST. ISIDORE
WASTE DISPOSAL SITE

Figure No.

2.0

Title

SITE PLAN AND SURROUNDING LAND USE



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Client/Project
NATION MUNICIPALITY
VILLAGE OF ST. ISIDORE
WASTE DISPOSAL SITE

Figure No.
3.0

Title
LEGAL PLAN

Golder Associates Ltd.

1796 Courtwood Crescent
Ottawa, Ontario, Canada K2C 2B5
Telephone (613) 224-5864
Fax (613) 224-9928

February 19, 1999

P99-2807

CONFIDENTIAL

VIA FACSIMILE: (613) 678-3762

Shelly Barristers, Solicitors and Notaries
86 High Street, P.O. Box 190
Vankleek Hill, Ontario
K0B 1R0

Attention: Mr. D. Shelly

RE: 1999 GROUNDWATER AND SURFACE WATER
MONITORING PROGRAM
NATION LANDFILL
FORMER VILLAGE OF ST. ISIDORE LANDFILL SITE

Dear Sir:

The purpose of this correspondence is to respond to the January 13, 1999 letter from Stantec Consulting Ltd. which requested a description, cost and schedule for the 1999 groundwater and surface water monitoring program at the Nation Landfill Site.

SCOPE OF WORK

The objectives and scope of the 1999 groundwater and surface water monitoring program along with the assumptions made in the preparation of this submission are as follows:

1. Groundwater and surface water monitoring sessions will be conducted in the spring (April) and fall (October) of 1999 for the purpose of defining the seasonal variations in groundwater levels and groundwater and surface water quality in the area of the site.

2. No surface water monitoring has taken place at the site and thus an appropriate surface water monitoring program will be initiated with the spring monitoring session with an allowance for the collection of six (6) surface water samples during each monitoring session.

3. As of June 1997, there were 19 operational groundwater monitoring wells in the area of the site and each of these monitoring wells will be incorporated into the spring and fall monitoring sessions for the purpose of collecting groundwater levels and samples.

4. Within this scope of work, there is no allowance for the replacement of the monitoring wells at boreholes 94-9, 94-10, 96-11 and 96-12 which could not be located during the June 1997 monitoring session as they are buried in the field to the east of the site.

5. Each of the groundwater and surface water samples collected during the spring and fall sessions would be submitted to a private laboratory for analysis of a comprehensive suite of chemical and physical analyses for parameters typically associated with municipal landfill leachate.

6. The data obtained during the monitoring program undertaken by Golder Associates will be incorporated into a 1999 monitoring report for the landfill site. The report will discuss both the physical and contaminant hydrogeological setting of the landfill site. Information included in the physical hydrogeology section of the report will include a discussion of the groundwater levels and the inferred direction(s) of groundwater flow. Information included in the contaminant hydrogeology section of each report will include a discussion of groundwater quality and surface water quality in the vicinity of the site, the inferred areal extent of landfill leachate impact on the groundwater and surface water regimes based on the available data and an updated site assessment under MOE Guideline B-7 (the "Reasonable Use Concept").

PROPOSED SCHEDULE AND COST ESTIMATE

Golder Associates is prepared to commence this project upon receipt of written authorization to proceed with the monitoring program. It is envisaged that the duration/timing of the various activities comprising the 1999 monitoring program could be as outlined in the following schedule:

Project Authorization	March 1999
Site Visit to Establish Surface Water Sampling Stations	April 1999
Spring 1999 Groundwater and Surface Water Monitoring Session	April 1999
Receipt and Review of Laboratory Analyses	May 1999
Fall 1999 Groundwater and Surface Water Monitoring Session	October 1999
Receipt and Review of Laboratory Analyses	November 1999
Preparation of 1999 Monitoring Report	December 1999/January 2000
Submission of Final Report	January 2000

Compensation for the services of Golder Associates on this project would be based on hourly charge rates for the personnel involved in accordance with the fee schedule established by Professional Engineers Ontario. A breakdown of the cost estimate (excluding GST) to complete the 1999 monitoring program at the Nation Landfill is provided in Table 1. This type of program is largely field work, with a significant portion of the costs being disbursements to the analytical laboratory. The cost estimate provided in Table 1 does not include an allowance for meeting(s). It is assumed that the dedicated groundwater sampling device in each of the monitoring wells is functional and will not require replacement.

Should you have any questions on any aspect of this submission, please do not hesitate to contact the undersigned. Golder Associates looks forward to the opportunity to provide continuing hydrogeological consulting services to yourself and the Nation Municipality on this interesting project.

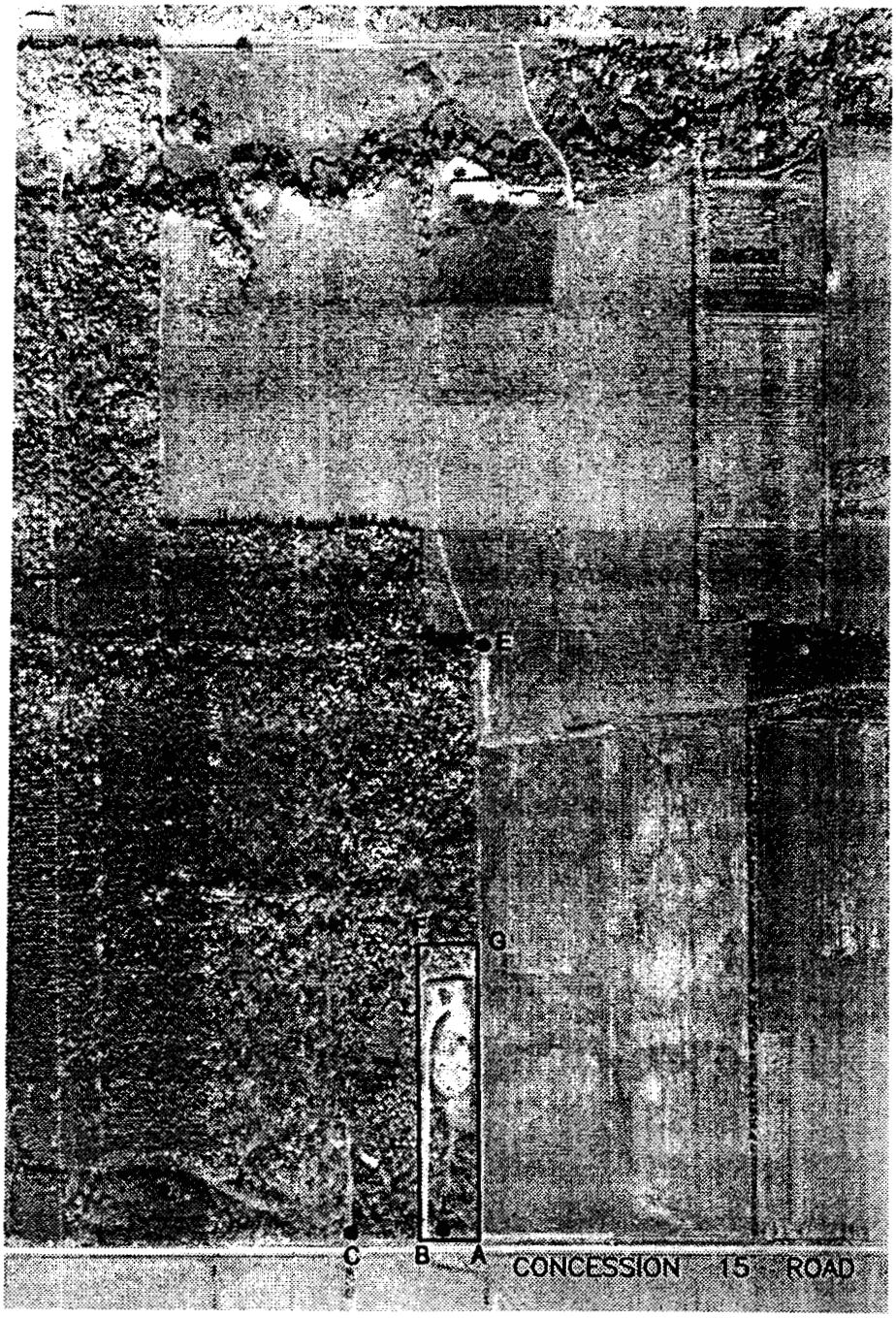
Yours truly,

GOLDER ASSOCIATES LTD.
Environmental Division

K.A. Marentette, M.Sc.
Senior Hydrogeologist/Associate

KAM:BCS:dc
Let-003.doc

c.c. Mr. G. Lalonde, P.Eng., Stantec Consulting Ltd. (613) 722-2799



LOCATION	DESCRIPTION
ABGF	CLEANUP OF WIND BLOWN DEBRIS
ABGF	CLEANUP OF SCRAP METAL, TIRES, BATTERIES, PROPANE TANKS, WOOD SCRAPS AND BRUSH
ABGF	LEVEL ANY BERMS
L	ERECT SIGN NEAR ENTRANCE DIRECTLY SOUTHEAST OF GATE AT ROAD RIGHT-OF-WAY LIMIT
L	ADJUST SUPPORTS FOR GATE
AC	ERECT PAGE WIRE FENCE
AE	REPAIR EXISTING FENCE
IA	REPAIR EXISTING FENCE
AG	BACKFILL EXISTING DITCH-LEAVE SWALE DRAINING NORTHWARD AT MINIMUM SLOPE OF 0.2%

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Client/Project
NATION MUNICIPALITY
VILLAGE OF ST. ISIDORE
WASTE DISPOSAL SITE

Figure No.
7.0

Title
SITE IMPROVEMENTS

MUNICIPALITÉ NATION MUNICIPALITY

This lanfill is permenently closed and access is prohibited and enforced under by-law 99-

Ce site d'enfouissement est fermé en permanence et tous accès est interdit et mis en force sous le réglement 99-

Certificate of Approval (authorization) # 471802

En cas d'urgene / for emergencies - telephone 764-5444

Stantec

Client/Project
NATION MUNICIPALITY
VILLAGE OF ST. ISIDORE
WASTE DISPOSAL SITE

Figure No.
8.0

Title
SIGN

NOTICE

NATION MUNICIPALITY

The Nation Municipality now owns and operates six landfills within its municipal boundaries. During 1998, the municipality closed two of its landfills; one serving the former Village of St-Isidore that reached capacity; and the second near the hamlet of St-Albert.

All residents that formerly used the St-Isidore landfill on the 15th Concession (of the former South Plantagenet Township) are advised that no future waste will be accepted at this location. All future waste should now be brought to the landfill on Concession 14 (former South Plantagenet landfill) on Wednesdays between _____ and on Saturdays between _____.

The St-Isidore landfill waste will be shaped and capped with clay during 1999 and permanently closed to all future use although groundwater monitoring will continue for many years.

Municipal by-law _____ imposes a penalty for anyone found guilty of trespassing or illegal dumping of waste on this property.

If you require any further information, please contact Mrs. M. McCuaig at 764-5444.

Valerie\letmar99\4793notice.doc

GOLDER ASSOCIATES LTD.
1796 Courtwood Crescent
Ottawa, Ontario K2C 2B5

Fax: (613) 224-9928 Tel: (613) 224-5864

FACSIMILE TRANSMISSION

Date sent: March 2, 1999 Our ref.: P99-2807

TO: Stantec

FAX: NO.: 722-2799

ATTN: Gerry Lalonde, P.Eng.

FR: Kris Marentette

RE: Provision of Protective Casings
Nation Landfill

Total number of pages (including this cover page): 1

****

MESSAGE

A summary of the borehole locations/monitoring wells requiring protective casings is provided below.

Borehole Location/Monitoring Well	No. of Protective Casings
91-2	1
91-3	1
91-4	1
91-5	1
94-6	1
94-7	1
94-8	1
94-9 (Stantec to Locate)	1
94-10 (Stantec to Locate)	1
96-11 (Lost in Field)	0
96-12 (Lost in Field)	0
97-13	1
97-14	1
97-15	1
97-16	2
Total	*14*

The borehole locations are shown on Figure 2 in Golder Associates report entitled *Phase IV hydrogeological Investigation, St. Isidore Landfill, Township of South Plantagenet, Ontario*, dated September 1997. I don't have a schematic showing how to install a protective casing.

The steel protective casings should be lockable and must be installed without altering the height of the monitoring well casing unless the new top of casing (after cutting the pipe) is re-surveyed. We could install the protective casings during the 1999 monitoring program if you think this is preferable over including it as an item in the closure contract. I will leave this up to you.

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ORIGINAL TO BE SENT: YES ☐ NO ☑ BY: MAIL ☐ COURIER ☐